U. S.
OFFICIAL GAZETTE
UNITED STATES
PATENT OFFICE
VOL. 926
SEPTEMBER
1974

MICRO PHOTO DIVISION

BELL & HOWELL

UNITED STATES
DEPARTMENT OF
COMMERCE
PUBLICATION

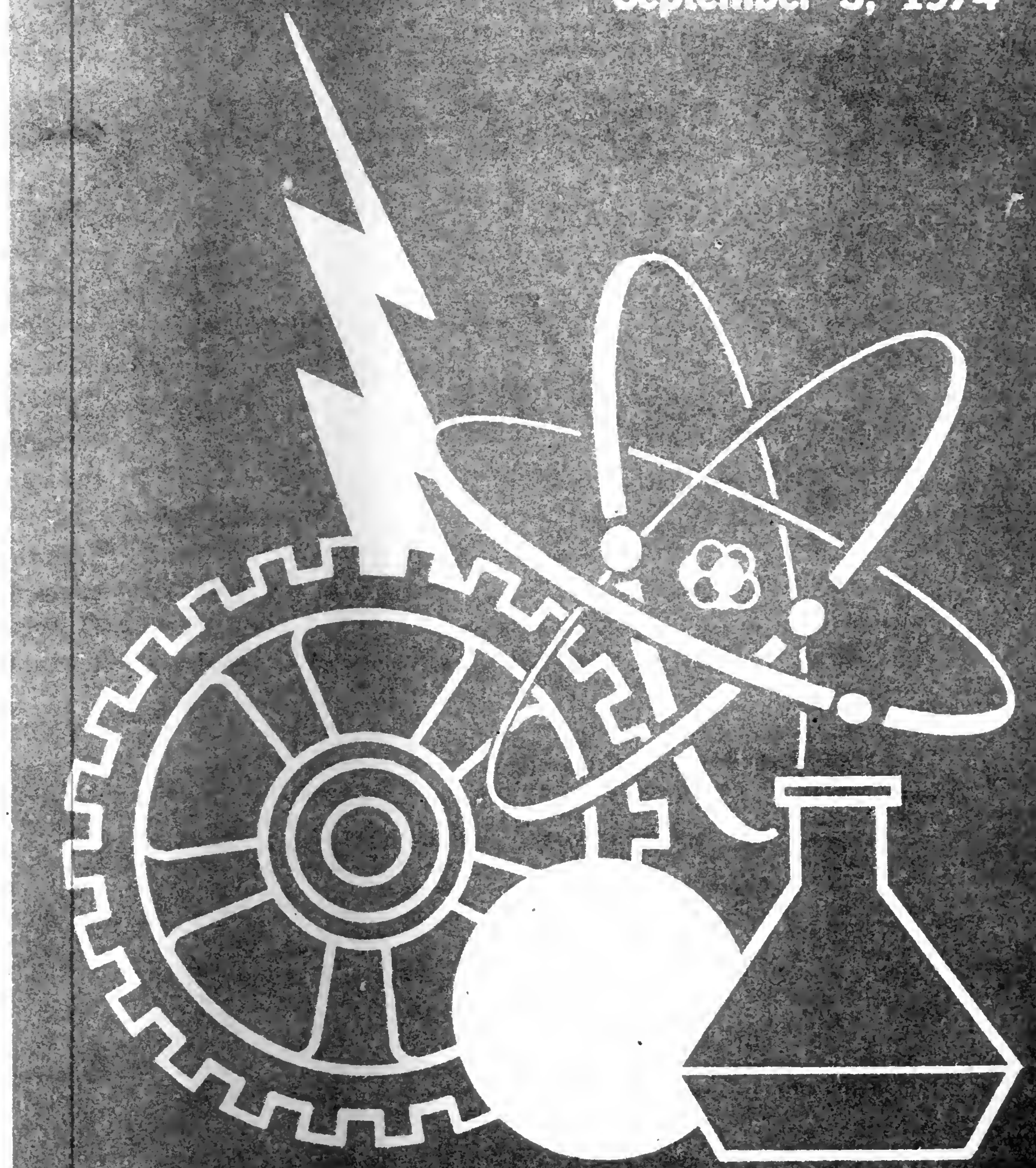
Vol. 926 Number 1

OFFICIAL GAZETTE

of the
UNITED STATES PATENT OFFICE

PATENTS

September 3, 1974



PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

U. S.
DEPARTMENT
OF COMMERCE

Patent
Office

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

September 3, 1974 Volume 926 Number 1

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PATENT OFFICE NOTICES

Calculation of Issue Fees

Effective October 1, 1974, the Patent Office in calculating the balance of issue fee due, after payment of the Base Issue Fee specified by the Notice of Allowance, shall charge at the rate of $10 a page, as provided in 35 USC 41, for each printed page of specification (including claims) for which payment has not theretofore been received. As the Base Issue Fee includes a $10 charge for one printed page of specification, a balance of fee will be due for each patent which consists of more than one printed page. A "page" consists of one side of a printed sheet containing any amount of specification (including claims). A notification of the Balance of Issue Fee Due will be mailed in each such case along with the original patent grant.

The notice of February 4, 1970 published in the OFFICIAL GAZETTE [872 O.G. 1] and reproduced in the current "Consolidated Listing of Recent Official Gazette Notices . . ." [Item 53] is rescinded as of close of business September 30, 1974.

WILLIAM I. MERKIN,
Aug. 1, 1974. *Assistant Commissioner for Administration.*

Manual of Patent Examining Procedure, 3rd Ed.

CHANGE NOTICE

Series No. 42–1
(Follows Change 41–1)

Reference: MPEP 713.04 August 9, 1974

Record of Interviews in Patent Applications

Applicants and their attorneys or agents are reminded that a complete written statement as to the substance of any interview with regard to an application must be made of record in the application, whether or not an agreement with the examiner was reached at the interview. The necessity to so complete the record of an application is emphasized by the requirements of Rules 2 and 133(b). Rule 2 provides in part that

> "All business with the Patent Office should be transacted in writing.
>
> * * * * *
>
> "The action of the Patent Office will be based exclusively on the written record in the Office."

Obviously, the action of the Patent Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews. In addition to the requirement of Rule 2, Rule 133(b) is specific that

> "In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for response to Office actions as specified in Rules 111, 135."

Applicants and their attorneys or agents are responsible for compliance with the requirement for a complete written statement except in those situations in which it is agreed that the examiner will issue an Office action upon the application without further written response on behalf of applicant. In those situations, the examiner will make the substance of the interview of record in the Office action. The examiner may also complete the record of an interview if significant matters are inadvertently omitted from a written statement filed on behalf of applicant.

Noncompliance on behalf of applicant with the above noted requirement for a complete written statement when filing a response, will result in the applicant being given one month from the date of the notifying letter or the remainder of any period for response, whichever is longer, to complete the response and thereby avoid abandonment of the application (Rule 135(c)). Except for the paragraphs under the heading "EXAMINER TO CHECK FOR ACCURACY" the substance of this notice supersedes Section 713.04 of the Manual of Patent Examining Procedure.

WILLIAM FELDMAN,
Deputy Assistant Commissioner for Patents.

Citation of Prior Art by Applicants

The purpose of this notice is to set forth positive guidelines for applicants, their attorneys and agents who desire to submit prior art for consideration by the Patent Office. Such citations of relevant art are welcomed and are encouraged. In order that they may be most effectively considered by the examiner, however, with as little disruption of the regular examination process as possible, it is requested that they be submitted in accordance with the following guidelines.

(1) Citations should be submitted within three months after the application filing date if possible. Any citation made after the first action on the merits (if this occurs more than three months after filing) should be accompanied by an explanation of why it was not earlier presented. This may take the form of a statement that it was made as soon as the art or other material was discovered, or as soon as its pertinency was appreciated, indicating the date of discovery of the cited material or its pertinency.

(2) Full text copies of the pertinent portions of all such prior art citations or other material relevant to patentability of the claimed invention should be supplied, whether the citation is made in a separate paper or in the specification of the application. This will be unnecessary in the case of pending or abandoned United States applications (e.g. Defensive Publications). In the case of publications, a copy of the title page, its copyright notice or other indication of a publication date, and copies of the entire pages which contain the text of the relevant material will be sufficient.

While patent copies are, of course, available in the Patent Office, failure of the applicant to include copies of the cited art means that the examiner must interrupt his examination until copies can be ordered and received. Since the person making the citation will have copies in hand, an overall saving in time and more expeditious examination will result if copies are supplied with the citation.

(3) If the reference is not in English, a translation of its pertinent portions should be included.

(4) Accompanying each citation should be an indication of its pertinency to the claimed subject matter, together with any reasons applicant may wish to point out why the claims are considered to be patentable over the cited material.

All citations of prior art or other material submitted in accordance with the above guidelines and submitted before all claims have been indicated as allowable will be fully considered by the examiner.

While the Patent Office will not knowingly ignore any prior art which might anticipate or suggest the claimed invention, no assurance can be given that cited art or other material not submitted in accordance with these guidelines will be considered by the examiner. Consequently, any patent issuing on the application in question would not be expected to be accorded the usual presumption of validity with respect to such cited art or material.

After the claims have been indicated as allowable by the examiner, e.g., by the mailing of an *Ex parte* Quayle action, a notice of allowability (POL–327), an examiner's amendment (POL–37), or a Notice of Allowance, any citations submitted will be placed in the file. Since prosecution has ended, however, such submissions will not ordinarily be considered by the examiner unless the citation is accompanied by:

(*a*) A proposed amendment cancelling or further restricting at least one independent claim and narrowing the scope of protection sought;

(*b*) A timely affidavit under Rule 131 with respect to the material cited; or

(*c*) A statement by the applicant or his attorney or agent that, in the judgment of the person making the statement, the prior art or other material cited raises a serious question as to the patentability of the claimed subject matter.

If the material is submitted after the base issue fee has been paid, it must also be accompanied by a petition under Rule 183 (37 CFR 1.183) requesting a waiver of Rule 312 (37 CFR 1.312). Such petition, if granted, would result in review of the art by the examiner and possible entry of the amendment.

Submitted citations will not in any way diminish the obligation of examiners to conduct independent prior art searches, or relieve examiners of citing pertinent prior art of which they may be aware, whether or not such art is cited by the applicant. Nothing in this notice is intended to relieve applicants of any responsibility they may have to cite known prior art to the Patent Office.

If the specification or a separate paper filed in the application contains citations relating to background material, applicant has the responsibility of determining whether or not such material is sufficiently relevant to the claimed invention that full compliance with these guidelines is necessary.

Prior art submitted by applicant in the manner provided herein will not be supplied with an Office action, but will be listed on the Form PO–892, "Notice of References Cited," along with other prior art relied upon by the examiner during the examination. Only that prior art listed by the examiner on Form PO–892, will be printed on the patent. However, the complete listing of applicant's citations will be in the application file and will be available for inspection by the public after issuance of the patent.

Citations of prior art may be placed of record in the patented file after the grant of the patent at the request of the patentee (see Section 100(d) of Title 35, United States Code, for definition of patentee). Any such submissions by the patentee will be placed in the patented file without comment by the Patent Office. Citations submitted to the Patent Office by third parties will not be placed in the record of a patented file unless the party submitting the art certifies that he has sent the owner of record copies of the cited art and of his letter transmitting it to the Patent Office.

Prior Notices

This notice supersedes the notices of:
December 10, 1963 (797 O.G. 733)
April 24, 1964 (802 O.G. 601)
June 22, 1964 (804 O.G. 1)
July 24, 1964 (805 O.G. 294)
April 13, 1967 (837 O.G. 1032)

WILLIAM FELDMAN,
Aug. 12, 1974. *Deputy Assistant Commissioner for Patents.*

Inventor's Certificates in Oath or Declaration

[37 CFR Part 1]

EXTENSION OF TIME FOR FILING WRITTEN COMMENTS

The Patent Office is extending from August 1, 1974 to September 30, 1974. the closing date for the submission of written comments on its proposed revision of Title 37, Code of Federal Regulations, §§ 1.65 and 1.67, to require listing of inventor's certificates and applications therefor in oaths and declarations. Notice of proposed rulemaking was published in the Federal Register issued July 2, 1974, 39 FR 24375.

RENE D. TEGTMEYER,
July 23, 1974. *Acting Commissioner of Patents.*

Approved:
BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

[FR Doc. 74–17999; Filed 8–6–74; 8:45 am]

39 F.R. 28439

PROPOSED LISTING OF CERTAIN PRIOR APPLICATIONS

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6) as amended October 5, 1971 (85 Stat. 364), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.65 and 1.67.

Interested persons are invited to present their views, objections, recommendations, or suggestions in writing in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231 on or before August 1, 1974. No oral hearings will be held. Written comments or suggestions will be available for examination by interested persons at Crystal Plaza Building 3, Room 11C17a, Arlington, Virginia.

The proposed rule change is intended to implement the enforcement of that portion of Pub. L. 92–358, dated July 28, 1972, which relates to 35 U.S.C. 102(d). The text of Pub. L. 92–358 was printed at 918 O.G. 19. This Public Law amended subsection 102(d) of Title 35 of the United States Code to prohibit granting of a patent if the invention "was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for * * * inventor's certificate filed more than twelve months before the filing of the application in the United States." The amendment to 35 U.S.C. 102(d) became effective on February 25, 1974.

In order that all such prohibitions will be called to the attention of the Patent Office, it is proposed that §§ 1.65 and 1.67 of 37 CFR be amended to require the listing of certain prior applications for inventor's certificates in the same manner as certain prior applications for patents must be listed now.

The paragraphs, if amended as proposed, would read as follows:

§ 1.65 *Statement of applicant.*

(a)(1) The applicant, if the inventor, must state that he verily believes himself to be the original and first inventor or discoverer of the process, machine, manufacture, composition of matter, or improvement thereof, for which he solicits a patent; that he does not know and does not believe that the same was ever known or used in the United States before his invention or discovery thereof, and shall state of what country he is a citizen and where he resides and whether he is a sole or joint inventor of the invention claimed in his application. In every original application the applicant must distinctly state that to the best of his knowledge and belief the invention has not been in public use or on sale in the United States more than one year prior to his application or patented or described in any printed publication in any country before his invention or more than one year prior to his application, or patented or made the subject of an inventor's certificate in any foreign country prior to the date of his application on an application filed by himself or his legal representatives or assigns more than twelve months prior to his application in this country. He shall state whether or not any application for patent or inventor's certificate on the same invention has been filed in any foreign country, either by himself, or by his legal representatives or assigns. If any such application has been filed, the applicant shall name the country in which the earliest such application was filed, and shall give the day, month, and year of its filing; he shall also identify by country and by day, month, and year of filing, every such foreign application filed more than twelve months before the filing of the application in this country. (2) This statement (i) must be subscribed to by the applicant, and (ii) must either (*a*) be sworn to (or affirmed) as provided in § 1.66, or (*b*) include the personal declaration of the applicant as prescribed in § 1.68. See § 1.153 for design cases and § 1.162 for plant cases.

* * * * *

§ 1.67 *Supplemental oath or declaration for matter not originally claimed.*

(a) When an applicant presents a claim for matter originally shown or described but not substantially embraced in the statement of invention or claim originally presented, he shall file a supplemental oath or declaration to the effect that the subject matter of the proposed amendment was part of his invention; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than one year before his application, or in public use or on sale in the United States for more than one year before the date of his application, that said invention has not been patented or made the subject of an inventor's certificate in any foreign country prior to the date of his application in this country on an application filed by himself or his legal representatives or assigns more than twelve months prior to his application in the United States, and has not been abandoned. Such supplemental oath or declaration should ac-company and properly identify the proposed amendment, otherwise the proposed amendment may be refused consideration.

* * * * *

Dated: June 26, 1974.

C. MARSHALL DANN,
Commissioner of Patents.

Approved:
BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

[FR Doc. 74-15115; Filed 7-1-74; 8:45 am]

39 F.R. 24375

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,750,055, J. D. Huffines, REFUSE COMPRESSOR MECHANISM FOR VEHICLES, **filed** Nov. 6, 1972, D.C., N.D. Ohio (Cleveland), Doc. C–72–1206, *James Donle Huffines* v. *Peabody Galion, Inc., doing business as E-Z Pack.* Order rendering judgment in favor of the defendant, Feb. 8, 1974.

2,773,119, L. W. Parker, TUNING SYSTEM FOR RADIO AND TELEVISION RECEIVERS, **filed** Feb. 7, 1974, D.C., S.D. Fla. (Miami), Doc. 74–158–C JLK, *Louis W. Parker* v. *Sony Corporation of America.*

2,790,362, Higonnet and Moyroud, PHOTOCOMPOSING MACHINE; **3,332,617,** L. M. Moyroud, PHOTOGRAPHIC TYPE COMPOSING MACHINES, **filed** Sept. 16, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2278, *Photon, Inc.* v. *Compugraphic Corp. and Ottawa Publishing Co.* Enter order for entry of consent decree and order for injunction pursuant to agreement of all parties, Sept. 13, 1971.

2,827,325, B. G. Pugh, PERSONNEL AND CARGO LANDING NETS; **3,165,346,** same, LIFTING HARNESS FOR LANDING NET, **filed** Feb. 22, 1972, D.C., W.D. La. (Shreveport), Doc. 74–202–L, *Billy Gene Pugh* v. *Charles H. Roe.*

2,884,992, Spound and Martin, RECLINING CHAIR HEADREST CONSTRUCTIONS; **2,958,374,** same, AUTOMATICALLY PROJECTIBLE HEADREST; **2,982,340,** A. M. Spound, RECLINING CHAIR HEADREST CONSTRUCTIONS; **3,024,064,** same, **filed** Feb. 1, 1974, D.C., W.D. Va. (Lynchburg), Doc. 74–6, *Albert M. Spound, Joseph Spound and Morris Loeb* v. *Action Industries, Inc.*

2,925,719, Robbins and Linn, REFRIGERATING PACKAGE, **filed** June 8, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c1375, *Kwik-Kold, Inc.* v. *American Hospital Supply Corporation.* On stipulation of the parties pursuant to Rule 41(a)(1) case dismissed without prejudice, Oct. 18, 1972.

2,934,932, H. B. Wagner, HYDRAULIC CEMENT MORTAR COMPOSITIONS AND METHODS OF USE, **filed** Feb. 14, 1974, D.C.N.J. (Camden), Doc. 74–211, *Tile Council of America, Inc.* v. *A.A. Quality Corporation and David S. Weiant.*

2,956,114, Ginsburg, Henderson, Dolby and Anderson, BROAD BAND MAGNETIC TAPE SYSTEM AND METHOD, **filed** Sept. 11, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2345, *Ampex Corporation* v. *Bell & Howell Company, International Video Corp., Litton Medical Products, Inc. and Swiderski Electronics, Inc.* Order cause transferred to N.D. of California as to the defendant Bell & Howell Co. Action as to the remaining defendants dismissed without prejudice to any claim existing to be reinstated as a matter of course upon motion of the parties, Jan. 11, 1974.

2,958,374. (See 2,884,992.)

2,961,105, J. M. Shubin, REFUSE VEHICLE AND LOADING APPARATUS THEREFOR, **filed** Feb. 15, 1974, D.C., E.D. Mich. (Detroit), Doc. 4–71151, *Maxon Industries, Inc., John M. Shubin and Peter S. Shubin* v. *Universal Handling Equipment Co. Limited.*

2,982,340. (See 2,884,992.)

3,009,525, R. De Liban, GUIDANCE SYSTEMS; **3,147,817,** same, **filed** Jan. 12, 1973, D.C., E.D. Mich. (Detroit), Doc. 39494, *Barrett Electronics Corporation* v. *Jervis B. Webb Company and Control Engineering Co.*

3,023,300, G. Lehnert, METHOD AND APPARATUS FOR FORMING CABLE SHEATH; **3,280,609,** same, METHOD AND MEANS FOR FORMING THIN METAL TUBING; **3,208,256,** same, APPARATUS FOR THE MANUFACTURE OF CORRUGATED THIN WALLED METAL TUBES; **3,383,895,** same, COILABLE WAVEGUIDE, **filed** May 3, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c1145, *Kabel- und Mettallwerke Gutehoffnungshutte Aktiengesellschaft* v. *Justice Associates, Inc.* By stipulation, order cause dismissed with prejudice, Jan. 22, 1974.

3,024,064. (See 2,884,992.)

3,025,200, W. R. Powers, CELLIFORM STRUCTURE AND METHOD OF MAKING SAME, **filed** Apr. 1, 1971, D.C. Conn. (New Haven), Doc. 14335, *Scott Paper Company* v. *Olin Corporation.* Order of dismissal entered, Jan. 25, 1974.

3,058,895, L. A. Williams, ELECTROLYTIC SHAPING, **filed** Feb. 5, 1974, D.C., S.D. Ohio (Cincinnati), Doc. 5882, *Brown & Sharpe Real Estate Co.* v. *Cincinnati Milacron, Inc.* Stipulation and order of dismissal with prejudice, Feb. 5, 1974.

3,102,690, G. M. Fee, RAIL ANCHORS; **3,118,327,** W. J. Eastman, TRANSFER MECHANISMS; **3,159,198,** H. E. Sutch, METHOD OF AND APPARATUS FOR THE MANUFACTURE OF RAIL ANCHORS, **filed** Sept. 12, 1973, D.C. Colo. (Denver), Doc. C–5347, *True Temper Corporation* v. *C.F. & I. Steel Corporation.*

3,118,327. (See 3,102,690.)

3,147,817. (See 3,009,525.)

3,159,198. (See 3,102,690.)

3,165,346. (See 2,827,325.)

3,208,256. (See 3,023,300.)

3,280,609. (See 3,023,300.)

3,332,617. (See 2,790,362.)

3,379,617, Andrews and Keller, MEANS FOR SUPPORTING FUEL ELEMENTS IN A NUCLEAR REACTOR; **3,379,618,** E. Frisch, FUEL ARRANGEMENT FOR A NUCLEAR REACTOR, **filed** Jan. 30, 1974, D.C., N.D. Ill. (Chicago), Doc. 74c270, *Westinghouse Electric Corp.* v. *General Electric Company.*

3,379,618. (See 3,379,617.)

3,383,895. (See 3,023,300.)

3,469,572, J. R. Nehring, APPARATUS FOR TAKING MULTIPLE FLUID SAMPLES; **3,494,352,** Russo and Halligan, APPARATUS FOR TAKING MULTIPLE SAMPLES, **filed** Aug. 10, 1970, D.C., M.D. Fla. (Jacksonville), Doc. 70–733–C–J, *Becton Dickinson & Company* v. *Sherwood Medical Industries, Inc.* Final judgment dismissing plaintiff's complaint with prejudice, dismissing defendant's counterclaim with prejudice. Sept. 11, 1972.

3,494,352. (See 3,469,572.)

3,496,911, A. Chmelar, ELECTROSTATIC FLOCKING; **3,551,178,** same, METHOD AND APPARATUS FOR ELECTROSTATIC FLOCKING, **filed** Feb. 16, 1972, D.C., N.D. Ga. (Atlanta), Doc. 16205, *Velvetex Industrial Corporation* v. *Universal Textures, Inc.* Stipulation and order of voluntary dismissal entered dismissing complaint, defensive pleadings and counterclaims without prejudice, Nov. 28, 1973.

3,619,381, G. R. Fitterer, DETERMINING OXYGEN CONTENT OF MATERIALS; **3,752,753,** same, METHOD OF FABRICATING A SENSOR FOR THE DETERMINATION OF THE OXYGEN CONTENT OF LIQUID METAL; **3,773,641,** same, MEANS FOR DETERMINING THE OXYGEN CONTENT OF LIQUID METALS, **filed** Feb. 22, 1974, D.C., W.D. Pa. (Pittsburgh), Doc. 74–183, *Fitterer Engineering Assoc. Inc. and Dr. George R. Fitterer* v. *U.S. Steel Corp. et al.*

3,665,817, Katz and Grainger, FORMING MULTIPLE PAGE PAMPHLET; **3,713,673,** R. E. Katz, ENVELOPE-CONTAINING MULTIPLE PAGE PAMPHLET, **filed** Feb. 12, 1974, D.C., N.D. Ill. (Chicago), Doc. 74c413, *Webcraft Packaging, Inc., etc.* v. *Cadillac Printing & Lithographing Corp.*

3,713,673. (See 3,665,817.)

3,752,753. (See 3,619,381.)

3,773,641. (See 3,619,381.)

Re. 16,581, M. R. Hull, AUTOMOBILE TOP; **Reg. No. 828,065** (LAMITEX), Franklin Fibre-Lamitex Corp., **filed** Nov. 3, 1969, D.C., S.D.N.Y., Doc. 69–4800, *Coleco Industries Inc.* v. *Empire Plastic Corp.* Filed consent judgment, defendants enjoined, plaintiff's claims for unfair competition dismissed with prejudice, Feb. 20, 1974.

Reg. No. 828,065. (See Reg. No. 16,581.)

Certificates of Correction for the Week of Sept. 3, 1974

3,645,418
3,683,027
3,728,529
3,740,708
3,742,328
3,756,004
3,767,496
3,768,074
3,769,204
3,769,387
3,771,450
3,772,363
3,772,392
3,773,587
3,774,426
3,774,452
3,774,607
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3,803,023
3,803,269
3,803,334
3,803,383
3,803,489
3,803,730
3,803,825
3,804,739
3,804,903
3,805,214
3,805,274
3,805,370
3,806,689
3,806,982
3,807,403

Errata

All reference to Patent Number 3,623,352 to Kurt H. Kramer for High Energy Forging Press appearing in the OFFICIAL GAZETTE of November 30, 1971, should be deleted since no patent was granted.

All reference to Patent Number 3,682,987 to Kurt Radscheit et al. for Process for the Manufacture of Δ14-20-Keto-21 Dialkoxy Steroids, appearing in the OFFICIAL GAZETTE of August 8, 1972, should be deleted since no patent should have been granted.

All reference to Patent Number 3,691,296 to Graham Edward Marshman for Synchronizing Arrangement for a Motor Driven Facsimile Scanning Assembly, appearing in the OFFICIAL GAZETTE of September 12, 1972 should be deleted since no patent should have been granted.

National Technical Information Service

GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the licensing policy of each agency-sponsor.

Copies of patent applications, either paper copy (PC) or microfiche (MF), can be purchased from the National Technical Information Service (NTIS), Springfield, Va. 22151, at the prices cited. Requests for copies of patent applications must include the patent application number and the title.

Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each.

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DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

U.S. DEPARTMENT OF AGRICULTURE

Chief, Research Agreements and Patent Mgmt. Branch,
Federal Building, General Services Division,
Agricultural Research Service, Hyattsville, Md. 20782

Patent 3,228,855. Process for a Microbial Polysaccharide. Filed Aug. 13, 1971. Patented Oct. 2, 1973. Not available NTIS.

Patent 3,243,301. Ceral-Containing Varieties of Tempeh and Process Thereof. Filed Apr. 3, 1964. Patented Mar. 29, 1966. Not available NTIS.

Patent 3,280,103. Production of Methyl 6-Chloro-6-Deoxy Alpha-D-Glucopyranaside. Filed Sept. 4, 1964. Patented Oct. 18, 1966. Not available NTIS.

Patent 3,282,795. Production of 2-Ketogluconic Acid by "Serratia Marcescens." Filed Oct. 5, 1964. Patented Nov. 1, 1966. Not available NTIS.

Patent 3,304,276. Polyhydric Phenol Modified Fatty Media and Iron Surfaces Chelated Therewith. Filed May 13, 1964. Patented Feb. 14, 1967. Not available NTIS.

Patent 3,314,913. Hexose Polythiomercaptal Adhesives. Filed Jan. 18, 1965. Patented Apr. 18, 1967. Not available NTIS.

Patent 3,322,798. Process for Obtaining Pure Methyl Azelaaldehydate From Ozonolysis of Commercial Methyl Oleate. Filed May 14, 1964. Patented May 30, 1967. Not available NTIS.

Patent 3,329,518. Protein Glue for Southern Pine Plywood. Filed June 11, 1965. Patented July 4, 1967. Not available NTIS.

Patent 3,330,840. Derivations of Methyl 9,9-Dimethoxynonandate. Filed June 8, 1964. Patented July 11, 1967. Not available NTIS.

Patent 3,343,974. Composition for Increasing the Dispersion Stability of Titanium Dioxide Pigment. Filed May 13, 1964. Patented Sept. 26, 1967. Not available NTIS.

Patent 3,349,106. Solvent for Obtaining Very High Yields of Aldehydic Products From Soybean Oil. Filed May 5, 1965. Patented Oct. 24, 1967. Not available NTIS.

Patent 3,356,699. Alkali Isomerization of Crepenynic Acid to 8,10,12-Octadecatrienaic Acid. Filed June 9, 1965. Patented Dec. 5, 1967. Not available NTIS.

Patent 3,360,441. Microbiological Screening Process for Aflatoxin. Filed Sept. 16, 1965. Patented Dec. 26, 1967. Not available NTIS.

Patent 3,373,175. Conjugation of Vegetable Oils via Iron Tricarbonyl Complex. Filed July 9, 1965. Patented Mar. 12, 1968. Not available NTIS.

Patent 3,373,176. Tertamethyl Cyclobutanedoil Diesters of Linseed-Derived C18 Saturated Vicinally Substituted Cyclic Monocarboxylic Acid Isomer Mixture. Filed Sept. 22, 1965. Patented Mar. 12, 1968. Not available NTIS.

Patent 3,383,284. Cosmetic Compositions Containing Cyclic C18 and C20 Alcohols. Filed June 19, 1964. Patented May 14, 1968. Not available NTIS.

Patent 3,385,719. Process for Production of an Alkali Starch Xanthate Solution. Filed Feb. 25, 1965. Patented May 28, 1968. Not available NTIS.

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Patent 3,433,738. Method of Precipitating Polyvalent Cations. Filed May 7, 1968. Patented Mar. 18, 1969. Not available NTIS.

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Patent 3,476,670. Polarographic Electrode Structure. Filed Apr. 10, 1967. Patented Nov. 4, 1969. Not available NTIS.

Patent 3,513,205. Cyclic C18 and C20 Alcohols. Filed Mar. 10, 1964. Patented May 19, 1970. Not available NTIS.

Patent 3,518,176. Graft Polymerization of Starch in Novel Alcohol Reduction Medium. Filed Feb. 25, 1966. Patented June 30, 1970. Not available NTIS.

Patent 3,522,056. Reduction of Strontium–90 Content of Intact Cereal Grains. Filed Aug. 6, 1965. Patented July 28, 1970. Not available NTIS.

Patent 3,669,915. Flocculants From Starch Graft Copolymers. Filed Sept. 8, 1970. Patented June 13, 1972. Not available NTIS.

Patent 3,673,136. Powdered Polysacchride-Reinforced Elastomer Masterbatches, Compounds and Resulting Vulcanized Rubbers. Filed July 24, 1970. Patented June 27, 1972.

Patent 3,679,433. Protein-Enriched Baked Products and Method of Making Same. Filed Sept. 8, 1970. Patented July 25, 1972. Not available NTIS.

Patent 3,787.459. Selective Hydroformylation of Unsaturated Fatty Compounds. Filed Oct. 23, 1970. Patented Jan. 22, 1974. Not available NTIS.

Patent 3,795.670. Process for Making Starch Triacetates. Filed Mar. 5, 1973. Patented Mar. 5, 1974. Not available NTIS.

Patent 3.795.671. Epoxypropyl Starch. Filed Dec. 21, 1971. Patented Mar. 5, 1974. Not available NTIS.

U.S. DEPARTMENT OF TRANSPORTATION

Patent Counsel, 400 7th St. SW., Washington, D.C. 20590

Patent application 479,638. Emergency Lighting for Public Transportation Vehicles. Filed June 17, 1974. PC $4/MF $1.45.

U.S. Environmental Protection Agency

Room W513, 401 M St. SW., Washington, D.C. 20460

Patent 3,763,040. Processes for Reducing the Organic-Carbon Content of Water Contaminated With Organic Compounds by Continuous Countercurrent Multistage Treatment With Activated Carbon. Filed Aug. 13, 1971. Patented Oct. 2, 1973. Not available NTIS.

U.S. Department of Health, Education, and Welfare

National Institutes of Health, Chief, Patent Branch,
Westwood Building, Bethesda, Md. 20014

Patent application 447,029. Ultrasound Imaging System Utilizing Shaped Acoustic Matching Elements To Increase the Effective Aperture of an Acoustic Transducer. Filed Feb. 28, 1974. PC $4/MF $1.45.

Patent 3,728,543. Thermoluminescence of Sapphire. Filed Nov. 23, 1971. Patented Apr. 17, 1973. Not available NTIS.

Patent 3,788,772. Energy Converter to Power Circulatory Support Systems. Filed Mar. 4, 1971. Patented Jan. 29, 1974. Not available NTIS.

U.S. Department of the Interior

Branch of Patents, 18th and C Sts. NW.,
Washington, D.C. 20240

Patent application 455,461. Method of Treating Semipermeable Membranes. Filed Mar. 27, 1974. PC $4/MF $1.45.

Patent application 465,384. Self-Tightening Inflatable Arch. Filed Apr. 19. 1974. PC $4/MF $1.45.

Patent 3,807,557. Flotation of Pyrite From Coal. Filed Aug. 11, 1972. Patented Apr. 30, 1974. Not available NTIS.

National Aeronautics and Space Administration

Assistant General Counsel for Patent Matters, NASA—
Code GP-2. Washington, D.C. 20546

Patent 3,804,472. Journal Bearings. Patented Apr. 16, 1974. Not available NTIS.

Patent 3,805,266. Turnstile Slot Antenna. Patented Apr. 16, 1974. Not available NTIS.

Patent 3,806,835. Rapidly Pulsed, High Intensity, Incoherent Light Source. Patented Apr. 23, 1974. Not available NTIS.

Patents Available for Licensing or Sale

2,970,783. COMPOSITE WEARING PARTS FOR CRUSHERS AND THE LIKE. A. H. Plyer, 55 E. Monroe, Chicago, Ill., 60603.

3,727,118. CONTACTLESS REVERSIBLE DEVICE IN AN ELECTRIC CAR. Noriaki Makino. Correspondence to: Nippon Gijutsu Boeki Co., Ltd., 32F Kasumigaseki Bldg., 2–5 Kasumigaseki, 3-chome, Chiyoda-ku, Tokyo, 100 Japan.

3,736,730. APPARATUS FOR REMOVING TASSELS. Ora B. Dobson, Ralston, Iowa., 51459.

3,760,963. LIFTING ATTACHMENT FOR A CRANE. Correspondence to: Ronald P. Kananen, Esq., 1828 L St. NW., Washington, D.C., 20036.

3,781,408. AIR POLLUTION CONTROL. Ping-Wha Lin, 506 S. Darling, Angola, Ind., 46703.

3,797,217. METHOD AND ARRANGEMENT FOR MAKING SZ-TWISTED CABLES. Felten & Guilleaume Kabelwerke AG, 5 Cologne 80, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,800,444. SANDAL CONSTRUCTION. C. K. Young, Box 787, Kings Beach, Calif., 95719.

3,811,461. COVERING DUAL ACTION TRIGGERING VALVE DEVICE FOR INFLATABLE EQUIPMENT. J. F. Novak, 609 State St., Calumet City, Ill., 60409.

3,820,274. FINGER SAVER PLIERS. T. F. Drenzyk, 4 Prospect Place, Torrington, Conn., 06790.

3,822,490. HOLLOW MEMBER FOR SHOES. Correspondence to: Sherman Levy, Suite 635, Washington Bldg., 15th and New York Ave. NW., Washington, D.C., 20005.

3,823,720. SURGICAL DRAIN. D. E. Tribble, M.D. Correspondence to: Nathaniel A. Humphries, Esq., Suite 310, 1730 Rhode Island Ave. NW., Washington, D.C., 20036.

The following 2 patents are offered by: Abram Berland et al. Correspondence to: Woodhams, Blanchard and Flynn, 2026 Rambling Road, Kalamazoo, Mich., 49008.

3,738,583. APPARATUS FOR MIXING, BLENDING LIQUEFYING OR CHOPPING.
3,738,585. CHOPPER FOR MEAT AND OTHER FOODS.

The following 2 patents are offered by: Russell H. James, Box 25, Main St., Voluntown, Conn., 06384.

3,771,606. AUTOMATIC FIRE EXTINGUISHING SYSTEM.
3,810,511. AUTOMATIC FIRE EXTINGUISHING SYSTEM.

General Electric Company prepares to grant nonexclusive licenses under the following 31 patents upon reasonable terms to domestic manufacturers.

Application for licenses under the following 31 patents should be addressed to: Group Patent Counsel, Major Appliance Business Group, General Electric Company, Appliance Park, Louisville, Ky., 40225.

3,511,415. WATER COOLER.
3,624,742. SELF-CLEANING GAS OVEN WITH HEAT EXCHANGER.
3,640,089. HOUSEHOLD REFRIGERATOR WITH EXTERIOR ICE SERVICE.
3,645,249. GAS COOKTOP WITH INTEGRAL BURNERS.
3,727,563. INCINERATOR.
3,732,462. BALLAST APPARATUS FOR OPERATING A PAIR OF DISCHARGE LAMPS.
3,737,823. INTEGRAL ELECTRICAL COIL.
3,745,499. VOLTAGE STABILIZING TRANSFORMER.
3,757,686. INCINERATOR.
3,757,707. INCINERATOR.
3,760,314. TRANSFORMER WITH IMPROVED ARRANGEMENT FOR PROVIDING A GROUNDING CONNECTION.
3,760,316. TRANSFORMER COIL ASSEMBLY.
3,766,794. SHAFT ROTATION REVERSING DEVICE.
3,772,585. CAPACITY COMPENSATION AND DISCRIMINATION CIRCUITS FOR HIGH VOLTAGE POWER SUPPLY.
3,777,677. INCINERATOR.
3,780.342. BALLAST APPARATUS FOR STARTING AND OPERATING ARC LAMPS.
3,783,588. POLYMER FILM ELECTRET AIR FILTER.
3,801,867. DIRECT CURRENT ENERGIZATION OF GASEOUS DISCHARGE LAMPS.
3,803,862. REFRIGERATOR INCLUDING AUTOMATIC ICE MAKER.
3,804,249. AIR DRUM SORTER FOR SOLID WASTE.
3,804,341. WASTE FOOD DISPOSER.
3,804,483. UNIT-HANDLED ROLLER ASSEMBLY FOR PLASTIC TUBS.
3,805,637. CONTROL KNOB WITH VARIABLE CORE DEPTH.
3,806,090. MEANS FOR MANIPULATING MODULAR FURNITURE SYSTEM COMPONENTS.
3,807,418. DISHWASHER WITH SOIL DETECTING MEANS.
3,809,451. RACK LEVEL ADJUSTMENT SYSTEM IN A DISHWASHER.
3,811,600. TREATING AGENT DISPENSER FOR AUTOMATIC WASHING MACHINE.
3,811,746. TORSIONALLY REINFORCED, SKELETAL SUPPORT FRAME FOR PLASTIC TUBE.
3,812,316. DOOR SEAL GASKET FOR COMBINED MICROWAVE AND SELF-CLEANING OVEN.
3,813,192. CENTERING SPRING ARRANGEMENT FOR OSCILLATORY COMPRESSORS.
3,814,550. MOTOR ARRANGEMENT AND LUBRICATION SYSTEM FOR OSCILLATORY COMPRESSOR.

RCA Corporation offers to grant non-exclusive licenses on reasonable terms and conditions under the following 27 patents.

Inquiries respecting licenses under RCA patents should be addressed to RCA Corporation, Staff Vice President, Domestic Licensing, 30 Rockefeller Plaza, New York, N.Y., 10036.

3,799,539. CARD STACKER HAVING ROTATABLE BUMPER TO STOP CARD TRAVEL.
3,799,642. HOLOGRAPHIC RECORDING ON PHOTOCHROMIC LITHIUM NIOBATE.
3,799,881. CATHODOCHROMIC CATHODE RAY TUBE AND METHOD FOR PREPARING CATHODOCHROMIC SODALITE FOR SAID TUBE.
3,814,501. LIQUID-CRYSTAL DISPLAY DEVICE AND METHOD OF MAKING.
3,814,633. THERMO-ELECTRIC MODULAR STRUCTURE AND METHOD OF MAKING SAME.
3,814,904. CRYPTOGRAPHICALLY CODED CARDS EMPLOYING SYNTHETIC LIGHT MODIFYING PORTION.
3,814,980. S-CORRECTED WAVEFORM GENERATOR.

3,815,037. CURRENT TRANSLATING CIRCUITS.
3,815,051. CONTROLLED OSCILLATOR.
3,815,054. BALANCED, LOW IMPEDANCE, HIGH FREQUENCY TRANSMISSION LINE.
3,816,336. NOVEL ELECTRO-OPTIC DEVICES.
3,816,761. COMPARATOR CIRCUITRY.
3,816,765. DIGITAL INTERFACE CIRCUIT FOR A RANDOM NOISE GENERATOR.
3,816,891. METHOD OF REBUILDING A CATHODE-RAY TUBE.
3,817,320. PASSIVE COOLER.
3,818,242. HIGH-SPEED LOGIC CIRCUITS.
3,818,262. TARGETS FOR TELEVISION PICKUP TUBES.
3,819,012. MERCHANDISE HANDLING AND IDENTIFYING SYSTEM.
3,819,911. IDENTIFICATION CARD DECODER.
3,820,155. TELEVISION RECEIVER SERVICE ADJUSTMENT SYSTEM.
3,820,157. COLOR TELEVISION.
3,820,395. FLOWMETER.
3,821,039. METHOD OF EPITAXIALLY DEPOSITING A SEMICONDUCTOR MATERIAL ON A SUBSTRATE.
3,821,617. FILM TYPE CAPACITOR AND METHOD OF ADJUSTMENT.
3,821,728. GLICH FREE VECTOR GENERATION.
3,821,814. APPARATUS FOR PROVIDING INDIVIDUAL ADJUSTMENT OF MOVABLE MULTIPLE TRANSDUCERS IN A PLURAL TAPE CARTRIDGE PLAYER.
Re. 27,935. LSI ARRAY AND STANDARD CELLS.

Eastman Kodak Company announces that non-exclusive licenses are available to responsible applicants under the following 32 patents.

Applications for licenses may be addressed to the Director, Patent Department, Eastman Kodak Company, 343 State St., Rochester, N.Y., 14650.

3,512,976. AMMONIUM AND METAL SULFITES AS STABILIZERS OF LIGHT SENSITIVE SYSTEM.
3,476,562. LIGHT SENSITIVE COMPOSITION COMPRISING AN ORGANIC AMINE AND AN ORGANIC HALOGEN COMPOUND IN A HYDROPHILIC BINDER.
3,512,977. CARBONYL-BISULFITE COMPLEX STABILIZATION OF LIGHT SENSITIVE SYSTEMS.
3,544,320. STABILIZATION OF LIGHT SENSITIVE FILM WITH A PEROXIDE, PERCHLORATE OR PERBORATE.
3,544,321. STABILIZATION OF ORGANIC PHOTOSENSITIVE MATERIAL.
3,503,742. DESENSITIZATION OF PHOTOSENSITIVE MATERIALS BY SUBJECTING THE NON-IMAGE AREAS TO AMMONIA.
3,565,628. DYE SENSITIZED LIGHT SENSITIVE SYSTEMS INCORPORATING AN IODIDE.
3,485,629. PHOTO PROCESS.
3,503,745. DYE SENSITIZATION OF LIGHT SENSITIVE SYSTEMS.
3,650,755. POSITIVE-MODE PHOTOGRAPHIC PROCESS AND COMPOSITION.
3,600,179. ORGANIC PHOTOMATERIAL OF INCREASED CONTRAST.
3,544,322. PHOTOSENSITIVE DISPERSION IN A HYDROPHILIC BINDER INCORPORATING A STABILIZER.
3,607,266. IMAGE INTENSIFICATION PROCESS FOR SENSITIZED FILMS.
3,615,430. IMPROVED IMAGE-INTENSIFICATION FOR SENSITIZED FILMS.
3,526,598. MANUFACTURE OF MAGNETIC RECORDING MEDIA.
3,650,860. METHOD OF MAKING PRINTED CIRCUITS.
3,611,420. CURIE POINT RECORDING BY UTILIZATION OF SELECTIVE COOLING.
3,601,091. MAGNETIC PRINTOUT EQUIPMENT
3,611,421. RECORDING BY VARYING THE LOCATION OF A MAGNETIC SPOT.
3,582,877. THERMAL MAGNETIC INFORMATION RECORDING.
3,633,545. MAGNETIC PRINTOUT EQUIPMENT.
3,717,459. METHOD OF IMAGING INVOLVING PREHEATING USING INTERDIGITATED ELECTRODES, A PHOTOCONDUCTIVE LAYER AND A MAGNETIC IMAGING LAYER.
3,717,460. METHOD OF IMAGING USING INTERDIGITATED ELECTRODES, A PHOTOCONDUCTIVE LAYER AND A MAGNETIC IMAGING LAYER.
3,707,001. MAGNETIC IMAGING METHODS AND APPARATUS.
3,683,405. MAGNETIC DEFORMATION RECORDING.
3,693,183. MAGNETIC PRINTING UTILIZING THERMAL GRADIENTS.
3,757,353. INFORMATION RECORDING BY ARTICLE ORIENTATION.
3,778,373. IRON CONTAINING FERROMAGNETIC CHROMIUM OXIDE.
3,778,145. MAGNETIC IMAGING.
3,803,633. METHODS, APPARATUS AND MEDIA FOR MAGNETICALLY RECORDING INFORMATION.
3,795,009. INFORMATION RECORDING METHODS, APPARATUS AND MEDIA.
3,815,987. METHOD OF IMAGING USING INTERDIGITATED ELECTRODES, A PHOTOCONDUCTIVE LAYER AND A MAGNETIC IMAGING LAYER.

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF AUGUST 17, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	10-9-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—R. F. BURNETT, Acting Director Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	7-12-73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	11-16-73
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	9-18-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	8-27-73
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—W. L. CARSON, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	1-9-74
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	3-1-73
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-2-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—N. ANSHER, Director Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	7-2-73
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—L. FORMAN, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-13-73
DESIGNS, GROUP 290—C. D. QUARFORTH, Director Industrial Arts; Household, Personal and Fine Arts.	3-16-73
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	9-10-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	10-29-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. PULFREY, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-2-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—B. R. GAY, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	11-9-73
GENERAL CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—M. M. NEWMAN, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	12-3-73

Expiration of patents: The patents within the range of numbers indicated below expire during September 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,804,620 to 2,807,803, inclusive
Plant Patents	Numbers 1,638 to 1,645, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED SEPTEMBER 3, 1974

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T926,001
CROSS-LINKABLE COMPOSITIONS

Karl Brack, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Continuation of appplication Ser. No. 140,,993, May 6, 1971, which is a continuation-in-part of abandoned application Ser. No. 811,204, Mar. 27, 1969. This application Oct. 19, 1972, Ser. No. 298,895

Int. Cl. C08g *41/04*

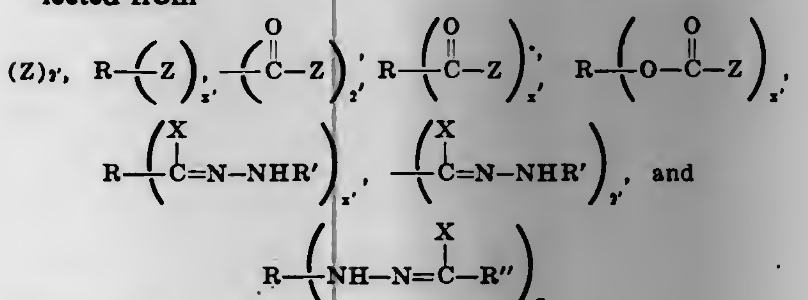
U.S. Cl. 260—858

No Drawing. 24 Pages Specification

Cross-linkable, storage stable polymer compositions can be prepared from the following ingredients

(a) an ethylenically unsaturated polymer such as an unsaturated polyurethane, alkyd resin, or butadiene polymer or copolymer;

(b) a small amount of a precursor of a polyfunctional nitrile N-oxide or nitrile imine having a formula selected from

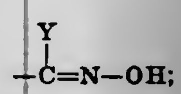


$$(\mathrm{Z})_{y'},\quad \mathrm{R}\!\left(\mathrm{Z}\right)_{x'},\quad \left(\overset{\mathrm{O}}{\overset{\|}{\mathrm{C}}}-\mathrm{Z}\right)_{y'};\quad \mathrm{R}\!\left(\overset{\mathrm{O}}{\overset{\|}{\mathrm{C}}}-\mathrm{Z}\right)_{x'};\quad \mathrm{R}\!\left(\mathrm{O}-\overset{\mathrm{O}}{\overset{\|}{\mathrm{C}}}-\mathrm{Z}\right)_{x'},$$

$$\mathrm{R}\!\left(\overset{\mathrm{X}}{\overset{|}{\mathrm{C}}}=\mathrm{N}-\mathrm{NHR'}\right)_{x'},\quad \left(\overset{\mathrm{X}}{\overset{|}{\mathrm{C}}}=\mathrm{N}-\mathrm{NHR'}\right)_{y'},\ \text{and}$$

$$\mathrm{R}\!\left(\mathrm{NH}-\mathrm{N}=\overset{\mathrm{X}}{\overset{|}{\mathrm{C}}}-\mathrm{R''}\right)_{x}$$

where Z is



$$-\overset{\mathrm{Y}}{\overset{|}{\mathrm{C}}}=\mathrm{N}-\mathrm{OH};$$

Y is $-\mathrm{NO_2}$ or a halide radical; R is a hydrocarbon, halogenated hydrocarbon, hydrocarbon-oxy-hydrocarbon, hydrocarbon-thio-hydrocarbon or hydrocarbon-sulfonyl-hydrocarbon radical; R′ is a hydrogen, alkyl, cycloalkyl, aryl, alkaryl, or aralkyl radical; R″ is an alkyl, cycloalkyl, aryl, alkaryl, or aralkyl radical; X is a halide radical; and x is an integer from 2 to 5;

(c) an amount of a solid vicinal epoxide in excess of that required to convert the said precursor to the corresponding polyfunctional nitrile N-oxide or nitrile imine. The above described storage stable polymer compositions cross-link when heated at a temperature of about 70° C. to about 180° C. and are useful in sealant, adhesive and coating formulations.

T926,002
THERMAL CHLORINATION OF BUTADIENE-1,3

Kenneth C. Eberly and Edward Leo Kay, Akron, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Continuation of application Ser. No. 177,128, Sept. 1, 1971, which is a continuation of application Ser. No. 799,962, Feb. 17, 1969. This application Nov. 17, 1972, Ser. No. 307,731

Int. Cl. C07c *21/20*

U.S. Cl. 260—655

No Drawing. 7 Pages Specification

Butadiene-1,3 is thermally chlorinated in the vapor phase to produce 1-chlorobutadiene-1,3. The butadiene-1,3 is brought into contact with chlorine, in the presence of an inert diluent, in a reaction zone at a temperature of from 300° to 600° C., preferably from 350° to 550° C. From five to 20 moles of butadiene-1,3 are present per mole of chlorine, and from five to 25 moles of the inert diluent per mole of chlorine. The reaction products are removed from the reaction zone and cooled. The 1-chlorobutadiene-1,3 portion is then separated from the reaction products. Unreacted butadiene-1,3 and the inert diluent may be recycled. The reaction is preferably performed continuously.

T926,003
POLYPHASE LOGICAL CIRCUIT EMPLOYING COMPLEMENTARY MISFET'S

Kosei Nomiya, 2–47–16 Eifuku, Suginami-ku; Yoshikazu Hatsukano, 1211 Gakuennishi-machi, Kodaira-shi; and Suichi Torii, 1503 Josuihon-cho, Kodaira-shi, all of Tokyo, Japan

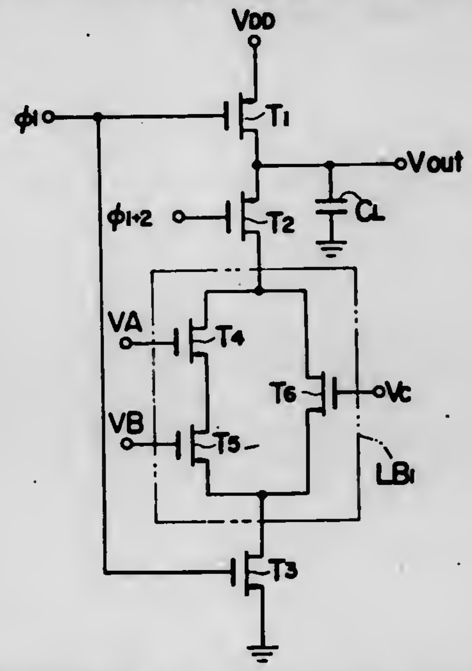
Filed July 23, 1973, Ser. No. 381,484

Claims priority, application Japan, Aug. 25, 1972, 47/84,574

Int. Cl. H03k *19/08, 19/20;* G11c *19/00*

U.S. Cl. 307—205

2 Sheets Drawing. 10 Pages Specification



A complementary MOS logic circuit has a reduced number of transistors. A P-channel MOSFET and an N-channel MOSFET are connected in series with a logical block of a predetermined logical expression between one terminal of a power source and the logical block and between the logical block and the other terminal of the power source, respectively. Means is provided which drives the P-channel and N-channel MOSFETs by a first clock pulse. Means is provided which establishes a current path between the logical block and an output terminal of the complementary MOS logical circuit or between the connection point of the logical block and P-channel MOSFET and the output terminal at timings of the first clock pulse and a second clock pulse differing in phase therefrom.

T926,004
MASTIC OF INORGANIC INSULATING CEMENT POLY(m - PHENYLENE ISOPHTHALAMIDE) FIBERS, AND WATER

Thomas Edward Pavey, 3619 Harris Ave., Richmond, Va. 23223
Filed Aug. 14, 1973, Ser. No. 388,136
Int. Cl. C08g *51/04, 51/24*
U.S. Cl. 260—29.2N
No Drawing. 6 Pages Specification

A reinforced mastic for sealing cracks in insulation, especially in insulation for heated piping. The mastic comprises water, a quick-drying insulating cement, and reinforcing fibers of poly (m-phenylene isophthalamide). The mastic has excellent resistance to thermal degradation from high temperatures and incurs little cracking. The fibers are preferably short-length cut fibers, while the cement is usually an inorganic silicate-containing material. The cement and the fibers are dry-mixed (up to about 2% fibers can be used based on weight of cement) and then water added. The resulting mastic can then be applied in the same manner as nonreinforced insulating "mud."

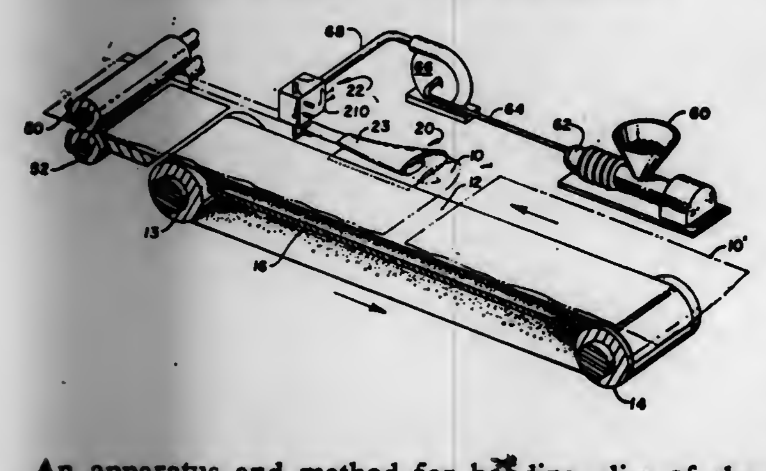
T926,005
PROCESS FOR RAPIDLY CURING UNSATURATED POLYESTER MOLDING COMPOSITIONS WHEREIN THE UNSATURATED POLYESTER IS PREPARED FROM 2,2,4-TRIMETHYL-1,3-PENTANEDIOL

John R. Dombroski, 124 Bloomingdale, Apt. E-49, Kingsport, Tenn. 37660
Filed Aug. 15, 1973, Ser. No. 388,690
Int. Cl. C08f *21/00*
U.S. Cl. 260—861
No Drawing. 5 Pages Specification

Disclosed is a process for rapidly curing unsaturated polyester molding compositions wherein the unsaturated polyester is prepared from 2,2,4-trimethyl-1,3-pentanediol. According to the process of the invention there is contacted an unsaturated polyester prepared from 2,2,4-trimethyl-1,3-pentanediol, a monomer having at least one olefinic group copolymerizable with the unsaturated polyester and an admixture of equal molar quantities of styrene and maleic anhydride.

T926,006
APPARATUS AND METHOD FOR SEAMING MATERIAL WITH HOT MELT ADHESIVE

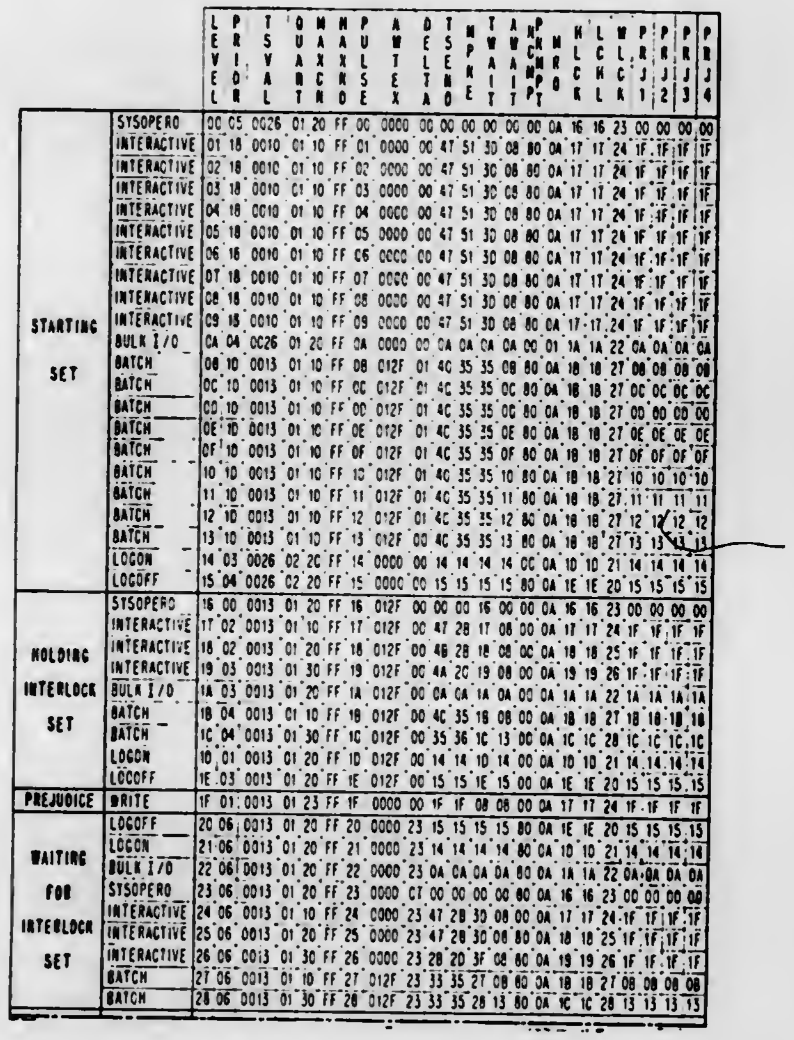
Larry B. Newman, Rte. 14, 5745 Chestnut Hill, Kingsport, Tenn. 37664
Filed Aug. 20, 1973, Ser. No. 389,754
Int. Cl. B32b *7/14*
U.S. Cl. 156—291
2 Sheets Drawing. 12 Pages Specification



An apparatus and method for bonding plies of sheet material, especially fabric material, using a hot melt adhesive applied from a dual-opening nozzle are disclosed. An in-line sequence of operations includes bringing a ply of sheet material into overlying, aligned position with another ply, applying hot melt adhesive simultaneously to each of the plies immediately as it is extruded, and finally pressing the plies together prior to solidification of the adhesive.

T926,007
METHOD OF SCHEDULING IN A DATA PROCESSING SYSTEM

Walter J. Doherty, Mahopac, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation of application Ser. No. 83,394, Oct. 23, 1970. This application Sept. 17, 1973, Ser. No. 398,608
Int. Cl. G06f *9/12*
U.S. Cl. 444—1
18 Sheets Drawing. 46 Pages Specification



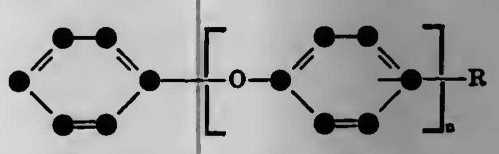
		LEVEL	PRIOR	TSVAL	QUANT	MAXCN	MAXNO	PULSE	AWTEX	DELTA	TSENO	MPNE	TWAIT	AWAIT	NCMP PRMPT	MRO	MLCK	LCHKL	WLCK	PRJ1	PRJ2	PRJ3	PRJ4
STARTING SET	SYSOPERO	00	05	0026	01	20	FF	00	0000	00	00	00	00	00	00	0A	16	16	23	00	00	00	00
	INTERACTIVE	01	18	0010	01	10	FF	01	0000	00	47	51	30	08	80	0A	17	17	24	1F	1F	1F	1F
	INTERACTIVE	02	18	0010	01	10	FF	02	0000	00	47	51	30	08	80	0A	17	17	24	1F	1F	1F	1F
	INTERACTIVE	03	18	0010	01	10	FF	03	0000	00	47	51	30	08	80	0A	17	17	24	1F	1F	1F	1F
	INTERACTIVE	04	18	0010	01	10	FF	04	0000	00	47	51	30	08	80	0A	17	17	24	1F	1F	1F	1F
	INTERACTIVE	05	18	0010	01	10	FF	05	0000	00	47	51	30	08	80	0A	17	17	24	1F	1F	1F	1F
	INTERACTIVE	06	18	0010	01	10	FF	06	0000	00	47	51	30	08	80	0A	17	17	24	1F	1F	1F	1F
	INTERACTIVE	07	18	0010	01	10	FF	07	0000	00	47	51	30	08	80	0A	17	17	24	1F	1F	1F	1F
	INTERACTIVE	08	18	0010	01	10	FF	08	0000	00	47	51	30	08	80	0A	17	17	24	1F	1F	1F	1F
	INTERACTIVE	09	18	0010	01	10	FF	09	0000	00	47	51	30	08	80	0A	17	17	24	1F	1F	1F	1F
	BULK I/O	0A	04	0026	01	20	FF	0A	0000	00	0A	0A	0A	0A	00	01	1A	1A	22	0A	0A	0A	0A
	BATCH	0B	10	0013	01	10	FF	0B	012F	01	4C	35	35	0B	80	0A	1B	1B	27	0B	0B	0B	0B
	BATCH	0C	10	0013	01	10	FF	0C	012F	01	4C	35	35	0C	80	0A	1B	1B	27	0C	0C	0C	0C
	BATCH	0D	10	0013	01	10	FF	0D	012F	01	4C	35	35	0D	80	0A	1B	1B	27	0D	0D	0D	0D
	BATCH	0E	10	0013	01	10	FF	0E	012F	01	4C	35	35	0E	80	0A	1B	1B	27	0E	0E	0E	0E
	BATCH	0F	10	0013	01	10	FF	0F	012F	01	4C	35	35	0F	80	0A	1B	1B	27	0F	0F	0F	0F
	BATCH	10	10	0013	01	10	FF	10	012F	01	4C	35	35	10	80	0A	1B	1B	27	10	10	10	10
	BATCH	11	10	0013	01	10	FF	11	012F	01	4C	35	35	11	80	0A	1B	1B	27	11	11	11	11
	BATCH	12	10	0013	01	10	FF	12	012F	01	4C	35	35	12	80	0A	1B	1B	27	12	12	12	12
	BATCH	13	10	0013	01	10	FF	13	012F	00	4C	35	35	13	80	0A	1B	1B	27	13	13	13	13
	LOGON	14	03	0026	02	20	FF	14	0000	00	14	14	14	14	0C	0A	1D	1D	21	14	14	14	14
	LOGOFF	15	04	0026	02	20	FF	15	0000	00	15	15	15	15	80	0A	1E	1E	20	15	15	15	15
HOLDING INTERLOCK SET	SYSOPERO	16	00	0013	01	20	FF	16	012F	00	00	00	16	00	00	0A	16	16	23	00	00	00	00
	INTERACTIVE	17	02	0013	01	10	FF	17	012F	00	47	28	17	08	00	0A	17	17	24	1F	1F	1F	1F
	INTERACTIVE	18	02	0013	01	20	FF	18	012F	00	4B	28	18	08	00	0A	18	18	25	1F	1F	1F	1F
	INTERACTIVE	19	03	0013	01	30	FF	19	012F	00	4A	20	19	08	00	0A	19	19	26	1F	1F	1F	1F
	BULK I/O	1A	03	0013	01	20	FF	1A	012F	00	0A	0A	1A	0A	00	0A	1A	1A	22	1A	1A	1A	1A
	BATCH	1B	04	0013	01	10	FF	1B	012F	00	4C	35	1B	08	00	0A	1B	1B	27	1B	1B	1B	1B
	BATCH	1C	04	0013	01	30	FF	1C	012F	00	35	36	1C	13	00	0A	1C	1C	28	1C	1C	1C	1C
	LOGON	1D	01	0013	01	20	FF	1D	012F	00	14	14	1D	14	00	0A	1D	1D	21	14	14	14	14
	LOGOFF	1E	03	0013	01	20	FF	1E	012F	00	15	15	1E	15	00	0A	1E	1E	20	15	15	15	15
PREJUDICE	WRITE	1F	01	0013	01	23	FF	1F	0000	00	1F	1F	08	08	00	0A	17	17	24	1F	1F	1F	1F
WAITING FOR INTERLOCK SET	LOGOFF	20	06	0013	01	20	FF	20	0000	23	15	15	15	15	80	0A	1E	1E	20	15	15	15	15
	LOGON	21	06	0013	01	20	FF	21	0000	23	14	14	14	14	80	0A	1D	1D	21	14	14	14	14
	BULK I/O	22	06	0013	01	20	FF	22	0000	23	0A	0A	0A	0A	80	0A	1A	1A	22	0A	0A	0A	0A
	SYSOPERO	23	06	0013	01	20	FF	23	0000	07	00	00	00	00	80	0A	16	16	23	00	00	00	00
	INTERACTIVE	24	06	0013	01	10	FF	24	0000	23	47	28	30	08	00	0A	17	17	24	1F	1F	1F	1F
	INTERACTIVE	25	06	0013	01	20	FF	25	0000	23	47	28	30	08	80	0A	18	18	25	1F	1F	1F	1F
	INTERACTIVE	26	06	0013	01	30	FF	26	0000	23	28	2D	3F	08	80	0A	19	19	26	1F	1F	1F	1F
	BATCH	27	06	0013	01	10	FF	27	012F	23	33	35	27	08	80	0A	1B	1B	27	08	08	08	08
	BATCH	28	06	0013	01	30	FF	28	012F	23	33	35	28	13	80	0A	1C	1C	28	13	13	13	13

A schedule table in a programming system for controlling the selection of a task and the execution of the task is provided. The table comprises a plurality of fields. Each of the fields is provided with parameters to enable the above-mentioned control. These parameters are chosen to implement the principles of "working set size" and "balanced core time." A first set of parameters, termed the "Starting Set," are employed to handle new inputs from the terminal. The Starting Set functions to control responsiveness by yielding control to new inputs, controlling task growth in real memory by folding, and sorting long running tasks by working set size. A second set of parameters, termed the "Looping Set," controls system efficiency and throughput by using balanced core time to favor efficient programs, estimating the working set time at each time slice, and delaying long running tasks to improve responsiveness. Third, fourth, and fifth sets of parameters termed the "Await," "Holding," and "Waiting-for-Interlock" sets control special programs and special conditions such as interlock handling for all programs.

T926,008
COPOLYESTER MOLDING COMPOSITIONS OF IMPROVED PROCESSABILITY

James C. Weaver, 720 Teasel Drive, Apt. A3-5, and Robert L. Combs, 4509 Chickasaw Road, both of Kingsport, Tenn. 37660
Continuation of abandoned application Ser. No. 295,622, Oct. 6, 1972. This application Dec. 3, 1973, Ser. No. 420,982
Int. Cl. C08g *39/10*
U.S. Cl. 260—860
No Drawing. 7 Pages Specification

Copolyesters of bisphenol A with terephthalic and isophthalic acids wherein the terephthalate moiety comprises from about 40 to about 75 mole percent of the acid portion, blended with from about 5 to about 20 percent by weight based on total composition of (1) one or more of the poly(phenyl ethers) of the formula

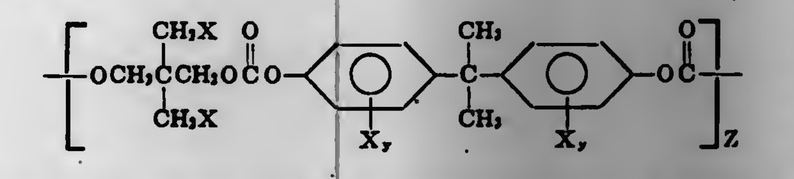


or their isomers, wherein $n=1–4$ and R is selected from H, halogen, phenyl, or lower alkyl of 1–4 carbons substituted phenyl, or (2) p-quaterphenyl exhibit improved processability by way of reduction in necessary processing temperatures and pressures and retain a high level of mechanical properties in the molded article.

T926,009
FIRE-RETARDANT POLYCARBONATES

Jurgen H. Exner, 1823 Eastlawn, and Eric R. Larsen, 314 W. Meadowbrook, both of Midland, Mich. 48640
Filed Jan. 28, 1974, Ser. No. 437,424
Int. Cl. C08d *7/10*
U.S. Cl. 260—45.7 R
No Drawing. 6 Pages Specification

Polycarbonates are rendered fire retardant by admixing therewith a fire-retarding compound of the general formula

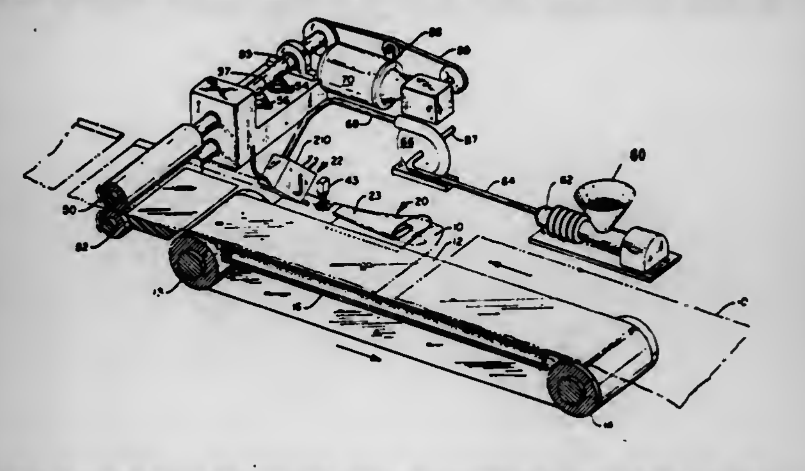


where X is Br or Cl, y is an integer from 0 to 4 and Z is greater than 1.

T926,010
APPARATUS AND METHOD FOR SEAMING MATERIAL WITH HOT MELT ADHESIVE

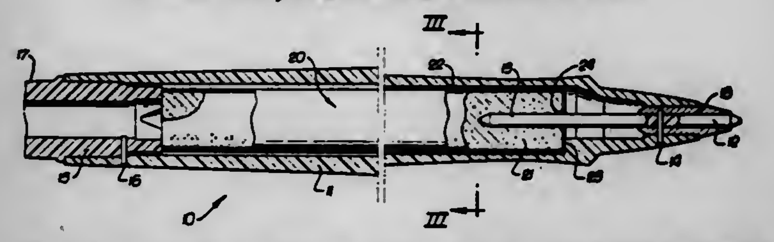
Robert M. Elliott, Rte. 4, Wines Circle, Blountville, Tenn. 37617; Cecil W. Dolen, 1805 Manor Court, Apt. C, Kingsport, Tenn. 37660; and Ernest L. Myers, Rte. 1, Hiltons, Va. 24258
Continuation of abandoned application Ser. No. 231,844, Mar. 6, 1972. This application Jan. 9, 1974, Ser. No. 438,106
Int. Cl. B29c *27/10*
U.S. Cl. 156—202
4 Sheets Drawing. 16 Pages Specification

An apparatus and method for bonding plies of sheet material, especially fabric material, using a hot melt adhesive are disclosed. An in-line sequence of operations includes bringing a ply of sheet material into overlying, aligned position with another ply, applying a bead of hot melt adhesive to one of the plies at a position where the seam is desired, and finally pressing the plies together prior to solidification of the adhesive to cause the hot melt to partially penetrate the plies. Provision is made for quickly and accurately beginning and terminating the bead of hot melt adhesive.



T926,011
INK RESERVOIR FOR WRITING INSTRUMENTS

Daniel J. Kun, Los Angeles, and Lotfi Hafez Lotfallah, Hollywood, Calif., assignors to The Gillette Company, Santa Monica, Calif.
Filed Feb. 11, 1974, Ser. No. 441,123
Int. Cl. B43k *5/14, 5/20*
U.S. Cl. 401—132
1 Sheet Drawing. 6 Pages Specification



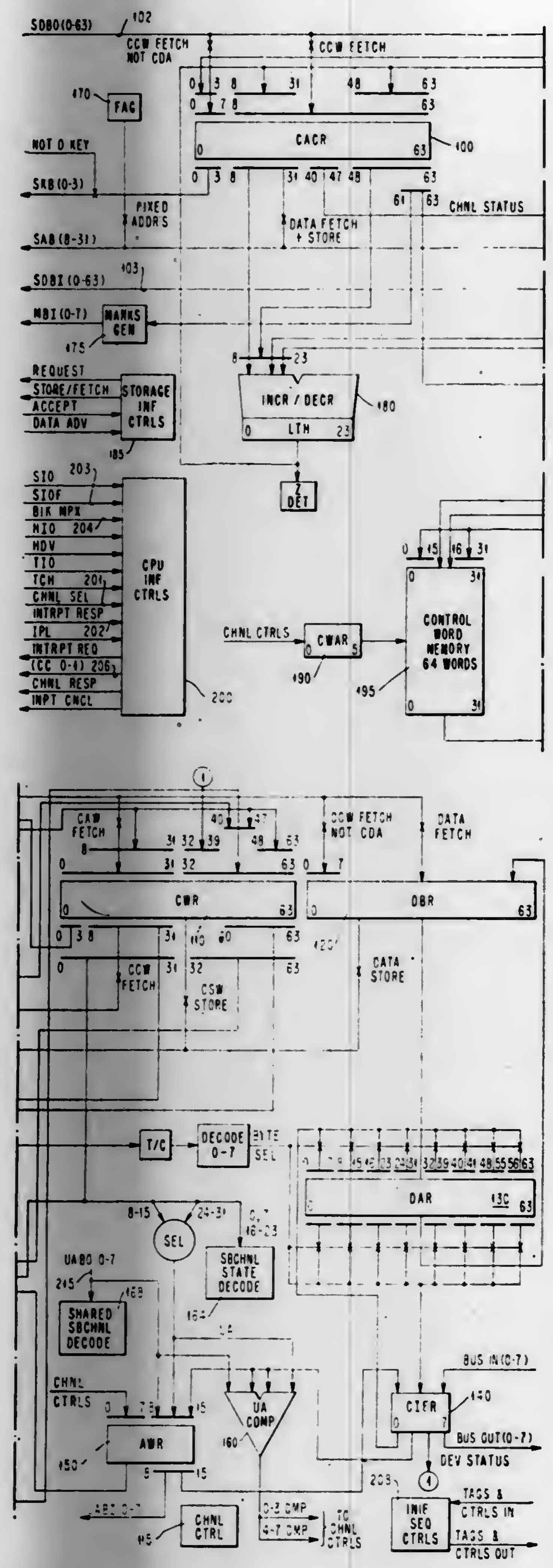
A reservoir for writing instruments employing liquid inks is disclosed wherein the reservoir has a puncturable seal at the end nearest the point of the writing instrument, such puncturable seal preventing leakage of ink contained in the reservoir. The reservoir, in general, consists of a bundle of fibers which can be made of thermoplastic material, said bundle having an outer wrapping of a film of plastic which can be cellophane or, in the alternative, the thermoplastic fibers of the reservoir can be sintered to form said outer layer or film to prevent leakage of the ink to the outside. The end nearest the point is sealed to prevent ink leakage with a puncturable seal (i.e. a seal that the point can penetrate), the seal being plastic, wax or, preferably, the seal is formed by applying heat to the ends of the fibers of the reservoir in order to sinter the same. After the fibers are sealed at the end thereof, the writing nib is inserted through the puncturable seal and into the fibers per se in order to permit flow of ink from the reservoir to the nib, the seal at the end conforming to the shape of the point to maintain the seal and prevent leakage of ink.

T926,012
METHOD AND APPARATUS FOR START I/O QUEUING

Wayne W. Blackwell, Rockville, John J. O'Connell, Gaithersburg, Edwin B. Pierce, Damascus, and John E. Shabe, Darnestown, Md., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of application Ser. No. 267,754, June 30, 1972. This application Feb. 20, 1974, Ser. No. 444,230
Int. Cl. G06f *3/00*
U.S. Cl. 340—172.5
14 Sheets Drawing. 27 Pages Specification

A device is disclosed which allows a processor to initiate a START I/O operation without waiting for the completion of the connection between the channel and the desired input/output (I/O) unit. In the event that the I/O interface is busy the processor is released and the START I/O instruction is queued in the channel until the

I/O interface becomes available at which time the START I/O instruction is again initiated without processor interaction. Whenever an I/O interface becomes available, the queued instructions are polled to determine if one has been queued for the particular unit. A priority means is included which causes the queued instructions to be reinitiated in a FIFO order.



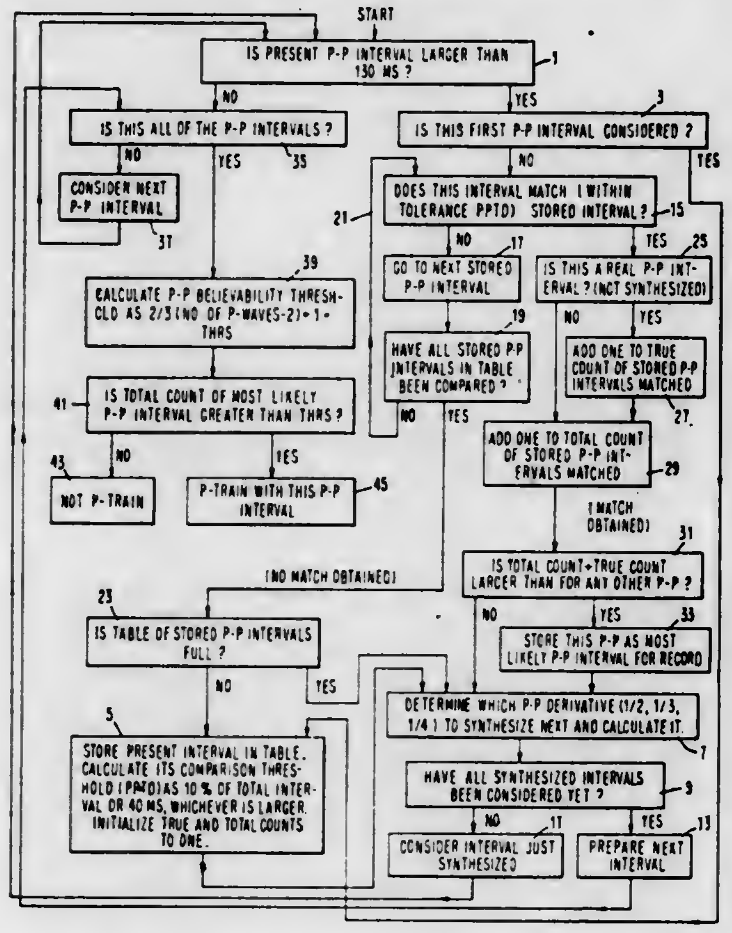
T926,013
DIMETHYL 5-BROMOISOPHTHALATE

Benjamin Thompson, 2204 Montrose Drive, Kingsport, Tenn. 37664
Filed Feb. 22, 1974, Ser. No. 444,938
Int. Cl. C07c *69/80*
U.S. Cl. 260—475 R
No Drawing. 3 Pages Specification

This invention relates to dimethyl 5-bromoisophthalate, which is useful as an intermediate in the preparation of monomers, such as 5-(4-sodiosulfophenoxy) isophthalate, said monomers being used to impart basic dyeability to polyester fibers.

T926,014
ROUTINE FOR IDENTIFYING A P-WAVE TRAIN

Raymond E. Bonner, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation of abandoned application Ser. No. 212,154, Dec. 27, 1971. This application Feb. 28, 1974, Ser. No. 446,848
Int. Cl. G06f *15/42*
U.S. Cl. 444—1
1 Sheet Drawing. 20 Pages Specification


START
IS PRESENT P-P INTERVAL LARGER THAN 130 MS ?
1
NO
YES
IS THIS ALL OF THE P-P INTERVALS ?
35
IS THIS FIRST P-P INTERVAL CONSIDERED ?
3
CONSIDER NEXT P-P INTERVAL
37
DOES THIS INTERVAL MATCH (WITHIN TOLERANCE PPTD) STORED INTERVAL ?
15
21
GO TO NEXT STORED P-P INTERVAL
17
IS THIS A REAL P-P INTERVAL ? (NOT SYNTHESIZED)
25
CALCULATE P-P BELIEVABILITY THRESHOLD AS 2/3 (NO OF P-WAVES-2)+1=THRS
39
HAVE ALL STORED P-P INTERVALS IN TABLE BEEN COMPARED ?
19
ADD ONE TO TRUE COUNT OF STORED P-P INTERVALS MATCHED
27
IS TOTAL COUNT OF MOST LIKELY P-P INTERVAL GREATER THAN THRS ?
41
ADD ONE TO TOTAL COUNT OF STORED P-P INTERVALS MATCHED
29
43
NOT P-TRAIN
P-TRAIN WITH THIS P-P INTERVAL
45
(MATCH OBTAINED)
31
IS TOTAL COUNT+TRUE COUNT LARGER THAN FOR ANY OTHER P-P ?
(NO MATCH OBTAINED)
23
IS TABLE OF STORED P-P INTERVALS FULL ?
STORE THIS P-P AS MOST LIKELY P-P INTERVAL FOR RECORD
33
DETERMINE WHICH P-P DERIVATIVE (1/2, 1/3, 1/4) TO SYNTHESIZE NEXT AND CALCULATE IT.
7
5
STORE PRESENT INTERVAL IN TABLE. CALCULATE ITS COMPARISON THRESHOLD (PPTD) AS 10% OF TOTAL INTERVAL OR 40 MS, WHICHEVER IS LARGER. INITIALIZE TRUE AND TOTAL COUNTS TO ONE.
HAVE ALL SYNTHESIZED INTERVALS BEEN CONSIDERED YET ?
9
11
CONSIDER INTERVAL JUST SYNTHESIZED
PREPARE NEXT INTERVAL
13

The figure shows a programming routine for automatically processing an electrocardiograph signal in a digital computer to determine whether a regularly spaced train of P-waves is present in the previously found P-like bumps or waves of the signal. The respective P-to-P time intervals between successive P-like waves of the signal are sequentially compared to each of the different P-to-P time intervals previously stored in a table of P-to-P time intervals. Each time a P-to-P time interval fails to match, within a predetermined degree of tolerance, intervals previously stored in the table, it is added to the table as a new interval. Each time an interval is added to the table, synthesized fractional subintervals thereof are likewise compared and added, if they fail to match. A separate count is maintained of the number of times each interval in the table is matched. The count of the interval which is matched most often is compared with a believability threshold to determine whether a regularly spaced train of P-waves is present.

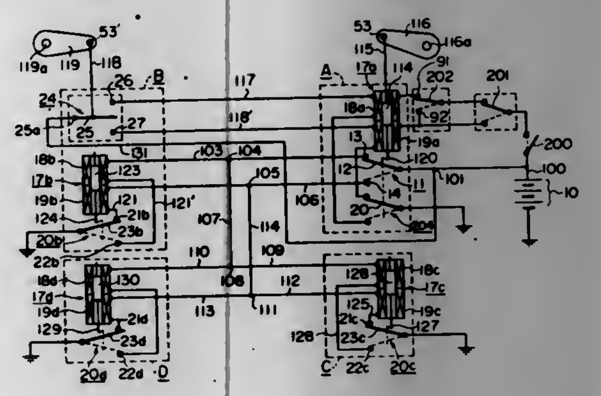
REISSUES

SEPTEMBER 3, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

28,142
AUTOMOTIVE DOOR LOCK

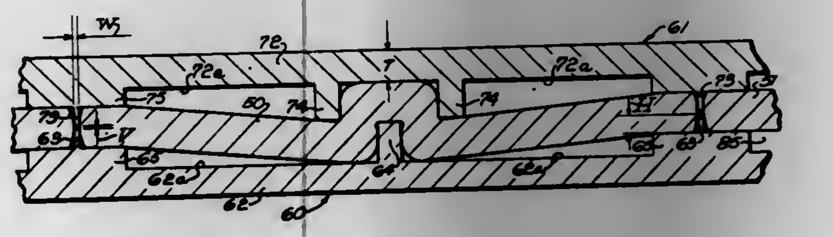
Kenichi Kazaoka, Kariya, Japan, assignor to Aisin Seiki Company Limited, Kariya-shi, Japan
Original No. 3,593,816, dated July 20, 1971, Ser. No. 787,439, Dec. 30, 1968. Application for reissue July 20, 1973, Ser. No. 381,136
Int. Cl. E05b *65/36, 65/42*
U.S. Cl. 180—113 **13 Claims**



An automotive door lock arrangement comprising a door lock of latch type provided for each of all doors of an automotive vehicle, said arrangement being characterized by the provision of: a solenoid coil assembly comprising a locking coil means and an unlocking coil means provided for each of said doors, an automatic switch means connected with the driver's solenoid assembly for sensing starting of said vehicle, electric wiring means connecting all of said solenoid assemblies with each other, said door locks being actuated thereby into their locking position when the driver's locking coil means is energized for locking by receiving an electrical signal depending upon said energization.

28,143
CUTTING AND SCORING DIES

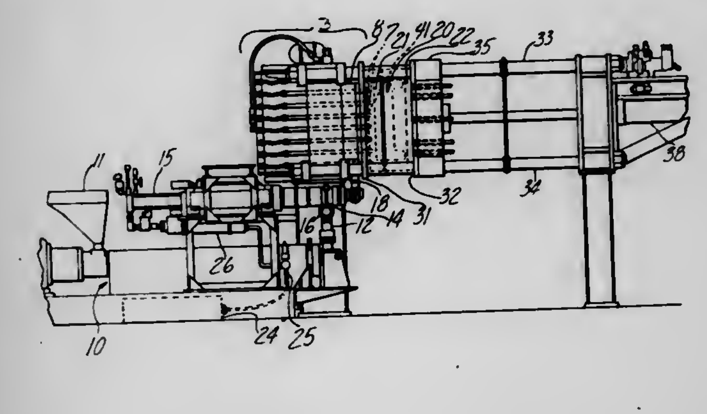
Albert J. Sarka, Fairview Park, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio
Original No. 3,485,146, dated Dec. 23, 1969, Ser. No. 700,538, Jan. 25, 1968. Application for reissue Mar. 6, 1972, Ser. No. 231,996
Int. Cl. B31b *1/16*
U.S. Cl. 93—58 R **10 Claims**



Apparatus for cutting and scoring sheet-like material comprises a pair of die plates. Each of the die plates includes at least one severing element. The severing elements on the die plates are cooperable to cut sheet-like material positioned therebetween. The severing elements on the die plates are mirror images of each other, and are in the form of narrow blades projecting above the main surface of the respective die plates. The blades have a substantially aligned relationship when operating to effect the severing of material positioned therebetween. The die plates may also have scoring elements thereon.

28,144
INJECTION MOLDING NOZZLE WITH FLOW-CONTROL MECHANISM

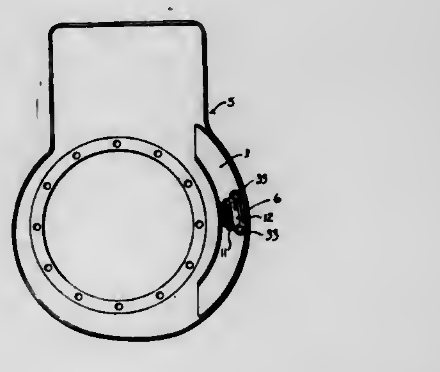
John Goron, Cranford, N.J., by Midland-Ross Corp., Cleveland, Ohio, assignee
Original No. 3,561,062, dated Feb. 9, 1971, Ser. No. 774,851, Nov. 12, 1968. Application for reissue Dec. 11, 1972, Ser. No. 314,106
Int. Cl. B29f *1/00*
U.S. Cl. 425—191 **5 Claims**



A manifold and nozzle assembly within injection molding equipment which will normally comprise an extruder, an accumulator, a manifold, and a plurality of nozzles projecting through the manifold. This invention is especially directed to flow-control valve mechanism within each nozzle in addition to shutoff valve mechanism.

28,145
RECTIFIER NETWORK ASSEMBLY

Paul A. Tharman, Milwaukee, Wis., assignor to Briggs & Stratton Corporation, Wauwatosa, Wis.
Original No. 3,678,366, dated July 18, 1972, Ser. No. 167,691, July 30, 1971. Application for reissue Oct. 25, 1972, Ser. No. 300,527
Int. Cl. H02m *7/00*
U.S. Cl. 321—8 R **6 Claims**



In a rectifier assembly comprising diodes that have wire terminals projecting axially in opposite directions from a cylindrical body, permanent connections between diode terminals comprise crimp connectors integral with terminal members such as plug jacks. The terminal members are seated in bores in a plug body which is partway received in an open topped metal casing. The casing is filled with epoxy that embeds the diodes, their connections with the terminal members and part of the plug body.

28,146

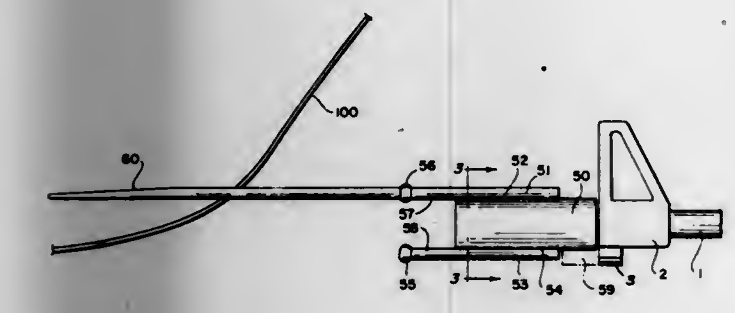
BALLISTIC CUTTING IMPLEMENT

**Daniel D. Musgrave, 8201 Caraway St.,
Cabin John, Md. 20731**

Original No. 3,657,835, dated Apr. 25, 1972, Ser. No. 32,523, Apr. 28, 1970. Application for reissue Feb. 5, 1974, Ser. No. 439,832

Int. Cl. F41c *27/00*

U.S. Cl. 42—90 **4 Claims**



An implement is mounted on the muzzle of a firearm to permit severing a strand of wire or other obstacle by discharging a bullet. The implement includes windlassing means to take up slack in the strand and thereby assure alinement of the strand with the bore of the firearm. The windlassing means is compatible with a variety of obstacle materials of different configurations and dimensions.

28,147

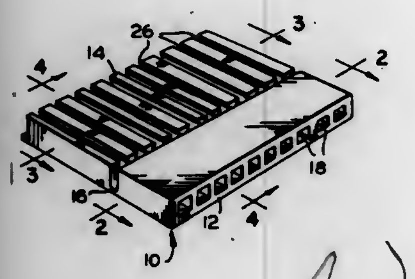
ELECTRICAL TERMINAL HOUSING HAVING HINGE AND ADJACENT LOCK PROJECTION

Eldon P. Hoffman, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Original No. 3,582,863, dated June 1, 1971, Ser. No. 806,432, Mar. 12, 1969. Application for reissue Mar. 19, 1973, Ser. No. 342,902

Int. Cl. H01r *11/02;* **H05k** *1/04*

U.S. Cl. 339—59 M **19 Claims**



An electrical terminal housing is described which includes a first end portion having a row of chambers containing the connector terminals connected by a hinge portion to a second end portion having a row of slots releasably holding the connectors so that a locking projection thereon extends into notches formed in the connectors in one position of the hinge to prevent removal of the connector terminals from such chambers. In another position of the hinge, the lock projection disengages from the connector notches and such connectors are released from the slots to enable removal of the connector terminals from such chambers. The entire terminal housing may be molded as a single piece of polypropylene plastic including a flexible hinge of reduced thickness.

28,148

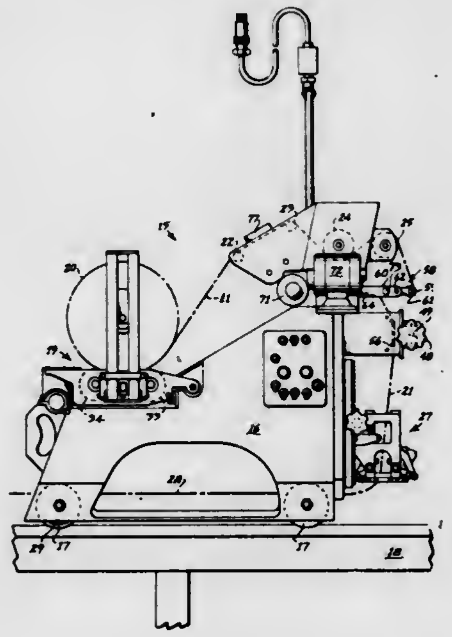
APPARATUS FOR ALIGNING A WEB OF PATTERNED SHEET MATERIAL

Robert W. Benson and Robert G. Reed, Nashville, Tenn., assignors to Cutters Machine Company, Inc., Nashville, Tenn.

Original No. 3,627,301, dated Dec. 14, 1971, Ser. No. 34,425, May 4, 1970. Application for reissue Aug. 31, 1972, Ser. No. 285,304

Int. Cl. B65h *29/46*

U.S. Cl. 270—31 **11 Claims**



A machine for spreading patterned cloth having a longitudinal line or linear division, including a photoelectric line or stripe sensing head, a transversely shiftable cloth support, and an electric motor responsive to the stripe sensing head for moving the cloth support transversely in a direction to maintain a line in said cloth on a true longitudinal course.

28,149

ROLLING MILL CONTROL SYSTEM

Samuel S. Harbaugh, Joseph J. Kasecky, and James B. Murtland, Jr., Natrona Heights, Pa., by Allegheny Ludlum Industries, Inc., Pittsburgh, Pa., assignee

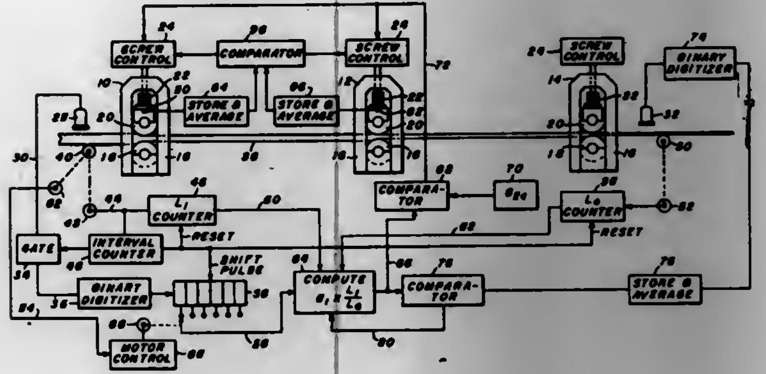
Original No. 3,564,882, dated Feb. 23, 1971, Ser. No. 723,121, Apr. 22, 1968. Application for reissue Oct. 1, 1973, Ser. No. 402,510

Int. Cl. B21b *37/00*

U.S. Cl. 72—8 **13 Claims**

Described is a rolling mill control system for tandem rolling mills based on the constant volume principle and wherein anticipated or predicted exit gage is calculated from measured entry gage and the length of material entering and leaving the mill. This predicted exit gage is

compared with desired exit gage as determined by the mill operator to generate an error correction signal to the mill screwdowns if the predicted and desired gages are not the same.



28,150

PROCESS FOR PRODUCING A NOVEL TEXTURED YARN

Michel Buzano, Villeurbanne, France, assignor to Rhone-Poulenc-Textile, Paris, France

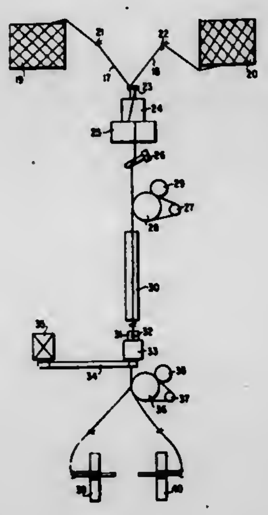
Original No. 3,683,611, dated Aug. 15, 1972, Ser. No. 878,274, Nov. 20, 1969. Application for reissue June 7, 1973, Ser. No. 367,959

Claims priority, application France, Nov. 22, 1968, 175,055

Int. Cl. D02g *1/02*

U.S. Cl. 57—157 TS **2 Claims**

Continuous filaments of thermoplastic material are provided wherein such filaments contain a helicoidal curling and/or a residual twist couple. The filaments have a cross section which is substantially the shape of a bean, such cross section varying slightly along the length of the filaments. The filaments are produced by a process which comprises creating an initial twist in an individual strand or in an assembly of a number of strands having a high count per strand and a small number of strands per assembly; thermally treating the twisted strands or assembly of strands; blocking such twist at a point; and separating the single strand or assembly of strands at such point and winding them up. Such a process is characterized in that the point of separation of the yarn is located immediately at the outlet of the heat treatment yarns while the yarns are still in a plastic state. The apparatus necessary for carrying out such process comprises a delivery means for providing the yarn by unwinding, means for separating the strands or assembly of strands, means for initiating the twisting, means for heating the twisted yarn, and means for receiving the yarn. Such apparatus can additionally contain drawing means.



PLANT PATENTS

GRANTED SEPTEMBER 3, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,604
CHRYSANTHEMUM PLANT

Leonard E. Carrier, 1911 Sheridan Road, Encinitas, Calif. 92024, and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio; said Jessel and Duffett assignors to said Carrier

Filed Jan. 24, 1973, Ser. No. 326,540

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly by its daisy form, intense red-bronze flower color; approximate ten week response period; flower size of 3¼″–3½″ when fully expanded; suggested flowering period in the northern and western United States from May through June and October through November, and by its intolerance of high temperatures for bud development.

3,605
CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Jan. 29, 1973, Ser. No. 327,806

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—77 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to uniqueness when compared to the parent cultivar Southern Comfort by its flower which is approximately 1″–1½″ larger in diameter; by its superior grade performance, grading out with a higher percentage of flowers in the top two grades; approximately 3″ to 4″ more vigor; a more incurved flower form; approximately 2–3 days later response; improved form retention which provides longer bench life, and by its foliage which is approximately ½″ longer in length and ½″ greater in width.

3,606
GARDENIA PLANT

Toshio Ishii, Gardena, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif.

Filed Mar. 8, 1973, Ser. No. 339,189

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—54 **1 Claim**

A new variety of Gardenia being a sport of the jasminoides species, having highly spicy and sweet-scented blooms which open on the bush a true white, become cream colored after a few days, and then turn golden yellow within eight days after the corolla first opens. Cut flowers change color more rapidly, becoming golden yellow in four days and lasting a week or slightly less. The bloom has no pistils, anthers or stamens. The plant is vigorous, bushy, upright-spreading and abundantly covered with glossy dark green foliage.

3,607
CHRYSANTHEMUM PLANT

Barrie John Machin, Chichester, England, assignor to Frampton's Nurseries Limited, Chichester, Sussex, England

Filed Apr. 12, 1973, Ser. No. 350,626

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—81 **1 Claim**

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey, substantially as shown and described, having an improved breaking action following a pinch and uniform flowering regardless of whether the apical flower on each shoot is disbudded, and characterized particularly as to its novelty by the unique combination of the deep, intense red purple color of its small, hard and crisp flowers which color is resistant to fading under high temperature or low light conditions.

3,608
CHRYSANTHEMUM PLANT

Sing Ling Lee, 206 Sleeper Ave., Mountain View, Calif. 94040

Filed Apr. 13, 1973, Ser. No. 350,910

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the parent cultivar Jumbo Albatross by its yellow flower color.

3,609
CHRYSANTHEMUM (RED BONANZA)

Leonard H. Shoesmith, Westfield, Woking, Surrey, England, assignor to Pan-American Plant Company, West Chicago, Ill.

Filed May 3, 1973, Ser. No. 356,921

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—82 **1 Claim**

A new variety of chrysanthemum plant of the standard incurved type, suitable for glass house culture, particularly distinguished by its very large globular head of many florets which have a Cardinal Red inside surface color and a Mimosa Yellow reverse side or outer surface color, providing a bright firey appearance for the blossom.

3,610
AFRICAN VIOLET PLANT

Arnold W. Fischer, Isernhagen, Germany, assignor to Geo. J. Ball, Inc., West Chicago, Ill.

Filed May 3, 1973, Ser. No. 356,925

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—69 **1 Claim**

A new variety of African violet plant for glass house and potted plant culture distinguished by its profuse production of large long-lasting flowers, the petals of which exhibit a variety of light to dark combinations of purple colors, the flowers appearing in clusters on sturdy, upright stems. This new plant is also characterized by its early and year around recurrent flowering habit and its condensed and abundant growth of attractive foliage.

PATENTS

GRANTED SEPTEMBER 3, 1974

GENERAL AND MECHANICAL

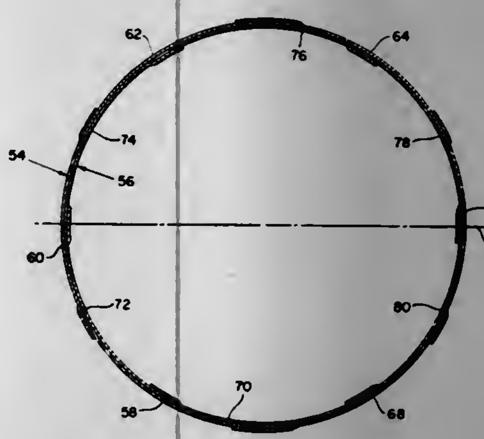
3,832,735
FLEXIBLE JOINT FOR PRESSURIZABLE GARMENT

William Elkins, Canoga Park; Eugene W. Connell, Thousand Oaks, and Robert E. Alesna, Torrance, all of Calif., assignors to The United States National Aeronautics and Space Administration Under the Provisions of 42 U.S.C. 2457, Washington, D.C.

Filed Dec. 11, 1967, Ser. No. 689,455

Int. Cl. A62b *17/00*

U.S. Cl. 2—2.1 A **15 Claims**



A flexible joint for a pressurizable garment has two fabric layers bonded together. The lay of one layer is straight cut and the other of bias cut. A ring-like tension member covered with Teflon disposed at the minor diameter of each joint convolution, is unrestrained other than being retained thereat in the flexure plane. A compression ring is secured at the major diameter, at certain of the convolutions, preferably alternate ones. A pair of axially disposed cable joint restraints at the convolution periphery are disposed in a plane normal to the flexure plane.

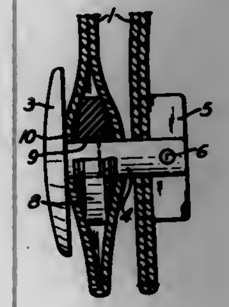
3,832,736
SHIRT CUFF WITH CUFF LINK RETAINER

Frederick E. Schuchman, Jr., Gateway Towers, Pittsburgh, Pa. 15222

Filed Aug. 27, 1973, Ser. No. 391,970

Int. Cl. A41b *7/00*

U.S. Cl. 2—123 **4 Claims**



One side of a shirt cuff has a cuff link retaining member secured between the fabric layers. The rubber-like retaining member is provided with a central hole aligned with the usual openings in the cuff that receive a cuff link, the diameter of the hole being such that the retaining member will grip the cuff link stem extending through it to prevent loss of the link.

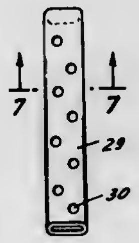
3,832,737
SHIRT COLLAR HAVING A DRAINAGE CHANNEL

Leon Podolsky, 77 Wendell Ave., Pittsfield, Mass. 02101

Filed Apr. 25, 1973, Ser. No. 354,285

Int. Cl. A41b *3/00*

U.S. Cl. 2—132 **6 Claims**



A shirt collar comprising superposed fabric layers stitched together along their edges, and a channel at an edge of the collar adjacent to one or each collar point through which water and dirt between the fabric layers can flow out freely from between the fabric layers when the shirt is hung to dry. The channel may be defined by a discontinuity in the stitching along the edge of the collar, by a short tube incorporated in the edge of the collar, or by a perforated tubular collar stay.

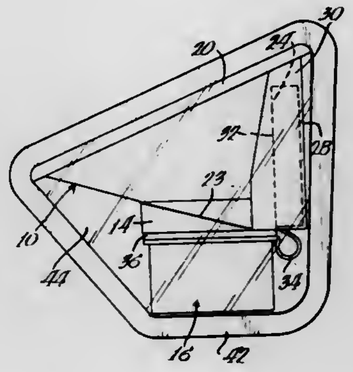
3,832,738
MID-STREAM URINE COLLECTOR

Colonel R. Kliemann, Greenfield, Wis., assignor to Kleen Test Products, Inc., Milwaukee, Wis.

Filed Sept. 13, 1973, Ser. No. 396,882

Int. Cl. E03d *13/00*

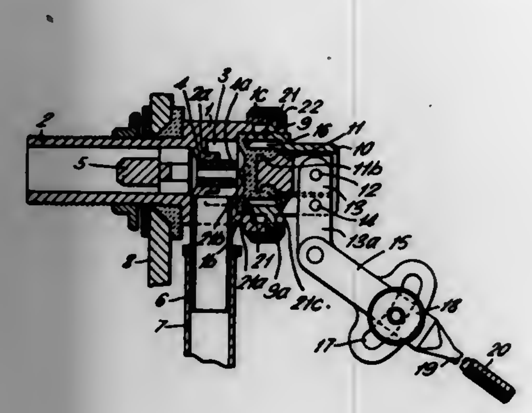
U.S. Cl. 4—110 **16 Claims**



A sanitary liquid collection device comprises a funnel-shaped member releasably connected to the open top of a container. A cap for the container is attached by a flexible member to the container and is held in a downwardly open compartment in the exterior wall of the funnel member. After collection of the liquid sample through the funnel member has been completed, the funnel member is removed from the container, thereby exposing the cap and enabling closure of the container. A visual pour line is provided to assist the user in pouring off excess liquid.

3,832,739
FLUSHING TANK FOR WATER CLOSET OR THE LIKE

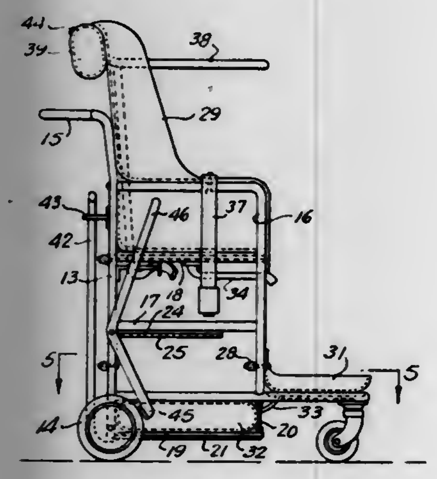
Giuseppe Campiglia, Via Oronzo Quarta, 4 Roma, Italy
Filed Feb. 4, 1972, Ser. No. 223,738
Int. Cl. F03d *1/36*
U.S. Cl. 4—41 **2 Claims**



A flushing tank for water closet or other similar container provided with a first device designed to control the water level in said tank and with a second device of the so called "-Sifonic" type designed to control the water flushing into a flushing pipe connected to a water closet bowl or the like characterized by the fact that means are provided for increasing the buoyancy of the outlet ball valve of the device controlling the water flushing and for obtaining a pneumatic watertight closure of said valve against its seat, while the device designed to control the water level into the tank is provided with means for adjusting the maximum water level into said tank and with other means for obtaining a watertight closure of a piston valve in the line from the water supply to a discharge pipe to the bowl and including means to regulate any high pressure source of water.

3,832,740
PORTABLE BATHING CHAIR FOR INVALIDS

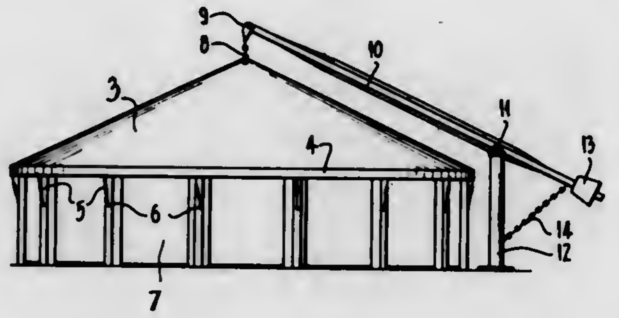
Edna M. McClarrin, 1261 N.W. 30th Ter., Fort Lauderdale, Fla. 33311
Filed Jan. 4, 1973, Ser. No. 320,979
Int. Cl. A47k *3/022*
U.S. Cl. 4—145 **4 Claims**



The present invention is directed to a collapsible portable bathing chair for invalids which includes a water tank, with a conduit for feeding water to a sitz bath and foot washing portions of the device. A shower rod is provided for supporting a faucet attached shower head and a drain tank is provided for the discharge of the washing water which collects in the foot rest portion of the device.

3,832,741
SWIMMING POOL COVER

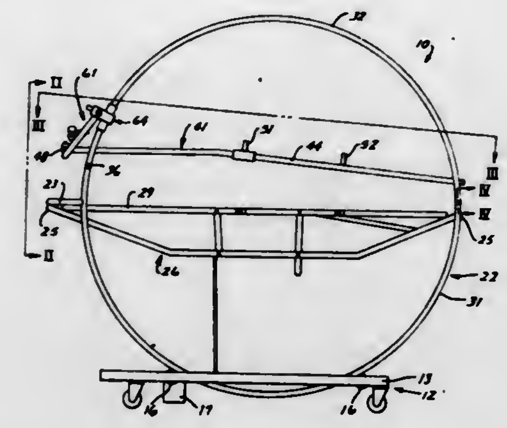
Geoffrey Arthur Ward, 11 Judd Parade, Cheltenham, Victoria, Australia (3192)
Filed June 20, 1973, Ser. No. 371,609
Claims priority, application Australia, July 26, 1972, 9836/72
Int. Cl. E04h *3/16, 3/18*
U.S. Cl. 4—172.12 **12 Claims**



The invention relates to a cover means for a swimming pool or the like comprising a sheet of material shaped for affixture about its periphery to the periphery of a pool, the body of the cover being supported above the contents by an elongated boom member pivotally mounted on a retaining post adjacent the pool.

3,832,742
END SUPPORT FOR ANTERIOR BED FRAME

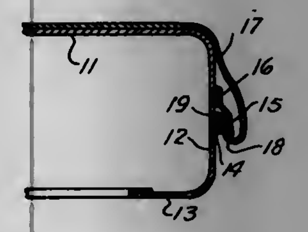
Homer H. Stryker, Kalamazoo, Mich., assignor to Stryker Corporation, Kalamazoo, Mich.
Continuation-in-part of Ser. No. 260,367, June 7, 1972, abandoned. This application Feb. 26, 1973, Ser. No. 335,480
Int. Cl. A61g *7/10, 7/06*
U.S. Cl. 5—62 **16 Claims**



An end support for the anterior frame of a rotatable hospital bed having opposed, relatively movable anterior and posterior patient supporting frames. The end support has a bar which extends between spaced, parallel and generally upright side rings of the bed. The ends of the end support bar are secured to the side rings by lock units. When the lock units are in their unlocked condition, they can slide along the corresponding side rings for adjusting the distance between the end supports, hence, the anterior frame and the posterior frame of the bed. The lock unit includes pin means engageable with the side rings and resiliently urged to remain in any of several selected positions therealong. The end support bar is mounted on the lock units for limited pivotal movement around an axis parallel with the rotational axis of the bed. The end support bar is resiliently biased toward one pivotal limiting position wherein said end support bar overlaps the end of said anterior frame. In a modified embodiment, the end support bar is not resiliently held but is pivotable on the lock unit through an extended angular range, between a limit position determined by an adjustment screw wherein the end support is engageable with the anterior frame, and a second limit position thereabove and wherein a support lock pin automatically locks the end support bar against pivotal movement in an upwardly extending intermediate position.

3,832,743
BED SHEETS

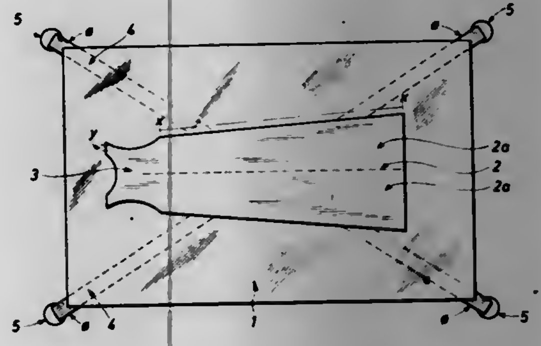
Saundra L. Smith, 3508 24th St. N.E., Washington, D.C. 20018
Filed May 2, 1972, Ser. No. 249,703
Int. Cl. A47g *9/00*
U.S. Cl. 5—334 C **1 Claim**



The present invention relates to bed sheets of the type which include a fitted bottom sheet having portions which extend around and under the edges of the mattress to retain the sheet in its correct position on the mattress. A top sheet has a central portion thereof detachably secured to the foot of the fitted sheet to retain the top sheet in its position with respect to the fitted sheet and to prevent the top sheet from being pulled out by excessive force applied thereto. The top sheet and fitted sheet are secured together by a separable fastener such as a "Velcro" fastener or a zipper. The top sheet when disconnected from the fitted sheet will lie completely flat for laundering and pressing and the separable fastener on the fitted sheet is provided with a covering flap to prevent it from being contacted by the sleeper as well as to prevent damage to the fastener during laundering.

3,832,744
SHEET SLEEPING-BAG

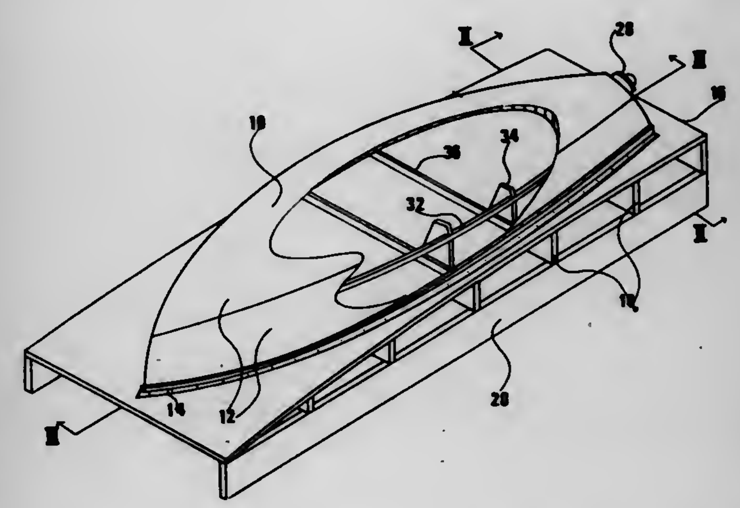
Henry R. Krarup, P.O. Box 123, 3900 Godaab, Greenland, Denmark
Filed Oct. 19, 1972, Ser. No. 299,008
Int. Cl. A47g *9/00*
U.S. Cl. 5—336 **6 Claims**



A sheet sleeping-bag provided with openings for accommodating the neck, head and arms designed to prevent a person from leaving the bed and throwing off his bed clothes, while ensuring an optimal lying position, the sleeping-bag being stitched onto a drawsheet by means of at least one piece of fabric, said drawsheet being in turn fastened to a bed, and where said piece of fabric is formed as a triangle, one side of which is stitched onto and along portion of the centre line of the back of the sleeping-bag with the second side thereof being stitched onto and along portion of the centre line of the drawsheet, and where the third side of the triangle extends from the centre line of the drawsheet up towards the centre of the sleeping-bag.

3,832,745
DISPOSABLE INNER MOULD FOR BOATS AND METHOD OF MANUFACTURE

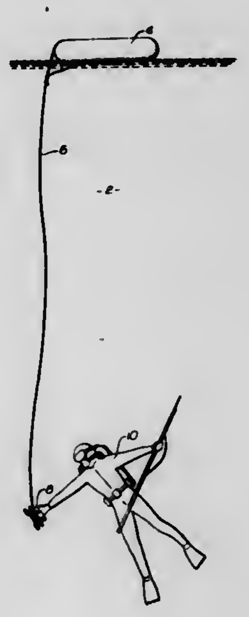
Jan William Dorfman, 36 Madison Ave., Toronto, Ontario, Canada
Filed May 25, 1973, Ser. No. 364,003
Int. Cl. B63b *5/24*
U.S. Cl. 9—6 **10 Claims**



A disposable inner mould or form for the construction of a boat hull, such mould comprising a hollow hull-shaped form made of flexible non-stretch plastic sheet material tailored in the shape of the inner surface of the boat hull, and means for securing such form in an inverted position on a base member, means for inflating said form to adopt its predetermined non-stretch tailored hull-shape as aforesaid, and contour control means for supporting portions of the form to retain it in its tailored hull-shape, and a method of building decked or partly decked boat hulls using flexible forms.

3,832,746
FLOAT TOW LINE GUIDE

Carl S. Korsgaard, 747 N. Azusa Ave., West Covina, Calif. 91790
Filed Apr. 5, 1973, Ser. No. 348,024
Int. Cl. B63c *11/00*
U.S. Cl. 9—400 **4 Claims**



To provide means for attaching a line to a float or the like, a float tow line guide is provided which includes a forward portion or reel for storage of a line and a rearward portion or handle for guiding the line to a centrally located line passage means. This allows varying the length of line to be stored by the handle while at the same time providing a centrally located line discharge means to prevent twisting of the handle during use.

3,832,747

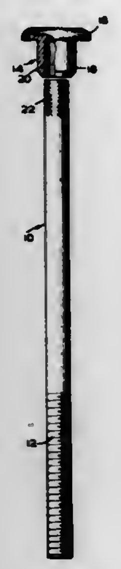
BOLT AND METHOD OF MAKING THE SAME

Erby Roy Nankivell, Jr., and James H. Turner, both of Athens, Tenn., assignors to Plastic Industries, Inc., Athens, Tenn.

Continuation-in-part of Ser. No. 671,433, Sept. 28, 1967, abandoned. This application Feb. 24, 1970, Ser. No. 13,571

Int. Cl. B21k *1/44*; **B23g** *9/00*

U.S. Cl. 10—27 R **1 Claim**



A shank, similar to the shank of a bolt and straight from end to end, is threaded along one end and has its other end knurled or otherwise processed to disturb the surface continuity of the metal, thus providing an irregular surface. A head having a shoulder portion provided with an axial opening is then pushed downwardly into position over the knurled end of the shank. Inward radial pressure is then exerted on the shoulder portions of the shank to cause the metal around the axial opening thereof to be displaced or flow into the adjacent irregularities of the shank. This permanently secures the head to the shank, just as if the two had been integrally formed. The inward radial pressure exerted against the shoulder of the head not only permanently unites the shoulder with the shank but also shapes the shoulder in accordance with any desired cross-sectional shape thereof, such as square, hexagonal, etc.

3,832,748

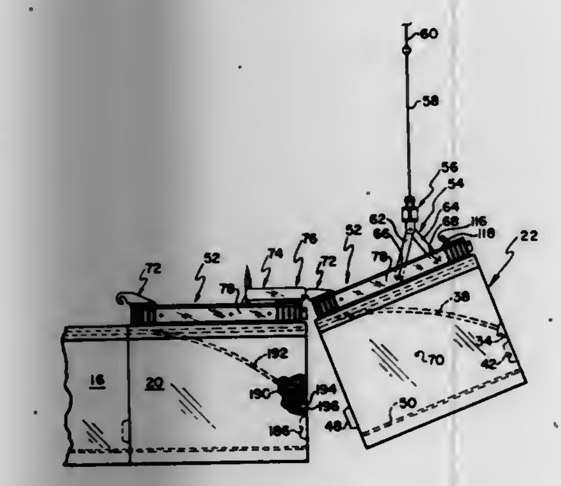
ERECTING SEGMENTAL SPANS

William B. Ogletree, 610 Bradshaw, Corpus Christi, Tex. 78412

Filed Nov. 1, 1972, Ser. No. 302,785

Int. Cl. E01d *1/00*

U.S. Cl. 14—1 **17 Claims**



There is disclosed a technique for erecting segmental bridge spans. Means are provided for temporarily connecting the segments to each other in preparation for permanently joining the same together. The temporary connectors incorporate a pivotal connection, capable of adjustment under load, allowing relative adjustable pivotal movement between the movable segment and the stationary segment. The adjustable feature of the pivot connection allows the segments to be shifted for close mating engagement.

3,832,749

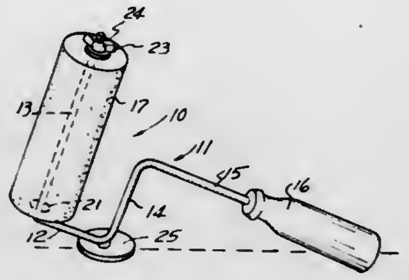
SELF-STANDING PAINT ROLLER

Gary D. Hawk, Iola, Kans., assignor to Harding Development Company, Warren, Mich.

Filed Jan. 5, 1973, Ser. No. 321,539

Int. Cl. B44d *3/28*

U.S. Cl. 15—230.11 **4 Claims**



An upright, self-standing paint roller formed of a stiff wire bent into a roughly squared U-shape, with one leg being about twice the length of the other and extending through the center of and rotatably supporting a paint applying roller, with the other, short leg having an integral long handle forming extension portion extending roughly parallel to the base of the U-shape, and a support member secured to said base near the bend between the base and short leg so that the paint roller may be supported in an upright position upon the support member and remote end of the handle portion.

3,832,750

HEADLIGHT WIPER

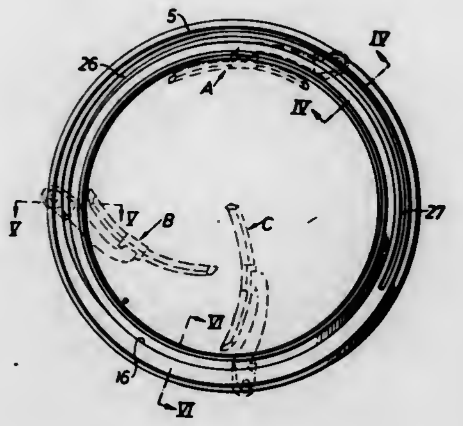
Uro Tapio Jarvinen, Satunavagen 18, and Olli Olavi Salminen, Valstavagen 58, both of 19500 Marsta, Sweden

Filed Mar. 20, 1973, Ser. No. 343,176

Claims priority, application Sweden, Mar. 27, 1972, 3963/72

Int. Cl. B60s *1/20, 1/44*

U.S. Cl. 15—250.16 **4 Claims**



A headlight wiper is described comprising a support ring to be mounted in a stationary position on a headlight, a carrier ring rotatably mounted on the support ring, and a wiper arm which is pivotally mounted in the carrier ring and provided with a driver cooperating with a stationary guide on the support ring. The carrier ring is provided with a tooth rim adapted for engagement with a motor operated pinion. The arrangement is such that when the wiper is started the wiper arm will be swung from a substantially tangential rest position to a substantially radial working position in which it will move along the lens of the headlight through the rotary movement imparted to the carrier ring. According to the invention the stationary guide is formed by a guide groove in the support ring and a portion of the driver projects into the groove for permanent engagement therewith. Said guide groove comprises a portion which extends along a spiral line and, at its inner end, terminates in a continuous circular groove portion in the support ring.

3,832,751

WIPER ARRANGEMENT FOR USE WITH CURVED SURFACES

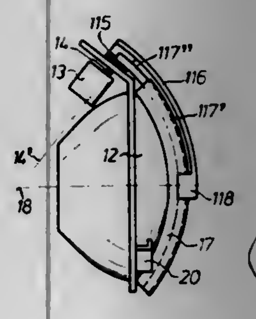
Eckhard Ursel; Horst Seibicke, both of Altschweier, and Willi Schaper, Buhl, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Apr. 28, 1972, Ser. No. 248,541

Claims priority, application Germany, June 9, 1971, 2128677

Int. Cl. B60s *1/32, 1/38*

U.S. Cl. 15—250.23 **10 Claims**



A wiper arrangement is to be used on the lens of a vehicle light. An elongated elastically deformable wiper blade having a lip is provided with the lip being adapted to contact the exposed surface of the lens which is spherically curved. A mounting arm engages the wiper blade and holds the same in position adjacent the surface and a drive shaft is connected with the mounting arm for moving the same, and thereby the wiper blade, in alternately reversed directions over the surface. The axis of the drive shaft is oriented either to intersect or at least to extend in direction substantially towards the center of curvature of the lens.

3,832,752

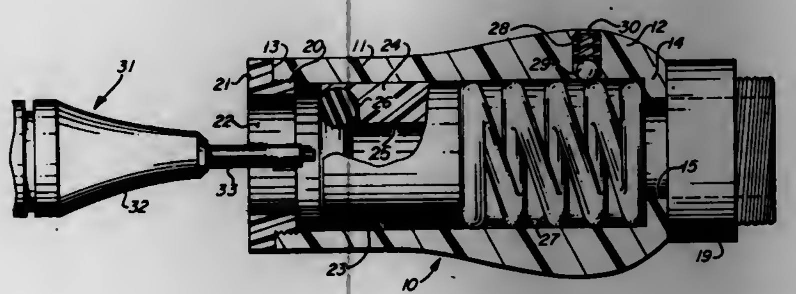
PEN POINT CLEANER

George Dale Prochnow, 2930 N. 21 St. Pl., Phoenix, Ariz. 85016

Filed Mar. 21, 1973, Ser. No. 343,426

Int. Cl. A47l *5/04*; **B43k** *13/00*

U.S. Cl. 15—341 **6 Claims**



A cleaner for the pen points of the so-called Rapidograph type fountain pens and which cleaner operates on the vacuum principle. A fountain pen of the character intended to be cleaned by the device of this invention includes a conical end member from which projects a tubular pen point. The cleaning device comprises a tubular body to one end of which is attached a receiver for ink drawn from pens that have been cleaned. An annular abutment ring is mounted in the body at the end remote from the ink receiver. A piston is slidable in the bore of the tubular body. The piston is hollow and carries a sealing ring at its end adjacent to the abutment. The piston is biased towards the abutment by an expansion coil spring in the body. The latter is provided with a vent adjacent to the end on which the ink receiver is mounted. A one-way check valve is associated with this vent.

In operation the conical end member of a pen is inserted into the piston until it engages the sealing ring. Continued inward movement of the pen causes the piston to move against the bias of the spring and expels air through the vent. Upon release of pressure on the pen the spring moves the piston towards the abutment end. This creates a vacuum condition which draws ink from the pen. The flow of the ink results in the desired cleaning action.

3,832,753

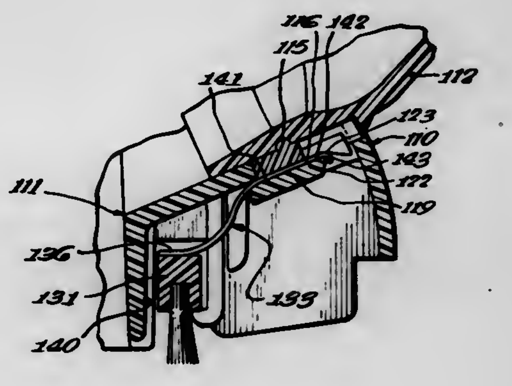
VACUUM CLEANER STRUCTURE

Stanley R. Crooks, Shakopee, Minn., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Sept. 12, 1972, Ser. No. 288,380

Int. Cl. A47l *9/06*

U.S. Cl. 15—371 **15 Claims**



A vacuum cleaner structure wherein a swivel is retained in association with the nozzle by a swivel retainer removably received in a slot in the nozzle outlet opening. The swivel retainer includes a resilient catch member which may be released to permit removal of the swivel from the nozzle when desired with the retainer being held in locking position by the swivel and nozzle in the assembled arrangement. A spring is provided for biasing the nozzle brush into operative position relative to the nozzle, and in one form of the invention, the spring is retained in association with the nozzle by the swivel retainer.

3,832,754

GRAVITY ACTUATED HINGED DOOR MOUNTING

Klaus Paul Maertin, 10 Weerroona Ave., Elanora Heights, New South Wales, Australia (2101), and Stewart Cecil Combs, 32 Forestville Ave., Forestville, New South Wales, Australia (2087)

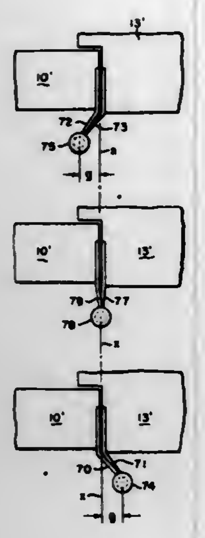
Filed July 14, 1972, Ser. No. 271,677

Claims priority, application Australia, Aug. 11, 1971, 5864/71; Aug. 26, 1971, 6057/71; Oct. 26, 1971, 6791/71

Int. Cl. E05f *1/06*

U.S. Cl. 16—152 **5 Claims**

A gravity actuated hinged mounting for a door comprises two or more hinges which individually have the appearance of conventional butt hinges, but the several hinges in each mounting are individually different so that their respective pivot axes define the hinge axis of the door along a line which is inclined to the vertical. This result is accomplished by construction of the individual hinges to locate their respective



knuckle portions in laterally spaced vertical planes and by constructing the complementary pivot members which connect each pair of knuckle portions to provide for relative rocking movement of the knuckle portions as the door swings on its inclined axis.

3,832,755
DOOR HINGES

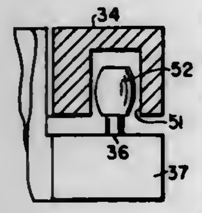
Klaus Paul Maertin, 10 Weeroona Ave., Elanora Heights, Australia (2101), and Stewart Cecil Combs, Forestville, New South Wales, both of Australia (2087)

Filed July 14, 1972, Ser. No. 271,678

Claims priority, application Australia, Aug. 11, 1971, 5864/71; Aug. 26, 1971, 6057/71; Oct. 26, 1971, 6791/71

Int. Cl. E05f *1/06;* **E05d** *5/12*

U.S. Cl. 16—156 **26 Claims**



This invention relates to apparatus for pivotally mounting a door, window or like closure in a frame, comprising at least a top and a bottom hinge construction, each having the appearance of a conventional hinge, but at least the top and the bottom constructions having substantially different pivotal means permitting adaption thereof for a number of relatively different functions. Each said pivotal means includes means defining at least a pin and a complementary recess adapted to locate relative to each other in such a manner as to permit relative departure of the recess from a position coaxial with said pin and relative rotation about a predetermined axis.

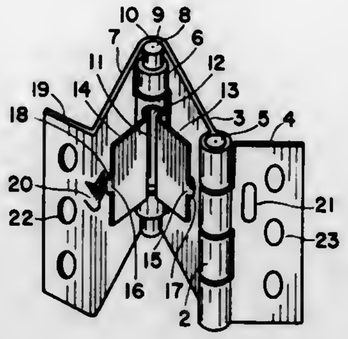
3,832,756
DUAL ACTION HINGE FOR FOLDING DOORS

Hyok Sang Lew, 1620 E. Blacklidge Dr. No. 6, Tucson, Tex. 85719

Filed July 2, 1973, Ser. No. 375,337

Int. Cl. E05d *3/06*

U.S. Cl. 16—163 **9 Claims**



A folding door hinge having two pivot points and including a resilient member disposed intermediate two of the flaps extending from one of the pivot points provides a two step closing operation and prevents a snap action closing of a folding door.

3,832,757
PROCESS FOR PRODUCING CLOTHES-PINS BY EXTRUSION OF PLASTIC MATERIAL AND THE CLOTHES PINS OBTAINED

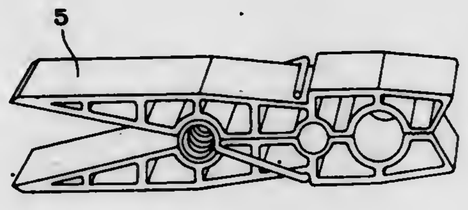
Benito D'Eugenio, Via Maurisio 13, Vicenza, Italy

Filed Mar. 20, 1973, Ser. No. 343,009

Claims priority, application Italy, Mar. 20, 1972, 85538/72

Int. Cl. D06f *55/00*

U.S. Cl. 24—137 A **3 Claims**



A process for producing clothes-pins and a clothes-pin formed by the extrusion of a strip of plastics material, transversely cutting said strip into a plurality of clothes-pin elements and assembling said elements in pairs to form a clothes-pin.

3,832,758
TEXTILE FABRIC OR PAPER SHRINKING MACHINES

Jack Johnson, Middleton, England, assignor to Hunt & Moscrop Limited, Middleton Junction, Lancaster County, England

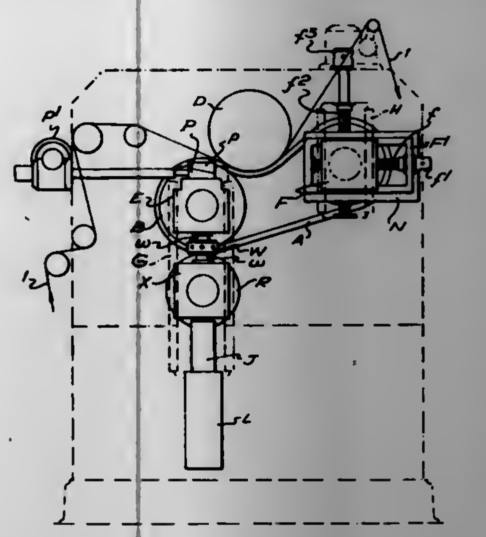
Filed July 17, 1972, Ser. No. 272,474

Claims priority, application Great Britain, Aug. 5, 1971, 36825/71

Int. Cl. D06c *21/00*

U.S. Cl. 26—18.6 **5 Claims**

A textile fabric or paper shrinking machine of the type in which an endless belt travels over front and back rollers and in contact with a pressure roller driven at a speed different from the belt, the textile fabric or paper being shrunk by the contraction of the belt after passing the nip between the pressure roller and the front roller, wherein the pressure roller is driven by an electric motor through a reduction gear or by a commutator motor with a second drive taken through the reduction gear and a positive infinitely variable speed gear and a second reduction gear to the front or back roller to drive the pressure



roller at 20 percent – 25 percent above the speed of the front or back roller to produce a texturized or stretch fabric or paper web.

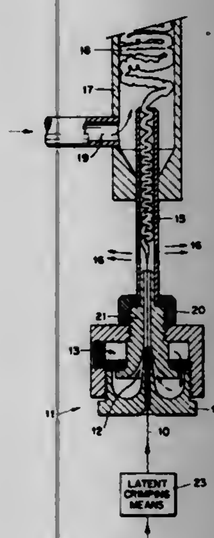
3,832,759
PROCESS AND APPARATUS FOR TEXTURIZING YARN

Brewster B. Eskridge; Roger H. Fink, both of Asheville, and Boyce M. Lyon, Candler, all of N.C., assignors to Akzona Incorporated, Asheville, N.C.

Continuation-in-part of Ser. No. 33,785, May 1, 1970, abandoned. This application Mar. 23, 1972, Ser. No. 237,295

Int. Cl. D02g *1/20, 1/12*

U.S. Cl. 28—1.3 **17 Claims**



Continuous thermoplastic multifilament yarn is texturized by aspirating such yarn into a pneumatic jet with dry gas followed by passing said yarn through said jet into a crimping tube having exhaust ports, and then passing said yarn into an accumulator chamber with steam being supplied thereto to produce bulked yarn which can then be passed to a take-up package; annealing and air tangling after-treatment, prior to take-up, are optional. Yarn so processed travels at a comparatively high and increased rate of speed to thus achieve a more effective processing system. A conventional mechanical stuffer box can be incorporated between said accumulator chamber and the take-up package to further increase bulking prior to annealing and air tangling which are optional, depending on the feeder yarn and/or the desired bulk level. The feeder yarn to be processed may also be pretreated to have a latent crimp which is developed and stabilized during the texturizing process.

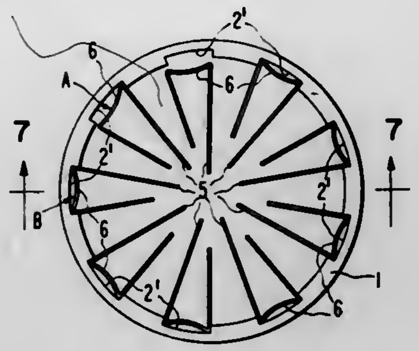
3,832,760
VANE GRID STRUCTURES AND METHOD OF MAKING SAME

Russell F. Scott, Jr., Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif.

Division of Ser. No. 69,677, Feb. 4, 1970, abandoned, which is a continuation-in-part of Ser. No. 58,422, July 27, 1970, abandoned. This application Nov. 13, 1972, Ser. No. 306,963

Int. Cl. H01j *9/18*

U.S. Cl. 29—25.14 **3 Claims**



A vane grid is disclosed wherein a plurality of inwardly directed vanes are bonded at their roots to the sidewalls of an array of longitudinal slots in the inside wall of a grid ring. The grid is conveniently fabricated by machining a plurality of grid rings, stacking the grid rings, and broaching the array of slots in the inside walls of the stacked grid rings. The grid rings are then plated, the vane members assembled, and the assemblies are heated to melt the plating to form, when cooled, a bonded joint between the root portions of the vanes and the grid ring.

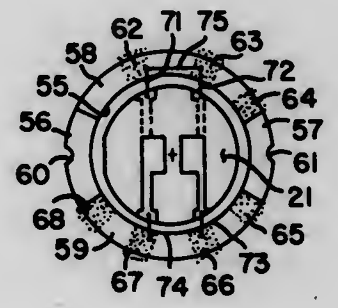
3,832,761
METHOD OF ASSEMBLY OF CRYSTAL FILTERS

Desmond F. Sheahan, San Carlos, and George C. Callander, Palo Alto, both of Calif., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Division of Ser. No. 156,275, June 24, 1971, Pat. No. 3,723,920. This application Sept. 5, 1972, Ser. No. 285,989

Int. Cl. B01j *17/00*

U.S. Cl. 29—25.35 **12 Claims**



In this filter, each one of two coupled resonators is formed on a different crystal wafer. Each wafer is accurately positioned with respect to one longitudinal groove in the periphery of a ceramic ring. The wafer is supported in the central opening in the ring with wires which are soldered to metalized areas of the ring and to resonator lead patterns on the wafer to form a resonator assembly. Each resonator is tuned to operate at a predetermined frequency by locating the associated resonator assembly in a masking jig with respect to the one groove on the ring to accurately align the resonator electrode patterns with holes in the jig. A metal film is evaporated onto a resonator electrode to adjust the resonant frequency of the associated resonator to be equal to the predetermined frequency. In a packaged filter the resonator assemblies and electrically conductive spacers are alternately stacked on a header having a pair of posts protruding therefrom that are located in longitudinal grooves in the ceramic rings and openings in the spacers for supporting the stacked elements. Extensions and tabs on the spacers are soldered to the alignment posts and metalized areas on the rings, respectively, to ground the resonators and spacers to the header. The spacer sandwiched between the rings provides isolation between the resonators on adjacent wafers. A discrete chip capacitor is connected to a resonator electrode and a metalized area on a ring which is grounded to the header. The resonator electrodes are also selectively interconnected and connected to insulated lead pins in the header to produce a filter structure. The packaged filter is hermetically sealed by cold welding a cover to the header.

3,832,762

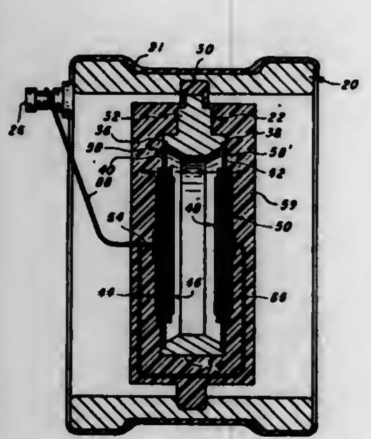
METHOD OF PRODUCING A MATCHED PARAMETER ACCELERATION CANCELLING HYDROPHONE

Roy C. Johnston, Richardson, and Lawrence B. Sullivan, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation-in-part of Ser. No. 255,503, May 22, 1972, abandoned. This application Dec. 26, 1973, Ser. No. 427,881

Int. Cl. B01j *17/00*

U.S. Cl. 29—25.35 **5 Claims**



A seismic cable having minimum response to speed changes is provided. The cable includes a plurality of miniature seismic pressure sensitive detectors coupled one to another in such a manner so as to minimize through cancellation undesired electrical disturbance resulting from speed changes. Each detector includes transducers of the ceramic piezoelectric crystal type having matched geometric and physical property parameters. Each ceramic piezoelectric crystal is provided with metal electrodes such as, for example, gold, nickel, platinum, or rhodium which, in addition to being corrosion resistant and inactive as to the constituents in the ceramic material, are insoluble in liquids encountered by the detector in its use environment to avoid dendrite type growth of the metal through minute cracks developing in the ceramic which causes short circuits in the piezoelectric element.

3,832,763

METHOD OF DROP-FORGING SINTERED WORKPIECES

Franz Schober, Muenchen-Obermenzing, Germany, assignor to Bayerisches Leichtmetallwerk Graf Bluecher von Wahlstatt KG, Munich, Germany

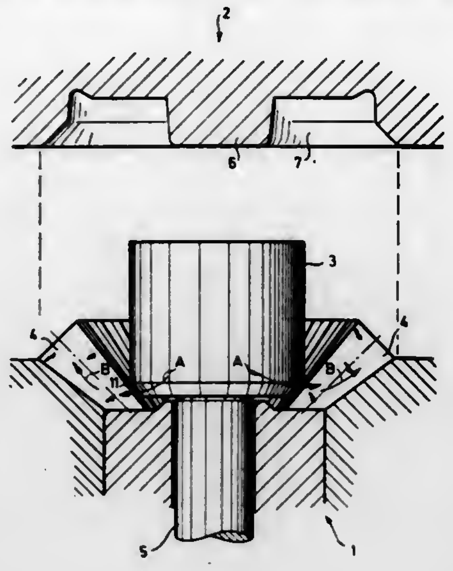
Filed Apr. 13, 1973, Ser. No. 350,802

Claims priority, application Germany, Apr. 22, 1972, 2219856

Int. Cl. B21k *1/30*

U.S. Cl. 29—159.2 **10 Claims**

The present drop-forging method of presintered workpieces employs a drop-forging die which has a dimension transverse to the direction of motion of a die member larger than the dimension of a preshaped blank. The shape of the blank is selected to deviate from the shape of the drop-forging die to such an extent as to assure a massive deformation in the following drop-forging step.



3,832,764

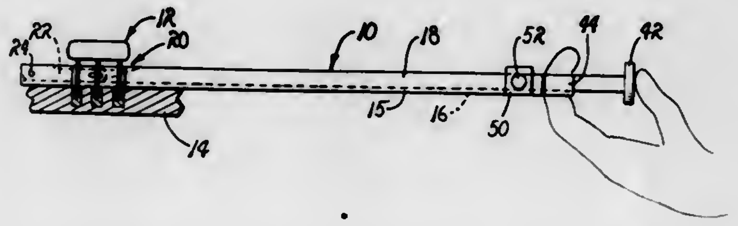
TOOL FOR USE IN LIFTING PIN-SUPPORTED OBJECTS

James C. Fletcher, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Ronald A. Marzek, 5162 Stratford Ave., Westminster, Calif. 92683, and William S. Read, 3336 Sparr Blvd., Glendale, Calif.

Filed June 18, 1973, Ser. No. 370,872

Int. Cl. B25b *27/02*

U.S. Cl. 29—203 H **5 Claims**



A tool for use in lifting a pin-supported, electronic package mounted in juxtaposition with the surface of an electronic circuit board. The tool is configured to be received beneath a pin-supported package and is characterized by a manually operable linkage, including an elongated body within which an elongated, rigid link is supported for axial reciprocation and a pivotal link pinned to the body and supported for oscillation induced in response to axial motion imparted to the rigid link. A lifting plate is pivotally coupled to the distal end of the pivotal link so that oscillatory motion imparted to the pivotal link serves to move the plate vertically for elevating the plate into lifting engagement with the electronic package positioned thereabove.

3,832,765

APPARATUS FOR REMOVING INSERTS FROM AN ELECTRICALLY INSULATING STRIP

Dieter Klinger, Alstaig, Germany, assignor to Mayer & Cie., Maschinenfabrik, TailfingenWuertt, Germany

Filed Mar. 1, 1973, Ser. No. 336,955

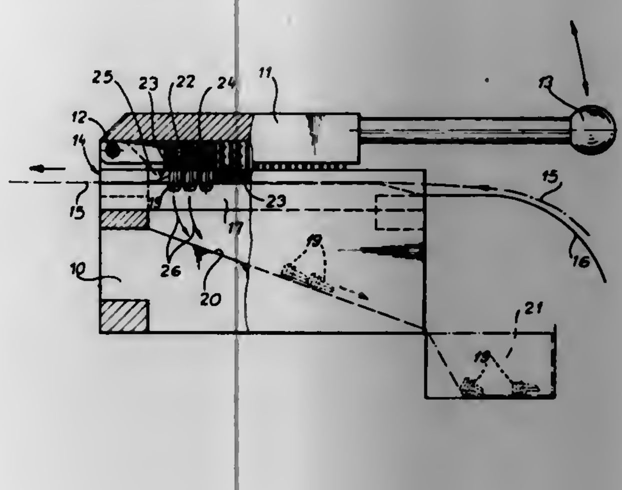
Claims priority, application Germany, Mar. 30, 1972, 2215650

Int. Cl. H05k *3/04*

U.S. Cl. 29—203 B **8 Claims**

Apparatus for removing inserts such as electrical contacts arranged in parallel rows on an electrically insulating strip.

The apparatus includes a support for the strip, the support being provided with parallel channels for the reception of the heads of the inserts, there being parallel laterally spaced bars for supporting the strip and for defining the channels therebetween. There is provided a head bearing a plurality of punch members disposed in the same relationship as the insert-receiving zones of the strip, and a stop for engaging the forward row of inserts on the strip to position it correctly with respect to the punches. Upon the advance of the head toward the strip-supporting body, the punches engage the upstanding ends of the inserts and force the inserts downwardly out of the strip. There is preferably provided a container which automatically receives the inserts removed from the strip.



3,832,766

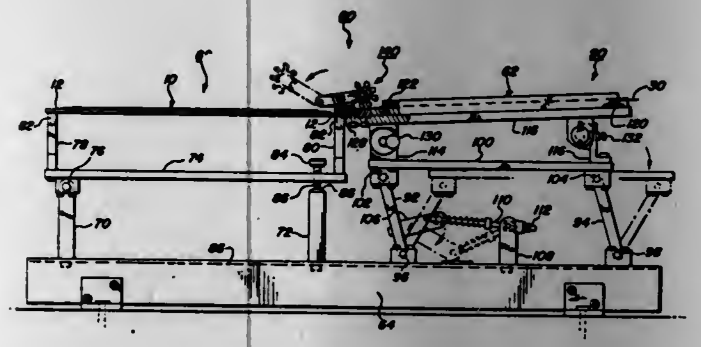
APPARATUS FOR ASSEMBLING A PLATED WIRE MEMORY PLANE

Wendell C. Johnson, Topanga; Nicolas G. Gomez, Los Angeles, and Claude H. Foret, Culver City, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 308,367, Nov. 21, 1972, which is a division of Ser. No. 106,839, Jan. 15, 1971, Pat. No. 3,722,083. This application Nov. 8, 1973, Ser. No. 414,001

Int. Cl. H01f *41/00*

U.S. Cl. 29—203 MM **18 Claims**



A plated wire memory plane includes a support member, an insulator having a plurality of parallel grooves, a plated wire comprising a conductive wire substrate, an annular magnetic coating uniformly deposited in generally all of the preformed grooves, and a substantially U-shaped word drive line laminate. One leg of said word drive line laminate is positioned between the grooved insulator and the support member. The second leg of the word drive line laminate is positioned to overlie the upper surface of the grooved insulator.

3,832,767

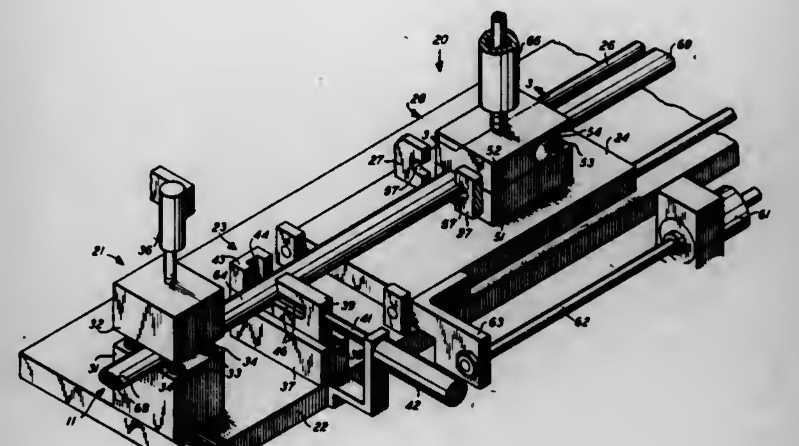
METHOD OF STRIPPING INSULATION

Edwyn H. Petree, Burlington, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Mar. 27, 1973, Ser. No. 345,382

Int. Cl. B23p *19/02*

U.S. Cl. 29—427 **10 Claims**



A length of severed insulation is stripped from a conductor by applying pressurized fluid between the conductor and the insulation to generate a fluid bearing therebetween and by then moving the insulation from the conductor along the fluid bearing. The insulation may be severed by (1) cutting partially through the insulation and applying pressurized fluid between the conductor and the insulation to expand and rupture the insulation at the cut; by (2) using the pressurized fluid to expand the insulation against a cutting blade; or by (3) using a precision cutting technique without the application of pressurized fluid.

3,832,768

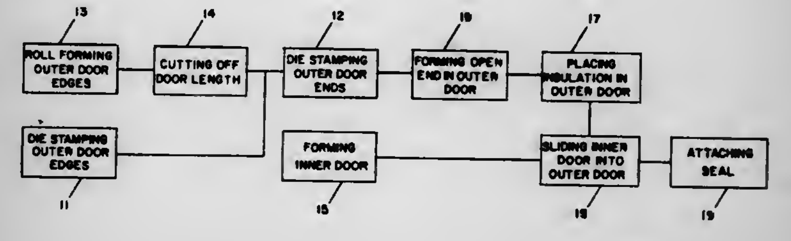
REFRIGERATOR DOOR-MAKING METHOD

Edward H. Smoot, Holcomb, N.Y., assignor to The Schlegel Manufacturing Company, Rochester, N.Y.

Filed Feb. 16, 1973, Ser. No. 333,115

Int. Cl. B23p *19/00*

U.S. Cl. 29—428 **12 Claims**


13
ROLL FORMING OUTER DOOR EDGES
14
CUTTING OFF DOOR LENGTH
12
DIE STAMPING OUTER DOOR ENDS
16
FORMING OPEN END IN OUTER DOOR
17
PLACING INSULATION IN OUTER DOOR
DIE STAMPING OUTER DOOR EDGES
11
FORMING INNER DOOR
15
SLIDING INNER DOOR INTO OUTER DOOR
18
ATTACHING SEAL
19

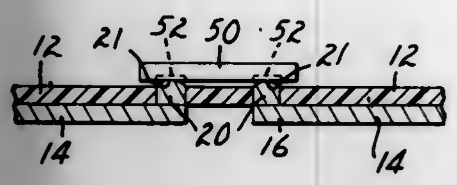
In making a refrigerator door, sheet metal is formed into a box-shaped outer door, and a plastic inner door is molded with side edge flanges shaped to extend under inturned flanges of the outer door. The outer door has an open end to receive the inner door, insulation is placed inside the outer door, and the inner door is slid endwise into the outer door with its edge flanges locked inside the inturned flanges of the outer door. Then a seal is secured around the flange of the outer door, and the opening that receives the inner door is preferably covered over.

3,832,769

CIRCUITRY AND METHOD

Murray Olyphant, Jr., Lake Elmo, and Robert R. Rohloff, Lakeland, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint-Paul, Minn.

Filed May 26, 1971, Ser. No. 146,984
Int. Cl. H05k *3/32, 3/36*
U.S. Cl. 29—626 **18 Claims**



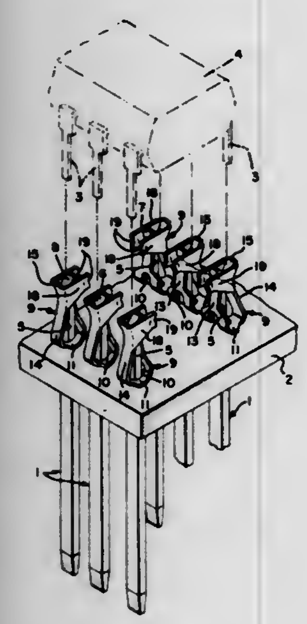
A method for mounting semiconductor chips to printed circuitry via conductive columns which extend through the dielectric substrate and electrically communicate with a predetermined pattern of conductive leads on the opposite surface of the substrate. Printed circuitry useful for practicing the method is also provided.

3,832,770

ELECTRICAL CONNECTORS

Glenn Harlan Gluntz, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Division of Ser. No. 4,662, Jan. 20, 1970, Pat. No. 3,659,243, which is a continuation-in-part of Ser. No. 869,079, Oct. 24, 1969, abandoned. This application Feb. 7, 1972, Ser. No. 223,996
Int. Cl. H01r *9/00*
U.S. Cl. 29—630 D **4 Claims**



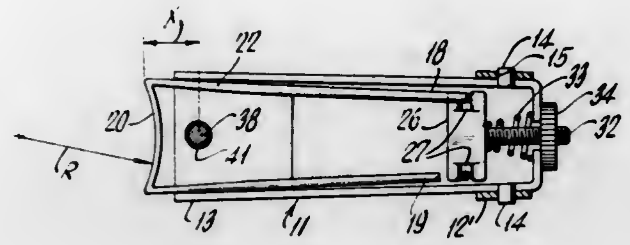
An electrical connector of the receptacle type comprises a mounting panel having electrical posts secured therein at spaced locations. Spring members disposed on sections of the posts extending outwardly from one surface of the panel. Means provided by the sections of the posts and the spring members securing the spring members on the sections. Legs of the spring members biased against contact surfaces of the post sections to define receptacle means and outer ends of the post sections and legs being chamfered to define lead-in means to facilitate movement of contact members with the receptacle means. Maintaining means provided by the spring members for maintaining other legs of the spring members in secured engagement with the post sections and to guide movement of the first-mentioned legs relative to the post sections.

3,832,771

NAIL CLIPPER WITH MEANS TO ADJUST THE CURVATURE OF THE CLIPPER BLADES

J. Robert Morgan, Palmer Hill Rd., Old Greenwich, Conn. 06870

Filed Jan. 2, 1973, Ser. No. 320,085
Int. Cl. A45d *29/02;* **B26b** *19/04*
U.S. Cl. 30—28 **7 Claims**



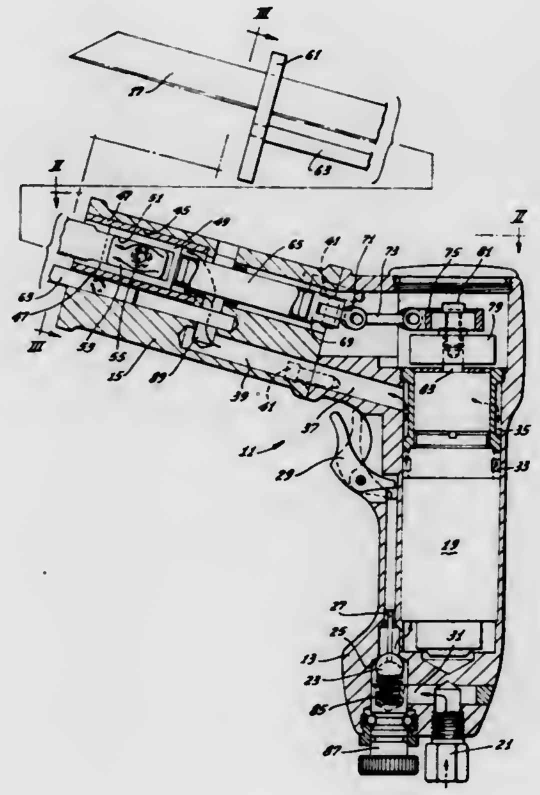
A clipper for shaping nails which includes a pair of cutting heads formed of resilient material and means for adjusting the curvature of the cutting heads.

3,832,772

PNEUMATIC HAND TOOL

Kunio A. Sumida, Los Angeles, Calif., assignor to Shapiro, Leonard U., St. Paul, Minn.

Filed June 2, 1972, Ser. No. 259,309
Int. Cl. B27b *19/08*
U.S. Cl. 30—392 **4 Claims**



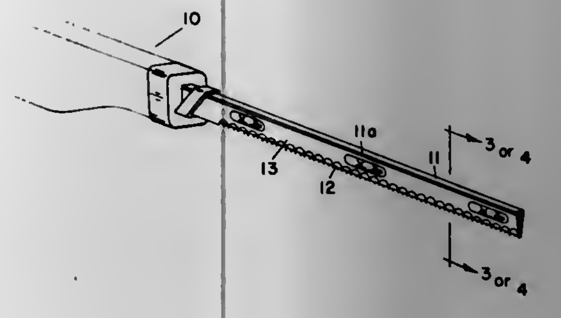
A hand tool, such as a saber saw, in which the motive power is provided by a fluid which actuates a rotary motor. The rotary motor drives an eccentric-universal drive system which converts the rotary output into a linear reciprocation along an axis situated at a predetermined angle relative to the axis of the motor. Air exhausting from the motor cools the bearing surfaces of the reciprocating tool, pressurizes the interior of the housing to prohibit foreign material ingestion, and blows workpiece chips away from the tool housing and the cutting area.

3,832,773

THREE-BLADE ARRANGEMENT FOR ELECTRICALLY POWERED KNIFE

Orville L. Langford, 120 Lakeview, New Braunfels, Tex. 78130

Filed Dec. 21, 1973, Ser. No. 427,046
Int. Cl. B26b *7/00*
U.S. Cl. 30—272 A **7 Claims**



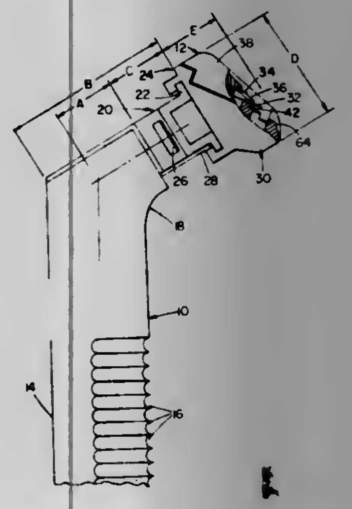
An electrically powered knife includes a casing enclosing an electric motor and a drive assembly for converting rotary motion of the armature shaft into reciprocal motion for a pair of blade holding members, a pair of serated blades adapted to connect with the blade holding members and positioned on both sides of and contiguous with a replaceable thin, flat blade. The serated blades are cooperating first and second support blades defining a channel adapted to receive and provide transverse support for the thin, flat blade.

3,832,774

RAZOR BLADE ASSEMBLY

Roger L. Perry, Lynnfield Center, Mass., assignor to The Gillette Company, Boston, Mass.

Continuation-in-part of Ser. No. 124,069, March 15, 1971, abandoned, and a continuation-in-part of Ser. No. 124,217, March 15, 1971, Pat. No. 3,703,764. This application Dec. 13, 1971, Ser. No. 207,422The portion of the term of this patent subsequent to Nov. 28, 1989, has been disclaimed.
Int. Cl. B26b *21/24, 21/20, 21/54*
U.S. Cl. 30—32 **12 Claims**



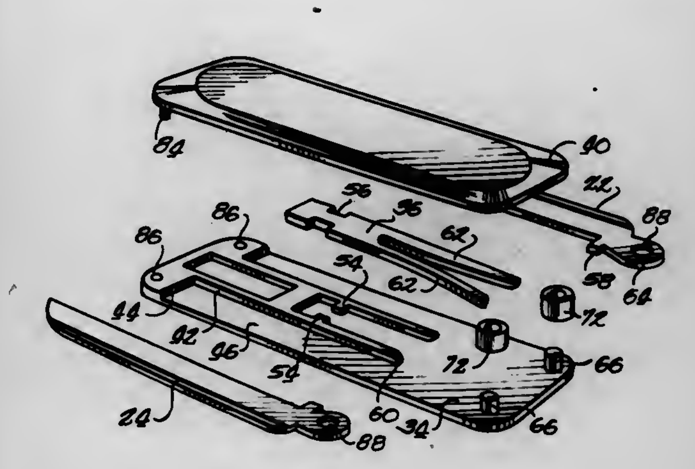
A replaceable blade unit for use in a shaving system includes an elongated body structure having a transversely extending guard surface on its forward edge for contact with the skin, a thin, elongated cutting member permanently fixed to the body structure with its cutting edge disposed parallel to and spaced from the guard surface in shaving relation to the latter, and coupling structure formed in the base of the body structure. The coupling structure defines two recesses that are disposed parallel to the guard surface and extend along the length of the body structure.

3,832,775

FOLDABLE IMPLEMENT AND METHOD OF MANUFACTURE THEREOF

Alwin J. Stahel, II, New Brighton, and Terry N. Nelson, St. Paul, both of Minn., assignors to Arthur Salm Inc., Chicago, Ill.

Filed Aug. 21, 1972, Ser. No. 282,133
Int. Cl. B26b *3/06*
U.S. Cl. 30—152 **18 Claims**



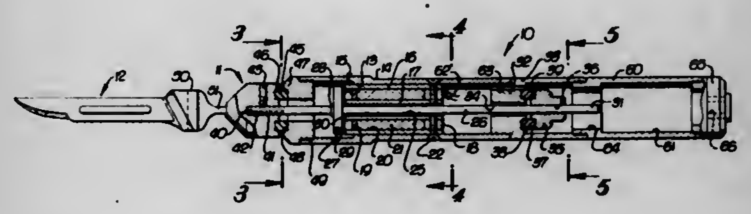
A foldable implement in which one or more tools are pivotally supported in a body, the body assembly being formed into an integral unit from two spaced generally rectangular plastic plates sonically welded together. Preformed pins on one of the plates provide pivots for the tools. Operationally, these pivoted tools are held at open and close positions by unique spring means housed in the body assembly.

3,832,776

ELECTRONICALLY POWERED KNIFE

Harold T. Sawyer, 845 Via de la Paz, Pacific Palisades, Calif. 90272

Filed Nov. 24, 1972, Ser. No. 308,952
Int. Cl. B26b *7/00*
U.S. Cl. 30—[illegible]72 **11 Claims**



A single blade electronically powered knife has a cylindrical case in which is located a solenoid having a centrally mounted longitudinally oscillating rod. The inner end of the rod is slidably retained in a bearing which has a resilient isolation mounting within the case. On the outer end of the rod is secured a mounting block which carries the knife blade and the mounting block is isolated from the case by a resilient bearing. An electric power source acting through an electronic circuit housed in the case causes the solenoid to reciprocate the mounting block in a longitudinal direction and impart sinusoidal elastic longitudinal wave energy to the knife blade which translates into a cutting and parting knife blade action.

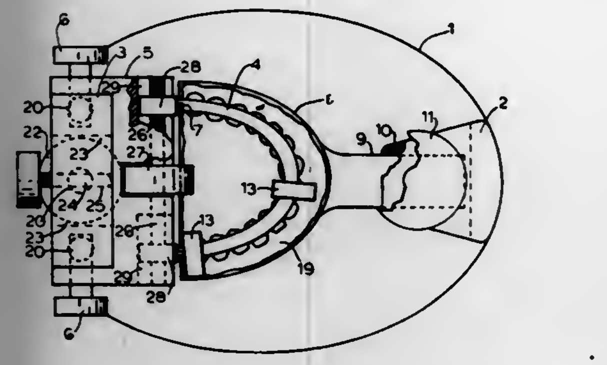
3,832,777
DENTAL RESTORATION JIG

Lawrence E. Tinder, 2900 Sawmill Gulch Rd., Pebble Beach, Calif. 93953

Filed Mar. 13, 1973, Ser. No. 340,937

Int. Cl. A61c *13/00*

U.S. Cl. 32—11 **8 Claims**



A flexibly positioned dental die pin setter with removable die pin holder handles in vertically swivelable relationships to the top of an impression tray holder that is adjustably attachable to a base with a vibrating member.

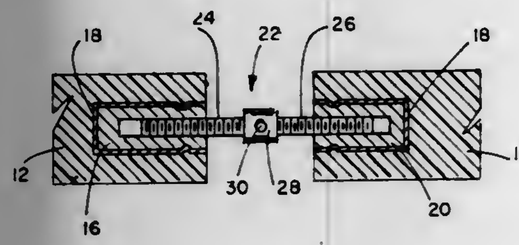
3,832,778
ORTHODONTIC BIASSING DEVICE

Melvin Wallshein, 8645 Bay Pky., Brooklyn, N.Y. 11230

Filed Nov. 29, 1972, Ser. No. 310,575

Int. Cl. A61c *7/00*

U.S. Cl. 32—14 E **22 Claims**



An orthodontic biassing device comprising two spaced orthodontic elements is provided with an aperture in each element. The aperture may be in the form of a sleeve for receiving the body housings of an expansion screw. The sleeves are so configurated so as to interchangeably receive body housings having different lengths so that initial spacings between the two elements may be increased by replacing a shorter expansion screw which has been nearly totally extended from its respective body housings by an expansion screw with longer body housings. According to another embodiment, the spaced elements are in the form of resilient receptacles having elongated extensions connectable to teeth and openings which are configurated to receive the body housings by at least partially deforming the receptacles during insertion. Biassing devices which can be utilized both as expansion or contraction devices are described.

3,832,779
DEVICE FOR MILLING AND TAKING IMPRESSION FOR THE PLACING OF PEG TEETH

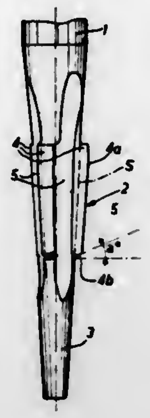
Marc Reynaud, 16 Blvd. Gambetta, 38000 Grenoble, France

Filed Feb. 9, 1973, Ser. No. 331,266

Int. Cl. A61c *3/02*

U.S. Cl. 32—48 **4 Claims**

A milling tool for preparing teeth for the placement of artificial peg teeth comprises a shaft provided with a milling cutter comprising a leading end portion of the shaft conically tapered toward a leading end of the milling tool and having a truncated conical surface on which three cutting blades are circumferentially disposed equally spaced. A portion of the truncated conical surface near the leading end of the milling tool functions as a pilot and guides displacement of the milling tool to position it during milling operations.



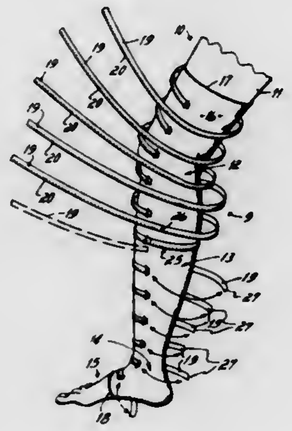
3,832,780
DISPOSABLE MEASURING AND FITTING DEVICE FOR SURGICAL GARMENTS

Hector E. Lewis, Cincinnati, Ohio, assignor to Surgical Appliance Industries, Inc., Cincinnati, Ohio

Filed May 11, 1972, Ser. No. 252,483

Int. Cl. A41h *1/02;* G01b *5/08;* A61b *5/10*

U.S. Cl. 33—2 R **6 Claims**



In a body measuring apparatus for measuring and fitting surgical or therapeutic garments, an inexpensive, disposable sleeve comprising a single piece of highly elastic material designed to be placed by the patient over the portion of the body for which the garment is to be fitted. The sleeve has a plurality of spaced inelastic measuring tapes or scales attached thereto, the tapes having indicia thereon to permit the wearer or another person to wrap each tape around the sleeve and note, mark, or otherwise record the measurement of the body circumference. For ease of manufacture of the body measuring apparatus, the measuring tapes may be spaced along and extend laterally from another tape to which they are secured, this latter tape being secured longitudinally to the sleeve along its length.

3,832,781
MEASURING PROBE POSITION RECORDER

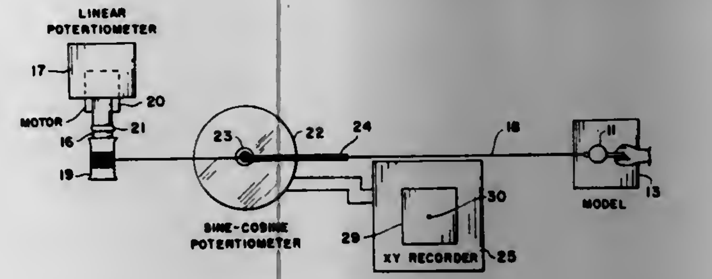
Bruce Flagge, Yorktown, Va., assignor to The United States of America as represented by the National Aeronautics and Space Administration, Washington, D.C.

Filed Jan. 12, 1973, Ser. No. 322,998

Int. Cl. G01b *7/28;* G01d *5/16*

U.S. Cl. 33—23 R **1 Claim**

This invention is a device for enabling a person to record the locations of measurements made by a hand-held noncontacting probe. The hand probe is coupled to a linear potentiometer and a sine-cosine potentiometer by means that varies the output of the linear potentiometer proportional to the distance between the hand probe and the linear potentiometer and that varies the output of the sine-cosine potentiometer proportional to the angular movement of the hand probe relative to the sine-cosine potentiometer. The output of the linear potentiometer is applied directly to one input of the sine-cosine potentiometer and is applied through an inverter to the other input or the sine-cosine potentiometer. The cosine and sine outputs of the sine-cosine potentiometer are applied to the X and Y outputs, respectively, of an X–Y recorder. Hence, as the hand probe moves over a model the stylus on the X–Y recorder makes corresponding moves over the X–Y recorder. Consequently, the person using the hand probe can move the probe along the outline of the model causing a similar outline to be reproduced on the X–Y recorder. Then the person can make structural measurements on the model and when interesting measurements are made, he can, with the aid of the stylus, mark the points on the recorded outline where these measurements are made.



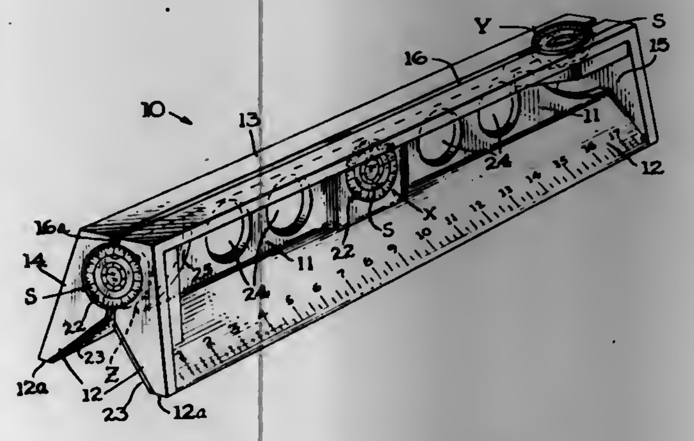
3,832,782
ALL-CRAFT LEVEL

Vern Harry Johnson, 2104 Johnson Ave., and Robert George Harms, 2613 E. 13th St., both of Cheyenne, Wyo. 82001

Filed Jan. 14, 1972, Ser. No. 217,878

Int. Cl. B43l *7/00;* G01c *9/28*

U.S. Cl. 33—88 **20 Claims**



A multiple purpose leveling device for use by craftsmen in all trades, embodying an elongated body having divergingly forked legs coextensive with the body length which enables the leveling device to be held on dead center of pipes and other round objects, and which legs are ruled adjacent planar feet portions, all of which cooperate to act as guides for placement of layout and coordinate lines when pipe layouts are required. Three 360° circular tube spirit level inserts are readily detachably embodied in three 90° diverse planes, and are calibrated so as to be readable from any angular position, whereby by the coordinated use of any two of the three bubbles of the spirit levels, two or more readings can be made simultaneously with one setting. Another important feature resides in a narrow groove provided along the center of the top planar member and continues at right angles down the center of each opposite end piece thereof, whereby pipe fitters and layout men can place the edge of a framing square therein, with the end grooves aiding the locating of centers of round objects such as pipes. The adjacent angularly disposed inside faces of the diverging legs are optionally provided with magnets to enable magnetic attachment of the leveling device to magnetically attractable work members.

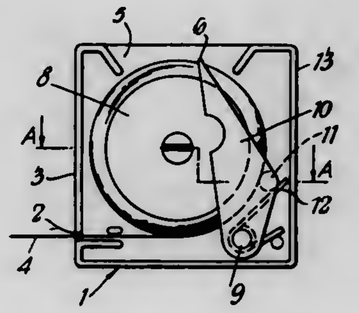
3,832,783
EXTENSIBLE STEEL TAPE RULES

Otto Heinz Schreier, Leigh-on-Sea, England, assignor to Fisco Products Limited, Raleigh, Essex, England

Filed Nov. 20, 1972, Ser. No. 307,809

Int. Cl. G01b *3/10*

U.S. Cl. 33—138 **3 Claims**



A datum mark carried by the outer end of a pivoted arm which bears against the outermost turn of an extensible steel tape rule mounted on a drum within a casing having a viewing window, may be observed through the viewing window and against the graduations on the tape within the casing. As the diameter of the roll of steel tape on the drum changes due to extension or retraction of the tape, the position of the datum mark changes so that the distance along the tape between the datum mark and the slot through which the tape passes remains substantially constant for all extensions of the tape.

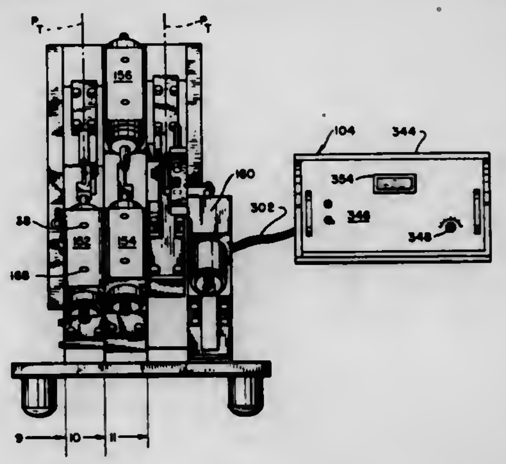
3,832,784
TURBINE VANE PREDICTION AND CLASSIFICATION GAGE AND GAGING METHOD

Ronald L. Samuels, Palos Verdes Peninsula; Wallace M. Porter, Redondo Beach, and Josef E. Friederichs, Los Angeles, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Continuation of Ser. No. 33,345, April 30, 1970, abandoned, which is a continuation-in-part of Ser. No. 868,675, Oct. 23, 1969, abandoned. This application Nov. 29, 1972, Ser. No. 310,564

Int. Cl. G01b *7/28*

U.S. Cl. 33—174 C **7 Claims**



An instrument and method for prediction and classification gaging of production turbine vanes witout distortion of the vanes. In its prediction gaging mode, the instrument gages selected airfoil dimensions of a production tubrine vane and master and provides a figure of merit readout representing the difference between the effective class values of the master and vane resulting from the difference, if any, in their corresponding airfoil dimensions. This figure of merit is converted to an angle at which the class surface of the vane must be machined to provide the vane with a selected class value. In its classification gaging mode, the instrument gages the selected airfoil dimensions and the class face angle of the machined vane and provides a readout representing the actual class value of the machined vane. The airfoil dimensions and class surface are gaged with electrical transducers in such a way that there is no distortion of the master or vane.

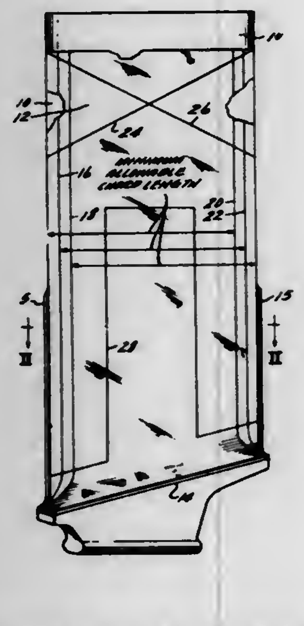
3,832,785
DEVICE FOR INSPECTION OF CAMBERED AIRFOILS

Raymond B. Miller, Princeton, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed June 30, 1969, Ser. No. 837,389

Int. Cl. G01b *5/00, 5/20*

U.S. Cl. 33—174 G **4 Claims**



The disclosure shows a device for inspecting cambered airfoils used in gas turbine engines or the like. The illustrated embodiment is a molded, transparent member having indicia lines for identifying the serviceability or repairability of damaged airfoils.

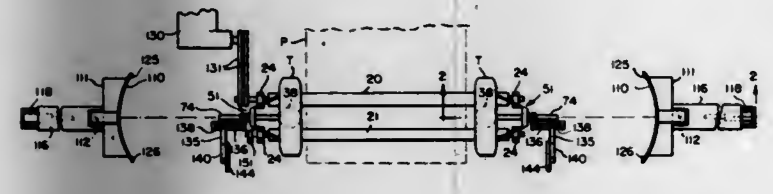
3,832,786
APPARATUS FOR TESTING FRONT WHEEL ALIGNMENT OF AUTOMOTIVE VEHICLES

Roger Macpherson, and Pierre A. Alsina, both of Rochester, N.Y., assignors to American Tatra, Inc., Rochester, N.Y.

Filed Aug. 11, 1972, Ser. No. 279,849

Int. Cl. G01b *5/25*

U.S. Cl. 33—288 **10 Claims**



Two, spaced, parallel rollers are mounted for limited vertical movement in a garage floor to engage and support the two front wheels of an automotive vehicle. At least one of the rollers can be driven to impart rotation to the wheels. Two tubular members, each containing a light bulb, are mounted by clamps on the outside of the wheels for rotation thereby, to project beams of light onto concave charts that are positioned beyond opposite ends of the rollers. A spring-loaded center in each tubular member is fulcrumed in the recess in the outer end of the turning spindle on which each wheel is mounted, so that as each member rotates, it may be pivoted. Its beam of light will trace a curvelinear path on the associated chart, if the spindle and wheel are misaligned. The position of the light beam on each chart is indicative of the toe-in and camber of the associated wheel. A lever pivoted on the floor is engageable with each tubular member to shift it into alignment with the associated spindle, so that the beam of light forms a stationary spot on the associated chart.

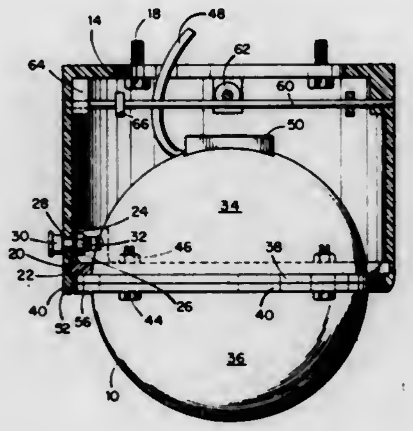
3,832,787
MAGNETIC COMPASS MOUNTING

John T. Fowler, Winthrop, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass.

Filed Aug. 20, 1973, Ser. No. 389,898

Int. Cl. G01c *17/38, 17/18*

U.S. Cl. 33—358 **8 Claims**



A magnetic compass mounting operative for installation of the compass on either bottom or top mounting surfaces and including compensating magnets to offset the effects of magnetic deviation and a rotational adjustment for calibrated positioning of the compass such as for magnetic variation correction.

3,832,788
PROCESS AND DEVICE FOR COOLING HOT-ROLLED WIRE RODS

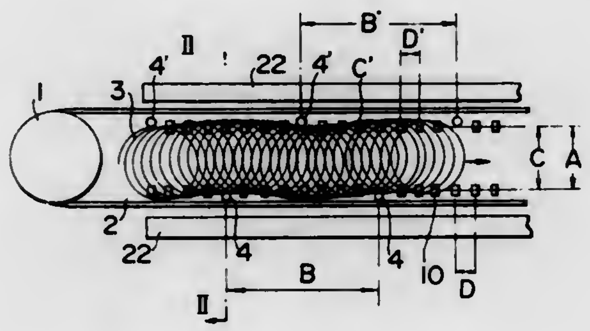
Tadashi Kato; Michitaka Fujita; Masashi Kamakura; Yutaka Mizuta; Hiroki Koyanagi, and Takuo Mizoguchi, all of Kitakyushu City, Japan, assignors to Sumitomo Metal Industries Limited, Osaka City, Japan

Filed Sept. 20, 1972, Ser. No. 290,489

Claims priority, application Japan, Oct. 13, 1971, 46-80775; Oct. 13, 1971, 46-81102; June 5, 1972, 47-56256; June 5, 1972, 47-56257

Int. Cl. F26b *7/00*

U.S. Cl. 34—13 **22 Claims**



This invention relates to a process and device for cooling hot-rolled wire rods for producing wire rods having a uniform quality and excellent mechanical properties by greatly reducing the dfference between the cooling rates in the central region and marginal regions of circular coiled wire rods which are conveyed continuously in a horizontal direction under such conditions that the centers of the wire rod coils are continuously shifted relatively at a fixed pitch.

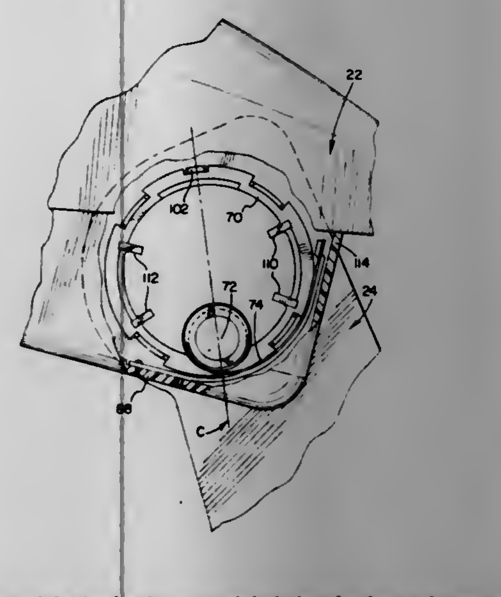
3,832,789
NESTABLE HAIR DRYER WITH TENSIONED POSITIONING

Nial C. Bartram, Wilmington, Del., assignor to Schick Incorporated, Lancaster, Pa.

Filed Dec. 22, 1972, Ser. No. 317,539

Int. Cl. A45d *20/24*

U.S. Cl. 34—99 **20 Claims**



A nestable portable hair dryer which includes a base, a head supporting assembly, and a dryer head assembly, in which the base and dryer head assembly are pivotally mounted at opposite ends of the head supporting assembly in a "hinged Z" configuration. The dryer head assembly includes a generally annular air distribution plenum therein for receiving drying air and directing it radially inwardly, and a cover which is movably mounted with respect to the annular plenum. A squirrel cage blower is contained in an impeller housing disposed at the lower end of the head supporting assembly. It directs air upwardly through the head mounting assembly through a conduit in which air heating means are positioned, to an upper portion of the head mounting assembly which terminates in a horizontally disposed tube having means engagable with portions of the plenum to provide for passage of air through the head support and into the interior of the plenum while also permitting adjustment of the position of the head assembly with respect to the head mounting assembly. The dryer includes a head counter-balancing feature comprising a wound coil spring assembly in which the coil is wound around a post which is fixed with respect to the head support element. The coiled spring is arranged to permit the "free" end which is fixed to the other dryer element to be pulled to many positions, to provide constant tension to keep the dryer hood in any position selected by the user. This tensioning feature provides substantially constant tension to keep the dryer hood in any position selected by the user, and is particularly advantageous in permitting reliable noiseless adjustment of the head between an extreme elevated position and a normal elevated operating position.

3,832,790
PROGRAMMABLE TRAINER

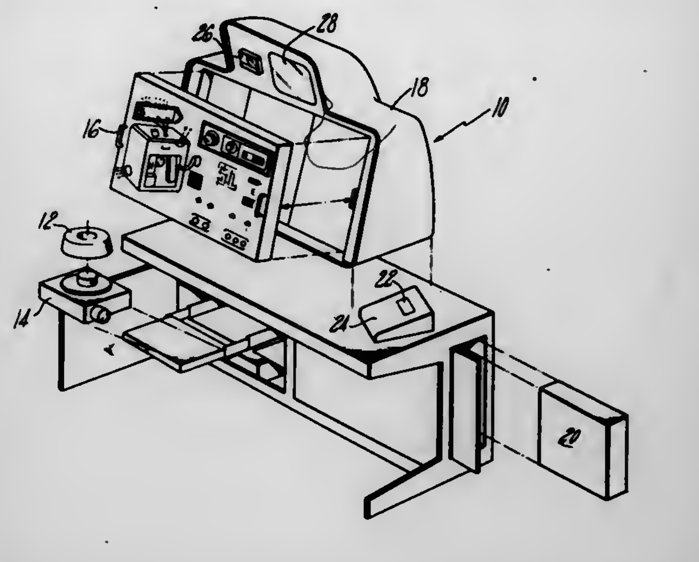
George L. Fryer, Jr., and Herman B. Gibson, Jr., both of Orlando, Fla., assignors to EDP-ECC Corporation, Washington, D.C.

Filed Sept. 29, 1972, Ser. No. 293,434

Int. Cl. G09b *9/00*

U.S. Cl. 35—8 R **6 Claims**

A universal teaching machine which may be caused to function as a special purpose training system is disclosed. Simulation of a selected specialized lesson subject is accomplished by means of a set of randomly selectable pictures and a student display-reaction panel. The machine includes a stored program processor which operates under control of a prerecorded program model commensurate with the student panel; the program model being loaded into the memory of the processor and cooperating with student operable actuators and display devices on the panel to program the machine to function as a special purpose training system.



3,832,791
GUNNERY TRAINING SCORING SYSTEM WITH LASER PULSES

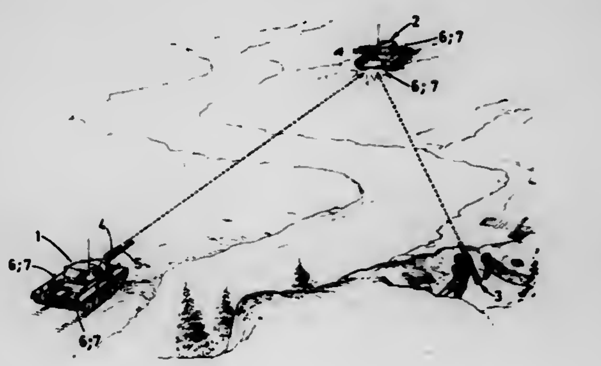
Hans R. Robertsson, Molndal, Sweden, assignor to Saab-Scania Aktiebolag, Linkoping, Sweden

Filed Dec. 26, 1972, Ser. No. 318,008

Claims priority, application Sweden, Dec. 31, 1971, 16981/71

Int. Cl. F41c *27/00*

U.S. Cl. 35—25 **2 Claims**



In apparatus for gunnery practice by which firing towards a target comprising a reflector is simulated by laser emissions, a first radiation emission at firing is used for ranging, to ascertain a time interval following firing at which a round of a selected type of ammunition will arrive at the target. After that interval following firing, a second emission is used to obtain a fix on the target. The second emission comprises pulses encoding information about ammunition type and relation of point of impact of the simulated round to target location, to be decoded at the target and used for evaluating hit effect.

3,832,792
SKIING BOOT

Max Kastinger, Seewalchen AM Attersee, Austria

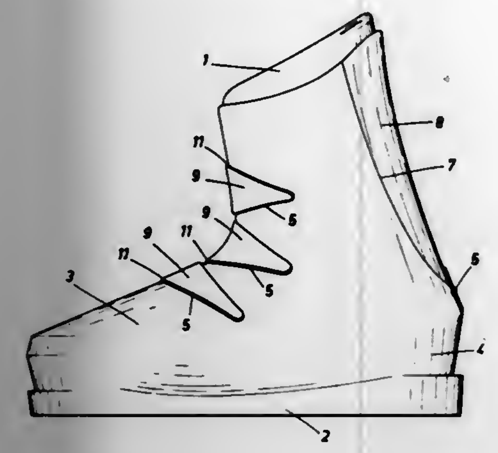
Filed May 14, 1973, Ser. No. 360,085

Claims priority, application Austria, Feb. 20, 1973, 1459/73

Int. Cl. A43b *00/00*

U.S. Cl. 36—2.5 AL **9 Claims**

The outer shell of the skiing boot has a top rim, a heel portion spaced below said top rim, means defining a step-in opening extending in said outer shell above said heel portion and having an open end at said top rim, closing means adapted to close said step-in opening, and an instep portion, which has a center line and is formed with a plurality of motion-enabling apertures extending across said center line. A plurality of coverings are removably held in and close said apertures and consist of an elastic material having a lower stiffness than the material of said outer shell adjacent to said apertures.



3,832,793

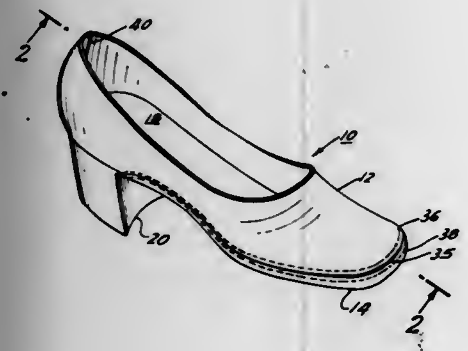
SHOE CONSTRUCTION

Abe Siskin, Padova, Italy, assignor to Geller Shoes, Inc., New York, N.Y.

Filed May 24, 1973, Ser. No. 363,396

Int. Cl. A43b *13/42;* **A43d** *9/00*

U.S. Cl. 36—2.5 R **8 Claims**



A non-welted shoe is comprised primarily of a preformed outer upper covering and a preformed outer sole covering with a middle sole and inner sole. The upper and sole coverings are joined together to form a shoe body by at least one row of decorative and interlocking stitching adjacent the sole line. The middle sole and inner sole are placed in the formed shoe body. While the shoe body is in a mulled or moistened condition it is lasted to size and the upper covering in the heel area is stitched together along a seam line.

3,832,794

FISHING POLE HOLDER

Petro Antonio Encinias, 1124 21st St., Denver, Colo. 80205

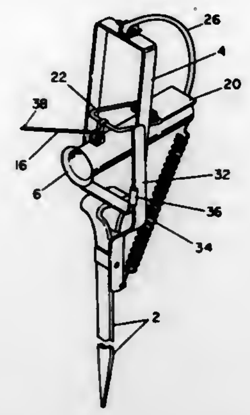
Filed Mar. 9, 1973, Ser. No. 339,657

Int. Cl. A01k *97/12*

U.S. Cl. 43—15 **4 Claims**

A device, intended primarily for use in fresh-water lake fishing, and incorporating features which will be contribute to the ease and convenience of those who fish for hobby and sporting reasons, is hereby enclosed.

The fishing pole holder, with the utilization of a mechanical action which is initiated by the movement of fish nibbling on the lure or bait on the line, allows the user to set the device with the pole in place, and to leave it unattended, the need to return occurring only when the release mechanism is triggered by a fish on the line, which results in the pole being snapped to a vertical position, thereby pulling the fish and line from the water.



3,832,795

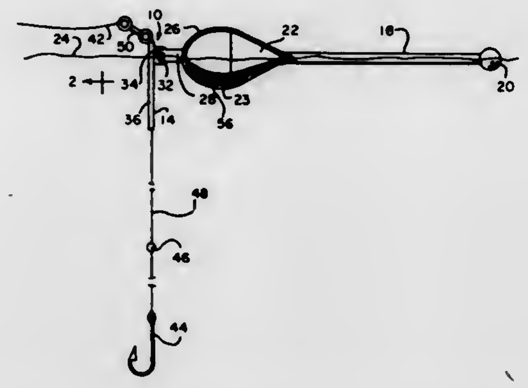
FISHING FLOAT

Henry S. Wolfe, Beaver Hill Bldg. (So.), Jenkintown, Pa. 19046

Filed Mar. 13, 1973, Ser. No. 340,658

Int. Cl. A01k *93/00*

U.S. Cl. 43—17 **5 Claims**



A fishing float of the pivoting type which is pivotally connected to a sliding rod. The sliding rod is movable relative to the fishing line from a casting position which is located near the fishing hook to a floating position which is spaced from the hook a distance sufficient to permit the bait to slip to the exact desired depth. The float is generally elongated in configuration and includes a weight or a weighted arm at one end, a pivotal connection at the other end and a float portion which is interposed between the ends, the said float portion being positioned closer to the pivotal connection for leverage purposes to render the float extremely sensitive to fish strikes.

3,832,796

FISHING ROD HOLDER

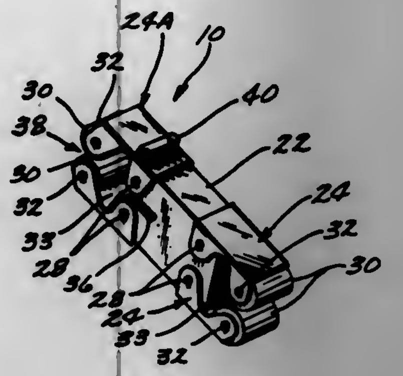
Joseph R. Cardwell, 2727 Sheridan, Des Moines, Iowa 50310, and True J. Berry, 6103 Winona Ave., Des Moines, Iowa 51104

Filed Aug. 10, 1973, Ser. No. 387,526

Int. Cl. A01k *87/02*

U.S. Cl. 43—25 **9 Claims**

A fishing pole having telescopic rod sections is disassembled and the rod sections are held in parallel side-by-side relationship by a pair of holders each having oppositely extending resilient jaws engaging the opposite ends of the rod sections. A hook is provided on each of the holders for wrapping the fish line. Each holder includes a solid block of resilient rubber material and channel-shaped arms extend from each side on each end of the block. Rollers are provided on the free ends of the arms between the flanges of the channels. The arms or jaws are yieldably moved to an open position upon insertion or removal of the rod section between them and the rod section is held tightly in place by the rollers pressing the rod section against the rubber block. The resiliency of the arms may be changed by providing a slot into the block along its centerline and the jaws will also accommodate a larger in diameter rod section.



3,832,797

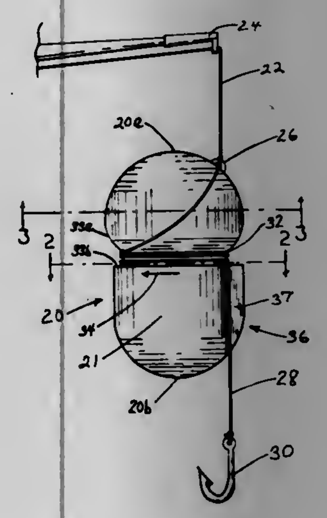
FISHING FLOAT

Richard W. Smedley, 1008 Alann Dr., Joliet, Ill. 60435

Filed Feb. 26, 1973, Ser. No. 335,474

Int. Cl. A01k *91/00*

U.S. Cl. 43—43.11 **2 Claims**



A float is provided for use while cast fishing, the float having a circumferential groove capable of storing the portion of the fishing line between the float and the hook and having at least one line engaging surface which is disposed at an angle to the circumferential groove and prohibits the line from unwinding from the groove during casting of the float, line and hook through the air.

3,832,798

LURE CONTAINER

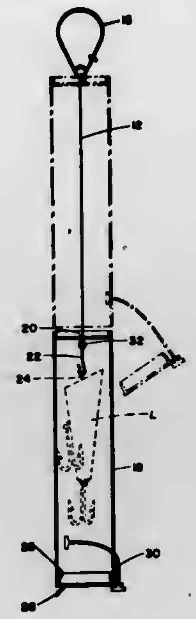
Robert G. Pilston, 1265 S. Bellaire, Denver, Colo. 80220

Filed June 1, 1973, Ser. No. 366,001

Int. Cl. A01k *97/04*

U.S. Cl. 43—57.5 R **5 Claims**

A container having an elongated tubular transparent housing which envelops a lure suspended therein by a line connectable to a fisherman via a buttonhole, belt, auxiliary chain or necklace, etc. When access to the lure is desired, an access closure which closes the bottom of the housing is removed and the housing is moved upward along the line to expose the lure and line connector. After separation of the lure from the connector, the housing returns by gravity to its initial position, stopped by an abutment on the line connector engaging the container. A multiple lure container is also disclosed which provides a plurality of transparent plastic tubes open at one end and formed into an integral body. A hinged plastic transparent cover extends over and closes the upper open ends of the tubes. A shoulder strap supports the container on the user. By this arrangement visual access is provided to the interiors of the tubes.



3,832,799

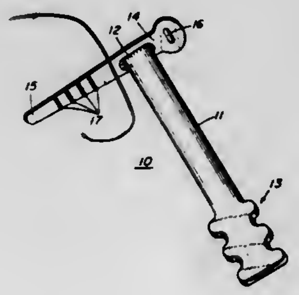
AMUSEMENT DEVICE FOR A CRIB OR THE LIKE

Jorma Vennola, Princeton, N.J., assignor to Columbia Broadcasting System, Inc., New York, N.Y.

Filed Feb. 16, 1973, Ser. No. 333,358

Int. Cl. A63l *33/00*

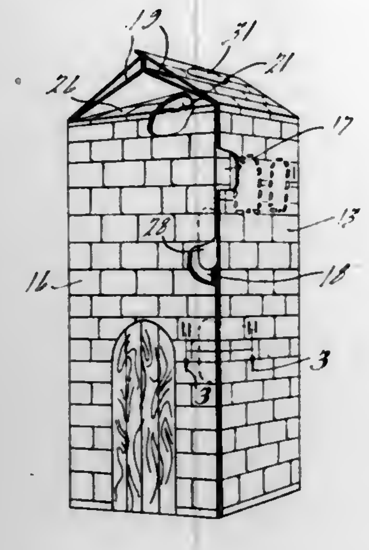
U.S. Cl. 46—1 R **2 Claims**



An amusement device adapted for fastening to an infant's crib. In accordance with the invention there is provided an elongated shaft having a free and a root end. A generally flat elongated fastening strap is also provided, the root end of the shaft being joined to a flat surface of the strap at about the middle of the strap. The shaft and strap are formed of a single piece of flexible material, such as flexible vinyl. The fastening strap includes a fastening means which permits attachment to a bar of an infant's crib in a manner whereby the shaft is extended horizontally in cantilever fashion. In the preferred embodiment of the invention the length of the shaft is selected, in conjunction with the hardness or durometer of the material, to yield a minimum stability of equilibrium. In this manner the shaft, of its own weight, will bend appreciably down and the force of room air currents or slight vibration of the crib frame will cause a swaying motion of the shaft.

3,832,800
DEVICE FOR CREATING PLAYTHINGS OUT OF MILK CARTONS OR THE LIKE

Abraham Selesny, Southfield, Mich., assignor to Strawberry Advertising Company, Southfield, Mich.
Filed Apr. 30, 1973, Ser. No. 355,312
Int. Cl. A63h *33/00*
U.S. Cl. 46—11 **7 Claims**



A paper sheet is scored or perforated to form a decorative cover for a milk carton or the like of the type having a peaked top with triangular inward folds. The cover is marked with four main panels and appropriately imprinted to resemble a castle or other play object. The top has two rectangular extensions for the peaked container top and two triangular extensions for the folds. The cover is placed around the carton and attached with tabs and slits along its edges. The triangular extensions are slipped under the top to lock the cover in place. Sheets may be made with various decorations and of different sizes so that groups of playthings may be assembled.

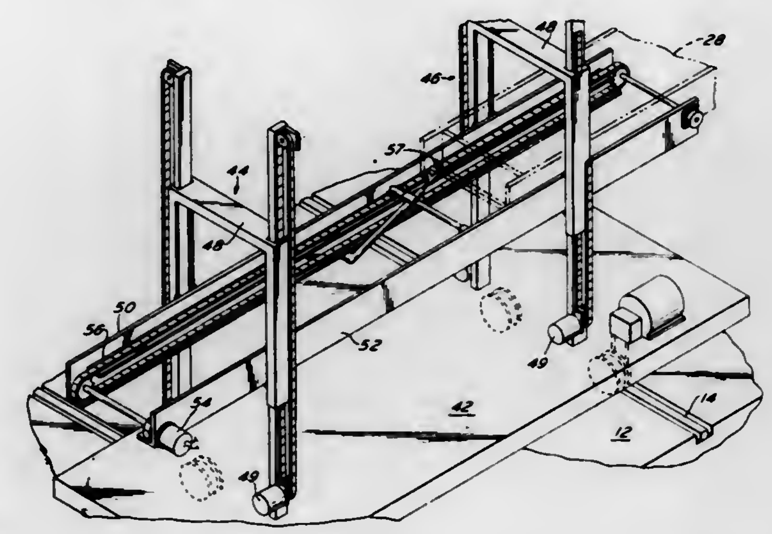
3,832,801
FERTILE INTERSPECIFIC HYBRIDIZATION CELL FUSION FOR HIGHER PLANTS

Peter S. Carlson, Islip; Harold H. Smith, Shoreham, and Rosemarie D. Dearing, Copiague, all of N.Y., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed May 8, 1973, Ser. No. 358,447
Int. Cl. A01g *31/00*
U.S. Cl. 47—58 **3 Claims**

Interspecific plant hybrids are produced by parasexual procedures. Protoplasts of separate plant species are isolated, fused, and induced to regenerate into plants. The somatic hybrids are recovered from a mixed population of parental and fused protoplasts by a selective screening method that relies on differential growth of the hybrid on defined culture media. The biochemical and morphological characteristics of the somatically produced hybrid are identical to those of the sexually produced amphiploid.

3,832,802
APPARATUS AND METHOD FOR CULTIVATING PLANTS

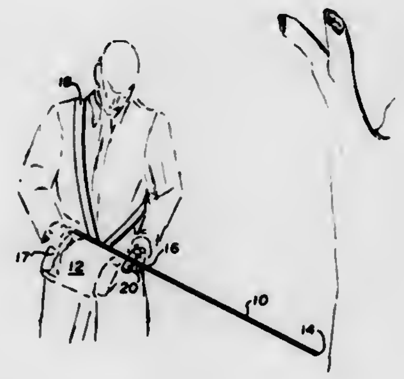
Theodore H. J. Huys, Oude Vonkelweg 2 Broekhuizen, Limburg, and Peter J. M. Donkers, Mutshoek 36, Boekel, N-Brant, both of Netherlands
Filed Feb. 12, 1973, Ser. No. 331,915
Int. Cl. A01g *1/04;* **B65g** *1/06*
U.S. Cl. 47—1.1 **6 Claims**



Plants, such as mushrooms, are cultivated in elongated containers reciprocally supported in air-conditioned chambers. The elongated containers are supported by rollers so that they may be removed horizontally from their chamber for processing and then returned to their chamber. The air-conditioned chambers are open only at one end.

3,832,803
MEANS AND METHOD FOR TREATING TREES

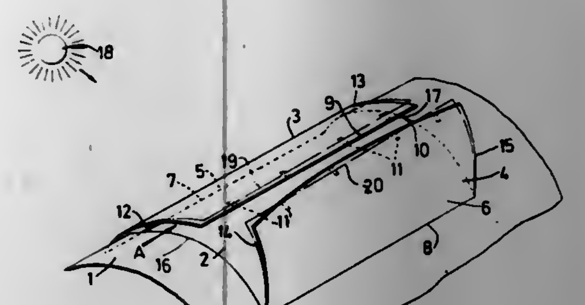
Robert L. Blake, 1821 N. 28th St., Phoenix, Ariz. 85034; Charles N. Blake, 1212 W. 6th St., Tempe, Ariz. 65281, and James D. Blake, 1821 N. 28th St., Phoenix, Ariz. 85034
Continuation-in-part of Ser. No. 861,090, Sept. 25, 1969, abandoned. This application Apr. 4, 1972, Ser. No. 240,973
Int. Cl. A01g *29/00*
U.S. Cl. 47—57.5 **4 Claims**



A means and method for treating trees, wherein a manually portable motor driven drill is utilized to drill holes in trees in a downwardly declining direction, and wherein fluid is injected into said holes after they are drilled, and may be partially filled with treating fluid by injecting the fluid through a passage in the drill used to drill the hole.

3,832,804
DOOR ASSEMBLIES

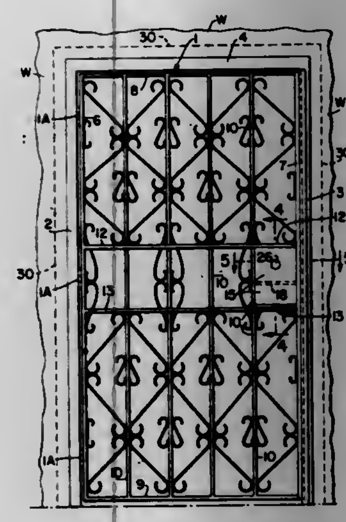
Hugh Arthur Goldsmith, Bristol, England, assignor to British Aircraft Corporation, Limited, London, England
Filed July 31, 1973, Ser. No. 384,288
Claims priority, application Great Britain, Aug. 3, 1972, 36197/72
Int. Cl. G08b *13/08*
U.S. Cl. 49—13 **6 Claims**



A door assembly, in which the door is liable to become distorted when open, is provided with a plurality of latching units each with an actuation means to effect latching and a sensing device which senses when its associated latching unit is in a position to be latched and then causes its actuation means to effect latching, the assembly being arranged such that when, due to any distortion present, perhaps just one latching unit becomes latched as the door is closed such latching is effective to cause a further sensing device to cause latching of its associated latching unit and so on in random sequence.

3,832,805
PREFABRICATED OUTSIDE STEEL DOORS

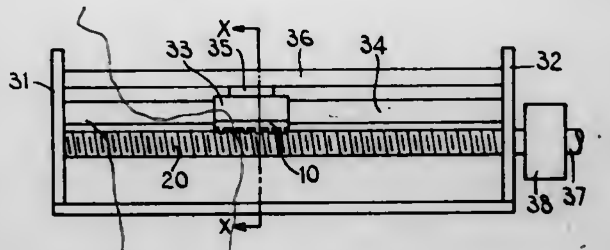
Weldon L. Stevens, 1420 Park Ave. N.E., Salem, Oreg. 97303
Filed Oct. 12, 1972, Ser. No. 296,860
Int. Cl. E06b *3/00*
U.S. Cl. 49—503 **1 Claim**



A protective prefabricated outside metal door hingedly mounted within its own frame or casing as a unitary assembly. The assembly is adapted for operative mounting on the face of or within a permanently framed opening in the wall of the building. The frame of the opening may be of metal, wood, or other suitable material.

3,832,806
MULTIEDGE LAPPING

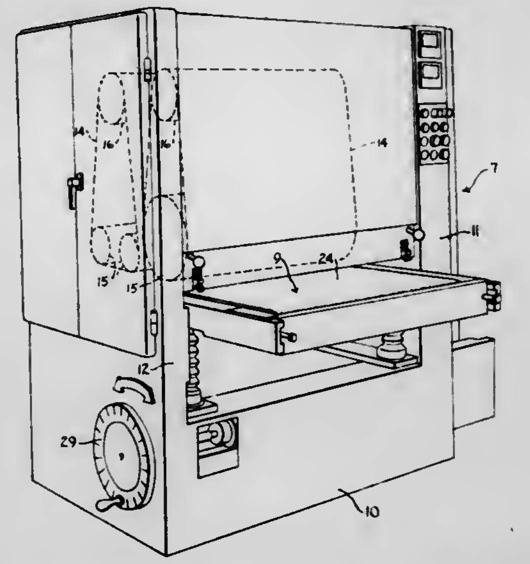
Peter Albert Walker, Stevenage, and Gordon George Scarrott, Welwyn-Garden City, both of England, assignors to International Computers Limited, London, England
Filed Dec. 11, 1972, Ser. No. 309,843
Claims priority, application Great Britain, Dec. 1, 1971, 55733/71
Int. Cl. B24b *7/02*
U.S. Cl. 51—71 **6 Claims**



Apparatus is disclosed for simultaneously lapping spaced parallel faces on a workpiece by means of an elongate lapping tool which has a plurality of spaced lapping faces. The lapping faces may be formed as a helical surface on the lapping tool so that rotation of the lapping tool results in the faces on the workpiece being lapped by a number of separate portions of the helical surface and results in the workpiece being moved along the lapping tool so that each face is lapped successively by a number of different portions of the helix.

3,832,807
WIDE BELT SANDING MACHINE WITH IMPROVED WORK FEEDING MEANS

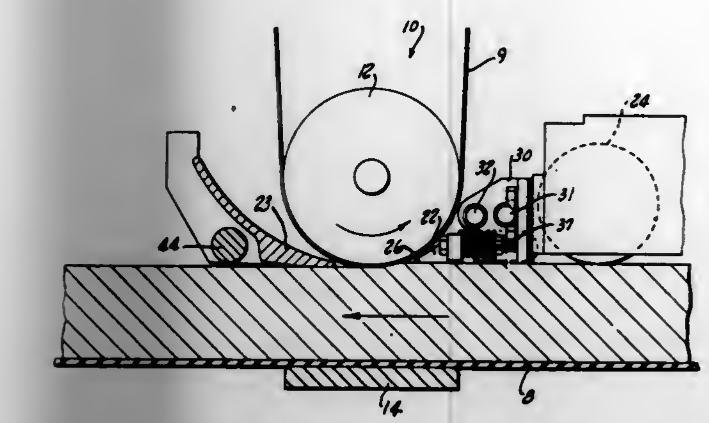
Fred W. Kiser, Hopkins, and Allan J. Stinn, South St. Louis Park, both of Minn., assignors to Timesavers, Inc., Minneapolis, Minn.
Continuation-in-part of Ser. No. 226,272, June 26, 1972, abandoned. This application Sept. 17, 1973, Ser. No. 397,837
Int. Cl. B24b *21/04*
U.S. Cl. 51—138 **6 Claims**



A wide belt sanding machine with a vertically oriented sanding head and an endless horizontally oriented conveyor belt having its top stretch sliding across a platen which is urged upwardly to press work on the conveyor belt into engagement with the sanding head, by "air springs" reacting between the platen and a conveyor frame in which the conveyor belt is mounted, with either high force for abrasive dimensioning of the work or with low force for finish sanding, the air springs being connectable with a pressure source through either of two pressure regulators, one set to hold the platen rigid up to the capacity of the machine but to yield if necessary to prevent an overload, and the other set to urge the platen towards the sanding head with a yielding force sufficient only for finish sanding.

3,832,808
ABRASIVE BELT-TYPE LUMBER PLANING MACHINE

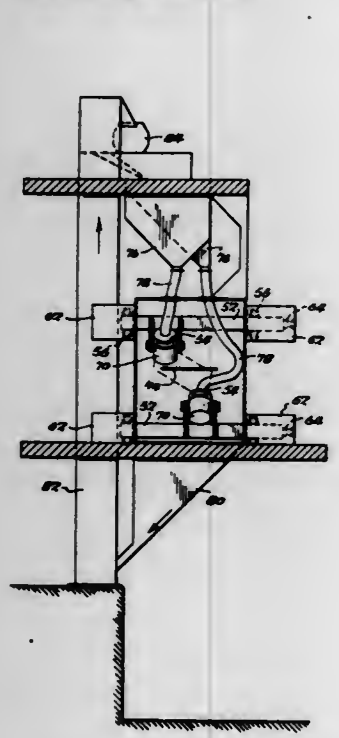
Fred W. Kiser, Hopkins, Minn., assignor to Timesavers, Inc., Minneapolis, Minn.
Filed July 9, 1973, Ser. No. 377,826
Int. Cl. B24b *21/08*
U.S. Cl. 51—138 9 Claims



An abrasive belt-type lumber planing and dressing machine in which the workpiece is fed horizontally through the machine by the top stretch of an endless conveyor belt, to have its upwardly facing surface acted upon by a contact drum-supported endless abrasive belt traveling at high speed, and in which a downwardly biased infeed pressure shoe holds the workpiece down on the conveyor belt along a transversely extending area just ahead of the zone of contact between the workpiece and the abrasive belt, the pressure shoe being mounted in the machine by a parallelogram linkage which maintains the toe of the pressure shoe at substantially the same distance from the zone of contact between the workpiece and the abrasive belt despite changes in the elevation of the pressure shoe caused by variations in workpiece thickness.

3,832,809
METHOD FOR REMOVING WUSTITE SCALE

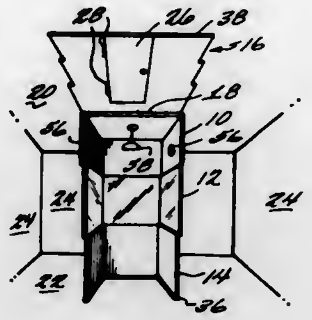
James H. Carpenter, Jr., and Don B. Nalley, both of Hagertown, Md., assignors to The Carborundum Company, Niagara Falls, N.Y.
Division of Ser. No. 215,616, Jan. 5, 1972, Pat. No. 3,731,432, which is a continuation-in-part of Ser. No. 46,969, June 17, 1970, abandoned. This application Sept. 22, 1972, Ser. No. 291,497
Int. Cl. B24c *1/00*
U.S. Cl. 51—320 22 Claims



Wustite scale is removed from iron or steel products by blasting fine grit from a centrifugal blast wheel which rotates at low speed, against the product at an angle thereto with the grit having sharp edges.

3,832,810
ENVIRONMENTAL MODULE

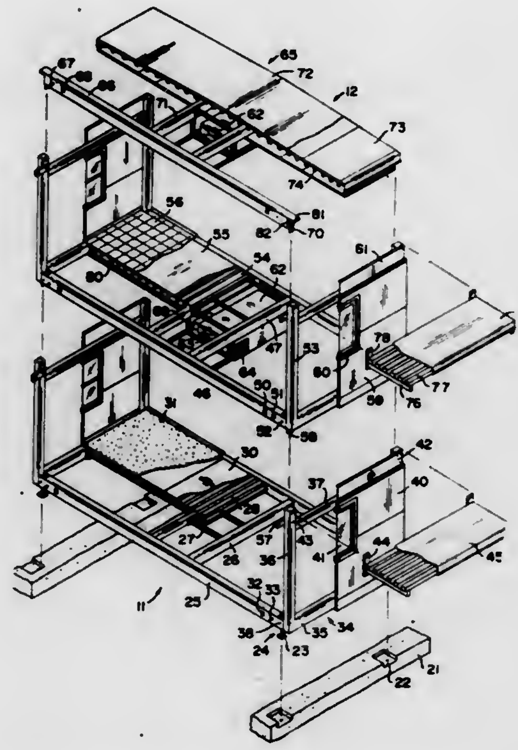
William W. Johnston, 1016 E. Wineland, Augusta, Ga. 30904
Filed Aug. 15, 1972, Ser. No. 280,802
Int. Cl. E04b *1/99*
U.S. Cl. 52—67 7 Claims



An enclosure adapted to isolate a portion of a room from the remainder of the room is constructed in the form of a series of hollow, vertically telescoping sections which in their extended position form enclosure side walls extending from floor to ceiling.

3,832,811
RELOCATABLE BUILDING MODULE

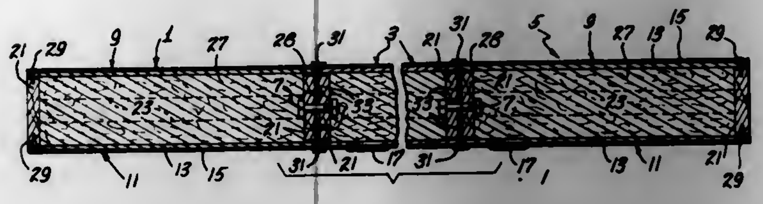
Ernest M. Briel, Jr., 235 Debra Ct., Satellite Beach, Fla. 32931
Filed June 7, 1971, Ser. No. 150,420
Int. Cl. E04b *7/16*
U.S. Cl. 52—69 2 Claims



A relocatable building module apparatus and shipping crate for shipping a disassembled module. A folded module can be placed in position on location and walls erected in their upright position relative to the floor by rotating the walls on hinged points on the floor and locking them in place. A roof can then be attached to the walls and several modules can be aligned together in a positive alignment.

3,832,812
FIRE RETARDANT INSULATED MODULAR BUILDING PANELS

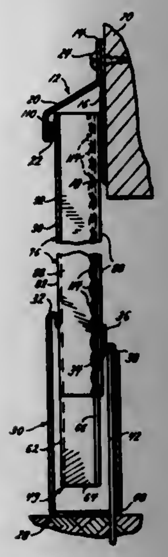
Henry G. Hiatt, Edgewater, Md., assignor to Annapolis Yacht Yard, Inc., Annapolis, Md.
Filed June 6, 1972, Ser. No. 260,195
Int. Cl. E04b *1/343, 1/41*
U.S. Cl. 52—127 9 Claims



A fire retardant, weight-bearing building panel having a frame enclosing fiberglass insulating material which is press-fitted between a pair of aluminum-plywood bonded sheet faces. The plywood is treated with a solution to render it substantially non-combustible. Added fire resistance is obtained by including one or two sheets of gypsum board between the outer wood sheets.

3,832,813
SKIRTING FOR MOBILE HOMES

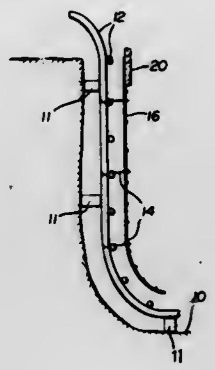
Milo F. Hindman, No. 15 Evergreen, Centralia, Ill. 62801
Filed Aug. 21, 1972, Ser. No. 282,478
Int. Cl. E04h *1/12*
U.S. Cl. 52—169 8 Claims



Vertically directed panels of the skirting for a mobile home are secured to, and depend from, an elongated supporting member which is fastened to the lower portion of that mobile home. That lower portion will be essentially horizontally directed, and it will be free of the irregularities that are frequently noted in the surface of the ground below a mobile home; and hence that elongated supporting member will be essentially horizontally directed, and will thereby enable the panels of that skirting to be essentially vertical as they depend downwardly from that elongated supporting member. The lower ends of the panels of the skirting extend into a relatively deep, elongated, retaining member which rests on the ground; and the lower ends of those panels are spaced far enough above the bottom of that relatively deep, elongated, retaining member to accommodate any and all anticipated movement of that relatively deep, elongated, retaining member relative to those lower ends of those panels as the ground shifts and "-heaves" throughout the years. The elongated supporting member and the relatively deep, elongated retaining member each resiliently grips the panels of the skirting, and thereby keep those panels from fluttering and vibrating when the wind blows. Moreover, protected ventilating openings are provided in limited areas of each of the panels of the skirting to permit desirably limited "breathing" of the area below the mobile home.

3,832,814
SWIMMING POOL AND METHOD OF MAKING THE SAME

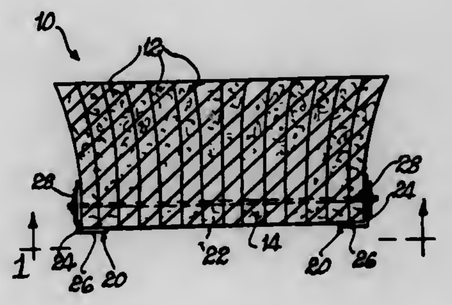
Allen R. Teschner, Grant Ave., Jensen Beach, Fla. 33492
Filed Mar. 29, 1973, Ser. No. 346,018
Int. Cl. E04b *1/16*; E02d *27/00*; E04h *7/18*
U.S. Cl. 52—169 9 Claims



The method of making a swimming pool includes steps of excavating a cavity in the ground, lining the cavity with reinforcing rod, retaining mesh in a position inwardly spaced from the reinforcing rod, pouring concrete in the space between the surface of the cavity and the mesh to encapsulate the reinforcing rod, with the mesh serving as an inner form for retaining the concrete and forming impressions in the concrete to provide a rough surface to be plastered, and plastering the rough surface to form an exposed inner pool surface of plaster. Thus, the swimming pool includes the reinforcing rod, the mesh, the retainer means, the poured concrete pool wall encapsulating the reinforcing rod and having impressions formed therein by the mesh, and plaster adhering to the concrete surface at the mesh and the impressions formed in that surface for forming the exposed inner surface of the pool.

3,832,815
MODULAR INSULATION OF FIBROUS MATERIAL

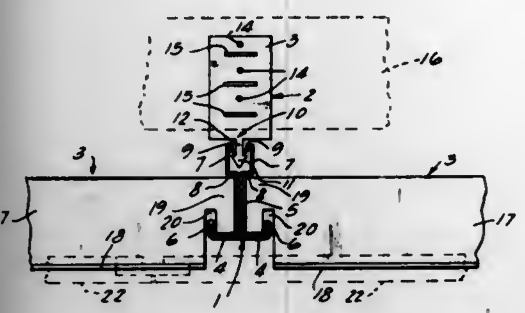
Joseph K. Balaz, Northbrook; Richard A. Kelly, Prospect Heights, and Wolfgang Schulze, Buffalo Grove, all of Ill., assignors to Flinn & Dreffein Engineering Company, Northbrook, Ill.
Filed Jan. 29, 1973, Ser. No. 327,705
Int. Cl. E04c *3/10*; E04b *1/80*
U.S. Cl. 52—227 18 Claims



Ceramic fiber insulation for lining furnaces in which the insulation fibers are formed into prefabricated modules by compression members located at the outer, cold side end portion of the insulation layer and by which the modules are mounted in position of use on the furnace wall.

3,832,816
CONCEALED GRID SUSPENDED CEILING STRUCTURE WITH SIMPLIFIED INSTALLATION

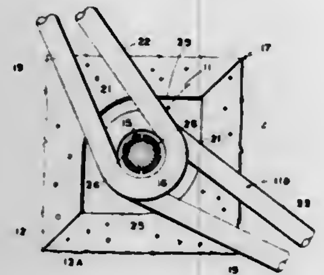
Martin D. Jahn, Riverside, Ill., assignor to Chicago Metallic Corporation, Chicago, Ill.
Filed June 5, 1972, Ser. No. 259,501
Int. Cl. E04b *5/52*
U.S. Cl. 52—496 **18 Claims**



A suspended ceiling structure for supporting ceiling panels, utilizing a system of main and cross runners in which the main runners are constructed for suspension from supporting means therefore, and the cross runners are each constructed to extend between and be supported at respective ends from the main runners, the cross runners being movable along the main runners and having panel supporting elements arranged to position the plane of ceiling panels supported thereby completely below said main runners whereby disposition of a ceiling tile is independent of the locations of main runners.

3,832,817
METHOD OF PANEL CONNECTION AND CONNECTORS THEREFOR

Ernst Martens, Winnipeg, Manitoba, Canada, assignor to Spiroll Corporation Ltd., Manitoba, Canada
Filed May 26, 1972, Ser. No. 257,101
Claims priority, application Canada, July 6, 1971, 117412
Int. Cl. E04b *1/38;* **E04c** *5/16*
U.S. Cl. 52—583 **2 Claims**

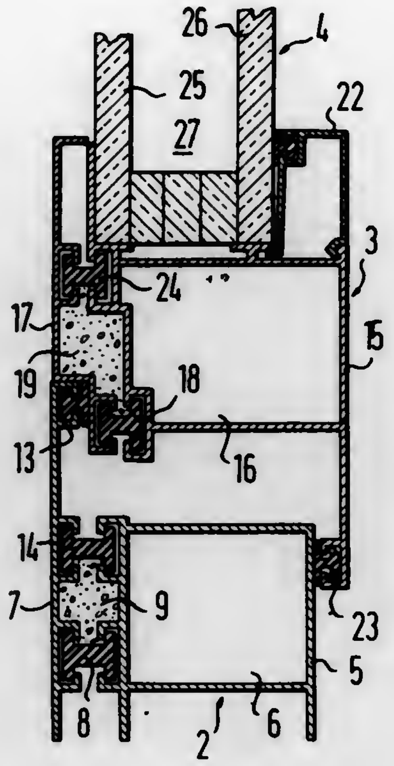


Eye loops are formed in the edges of panels to be joined and overlap one another when the panels are placed in position. An expandable sleeve is inserted through the overlapping loops and a wedge pin is driven into the sleeve thus expanding the sleeve and drawing the panels into the exact position relative to one another. The joint is then grouted to seal the junction between the panels.

3,832,818
COMPOSITE BODY CONSISTING OF AT LEAST TWO COMPONENT PARTS SUCH AS PROFILES

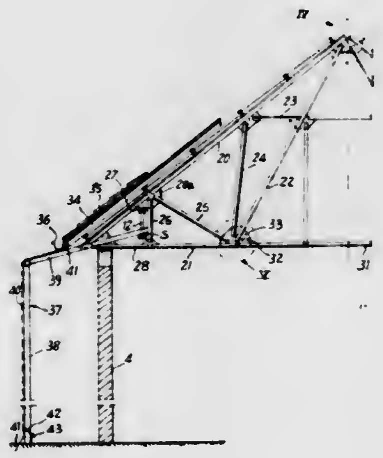
Helmar Nahr, 54 Nurnberger Strasse, 8530 Neustadt-Aisch, Germany
Filed June 1, 1971, Ser. No. 148,437
Int. Cl. E04g *21/00;* **E04c** *2/26*
U.S. Cl. 52—731 **5 Claims**

A window or door frame assembly having formed elements, extrusions, profiles or the like held together by joining insulating pieces interfitting and connecting the formed elements, the whole assembly containing a foamed filling compound serving functions of insulating, stiffening, holding, expanding and tensioning of the connecting means simultaneously.



3,832,819
METHOD OF CONSTRUCTING BUILDING AND APPARATUS FOR CARRYING OUT SAID METHOD

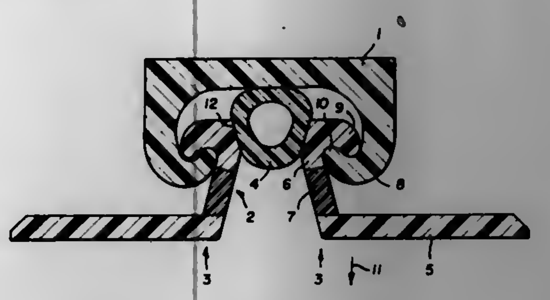
Henri Rene Houdin, 18 Rue Theodore de Banville, Paris, France
Filed Nov. 9, 1972, Ser. No. 305,065
Claims priority, application France, Nov. 26, 1971, 71.42471
Int. Cl. E04b *1/00;* **E04g** *21/00*
U.S. Cl. 52—741 **4 Claims**



Building is constructed by assembling roof on temporary beams which project beyond the building. Roof is either constructed on beams in final position or raised on beams after construction. The space beneath the roof is then shielded from the weather by tarpaulins or the like and the remainder of the building erected in this space. The invention includes apparatus for use in thus constructing the building.

3,832,820
PANEL MOUNTING

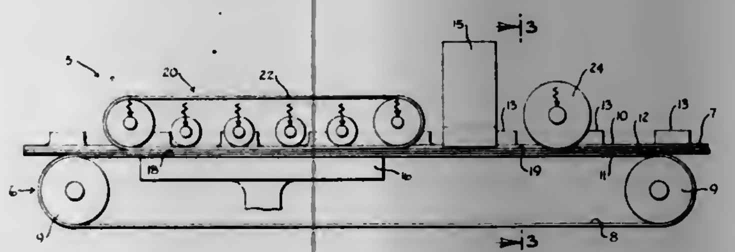
Frank Eggert, Hamburg, Germany, assignor to The Schlegel Manufacturing Company, Rochester, N.Y.
Filed Dec. 7, 1971, Ser. No. 205,497
Claims priority, application Germany, Dec. 30, 1970, 2064443
Int. Cl. F16b *7/22*
U.S. Cl. 52—753 T **7 Claims**



A panel mounting means uses a channel having an edge formed as a hook, and a complementary hook along the edge of the panel interlocks with the channel hook. A strip of resilient material is wedged in the channel to hold the hooks in interlocking relation.

3,832,821
USE OF CORRUGATED PAPERBOARD FOR SKIN PACKAGING SUBSTRATES

Richard L. Walus, Minneapolis, Minn., assignor to Possis Corporation, Minneapolis, Minn.
Filed July 23, 1973, Ser. No. 382,075
Int. Cl. B65b *33/02*
U.S. Cl. 53—22 A **6 Claims**



Corrugated paperboard substrate is moved through a skin packaging machine with its corrugations oriented transversely to direction of advance. Lengthwise extending marginal edge portions of the substrate are maintained compressed, at least all along that portion of the substrate that is over the suction nozzle, thereby preventing air from leaking into the corrugations.

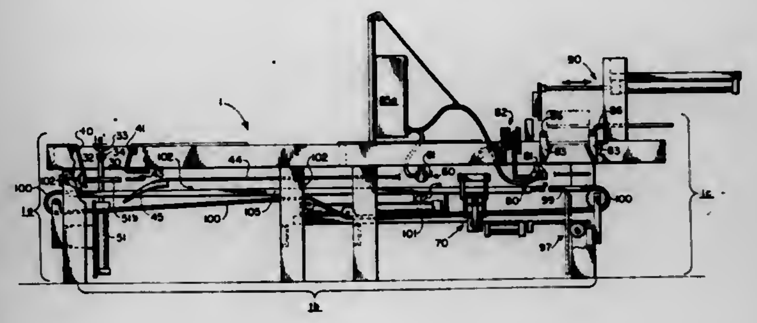
3,832,822
MULTI-LEVEL, IN-LINE SYSTEM FOR PACKAGING ARTICLES

Earle C. Sherman, Monroe, La., assignor to Olinkraft, Inc., West Monroe, La.
Filed Jan. 30, 1973, Ser. No. 327,045
Int. Cl. B65b *11/26*
U.S. Cl. 53—32 **13 Claims**

Multi-level, in-line method and apparatus for packaging articles such as doors which automatically folds and seals a five-panel, corrugated packing folder about the doors as the doors and the folder move in a generally "U"-shaped path through the machine, most of the folding being accomplished by static guides.

In the method and apparatus of the present invention the package is formed around the doors by dropping them with an appropriately positioned packing folder downward into the receiving well of the machine and then horizontally advancing the package through the various positions from the initial first and second positions to the sixth position where a traveling glue applicator applies glue to the last flap of the package, with the package then traveling upward to the seventh (compression) position to set the glue, and then finally out of the machine generally in-line with the door construction line.

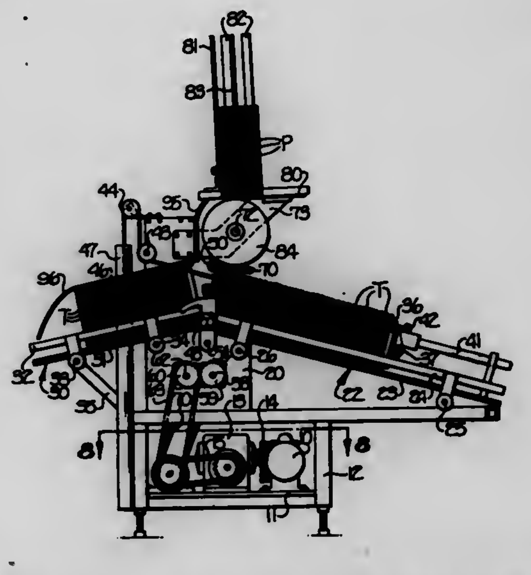
The package thus begins by moving down in a vertical direction in the first section of the machine, then forward along a horizontal plane in the middle or second section of the machine, and then up in the third section, following generally a "U"-shaped path through the machine. This vertical-horizontal-vertical line of travel, combined with the operative steps of folding (the bulk of which is formed by static guides), gluing and setting along the way, result in a much improved and more compact system than heretofore achieved. The beginning and ending of the package at approximately the same general vertical level also greatly enhances the practical, production in-line use of the system of the present invention.



In the intermediate, horizontal section and the final vertical section there are included intermittent, reciprocating drive systems which allow a traveling glue pot applicator to laterally traverse the width of the machine to apply glue to the final, sealing flap and the final flap to be held under static compression after the article has been completely packaged.

3,832,823
TRAY AND PAD INTERLEAVING APPARATUS

Grover C. Currie, Lenoir, N.C., assignor to Cellu Products Company, Patterson, N.C.
Filed July 30, 1973, Ser. No. 384,114
Int. Cl. B65b *35/50;* **B65g** *57/28, 59/00*
U.S. Cl. 53—35 **15 Claims**



In accordance with this invention, single absorbent pads are interleaved between adjacent food packaging trays of the type used in packing and displaying chickens and the like. The trays are in nested condition and are moved along an upwardly inclined first guide chute and in a substantially vertical position to an interleaving station. The trays leaving the interleaving station are in nested condition and are moved along a downwardly inclined second guide chute to provide a substantially V-shaped opening at the interleaving station and between the leading tray of the approaching group and the trailing tray of the leaving group of trays so that the upper ends of these trays are separated and moved out of their nesting relationship. An absorbent pad is fed in a substantially vertical position and into the V-shaped opening prior to the movement of each tray through the interleaving station so that an absorbent pad is interleaved between the successive trays leaving the interleaving station.

3,832,824

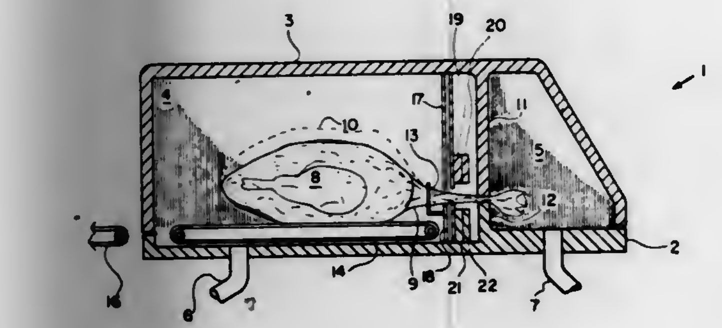
APPARATUS AND METHOD FOR EVACUATING PACKAGES

William E. Burrell, Duncan, S.C., assignor to W. R. Grace & Co., Duncan, S.C.

Filed June 29, 1973, Ser. No. 375,300

Int. Cl. B65b ***31/02***

U.S. Cl. 53—22 B **18 Claims**



A filled flexible receptacle such as a thermoplastic bag containing a food product is evacuated by placing the filled portion of the bag in a first vacuum chamber; extending the neck of the bag into a second and adjacent chamber; evacuating the first chamber thereby causing the bag to balloon outwardly away from the product; and, while the first chamber is being evacuated, evacuating the second chamber and, consequently, evacuating the interior of the ballooned bag; thereafter, when evacuation of the bag is complete, elevating the pressure in the first chamber to collapse the bag firmly around the product and immediately closing the bag thereby making an evacuated package.

3,832,825

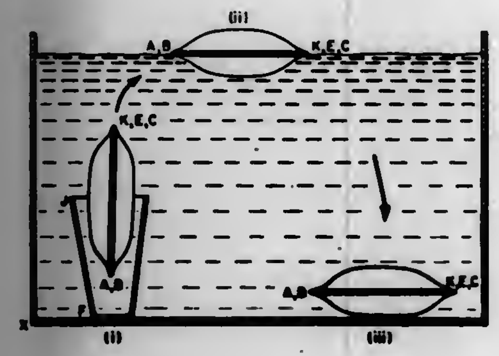
WAX AND ASPHALT (BITUMEN) PACKS

Antoinette Dunbar, Bombay, India, assignor to Esso Research and Engineering Company, Linden, N.J.

Filed July 14, 1972, Ser. No. 271,807

Int. Cl. B65b ***63/08, 3/17***

U.S. Cl. 53—25 **5 Claims**



Asphalt or wax is packed in fabric bags which may be lined with paper which in turn is coated to prevent sticking to the wax or asphalt. The filling of the bags can be carried out while the bag is supported in a container floating atop a water bath, following which the container and filled bag sink into the water to float the bag from the container. The water bath also hastens cooling of the hot asphalt or wax.

3,832,826

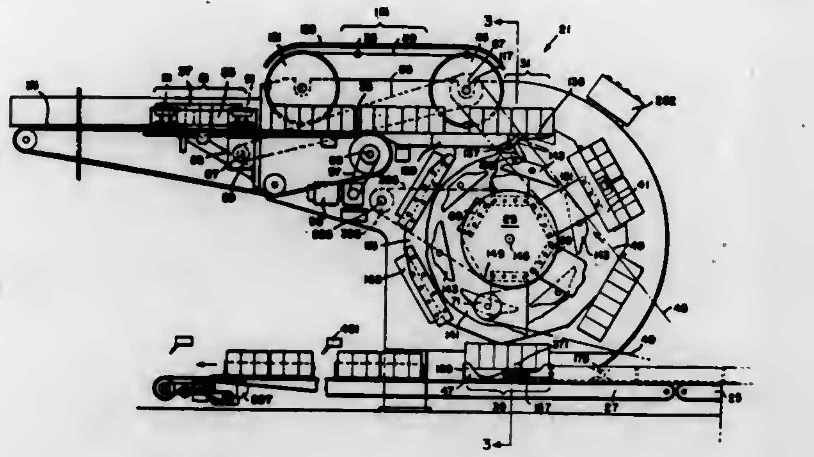
BOX FORMING AND FILLING METHOD AND MACHINE

John E. Ullman, Huntingdon Valley, Pa., assignor to Huntingdon Industries Incorporation, Bethayres, Pa.

Filed May 21, 1970, Ser. No. 39,287

Int. Cl. B65b ***5/08, 21/14***

U.S. Cl. 53—35 **17 Claims**



A machine for forming and filling boxes with a group of articles such as cans, comprising a loading section including a conveyor for delivering cams to a grouper, a grouper for grouping the cans into groups, a conveyor for delivering the grouped cans to the pick-up station positioned adjacent to a rotatable drum, spring-mounted clamping plates on the drum for grasping the group of cans and carrying it to a filling station, a cam mechanism for moving the clamping plates toward each other to grasp the group of cans and for moving the clamping plates away from each other to release the group of cans at the filling station to fill box, and a forming section for taking flat blanks of corrugated paperboard and erecting and sealing them to form boxes and for delivering a series of boxes to the filling station. The pick-up station includes a plurality of rails and pivoted support fingers ~~for supporting~~ the group of cans in pick-up position. Cam-follower fingers extend from the support fingers, and a rotatable cam disk moves the support fingers into pick-up position and moves them out of the path of the group of cans after the group has been picked up by the clamping plates.

3,832,827

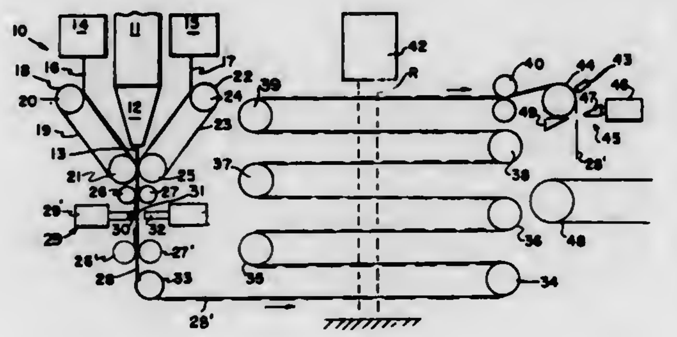
CONTAINER FORMING AND FILLING APPARATUS

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Continuation-in-part of Ser. No. 696,966, Dec. 18, 1967, Pat. No. 3,676,249, which is a continuation-in-part of Ser. No. 269,832, March 22, 1963, abandoned, which is a continuation of Ser. No. 651,749, April 9, 1957, abandoned. This application July 10, 1972, Ser. No. 269,926

Int. Cl. B65b ***55/08, 9/10, 9/04***

U.S. Cl. 53—111 R **9 Claims**



An apparatus and method are provided for continuously forming containers of plastic sheet material and filling same as they are formed, thereby eliminating the need to rehandle formed containers to effect their filling. In one form, two sheets of weldable polymeric material or metal are continuously fed together from respective roll supply thereof, are edge seamed and welded together to form continuous pockets between each of which is fed an intermittent supply of material to form the contents of the pockets. In another form, the sheets are continuously formed by one or more extruders and fed together where they are formed into pockets with each pocket being closed after a predetermined quantity of contents are delivered between the two sheets. If extruded continuously, the sheets are preferably fed downwardly together while fluent material is intermittently disposed therebetween after each previous pocket is sealed and disposed below the newly formed but open pocket.

3,832,828

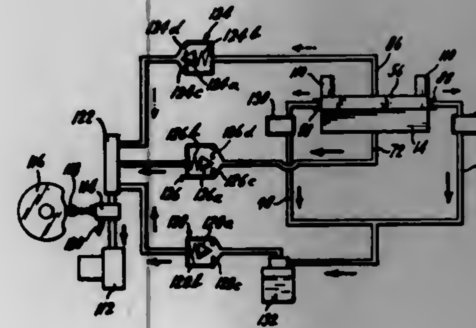
EVACUATION AND VENTING SYSTEM FOR VACUUM PACKAGES AND VACUUM CHAMBER THEREFOR

Louis F. Martin, Woodridge, N.J., assignor to Standard Packaging Corporation, New York, N.Y.

Filed Jan. 29, 1973, Ser. No. 327,685

Int. Cl. B65b ***31/02***

U.S. Cl. 53—112 A **13 Claims**



An evacuation and venting system and method for providing vacuum packages utilizing a vacuum chamber having two vacuum channels or ports, located at the side of the vacuum chamber, and a vacuum channel or port, located at the top of the chamber. The side vacuum channels are arranged to provide efficient evacuation of a package disposed in the vacuum chamber to allow the space between the bottom of the package and the top of the package to be evacuated without adversely affecting the sealing bars of the vacuum chamber. The vacuum chamber may be used to vacuum pack liquid-packed foodstuffs by having the top vacuum channel vent or otherwise remove the liquid from the side vacuum channels subsequent to evacuation.

3,832,829

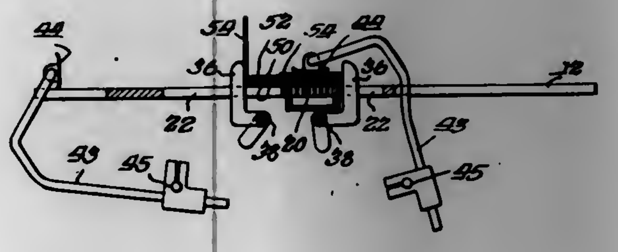
HOSIERY BANDER

Roger D. Stout, High Point, N.C., assignor to Paramount Southern Co., High Point, N.C.

Filed Nov. 13, 1972, Ser. No. 306,327

Int. Cl. B65b ***13/02, 49/08***

U.S. Cl. 53—198 R **1 Claim**



Apparatus for wrapping hosiery with a band having pressure sensitive adhesive on one side. A pair of heads are rotated to depress end flaps of the band that are raised by a pair of breaking fingers.

3,832,830

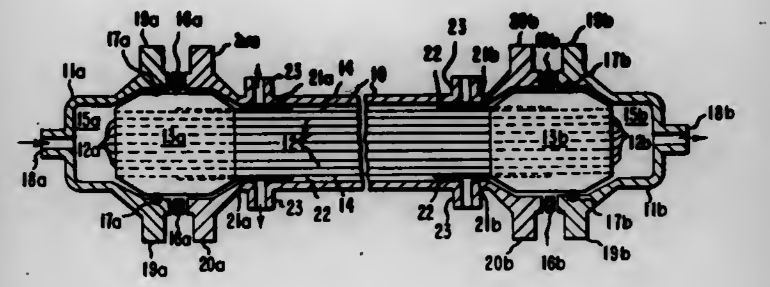
PERMEATION SEPARATION DEVICE

James A. Gerow, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sept. 18, 1972, Ser. No. 290,139

Int. Cl. B01d ***53/22***

U.S. Cl. 55—158 **6 Claims**



An improved selective permeation separation device comprising

1. a bundle of at least one million, preferably, at least five million, longitudinal hollow filament membranes which at least at one end are imbedded in and extend through a cast resin tube sheet characterized as having a wicked portion extending along the hollow filament membranes in the bundle,
2. a shell surrounding the bundle and providing an annular space for fluid around the bundle and sealed thereto in a fluid-tight relationship at each end having a cast resin tube sheet,
3. means for introducing a fluid mixture into the device so as to produce a permeate portion passing through the walls of the hollow filament membranes and a non-permeate portion which does not pass through the walls of the hollow filament membranes,
4. means for removing the non-permeate portion of the fluid mixture from the device,
5. means for removing the permeate portion of the fluid mixture from the device, and

as the improvement,

6. at each end of the bundle having a cast resin tube sheet an elastic restraining element, under elastic tension, surrounding the bundle of fibers, extending from within the cast resin tube sheet along the bundle beyond the wicked portion of the tube sheet, and restraining and immobilizing the portions of the fibers which are within the confines thereof into an inflexible bundle.

3,832,831

COOLER-FILTER UNIT FOR COMPRESSED AIR SYSTEMS

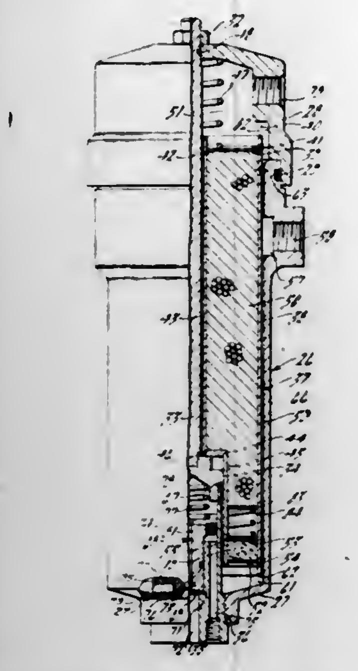
Rex E. Ritchie, and John B. Welker, both of Van Wert, Ohio, assignors to Aeroquip Corporation, Jackson, Mich.

Filed Aug. 10, 1972, Ser. No. 279,488

Int. Cl. B01d ***50/00***

U.S. Cl. 55—218 **7 Claims**

A cooler-filter unit connected between a governor-controlled compressor and an air tank. The unit directs compressor air along the inside surface of a metal housing for cooling, moisture being trapped in a sump. The air reverses flow to separate particles and passes through an annular filter and desiccant bed to the outlet. A water dump valve responsive to governor signals is located within the housing so that the warm circulating air will prevent its freezing. The filter and desiccant are carried by a separate housing and should the filter become clogged, air pressure will shift this housing to bypass the air directly to the outlet. In the event of governor failure to stop the compressor, high pressure will open the water dump valve which will act as a pop-off valve.



3,832,832

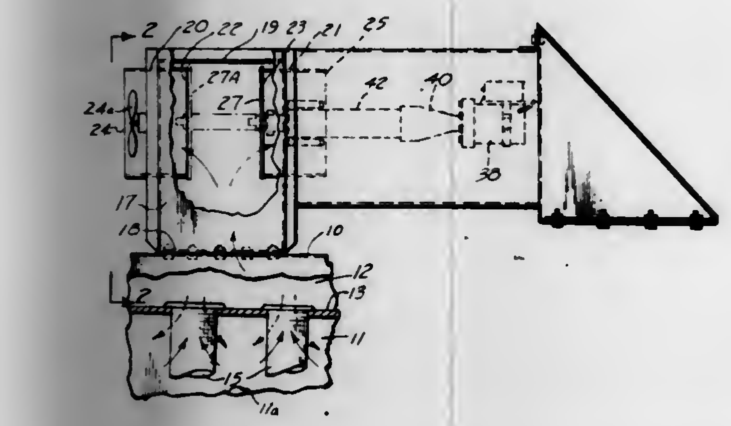
METHOD AND APPARATUS FOR CLEANING THE FILTER ELEMENTS OF A DUST COLLECTOR

Harry E. Hoon, Jr., Strongsville, Ohio, assignor to Envirotech Corporation, Salt Lake City, Utah

Filed June 12, 1972, Ser. No. 262,042

Int. Cl. B01d *46/04*

U.S. Cl. 55—302 **1 Claim**



A method and apparatus for cleaning a fabric tubular type filter element in a dust collector by imparting a momentary pneumatic pulse to the filter element at predetermined intervals. The pulse is imparted to the filter by reversing the direction of the air flow through it and immediately thereafter restoring normal flow of air through the filter element, all within a period of a fraction of a second. The apparatus includes a high speed electric motor having an extension on its shaft which is directly coupled to a valve member through a screw and nut coupling. The valve member is movable in a direction extending axially of the motor axis and is disposed between two aligned but spaced apart valve seats, one of which is in communication with a source of less-than-air pressure and the other of which is in communication with the atmosphere. As the valve moves from one seat to the other, communication between the filter element and the source of less-than-air pressure is shut off and simultaneously the filter element is in communication with the atmosphere. The motor is reversed as soon as the valve shuts off the source of less-than-air pressure and the valve seat is immediately returned to its original position, where it shuts off communication between the filter element and the atmosphere. The motor is actuated at cyclic intervals by any one of various forms of timing or pressure responsive devices.

3,832,833

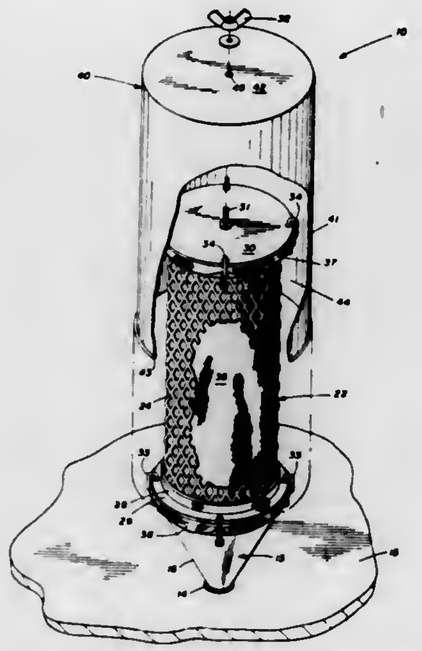
DUST COLLECTOR

Edgar Russell Cox, Smithfield, Tex., assignor to Texas Industries, Inc., Dallas, Tex.

Filed Dec. 26, 1972, Ser. No. 318,554

Int. Cl. B01d *46/04*

U.S. Cl. 55—378 **4 Claims**



A dust collector for venting bins for storage of pulverulent materials such as cement silos is disclosed. The dust collector has an inlet adapted to be secured to the bin which carries a foraminous bag support. The bag support internally houses a filter bag. The bag is removably secured at its top and bottom to the support. A weather shield covers the filter structure to substantially prevent rain and moisture from entering the silo through the filter. The support prevents the filter bag from bursting by restraining the bag against overexpansion. The support structure also cooperates to clean the bag as the bag flexes against the support due to pressurization and contacts the support to shake loose clogging material.

3,832,834

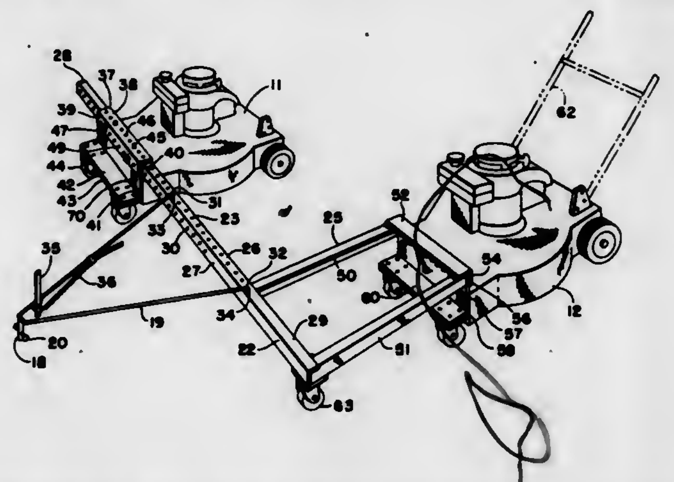
LAWN MOWER HITCH

George E. Kovacs, 8562 Olde Eight Rd., Northfield, Ohio 44067

Filed Dec. 18, 1972, Ser. No. 315,794

Int. Cl. A01d *75/30*

U.S. Cl. 56—6 **7 Claims**



An adjustable lawn mower hitch for connecting two rotary type lawn mowers to a tractor or riding mower. The lawn mowers are provided with caster wheels and a connecting flange for coupling to the lawn mower hitch while permitting independent use of the lawn mowers. The lawn mower hitch is adjustable to provide for coupling to lawn mowers having different cutting diameters and is usable for towing only a single lawn mower.

3,832,835

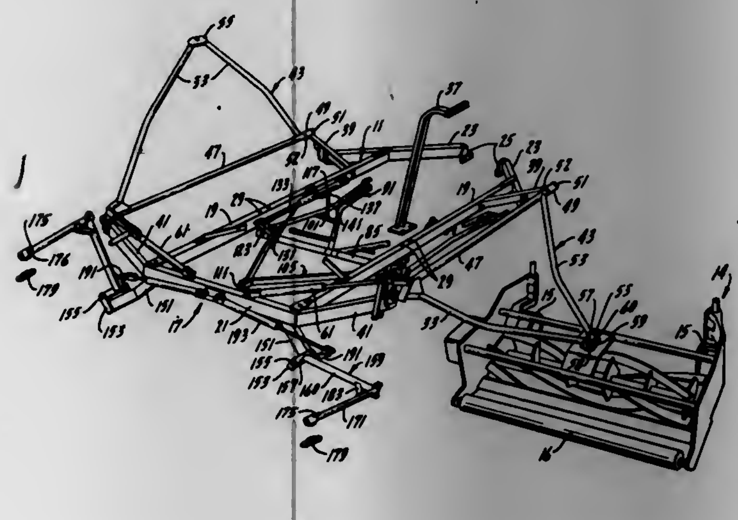
SEVEN GANG HYDRAULIC REEL MOWER

George E. Hall, Des Plaines, and Jack Carr, Glenview, both of Ill., assignors to Roseman Mower Corporation, Glenview, Ill.

Filed Jan. 8, 1973, Ser. No. 321,828

Int. Cl. A01d *75/30*

U.S. Cl. 56—7 **17 Claims**



A packaged hydraulically operated gang mower assembly for mounting on an industrial type tractor. The assembly includes a U-shaped frame which connects to the tractor. The mowers are of the reel type and are driven by hydraulic motors. Hydraulically operated arms for raising, lowering the pulling the mowers are mounted on the frame. The side and rear mower arms are each individually raised and lowered. The underneath mower arms are raised and lowered by a single cylinder and piston. The mowers are supported by the ground during cutting operations and are connected to their arms so as to be free to follow the ground undulations both along and across the path of travel. Stability of the mowers during cutting is independent of their connections to their arms and is accomplished by the combination of front caster wheels and a rear roller on each mower. The hydraulic drive motors for the reels are arranged in at least two circuits with the motors in each circuit connected in series. Hydraulic fluid reservoirs for the drive motors are arranged to provide maximum cooling of the hydraulic fluid.

3,832,836

HARVESTER ROLL STRUCTURE

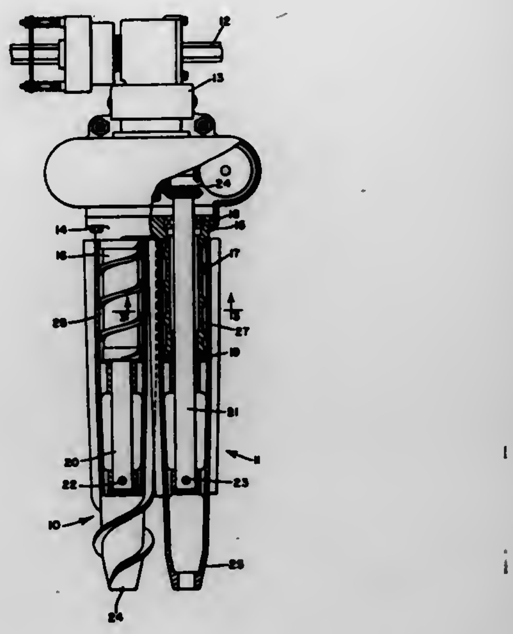
Sidney Elmer Anderson, Geneseo, Ill., assignor to Deere & Company, Moline, Ill.

Filed Nov. 28, 1973, Ser. No. 419,612

Int. Cl. A01f *11/06*

U.S. Cl. 56—104 **5 Claims**

A harvester roll structure composed of a gear housing and a rigid elongated shaft sleeve fixed to the gear housing which supports a roll drive shaft. The drive shaft has one end projecting from the sleeve. A hollow harvesting roll is fixed to the exposed end of the shaft and projects therefrom over and in surrounding relationship to the sleeve. Fixed to the sleeve and projecting into the spacing between the sleeve and the hollow roll is a spiral rib which cooperates with the roll as it rotates to expel material from the spacing between the sleeve and roll.



3,832,837

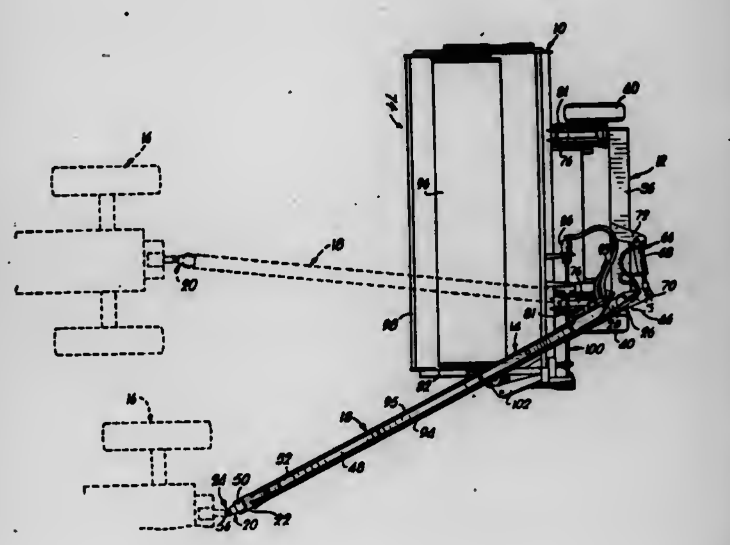
WINDROWER HAVING REAR MOUNTED OVERTOP SWINGABLE TONGUE

Merle K. Burkhart; Ferol S. Fell, and Cecil L. Case, Newton, Kans., assignors to Hesston Corporation, Hesston, Kans.

Continuation of Ser. No. 191,521, Oct. 21, 1971, abandoned. This application Sept. 7, 1973, Ser. No. 395,347

Int. Cl. A01d *73/00*

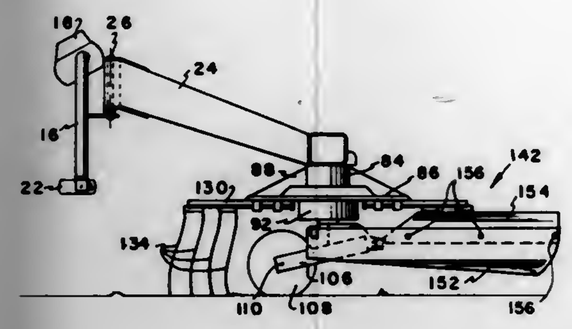
U.S. Cl. 56—218 **9 Claims**



A swingable over-the-top tongue is provided for a windrower having a main frame positioned rearwardly of its crop cutting header. The forwardly extending tongue is upwardly arched for clearing the header above which it is disposed and is provided with a hitch at its forward end for attachment to a towing vehicle such as a tractor. The tongue is pivotally coupled to the frame for lateral swinging movement from a field-operating position to a roading position in which the tractor and the windrower are in essentially a straight-line relationship to one another presenting a minimal overall width. The tongue is further constructed in a manner to provide a fluid reservoir for hydraulically powered portions of the windrower.

3,832,838
COOPERATING WINDROWING STRUCTURE FOR A ROTARY TYPE RAKING DEVICE

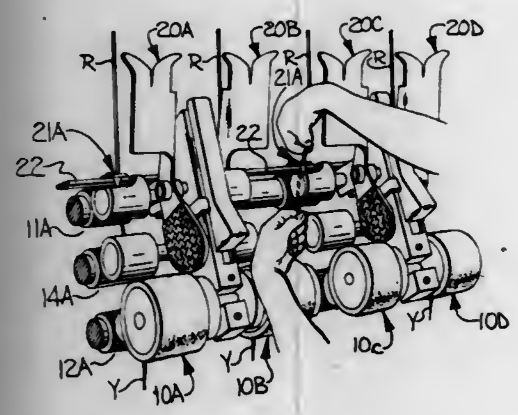
John K. Hale, New Holland, Pa., assignor to Sperry Rand Corporation, New Holland, Pa.
Filed May 1, 1972, Ser. No. 249,321
Claims priority, application Canada, June 2, 1971, 114621
Int. Cl. A01d *79/00*
U.S. Cl. 56—377 **7 Claims**



A rotor type raking device comprised of a pair of laterally spaced rotatively mounted rotor assemblies having a plurality of tines circumferentially depending therefrom and adapted to engage crop material and sweep it inwardly to deposit such in a windrow generally between the rotor assemblies. To augment the windrow forming capability, a windrow forming structure is provided for cooperation with rotating tines and principally functions to strip the crop material from the tines as they begin to lift and deposit the crop material in the windrow. Also the cooperating windrow forming structure functions to generally contain and confine the crop material within a specified windrow width, the present disclosure discloses two species of structure for cooperating with the tines in the windrow formation. The first species comprises a pair of laterally spaced, generally rearwardly extending rods mounted inwardly on the rotor assemblies. The second species is likewise mounted but comprises a pair of laterally spaced generally rearwardly extending baffle structures.

3,832,839
TEXTILE YARN SPINNING MACHINE WITH ROVING INTERRUPTION APPARATUS AND SLOTTED GUIDES

Robert E. McClure, Laurinburg, N.C., assignor to Parks-Cramer Company, Fitchburg, Mass.
Filed Oct. 24, 1973, Ser. No. 409,039
Int. Cl. D01h *5/00, 13/06*
U.S. Cl. 57—106 **4 Claims**



Manual reinstitution of production of an attenuated strand, by a drafting system of a textile yarn spinning machine which cooperates with a device for interrupting feeding of roving strands, is facilitated by the provision of slotted guides or trumpets constructed for receiving a roving strand by lateral movement of an intermediate portion of a running length of the strand relative to the guide.

3,832,840
FIBROUS PRODUCT AND APPARATUS FOR AND METHOD OF PRODUCING

Roland E. Langlois, and Cletis L. Roberson, both of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio
Filed Aug. 10, 1972, Ser. No. 279,575
Int. Cl. D02g *3/34*
U.S. Cl. 57—140 J **11 Claims**

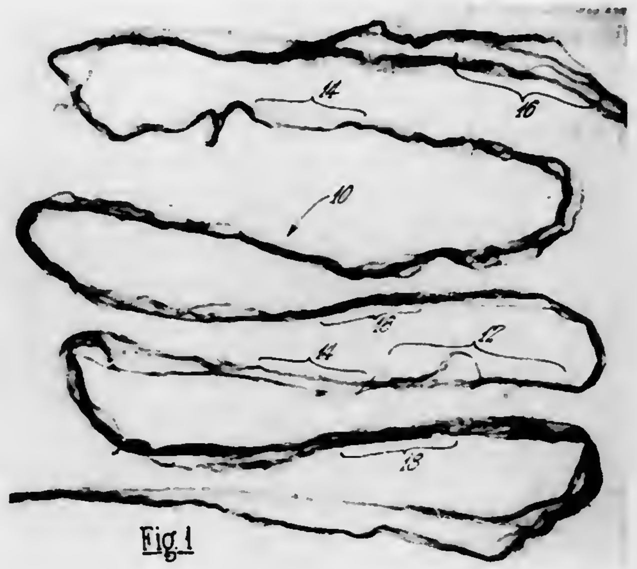
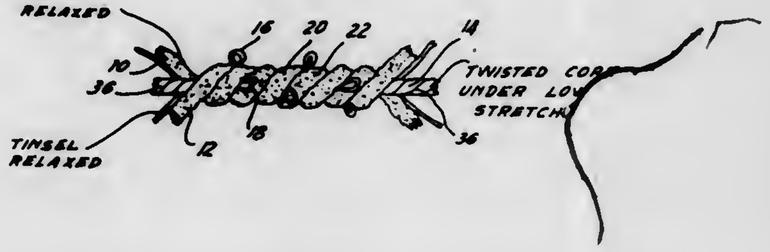


Fig.1

A fibrous product capable of being formed into a yarn comprising a loosely associated sliver-like grouping of discontinuous synthetic fibers; at least a portion of the fibers at each increment of length of the product form a continuous coherent system of fibers establishing dimensional stability to the product; and other fibers of the grouping intermittently form a secondary coherent system bending outwardly between spaced locations along the length of the product to impart a non-uniform character to the product, and apparatus for and method of producing the product by laterally condensing the fibers of a web.

3,832,841
ORNAMENTAL EXPANSIBLE STRIP

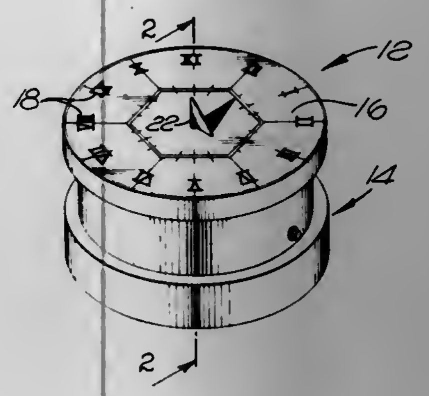
Bernard M. Cole, Old Westbury, L.I., N.Y., assignor to Stribbons Ltd., Roslyn Heights, N.Y.
Filed Apr. 12, 1973, Ser. No. 350,404
Int. Cl. D02g *3/32, 3/38, 3/12*
U.S. Cl. 57—152 **8 Claims**



An ornamental expansible strip for use as a yarn stretch gift packages tie and as a decorator hair tie, and the method of making the same. The expansible strip comprises an elastic core under a retained low stretch and an ornamental yarn cover embracing the same, the yarn cover comprising yarn strands which are stretched and coiled about in the same direction and on opposite side of the elastic core, the core and yarn cover combinedly possessing a stable twist, the yarn being tightly wound, and locked to the stretched and twisted elastic core.

3,832,842
ARTIFICIAL SUNDIAL

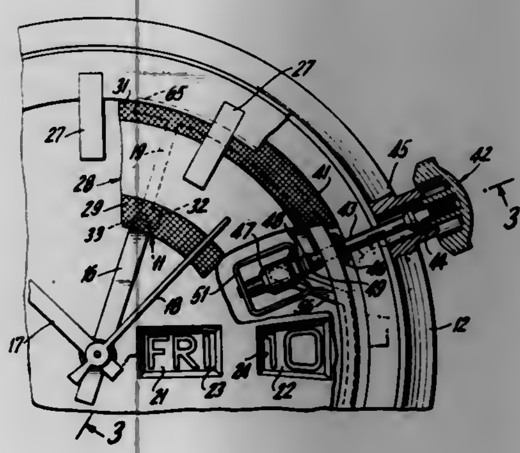
David L. Parker, 10335 Rubio Ave., Granada Hills, Calif. 91344
Filed July 5, 1973, Ser. No. 376,844
Int. Cl. G04b *19/30*
U.S. Cl. 58—50 R **8 Claims**



An artificial sundial formed of a rotatable motor having a shaft which extends through a planar translucent member. A time indicator is positioned adjacent the inner surface of the planar member and is rotatable with the motor shaft. A shadow effect member is secured to the motor shaft and has a portion positioned adjacent the outer surface of the planar member. The time indicator and the shadow effect member rotate in unison with the shaft and produce a visual indication of time.

3,832,843
ELECTRIC ALARM TIMEPIECE

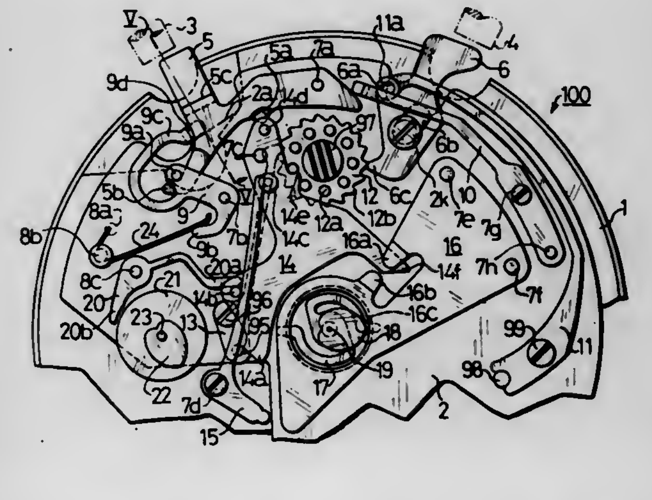
Paul Wuthrich, Watertown, Conn., assignor to Timex Corporation, Waterbury, Conn.
Filed Feb. 20, 1974, Ser. No. 444,074
Int. Cl. G04b *23/12;* **G04c** *21/34, 21/16*
U.S. Cl. 58—57.5 **8 Claims**



An electric alarm timepiece includes an on-off switch wherein the alarm ringing circuit is closed when the bottom surface of the hour hand contacts an alarm set spring extending beneath the tip of the hour hand. The outer portion or tip of the hour hand is guided by a formed ridge on the alarm time set ring and moves about the inner surface of the ring thereby assuring proper contact closure with the spring. The alarm set spring is mounted at one end to the alarm set ring and is rotatable therewith for purposes of setting. The alarm time set ring includes a downwardly extending outer portion comprising a ring gear which is engageable by the stem pinion to set the alarm.

3,832,844
PUSH BUTTON TYPE DISPLAY CORRECTION MECHANISM ON A TIMEPIECE

Tetso Matsumura; Akira Tsuzuki; Kazuo Tanaka, and Choken Suzuki, all of Tokyo, Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan
Filed June 2, 1972, Ser. No. 259,018
Int. Cl. G04f *7/04*
U.S. Cl. 58—74 **6 Claims**

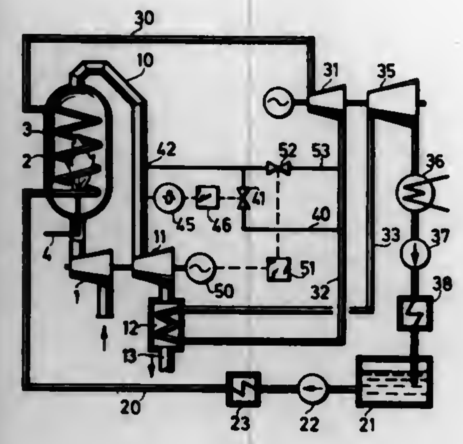


Push button-operated motion-control or display correction mechanisms in timepieces, especially chronograph- and stop watches in which at least one motion-transmitting member is arranged between a plate and a sensible member which is preferably a chronograph hand arbor, for cooperation with said button and said sensible member. A spring urges said motion-transmitting member towards its cooperating position with said button. The motion-transmitting member has two operating positions for different cooperation with said button. When a regular manual pressure force is applied to said button, the force as such will be transmitted from said button through said transmitting member when it is positioned at its first cooperating position, to said sensible member for effective position control thereof. When a substantial force is applied substantially larger than said manual pressure force upon said button, said transmitting member is positioned now at its second cooperating position under the combined influence of its substantial inertia and the resiliency of the spring will be blocked from its receding movement and the button movement checked through said transmitting member by a stationary member, preferably a watch casing.

3,832,845
COMBINED GAS AND STEAM POWERPLANT WITH SUPPLEMENTARY STEAM MIXING

Emile Aguet, Winterthur, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland
Filed Aug. 28, 1973, Ser. No. 392,183
Claims priority, application Switzerland, Sept. 7, 1972, 13133/72
Int. Cl. F01k *23/06;* **F02c** *7/02*
U.S. Cl. 60—39.18 B **9 Claims**

In addition to tapping off a flow of steam from the steam turbine for mixing into the combustion gas flow to the gas turbine in order to regulate the temperature of the combustion gas flow, the plant can be regulated to insure continued operation of the air compressor and generator at low loads. To this end, a supplementary means is provided to tap off steam for mixing into the gas flow when the load decreases. The



decrease in load can be measured off the generator run by the gas turbine or the generator run by the steam turbine.

3,832,846

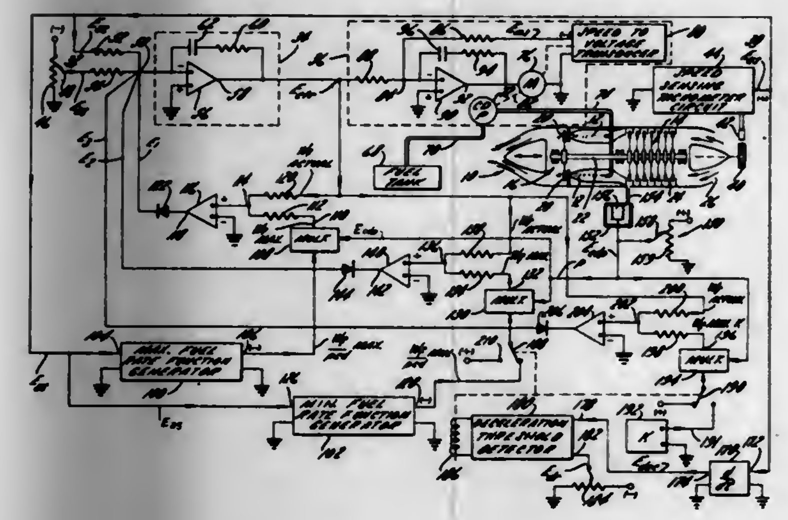
SPEED GOVERNOR WITH FUEL RATE CONTROL

James L. Leeson, Rockford, Ill., assignor to Woodward Governor Company, Rockford, Ill.

Filed Apr. 27, 1972, Ser. No. 248,058

Int. Cl. F02c *9/06*

U.S. Cl. 60—39.28 R **7 Claims**



A fuel flow scheduling system for a prime mover in which the maximum and minimum allowable rates of fuel flow are computed as functions of various operating variables of the prime mover and compared to a control signal emanating from an integrating amplifier of a speed governor, the latter signal being a measure of the flow rate called for in maintaining the prime mover at a desired set point speed. If the flow rate desired by the governor exceeds the computed limits, the input of the integrating amplifier is modified so as to prevent further integral build up of its output signal and to facilitate smooth transition from operation at the computed limits of commanded fuel rate to operation at a normal fuel rate. Various alternative minimum and maximum fuel rate functions are computed from parameters measured by sensors associated with the prime mover. Limiting in the manner described is made possible by the incorporation of a precision voltage-to-flow rate transducer in the form of a constant displacement pump driven by a variable-speed voltage-controlled servomotor.

3,832,847

REGENERATIVELY COOLED ROCKET COMBUSTION CHAMBER WITH SLOTS BETWEEN COOLING CHANNELS

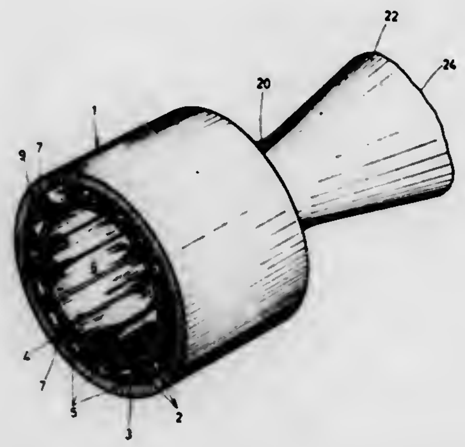
Karl Butter; Otto Tuscher, both of Munich, and Manfred Christl, Taufkirchen, all of Germany, assignors to Messerschmitt-Bolkow-Blohm GmbH, Munich, Germany

Filed June 16, 1972, Ser. No. 263,693

Claims priority, application Germany, July 24, 1971, 2137109

Int. Cl. F02k *11/02*

U.S. Cl. 60—267 **4 Claims**



A regeneratively cooled rocket combustion chamber includes a combustion chamber having a thrust nozzle with a thrust gas discharge and which includes an outer wall and and inner wall having cooling channels defined therebetween extending longitudinally which are spaced apart in a circumferential direction by radially extending slots therebetween which open into the combustion chamber and which extend at their opposite ends to the outer wall.

3,832,848

METHOD TO REDUCE NOXIOUS COMPONENTS IN THE EXHAUST OF INTERNAL COMBUSTION ENGINES

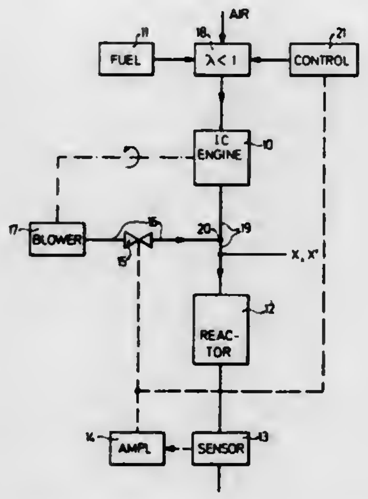
Friedrich Scholl, Stuttgart, Germany, assignor to Robert Bosch GmbH, Schillerhohe, Germany

Filed July 12, 1972, Ser. No. 271,009

Claims priority, application Germany, Mar. 30, 1972, 2215533

Int. Cl. F02b *75/10;* **F01n** *3/14*

U.S. Cl. 60—274 **12 Claims**



The ratio of fuel to air of the air-fuel mixture being applied to internal combustion engines is adjusted such that it is below the stoichiometric value; the composition of the exhaust gases from the internal combustion engine is then sensed before they are discharged in the atmosphere, and additional air is introduced to the exhaust gases before their liberation so that a predetermined optimal relationship with respect to the stoichiometric value is obtained.

3,832,849

SERVO STEERING DEVICE, ESPECIALLY FOR AUTOMOBILES

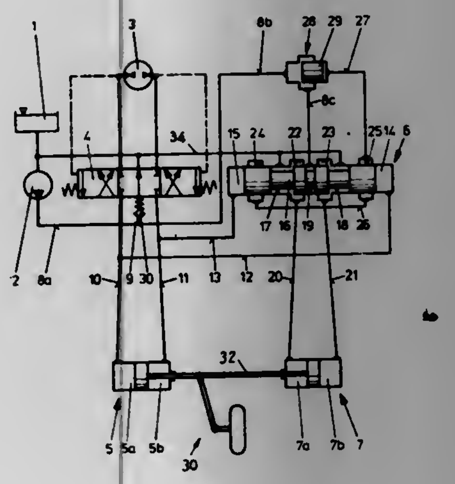
Armin Lang, Schwabisch Gmund-Bettringen, Germany, assignor to Zahnradfabrik Friedrichshafen AG, Friedrichshafen, Germany

Filed July 5, 1973, Ser. No. 376,372

Claims priority, application Germany, July 6, 1972, 2233167

Int. Cl. F15b *20/00;* **B62d** *5/06*

U.S. Cl. 60—386 **3 Claims**



A hydrostatic servo operated steering system having primary and shunt motors connected to the steering linkage under control of steering wheel and pressure operated valves to effect a change in steering effort in order to meet changes in load or resistance. A shuttle valve responsive to a pressure differential between the output of the engine driven servo pump and the pressure applied to the primary servo motor, controls supply of operating pressure medium to the shunt motor from either the servo motor or the steering wheel actuated control pump in the event the servo pump fails.

3,832,850

WORKING ELEMENT WITH A PISTON

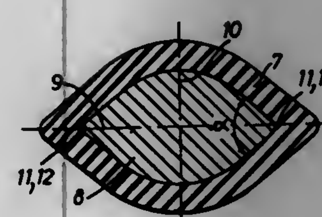
Poul Christian Dyhr-Mikkelsen, Kirke-Horup, Denmark, assignor to Danfoss A/S, Nordborg, Sweden

Filed Feb. 2, 1973, Ser. No. 329,103

Claims priority, application Germany, Mar. 4, 1972, 2210551

Int. Cl. F03g *7/06*

U.S. Cl. 60—530 **7 Claims**



The invention relates to a thermostat assembly of the type having an open ended casing which defines a chamber and has a piston and a deformable bag in the chamber, the piston being sheathed in the bag. The chamber is filled with a thermostatic liquid which exerts pressure to collapse the bag and force the piston out of the chamber when the liquid is heated. The bag and piston have biconvex shaped cross sections instead of circular cross sections as in the prior art.

3,832,851

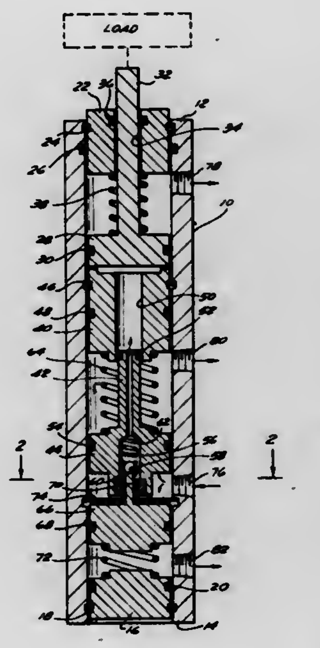
HYDRAULIC ACTUATOR

Henry E. Kiernan, Huntington Station, N.Y., assignor to Hydro-Stack Mfg. Corp., Huntington Station, N.Y.

Filed Nov. 3, 1972, Ser. No. 303,308

Int. Cl. F15b *3/00*

U.S. Cl. 60—563 **11 Claims**



An hydraulic actuator capable of intensifying and multiplying force applications in relation to the available hydraulic pressure includes a cylinder having a closure sealing off its rear end and a piston bearing at its forward end. A piston in the forward part of the cylinder is provided with a forwardly projecting rod extending through the opening in the bearing. This rod is adapted to apply the intensified force to the selected load. An intensifying unit within the cylinder rearwardly of the forward piston includes a stationary piston barrel within the cylinder adapted to receive the hollow tube extension of a central piston. A valve forming part of the central piston is adapted to open to permit the available hydraulic pressure to pass through the passages of the central piston and its tube for application to the forward piston. When the valve is closed, the central piston is adapted to move forwardly thereby moving the piston tube within its barrel to intensify the hydraulic pressure acting against the forward piston and proportionately increase the force applied to the load. A valve opening means in the form of a forwardly projecting pin on a spring biased piston located rearwardly of the central piston facilitates opening of the valve to permit retraction of the central piston and consequently the reduction of the applied intensified force and eventual retraction of the forward piston rod.

3,832,852

CONSTRUCTION AFFORDING AUTOMATIC SYNCHRONIZING OF MASTER AND SLAVE FLUID POWER CYLINDERS

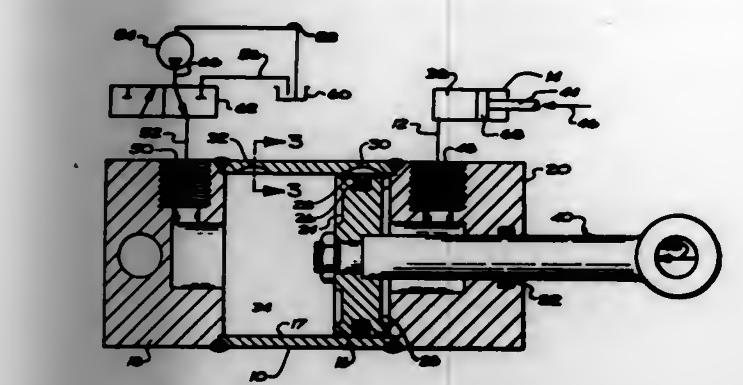
Loftin Waldean Schmucker, Hutchinson, Kans., assignor to The Cessna Aircraft Company, Wichita, Kans.

Filed Oct. 20, 1972, Ser. No. 299,322

Int. Cl. F15b *7/00, 15/20*

U.S. Cl. 60—546 **3 Claims**

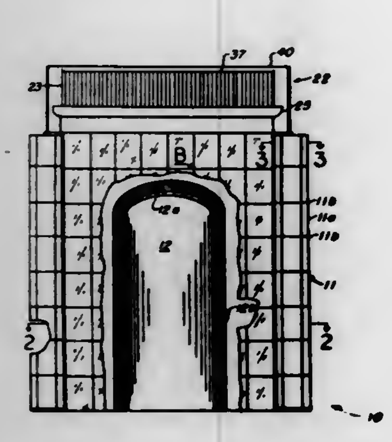
An improved master cylinder in which the interior of the cylinder wall has a short longitudinal groove which causes the master and slave pistons to complete their strokes and do so at substantially the same time. The groove, located near end of cylinder, permits restricted flow past the master cylinder piston when this piston is nearing and at the end of its stroke thereby causing both master and slave pistons to complete their respective strokes. A similar groove at the other end of the cylinder performs similarly.



3,832,853

WIND AND SOLAR ENERGY CONVERSION SYSTEM FOR MULTI-STORY BUILDINGS

Tony W. Butler, Jr., 3224 Timmons, Apt. No. 136, Houston, Tex. 77027
Filed Mar. 26, 1973, Ser. No. 345,093
Int. Cl. F03q *7/02*
U.S. Cl. 60—641 **21 Claims**



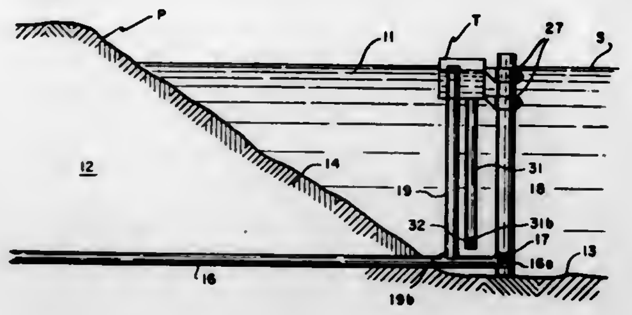
Kinetic wind energy is converted to potential energy for use in a multi-story building by employing the wind energy to rotate wind wheel assemblies mounted on the building. The wheel assemblies are in turn employed to compress air which is stored in a chamber contained within the associated building. The compressed air is employed to drive an electric generator which provides supplemental electricity for the building. A solar energy conversion system is included with the building whereby radiant solar energy is employed to heat air in vertical columns contained between spaced walls of glass which form the sides of the building. The rising air is employed to rotate a squirrel cage type assembly on the building roof which in turn is employed to power an air compressor for supplying pressurized air to the compression chamber. When storage is not required, the kinetic energy acting on the system may also be converted to mechanical energy which is employed to directly power electrical generators and/or air conditioning compressors.

3,832,854

BOTTOM FLOW POND LEVEL CONTROL SYSTEM

James E. Metts, 931 Bonnie Ln., Aiken, S.C. 29801
Filed July 24, 1973, Ser. No. 382,149
Int. Cl. E02b *3/00*
U.S. Cl. 61—1 **10 Claims**

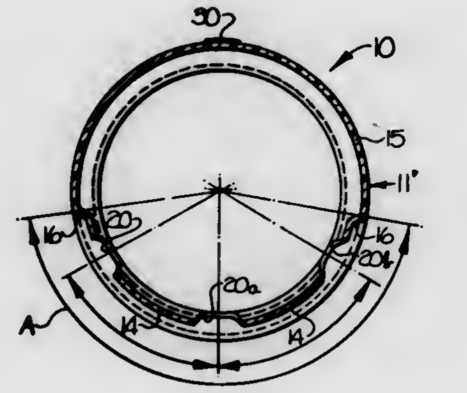
The system disclosed controls the level of an open body of water and includes a tank suitably supported in the body of water adjacent to the water surface, the tank being provided with an inlet and an outlet, a conduit connected to the tank inlet for conducting water from the bottom of the body of water into the interior of the tank, and a conduit connected to the tank outlet for discharging water from the tank interior to a remote location when the water level in the tank interior reaches a level corresponding to a predetermined level in the open body of water.



3,832,855

CORRUGATED PLASTIC DRAINAGE PIPE WITH INTERRUPTED RIB

Ernest J. Maroschak, Box 878, Roseboro, N.C. 28382
Continuation-in-part of Ser. No. 262,103, June 12, 1972, Pat. No. 3,747,352, which is a continuation-in-part of Ser. No. 228,508, Feb. 23, 1972. This application Jan. 11, 1973, Ser. No. 322,739
Int. Cl. E02b *13/00;* **F16l** *11/06*
U.S. Cl. 61—10 **8 Claims**



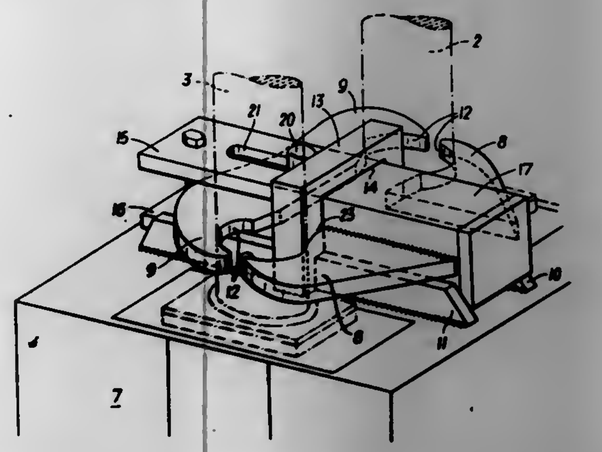
A resilient plastic drainage pipe having annular corrugations of alternating ribs and valleys, the majority of the ribs being uninterrupted and arranged in spaced groups with certain other ribs being interrupted by a recessed wall portion of an arcuate extent greater than 90 degrees and no more than 180 degrees. The recessed wall portion is positioned at a level intermediate the peripheries of the ribs and valley portions and has holes provided therethrough for drainage of liquids from the pipe.

3,832,856

DEVICE FOR VERTICALLY POSITIONING THE PROPS OF A MINE ROOF SUPPORTING FRAME

Siegfried Sigott, Alfred Zitz, and Heinrich Sussenbeck, all of Zeltweg, Austria, assignors to Oesterreichisch-Alpine Montangesellschaft, Vienna, Austria
Filed Dec. 14, 1972, Ser. No. 315,238
Claims priority, application Austria, Dec. 14, 1971, 10739/71
Int. Cl. E21d *15/44*
U.S. Cl. 61—45 D **10 Claims**

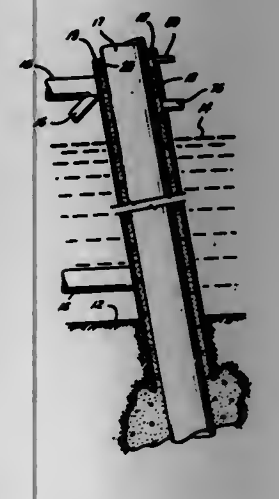
A device for vertically positioning the props of a mine roof supporting frame in which a cap is supported by a plurality of props against a floor frame, comprising two claws being disposed so as to be movable towards each other; a stationary abutment, the two claws being arranged both sides of the abutments; a post being disposed stationarily on the floor frame, the abutment being located on the post; a hydraulic cylinder-and-piston arrangement being adapted for locating a prop between the two claws, the piston of the hydraulic cylinder-and-piston arrangement being disposed between the two claws; and pressure-relief valve means for maintaining constant the positioning force and thereby limiting the positioning force so that when excessive forces occur due to ground movements the pressure relief valve means opens before the props are damaged, the valve means being disposed in the working chamber of the hydraulic cylinder-and-piston arrangement.



3,832,857

PRESSURE GROUTING

Max Bassett, Houston, Tex., assignor to C. Nelson Shields, Jr., Trustee, Houston, Tex.
Continuation-in-part of Ser. No. 358,009, May 7, 1973, abandoned. This application Aug. 14, 1973, Ser. No. 388,085
Int. Cl. E02d *5/74, 5/42;* **E02b** *17/00*
U.S. Cl. 61—46 **10 Claims**



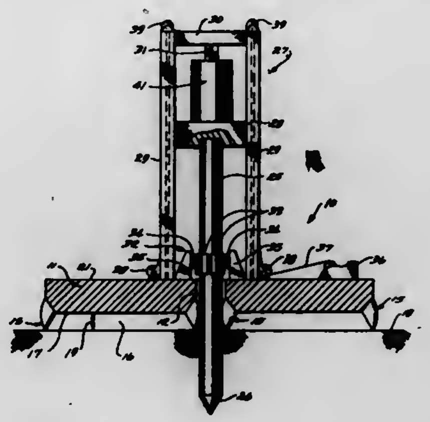
A method for grouting the annulus between the jacket and piling in the legs of an offshore structure in which air is introduced to expel water from the lower end of the annulus, and the annulus is then filled from the top with grouting material. Water may be pumped down the annulus to wash out mud. Some grout may be pushed out the bottom of the annulus to remove mud or to form a bell foundation.

3,832,858

PILE DRIVING

Edward O. Anders, Houston, Tex., assignor to Global Marine Inc., Los Angeles, Calif.
Filed Jan. 15, 1973, Ser. No. 323,826
Int. Cl. E02d *7/00, 7/02, 7/18*
U.S. Cl. 61—53.5 **29 Claims**

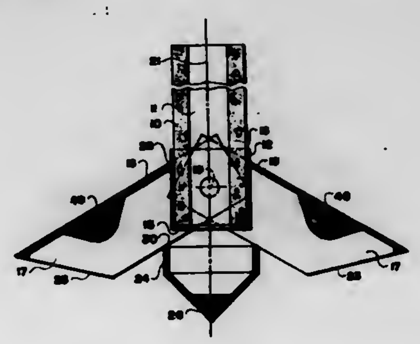
A pile driver includes a base and selectively operable means, such as an air cushion support system, for supporting the base in an elevated position above ground. Suitable cranes are provided for disposing a pile substantially vertically of the base with the lower end of the pile in engagement with ground adjacent the base. The base carries means which are operable in the elevated position of the base for transferring at least a substantial portion of the weight of the base to the pile. A suitable hammer is carried by the base for applying impact loads to the upper end of the pile. Where an air cushion support system is used, the system may be overpowered to cause the base to oscillate vertically through a range less than the stable hover height of the base, and at least some of the energy of such oscillation is applied to the pile to drive it into the ground. Also, where an air cushion support system is used, the space under the base may be partially evacuated after the weight of the base is transferred to the pile, thereby to increase the downward steady-state preload applied by the base to the pile.



3,832,859

METHOD AND APPARATUS FOR SPREAD-FOOT PILES

Rachot Kanjanavanit, 11/1 Sai 30, Sukumvit Ln., Bangkok, Thailand
Continuation-in-part of Ser. No. 818,325, April 22, 1969, abandoned. This application June 5, 1970, Ser. No. 43,917
Claims priority, application Great Britain, Apr. 24, 1968, 22390/68
Int. Cl. E02d *5/30, 5/44*
U.S. Cl. 61—53.58 **15 Claims**



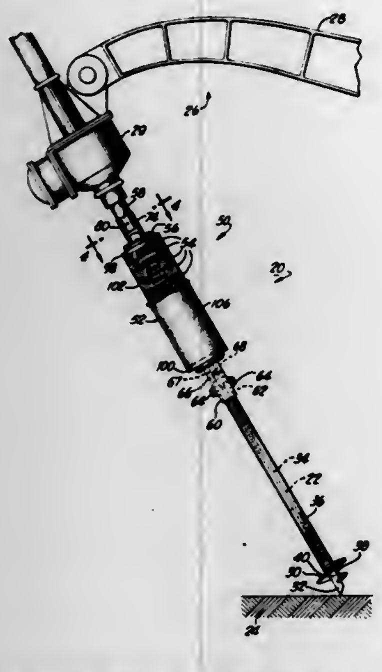
A hollow core pile has a cap on the lower end enclosing the lower ends of hinged spread feet. When the pile has been driven to depth, a rod or plunger is extended down the hollow core of the pile and is impacted to drive the cap down clear of the lower ends of the feet. The pile is then driven further so that the inclined ends of the spread feet engage the edges of the cap which forces them outwardly into the spread position.

3,832,860

METHOD AND APPARATUS FOR INSTALLING ANCHORS

Earl Milton Jahnke, Elmhurst, Ill., assignor to Joslyn Manufacturing and Supply Company, Chicago, Ill.
Filed Nov. 17, 1972, Ser. No. 307,549
Int. Cl. E02d *5/80;* **G01n** *3/00*
U.S. Cl. 61—53.68 **15 Claims**

A method and apparatus for installing an anchor utilize the rotational power and axial thrust from a mechanical power source. The novel method and apparatus are particularly adapted for installing an earth anchor of the type having at least one helical screw portion attached to a polygonally-shaped hub portion and having an elongated portion extending from the hub portion and include the placement of an elongated tube for telescopically receiving the elongated portion extending from the hub portion of the anchor in engagement with the hub portion. The drive tube includes a wrench engaging first end complementarily shaped to securely engage the polygonally-shaped hub portion of the anchor at least partially in the area of attachment of the helical screw portion to the hub portion to thereby transmit the rotational power from the mechanical power source to the anchor at an increased cross-sectional area of the anchor. The wrench engaging first end is further complementarily shaped to the pitch of the helical screw portion to engage a surface of the helical screw portion at a plurality of points to thereby distribute the axial thrust from the mechanical power source across a portion of the surface of the helical screw portion.



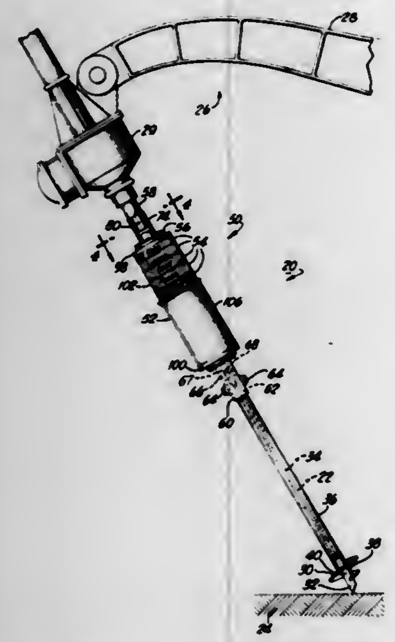
3,832,861
METHOD AND APPARATUS FOR INSTALLING ANCHORS

Earl Milton Jahnke, Elmhurst, and Stephen Anthony Petres, Forest Park, both of Ill., assignors to Joslyn Manufacturing and Supply Company, Chicago, Ill.

Filed Nov. 17, 1972, Ser. No. 307,550

Int. Cl. E02d *5/80*; G01n *3/00*

U.S. Cl. 61—53.68 **21 Claims**



A method and an apparatus for installing an anchor utilize the rotational power and the axial thrust from a mechanical power source. The novel method and apparatus are particularly adapted for installing an earth anchor of the type having at least one helical screw portion attached to a polygonally-shaped hub portion and having an elongated portion extending from the hub portion and include the placement of an elongated drive tube for telescopically receiving the elongated portion extending from the hub portion of the anchor in engagement with the hub portion. The drive tube includes a wrench engaging first end complementarily shaped to securely engage the polygonally-shaped hub portion of the anchor at least partially in the area of attachment of the helical screw portion to the hub portion to thereby transmit the rotational power and the axial thrust from the mechanical power source to the anchor. An elongated shear pin is utilized to securely retain the anchor in the installation apparatus. An adapter for connecting the drive tube to the mechanical power source includes a force transducer comprising a spring and spline assembly for measuring and indicating the axial thrust applied to the anchor by the mechanical power source and for transmitting the axial thrust through the installation apparatus to the anchor. After the earth anchor is installed to a desired depth, the installation apparatus is removed from the anchor merely by a reverse axial thrust from the mechanical power source sufficient to shear the shear pin.

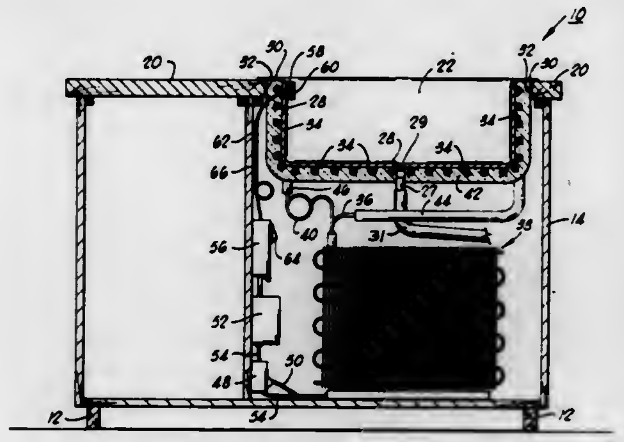
3,832,862
LABORATORY REFRIGERATION APPARATUS

George W. Ingels, 2310 Ravenwood, Norman, Okla. 73069

Filed Oct. 24, 1972, Ser. No. 299,911

Int. Cl. F25b *1/00*

U.S. Cl. 62—227 **4 Claims**



Apparatus for enabling more efficient laboratory operations which includes a laboratory work table in combination with an open well type refrigerator unit. The apparatus consists of a laboratory work bench of the type finding utility in medical and biological laboratory operations which includes in coactive association therewith an open well type of refrigerator and the required refrigeration apparatus.

3,832,863
ICE TUNNEL MOUNTING

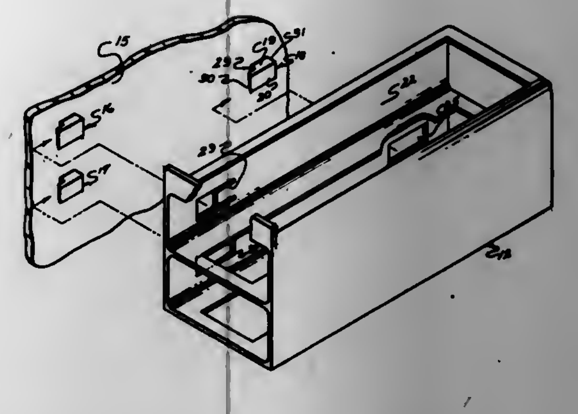
Earl D. Boorman, Jr., Louisville, Ky., assignor to General Electric Company

Filed Sept. 10, 1973, Ser. No. 395,851

Int. Cl. F25d *19/00*

U.S. Cl. 62—298 **6 Claims**

An ice tunnel is mounted in a freezer compartment through having openings in a side wall thereof to receive L-shaped supports on a side wall of the freezer compartment by moving the ice tunnel toward the side wall of the freezer compartment to enable the supports to protrude through the openings into the ice tunnel and then moving the ice tunnel rearwardly. One opening has a movable tab therein to reduce the length of the opening to less than the length of the L-shaped support whereby the tab bends as the ice tunnel is moved toward the freezer compartment wall to receive the L-shaped supports and then bends back to cooperate with the rear of the L-shaped support at the completion of rearward movement of the ice tunnel to lock the ice tunnel to the wall. The ice tunnel is removed from its mounting by inserting a sharp instrument in the space between the tab and an edge of the opening to move the tab inwardly into the ice tunnel so that the ice tunnel can be moved forwardly to a position such that the L-shaped supports are aligned with the openings whereby the ice tunnel can be pulled away from the wall of the freezer compartment.



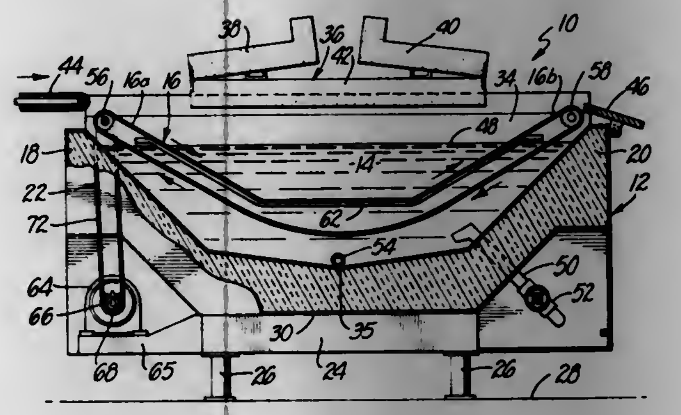
3,832,864
QUICK-FREEZING MACHINE

Ivan Rasovich, 1832½ N. Berendo St., Los Angeles, Calif. 90027

Filed Oct. 13, 1972, Ser. No. 297,418

Int. Cl. F25d *17/02*

U.S. Cl. 62—374 **5 Claims**



A quick-freezing machine including an insulated tank containing a liquid bath for quickly freezing items immersed therein. An endless slack conveyor belt is supported between opposite sides of the tank with all but endmost portions thereof fully immersed in the bath. The belt is driven from both of the end portions to maintain the slack in the belt and to fully immerse in the liquid items transported thereby through the bath.

3,832,865
UNIVERSAL JOINT LUBRICATION

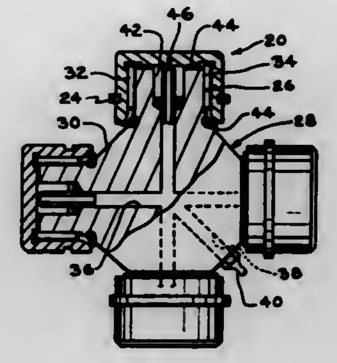
David S. Lewis, Defiance, Ohio, assignor to The Zeller Corporation, Defiance, Ohio

Filed May 4, 1973, Ser. No. 357,206

Int. Cl. F16d *3/26*

U.S. Cl. 64—17 A **14 Claims**

Improved lubrication of bearing cups in universal joints is provided. A cross of a universal joint has four trunnions extending therefrom along two mutually perpendicular lines. Bearing cups are rotatably received on the trunnions and the cups in turn are held by universal joint yokes. Lubrication passages extend from a central portion of the cross outwardly toward the ends of the trunnions. When the universal joint is stationary, lubricant such as grease may drain from an upper bearing cup down to a lower cup, leaving the upper cup devoid of lubrication when the universal joint is again placed in operation. In accordance with the invention, a cavity is in the end of each trunnion communicating with the bearing cup and a passage extension extends substantially through the cavity from the lubrication passage toward the end of the trunnion. Lubricant is trapped in an annular space formed between the passage extension and the wall of the cavity with this lubricant being readily available to lubricate the corresponding cup when the universal joint is placed in operation.



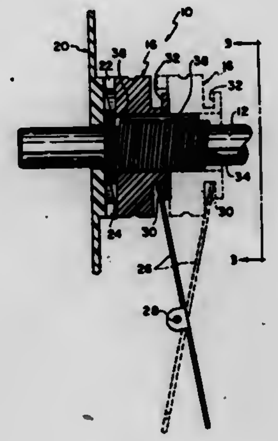
3,832,866
FRICTION CLUTCH APPARATUS

Kenneth W. Thomson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 14, 1972, Ser. No. 315,052

Int. Cl. F16d *3/14*

U.S. Cl. 64—27 C **4 Claims**

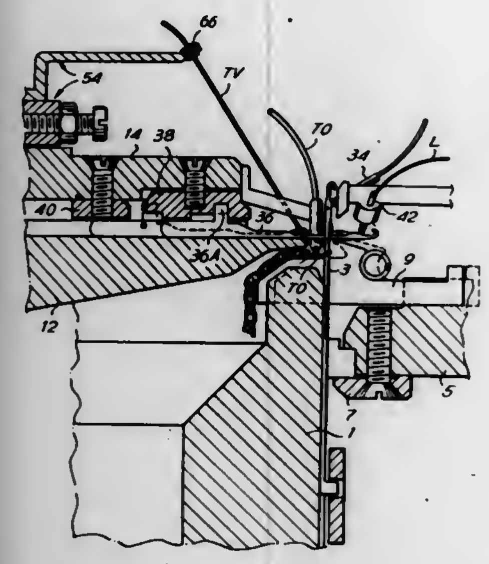


A friction clutch for providing a yieldable friction drive coupling between a drive member and a member to be driven, the drive and driven members being capable of relative axial movement. The clutch comprises a helical spring body wound in frictional engagement on one of the members, the helical spring having an end portion extending from the last coil along the spring body in the direction of the longitudinal axis thereof. The extending end portion forms a key which cooperates with a keyway integrally formed in the other member. The cooperation of the key and the keyway permits relative axial movement between the drive and driven members without interrupting the positive friction drive connection therebetween.

3,832,867

CIRCULAR KNITTING MACHINE AND ARTICLES KNITTED THEREBY

Vinicio Luchi, Via G. Filippo Mariti 102, Firenze, Italy
Filed May 10, 1972, Ser. No. 252,011
Claims priority, application Italy, May 14, 1971, 9514/71
Int. Cl. D04b *9/12*
U.S. Cl. 66—9 R **8 Claims**

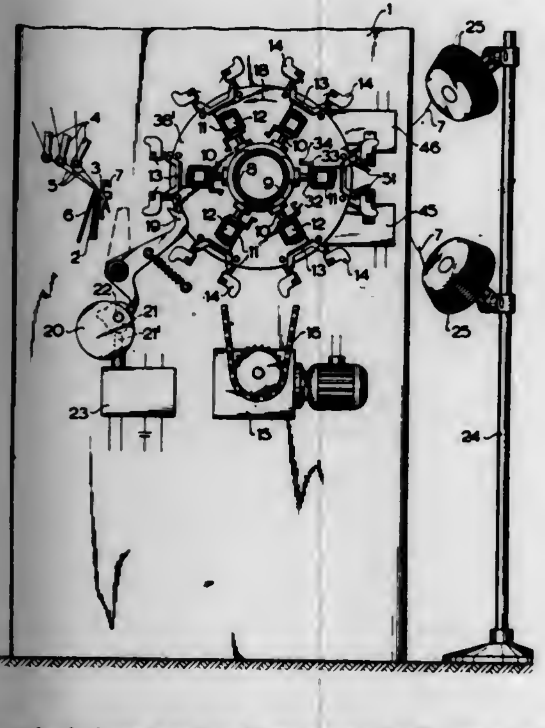


A knit fabric has longitudinally extending warp yarns bound into the stitches of the knit fabric. A circular knitting machine includes a needle cylinder and a dial which carries an array of pairs of hooked members each of which pairs serves to bind in one longitudinal warp yarn.

3,832,868

WARP KNITTING MACHINE

Josef Derich, Monchengladbach; Heinz Kamp, Rickelrath, and Gunter Frehn, Monchengladbach, all of Germany, assignors to W. Schlathorst & Co., Monchengladbach, Germany
Filed Nov. 13, 1972, Ser. No. 306,350
Claims priority, application Germany, Nov. 12, 1971, 2156386; Apr. 28, 1972, 2220942
Int. Cl. D04b *23/06*
U.S. Cl. 66—84 **17 Claims**

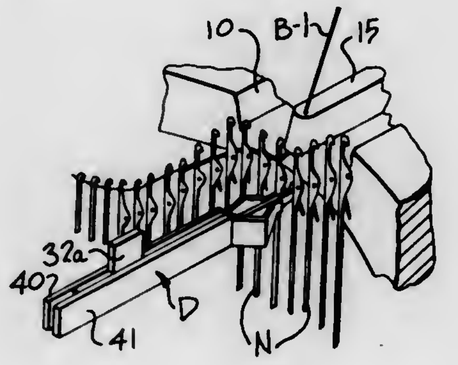


In a warp knitting machine, pneumatically operated means is provided for inserting weft thread in the material being knitted. The pneumatically operated means includes an elongated slotted tube in which a projectile is pneumatically propelled back and forth within the tube. The projectile has an arm passing through the slot in the tube and carrying operable means externally of the tube for pulling weft threads from a stationary supply reel. The weft threads are inserted in the material being knitted and suitable control means are provided for controlling the operation of the pneumatically operated means and the insertion of the weft threads.

3,832,869

CIRCULAR KNITTING MACHINE PANTY HOSE SLITTING DEVICE AND METHOD

Harper Shields, Burlington, N.C., assignor to Pilot Research Corporation, Burlington, N.C.
Filed Aug. 18, 1969, Ser. No. 850,943
Int. Cl. D04b *35/00*
U.S. Cl. 66—147 **9 Claims**

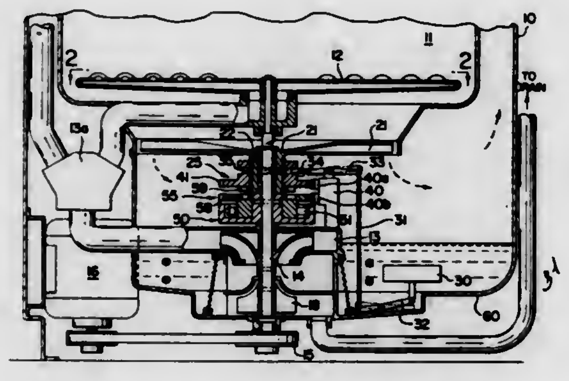


Seamless tubular fabric, such as panty hose blanks, are slit in a walewise direction as they are being knit on a circular hosiery knitting machine by means of the present method and apparatus. A relatively thin hooked yarn holding dial element is supported inside of the needle circle for rotation in timed relationship with the needles therein and the hooked outer end portion is thin enough to pass between immediately adjacent knitting needles to pick up and hold the yarn as it is fed to and knit on needles positioned adjacent opposite sides thereof. Cam means is provided for imparting radial movement to the dial element to cut the held yarn loop and separate or slit the fabric as it is knit.

3,832,870

COMBINATION WASHING AND DRYING MACHINE WITH WATER LEVEL CONTROL AND FAN CLUTCH

Leslie Todd-Reeve, Aylesbury, England, assignor to The Hoover Company, North Canton, Ohio
Filed May 7, 1973, Ser. No. 358,134
Claims priority, application Great Britain, May 23, 1972, 24227/72
Int. Cl. D06f *17/06;* **F26b** *9/06, 25/22*
U.S. Cl. 68—20 **7 Claims**

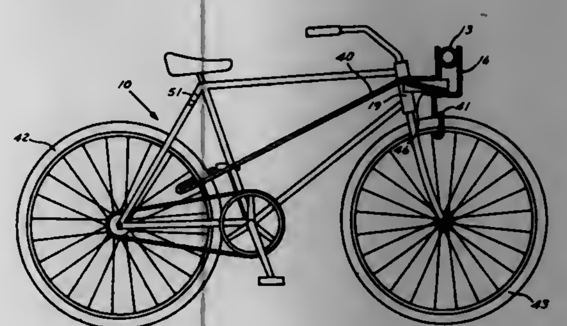


In the preferred form, a combination clothes washer-dryer including a cabinet in which clothes are hung for washing by being subjected to sprays of recirculated washing liquid and drying by being subjected to fan forced drying air. The drying fan is driven through a clutch mechanism on a drive shaft and the clutch is selectively operated by a liquid level float to prevent operation of the fan until after the washing liquid has been removed from the cabinet.

3,832,871

LOCKING BICYCLE SECURING DEVICE

Edward A. Kaufmann, 2785 N. Speer Blvd., Denver, Colo. 80211
Continuation-in-part of Ser. No. 349,489, April 9, 1973. This application Sept. 4, 1973, Ser. No. 393,828
Int. Cl. B62h *5/16;* **E05b** *71/00*
U.S. Cl. 70—227 **5 Claims**

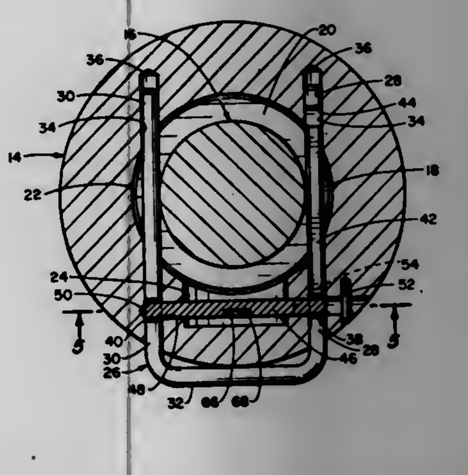


A bicycle securing assembly including an elongated single support member elevated from the ground and having at least one attachment loop secured to said member. A lockable securing device is attached to a portion of the frame of the bicycle for engaging the attachment loop on said support. The securing device includes a bifurcated member for receiving the attachment loop and lock means securing the loop therein prevents the removal of the bicycle from the support. Elongated rods having a loop or hook formed at one end and a deformed section formed at the opposite end are arranged with the hook portion inserted around the rim and tire of the front and/or rear wheels, with the deformed portion extending into the space between the bifurcated arms to be secured by itself or with the attachment loop. Various locking devices are provided for enclosing the attachment loop and rods within the extended arms of the bifurcated member.

3,832,872

TRAILER COUPLING PIN LOCK COLLAR

John R. Gerlach, Monterey Park, Calif., assignor to Emhart Corporation, Bloomfield, Conn.
Filed Aug. 13, 1973, Ser. No. 388,107
Int. Cl. B60r *25/00;* **F16b** *41/00*
U.S. Cl. 70—232 **10 Claims**

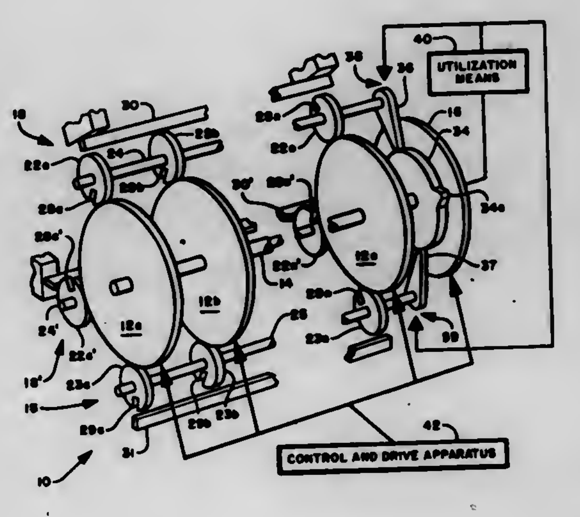


A cylindrical collar is received upwardly telescoped over the downwardly projecting trailer coupling pin and a U-shaped keeper is slidably received through the collar movable between pin engaging and disengaging positions. In the keeper pin engaging position, leg portions thereof span opposite portions of the collar opening passing through opposite portions of the usual annular recess of the coupling pin thereby retaining the collar over the coupling pin preventing the coupling pin from engaging a trailer pulling tractor. A lock through a pivotal cam bar slides a locking bar transversely into engagement with the keeper when the keeper is in its pin engaging position thereby locking the keeper in such pin engaging position.

3,832,873

MULTIPLE CODE CODED MECHANISM

Jon H. Barnette, Albuquerque, N. Mex., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed Aug. 6, 1973, Ser. No. 385,786
Int. Cl. E05b *37/02, 37/12*
U.S. Cl. 70—291 **11 Claims**



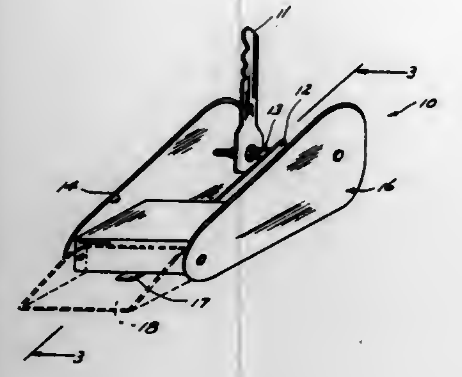
A coded switch operable by any one of a plurality of codes which may include a set of independently rotatable drive wheels supported on a common axis which may be in simultaneous engagement with a plurality of code sets, each code set having independently rotatable code wheels engageable with each drive wheel. A code test wheel is also independently rotatably supported on the same common axis with the drive wheels and carries cam surfaces operably engaged with cam followers associated with the code sets for sensing whether the code wheels have a predetermined angular relationship representative of a code and for initiating same indication or response when this or other angular relationship is present. Means are provided to insert a code by sequentially rotating the drive wheels and code test wheel in a manner to vary and angular relationships of the code wheels and then to check the code input to see if it is a valid code then stored in the code wheels of a code set. An additional code set may be provided which is adapted to indicate the "sum" of the codes in the code wheel of all code sets engaged with a particular drive wheel.

3,832,874

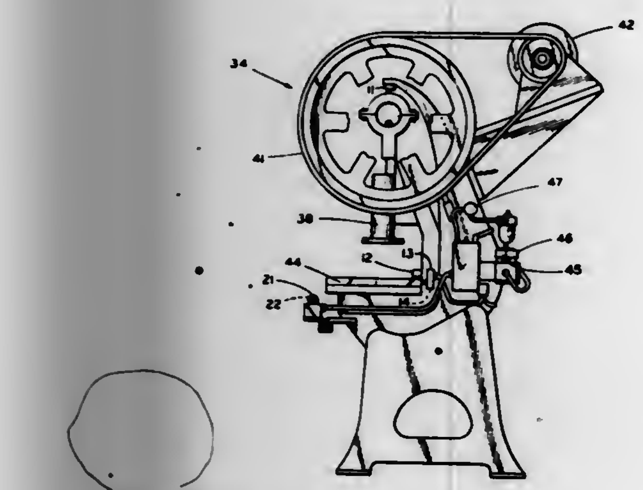
KEY HOLDER

Richard A. Willis, 640 Fischer Dr., Phillipsburg, Kans. 67661
Filed Oct. 4, 1973, Ser. No. 403,651
Int. Cl. A47g *29/10*
U.S. Cl. 70—456 R **4 Claims**

A key holder in a readily accessible locked position yet operable to hold at least one key in a position for use. The holder including a male and female element detachably secured together and having a key retaining rod mounted therebetween, a cover pivotably secured between the elements, and a locking member coactable with the elements to secure them together and to spring bias the cover to hold the keys between the elements.

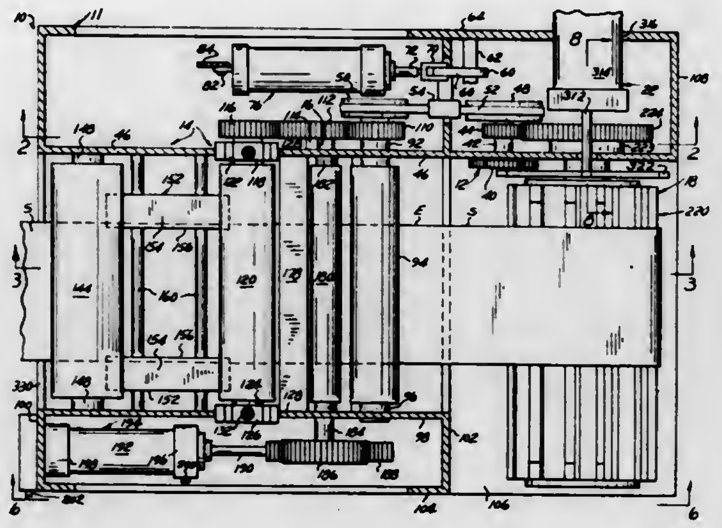


3,832,875
CONTROL SYSTEM FOR A PUNCH PRESS
Thomas R. Newman, Milwaukee, Wis., assignor to Square D Company, Park Ridge, Ill.
Filed June 18, 1973, Ser. No. 371,029
Int. Cl. B21j *9/20*
U.S. Cl. 72—25 **4 Claims**



The control system is for a punch press having a reciprocatable bolster plate, and requires that run buttons of the system be depressed and held in place in order to energize first and second relays which control a bolster-in solenoid for a bolster-in actuating means. The energization of the bolster-in solenoid causes the bolster-in actuating means to move the bolster plate from a load position at the front of the press to a work position at the rear of the press. The bolster plate, as it nears the rear of the press, trips a first limit switch completing a holding circuit for the first relay and, upon arriving at the rear of the press, trips a second limit switch to deenergize the bolster-in solenoid. Both run buttons must be released simultaneously in order to energize a third relay and a ram solenoid thereby causing reciprocation of a ram. A third limit switch responsive to the cycling of the ram deenergizes the first, second and third relays at the conclusion of each cycle. Contacts of the first and third relays, operative upon deenergization, close and thus complete a circuit to the bolster-out solenoid thereby causing the bolster-out actuating means to move the bolster plate to the load position.

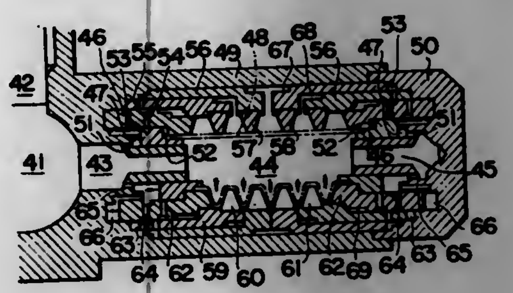
3,832,876
STRIP MATERIAL COILING MACHINE
Cornelis G. Arens, 700 Haggerty Hwy., West Bloomfield, Mich. 48033
Filed Dec. 20, 1972, Ser. No. 316,987
Int. Cl. B21b *37/00*; **B21f** *11/00*
U.S. Cl. 72—12 **7 Claims**



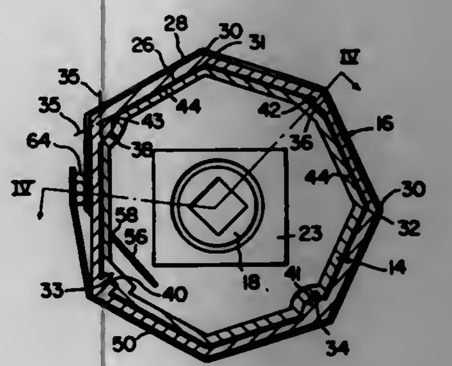
Intermittently rotated feed rolls feed a continuous strip of sheet material past an intermittently rotated cut-off and end-bending shaft cooperating with a stationary cut-off bar and a stationary wedge-shaped end-bending bar to sever, reversely bend the severed end, and feed the same to a coiling drum having thereon circumferentially spaced strip end catch bars, one of which grasps the bent end of the severed strip and couples it to the periphery of the rotating coiling drum as after a predetermined length of the strip has been measured off by a strip length measuring unit. During coiling, a crescent-shaped pivoted pressure arm prevents rumpling of the strip being wound thereon.*While the severed strip is being completely wound on the coiling drum, a taping device descends and deposits a band of adhesive tape around the circumference of the coil on the drum so as to prevent it from unwinding. The intermittent motions of the rotary cutting and bending shaft, as well as that of the taping unit, are controlled and actuated by the pistons of fluid pressure cylinders which also regulate the starting and stopping of the strip feeding rolls. When the tape has been deposited, as far as is desired, around the periphery of the coiling drum, the tape roll is prevented from rotating by a braking device while the taping device is raised, thereby causing the thus-taut tape to be severed by a knife attached to the taping device. A coil ejector ring is then pushed against the inner end of the coil so as to eject it from the coiling drum.

3,832,877
IMPACT HYDRAULIC FORMING EQUIPMENT
Hiroshi Tominaga; Masanobu Takamatsu, both of Yokohama, and Kouhei Adachi, Chigasaki, all of Japan, assignors to Tokyo Sharyo Seizo Kabushiki Kaisha, Kanagawa-ken, Japan
Division of Ser. No. 131,676, April 6, 1971. This application Nov. 19, 1973, Ser. No. 417,253
Int. Cl. B21d *26/04*
U.S. Cl. 72—59 **4 Claims**

The apparatus comprises a tubular outer die in which are slidably mounted tubular inner piston dies having work forming inner surfaces corresponding to the desired contour to be imparted, by impact hydraulic pressure, to a tubular work piece inserted into the tubular inner piston dies. An impact hydraulic generator including apressure chamber and a hammer is connected to the apparatus to subject the interior of the tubular work piece and the tubular piston dies to impact hydraulic pressure, a cooperating pair of inner tubular piston dies being engaged with opposite ends of the work piece to shorten the axial length of the work piece as the latter is laterally deformed to the desired shape. The piston dies are so formed that, as opposed dies move toward each other responsive to the impact hydraulic pressure, pressure bleeding ports are opened to control the application of the impact hydraulic pressure to the work piece.



3,832,878
VEHICLE IDENTIFICATION APPARATUS AND INDENTING METHOD AND MANDREL
Herbert B. Sternberg, New York, N.Y., assignor to Automated Reference Corporation, New York, N.Y.
Division of Ser. No. 252,065, May 10, 1972, Pat. No. 3,768,185. This application Mar. 26, 1973, Ser. No. 344,690
Int. Cl. B44b *5/02*
U.S. Cl. 72—370 **4 Claims**

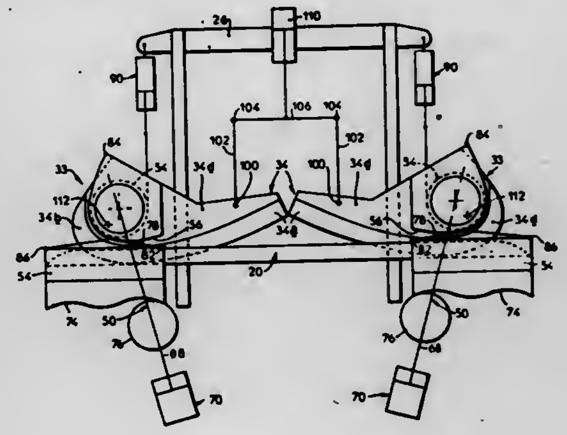


Recording apparatus for affixing registration and other data to the body of an automobile. There is a removable cover element for said data mounted on a bracket element. Special matched displaced sliding surfaces are provided at at least some of the intersections of the flat prismatic faces of the inside of the cover element and at the outside of the bracket element, which matching surfaces provide a snug fit and are more closely spaced than are the adjacent prismatic faces of the cover and bracket elements, thereby providing space for metal inwardly displaced during an indenting process performed on the outside of the cover element to record the data. In said indenting process the cover is mounted on a mandrel having a similar configuration to that of the bracket.

3,832,879
BENDING MACHINES
William John Holden, "The Spinney", Ladywood Rd., Martin Hussingtree, near Droitwich, England
Filed Mar. 12, 1973, Ser. No. 340,637
Claims priority, application Great Britain, Mar. 15, 1972, 12010/72
Int. Cl. B21d *5/02*
U.S. Cl. 72—383 **8 Claims**

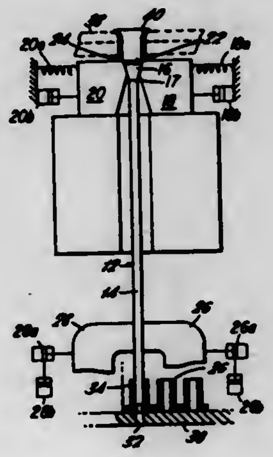
This invention relates to machines for bending metal workpiece strips to form a road vehicle bumper bar having a central portion and two convex-curved end portions. The machine comprises a frame, a two-part die having a central portion and two convex-curved portions, said die being divided in the central portion to provide two similar die halves, and first mounting means for mounting the die halves on the frame for rotation about parallel axes. The machine additionally comprises first power operated means to rotate said half-dies about their axes of rotation.

The machine comprises two shoes, each of which is cooperative with a respective half-die in the vicinity of the convex-curved portion thereof, second mounting means for mounting said shoes on the frame for traversing movement relative to the half-dies, and second power operated means associated with each of the shoes and operative to urge the shoes towards their respective half-dies to trap a workpiece strip between the half-dies and the shoes.



Power operated traversing means are provided to cause the shoes to traverse around the convex-curved portions of their respective half-dies, and the machine comprises compensating means associated with each shoe and its associated power operated means to minimise the work done by the power operated traversing means in causing the shoes to traverse around the convex-curved portions of the half-dies.

3,832,880
RIVETING APPARATUS
Bernard William Charman, Weybridge, England, assignor to Aerpat A.G., Zug, Switzerland
Filed May 26, 1972, Ser. No. 257,244
Claims priority, application Great Britain, May 28, 1971, 18177/71
Int. Cl. B21j *15/34*
U.S. Cl. 72—391 **5 Claims**

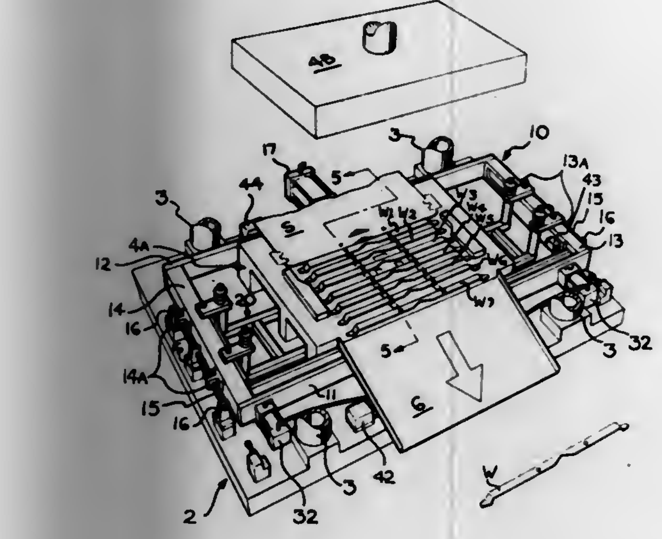


A pneumatically operated blind riveting apparatus includes an elongate mandrel having a stem and a head at the forward end thereof, and two pairs of alternately operable jaws associated with the mandrel, each of which serves to hold the mandrel when the other pair is open. One of the pairs of jaws constitutes an abutment for supporting a tubular blind rivet during a setting operation while the other pair of jaws is located rearwardly of the abutment jaws and is movable longitudinally of the mandrel whereupon, when in the closed position, such jaws may pull the mandrel head rearwardly through a rivet supported by the abutment jaws and may also return the mandrel forwardly. A jet delivers a blast of gas so as to propel rivets from the rear end of the mandrel towards the head past each of the pairs of jaws.

3,832,881
WORKPIECE TRANSLATION MECHANISM

William G. Henzler, and Robert E. Spino, both of Toledo, Ohio, assignors to Henzler Manufacturing Corp., Toledo, Ohio

Filed Feb. 12, 1973, Ser. No. 331,789
Int. Cl. B21j *11/00*
U.S. Cl. 72—405 **5 Claims**

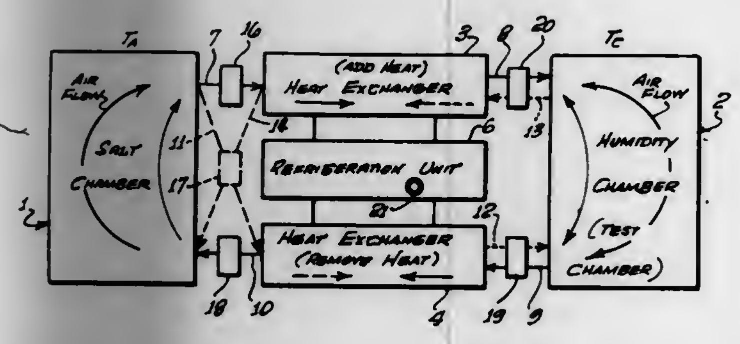


This invention relates to a workpiece translation mechanism for moving a workpiece through successive stations of a transfer stamping die. The workpiece is moved vertically out of the stationary half of the transfer die as the movable half of the die is shifted upwardly to its opened position, then the workpiece is moved horizontally to overlie the next station of the transfer die, and finally, the workpiece is moved vertically downwardly into the next station.

3,832,882
HUMIDITY TESTING APPARATUS

Oscar W. Schoen, Jr., Fort Lauderdale, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 10, 1973, Ser. No. 359,066
Int. Cl. G01w *1/18*
U.S. Cl. 73—1 R **5 Claims**

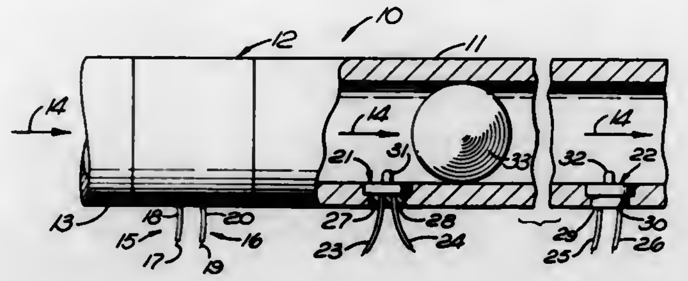


The atmospheres of a salt chamber and a test chamber are transported in a closed-loop back and forth between the chambers, the loop including heating and cooling means for adding and subtracting equal temperature increments as the atmospheres are in transit between the chambers. The salt chamber remains at a constant temperature to maintain a stabilized relative humidity. Heat added to the stablized atmosphere as it passes to the test chamber is subtracted during the return flow. The relative humidity of the test chamber varies with the heat increments to permit RH sensors and the like to be calibrated.

3,832,883
BALL PROVER AND COMPONENTS THEREOF

Walter Fah Min Tyau, Orange, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Nov. 9, 1972, Ser. No. 304,997
Int. Cl. G01f *25/00*
U.S. Cl. 73—3 **17 Claims**

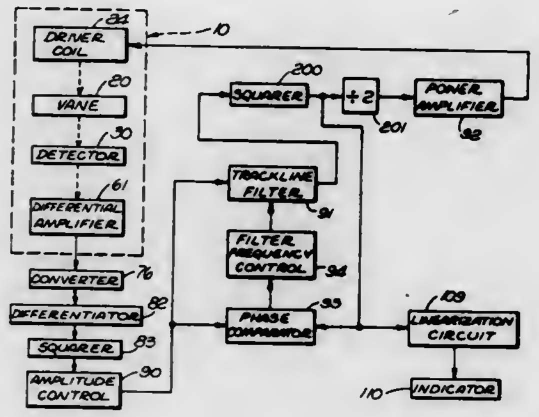


Flowmeter test apparatus called a ball prover including a ball rollable in a pipeline past two axially spaced, spring biased, normally open, momentary contact switches which, when closed, discharge a capacitor, the capacitor having a charging rate lower than its discharging rate to discriminate against pulses which would normally be produced by the bouncing of one or more of the switch contacts. Pulse discrimination may also be achieved through the use of a regenerative amplifier that has hysteresis. Contact bounce would otherwise cause an erroneous total flow reading. A gate control circuit responsive to the voltage across the capacitor operates a gate to pass flowmeter pulses which are counted and indicated. The total of the pulses counted then should be directly proportional to the total flow in the pipeline between the times that the switches are closed.

3,832,884
DENSITOMETER

Gerald Lance Schlatter, Boulder, Colo., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed July 10, 1972, Ser. No. 270,335
Int. Cl. G01n *9/00*
U.S. Cl. 73—32 **2 Claims**

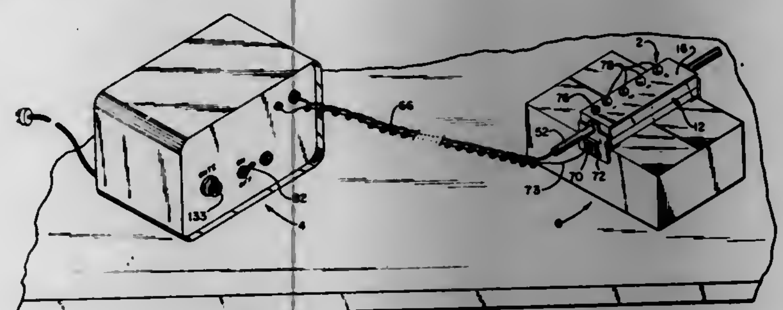


A densitometer which utilizes a thin vane vibrated by a magnetostrictive tube. A piezoelectric crystal pickup feeds an amplifier and tracking filter to energize a driver coil around the magnetostrictive tube. The device is, in effect, an electromechanical oscillator in that the coil is driven in phase with the detected signal. Vibration thus increases in amplitude until limited electrically. A linearization circuit provides an output D.C. voltage directly proportional to fluid density, gas or liquid, which may be impressed upon a conventional D.C. voltmeter calibrated linearly in density. A great many features, both in the mechanical structure and in the electronics, make it possible to easily calibrate the instrument to read, for example, to within an accuracy tolerance of ±0.1 percent over a fluid density range of, for example, from about 0.08 pounds per cubic foot to 80.0 pounds per cubic foot. Another outstanding advantage of the invention relates to a probe-type construction which may be used in a pipeline of any size. Still another feature of the invention resides in the use of a divide-by-two divider to reconcile the driver frequency to the crystal frequency.

3,832,885
METHOD AND APPARATUS FOR INSPECTING SEALED CONTAINERS

Gary G. Hayward, and Samuel O. Raymond, both of West Falmouth, Mass., assignors to Benthos, Inc., N. Falmouth, Mass.

Filed Oct. 25, 1972, Ser. No. 300,518
Int. Cl. G01m *3/24*
U.S. Cl. 73—52 **21 Claims**

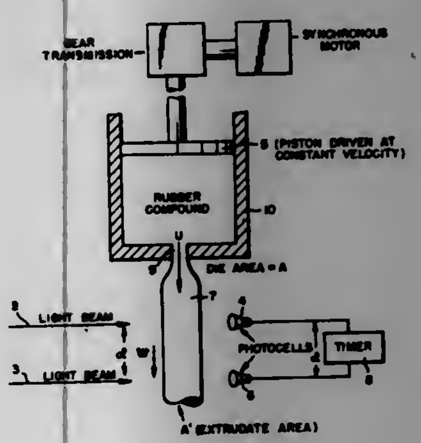


The invention is a method and apparatus for inspecting containers, e.g., vacuum-packed cans of food, enclosed in a shipping carton or case. It comprises providing a row of electromagnetic transducer coils, moving the row of coils relative to the carton so that the several rows of containers in the carton are successively aligned with the coils, and sequentially and repeatedly energizing the coils at a selected repetition rate while they are aligned with a row of containers so that the end closures of the containers will be caused to vibrate at a frequency which is a function of the internal pressures of the containers and so that the sounds produced by the vibrating end closures provide a tonal pattern distinctive of the presence or absence of a container with unsatisfactory internal pressure.

3,832,886
DIE SWELL TESTING

Irwin Pliskin, New York, N.Y., assignor to Uniroyal, Inc., New York, N.Y.

Filed June 5, 1972, Ser. No. 259,982
Int. Cl. G01n *11/04*
U.S. Cl. 73—56 **4 Claims**

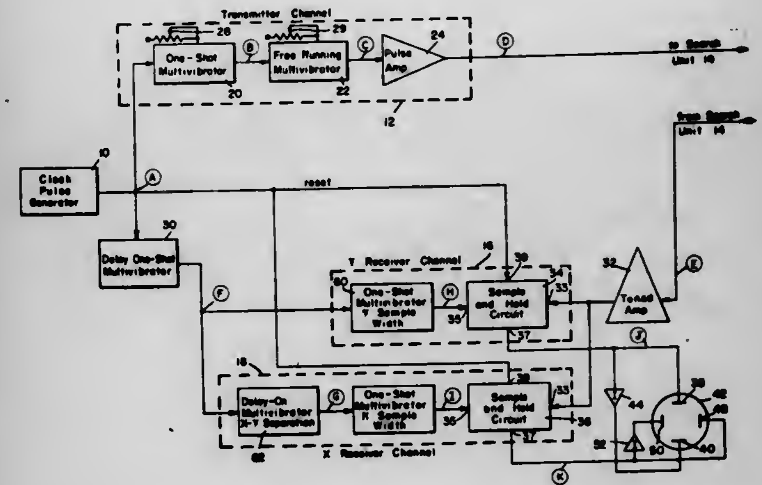


A method and apparatus for instantaneously measuring the die swell of an extrudate is disclosed. A polymeric material such as a rubber or plastic is extruded at a constant volumetric flow rate. The die swell of the material is determined by (a) measuring the time it takes the extrudate to move a given distance almost immediately after leaving the die. In the preferred arrangement, the said distance is made numerically equal to the extrusion velocity, whereby the measured time is the value of the die swell.

3,832,887
ULTRASONIC INSPECTION APPARATUS

Milton F. Zeutschel, Issaquah, Wash., assignor to Automation Industries, Inc., Los Angeles, Calif.

Continuation of Ser. No. 836,436, June 25, 1969, abandoned. This application Dec. 23, 1971, Ser. No. 211,345
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.5 R **22 Claims**

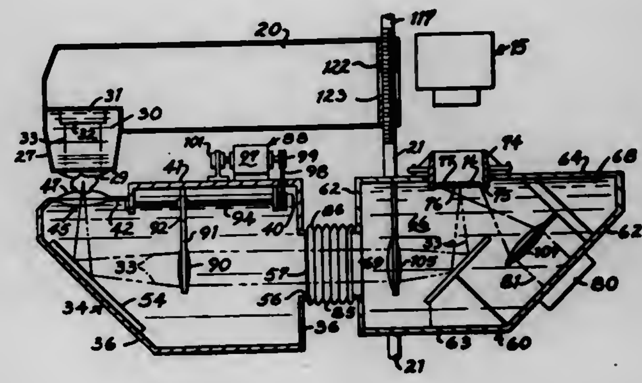


A nondestructive material tester is described which transmits ultltrasonic energy into a workpiece and receives the returning ultrasonic energy from the workpiece. The return signals are received by two different channels which sample the received signal at two time-displaced intervals such as a phase shift of 90° from the other. The pair of sample signals is displayed to precisely indicate the amount of phase displacement of the received signal.

3,832,888
ACOUSTICAL IMAGING EQUIPMENT CAPABLE OF INSPECTING AN OBJECT WITHOUT SUBMERGING THE OBJECT IN A LIQUID

Gary N. Langlois, Richland, Wash., assignor to Holosonics, Inc., Richland, Wash.

Filed Jan. 17, 1973, Ser. No. 324,284
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.5 H **4 Claims**



Acoustical imaging equipment is described for inspecting the internal structure of an object without submerging the object in a liquid. The object is placed in an air space between two membrane coupling members that are deformable to the contour of the object. A mechanism is provided to move at least one of the membrane coupling members toward the other membrane to physically contact and deform to the contour of the object to couple the object acoustically to the membrane. Acoustical transmitting liquid is provided to the membrane coupling members to transmit acoustical wave energy from a transducer through the object to a detector sensitive to the acoustical wave energy. A first acoustical lens is positioned in the path of the object modified acoustical beam and has a focal point between the two membranes. A second acoustical lens is positioned in the path of the object modified acoustical beam between the first acoustical lens and the acoustical detector in which the second acoustical lens has a focal point at the detection plane for focusing acoustical rays from the first acoustical lens in the detection plane. A means for adjusting the position of the first acoustical lens enables the apparatus to image various planes throughout the object at the detection plane without changing the magnification of the image.

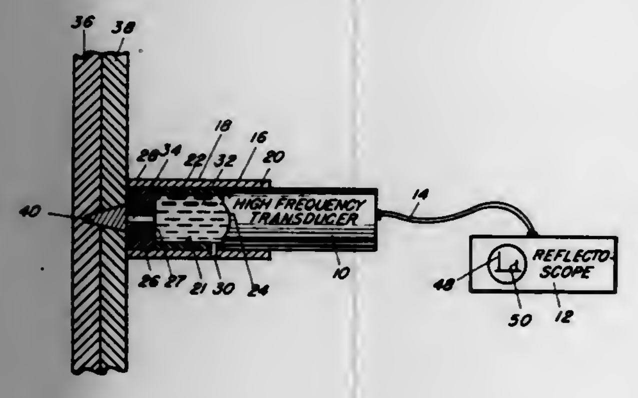
3,832,889
ULTRA-SONIC WELD INSPECTION DEVICE

Edward F. Bauer, Rockaway, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 30, 1972, Ser. No. 267,876

Int. Cl. G01n *29/04*

U.S. Cl. 73—71.5 U **4 Claims**



This invention relates to an improved transducer for an ultrasonic weld inspection system of the type wherein the system utilizes a reflectoscope for electronically generating and detecting ultrasonic energy, a device for positioning the transducer adjacent said weld, a transducer for focusing said energy, a cable for electrically coupling the reflectoscope to the transducer to detect weld flaws. The improved transducer has a body sleeve slidably affixed to the transducer, a compliant end cap operatively disposed in the forward end of the body sleeve having an axially aligned collimating hole therein, a compliant liner within the body sleeve intermediate the end cap and the transducer, a fluid coupler intermediate the end cap and the transducer for coupling the ultrasonic energy directly into the weld in the form of a clean narrow collimated beam free from all stray and unwanted transmitted and reflected energy thereby permitting the return of an interface signal and first reflection signal to the detecting means which can be distinguished from any additionally returned signal that may be generated by a flaw or defect in the weld.

3,832,890
NON-CONTACT TONOMETER CORNEAL MONITORING SYSTEM

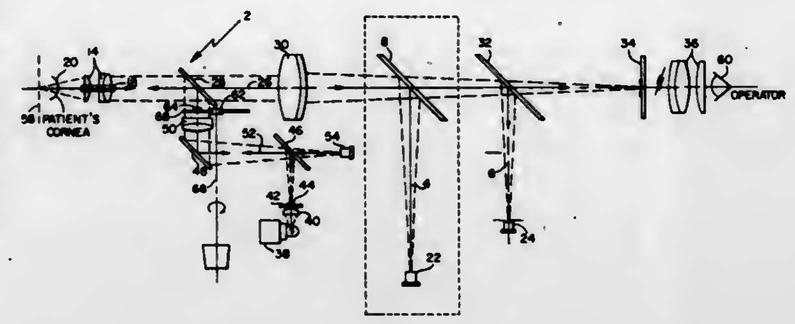
Bernard Grolman, Worcester, and Robert G. Lavallee, Ashland, both of Mass., assignors to American Optical Corporation, Southbridge, Mass.

Filed Dec. 29, 1971, Ser. No. 213,661

Int. Cl. A61b *3/16*

U.S. Cl. 73—80 **5 Claims**

A non-contact tonometer in which the pneumatic, alignment, and corneal monitoring systems are all disposed along the same axis normal to the cornea. Monitoring light incident upon and reflected from the cornea is in the infrared range so as to be imperceptible by the patient.



3,832,891
OCULAR TENSION MEASUREMENT

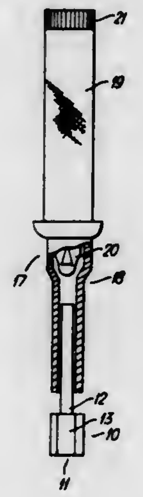
Gordon Stuckey, New South Wales, Australia, assignor to Stuckey Investments Pty. Ltd., New South Wales, Australia

Filed Dec. 29, 1972, Ser. No. 319,554

Claims priority, application Australia, Jan. 28, 1972, 7792/72

Int. Cl. A61b *3/16*

U.S. Cl. 73—80 **9 Claims**



An applanation tonometer which utilizes the principle of total internal reflection to permit use thereof by an ophthalmologist. The tonometer comprises a member of pre-determined weight which is adapted for longitudinal sliding movement in and from a support and for resting upon the cornea of a patient. The end of the member which is rested upon the patient's cornea is formed from a material which has a refractive index approximately equal to that of tear film fluid whereby an area applanated by the member may be viewed at an angle incident to the plane of applanation.

3,832,892
DEVICE FOR TESTING AND/OR CAPPING OF GLASS BOTTLES

Walter Bohl, Vehlen, Germany, assignor to Firma Hermann Heye, Albe, Germany

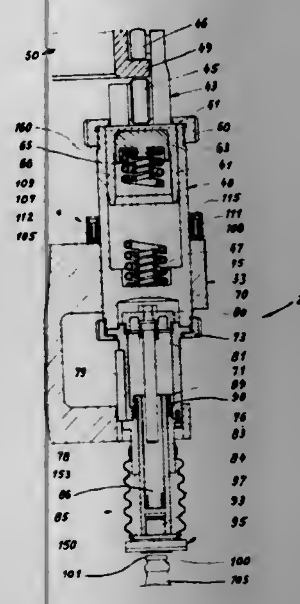
Filed July 1, 1971, Ser. No. 158,675

Claims priority, application Germany, July 3, 1970, 2033031

Int. Cl. G01n *3/30*

U.S. Cl. 73—94 **15 Claims**

A device for testing and/or capping of glass bottles has an upright cylinder which is reciprocable in a holder and a piston which is reciprocable in the cylinder and tracks a stationary cam in response to rotation of the holder so that the piston moves axially downwardly and pushes the cylinder toward a bottle through the intermediary of helical springs. The cylinder carries a ram which bears against the mouth of a bottle while the piston moves downwardly whereby a satisfactory bottle arrests the ram and the cylinder while the piston continues to move downwardly in order to stress the springs. If the bottle breaks, the springs expand and abruptly propel the cylinder against a shock absorber which is inserted between a cap on the cylinder and an arm of the holder to cushion the impact of the cylinder.



3,832,893
DEVICE FOR INDICATING OR CONTROLLING LOAD CHANGES IN STEAM OR GAS TURBINES

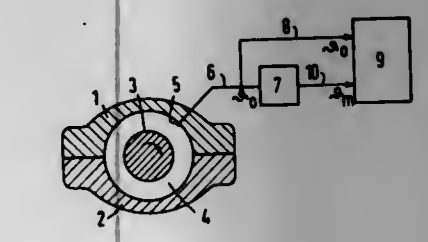
Hans Georg Dlugos, and Friedrich Zerrmayr, both of Erlangen, Germany, assignors to Kraftwerke Union Aktiengesellschaft, Mulheim, Germany

Filed Oct. 16, 1972, Ser. No. 298,032

Claims priority, application Germany, Oct. 16, 1971, 2151661

Int. Cl. G01l *5/12*; **F02c** *1/00*

U.S. Cl. 73—116 **5 Claims**



A device for indicating or controlling the respective permissible limits of intended load changes of a gas or steam turbine is operable to limit the speed of load changes for the steam or gas turbines. In operation a time-temperature curve representing the average integral temperature in the turbine shaft relative to time is derived from a continually measured temperature, such measured temperature corresponding to the variable surface temperature of the turbine shaft.

3,832,894
CHASSIS DYNAMOMETER

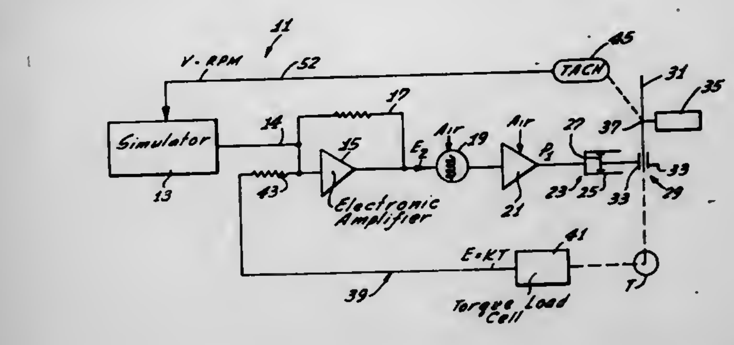
Edmond R. Pelta, Pacific Palisades, Calif., assignor to Autoscan, Inc., Los Angeles, Calif.

Filed Sept. 10, 1969, Ser. No. 856,535

Int. Cl. G01l *5/13*

U.S. Cl. 73—117 **16 Claims**

A test apparatus including a dynamometer for applying a load to the engine of a vehicle and a control system for controlling the load applied to the dynamometer so that the load represents or simulates actual known driving conditions. One component of the load applied by the dynamometer is a function of the simulated slope of the driving surface on which the vehicle is running and other components of the load are dependent upon simulated vehicle velocity.



3,832,895
JOYSTICK-TYPE CONTROL WITH STRAIN SENSORS

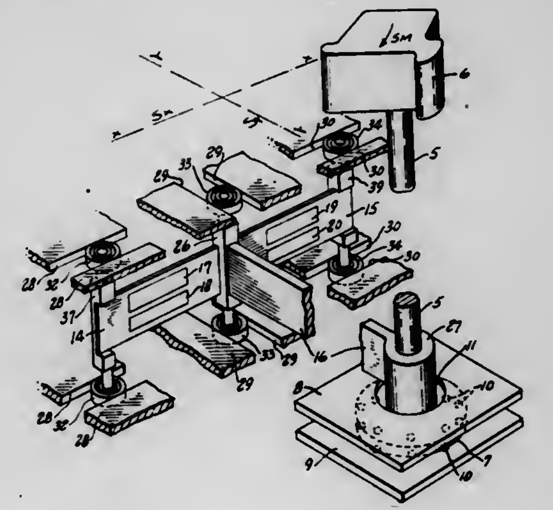
Holger Strandh, Goteborg, Sweden, assignor to Saab-Scania Aktiebolag, Linkoping, Sweden

Filed Oct. 16, 1973, Ser. No. 406,829

Claims priority, application Sweden, Oct. 18, 1972, 13411/72

Int. Cl. G01l *3/10*

U.S. Cl. 73—133 R **3 Claims**



An actuator movable in a plane parallel to coordinate *x* and *y* axes is biased to a normal position by a leaf spring parallel to the *x* axis and flexible in the *y* directions. A lever parallel to the *y* axis has the actuator at one end, a rigid connection to the middle of the leaf spring at the other. The lever is constrained to lengthwise motion and to swinging about said connection. The leaf spring ends are confined to *x* direction motions. Strain sensors, secured to the leaf spring between its middle and its ends, are connected in bridge circuits that produce outputs respectively corresponding to *x* and *y* components of actuator displacement.

3,832,896
TORQUE METER HAVING A MOVEMENT TRANSMISSION MEMBER

Borje Gunnar Arne Lonnroth, Vallingby, Sweden, assignor to Statens Vag-Och Trafikinstitut, Stockholm, Sweden

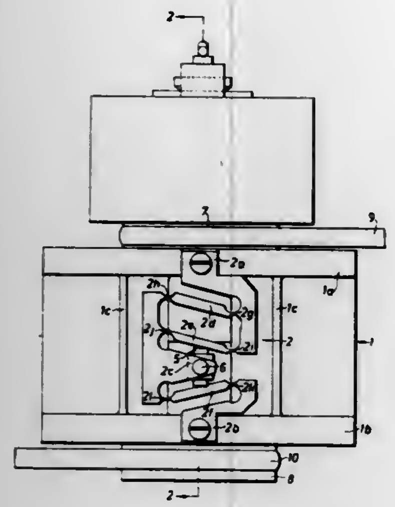
Filed Dec. 16, 1971, Ser. No. 208,865

Claims priority, application Sweden, Dec. 21, 1970, 17344/70

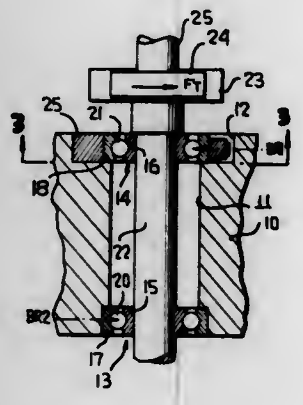
Int. Cl. G01l *3/14*

U.S. Cl. 73—136 A **10 Claims**

A torque meter comprises a hub or the like having two parts being relatively movable under the influence of an applied torque. A separate movement transmission member is attached between the said parts. It comprises integral link portions defined by thin hinges or pivots, said link portions extending in an oblique direction relative to a line connecting opposite places of attachment of the member to the said parts of the hub. One of said link portions is connected to a gauging equipment such as a transducer positioned in the center of the hub. A circumferential distortion between the said parts due to an applied torque will bring about a movement substantially perpendicular hereto, i.e. being parallel with the hub axis, of the last mentioned link portion of the transmission member which movement will be recorded by said gauging equipment as a measure of the applied torque.

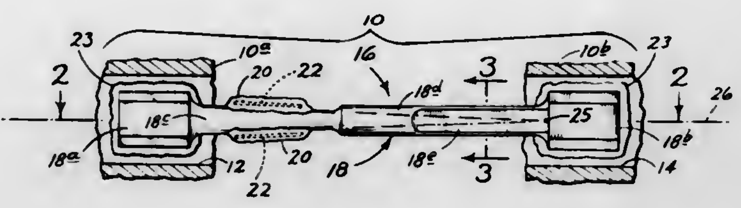


3,832,897
STATIONARY DEVICE SENSITIVE TO TORQUE IN ROTATING SHAFTS
Cornelius W. Schenck, 72 School St., Keene, N.H. 03431
Filed Apr. 2, 1973, Ser. No. 346,811
Int. Cl. G01l *3/02*
U.S. Cl. 73—136 R **19 Claims**



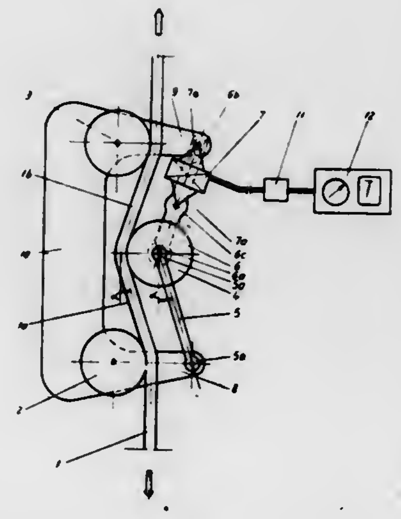
This disclosure relates to a stationary device for measuring stresses particularly in a rotating shaft comprising a housing, a bore in the housing, a ring-like member in the bore, a bearing assembly within the ring-like member, the bearing assembly having inner and outer races and anti-friction elements therebetween, a shaft mounted for rotation within the bearing assembly, transducer means between the bearing assembly and the housing for detecting forces caused by deflection of the shaft, and means for translating the detected deflection forces into the output torque of the shaft.

3,832,898
DUAL-MOUNT ELECTROMECHANICAL DEFLECTION SENSOR
George J. J. Randolph, Jr., 1505 177th Ave., N.E., Bellevue, Wash. 98008
Filed Sept. 24, 1973, Ser. No. 400,184
Int. Cl. G01b *1/04*; **G01l** *1/18*; **G01b** *7/18*
U.S. Cl. 73—141 A **7 Claims**



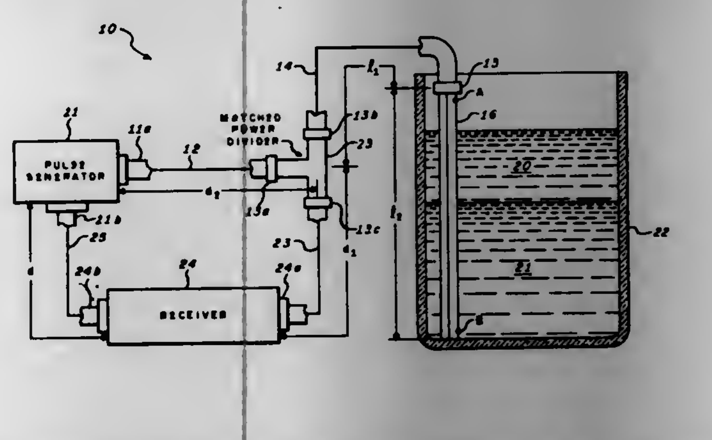
A dual-mount deflection sensor including an elongated carrier for supporting a pair of piezoresistive elements. The carrier is unitary, and includes a pair of end parts (for securing it to an external body) and an elongated slender stem joining such parts. The stem has one portion with an outer surface of revolution for receiving the piezoresistive elements, and another portion with a noncircular, flattened, elongated transverse cross section for providing a preferential bending plane in the carrier. A modified carrier contains transverse slots in the second-mentioned portion of the stem for minimizing the effect on the piezoresistive elements of axially carried forces in the carrier.

3,832,899
DYNAMOMETRICAL DEFLECTION MEASURING METHOD AND APPARATUS
Ioan Victor Nicolau, Prahova, Romania, assignor to Institutal De Cercetare Si Proiectare Tehnolocica Pentru Industria Extractiva De Petrol Si Gaze, Cimpina, Romania
Filed Feb. 17, 1972, Ser. No. 227,024
Int. Cl. G01l *5/08*
U.S. Cl. 73—144 **3 Claims**



In order to measure by the deflection method the tension exerted in a belt or chain cable without producing errors of measurement due to variations in the deflection angle, the apparatus utilizes a deflection system comprising a compression dynamometer and two articulated bars. The dynamometer is axially positioned and joined with one of the bars. The two bars are each journalled at one end at a predetermined distance from two fixed deflection points, and at their other ends are joined together to a deflection roll. The two bars of the deflection system are thus constantly maintained parallel to the deflected cable or belt portions. Accordingly the angel between the two bars always remains equal to the deflection angle of the cable or the chain, regardless of the numerical value of the deflection angle. As a result, the compression force in each of the two bars, which is measured by the dynamometer, is always proportional to the tension force in each of the two deflected cable or chain portions, independently of variations in the deflection angle. The apparatus is particularly useful as a drillometer on the dead end of an operating cable, or as a torsiometer mounted on the chain of an intermediate transmission, or on the actuating transmission of the enclosed rotary table of drilling rigs in the oil and gas industry.

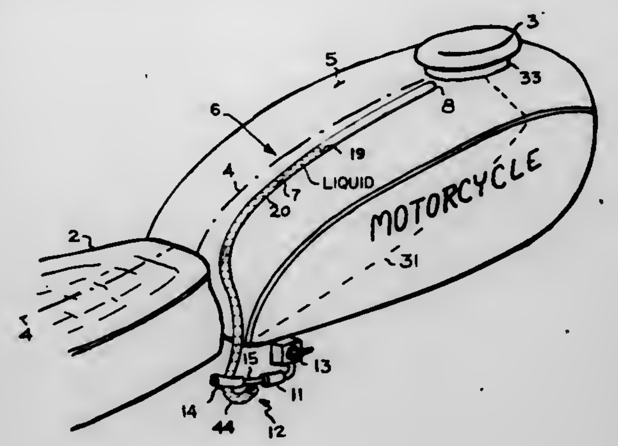
3,832,900
APPARATUS AND METHOD FOR MEASURING THE LEVEL OF A CONTAINED LIQUID
Gerald F. Ross, Lexington, Mass., assignor to Sperry Rand Corporation, New York, N.Y.
Filed June 28, 1971, Ser. No. 157,248
Int. Cl. G01f *23/28*; **G01n** *23/24*; **G04f** *11/00*
U.S. Cl. 73—290 R **7 Claims**



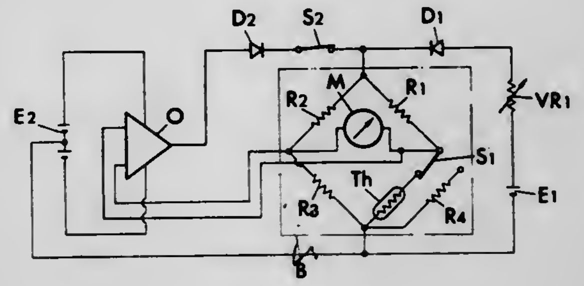
A method and apparatus for measuring the level of a contained liquid, which include a device for generating a baseband pulse signal of subnanosecond duration that is coupled into a transmission line which is immersed in the contained liquid. The surface of the liquid creates a discontinuity at a point on the transmission line which produces a reflection of the baseband pulse signal that propagates back along the transmission line and is coupled into a receiver unit which includes a plurality of coincident detectors. A timing signal produced synchronously with the baseband pulse signal is coupled through a pulse circuit and a delay circuit in the receiver unit. The receiver unit establishes the level of the contained liquid by sensing the space-time coincidence between the baseband pulse signal and the timing signal. A display unit which includes a plurality of indicator lights associated respectively with the plurality of coincident circuits in the receiver unit provides a visual indication of the level of the contained liquid.

3,832,901
FUEL LEVEL INDICATOR FOR A MOTORCYCLE
Robert H. Girvin, III, Holliston, Mass., assignor to KG Engineering, Inc., Holliston, Mass.
Filed Oct. 26, 1972, Ser. No. 301,225
Int. Cl. G01f *23/02*
U.S. Cl. 73—325 **6 Claims**

A gasoline level indicator for a motorcycle having the fuel tank in front of the operator's seat consists of a transparent plastic tube vented at the top running downward over the tank and connects to the fuel line from beneath the tank. The tube is contoured to lie flat on the outside of the tank in full view of the operator so that the operator can observe the level of fuel in the tube which is the same as the level in the tank.



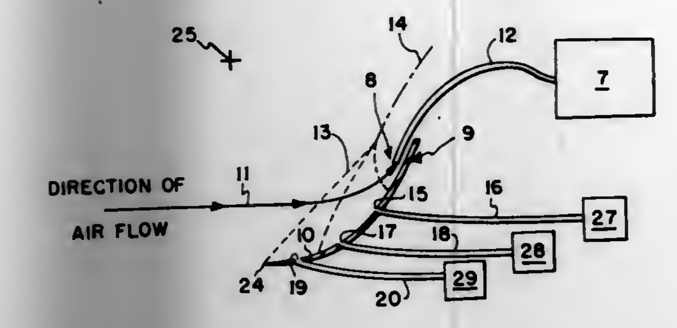
3,832,902
TEMPERATURE MEASURING METHOD AND DEVICE
Susumu Usami, Nagoya; Yasuhiro Goto, Gifu, and Takashi Yamashita, Nagoya, all of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Nishikasugai-gun, Aichi Prefecture, Japan
Filed Sept. 9, 1971, Ser. No. 179,054
Claims priority, application Japan, Sept. 12, 1970, 45-79855
Int. Cl. G01k *1/18, 7/24*
U.S. Cl. 73—362 AR **5 Claims**



A method and a device for measuring an inside temperature or a real temperature of a substance which has a difference in temperature between the inside thereof and the surface thereof, comprising a preheating step or circuit for heating, prior to measuring, a heat sensitive element such as a thermistor to a temperature close to said inside temperature or said real temperature. With such a method or a device, the time required for measuring the inside temperature or the real temperature of the substance as mentioned above can be much shortened.

3,832,903
STAGNATION PRESSURE PROBE
James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Michael J. Goodyer, 8 Bassett Green Rd., Southampton, England
Filed Sept. 7, 1972, Ser. No. 287,149
Int. Cl. G01l *7/00*
U.S. Cl. 73—388 **15 Claims**

A method and apparatus for measuring the stagnation pressure of supersonic velocity gas streams without the generation of shock waves which interfere with such measurements. The technique is insensitive to type of gas and Mach number and is therefore particularly useful in the study of jet engine exhausts.



3,832,904

APPARATUS FOR MONITORING AND TAKING GAS SAMPLES IN SHAFT FURNACES

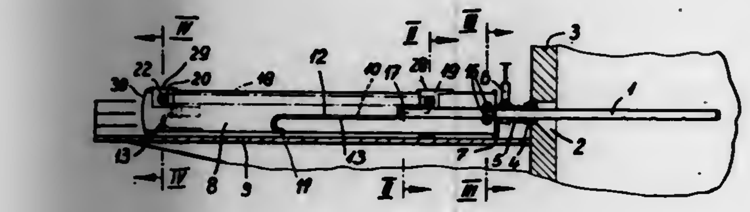
Heinz Dreuw, Mulheim/Ruhr; Hans-Jurgen Mischke, Essen, both of Germany; Franz Lippeck, deceased, late of Essen-Borbeck, Germany (by Irmgard Lippeck, heir); Gitia Bohnenkamp, Essen, and Marion Lippeck, heirs, Homberg, both of Germany, assignors to Fried Krupp Gesellschaft mit beschrankter Haftung Altendorfer Strasse, Essen, Germany

Filed Mar. 14, 1973, Ser. No. 341,173

Claims priority, application Germany, Mar. 15, 1972, 2212396

Int. Cl. G01n *1/22*

U.S. Cl. 73—421.5 A **6 Claims**



Apparatus for automatically taking measurements and samples of gas during the operation of shaft-type furnaces, the apparatus including a gastight housing sealingly connected to the wall of a furnace and carrying within it a horizontally-disposed probe mounted for reciprocal movement through the wall and means to move the probe reciprocally. The measurements and samples are withdrawn from the housing through a sealed passage. The movement of the probe is controlled by a drive device disposed outside the housing and communicating with the probe mount through sealed passages in the housing.

3,832,905

BEARING FOR A BALANCING MACHINE

Gunther Himmler, Darmstadt, and Klaus-Peter Ohms, Darmstadt-Eberstadt, both of Germany, assignors to Gerb KG Hofmann, Darmstadt, Germany

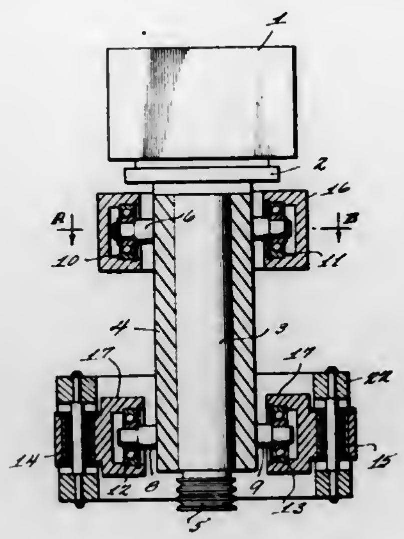
Filed Apr. 13, 1973, Ser. No. 350,966

Claims priority, application Germany, May 3, 1972, 2221648

Int. Cl. G01m *1/22*

U.S. Cl. 73—472 **6 Claims**

A bearing structure for a force measuring machine having a frame mounting a workpiece for rotation, a set of ball bearings at each of two bearing points and a vibration transducer associated with each bearing point for detecting the force generated in a measuring direction perpendicular to the axis of rotation of the workpiece. The ball bearings at both points are mounted so as to permit no torque in the measuring direction and at one point to permit movement along the axis of rotation of the workpiece.



3,832,906

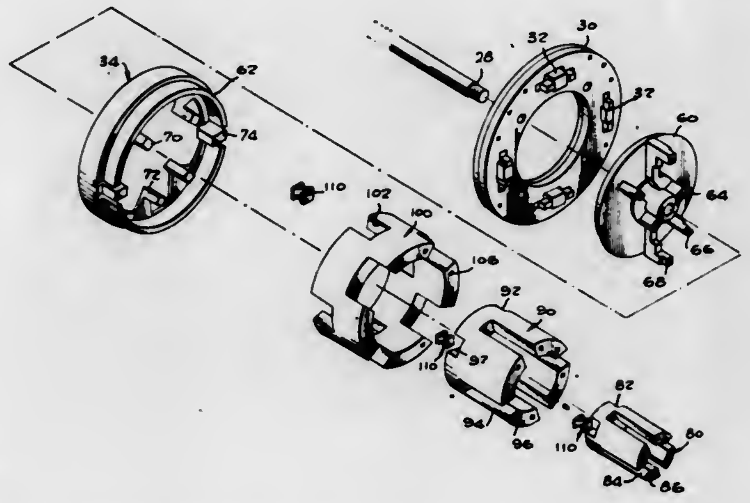
GIMBAL STRUCTURE FOR DYNAMICALLY TUNED FREE ROTOR GYRO

Robert J. G. Craig, Malibu, Calif., assignor to Teledyne Industries, Los Angeles, Calif.

Filed July 30, 1973, Ser. No. 375,841

Int. Cl. G01c *19/18*

U.S. Cl. 74—5 F **7 Claims**



A dynamically tuned, free rotor gyro is provided with three concentric gimbals. The principal moments of inertia of the gimbals are selected to completely cancel the errors of twice spin frequency rectification effects by merely adjusting the inertias of the gimbals.

3,832,907

PUSHBUTTON SYSTEM TUNER

Yukitomo Yasuda, Urawa, Japan, assignor to Clarion Co., Ltd., Tokyo, Japan

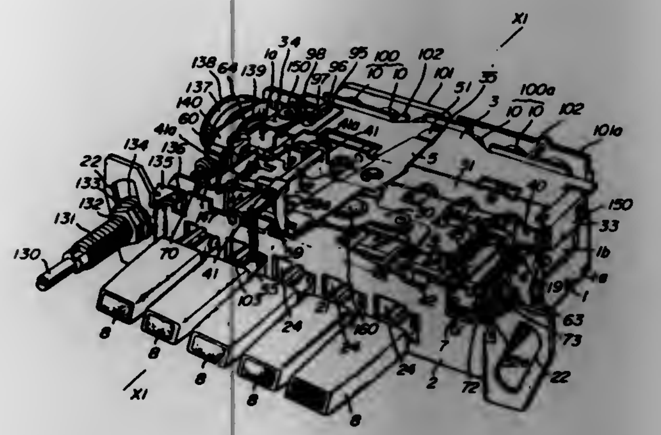
Filed Mar. 21, 1972, Ser. No. 236,733

Claims priority, application Japan, Apr. 23, 1971, 46-26106; May 28, 1971, 46-43308[U]; Sept. 2, 1971, 46-78871[U]; Sept. 2, 1971, 46-78872[U]; Sept. 30, 1971, 46-88744[U]

Int. Cl. H03j *5/10*

U.S. Cl. 74—10.33 **24 Claims**

A pushbutton tuner is to provide smooth and exact tuning and channeling operations with a thin and compact mechanism, which is composed of a machine frame, coil cases furnished on said machine frame, upper plate limitedly positioned on said coil cases, moving plate and rotary frame equipped at the front side of said upper plate, a series of cores arranged on said moving plate and getting into and out respective coils in said coil cases, a series of pushbuttons having respectively arms acting on said rotary frame to move said moving plate for the coil cases, and indicator transmitting movement of said moving plate to indicate channeling conditions in the front side of the machine frame.



3,832,908

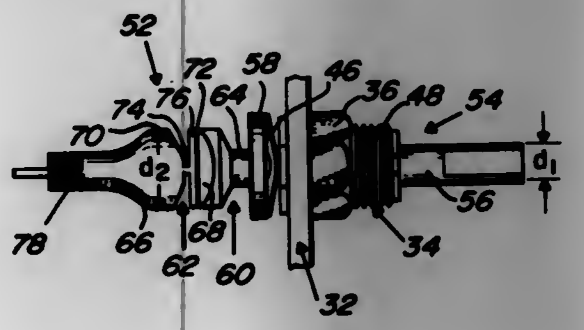
ONE PIECE PLASTIC TUNING SHAFT FOR A RADIO RECEIVER OR THE LIKE DEVICE

Franklin C. Brewster, Franklin Park, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 2, 1973, Ser. No. 337,624

Int. Cl. F16h *35/18*

U.S. Cl. 74—10.33 **7 Claims**



A one piece integrally formed manual tuning shaft for a radio receiver includes a first rotatable driving shaft portion and a second rotatably driven shaft portion. An integrally formed universal joint section is provided in the second driven shaft portion; the universal joint section including first and second opposing shaft pieces and a plate portion joined therebetween. Each of the shaft pieces is joined to the plate portion by an integrally formed hinge; the hinges being at right angles with respect to each other to permit angular movement of the shaft pieces with respect to each other. In one embodiment, a flange formed between the first and second shaft portions is enlarged and resiliently bendable to conform to the curved wall of a mounting bushing received on the first driving shaft portion to provide rotational resistance to minimize vibration of the tuning shaft assembly in a radio receiver. In another embodiment of the tuning shaft assembly, the driving shaft portion includes a compressible enlarged area for providing a friction fit between the shaft portion and a standard mounting bushing received thereon to minimize the effect of vibrations and shock.

3,832,909

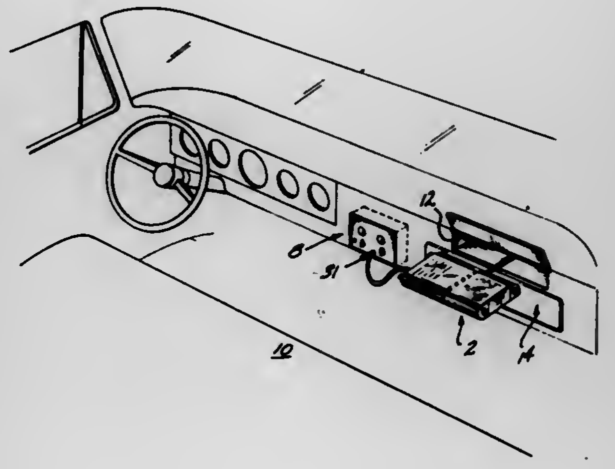
DASHBOARD-MOUNTED AUTOMATIC ROUTE INFORMATION DISPLAY DEVICE

Charles Pflin, P.O. Box 18, Eastsound, Wash. 98245

Division of Ser. No. 265,647, June 23, 1972. This application July 2, 1973, Ser. No. 375,628

Int. Cl. F16h *37/00*

U.S. Cl. 74—12 **3 Claims**



When it is put to use, the device is detachably engaged with a drive unit on the dashboard of the vehicle. The drive unit rotates pairs of sprockets on which the route information map is engaged in the device; and if desired, another map may be engaged with the sprockets, in superposition with the main map, to display a side route taken from the main route. This is possible because the route information on each map is represented in straight-line projection, notwithstanding that each roadway undergoes turns over the course thereof.

3,832,910

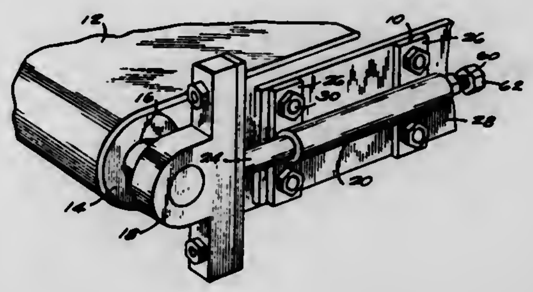
TELESCOPIC BELT TIGHTENER

Charles Brate Bryant, Rt. 1, Box 150, Wildwood Point Rd., Hartland, Wis.

Filed June 15, 1972, Ser. No. 263,337

Int. Cl. F16h *7/10*

U.S. Cl. 74—242.14 R **5 Claims**

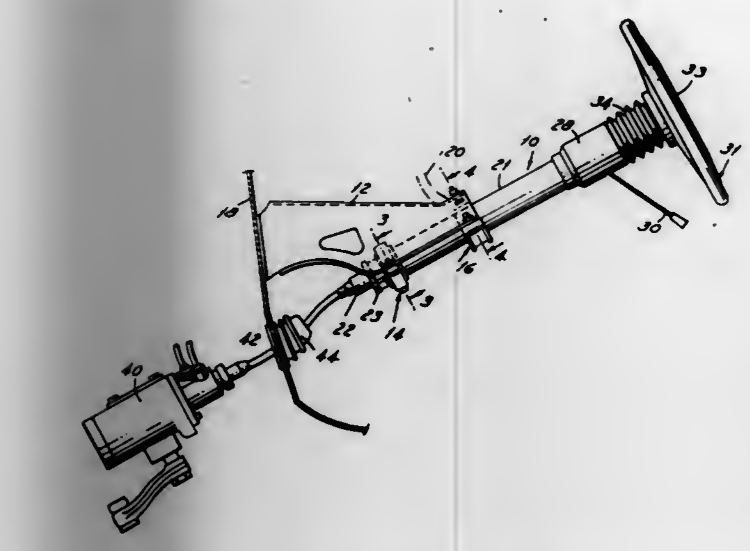


A belt tightener includes an outer tube fixed to mounting brackets and an inner tube telescoped in the outer tube with one end of the inner tube having a plate which is connectable to a bearing block for the shaft which supports the endless belt. A key welded to the inside of the outer tube and extending longitudinally thereof is received in a keyway in the inside tube to prevent relative rotation between the tubes. An adjusting bolt extends into the inner and outer tubes and is threadably received by a nut welded to the other end of the inside tube.

3,832,911
ENERGY ABSORBING STEERING COLUMN

Roger P. Daniel, Dearborn, and Alex Rhodes, West Bloomfield Twsp., both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 4, 1972, Ser. No. 311,982
Int. Cl. B62d *1/18*
U.S. Cl. 74—492 **1 Claim**

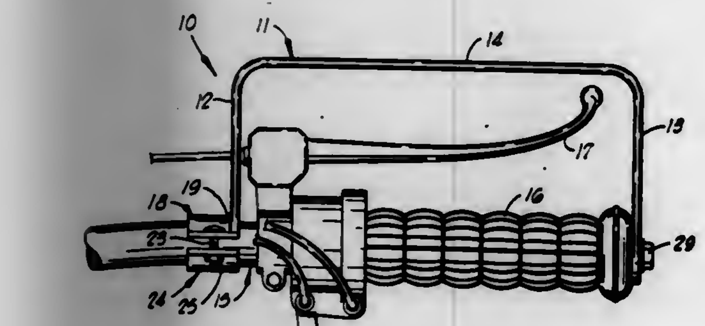


An energy absorbing steering wheel support for a motor vehicle according to an embodiment of this invention includes a steering column outer tube with a telescopic steering shaft rotatably supported therein. A deforming assembly and a releasable support assembly connect the column tube to vehicle support structure. The deforming assembly has projections which engage preformed grooves in the surface of the column tube. The projections are constructed to plastically deform the tube upon its axial displacement and thereby absorb most of the energy of an impact load upon the column. The releasable assembly secures the steering column assembly to the vehicle support structure during normal operation of the steering system and is constructed to release the column for forward displacement when subjected to a breakaway force exceeding a predetermining minimum value caused by an impact. The steering wheel is supported on the upper end of the steering shaft. A convoluted energy absorbing can is situated between the end of the steering column tube and the hub of the steering wheel. The convoluted can is supported only at its forward end where it engages the outer column tube and does not normally carry torsional or bending loads. The convoluted can is constructed to absorb the initial portion of an impact load on the column.

3,832,912
HANDLEBAR SAFETY SHIELD

Daniel W. Edwards, 211 Sherman, Goodland, Kans. 67735

Filed Feb. 22, 1973, Ser. No. 334,742
Int. Cl. B62k *21/26*
U.S. Cl. 74—551.8 **2 Claims**

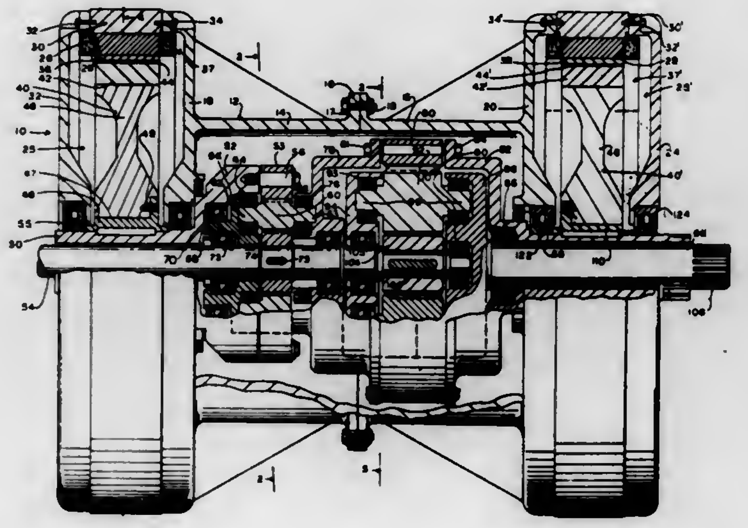


A handlebar safety shield fitted about the gripping control surfaces of a motorcycle handlebar in a manner to provide a protective shield for the hands of the motorcycle operator and to the hand controls of the motorcycle.

3,832,913
MAGNETIC TORQUE CONVERTOR FOR PROPULSION SYSTEMS

Robert Helmer, Setauket, N.Y., assignor to The Enercon Corporation, Setauket, N.Y.

Filed Sept. 7, 1972, Ser. No. 286,876
Int. Cl. F16h *57/10;* **H02k** *49/04*
U.S. Cl. 74—764 **8 Claims**

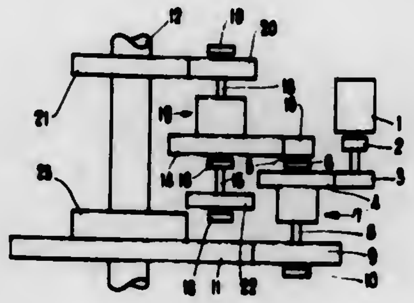


A magnetic torque convertor includes two planetary gear sets respectively coupled to two coercive force brakes which control their driving speed. An input drive shaft is coupled to one planetary gear set which includes a planetary gear carrier coupled to a ring gear of the other planetary gear set. An output drive shaft is coupled to a planetary gear carrier of the other planetary gear set. The planetary gear sets have different gear ratios for driving the output shaft at different speeds under control of the brakes which are energized by direct current of variable magnitude.

3,832,914
GEARBOX

Maurice John Pinfield, Carlingford, N.S.W., Australia, assignor to Placer Exploration Limited, Smithfield, New South Wales, Australia

Filed Dec. 11, 1972, Ser. No. 313,925
Claims priority, application Australia, Dec. 17, 1971, 7422/71; Dec. 6, 1972, 49718/72
Int. Cl. F16h *5/00;* **F16d** *41/00*
U.S. Cl. 74—812 **4 Claims**

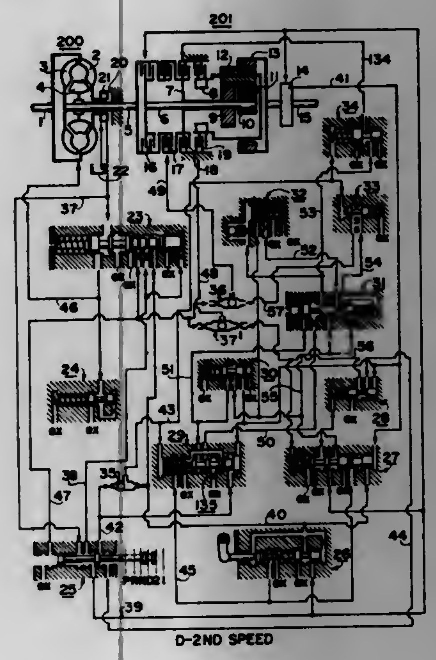


A gearbox having a gear train connecting an input shaft to an output shaft, two unidirectional driving clutches in the gear train whereby by reversing the rotation of the input shaft the output shaft will turn at different speeds but in the same direction.

3,832,915
HYDRAULIC CONTROL APPARATUS FOR AN AUTOMATIC VEHICLE TRANSMISSION

Takeo Hiramatsu, Kyoto, Japan, assignor to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 5, 1972, Ser. No. 295,111
Claims priority, application Japan, Oct. 5, 1971, 46-78155
Int. Cl. B60k *29/00*
U.S. Cl. 74—869 **4 Claims**

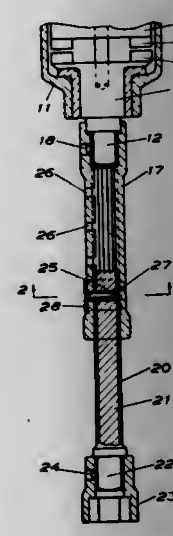


A hydraulic control apparatus for automatic vehicle transmission having a plurality of clutches which are clutched and declutched for transmitting different change gear ratios to an output shaft driven from a vehicle engine drive shaft. A plurality of servo mechanisms sequence the clutching and declutching of the clutches to effect smooth speed changes or gear ratio changes. A mechanism in the control apparatus controls a variable overlapping period between the changes of gear ratios as a function of the drive torque.

3,832,916
IMPACT WRENCH

Knut Christian Schoeps, Nacka, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Jan. 24, 1973, Ser. No. 326,526
Claims priority, application Sweden, Jan. 31, 1972, 1047/72
Int. Cl. B25b *19/00*
U.S. Cl. 81—52.3 **13 Claims**

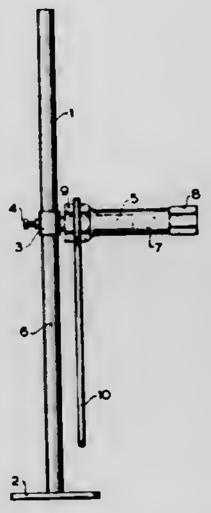


A rotary impact wrench transmits its impacts through a torsion unit with variable spring characteristics. The torsion unit comprises a torsion bar that is inserted into a sleeve with a selectively variable part of its length protruding from the sleeve.

3,832,917
DEVICE FOR LOOSENING WHEEL NUTS OR LUGS OF AUTOMOBILE WHEELS

Franz Feith, 61 Gilbertstrasse, 2 Hamburg 50 (Altona), Germany

Filed Sept. 26, 1972, Ser. No. 292,341
Claims priority, application Germany, Sept. 29, 1971, 7136849
Int. Cl. B25b *13/00, 21/00, 13/58*
U.S. Cl. 81—53 R **3 Claims**

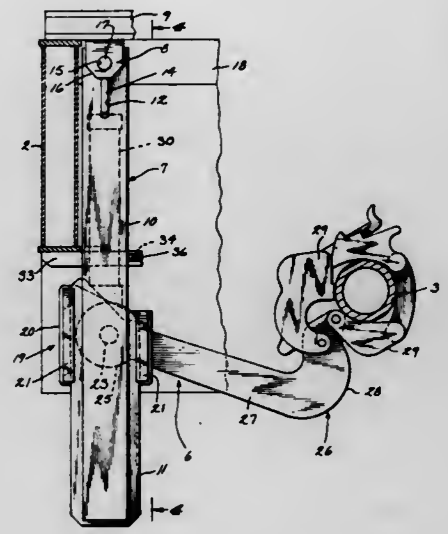


An upstanding rod-like member with a supporting base therefor has a very short collar member slidable thereon for connection thereto at a selected height by a thumb-screw. A rod extends outwardly from the short collar at right angles to the upstanding rod-like member and rotatably engages the hollow bore of a straight socket wrench having sockets on either end thereof. A spanner wrench slips over the socket wrench and engages the socket end adjacent the collar and the long arm of the spanner wrench is used as a lever for loosening and/or tightening wheel nuts or lugs engaged by the socket at the opposite end of the socket wrench.

3,832,918
BREAKOUT WRENCH

David M. Lang, South Milwaukee; Jack D. Neimark, New Berlin, and Matthew Smith, Milwaukee, all of Wis., assignors to Bucyrus-Erie Company, South Milwaukee, Wis.

Filed Nov. 23, 1973, Ser. No. 418,587
Int. Cl. B25b *13/50*
U.S. Cl. 81—57.33 **7 Claims**



A breakout wrench for drilling apparatus includes a pivotably mounted slide arm upon which a carriage is slidably mounted and a set of wrench jaws which are attached to a wrench arm swingably disposed upon the carriage for engaging and loosening a drill string section of the drilling apparatus. A hydraulic cylinder associated with and disposed beneath the slide arm is attached to the carriage to provide movement of the carriage along the slide arm and impart a wrenching movement to a drill string section through the accompanying wrench arm. A stop pin is provided to secure the slide arm in a stored position during normal drilling operations.

3,832,919

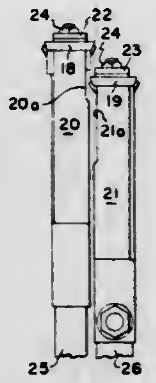
ORBITAL CRANKSHAFT LATHE MECHANISM AND METHODS OF MACHINING

John A. Jacobi, and Anthony E. Sedlar, both of Saginaw, Mich., assignors to The Wickes Corporation, Saginaw, Mich.

Filed Apr. 16, 1973, Ser. No. 351,795

Int. Cl. B23b *1/00, 5/18*

U.S. Cl. 82—1 C **13 Claims**



A crankshaft lathe having orbiting girts mounting tool holders which have axially overlapping tools for simultaneously machining the side-by-side eccentric crank pins of a multiple throw crankshaft having at least a pair of such crank pins in axially abutting angularly offset relation. The invention also is concerned with a method of machining such crankshafts wherein the crank pins are first rough machined in a manner to leave some material at the interface of the abutting pins and finally are finished machined by overlapping tools which during a machining orbit must in effect pass through one another.

3,832,920

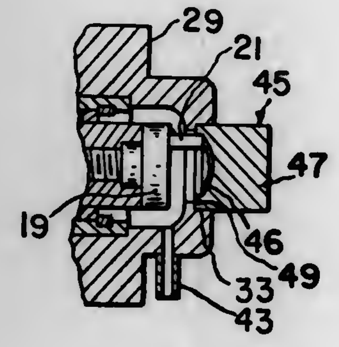
APPARATUS FOR AND METHOD OF EDGING A NON-RIGID LENS

Richard J. Wrue, Rochester, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed July 13, 1972, Ser. No. 271,431

Int. Cl. B23b *5/00*

U.S. Cl. 82—20 **3 Claims**



Apparatus for and method of edging a lens while it is firmly supported or secured in a mold. When unsupported the lens is non-rigid. The preferred embodiment includes a rotatable shaft supported at one end by an electric motor and carrying a knife or cutter at its unsupported free end. Slidably supported on the free end of the shaft is a chuck housing including a sleeve portion and a holder or chuck portion. The chuck portion is dimensioned to receive the end of a lens mold containing the lens cavity so as to position the peripheral edge of the lens and the adjoining face of the mold opposite the rotating knife. A suitable source of vacuum is coupled to the chuck housing adjacent the chuck portion to remove chips generated in the cutting operation. The vacuum may also be used to hold the lens and mold assembly in place. Movement of the chuck portion towards the cutter results in the removal of a portion of the peripheral edge of the supported lens and a corresponding amount of the face of the lens mold.

3,832,921

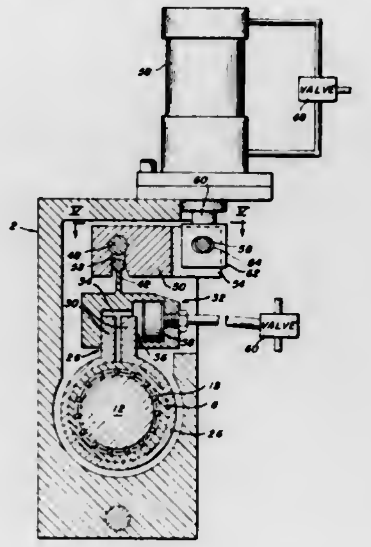
2-WAY ADJUSTABLE TOOL BLOCK

Richard J. Fabeck, Union Lake, Mich., assignor to Carmet Company, Pittsburgh, Pa.

Filed June 26, 1973, Ser. No. 373,815

Int. Cl. B23b *3/00, 21/00*

U.S. Cl. 82—1 A **6 Claims**



An adjustable tool block assembly includes a housing, a rotatable eccentric sleeve mounted in the housing and a tool mounted on the axis of the internal surface of the sleeve. A clamp surrounds a portion of the rear end of the sleeve and is moved between operative and inoperative positions by a fluid motor. A second fluid motor moves the clamp when in operative position and hence, rotates the sleeve to change the effective cutting radius of the tool.

3,832,922

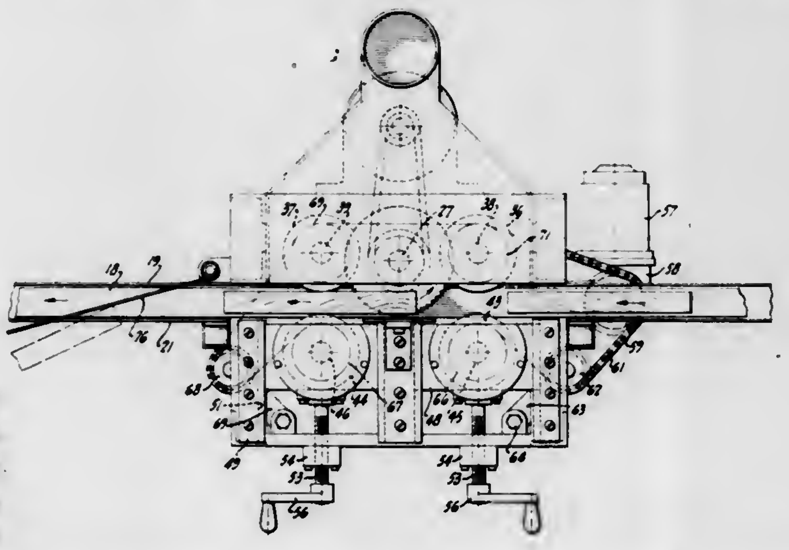
AUTOMATIC BACK RIP MACHINE

Bud D. Stout, Red Bluff, Calif., assignor to Commander Industries, Inc., Red Bluff, Calif.

Filed Mar. 19, 1973, Ser. No. 342,678

Int. Cl. B27b *5/04, 25/02;* **B23d** *47/04*

U.S. Cl. 83—4 **1 Claim**



An automatic back rip machine for trimming generally rectangular individual blocks includes a frame arranged adjacent a predetermined path along which the individual wood blocks are propelled. On the frame and intersecting the path is a saw mounted to extend in a horizontal plane virtually across the path. There are means for confining the sides of the wood blocks on the path and there are driven rollers which pinch the sides of the blocks in the vicinity of the saw, the rollers being disposed on the opposite sides of the saw and on the opposite sides of the path as well. At least one of the rollers has a groove for receiving part of the saw so that blocks advanced in the path to the saw are gripped or held and trimmed prior to being released and conveyed away from the saw.

3,832,923

METHOD FOR THE PRODUCTION OF MICROTOME SLICES AND DEVICE FOR THE IMPLEMENTATION OF THE METHOD

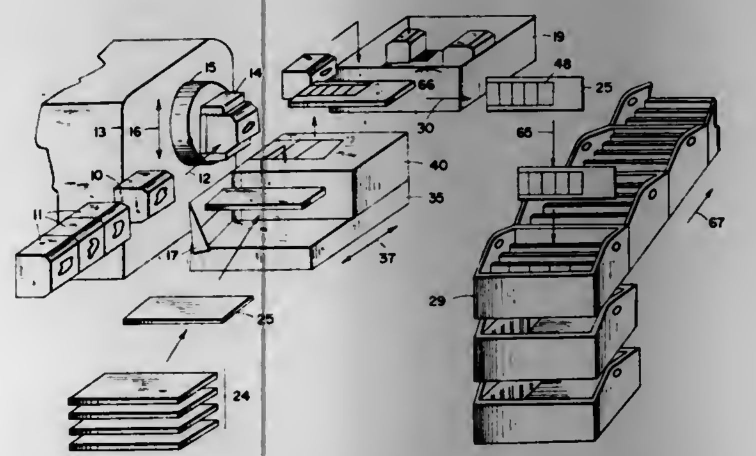
Gustav Lassmann, Vienna, Austria, and Peter Rieger, Walldorf, Germany, assignors to Schwarzer Company, Munich, Germany

Filed Sept. 11, 1972, Ser. No. 288,209

Claims priority, application Germany, Jan. 1, 1972, 2200415

Int. Cl. G01n *1/06*

U.S. Cl. 83—16 **3 Claims**



The invention pertains to a method for the production of microtome slices, in which the slices, separated from the object, reach a liquid bath, then are removed from the latter and are prepared for further processing; further, a device for the implementation of the method, with a microtome exhibiting a stationary knife and an object slide (carrier) effecting the cutting movement.

3,832,924

SHUFFLE FEEDING METHOD AND APPARATUS

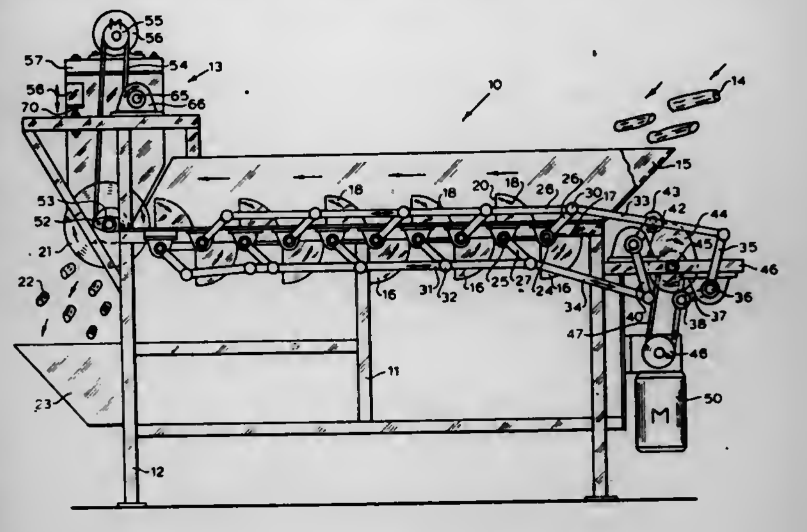
Edwin Walter Mickler, P.O. Box 43, Zellwood, Fla. 32798, and Dan Bedgood, 25 E. Shirley Shores Dr., Tavares, Fla. 32778

Filed Apr. 16, 1973, Ser. No. 351,796

Int. Cl. B26d *7/00*

U.S. Cl. 83—167 **7 Claims**

A vegetable conveyor system for conveying vegetables into a rotary cutter in which a set of partially rotating plates is interspaced with a second set of partially rotating plates, each set of rotating plates being rotatable in timed sequence with the other, first in one direction and then back to its originating point, so that the partial rotation of one set of plates will shift vegetables to the second set and the second set will then shift the vegetables to the next plate of the first set, and so forth, until they are fed to the cutter. The plates are rotated back and forth by a pair of reciprocating connecting bars driven by the same cam. The conveyor maintains the vegetables in a transverse horizontal position for cutting into uniform pieces by spaced rotary cutters.



3,832,925

ROTARY PRINT PRESS INCLUDING A DEVICE FOR PUNCHING ROWS OF PERFORATIONS IN CONTINUOUS PAPER WEBS

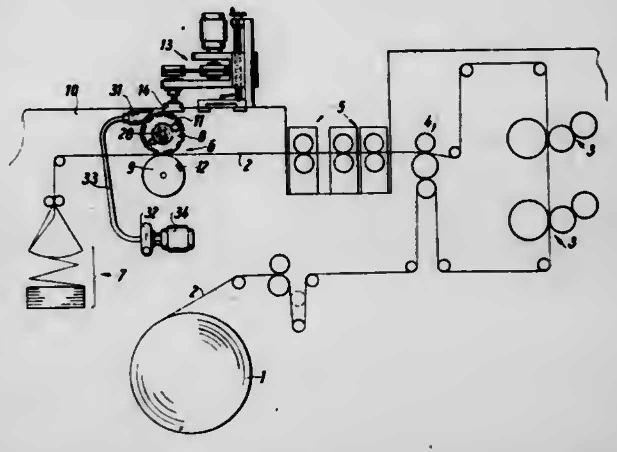
Eckhard Brandt, and Otto Staaman, both of Berlin, Germany, assignors to Firma Automatic Druckmaschinenfabrik Dr. W. Hinniger und Sohne, Berlin, Germany

Filed July 10, 1973, Ser. No. 377,898

Claims priority, application Germany, July 14, 1972, 2235511

Int. Cl. B26f *1/10;* **B26d** *7/12*

U.S. Cl. 83—174 **10 Claims**



The perforation punching is effected by rotary punching tools secured to driving shafts and including a first tool provided with readjustable punch pins mounted in a receiving body and a cooperating second tool provided with punch dies. The punch pins are regrindable by a grinding attachment, to tangency of their working ends with a common circle concentric with the axis of rotation of the first tool. The grinding attachment is mounted adjustably on the machine frame and permits regrinding the pins without removing the tool from its working position. The pin resetting device is mounted in the receiving body coaxial with the driving shaft of the first tool and acts simultaneously on all of the pins. The resetting device is actuable, for rotation, by an actuating means which is externally accessible. In one embodiment, the pins are of equal length and have oblique inner ends which are resiliently biased against a conical ring which can be moved axially by a gear wheel threadedly engaged with the receiving body and rotated by a pinion which, in turn, has an externally accessible drive shaft. In another embodiment, the pins are of unequal and gradually increasing length, and their inner ends engage the spiral periphery of a member rotatably mounted in the receiving body and having a gear hub engageable with an actuating pinion which may be rotated from the exterior of the machine.

3,832,926

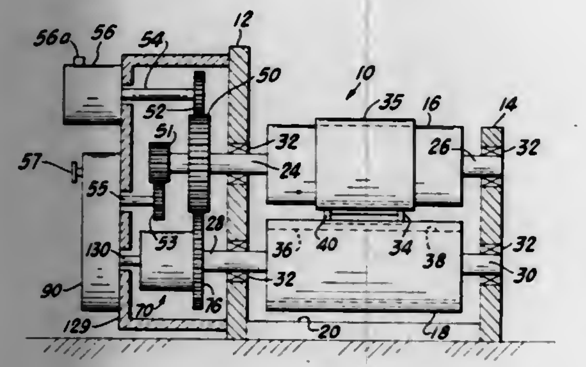
APPARATUS FOR ACCURATE DIE-CUTTING

Gerald G. Leaseburge, Glen Arm, and Gordon L. Morgret, Baltimore, both of Md., assignors to Koppers Company, Inc., Pittsburgh, Pa.

Filed Oct. 29, 1973, Ser. No. 410,675

Int. Cl. B23d *25/16;* **B26d** *1/56*

U.S. Cl. 83—311 **9 Claims**



Inaccurate cuts often occur in paperboard blanks passing between a pair of cooperating die and anvil cylinders because of anvil cylinder wear, irregular blank velocity, and other factors. Such inaccuracies are reduced by driving the die cylinder at a preselected angular velocity and driving the anvil cylinder at an angular velocity proportional to the angular velocity of the die cylinder with the preselected proportion being maintained during changes in angular velocity of the die cylinder. The preferred apparatus includes a first mechanical transmission having a primary input driven by the die cylinder and a secondary input driven by a second mechanical variable-ratio transmission for driving the anvil cylinder at an angular velocity corresponding to the angular velocity of the die cylinder but with the anvil cylinder velocity being selectively variable to provide an anvil cylinder velocity selectively proportional to the velocity of the die cylinder. Additionally, a slip clutch is preferably interposed between the drive for the die cylinder and the first transmission to permit the anvil cylinder to change its rotational position relative to the rotational position of the die cylinder upon the occurence of excessive torque.

3,832,927

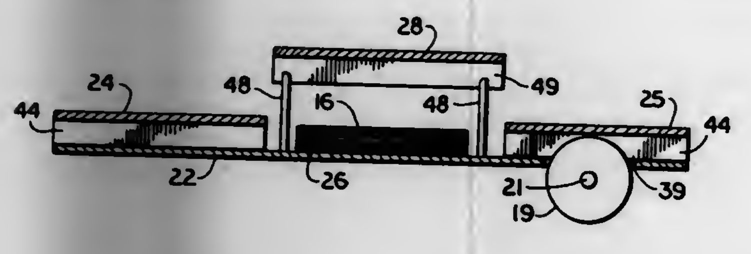
APPARATUS FOR FINISHING OVER-CUT PATTERN PIECES

Emmit F. Warnock, Tarrytown; Bobby Wayne Williamson; Gordon H. Ellington, and William O. Mitchell, all of Vidalia, all of Ga., assignors to Oxford Industries, Inc., Atlanta, Ga.

Filed Jan. 11, 1973, Ser. No. 322,727

Int. Cl. B26d *7/22*

U.S. Cl. 83—409 **3 Claims**



Method and apparatus for cutting small pattern pieces such as sleeve facings wherein the pattern pieces are over-cut in the cutting room, then the over-cut pattern pieces are held down and guided through pairs of rotary knives that are properly spaced to remove the excess material and provide accurately cut pattern pieces.

3,832,928

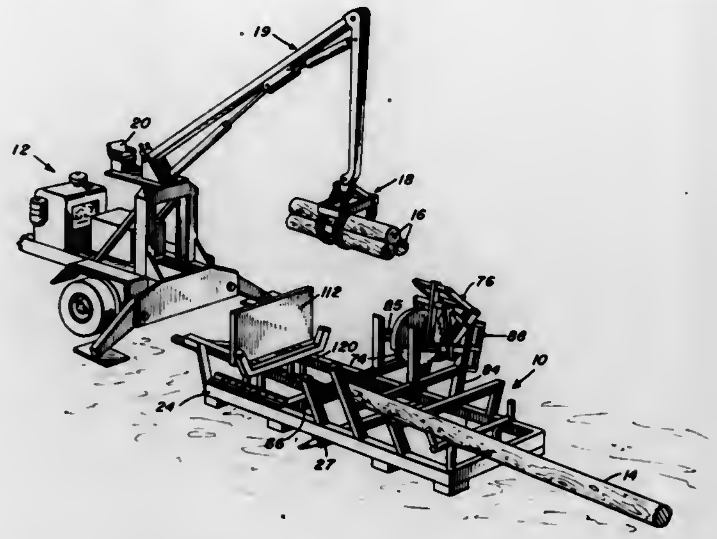
PORTABLE PULPWOOD SLASHING MACHINE

Henry W. Copeland, P.O. Box 11349, Montgomery, Ala. 36111

Filed Nov. 30, 1972, Ser. No. 310,948

Int. Cl. B27b *5/02, 27/02*

U.S. Cl. 83—467 **12 Claims**



A wood slashing machine specifically intended for use with a conventional loading machine has a trailable vehicle formed by a frame and a pair of wheels mounted on the frame. Portions of the frame form a bed for restricting the movement of pulpwood, saw logs, fence posts, and the like, arranged on the bed by the loading machine. A circular saw is mounted on the frame as by a four-link mechanism actuated from the loading machine for cutting of articles arranged on the bed. The length of the articles cut off may be gauged by a stop plate adjustably mounted on the slashing machine frame. The bed is advantageously arranged so that the article being cut is spaced furthest from the frame at a point adjacent the saw so as to place the area being cut in tension and facilitate sawing.

3,832,929

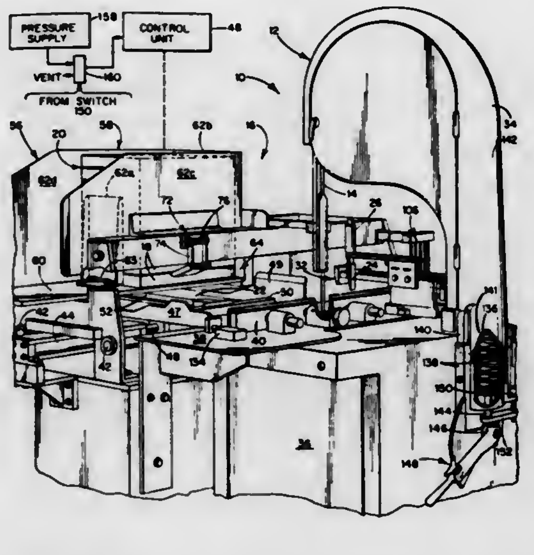
SLICER HAVING AUTOMATIC MATERIALS FEED

Mario J. Pedi, 16 Wickham Rd., Winchester, Mass. 01890

Division of Ser. No. 179,464, Sept. 10, 1971, Pat. No. 3,736,829. This application Mar. 23, 1973, Ser. No. 344,178

Int. Cl. B26d *4/44, 4/46*

U.S. Cl. 83—714 **5 Claims**



Apparatus for feeding pieces of material to a cutting tool which sequentially cuts slices from each piece of the material, stores block-like pieces of the material in a stack from which a single piece is discharged to be sliced, displaces the uncut portion of a piece to the side away from the cutting tool after completion of each slicing advance thereby to retract the uncut portion past the tool without interference, engages the residual portion of the piece which is too thin to be again sliced to control its removal from the machine, and separates the residual piece from the last slice cut from it without damage to the slice.

3,832,930

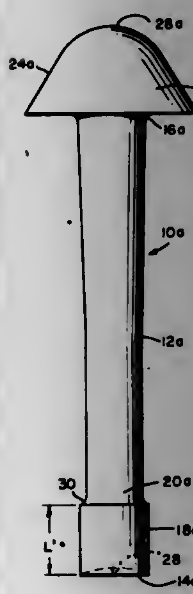
PINS FOR MINE AND TUNNEL ROOFS AND OTHER STRUCTURES

Bani Banerjee, Skillman; Sigmund Black, Belle Meade, and Mukund Gangal, Princeton, all of N.J., assignors to Lee-Norse Company, Charlerol, Pa.

Filed Apr. 16, 1973, Ser. No. 351,575

Int. Cl. A01l *7/10;* **A43b** *23/20;* **F16b** *15/00*

U.S. Cl. 85—30 **7 Claims**



Pins adapted to be driven into a structure such as a mine or tunnel roof without the necessity for the prior formation of pin receiving openings in the structure. The pins each comprise an elongated shank having a leading end for providing a pin receiving opening in the structure during the driving of the pin thereinto, the leading end being blunt to prevent deviation of the pin from a desired path during its said driving, and the shank at such leading end including an enlarged leading end portion of greater peripheral dimension than a thereafter following portion of the shank to provide an opening in the structure larger than such thereafter following shank portion.

3,832,931

DEVICE FOR FASTENING OBJECTS TO WALLS OR OTHER SUPPORTS

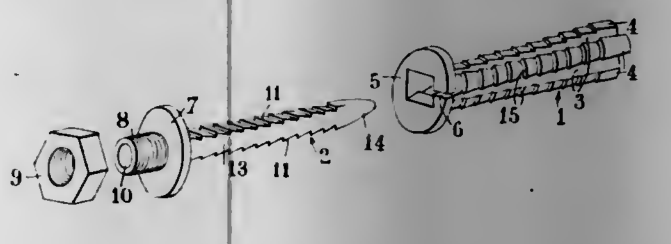
Maryan Talan, 68 Rue Bonaparte, 75 Paris, France

Filed Dec. 19, 1972, Ser. No. 316,5[illegible]7

Claims priority, application France, [illegible] 21, 1971, 71.45832

Int. Cl. F16b *13/06*

U.S. Cl. 85—83 **3 Claims**



Device for fastening an object to a wall or support, of the type comprising an expansible peg adapted to be inserted into a hole formed in said wall or support, and an expansion plug adapted to be driven home into said peg and formed with notches or the like for anchoring said plug in said peg. The peripheral surface of the plug of said device and the inner wall of the corresponding peg are both divided into at least two separate areas extending longitudinally thereto, namely a first area comprising a series of anchoring teeth or notches or the like distributed through the whole or part of the length of said plug and peg, and a second plain slip area which, in the plug, constitutes an expansion ramp on at least one portion of its length.

3,832,932

TRAILER CARRIAGE WITH COLLAPSIBLE WHEELS

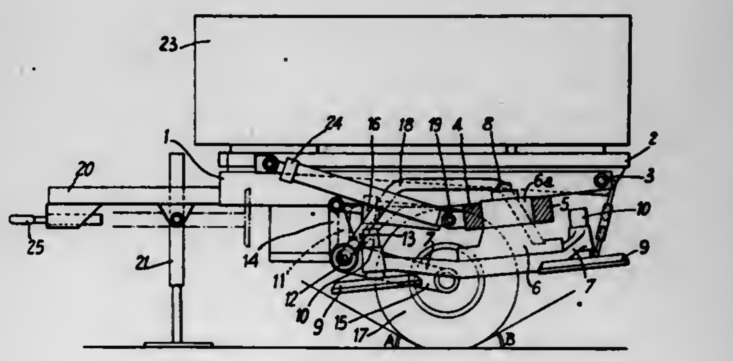
George Even, deceased, late of Boulogne-sur-Seine 92, France, and by said Maitre Jacques Mahot De La Querantonnais, Legal Representative, Paris, France, assignors to Constructions Navales et Industrielles de la Mediterranee C.N.I.M., Paris, France

Filed Mar. 20, 1972, Ser. No. 236,152

Claims priority, application France, Mar. 25, 1971, 71.10604

Int. Cl. F41f *3/04;* **B60p** *1/30*

U.S. Cl. 89—40 J **8 Claims**



A trailer the chassis of which is raised so as to allow its running over rough ground, said chassis being pivotally carried by a turret adapted to be lowered down to ground surface when the trailer is stationary and this lowering being associated with a raising of the wheels above ground as provided by jacks engaging bell cranks fitted between the chassis and the wheels. The turret feet are advantageously adjustable separately in a vertical direction and the chassis carries a tiltable frame.

3,832,933

AUXILIARY POWER STEERING DEVICE FOR VEHICLES WITH PRESSURE ACCUMULATORS

Erich Jablonsky, Bobingen/Rems, Germany, assignor to Zahnradfabrik Friedrichshafen AG, Postfach, Germany

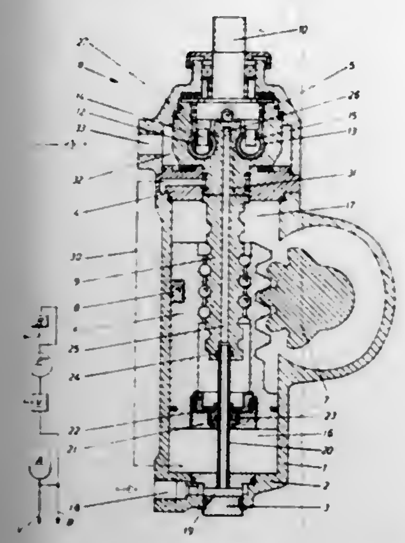
Filed Sept. 27, 1972, Ser. No. 292,612

Claims priority, application Germany, Oct. 7, 1971, 2149955

Int. Cl. F15b *9/10*

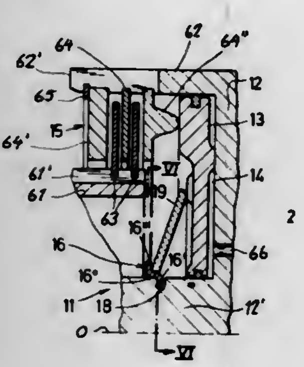
U.S. Cl. 91—374 **3 Claims**

The invention effects a short path readily sealed against leakage for pressure fluid supply to double acting hydraulic booster steering mechanisms of the type utilizing a piston internally threaded for coacting with an externally threaded steering spindle which extends into the piston and which spindle controls valving for selectively pressurizing either end of the cylinder. In installations where pressure accumulators are utilized for feeding the steering system and other devices on the vehicle, e.g., brakes, leakage in the high pressure system is serious because the size of accumulators are limited by space requirements and pumps for pressurizing accumulators are small. Hence, the invention minimizes such leakage by pressure feed through a tube passing into the piston from an end of the cylinder and communicating with a pressure feed bore in the steering spindle. Since the parts are small the sealing elements for such tube are correspondingly small and the leakage thereby reduced to a minimum.



3,832,934
RESILIENT STOP FOR PISTON OR THE LIKE

Hansjorg Dach; Karl Heinz Bordowsky, and Manfred Bucksch, all of Friedrichshafen, Germany, assignors to Z F Getriebe Gesellschaft mit beschrankter Haftung, Saarbrucken, Industriegebiet Sud, Germany
Filed May 15, 1972, Ser. No. 253,438
Claims priority, application Germany, May 14, 1971, 2124008
Int. Cl. F01b *31/00*
U.S. Cl. 92—130 **6 Claims**

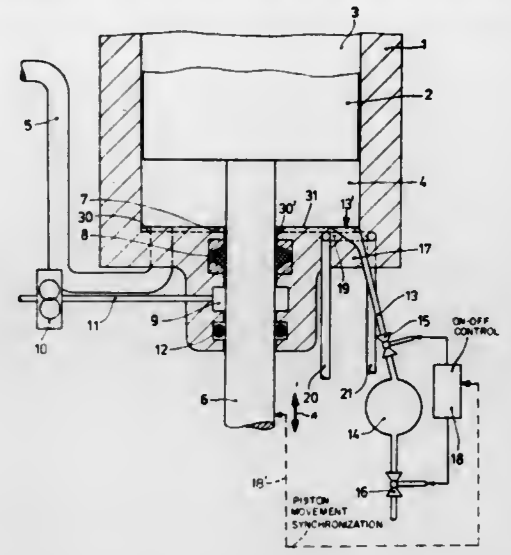


A peripheral groove on a shaft or in a cylinder accommodates part of an annular abutment of generally S-shaped or W-shaped cross-section whose projecting portion forms a seat for a Belleville spring or for a bearing plate engaged by an array of coil springs. The abutment may be a single, deformable ring or a pair of complementary ring segments held together by the Belleville spring or by the bearing plate under pressure of a piston slidably mounted on the shaft or in the cylinder.

3,832,935
PISTON CYLINDER ENGINE WITH PRESSURIZED PISTON ROD SEAL

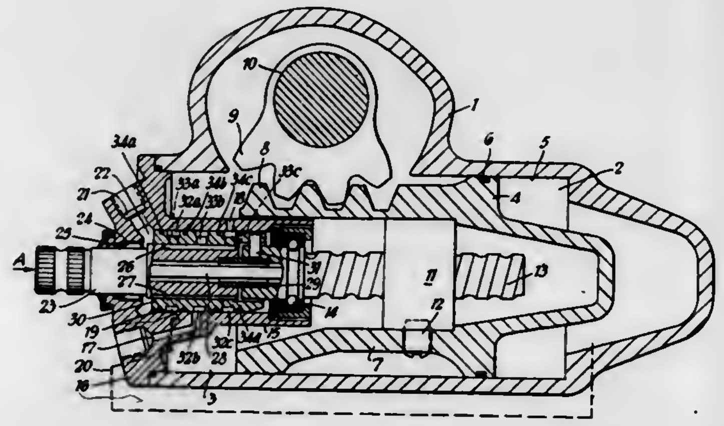
Onno Syassen, Augsburg, Germany, assignor to M.A.N. Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Augsburg, Germany
Filed Apr. 19, 1973, Ser. No. 352,711
Claims priority, application Germany, Apr. 26, 1972, 2220404
Int. Cl. F01b *31/10;* **F16j** *15/18*
U.S. Cl. 92—156 **14 Claims**

To seal the piston rod through an end wall of the cylinder, the piston rod is formed with a bore in which a sealing packing is located. In the wall, between the bore and outside surface of the wall, a pressure chamber is formed surrounding the piston rod into which a pressure fluid is introduced, to press the packing material against the piston rod, provide lubrication for sliding movement between the piston rod and the packing, and effect a gas-tight seal during such sliding movement. Any pressurized fluid which may leak into the cylinder is carried off by the cylinder by a drain which is periodically isolated from the interior of the piston by a valve, to permit accumulated leakage fluid to be drained off. For a vertical piston, the drain may be located at the lowest point of a slightly inclined bottom wall surface, or to drain from a groove formed at the outside circumference of the bottom wall. The drain is preferably blocked by a sump at the time the piston reaches the lowest dead center position, to permit drainage of the sump.



3,832,936
INTEGRAL POWER STEERING GEAR

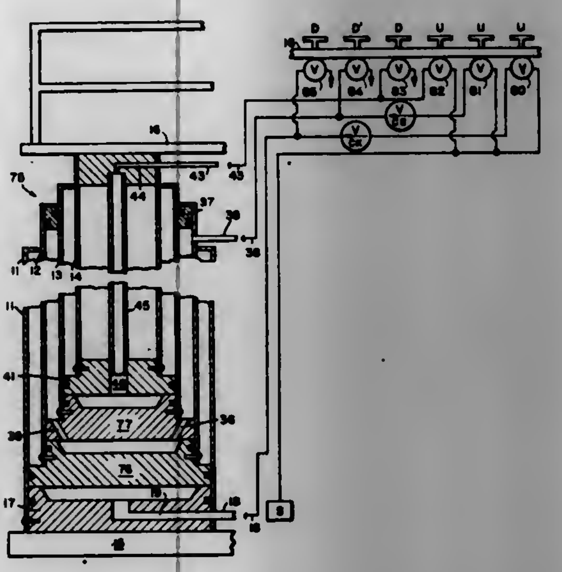
Frederick John Adams, Compton near Shefford, England, assignor to Cam Gears Limited, Hitchin, England
Filed Jan. 29, 1973, Ser. No. 327,419
Claims priority, application Great Britain, Feb. 8, 1972, 5775/72
Int. Cl. F15b *9/10*
U.S. Cl. 91—375 A **8 Claims**



An integral power steering gear having a primary or input shaft, a secondary shaft, a valve mechanism and a power piston, all mounted on a single housing in axial alignment with one another. The power piston is movable axially relative to the valve mechanism and has a hollow formed therein which receives at least a portion of the valve mechanism depending upon the relative axial position of the power piston and the valve mechanism. The valve mechanism is located in one of the two pressure chambers located on the opposite sides of the power piston.

3,832,937
PNEUMATIC TELESCOPIC HOIST HAVING THREE OR MORE STEPS OF EXTENSION

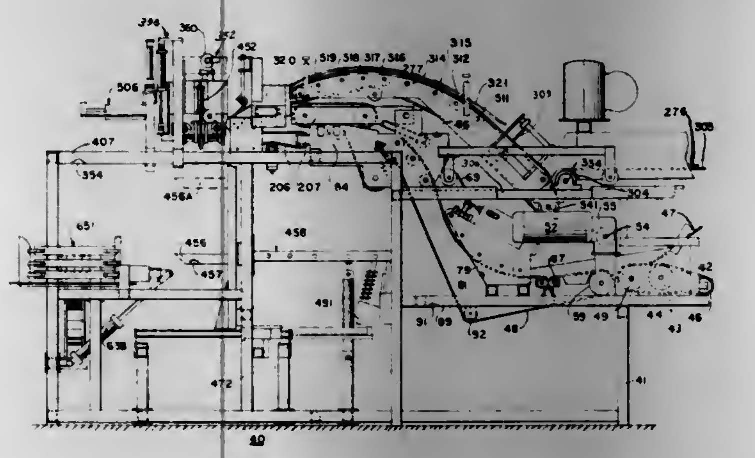
Carlisle M. Moore, Piedmont, and Robert E. Fisher, Larkspur, both of Calif., assignors to Up-Right, Inc., Berkeley, Calif.
Filed Dec. 29, 1972, Ser. No. 319,687
Int. Cl. F15b *11/18, 13/06*
U.S. Cl. 91—167 **12 Claims**



A pneumatic lift cylinder for scaffolds and having a plurality of telescopically arranged cylinder members which are extended sequentially in at least three steps of extension from the bottom up and retracted sequentially in at least three steps of retraction from the top down. In extension, after each member extends, it is overpressured, to rigidify the extended member before the next member is extended. In the retraction sequence, each of the cylinders below the retracting cylinder is maintained in an overpressured condition until its turn to retract.

3,832,938
MACHINE FOR STACKING AND BUNDLING FLAT ARTICLES

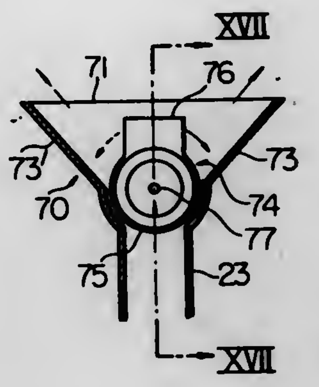
Willis J. Stapp; Norman P. Crowe, and Edwin A. Molitor, all of Miami Twsp., Clermont Cty., Ohio, assignors to Multifold International, Inc., Milford, Ohio
Filed Dec. 26, 1972, Ser. No. 318,189
Int. Cl. B65h *33/12*
U.S. Cl. 93—93 C **14 Claims**



A machine for stacking and bundling flat articles. An upright stack of articles is formed on an elevator arm with the articles extending horizontally. A horizontal compressor foot is lowered to compress the stack. The stack is pushed into a generally U-shaped basket having open ends and parallel spaced sides. The basket is swung to a lay-over position in which the sides of the basket are upright to swing the stack to a position in which articles in the stack are upright. A basket clearing pusher assembly discharges the stack from the basket.

3,832,939
DEFROSTER

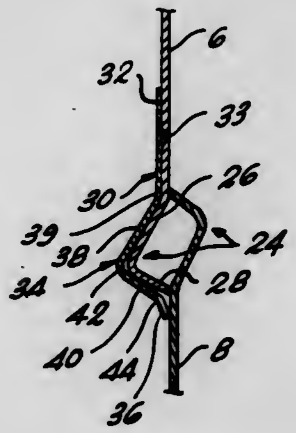
Jun Kakei, and Hirotsugu Yamaguchi, both of Yokohama, Japan, assignors to Nissan Motor Company, Yokohama, Japan
Division of Ser. No. 157,404, June 28, 1971, Pat. No. 3,745,906. This application Apr. 16, 1973, Ser. No. 351,648
Int. Cl. B60h *1/24*
U.S. Cl. 98—2.09 **4 Claims**



Herein disclosed is a defroster for defrosting a windshield of a motor vehicle. The defroster has a defroster nozzle having a generally rectangular, laterally elongated cross section which is gradually enlarged toward an outlet opening formed at the foremost end of the defroster nozzle. A hot fluid jet is passed to this defroster nozzle and is sprayed onto the windshield through the outlet opening. The path of the fluid jet issuing from the defroster nozzle is periodically switched from one side wall of the defroster nozzle to the other so that the fluid jet is caused to spurt at varying angles in a side-to-side direction. The flaring configuration of the defroster nozzle is useful to provide a wall-attachment effect between the fluid jet and the inner surfaces of the side walls of the defroster nozzle. The windshield is thus defrosted practically throughout its total area, providing a clear frontal viewing from within the motor vehicle.

3,832,940
LOUVER UNIT HAVING A FIRE RESISTANT SEAL

Louis R. Hess, Newport Beach, Calif., assignor to Pacific Air Products Co., Santa Ana, Calif.
Filed June 28, 1973, Ser. No. 374,318
Int. Cl. F24f *13/14*
U.S. Cl. 98—110 **12 Claims**

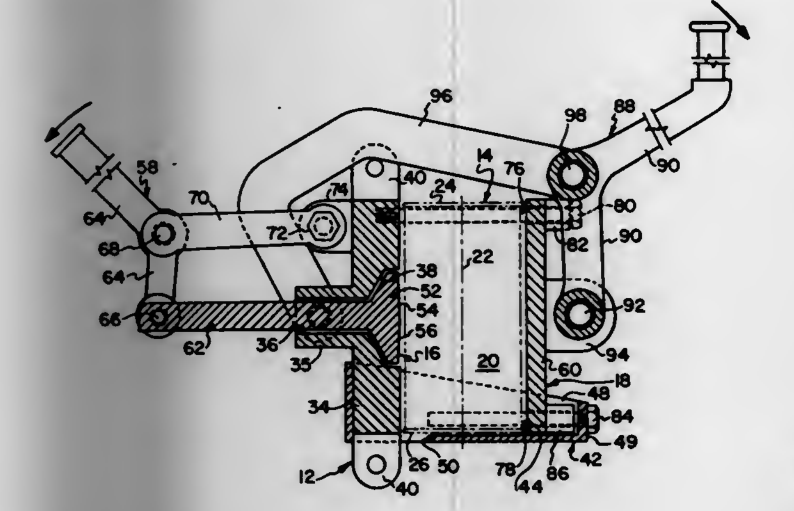


A louver unit which closes to prevent passage of smoke through air ducts, provided with a fire resistant seal that does not deteriorate at high temperatures. The louver unit includes a housing having an opening in which are mounted two blades, at least one of which is movable relative to the other between an open position and a closed position in which the blades overlap. Fixed to and extending along one of the blades is a resilient sealing strip of heat resistant material such as metal. The strip includes a median portion free to flex away from the blade, which extends around the edge of the blade to which it is attached and projects beyond it towards the other blade. Closing motion brings a free lip of the sealing strip into contact with the other blade in advance of contact between the blades themselves. Further motion to the fully closed position of the blades flexes the sealing strip so that the lip is resiliently biased into sealing contact with the other blade.

3,832,941

FLATTENING METAL CANS

Bynum W. Moller, P.O. Box 688, Kerrville, Tex. 78028
Division of Ser. No. 104,266, Jan. 6, 1971, Pat. No. 3,732,804. This application May 3, 1973, Ser. No. 356,895
Int. Cl. B30b *7/04, 9/32*
U.S. Cl. 100—137 **13 Claims**

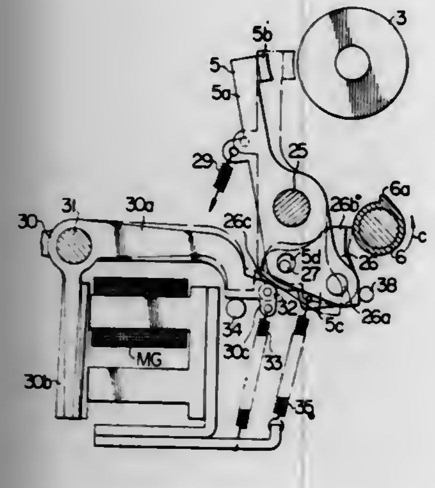


An apparatus for flattening thin metal cans is disclosed wherein the can is first creased or notched to incline the can ends with respect to the can axis and each can end is then folded about an axis adjacent the juncture of the respective can end and the can side into a generally flat configuration.

3,832,942

FLYING PARALLEL PRINTER FOR TABLE ELECTRONIC CALCULATORS

Seiji Murayoshi, Tokyo, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan
Filed Apr. 12, 1973, Ser. No. 350,364
Claims priority, application Japan, Apr. 19, 1972, 47-46883
Int. Cl. B41j *9/08*
U.S. Cl. 101—93 C **11 Claims**

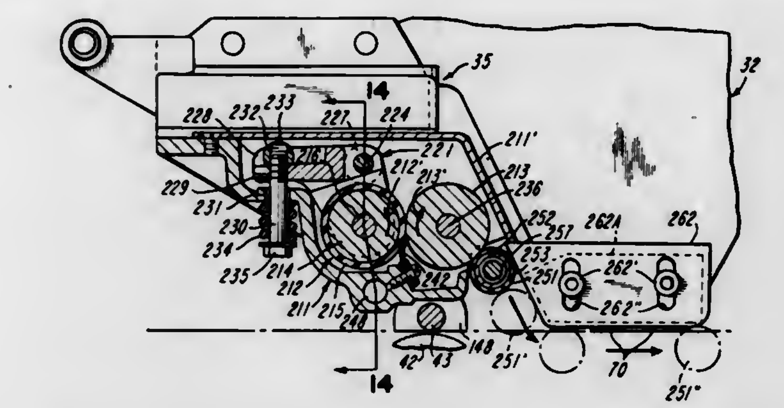


A printer comprising a plurality of type hammers each provided with a trigger lever mounted for pivotal motion thereon for a limited range of movement relative to the respective type hammer. Each type hammer has a controller associated therewith, and each controller is actuated by an electromagnet associated therewith. When any one electromagnet is energized, the controller associated therewith moves the trigger lever into the path of movement of a projecting edge of a flip shaft so that the latter may flip the trigger lever to thereby cause the trigger lever and the type hammer to move in swinging motion to effect printing of a symbol on the printing sheet.

3,832,943

PRINTING APPARATUS

Raymond L. Kirby, Jr., Vandalia, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio
Filed Jan. 6, 1972, Ser. No. 215,783
Int. Cl. B41j *27/12*
U.S. Cl. 101—103 **15 Claims**

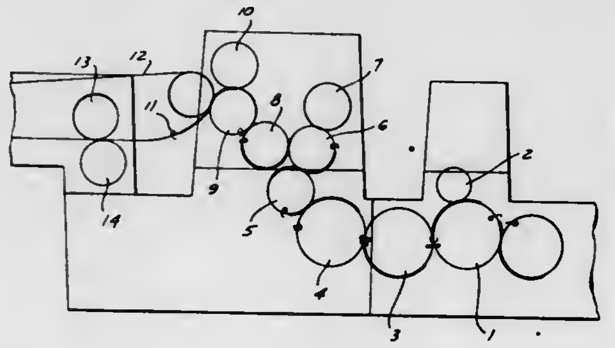


There is disclosed a printing, feeding and severing method and apparatus for carrying out the method. The apparatus includes a print head assembly and a platen assembly movable relatively toward and away from each other into and out of printing cooperation, mechanism for feeding a web of record members to between the print head assembly and the platen assembly, record severing means disposed downstream of the print head assembly and the platen assembly, and a modular support assembly of a print head of the print head assembly. In one embodiment, a first gear is connected to the movable platen assembly meshing with a second gear which drives a cam. The drive connection between the cam and the ink roll includes separate carriages carrying the ink roll. Movement of the platen assembly causes the ink roll to move sequentially between a source of ink and the print head. In another embodiment, a driven cam, mounted for movement on the movable platen assembly operates a bell crank, rods, and arms, which arms carry an ink roll for inking the print head.

3,832,944

SHEET PRINTING AND STAMPING MACHINE

Siefried Koerner, Kamenzer Strasse 42, Dresden; Erwin Schebiella, Boehmischer Weg 20, Heidenau; Peter Zirnstein, Rathmannsdorf, and Joachim Weise, Hanns-Rothbarth-Strasse 4, Dresden, all of Germany
Filed Dec. 26, 1972, Ser. No. 324,990
Int. Cl. B41f *19/02*
U.S. Cl. 101—232 **3 Claims**

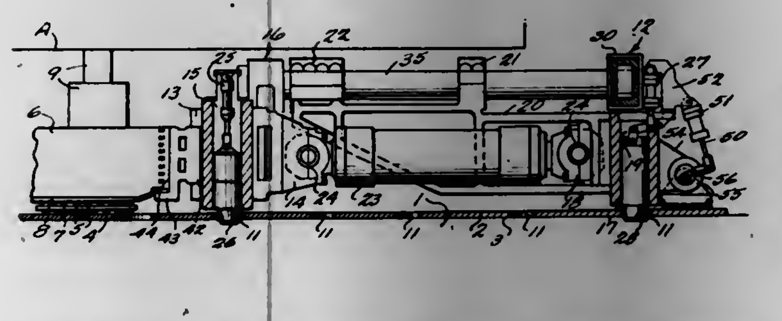


During the manufacture of printed cardboard sheets, it is an advantage when the printing machine is coupled with the stamping machine. In such a machine, in accordance with the invention, the rollers of the stamping apparatus have the same equal diameter. Since the rollers in the stamping machine may be larger than in the printing machine, the diameter of the stamping rollers is assumed to be up to 1.5 times greater than the diameter of the printing rollers of the printing apparatus, which perform one revolution in each working cycle. Since the number of revolutions of all rollers of the coupled printing and stamping machine must be the same in order to maintain the operating cycles, the peripheral speed is necessarily different. This difference in the peripheral speed, is equalized by a transfer roller which operates at two different speeds during each revolution according to the peripheral speeds of the printing rollers and stamping rollers.

3,832,945

THRUSTING DEVICE

Masataro Muto, Tokyo; Shingo Nishioka, Nagasaki; Toshihiro Naka, Nagasaki; Akio Kanesaki, Nagasaki, and Kanae Tokumura, Yokohama, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 24, 1973, Ser. No. 326,479
Int. Cl. B61b *13/12;* **B66f** *1/00*
U.S. Cl. 104—154 **3 Claims**



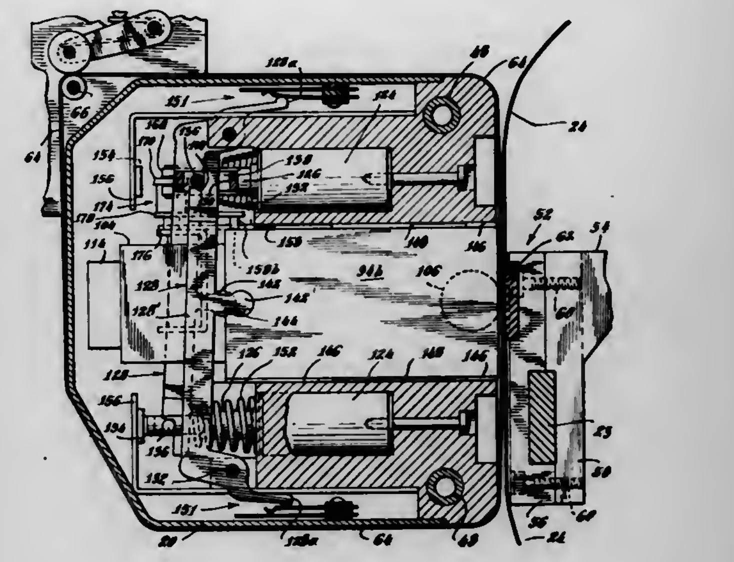
A thrusting device comprising a plurality of fixed rail plates for shifting an article to be shifted thereon, each of said fixed rail plates being formed therein with substantially equally spaced pin holes arranged substantially along the center line thereof, and at least one thrusting unit striding over a selected one of said fixed rail plates and comprising running wheels provided at the bottom thereof for running along said fixed rail plate, one front block and one rear block arranged in opposed relation to each other, one thrusting hydraulic cylinder having one end connected to said front block and the other end to said rear block for thrusting said front block with said other end bearing against said rear block, supporting means for securing both of said blocks alternately to said fixed rail plate through said pin holes, two guide beams each having one end fixed to said front block and the central portion slidably supported by a bearing portion formed integrally with said rear block, and anti-stumbling means connected to said rear block rearwardly of said supporting means.

3,832,946

COMPUTER RESPONSIVE SUPPLEMENTAL PRINTER

Raymond R. Lupkas, Trumbull; Gerald C. Freeman, Norwalk, and Frank T. Check, Jr., Orange, all of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.
Filed Nov. 4, 1971, Ser. No. 195,729
Int. Cl. B41j *9/10, 23/00*
U.S. Cl. 101—93 C **1 Claim**

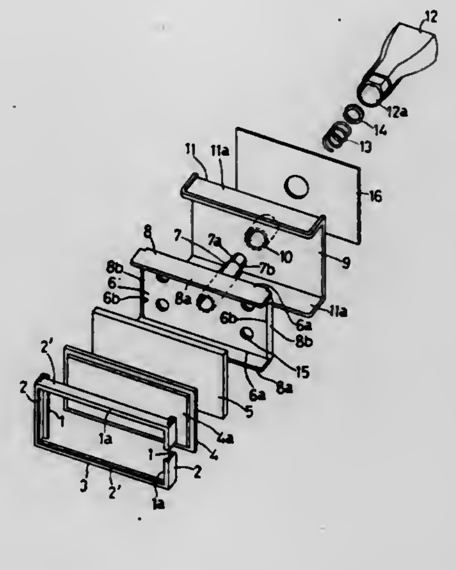
A supplemental printer is mounted piggy-back fashion atop a conventional high speed chain printer or other form of computer output printing equipment; and prints, upon the same print-out sheet as the high speed printer, information generated by the same electronic digital computer to which the high speed printer responds. The supplemental printer is capable of printing postage or other special indicia not easily incorporated into the print symbol repertoire of the high speed printer. In order to make the supplemental printer operate rapidly enough to be compatible with electronic data processing equipment, its print impression is divided into parts printed by individual type segments, each actuated by its own individual print solenoid. In order to improve print quality and to minimize the reaction of the piggy-back mounted printer due to the simultaneous firing of the print solenoids, the solenoids are fired sequentially by means of a time spread circuit including a shift register and clock oscillator. Some of the segments are equipped with solenoid-actuated variable numerical print modules for the purpose of printing postage or other variable numerical information. After printing, the segments return to positions at unequal levels in order to deter "wiping off" unauthorized postage or other valuable print impressions.



3,832,947

SIMPLIFIED, SELF-INKING HAND STAMP

Takaji Funahashi, 1,2-chome, Kitatakasho-machi, Nishi-ku, Nagoya, Japan
Filed Oct. 19, 1971, Ser. No. 190,612
Claims priority, application Japan, Oct. 21, 1970, 45-104439
Int. Cl. B41k *1/50*
U.S. Cl. 101—327 **3 Claims**



An improved stamping device including a porous stamping block adapted to remain in a retracted position above the lower edges of an outer frame as long as the device is not used, so that the block will not touch and stain an adjacent object, and be lowered to the lower edges of the outer frame, thereby permitting impression, and means for enabling continuous use of the device without use of a stamp pad.

3,832,948

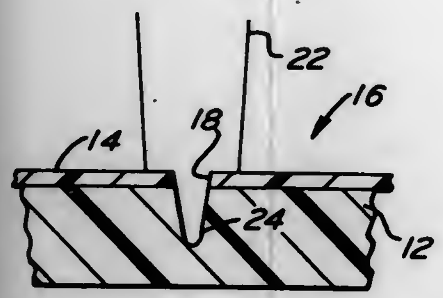
RADIATION METHOD FOR MAKING A SURFACE IN RELIEF

Ronald C. Barker, Weston, Mass., assignor to Empire Newspaper Supply Corporation, Rochester, N.Y.

Continuation-in-part of Ser. No. 883,525, Dec. 9, 1969, abandoned. This application Nov. 4, 1970, Ser. No. 86,656

Int. Cl. B41c *1/02;* **B23k** *27/00*

U.S. Cl. 101—401.1 **17 Claims**



A surface in relief is formed by scanning coherent radiation over a surface defined by a thin film supported upon a plastic substrate. The wave length of the coherent radiation is chosen so that it is absorbed by the film and hence removes portions of the film exposing the substrate. The coherent radiation for removing the film may be switched on and off or otherwise modified so as to write information on the surface. Thereafter, the surface is again scanned by coherent radiation of a wave length that is reflected by the film but absorbed by the plastic substrate thereby removing portions of the plastic exposed by the coherent radiation. The film may or may not then be completely removed leaving a pattern in relief upon the surface of the substrate.

3,832,949

DEVICE FOR GENERATING SIGNALS BY EMITTING SHOCK WAVES

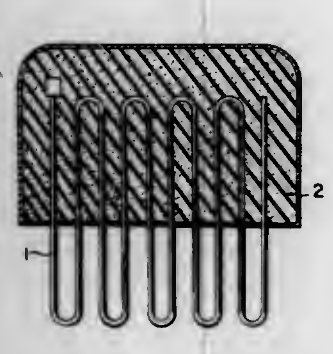
Jacques Claude Delgendre, Toulon; Vincent Louis Guigot, and Victor Felix Marchandise, both of La Seyne, all of France, assignors to ETAT FRANCAIS represents par le Ministre d'Etat charge de la Defense Nationale-Delegation Ministerielle pour l'Armement, Paris, France

Filed Apr. 23, 1973, Ser. No. 353,574

Claims priority, application France, Apr. 25, 1972, 72.14547

Int. Cl. F42d *3/06*

U.S. Cl. 102—1 R **7 Claims**



A device for generating signals constituted by successive but discrete shock waves. A continuous chain of explosive material is exploded along its length. Shock wave emitting portions of the chain are in contact with the medium of propagation while other insulated portions of the chain between the shock wave emitting portions absorb the explosions therein.

3,832,950

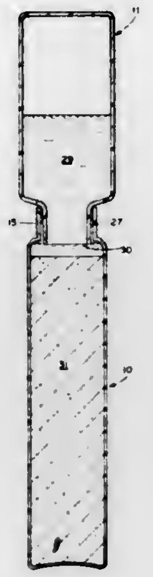
INVERTED BOTTLE ARMING TECHNIQUE

Gerald L. Hurst, Dallas, Tex., assignor to Kinetics International Corporation, Dallas, Tex.

Filed Apr. 20, 1972, Ser. No. 245,721

Int. Cl. F42b *3/00;* **F42d** *5/00*

U.S. Cl. 102—24 R **13 Claims**



A method of arming multiple component explosives and cooperable apparatus for carrying out the method are disclosed. A solid component containing mixing container is provided having a mouth designed to accept the spout of a cooperable liquid container and maintain the liquid container in an inverted discharge position in the mouth of the solid component container. The method includes regulating the rate of discharge from the liquid container into the mixing container by maintaining a flow retarding liquid seal at the point of discharge at the desired maximum liquid level within the solid mixing container.

3,832,951

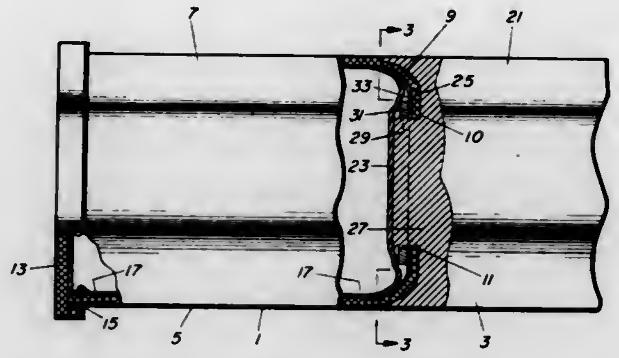
AMMUNITION ROUND WITH NON-RIGID ATTACHMENT OF PROJECTILE TO CARTRIDGE CASE

Daniel Katz, Brooklyn, N.Y., and Peter H. Syben, Weaver, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 17, 1973, Ser. No. 324,267

Int. Cl. F42b *5/02*

U.S. Cl. 102—38 **6 Claims**



A non-rigid connection is made between a non-metallic, combustible, cylindrical cartridge case body having a centrally-apertured domed front end and a projectile or shell having a concave outer annular portion engaging the domed front end and a threaded central attachment plug extending through the case aperture, by means of a locking ring threaded onto the plug to clamp the front end against the projectile and a thin annular spring washer having its inner periphery interposed between the ring and the inner periphery of the front end and its outer periphery engaging the front end outwardly of the ring.

3,832,952

DEVICE FOR THE VERTICAL AND LATERAL DISPLACEMENT OF RAILWAY TRACK

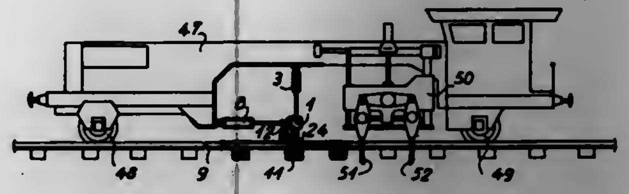
Hans Hurni, Pres Lausanne, Switzerland, assignor to Canron, Inc., Phillipsburg, N.J.

Filed Nov. 24, 1972, Ser. No. 308,945

Claims priority, application Switzerland, Dec. 3, 1971, 17606/71

Int. Cl. E01b *33/02*

U.S. Cl. 104—7 B **11 Claims**



Apparatus for the vertical and lateral movement of a section of railway track. Gripping members are operated to grip the two lines of rails. The gripping members are mounted on at least one support frame connected by articulated connecting members to the chassis of a track maintenance vehicle movable on the track. The support frame is movable both vertically and laterally relative to the vehicle under the action of lifting members or lining members, to move said track section and to bring it into a predetermined reference position. The apparatus comprises in combination vertical and lateral support members connected to the support frame to guide the same and supported on at least one line of rails and guidance and control members for moving each gripping member relative to the support frame in directing both vertical and transverse to the track.

ERRATUM

For Class 104—154 see:
Patent No. 3,832,945

3,832,953

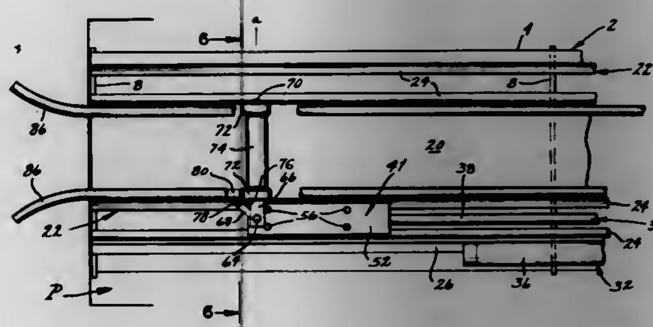
CONVEYOR FOR WHEELED VEHICLES

Albert Glenn Aaron, Chesterfield, Mo., assignor to Passpoint Corporation, Maryland Heights, Mo.

Filed Aug. 30, 1972, Ser. No. 285,072

Int. Cl. B65g *25/10*

U.S. Cl. 104—162 **8 Claims**



A conveyor for automatic car wash installations has a path along which the wheels of conveyed vehicles roll. A plurality of drive rollers move over the path and successively bear against the back sides of the vehicle tires so as to urge the vehicle forwardly along the path. The rollers are powered by fluid operated cylinders and during the return stroke of the reciprocal cylinder movement, the rollers move to a position along side the path so as not to interfere with the wheels on the path.

3,832,954

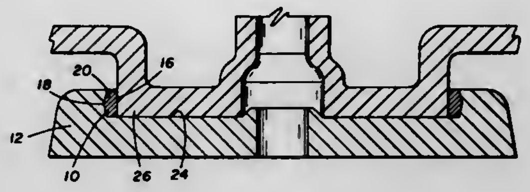
CENTER PLATE VERTICAL WEAR RING

Harvey Edward Amwake, West Falls, N.Y., assignor to Dresser Industires, Inc., Dallas, Tex.

Filed June 27, 1973, Ser. No. 374,193

Int. Cl. B61f *5/16;* **F16c** *17/04, 41/00*

U.S. Cl. 105—199 C **4 Claims**



The present invention involves a wear ring which fits in the recess of a truck bolster center plate to protect the inner annular wall of the recess. The annular wall has a double taper which first tapers outward a distance from top to bottom and then tapers inward a part of the distance. The ring has a double tapered outer surface from top to bottom which is complementary to the interior wall of the recess.

3,832,955

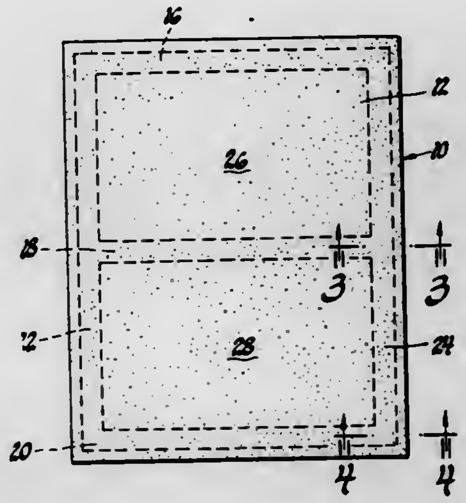
REINFORCED PLASTIC PANEL

Arthur D. Pottinger, Bloomfield Hills; William V. Ryder, Jr., St. Clair Shores, and Lyle H. Shuert, Madison Heights, all of Mich., assignors to Jered Products, Inc., Troy, Mich.

Filed Sept. 1, 1972, Ser. No. 285,807

Int. Cl. B65d *19/18*

U.S. Cl. 108—51 **8 Claims**



A plastic panel adapted to be formed by a vacuum forming or other molding processes including a pair of plastic sheets fused together with high strength inserts encapsulated therebetween, the inserts defining reinforing ribs of substantial bending modulus, or a pattern for forming a stiffening configuration or reinforcement in the fused sheets, and means for establishing compliance between the reinforcements and the plastic sheet material during cooling following the forming operation.

3,832,956

RELOCATABLE BUILDING MODULE AND SHIPPING CRATE

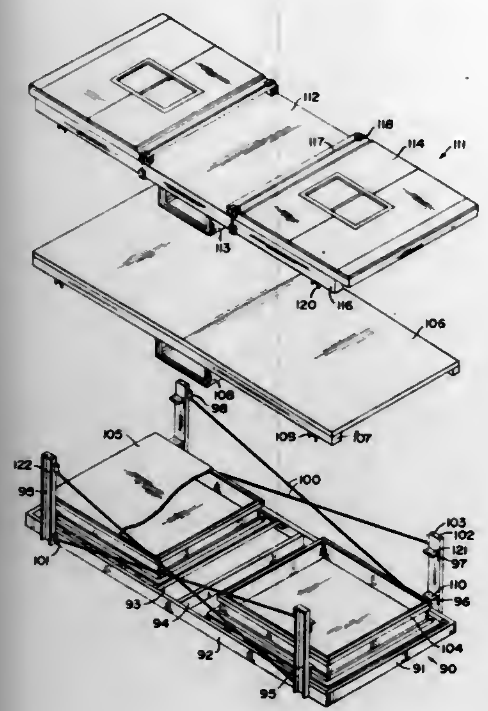
Ernest M. Briel, Jr., 235 Debra Ct., Satellite Beach, Fla. 32931

Division of Ser. No. 150,420, June 7, 1971. This application June 22, 1973, Ser. No. 372,484

Int. Cl. B65d *19/12*

U.S. Cl. 108—55 **5 Claims**

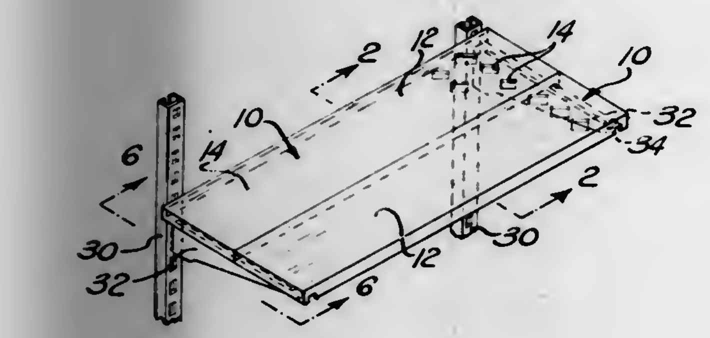
A relocatable building module apparatus and shipping crate for shipping a disassembled module. A folded module can be placed in position on location and walls erected in their upright position relative to the floor by rotating the walls on hinged points on the floor and locking them in place. A roof can then be attached to the walls and several modules can be aligned together in a positive alignment.



3,832,957

INTERLOCKING DISPLAY SHELF ARRANGEMENT

Walter M. Mendenhall, Bedford Heights, Ohio, assignor to Modern Display Plastics Inc., Cleveland, Ohio
Filed Nov. 3, 1972, Ser. No. 303,603
Int. Cl. A47b *57/00*
U.S. Cl. 108—64 **6 Claims**

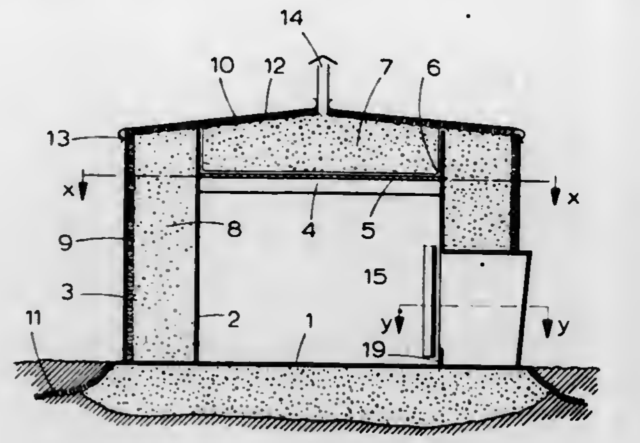


An interlocking display shelf comprising a quadrangular shelf member having a generally smooth perforate planar upper surface with a flange depending from the upper surface and forming a skirt around the shelf member. The male portion of a keyhole fastener is carried by the flange along one side of the shelf member and the female portion of the keyhole fastener is formed in the flange extending along an opposed side of the shelf member whereby a plurality of shelf members may be interlocked side to side to form a display shelf of any desired width. Each of the shelf members further includes bracket receiving channels along opposite edges thereof with the channels serving to locate and retain the shelf member on shelf supporting brackets.

3,832,958

BUILDING FOR EXPLOSIVE DANGEROUS MATERIALS

Hans Hiorth, Lierbyen, Norway, assignor to Dyno Industrier A.S., Oslo, Norway
Filed Feb. 13, 1973, Ser. No. 332,164
Claims priority, application Norway, Feb. 17, 1972, 476/72
Int. Cl. E05g *3/00*; **E04b** *1/32*
U.S. Cl. 109—1 R **15 Claims**

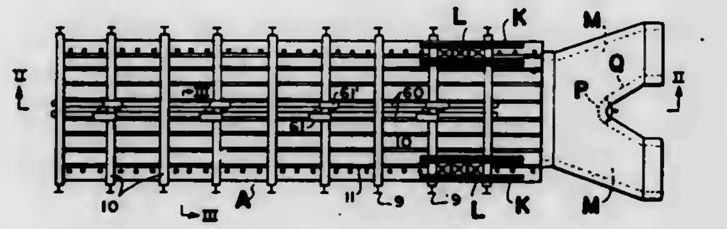


The invention relates to a new construction for a confined space such as a building for containing dangerous explosive material, for instance a building adapted to be used in connection with the production, handling and/or storing of explosives, ammunition or other explosive goods. The walls of the building comprises an internal and an external cylindrical shell construction with upwardly open cylindrical shells, the spacing therebetween being filled with sand. The shells are attached to a circular floor- or bottom plate. The roof construction of the building comprises a web structure anchored to the internal cylindrical shell and on top of which web structure is positioned a cover which preferably should be of resolved or defibrated material. On top of the cover is positioned a layer of sand, and finally a roof covering on top of the sand layer.

3,832,959

SUSPENDED ROOF AND END WALL CONSTRUCTION FOR REVERBERATORY FURNACE

Levi S. Longenecker, 61 Mayfair Dr., Pittsburgh, Pa.
Filed Sept. 21, 1971, Ser. No. 182,409
Int. Cl. F23m *5/06*
U.S. Cl. 110—99 R **19 Claims**

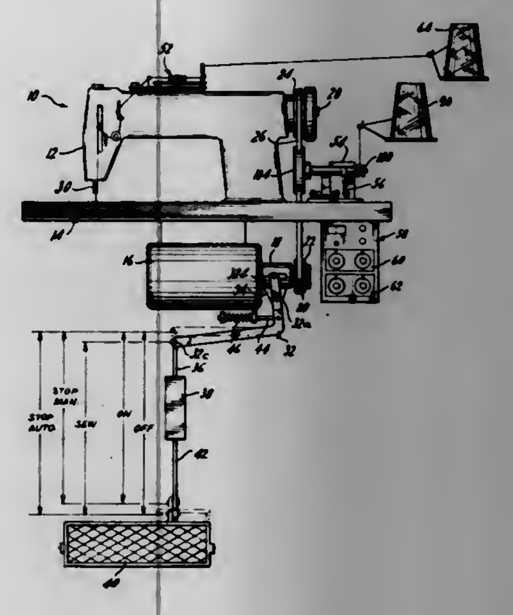


A refractory furnace construction is provided with a panelized roof using a hooked-on post or gooseneck type of suspension, as distinguished from a so-called piggy-back or cantilevered type. Each roof panel comprises a group of refractory tile members and their hanger castings constructed for unitized mounting within the roof construction. In addition to supporting metal structural framework, a cover assembly is provided to enable cleaning the upper surfaces of and, if desired, to provide a continuous cooling of the upper reaches of the refractory tile members of the roof. Refractory side wall parts converge towards each other and cooperate with a nose part to enclose an uptake end of the furnace. The nose part is constructed for unitized removal and insertion with respect to the side wall parts.

3,832,960

NEEDLE THREAD MONITOR TO AVOID RUNOUT OF BOBBIN THREAD

Nathan Mayer, 27 Messler St., East Brunswick, N.J. 08816, and Anthony P. Sorrentino, 745 Woodlawn Ave., Hammonton, N.J. 08037
Filed May 11, 1973, Ser. No. 359,467
Int. Cl. D05b *69/36*
U.S. Cl. 112—219 R **12 Claims**



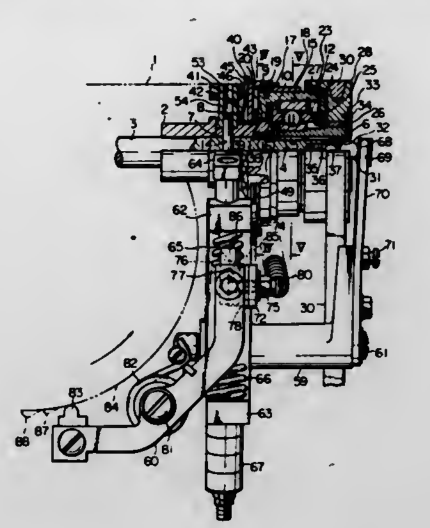
An attachment for any type of lock stitch sewing machine for monitoring the amount of needle thread used by the stitching mechanism of the sewing machine so as to avoid the run out of bobbin thread from a bobbin having a known supply of bobbin thread while a workpiece is being sewn. For repetitive type of sewing, a relationship is determined between the consumption of needle thread and the consumption of bobbin thread which is required to complete a workpiece. Based on this relationship, a bobbin winding device including a counting wheel and a bobbin thread counter is provided for winding a bobbin to its maximum capacity with a known supply of bobbin thread. Also based on this relationship, a needle thread monitor including a needle thread counter and counting wheel are provided and the needle thread counter is set to terminate operation of the stitching mechanism just prior to the runout of the known supply of bobbin thread which has been wound on the bobbin. The operator is thereby warned that there is only enough bobbin thread remaining to override the automatic termination of the stitching mechanism and finish the workpiece being sewn. During operation of the sewing machine, the bobbin winding device winds the next bobbin to be used with the same amount of bobbin thread so that it may replace the depleted bobbin and be used to complete the same amount of workpieces.

3,832,961

SEWING MACHINE DRIVE CONTROL DEVICE

Sirozi Nakamura, and Takashi Thukioka, both of Tokyo, Japan, assignors to Tokyo Juki Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed July 2, 1973, Ser. No. 375,476
Int. Cl. D05b *69/02*
U.S. Cl. 112—220 **3 Claims**

A sewing machine drive control device includes drive means, a prime mover shaft drivingly connected to the drive means to be driven thereby, a main shaft drivingly connected to the prime mover shaft to be driven thereby, a hollow cylindrical support member secured to the main shaft, an epicyclically movable unit receiving the prime mover shaft for rolling and sliding movement therein, a rotary member rotatably supported on the support member, a braking mechanism movable for contacting and separating from the rotary member, a clutch mechanism for drivingly connecting and disconnecting between the prime mover shaft and main shaft and control means for selectively controlling the braking mechanism and clutch mechanism so as to allow the epicyclically movable unit to only revolve and rotate and only rotate.



3,832,962

PRECOATING OF ALUMINUM CAN SHEET

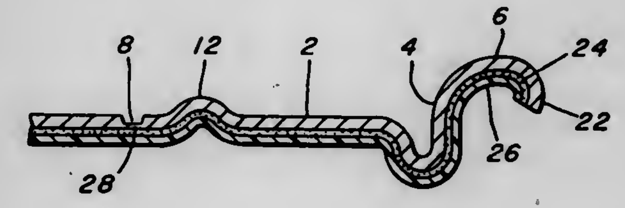
Rolf Rolles, New Kensington, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.
Continuation-in-part of Ser. No. 174,136, Aug. 23, 1971, abandoned, and a continuation of Ser. No. 805,829, March 10, 1969, abandoned. This application July 30, 1973, Ser. No. 384,039
Int. Cl. B21d *22/28*
U.S. Cl. 113—120 A **6 Claims**

The successive steps of coating aluminum can sheet with a resin capable of withstanding subsequent drawing and ironing, curing the resin coated on the sheet; drawing the sheet, for example, into the shape of a shallow can, and ironing the shallow can into a deep can of beverage size.

3,832,963

THERMALLY TREATED CONTAINER WALL

Herbert Gayner, Monroeville, and David A. Smith, Penn Hills, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.
Division of Ser. No. 190,480, Oct. 19, 1971, Pat. No. 3,762,598. This application Oct. 11, 1972, Ser. No. 296,605
Int. Cl. B21d *51/26*
U.S. Cl. 113—121 C **3 Claims**

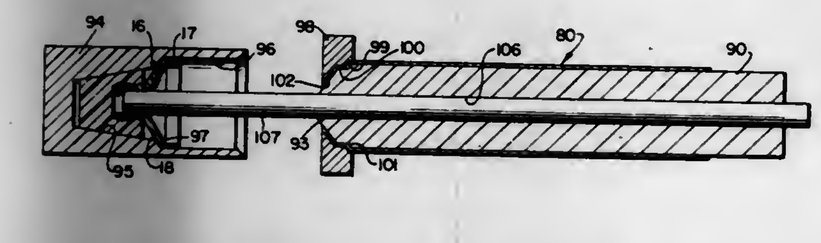


A method of fabricating a container wall having an integral opening device by providing a metal sheet having an adhesive material secured to one surface thereof. The adhesive secures a continuous protective layer to the metal sheet. The protective layer is selected from the group consisting of partially crystalline polyolefin, partially crystalline polyolefin-ethylene copolymers, polyethylene acrylate and ionomers of polyolefin. Scoring the sheet to define a removable sector therein while preventing fracture of the adhesively secured protective layer. Subsequently heating the composite metal sheet to a temperature of about 275° to 375°F for a period of about 0.2 second to 4 minutes and preferably about 300° to 350°F for about 0.5 to 3 minutes. The protective layer is stress relieved by this thermal treatment which substantially completely eliminates microvoids established in the protective layer during the scoring operation. Effecting the heating operation in such a fashion as to improve adhesive bonding of the protective layer, resist diaphragming of the protective layer and reduce feathering of the protective layer along the line of severance when the removable sector is fractured.

A container wall structure made by the process of this invention including the adhesive being selected from the group consisting of epoxy, polyester and polyurethane. The protective layer having a crystallinity in excess of about 50 percent. The adhesive bond between the protective layer and the metal sheet removable sector being of greater strength than the shear strength of the protective layer in regions underlying the score line to prevent substantial diaphragming and to limit feathering to less than about one thirty-second inch.

3,832,964
DISPENSING CONTAINER MANUFACTURING APPARATUS AND METHODS

Winston G. Rockefeller, Woodcliffe Lake, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.
Filed Nov. 24, 1972, Ser. No. 308,999
Int. Cl. B21d *51/36*
U.S. Cl. 113—1 B **15 Claims**



Collapsible toothpaste and like dispensing containers having flexible body walls and externally threaded discharge necks are formed by wrapping a sheet of flexible material about a mandrel and fastening overlapping side edges together to provide a tubular body shell having a longitudinal seam, and then inserting and clamping one end of the formed body shell between nested mechanically interengaged inner and outer head structure elements.

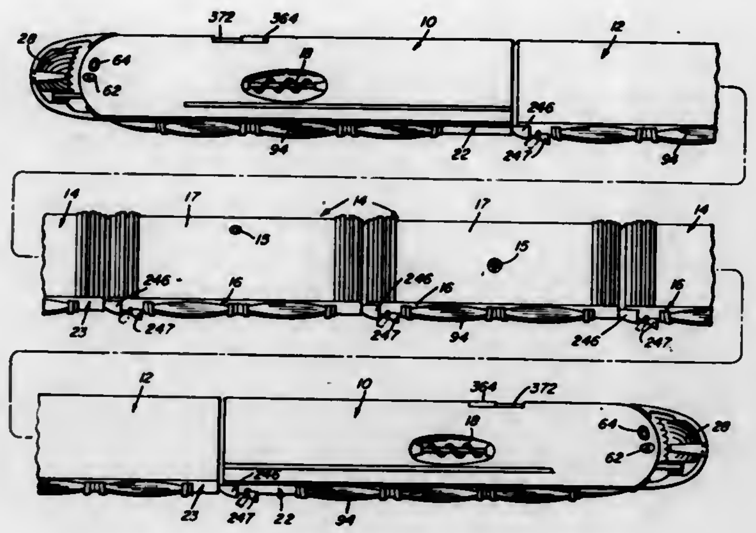
ERRATUM

For Class 114—0.5 see:
Patent No. 3,833,035

3,832,965
SUBMERSIBLE TRANSPORT APPARATUS

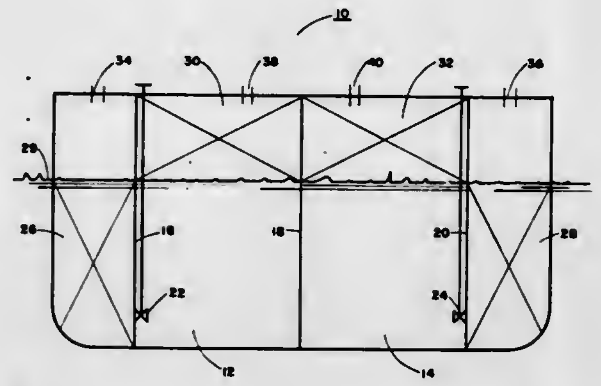
Paul J. Walker, P.O. Box 1212, Edmonton, Alberta, Canada (T5J2M4)
Filed July 17, 1973, Ser. No. 379,958
Int. Cl. B63g *8/00*
U.S. Cl. 114—16 R **17 Claims**

A submersible transport apparatus having a plurality of tanker vessels connected in series with locomotive tugs at either end to form an articulated train. Each tanker vessel is formed by a tank and chassis connected together in such a manner that the tank may rotate about an axis passing through itself while the chassis maintains a fixed relationship with respect to the tank. A double ball-and-socket assembly arranged in a spherical housing is provided for connecting the train units together. Swivel flexing tables arrange adjacent chassis in an articulated manner for protecting hoses, cables, and couplings passing between the chassis during maneuvering of the apparatus. Each table has a swiveling cover apron associated with it for streamlining the train. Hydrofoils are pivotally mounted to the chassis to control the depth and angle of attack of the vessels. Each locomotive has a hull provided with an extendable and retractable conning tower provided with a cutterhead for selectively cutting holes in ice, and the like. A sliding cover selectively opens and closes an opening in the hull for permitting passage of portions of the conning tower, including the cutterhead, to positions extending from the hull. The tug hull is also provided with a longitudinally extending channel for receiving exhaust gases and felt, and the like, is arranged in the channel to absorb smoke-laden moisture in the gases.



3,832,966
METHOD OF BUILDING TANKERS FOR PREVENTING OIL SPILLS IN CASE OF WRECK

Emilio C. Garcia, 441 Gravier St., New Orleans, La. 70130
Filed July 26, 1973, Ser. No. 382,991
Int. Cl. B63b *25/08*
U.S. Cl. 114—74 R **3 Claims**

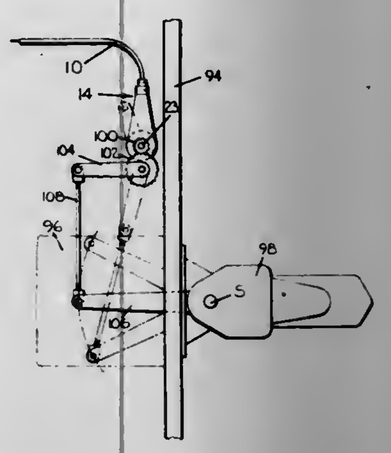


Building a tanker with double sides defining side tanks extending from a top deck to hull bottom and adjacent to and associated with cargo tanks. Making the side tanks from hull bottom to waterline equal in volume to respective volumes of associated cargo tanks above said waterline. Opening valves between respective side tanks and cargo tanks ruptured in a wreck and draining off into side tanks all oil above waterline in said ruptured cargo tanks faster than said oil can drain into sea by placing larger vents in the side tanks than in cargo tanks.

3,832,967
IMPROVED STEERING SYSTEM

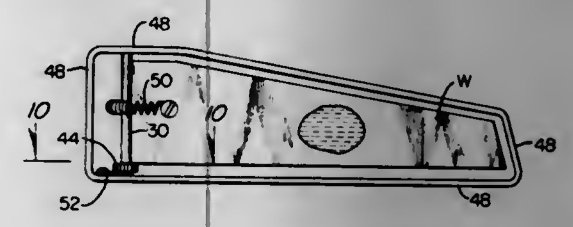
Donald W. Waner, Stow, and Roger F. Olson, Cuyahoga Falls, both of Ohio, assignors to Rockwell International Corporation, Pittsburgh, Pa.
Division of Ser. No. 199,548, Nov. 17, 1971, Pat. No. 3,747,428. This application Feb. 21, 1973, Ser. No. 334,321
Int. Cl. B63h *25/10*
U.S. Cl. 114—144 R **1 Claim**

An improved steering system for use with a marine propulsion unit comprising a steering force shaft, a steering force transmission cable in driving connection with the shaft, a tiller arm attached to a propulsion unit pivotally mounted to a transom, and a gear reduction arrangement operatively connecting the tiller arm to the transmission cable and adapted to vary the application of torque to the tiller arm between a minimum torque and a maximum torque in response to movement of the shaft to thereby pivot the propulsion unit.



3,832,968
VEHICLE SIGNAL

Clifford W. Martin, 2666 S. York St., Denver, Colo. 80210
Filed Nov. 28, 1973, Ser. No. 419,666
Int. Cl. B60q
U.S. Cl. 116—28 R **16 Claims**

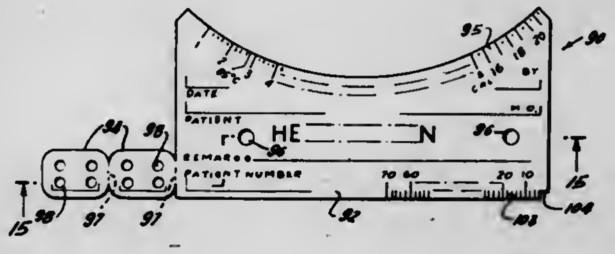


Signal for use on a leading vehicle, indicating to the driver of a trailing vehicle, that the leading vehicle is traveling at or above a predetermined non-hazardous speed or is traveling at a lower hazardous speed or has stopped. It is characterized by a pivoted vane, movable to non-hazardous indicating position by aerodynamic forces, and movable to hazardous indicating position by an opposing spring. The rate at which the viewed area of the vane changes is a measure of the rate of change, or deceleration, of the leading vehicle, thus extending the critical reaction time of a following driver.

3,832,969
BLOOD TEST SYSTEM

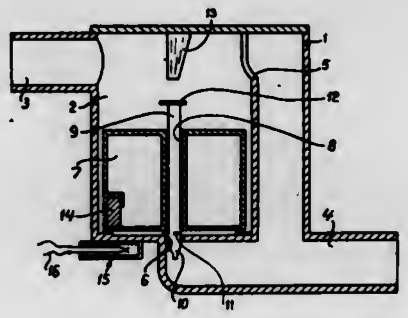
Edward J. Rapoza, Butler; Maxwell E. Siegel, Sussex, both of N.J.; Weems E. Estelle, Southport, Conn.; Pasquale M. Petrucci, Orange, Conn.; Joseph S. Linarducci, Wilton, Conn.; John Hamma, Milford, Conn., and John Montgomery, Trumbull, Conn., assignors to Becton, Dickinson and Company, East Rutherford, N.J.
Division of Ser. No. 15,469, March 2, 1970, Pat. No. 3,706,499. This application Aug. 18, 1972, Ser. No. 281,915
Int. Cl. G01d *21/00*
U.S. Cl. 116—114 R **2 Claims**

A blood testing system which includes a colorimeter for observing the light transmission characteristics of a reacted blood sample to determine the concentration of a particular component. The colorimeter includes a lamp, a sample holding well, a photocell, and a meter having a needle to indicate the output of the photocell. A removable module is provided which is adapted to plug into the circuitry of the instrument and adjustably calibrate the instrument for a particular blood determination. The module includes a printed scale which is designed to be positioned immediately adjacent the meter needle when the module is operatively connected to the colorimeter, the units of the scale being correlated to the particular blood determination of the module such that the scale reads directly in the units of the test being conducted. By employing a number of modules, each being color-coded and calibrated for a a particular blood determination, the colorimeter may be easily adapted to perform a number of tests by merely inserting the appropriate module. A carousel is provided for mounting several modules in the instrument, the carousel being rotatable to sequentially translate individual modules to the operative position adjacent the output needle of the meter. A number of filters are provided for the colorimeter, and a mechanism is incorporated which is designed to selectively position individual filters in the light path of the colorimeter. A patient record card is provided which is adapted to overlie and be temporarily affixed to the module. The card, which may also be color-coded, includes a scale which overlies the scale of the module, this scale being adapted to be marked to serve as a permanent record of the test determination. A removable tear-off tab is associated with the card which may be utilized to identify a blood sample by patient number and test. A number of marked cards, obtained over a period of time for a particular test, is adapted to be placed in overlapping relationship whereby the test results will be displayed as a graph plotted against time. A folder is provided to retain the cards in such overlaping relationship, the folder having a clear plastic overlay with indicia thereon to indicate the normal range of the test results. The cuvette containing the reagent required for the blood determination is provided with a molded plastic cap which is designed to retain a capillary within the cuvette when the cap is attached. For this purpose, the cap includes an integral depending flap having an aperture therethrough, the aperture being designed to threadedly receive the capillary.



3,832,970
FLOW INDICATOR

Rutger Einar Viktor Nilsson, Sodertalje, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden
Filed Nov. 27, 1972, Ser. No. 309,725
Claims priority, application Sweden, Dec. 3, 1971, 15533/71; May 12, 1972, 6305/72
Int. Cl. G01f *15/00*
U.S. Cl. 116—117 R **6 Claims**

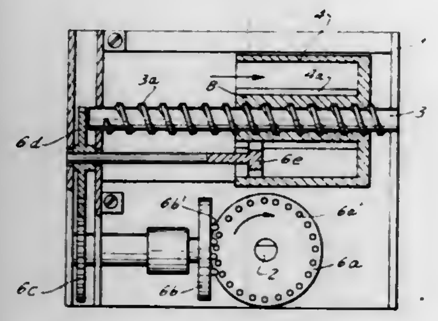


During a small liquid flow to the indicator chamber, the liquid level therein is low due to a bottom outlet having capacity for only the small flow; and when a large flow to the chamber causes the liquid to rise to a high level, liquid also discharges through an outlet of large capacity. A device is provided to indicate which of the two levels prevails in the chamber; and means are also provided for increasing the through-flow area of the bottom outlet in response to the large liquid flow to the chamber, thereby allowing discharge of accumulated particles which could not pass through this outlet during the small liquid flow.

3,832,971

CHANNEL NUMBER DISPLAY DEVICE

Hiroshi Yanagawa, Kakuda, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan
Filed July 23, 1973, Ser. No. 381,988
Claims priority, application Japan, Aug. 8, 1972, 47-92967
Int. Cl. H03j *1/02*
U.S. Cl. 116—124.1 **2 Claims**

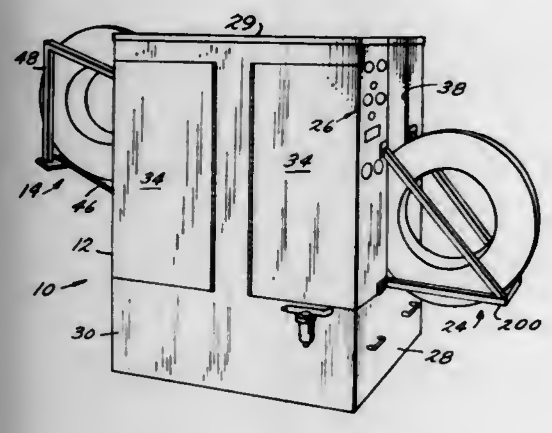


A channel number display device for use in a television tuner or the like includes a cylindrical display drum having printed on the periphery thereof a series of helically arranged channel numbers, means operably connected to the channel selector shaft of the tuner for rotating and axially displacing the drum in response to the rotation of the selector shaft such that the appropriate number is visible through a display window located in front of the display drum.

3,832,972

TIRE TRIMMING AND PAINTING DEVICE

Hubert Julian Pace, 8th & State St., Bowling Green, Ky. 42101
Filed July 30, 1971, Ser. No. 167,785
Int. Cl. B05c *5/00*
U.S. Cl. 118—2 **17 Claims**

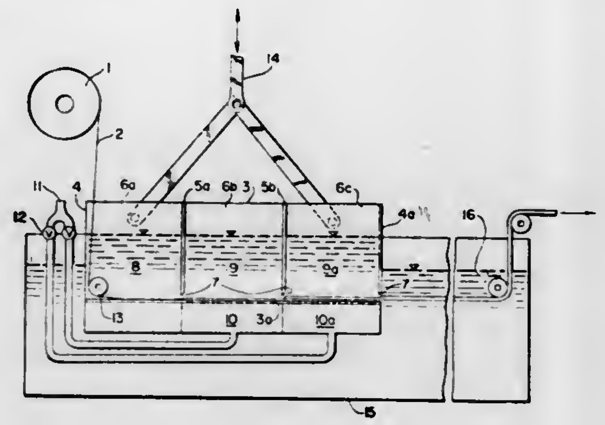


A vehicle tire with protruding nibs rolls down a ramp and into the device and begins to be rotated thereby. Knife means facing into the direction of rotation of the tire are skimmed over the left sidewall, the tread, and the right sidewall of the rotating tire at least once to trim off the nibs. Then paint is preferably sprayed upon the tire sidewalls, whereupon the processed tire is ejected from the device by application of brake means, preferably in combination with bumping the tire being ejected from the rear with another tire entering the device for processing. Cycling of the device may be automatically controlled. In the spray-painting operation, black paint may be applied to one sidewall as white wall protector is applied to the other.

3,832,973

APPARATUS FOR THE PRODUCTION OF A MULTI-LAYER SHEET MATERIAL OF MICROPOROUS STRUCTURE

Dieter Beissel, Wiesbaden; Peter Dinter, Wiesbaden-Biebrich, and Klaus Andra, Eschenhahn, all of Germany, assignors to Kalle Aktiengesellschaft, Wieskaden-Biebrich, Germany
Continuation of Ser. No. 135,460, March 22, 1971, abandoned, which is a division of Ser. No. 6,214, Jan. 27, 1970. This application Sept. 25, 1973, Ser. No. 400,501
Int. Cl. B05c *3/132*
U.S. Cl. 118—50 **4 Claims**

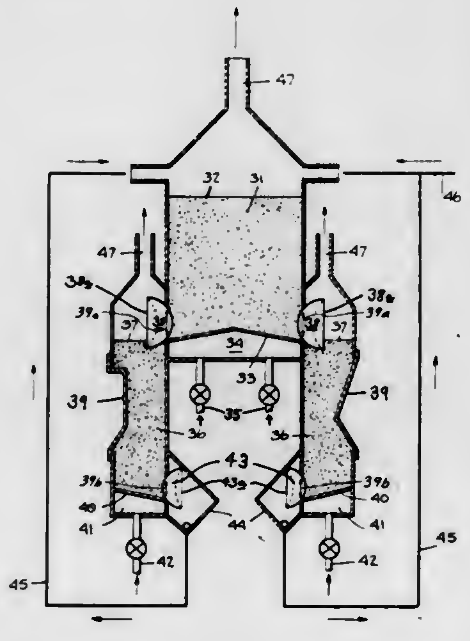


This invention relates to an apparatus for use in the production of multi-layer sheet material which comprises a reservoir, container means in the reservoir, means for raising and lowering the container means in the reservoir, at least one partition in the interior of the container means, slot means in the partition and one end wall of the container, and means for passing a web through said slot means.

3,832,974

FLUIDIZED BED COATING APPARATUS

Gerald E. Adams, Mishawaka; Robert O. Borton; Alfred J. Dabrowski, Jr., both of South Bend; Vernon A. Falkenau, and James H. Flood, both of Mishawaka, all of Ind., assignors to Uniroyal, Inc., New York, N.Y.
Filed Apr. 25, 1972, Ser. No. 247,500
Int. Cl. B05b *7/12, 7/14;* **B05b** *7/24*
U.S. Cl. 118—408 **4 Claims**

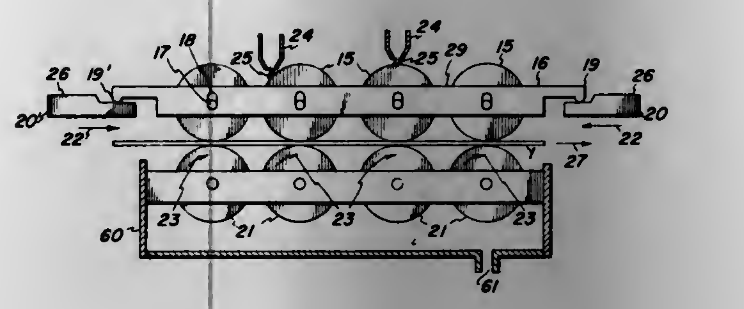


Apparatus and method for effecting fluidized bed coating of a surface of an article, such as a mold for an auto mat, wherein an outside wall of a fluidized bed chamber containing a fluidized bed of powdered thermoplastic coating material has an opening into which the article is inserted thereby sealing the opening.

3,832,975

ELECTRO-PHOTOGRAPHIC APPARATUS

Osamu Fukushima; Masamichi Sato, and Seiji Matsumoto, all of Asaka, Japan, assignors to Rank Xerox, Ltd., London, England, by said Fukushima and Matsumoto
Filed Mar. 13, 1972, Ser. No. 234,285
Int. Cl. G03g *13/00*
U.S. Cl. 118—637 **4 Claims**

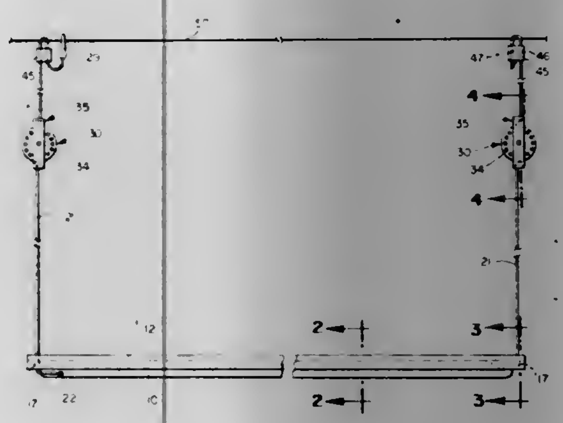


In the development of electrostatic latent images with liquid electrophoretic developer utilizing a development electrode, the spacing between the electrode and the latent image is made selectively adjustable, to control the degree of background fog occassioned by the electrode effect and the extent of edge phenomenon present in the print.

3,832,976

COW TRAINER

Paul M. Sands, R.D. 2, Coatesville, Pa. 19320
Filed Nov. 8, 1973, Ser. No. 414,160
Int. Cl. A01k *29/00*
U.S. Cl. 119—27 **2 Claims**



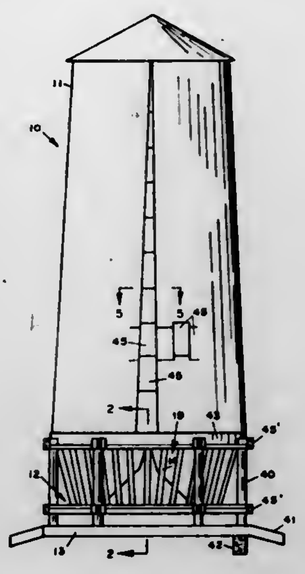
A corrosion-resistant height-adjustable electrical contact shock device for use in cow stalls, or other animal stalls, is so insulated and designed that the height adjustment may be made without disconnecting the electrical circuit and without exposing the attendant to the hazard of electrical shock.

3,832,977

FEEDING DEVICE

Lyle H. Ladewig; Elmer E. Ladewig, and Lester G. Ladewig, all of R.R. No. 1, Stockton, Minn. 55988
Filed May 5, 1972, Ser. No. 250,523
Int. Cl. A01k *5/00*
U.S. Cl. 119—52 R **7 Claims**

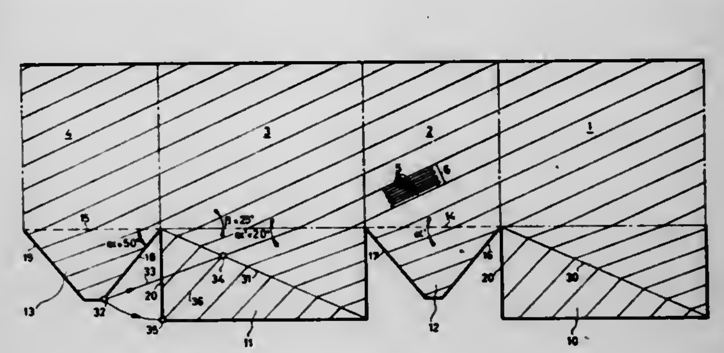
An animal feeding device having a wall which tapers outwardly as it progresses downwardly to allow feed to move down with no restriction and provided with in inwardly directed gridwork toward the bottom with an opening therein to permit animals to take feed from the inside of the feeding device.



3,832,978

TUBING FOR A COMBUSTION CHAMBER

Alfred Brunner, Winterthur, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland
Filed Mar. 22, 1973, Ser. No. 344,053
Claims priority, application Switzerland, Mar. 17, 1972, 4012/72
Int. Cl. F22b *37/20*
U.S. Cl. 122—6 A **4 Claims**



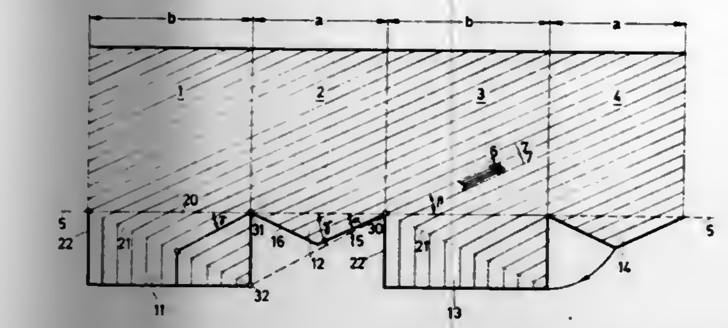
The tubing is formed with a developed surface so that the number of tubes passing out of the side edges of the rectangular surfaces of the funnel-shaped bottom is equal to the number of tubes passing out of the adjacent side edges of the trapezoidal surfaces. The angle of the tubes at entry into the four surfaces of the funnel-shaped bottom can also be the same as the tube angle in the vertical walls of the combustion chamber.

3,832,979

TUBING FOR A COMBUSTION CHAMBER

Heinz Ammann, Winterthur, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland
Filed Mar. 26, 1973, Ser. No. 344,582
Claims priority, application Switzerland, Mar. 30, 1972, 4783/72
Int. Cl. F22b *37/20*
U.S. Cl. 122—6 A **3 Claims**

The tubing is formed with a developed surface in which the tubes in the triangular sections are all parallel to one of the two equal sceles at an angle α and all extend into the tubes of an adjacent rectangular surface via 90° bends. The tubes in the rectangular surfaces extend from the combustion chamber walls and the triangular surfaces at an angle $\gamma = \text{arc ctg}$ (2



$\cos\alpha$) and are bent at intermediate points to extend uniformly to the lower edge of the respective rectangular surface.

3,832,980
COMBINED HYDRAULIC SPEED-CHANGE, COOLING AND LUBRICATING SYSTEM IN ROTARY ENGINE

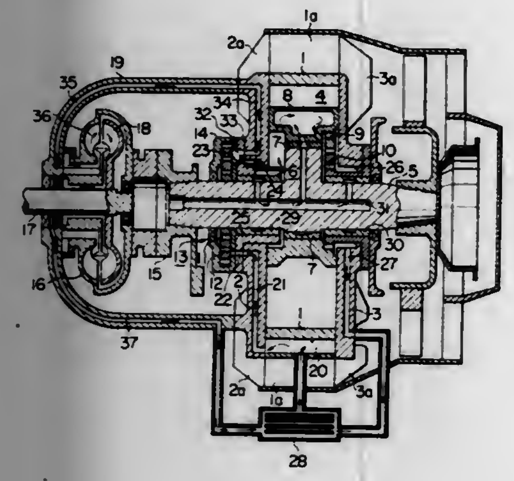
Tetsuzo Fujikawa; Masahisa Kawano, and Masaru Yamamoto, all of Akashi, Japan, assignors to Kawasaki Jyukogyo Kabushiki Kaisha, Hyogo-ken, Japan

Filed May 24, 1973, Ser. No. 363,739

Claims priority, application Japan, May 27, 1972, 47-52870

Int. Cl. F02b ***53/14***

U.S. Cl. 123—8.01 **3 Claims**



A multipurpose hydraulic system in a rotary IC engine with a hydraulic speed-change mechanism coupled thereto is provide with a common oil pump driven by the engine to pump common oil to the speed-change mechanism to operate the same, to the rotor of the engine to cool the same, and to the engine bearings to lubricate and cool the same.

3,832,981
FUEL INJECTION CONTROL SYSTEM

Hisato Wakamatsu, Kariya, and Kunio Endo, Anjo, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

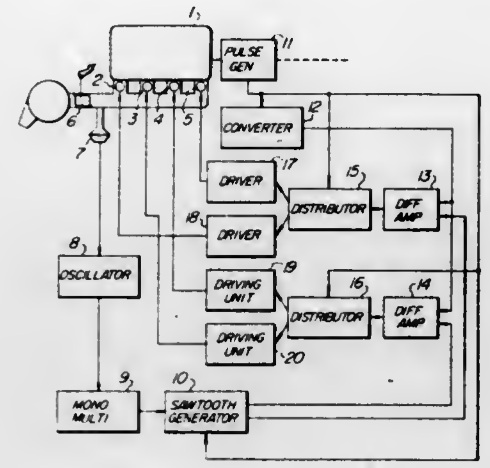
Continuation-in-part of Ser. No. 846,699, Aug. 1, 1969, abandoned. This application Aug. 24, 1971, Ser. No. 174,433

Claims priority, application Japan, Aug. 7, 1968, 43-55916; Sept. 10, 1968, 43-65038

Int. Cl. F02m ***51/00***

U.S. Cl. 123—32 EA **16 Claims**

A fuel injection control system for controlling the timing and duration of an electrical driving pulse to electromagnetic fuel injection valves thereby controlling the timing and duration of fuel injected into combustion chambers of an engine. The control system utilizes a differential circuit to compare an electrical signal representing one engine parameter such as engine rpm with a synchronous sawtooth signal having a slope representing another engine parameter such as back pressure or to compare a first signal level with a sawtooth signal where at least one of the first signal level or the sawtooth slope is related to an engine operating parameter and to thereby generate the required driving pulses. Since the timing and duration of the driving pulses are determined entirely by comparison of electrical analogs of instantaneous engine parameters, the pulse duration is not critically dependent upon electrical circuit parameters such as RC time constants which often vary with age and/or environment.



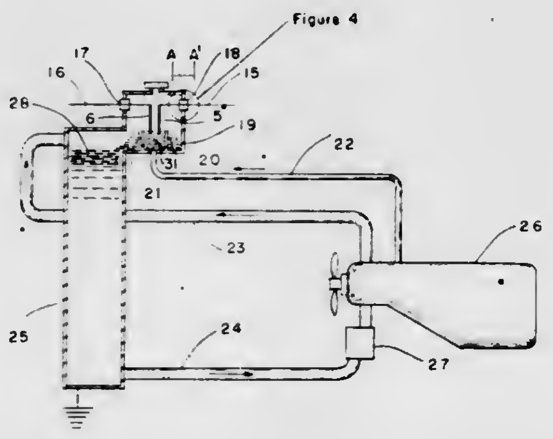
3,832,982
COOLANT LOSS OR COOLANT PUMP MALFUNCTION DETECTION SYSTEM FOR INTERNAL COMBUSTION ENGINES

Helmut Guehr, Ruthdale, W. Va. 25304

Filed Sept. 10, 1973, Ser. No. 395,740

Int. Cl. F01p ***5/14, 11/14***

U.S. Cl. 123—41.15 **8 Claims**



A detection system for indicating coolant loss or coolant pump malfunction in a liquid cooled internal combustion engine has been designed which consists of an auxiliary tank in communication with the radiator of the engine such auxiliary tank having enclosed within it an overflow cup designed to direct coolant flow over two condition-sensing devices or probes. In normal engine operation, coolant, which is electrically conductive, flows over the probes and an electrical current is maintained between the two probes. Circuitry attached to these probes indicate this to be a normal condition. When no coolant flows across the probes, either because of coolant loss or pump malfunction, another circuit is activated which switches on a warning light located on the dash of the motor vehicle indicating lack of coolant flow.

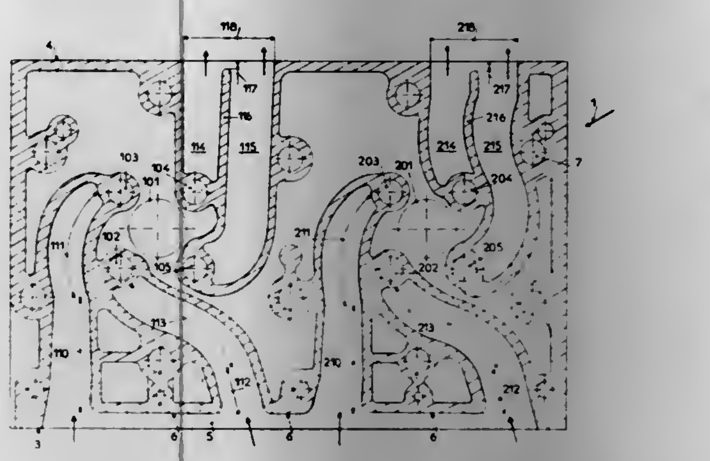
3,832,983
CYLINDER HEAD FOR AN INTERNAL COMBUSTION ENGINE

Jean Nickly, 2 rue Le Royer, Lyon 3 (Rhone), France

Filed Feb. 16, 1972, Ser. No. 226,720

Int. Cl. F02m ***35/10***

U.S. Cl. 123—75 B **1 Claim**



A cylinder head for an internal combustion engine, adapted to fit two or more adjacent cylinders, is provided with, for each cylinder, two spaced apart inlet valves and outlet valves grouped around a central injector. The inlets extend from a first side face of the head, which is provided with a common depression, while the outlets open onto a second side face opposite the first side face. Each of the inlets is provided with a specific configuration such that the flow of gases about each inlet valve is substantially equal. The outlets have a common partition which terminates short of the second side face such that they merge into a single outlet proximate the second side face. Further, the present invention contemplates analogously configured adjacent cylinders.

3,832,984
INTAKE AND EXHAUST MANIFOLD DEVICE OF AN INTERNAL COMBUSTION ENGINE

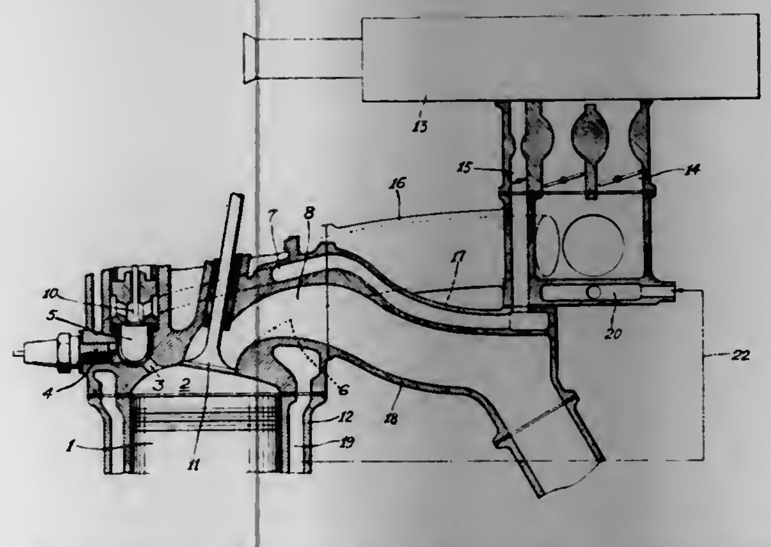
Fiji Taguchi, Tokyo, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed June 22, 1973, Ser. No. 372,765

Claims priority, application Japan, June 28, 1972, 47-64669

Int. Cl. F02m ***31/00;*** **F02b** ***75/02***

U.S. Cl. 123—122 AB **2 Claims**



A manifold arrangement for a reciprocating, internal combustion engine of the type having an auxiliary combustion chamber associated with each main combustion chamber. The manifold arrangement includes one system for delivering a rich air-fuel mixture to each auxiliary combustion chamber, a second system for conducting a lean air-fuel mixture to each main combustion chamber and a third system for exhausting each main combustion chamber. The intake system associated with each auxiliary combustion chamber is in thermal communication with the exhaust manifold system for rapid heating of the rich air-fuel mixture. The intake associated with each main combustion chamber is in thermal communication with the coolant system of the engine for insuring good vaporization of the incoming mixture.

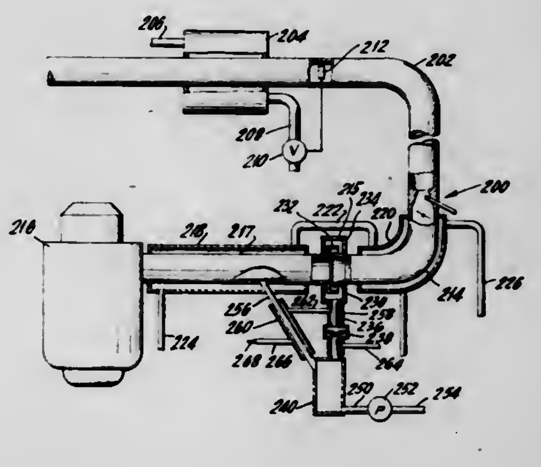
3,832,985
NON-POLLUTION CARBURETION SYSTEM FOR ENGINES

Robert C. Edde, P.O. Box 3294, Beirut, Lebanon

Filed June 11, 1971, Ser. No. 148,201

Int. Cl. F02m ***29/00, 31/00;*** **F02p** ***5/04***

U.S. Cl. 123—141 **45 Claims**



A fuel and ignition control system for an internal combustion engine for decreasing engine fuel consumption and for decreasing carbon monoxide and unburned hydrocarbon exhaust emissions which includes a carburetor, a pressurized fuel tank vented, when over-pressurized, to the carburetor, a high speed venturi and at least one idle and low speed venturi in the carburetor, a throttle in the carburetor and means connected to the throttle for vacuum controlling the igniting distributor in response to the position of the throttle, a thermostatically controlled heated air inlet duct connected to the carburetor and heated from the engine coolant pump, a dry proportioning accelerating system connected to said carburetor for increasing fuel flow through said carburetor in response to the rate of engine intake manifold pressure rise, an engine coolant heated fuel evaporator connected to the air-fuel outlet of the carburetor, a liquid fuel interceptor and recuperator connected at one end to the fuel evaporator and connected at its opposite end to the intake manifold, means for drawing liquid fuel from the interceptor and recuperator and for evaporating at least a portion of the liquid fuel and returning such vapor to the intake manifold and means for heating the intake manifold with engine coolant.

3,832,986
CAPACITOR DISCHARGE IGNITION SYSTEM INCLUDING SPARK DURATION EXTENDER MEANS

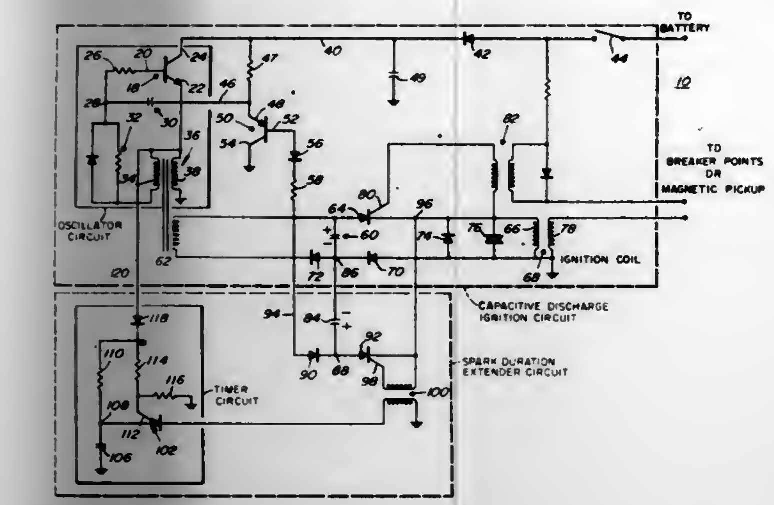
Peter Dogadko, Chicago, Ill., assignor to Motorola Inc., Franklin Park, Ill.

Filed Dec. 14, 1972, Ser. No. 315,267

Int. Cl. F02p ***1/00***

U.S. Cl. 123—148 OCD **8 Claims**

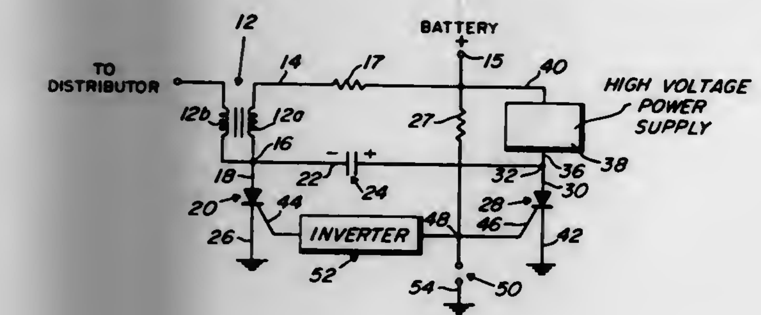
A capacitive discharge ignition system for providing an extended ignition coil output voltage duration includes main and auxiliary storage capacitors connected to an ignition coil. A charging oscillator provides charging current for both capacitors. A first SCR triggered by the engine points or magnetic breakerless assembly, discharges the main capacitor into the ignition coil. A timer circuit operable in response to the discharge of the main capacitor triggers the second SCR connected to the auxiliary capacitor and ignition coil after a predetermined time delay. The triggering of the second SCR discharges the auxiliary capacity into the ignition coil. The successive discharging of the main and auxiliary capacitors provides the increased ignition coil output voltage duration.


TO BATTERY
10
TO BREAKER POINTS OR MAGNETIC PICKUP
OSCILLATOR CIRCUIT
IGNITION COIL
CAPACITIVE DISCHARGE IGNITION CIRCUIT
SPARK DURATION EXTENDER CIRCUIT
TIMER CIRCUIT

3,832,987
INDUCTIVE STORAGE IGNITION SYSTEM

Philip D. Gunderson, Prospect Heights, and Chi Sun Lai, Lake Zurich, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 2, 1973, Ser. No. 337,615
Int. Cl. F02p *1/00*
U.S. Cl. 123—148 E **4 Claims**



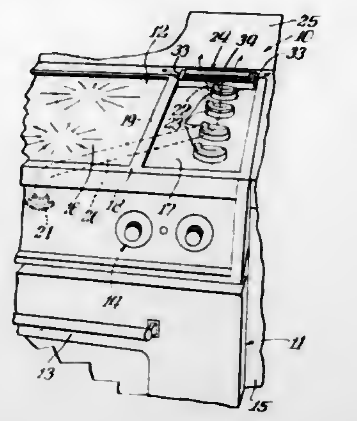
An inductive storage ignition system for an internal combustion engine includes a pair of silicon controlled rectifiers (SCR's) between the anodes of which is connected a commutating capacitor. The anode of a first one of the SCR's is connected to the vehicle ignition coil which in turn is connected to the positive terminal of the vehicle battery. The anode of the other SCR is connected to a direct current high voltage source. The gate electrodes of the SCR's are connected to the ignition points of the vehicle for alternate operation thereby. The high voltage source charges the commutating capacitor which supplies a reverse direct current high voltage pulse at the anode of the first SCR upon operation of the second SCR to conduction by the points, to ensure turn off of the first SCR despite any forward voltage transients produced at the ignition coil.

3,832,988
OVEN VENT FOR SMOOTH TOP RANGE

John T. Doner, Marion, Ohio, assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Jan. 2, 1974, Ser. No. 430,176
Int. Cl. F24c *3/00*
U.S. Cl. 126—21 R **13 Claims**

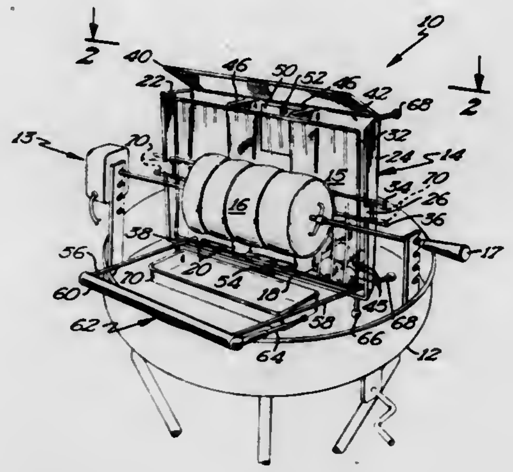
A smooth top range having a vent for venting hot oven gases through the continuous panel cooktop portion. The vent is arranged to direct the gases away from manually operable control elements disposed on the cooktop so as to avoid high temperature conditions thereof and to avoid directing of the hot gases against a user thereof.



3,832,989
CHARCOAL FIREBOX

Robert O. Belford, 7114 Oliver Ave. South, Minneapolis, Minn. 55423

Filed Sept. 10, 1973, Ser. No. 396,077
Int. Cl. A47j *37/04;* **F24b** *3/00*
U.S. Cl. 126—25 R **8 Claims**



A charcoal firebox for use as an accessory with a rotisserie, brazier or the like comprises a metallic enclosure for a layer of burning coals, the enclosure defined by a grill removably mounted to an open face pan. The grill is formed of spring tensionable material and is spaced from and confronts the central reflector plate of the pan, the spacing between grill anc central plate being less at the bottom of the grill than at the top so that an unburned or newly ignited coal fits easily between plate and grill at the top of the grill but such coals at the bottom of the grill bow the grill forwardly outwardly from the central plate, spring tensioning the grill and generating a grill restoring force causing the lower end of the grill to exert rearwardly directed force on the adjacent coals, retaining them against the central plate as the spring tensioned grill bottom moves rearwardly to follow the coals toward the central plate retaining them against the central plate as the coals are reduced in size by combustion; this structure assures that coals adjacent the top of the grill do not drop to the bottom until the coals adjacent the bottom are substantially reduced in size thereby preserving the single layer depth of coals for a prolonged period.

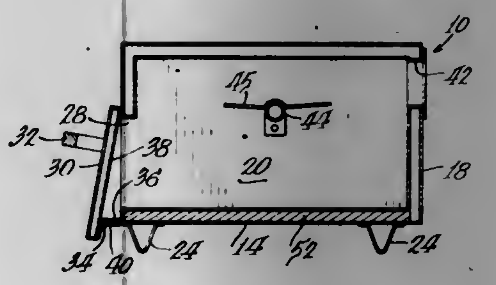
Divider ribs on the central reflector plate divide the enclosure into three compartments, permitting burning coals to be concentrated in one or more of these compartments for improved cooking efficiency. The firebox has a handle assembly extending forwardly from the pan to permit the pan to be placed at various angles relative to the rotisserie to achieve improved cooking results. The handle assembly is weighted

sufficiently that when the handle assembly is raised and lowered relative to a horizontal plane to change the angle of the pan relative to the plane, the pan will not tip rearwardly. Support means is mounted to the handle assembly and is extendable toward the brazier bowl to retain the handle at a plurality of predetermined distances above the brazier, controlling the angle between pan and brazier bowl for optimum cooking results.

3,832,990
PORTABLE BROILER

Charles P. Trosch, P.O. Box 919, Oak Park, Ill. 60303

Filed Apr. 16, 1973, Ser. No. 351,165
Int. Cl. A47j *37/00;* **F24c** *5/08*
U.S. Cl. 126—41 R **4 Claims**

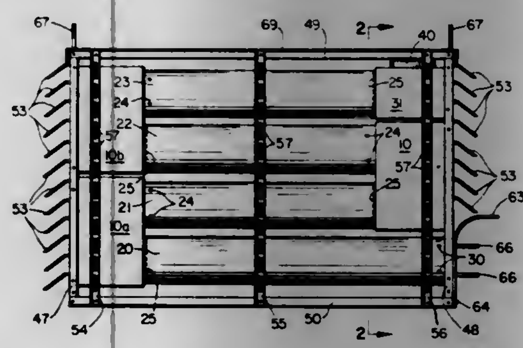


A completely portable broiler which comprises an enclosure having a single gas burner located above a heat retaining metal casting assembled in the bottom of the enclosure, which upon being preheated, permits food to be cooked on both sides simultaneously without the flame touching the food, or without burning any liquid, such as fat, which is emitted from the food while cooking. The enclosure includes a door at one side together with openings to enable upward ventilation through the oven while cooking, aided by exhaust openings along the top of the rear wall.

3,832,991
RADIANT SPACE HEATER

Irvin L. Schlosser, 29 E. Broad St., Hatfield, Pa. 19440

Continuation-in-part of Ser. No. 281,743, Aug. 18, 1972, abandoned. This application June 21, 1973, Ser. No. 372,076
Int. Cl. F24c *3/06*
U.S. Cl. 126—91 A **12 Claims**

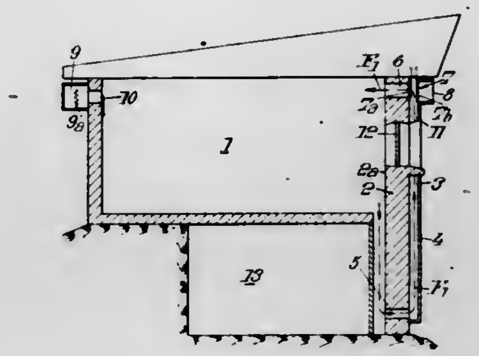


A radiant space heater includes separate and functionally distinct module units for (a) supporting a burner, (b) reversing the flow of combustion gases, and (c) supporting a tube end for discharge into a chimney, combustion tubes connecting them in serial order and two side frames which support the module units and which are themselves held in spaced relationship by the module units.

3,832,992
NATURALLY AIR-CONDITIONED DWELLINGS

Felix Trombe, Paris, and Jacques Michel, Neuilly-sur-Seine, both of France, assignors to Agence Nationale De Valorisation De La Recherche (Anvar), Courdevoie, France

Filed June 26, 1972, Ser. No. 265,989
Claims priority, application France, June 29, 1971, 71.23778
Int. Cl. F24j *3/02*
U.S. Cl. 126—270 **17 Claims**

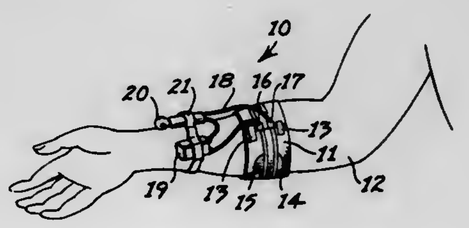


The dwelling is equipped with an installation for natural convective air conditioning comprising at least one thermal enclosure bounded by a frontage element of the dwelling exposed to solar radiation and an outer wall transparent to solar radiation and opaque to the far infrared radiation. This outer wall is arranged close to said frontage element, the top and the bottom of this thermal enclosure being able to communicate with the dwelling. The thermal enclosure has at its upper portion, first distributor means arranged to direct hot air into the dwelling or to the outer and the dwelling has a cold air inlet device provided with closure means.

3,832,993
BLOOD DETECTING DEVICE

Wendell V. Clipp, 900 Robertson Academy Rd., Nashville, Tenn. 37220

Filed Sept. 13, 1972, Ser. No. 288,501
Int. Cl. A61b *5/00*
U.S. Cl. 128—2 R **1 Claim**



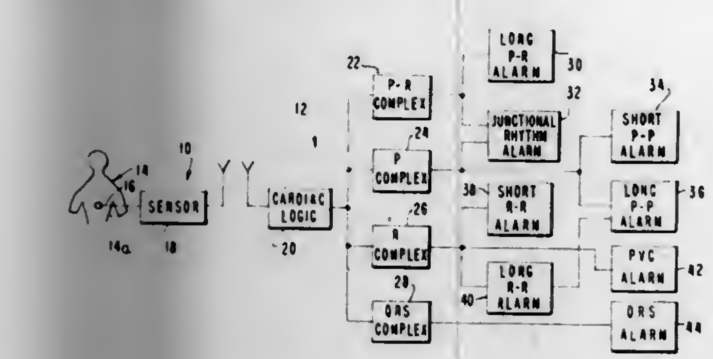
A blood detecting device including an elongated, flexible tape member comprising an electrical insulating member supporting a pair of electrical conductors connected to a circuit including a source of electrical energy and an electrically energized signal for application to an area likely to be exposed to the flow of blood, such as the body of a human or animal or to conduits of blood in blood handling apparatus.

3,832,994
CARDIAC MONITOR

Haim I. Bicher, Charleston, S.C., and Lon A. Sorenson, Cherry Hill, N.J., assignors to Mediscience Corporation, Collingswood, N.J.

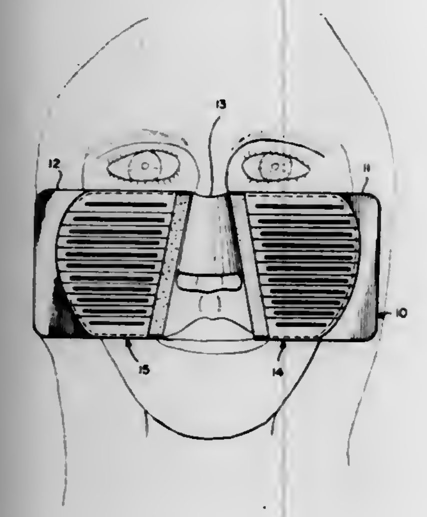
Filed Apr. 21, 1972, Ser. No. 246,124
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 A **10 Claims**

A cardiac monitor provides a real time analysis of critical cardiac functions. The cardiac monitor includes a first unit which, via a plurality of electrodes, is utilized to sense atrial and ventricular activity of a patient's heart to provide an analog EKG signal which includes the P,Q,R,S and T components of the analog EKG signal. The analog EKG signal is converted to a voltage controlled frequency modulated signal which is transmitted, via an FM transmitter, to a remote second unit which is advantageously carried by the patient. In the second unit, the analog EKG signal is detected in an FM detector and processed in an analog to digital converter which provides digital pulses related to the P,Q,R,S and T components of the analog EKG signal. The digital pulses are processed in various logic processing circuits which develop signals containing cardiac information. The cardiac information signals are analyzed to provide various alarm signals responsive to the sensing of cardiac abnormalities. Among the abnormalities which are sensed are atrial and ventricular bradycardias, atrial and ventricular tachycardias, long ventricular contractions, long atrial to ventrical conductions, premature ventricular contractions and junctional rhythms.



3,832,995
FACIAL REDUCING APPARATUS

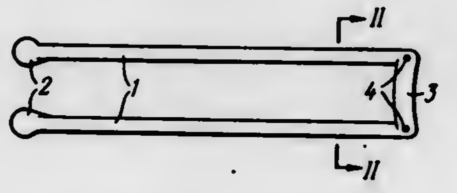
Ralph E. Welch, 914 Winthorne Dr., Nashville, Tenn. 37217
Filed Apr. 2, 1973, Ser. No. 346,961
Int. Cl. A61h 29/00
U.S. Cl. 128—24.1 **4 Claims**



A cosmetic device including a thin sheet of relatively nonporous plastic material, such as polyethylene, and two pressure pads, each pad comprising a hand-size resilient pad with relatively rigid shell adhered to one major surface. The plastic sheet is placed across the face below the eyes, above the eyes, against the cheeks or any location on the face or neck where reduction is desired, and the pressure pads are placed thereon with the other major surface pressed against the cheeks to produce heat with pressure, causing perspiration and temporary decrease in the volume of fatty areas beneath the sheet. Application of the device is accompanied, preceded and/or followed by exercise of the facial muscles. Each pressure pad is a sponge rubber or the like material of convenient size and thickness to be held in the hand. The relatively stiff shell is provided with elongated stiffening ribs and with slots to permit limited vapor permeation therethrough. Each shell has a partial skirt extending around a portion of the sponge rubber to control the distortion of the sponge rubber as it is placed against the face. In another embodiment each hand-held pad is provided with a sheet of nonporous plastic partially surrounding and attached to the pad and shell. The separate sheet is dispensed with. The above can be used in conjunction with steam generating means.

3,832,996
ENDOPROSTHESIS FOR THE PENIS AND A METHOD OF ENDOPROSTHETIC REPAIR

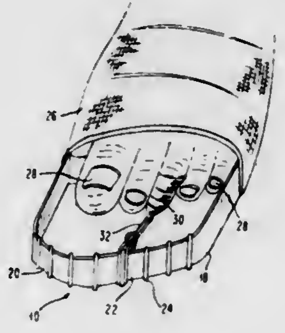
Viktor Konstnatinovich Kalnberz, ulitsa Stendera 13, kv. 2, Riga, U.S.S.R.
Filed Jan. 15, 1973, Ser. No. 323,364
Claims priority, application U.S.S.R., Feb. 4, 1972, 1741410
Int. Cl. A61f 5/00
U.S. Cl. 128—79 **7 Claims**



Two bars made of an alloplastic material are interconnected by a cross-piece which, when the prosthesis is installed in the penis, is disposed at the pubic bone and serves as a support for the prosthesis. The opposite ends of the bars have spherical bulges disposed near the glans when the prosthesis is placed in the cavernous bodies. Endoprosthetic repair consists in incising the skin, the subcutaneous connective tissue and the penis fascia at the base of the cavernous bodies. Between the fascia and the albuginea tunica of the cavernous bodies channels are formed, through which the endoprosthesis is inserted, with its spherical bulges directed toward the glans, until these bulges are immersed in the cavernous bodies near the glans. The cross-piece is positioned at the pubic bone. Then the endoprosthesis is sutured to the surrounding tissues, the ligature being passed through the orifices in the endoprosthesis.

3,832,997
ORTHOPEDIC DEVICE FOR COMBINATION WITH A PLASTER CAST

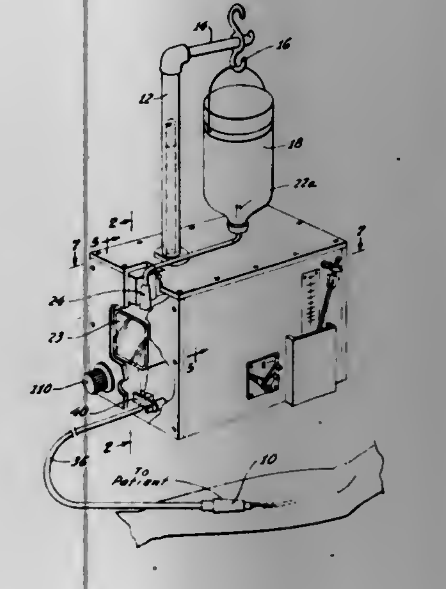
Richard R. Cappelletti, Kinderhook, N.Y., assignor to Lambda Development Ltd., Albany, N.Y.
Filed Aug. 30, 1972, Ser. No. 284,957
Int. Cl. A61f 5/04
U.S. Cl. 128—85 **21 Claims**



The device is intended for combination with a plaster cast of the type which is applied to the foot of a fracture patient and leaving the toes uncovered. The device comprises a U-shaped member adapted to be attached at the ends thereof to the opposite sides of a plaster cast and extending around the front of the cast to protect the patient's toes, and to serve as a toe traction splint when required.

3,832,998
INTRAVENOUS FEEDING APPARATUS

David Paul Gregg, P.O. Address Calle Iturbo, 12, Madrid, Spain
Filed Jan. 30, 1973, Ser. No. 328,052
Int. Cl. A61m 5/16
U.S. Cl. 128—214 E **10 Claims**

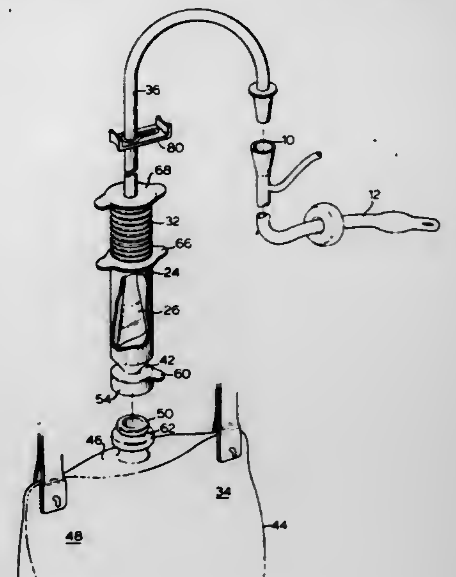


Improved intravenous feeding apparatus, and the like, is provided for controlling the drip flow of an intravenous solution into the patient's vein so that a pre-set drip rate may be maintained. The embodiment of the invention to be described includes an internal mechanical differentiating means which compares the actual drip rate of the solution through a receptacle with a pre-set drip rate, and which responds to any deviation of the actual drip rate from the pre-set drip rate to correct the flow of the solution so that the actual drip rate is maintained in correspondence with the pre-set drip rate at all times. The actual drip rate is detected by mounting a vane and magnetic member inside a receptacle through which the solution is dripped, the vane responding to each drip to turn itself and the magnetic member reciprocally about an axis. An external magnetic member responds to movements of the internal magnetic member to control a first mechanism which is coupled to the differentiating means. A metronome type of timer, which is set in correspondence with the pre-set drip rate is also coupled to the differentiating means, so that the differentiating means may compare the actual drip rate with the pre-set drip rate. Any departure of the actual drip rate from the pre-set drip rate causes the differential means to change the flow of the solution through the receptacle so as to compensate for the departure.

3,832,999
STERILE DRAINAGE ASSEMBLIES

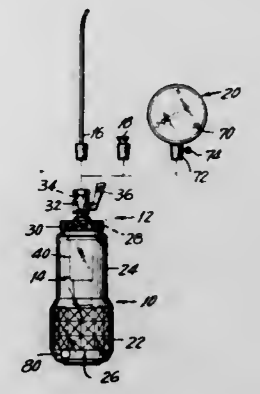
Robert R. Crilly, 47 Normark Dr., Thornhill, Ontario, Canada
Filed June 22, 1972, Ser. No. 265,246
Int. Cl. A61f 5/44
U.S. Cl. 128—275 **3 Claims**

For use in sterile drainage procedures, particularly in medicine and surgery and designed for insertion in the fluid communication line between a catheter and a sink, a rigid-walled jacket enclosing a dry chamber is introduced. This chamber is provided with upstream and downstream end intake and discharge ports respectively and contains a downstream-opening elongated elastomeric flutter valve secured to the upstream chamber-end in communication with said intake port. Manually operable pump means co-axial with the jacket and on the upstream side thereof also communicate with the said intake port. A cap may be integrally secured to the downstream end of the jacket to seal the intake aperture of an elastomeric collapsible sink in the form of a drainage container having a rigid upper wall in which said aperture is located, such rigid upper wall maintaining the upper parts of the collapsible side walls spaced apart to facilitate fluid reception.



3,833,000
MEDICAL ASPIRATION SYSTEM

Henry Bridgman, P.O. Box 71, Convent Station, N.J. 07961
Filed June 2, 1972, Ser. No. 258,960
Int. Cl. A61m 1/00
U.S. Cl. 128—276 **15 Claims**

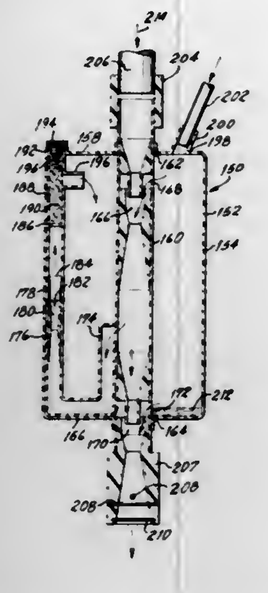


A medical vacuum aspiration system preferably for use in vacuum abortions and diagnostics. The system is designed for operation at high vacuum and includes a single transparent container which provides the reservoir of vacuum, the chamber for collecting the aspirated products, a trap for the collection of tissue and the handle for the cannula. The container is provided with a cap and valve on which the cannula is directly mounted. The invention also includes a preferred method for producing high vacuum inside of the chamber.

3,833,001
PORTABLE DEMUCOSANT

Michael A. Abrahams, East Orange, N.J.; Alvin Brent Blacksburg, Flushing, N.Y., and Sidney Rand, Elmhurst, N.Y., assignors to Breath-E-Z Corporation, Flushing, N.Y.
Filed Aug. 6, 1971, Ser. No. 169,780
Int. Cl. A61m 1/00
U.S. Cl. 128—277 **16 Claims**

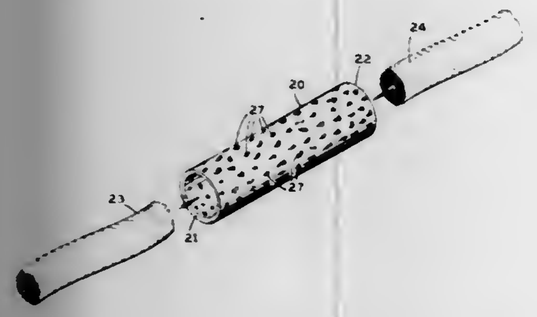
A portable, self-cleansing apparatus for aspiration and removal of sinus fluids and/or tracheal secretions, etc., is shown. The apparatus includes a vessel and a venturi tube extending into the vessel which draws a vacuum therein. In a preferred embodiment of the invention the venturi tube passes through the vessel and includes a recirculation conduit downstream of the vena contracta of the venturi for providing a cleansing, recirculating flow of motive water into the vessel. The recirculation conduit may have a water treatment length and flow control and measuring devices to measure the



vacuum drawn in the vessel. In another embodiment the apparatus includes a second vena contracta in the bottom portion of the venturi tube for aspiration of collected matter from the interior of the vessel. The apparatus of this invention may be used conveniently and with safety in the home by children and adults.

3,833,002
APPARATUS FOR AIDING SEVERED NERVES TO JOIN

James R. Palma, 1502 Curry Rd., Schenectady, N.Y. 12306
Filed Sept. 10, 1973, Ser. No. 395,906
Int. Cl. A61b ***17/04***
U.S. Cl. 128—334 R **7 Claims**

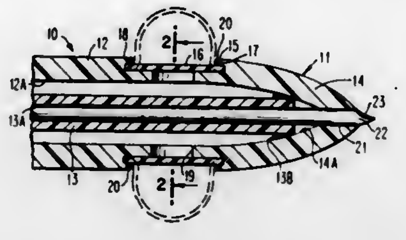


A surgical tube for aiding severed nerves to join, composed primarily of a slow-dissolving material and having small, discrete areas which dissolve faster. These discrete areas may be provided by particles of a different, faster-dissolving material that are embedded in the tube wall, or by a greatly reduced thickness of the tube wall itself at these areas.

3,833,003
INTRAVASCULAR OCCLUDING CATHETER

Alfred Taricco, 5 Miron Dr., Poughkeepsie, N.Y. 12603
Filed July 5, 1972, Ser. No. 269,069
Int. Cl. A61b ***17/34;*** **A61m** ***25/00***
U.S. Cl. 128—347 **18 Claims**

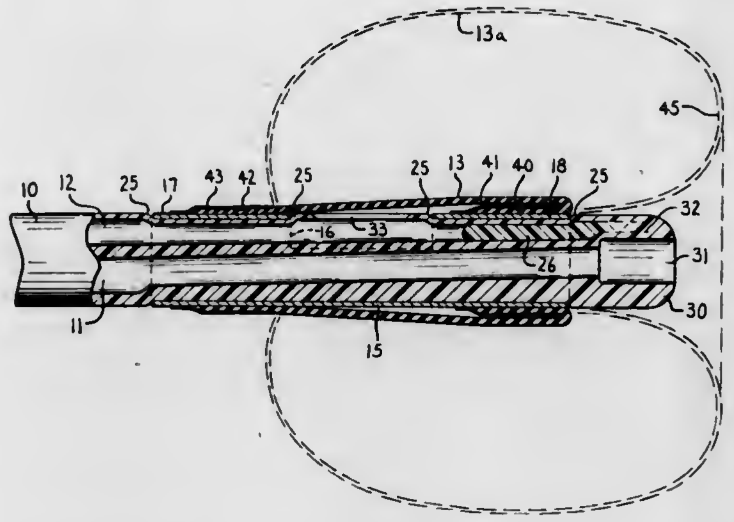
A balloon type intravascular occluding catheter comprising a first and second flexible tube and a tapered nose at one terminal end of the tubes. An elastic annulus circumscribes the tubes rearwardly of, but adjacent to the nose and is connected in such a manner as to be inflatable to form a balloon by fluid applied through apertures in the first of the tubes which underlies the annulus of flexible material. A trocar is removably disposed in the second tube, the trocar having a vessel piercing tip thereon, and an aperture in the nose which is aligned with the trocar to permit entrance and egress of the tip beyond the nose so as to engage the vessel wall for penetration thereof and entry of the catheter thereinto. Thereafter the balloon



may be inflated so as to occlude the vessel and, if desired, the trocar may be removed to inject medication or the like through the second tube.

3,833,004
BALLOON CATHETER HAVING SINGLE FERRULE SUPPORT FOR BALLOON BINDINGS

Jose A. Vazquez, Anasco, P.R., and Lawrence W. Blake, Costa Mesa, Calif., assignors to American Hospital Supply Corporation, Evanston, Ill.
Filed Oct. 26, 1973, Ser. No. 409,854
Int. Cl. A61m ***25/00;*** **B23p** ***11/02***
U.S. Cl. 128—349 B **2 Claims**

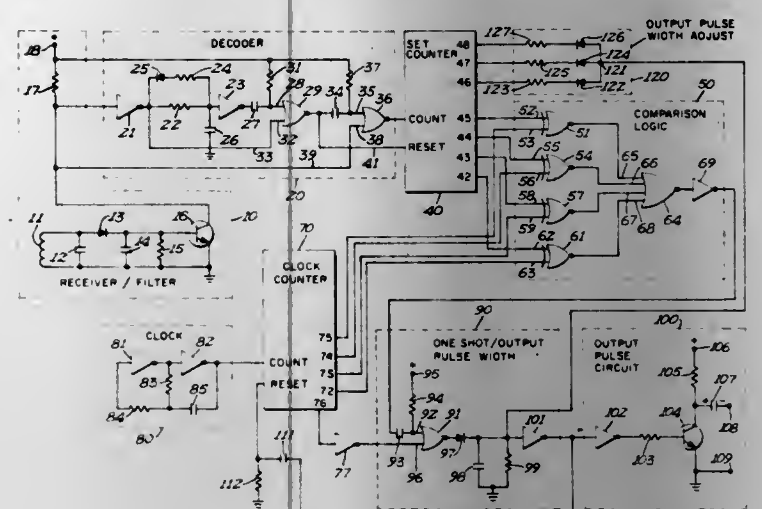


A catheter tube is extruded from a thermoplastic material having a memory characteristic. An end portion of the tube is heated sufficiently to soften the plastic and permit the end portion to be drawn out to a reduced diameter. A single rigid metal ferrule having a window opening therein is placed on the reduced end portion and this portion is heated again but in relaxed condition, causing it to re-expand and lock the ferrule in place. A balloon inflation opening is formed in the catheter tube communicating with a lumen therein through the window opening in the ferrule. A sleeve of balloon material is secured by bindings over end portions of the ferrule beyond opposite ends of the window opening. The ferrule provides rigid support for the balloon bindings so that the lumen or lumens in the catheter are not constricted by the bindings.

3,833,005
COMPARED COUNT DIGITALLY CONTROLLED PACEMAKER

Robert C. Wingrove, Circle Pines, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.
Filed July 26, 1971, Ser. No. 166,219
Int. Cl. A61n ***1/36***
U.S. Cl. 128—419 P **25 Claims**

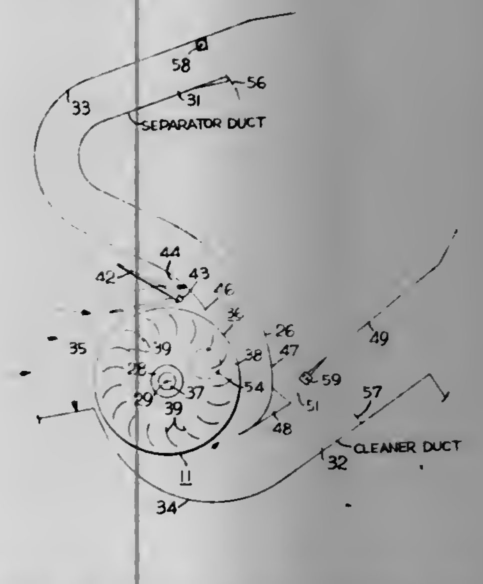
A cardiac pacer having adjustable rate and/or pulse width controls controlled by digital means including a first counter for receiving information and storing the data, a second counter connected to clock means, and logic means for comparing the outputs of the first and second counters to determine pulse rate and width. The preferred embodiments of the digitally controlled pacer include means connected to the first



counter for receiving coded set signals and rejecting noise and other interference signals. The preferred embodiment of a transmitter for sending coded signals to the pacer is also shown, the transmitter being digitally operable to provide coded bursts of RF pulses to the pacer receiver.

3,833,006
DUCT DAMPER FOR TRANSVERSE FAN

William F. Temple, Independence, Mo., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Dec. 1, 1972, Ser. No. 311,339
Int. Cl. A01f ***12/44;*** **F01d** ***1/14***
U.S. Cl. 130—27 HF **4 Claims**

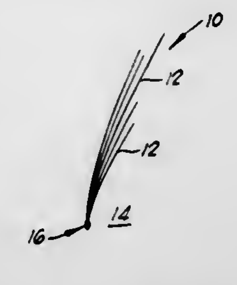


A transverse fan for use in the cleaning and separating mechanism of a combine harvester and wherein such transverse fan is provided with a choke vane mechanism positioned in the air inlet for such fan, and with a damper mechanism positioned in the air outlet of such fan, such mechanisms being adjustable, singularly or in combination to vary the amount of air being delivered by such fan.

3,833,007
ARTIFICIAL EYELASHES

Peggy S. Jacobs, 1203 Glenwood, Oklahoma City, Okla. 73116
Filed Sept. 27, 1971, Ser. No. 183,785
Int. Cl. A41g ***3/00***
U.S. Cl. 132—53 **10 Claims**

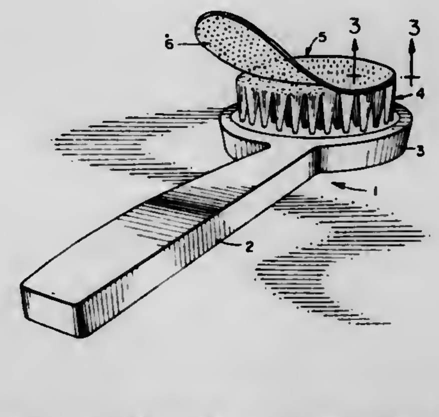
A method and articles for applying artificial eyelashes to a human subject, such articles consisting of a plurality of single, but feathered lashes, each single feathered lash extending several lash ends having one group fold secured together as by crimping, adhesion or tying, and a latex-base liquid surgical-type adhesive for securing the single feathered lashes to the subject's already-existing natural lashes in a semi-permanent, long-lasting secure fastening. The method consists of applying the adhesive to the single feathered eyelashes and placing the



single feathered eyelash on the upper side, lower side or between the subject's already-existing eyelashes, thus extending the length of the natural lash. This procedure utilizing the article may be applied to either or both of the subject's upper and lower natural lashes.

3,833,008
APPLICATOR FOR HAIR

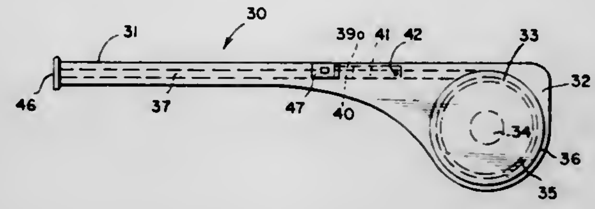
Hill Blackett, Jr., 811 Prospect Ave., Winnetka, Ill. 60093
Filed Nov. 9, 1972, Ser. No. 305,155
Int. Cl. A45d ***44/18***
U.S. Cl. 132—85 **7 Claims**



An applicator for cleansing and conditioning hair is provided comprising a brush and a removable pad.

3,833,009
DENTAL FLOSS DISPENSER

William E. Bennington, 5 Fillmore Dr., St. Armands, Sarasota, Fla. 33577
Continuation-in-part of Ser. No. 54,253, July 13, 1970, abandoned. This application Jan. 5, 1972, Ser. No. 215,532
Int. Cl. A61c ***15/00***
U.S. Cl. 132—91 **2 Claims**



This invention relates to a spool-type dental floss dispenser comprising a body portion containing a retaining cell for dental floss and an elongated finger portion from which the floss is dispensed. The floss is threaded through the dispenser and at one point exits to pass over braking means and serrated means and reenters into the finger portion to provide control of the floss during use. In other modifications thereof, the floss does not exit, and control during use is provided by braking means within the dispenser.

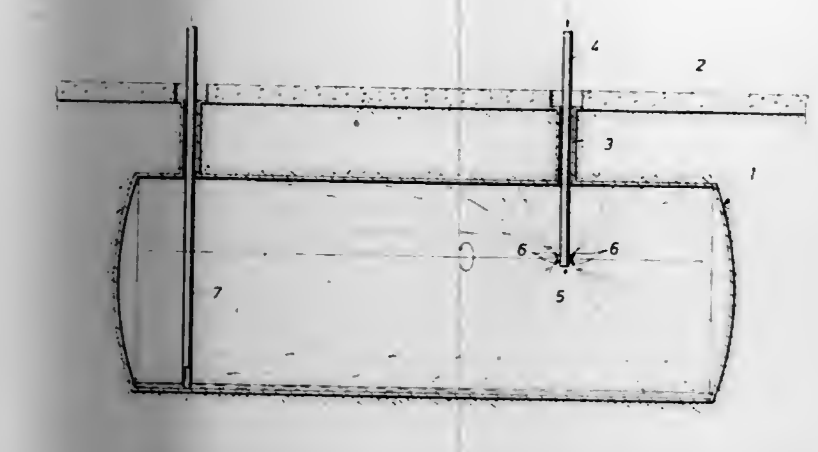
3,833,010
METHOD FOR CLEANING GASOLINE STORAGE TANKS

David C. McDermott; Errol V. Seymour, and Paul E. Titus, all of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Mar. 20, 1973, Ser. No. 343,075

Int. Cl. B08b *9/08, 3/08, 3/02*

U.S. Cl. 134—24 **6 Claims**



Service station gasoline storage tanks are cleaned by jet spraying a high viscosity cleaning fluid such as aqueous cellulose gum solution by means of a rotating nozzle over the interior surface of the tanks with sufficient pressure to break loose rust and hydrocarbon deposits and pumping out the cleaning fluid containing the suspended deposits along with other debris.

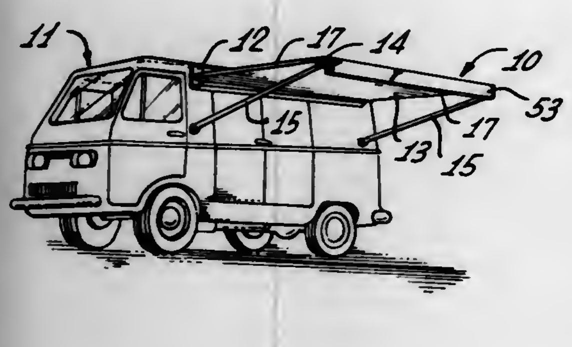
3,833,011
RETRACTABLE AWNING ASSEMBLY

Donald D. Duffy, Seal Beach, Calif., assignor to W & F Manufacturing, Inc., Glendale, Calif.

Continuation-in-part of Ser. No. 275,206, July 26, 1972, abandoned. This application Mar. 13, 1974, Ser. No. 450,769

Int. Cl. E04f *10/06*

U.S. Cl. 135—5 AT **13 Claims**



A retractable awning assembly including an elongated housing mountable on a recreational supporting vehicle and carrying a spring-loaded elongated roller, an awning having an inner edge attached to the roller and an outer edge secured to an elongated lead bar, and means for bracing the awning in an extended position. The bracing structure includes main brace arms pivotally connected to the ends of the lead bar to extend between the lead bar and anchors on the vehicle, and stabilizer arms pivotally attached to the brace arms to extend between the brace arms and anchors on the housing. The brace arms are channels which receive the stabilizer arms for storage, and the lead bar also is a channel which receives the main brace arms for storage, with the stabilizer arms nested in them. In an alternative embodiment, the inner edge of the awning is attached to the receptacle, and the awning is retracted by rolling it upon the lead bar.

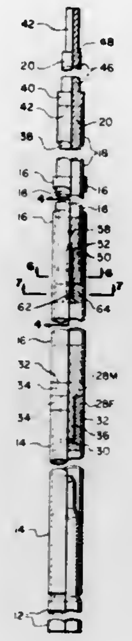
3,833,012
ADJUSTABLE TENT POLE

Joseph D. McAllister, 401 Franklin, Denver, Colo. 80218

Filed Apr. 27, 1973, Ser. No. 355,187

Int. Cl. F16b *7/10;* **E04g** *25/02;* **E21d** *15/14*

U.S. Cl. 135—15 PQ **5 Claims**



This invention relates to an adjustable multi-section tent pole characterized by a pair of axially-adjustable telescoping tubes at one extremity, the smaller of which carries a plug with a freely-rotatable eccentrically mounted knurled ring thereon that will releasably lock inside the larger of said tubes upon relative rotational movement therebetween in either direction.

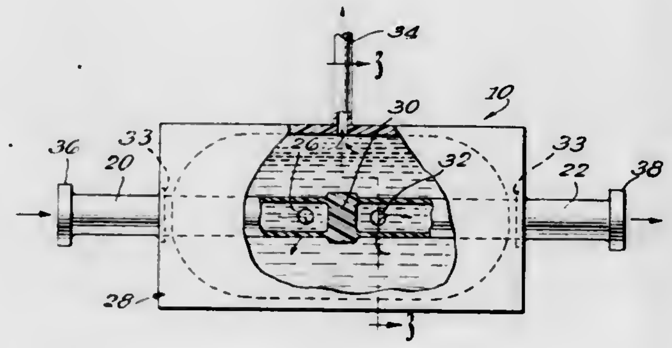
3,833,013
SELF-VALVING FLUID RESERVOIR AND BUBBLE TRAP

Ronald J. Leonard, Elk Grove Village, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.

Filed Apr. 6, 1972, Ser. No. 241,622

Int. Cl. A61m *5/00*

U.S. Cl. 137—171 **6 Claims**



A self-valving fluid reservoir and bubble trap for a fluid flow line is disclosed which comprises a tubular conduit carrying a transverse, flow-blocking partition in the conduit flow path. The conduit defines upstream and downstream lateral ports on each side of the partition to permit fluid communication between the interior and exterior of the conduit. A flexible, expansible and collapsible, sealed reservoir chamber is mounted on the conduit to enclose the lateral ports. The chamber receives excess fluid in the flow line by expansion, but collapses against and occludes the downstream port or ports in the absence of excess fluid in the reservoir chamber.

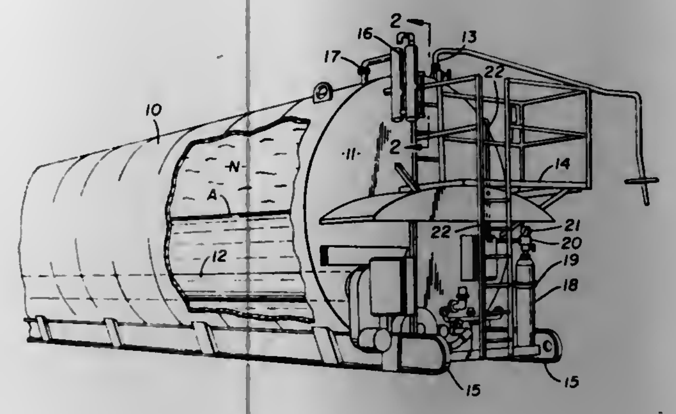
3,833,014
ASPHALT STORAGE TANK WITH INERT GAS SEAL

William F. Scheetz, Canfield, Ohio, assignor to Hy-Way Heat Systems, Inc., Youngstown, Ohio

Filed Nov. 15, 1972, Ser. No. 306,613

Int. Cl. F16k *9/00*

U.S. Cl. 137—251 **4 Claims**



A storage tank incorporating heating means for a liquid asphalt incorporates means for introducing and retaining low pressure inert gas as a sealing medium to provide emission free heated asphalt storage.

3,833,015
ELECTROMAGNETIC VALVE

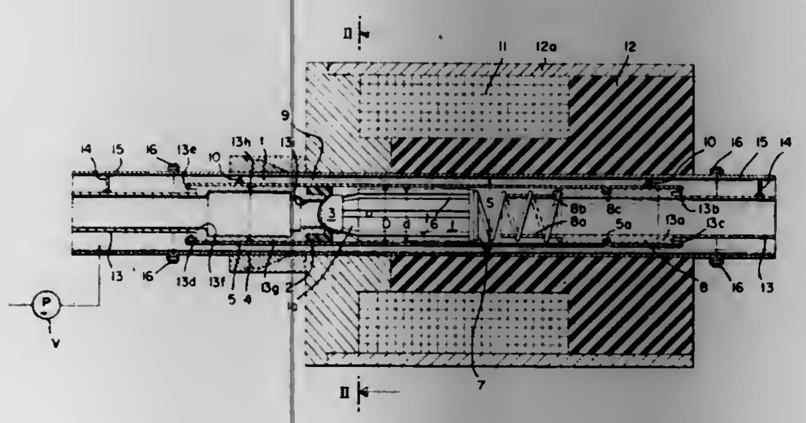
Rudolf Kneuer, Walchstadt/Icking, Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Germany

Filed Dec. 4, 1972, Ser. No. 311,506

Claims priority, application Germany, Dec. 11, 1971, 2161605

Int. Cl. F16k *31/06*

U.S. Cl. 137—334 **7 Claims**



An electromagnetic valve, especially for the control of low-temperature fluids such as cryogens, comprising an inner duct preferably of thermally nonconductive material or of a material weldable to the inner duct of a double-wall pipe line, a valve seat within the duct and a magnetically shiftable body movable within the duct into and out of engagement with the valve seat. The inner duct is spacedly surrounded by an outer duct which, in turn, may be surrounded by the electromagnet coil, the space between the ducts forming an insulator between the electromagnet and the valve members. This space is evacuated and/or filled with a thermally insulating material.

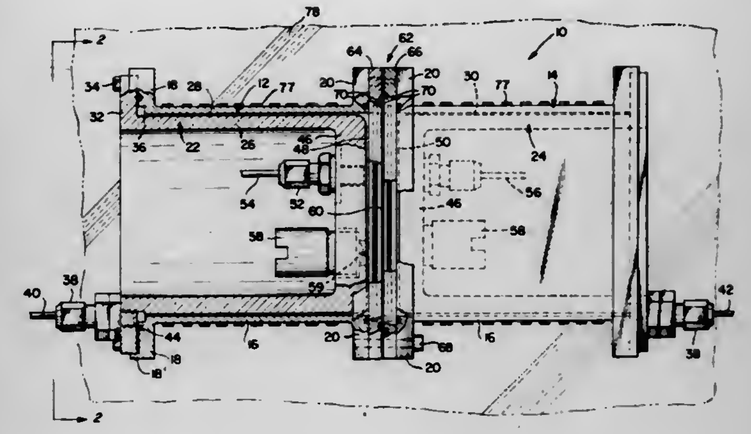
3,833,016
APPARATUS FOR PRECISELY CONTROLLED DILUTION OF FLUID SAMPLES

Daniel P. Lucero, Triangle; James D. Barden, Manassas, and Joseph W. Paljug, Falls Church, all of Va., assignors to Meloy Laboratories, Inc., Springfield, Va.

Filed Jan. 2, 1973, Ser. No. 320,660

Int. Cl. F02m *17/28*

U.S. Cl. 137—340 **42 Claims**



Concentrated fluid samples, such as flue gas samples, are diluted with high accuracy by precisely controlled diffusion through a permeable membrane. The membrane transversely divides a cylindrical housing into two parts, each part having a cup-shaped core therein with an end wall spaced from the membrane to provide transverse-radial flow passages at opposite sides of the membrane and with a side wall spaced from the side wall of the housing to provide longitudinal flow passages of annular cross-section. Fluid is admitted to each longitudinal passage by means of an enlarged circumferential flow distributing passage and is exhausted from each transverse passage by means of a conduit extending through the end wall of the associated core. Electric heating elements are supported upon the side wall of the housing and are controlled by temperature sensors in the transverse passages adjacent to the permeable membrane. The entire housing is surrounded by insulation so that precise control of the temperature within the housing is possible.

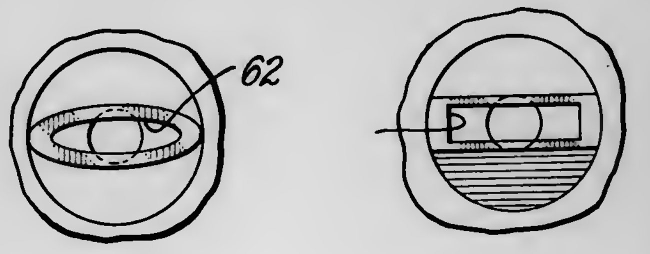
3,833,017
HYDRAULIC VALVE WITH NON-ROUND CONTROL NOZZLE

Carroll G. Gordon, 3 William Ct., Menlo Park, Calif., and William F. Stoesser, 3366 Fayette Dr., Mountain View, Calif. 94040

Filed Apr. 9, 1973, Ser. No. 348,923

Int. Cl. F16k *11/00*

U.S. Cl. 137—625.62 **6 Claims**



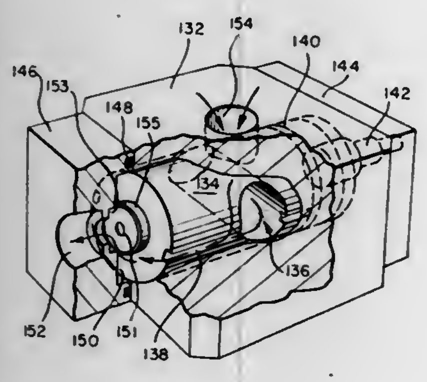
It is conventional to employ a round nozzle and a movable flapper in a "hydraulic means" in certain types of hydraulic or servo valves in order to control the movement of a valve member in such a valve in connecting various conventional ports. Such a valve can be improved by forming the nozzle of a shape such as an elongated rectilinear or oval which maximizes the perimeter length around the nozzle per unit of cross-sectional area of the nozzle. This maximizes the flow between the nozzle and the flapper in various positions of the flapper without a corresponding increase in the force of hydraulic fluid exerting pressure on the flapper. Several of such nozzles are normally used in a valve. The flapper in a valve as indicated is normally moved by a torque motor.

3,833,018
LOW LEAKAGE VACUUM VALVE AND CHAMBER USING SAME

Norman B. Brooks, Carlisle, Mass., assignor to Pass-Port Systems Corporation, North Billenica, Mass.

Filed Feb. 21, 1973, Ser. No. 334,455
Int. Cl. F16k *11/07*

U.S. Cl. 137—625.47 **15 Claims**



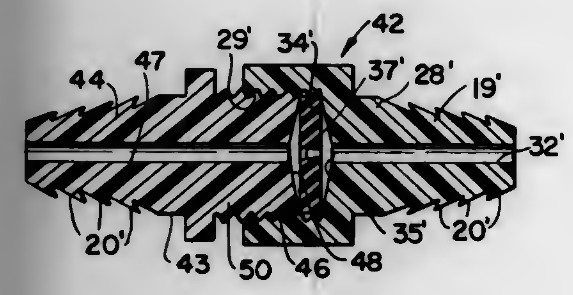
A low-leakage vacuum valve provides direct access to the interior of an evacuated chamber when opened while maintaining a substantial pressure differential when closed. A simplified vacuum chamber uses the valve to advantage in processing materials.

3,833,019
QUICK-CONNECT FITTINGS FOR A TRICKLE TYPE IRRIGATION SYSTEM

Richard E. Diggs, 210 N. River St., P.O. Box 776, Carthage, Mo. 64836

Filed Dec. 30, 1971, Ser. No. 213,927
Int. Cl. F16d *1/00*

U.S. Cl. 138—45 **9 Claims**



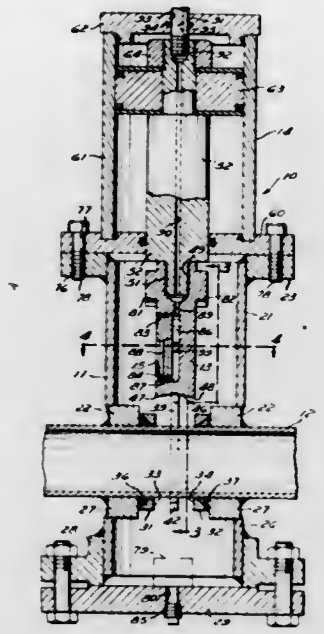
Quick-connect fittings for a trickle-type irrigation system wherein the fittings include gripping means thereon for quickly and easily joining the fittings to plastic pipes and the like without requiring the use of tools. In one form of the invention, the fitting has piercing means thereon for penetrating the wall of a plastic pipe to make a secure and leak-tight connection thereto without requiring the use of tools; and in another form of the invention, adjustable resilient orifice means is in the fitting.

3,833,020
APPARATUS FOR PLUGGING PIPE

Joseph B. Smith, Cleveland, Ohio, assignor to The Pipe Line Development Company, Cleveland, Ohio

Division of Ser. No. 13,295, Feb. 24, 1970. This application Nov. 8, 1971, Ser. No. 196,456
Int. Cl. F16l *55/10*

U.S. Cl. 138—94 **21 Claims**



An apparatus and method for blocking a conduit or pipe carrying fluid under pressure. The apparatus comprises a fluid tight housing adapted to be secured to the exterior of an intermediate portion of the pipe, a cutter or shear within the housing, an actuator for moving the shear through the wall of the pipe, and a sealing surface engageable with a portion of the pipe while the shear extends into the pipe.

3,833,021
DELUSTERED REGENERATED CELLULOSE SAUSAGE CASINGS

Henry J. Rose, and Albin F. Turbak, both of Danville, Ill., assignors to Tee-Pak, Inc.,, Chicago, Ill.

Continuation of Ser. No. 102,958, Dec. 30, 1970, abandoned, which is a continuation-in-part of Ser. Nos. 763,942, Sept. 30, 1968, Pat. No. 3,607,328, and Ser. No. 431,181, Feb. 8, 1965, abandoned. This application Apr. 10, 1972, Ser. No. 242,755. The portion of the term of this patent subsequent to Sept. 21, 1988, has been disclaimed.
Int. Cl. A22c *13/00*

U.S. Cl. 138—118.1 **8 Claims**

Tubular sausage casings of regenerated cellulose which are soft and flexible and delustered in appearance have droplets of colloidal size, e.g. less than about 0.06 mm., dispersed throughout the film in a concentration of 0.1 – 12% wt. based on the cellulose, said droplets being a mixture of different delusterant materials.

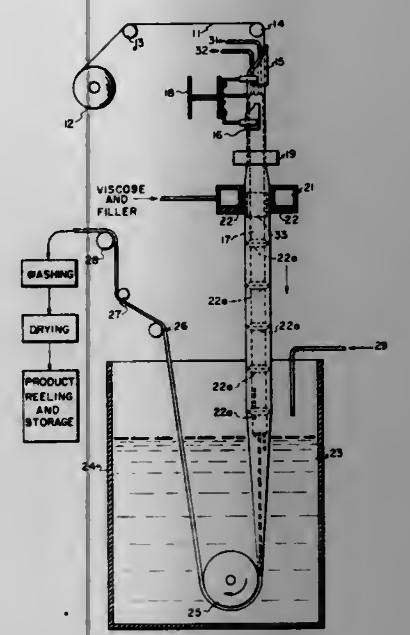
3,833,022
MATTE FINISH SAUSAGE CASING

Albin F. Turbak; N. O. O'Brien, and William H. Goodenow, all of Danville, Ill., assignors to Tee-Pak, Inc.,, Chicago, Ill.

Filed July 24, 1972, Ser. No. 274,367
Int. Cl. A22c *13/00*

U.S. Cl. 138—118.1 **11 Claims**

Matte finish synthetic sausage casing made by incorporating a fibrilla filler material having an average diameter of 16–20 microns and an average length of 40–110 microns in the material used to manufacture the casing. The casing, which may be made of regenerated cellulose or synthetic hydrophilic polymers, such as polyvinyl alcohol, may be of the unreinforced type or of the fibrous paper reinforced type. A preferred filler material is fibrous cellulosic floc.

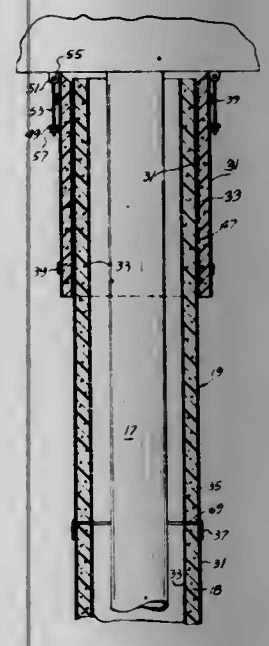


3,833,023
FROST JACKET ASSEMBLY FOR WATER TOWER RISER PIPES

Earl M. Rea, 613 S. Third Ave., Sioux Falls, S. Dak. 57104

Filed Sept. 15, 1972, Ser. No. 289,416
Int. Cl. F16l *9/14;* **B65d** *25/00*

U.S. Cl. 138—148 **2 Claims**



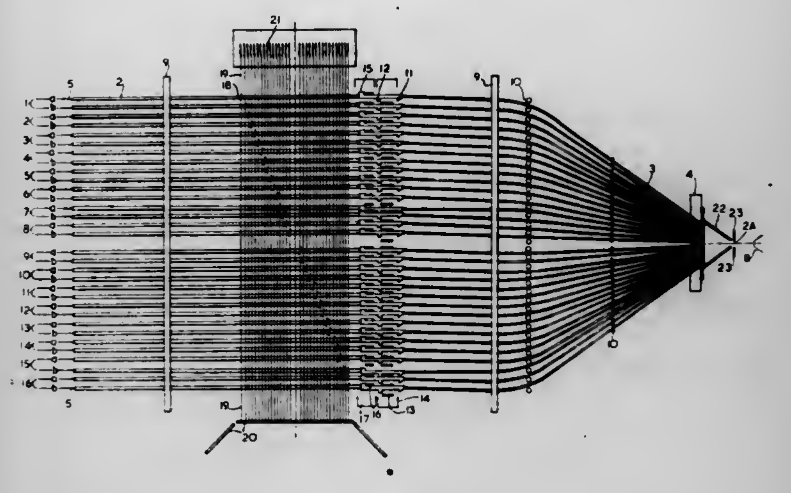
For a water tower riser pipe, an anti-freeze protector which includes a series of cylindrical frost jackets arranged end to end surrounding said pipe throughout its height. Spacers are interposed between the upper ends of each jacket and the pipe and a series of longitudinally spaced bands surround and secure said jacket. Each jacket comprises a pair of semi-cylindrical sections; and each section includes an inner and outer thin shell of glass fiber and a relatively thick foam plastic filler therebetween. Annular lap flanges depend from each jacket for cooperative enclosing sealing registry with the upper end of the adjacent frost jacket.

3,833,024
GRIPPER TYPE LOOMS

Roy Evans, and Peter Saltonstall, both of Bradford, England, assignors to John T. Hardaker Limited, Yorkshire, England

Filed Sept. 28, 1973, Ser. No. 401,607
Int. Cl. D03d *39/08*

U.S. Cl. 139—2 **15 Claims**



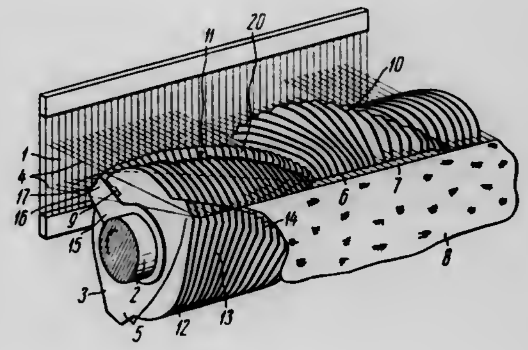
A method of controlling the yarns in a yarn selecting mechanism comprising locating yarns separately in a set of carrier tubes, guiding the outlet ends of said tubes into close relationship, selecting a predetermined number of tubes for presentation to gripper means and a griffe frame and causing a griffe bar of said frame to give the selected tubes linear movement into a forward position where the gripper means can grip the ends of yarn projecting from the tubes.

3,833,025
BEAT-UP MECHANISM FOR LOOMS

Evgeny Dmitrievich Loschilin, ulitsa 8 Marta, 34a, Domodedovo, Moskovskoi oblasti; Valerian Alexeevich Borodin, ulitsa Gubkina, 4, kv. 74, Moscow; Alexandr Alexandrovich Zabotin, Profsojuznaya ulitsa 96, kv. 85, Moscow; Eduard Arshakovich Onikov, ulitsa Panferova, 5, korpus 2, kv. 106, Moscow, and Alexandr Lvovich Galperin, ulitsa Moldagulovoi, 10, Korpus 3, kv. 166, Moscow, all of U.S.S.R.

Filed July 20, 1973, Ser. No. 380,960
Int. Cl. D03d *47/26*

U.S. Cl. 139—12 **4 Claims**



The beat-up mechanism is intended for use in looms wherein the weft thread carriers are associated with a drive independent of the beat-up mechanism. The proposed mechanism may also be incorporated in looms of the progressive shedding type.

The beat-up mechanism comprises beat-up discs with lugs and slots and discs with thread-engaging teeth adapted to engage the weft thread, the apices of these teeth being disposed radially intermediate of the apices of the beat-up lugs and the edges of the beat-up discs in the vicinity of the slots, the leading edge of the thread-engaging tooth being aligned with the rear wall of the slot and being an extension of this wall.

The discs with the thread-engaging teeth ensure guiding of the weft thread placed outside of the beat-up mechanism into the slots of the beat-up discs, to advance the weft thread toward the fell of the cloth and to make the thread leave the slots adjacent to the fell of the cloth, for subsequent weaving of the weft thread into the cloth.

3,833,026

DEVICE MONITORING TWO TRAVELING WEFT THREADS

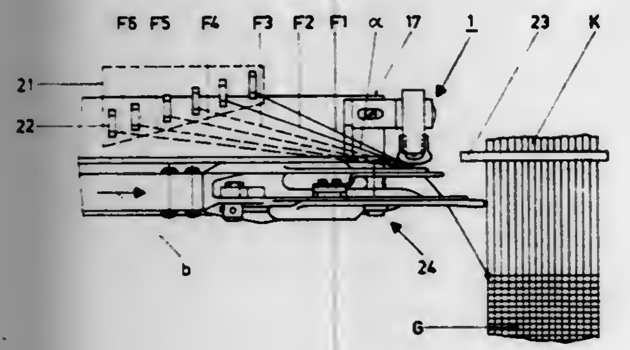
Rene Domig, Kusnacht, Switzerland, assignor to Aktiengesellschaft Gebrueder Loepfe, Wetzikon, Switzerland

Filed Oct. 4, 1973, Ser. No. 403,543

Claims priority, application Switzerland, Oct. 21, 1972, 15399/72

Int. Cl. D03d *51/34*

U.S. Cl. 139—370 **4 Claims**



A thread feeling device comprises two separate feeler members each destined to contact one of two traveling threads which are fed from separate supply locations to an operational location and form an acute angle between them on the side of the operational location. Since the monitoring occurs adjacent the operational location where the distance between the two threads is small, means are provided for separating the threads and conducting them individually to the separate feeler members. In particular, the feeling device may be used in weft stop motion equipment on a rapier loom provided with a color changer.

3,833,027

DOUBLE LIFT DOBBY

Zdenek Pavlica, Jicin, Czechoslovakia, assignor to ELITEX Zavody textilniho strojirenstvi, generalni reditelstvi, Liberec, Czechoslovakia

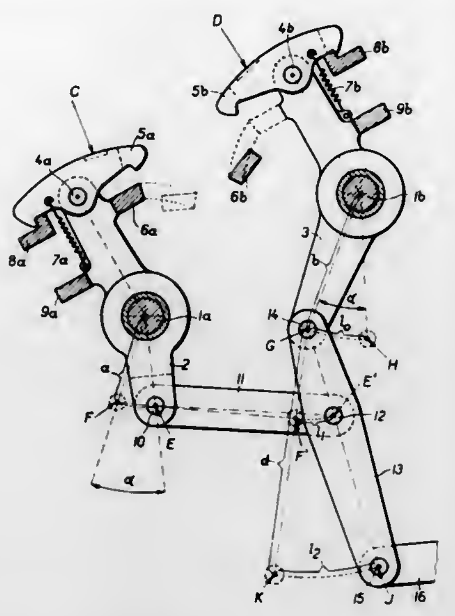
Filed Dec. 29, 1972, Ser. No. 319,308

Claims priority, application Czechoslovakia, Jan. 4, 1972, 3672-72

Int. Cl. D03c *1/06*

U.S. Cl. 139—71 **3 Claims**

A double lift dobby for dobby looms, jacquard looms and the like comprising a first and second double arm crank, each of which is rotatably journaled about independent axes spaced from and parallel to each other. One arm of each of the cranks is provided with latch means for selectively engaging a corresponding one of a driven pair of lifting knives. The cranks are thereby rotatable about their axes by and conjointly with the lifting knife after such engagement. The other arms of each of the cranks is interconnected with the means for raising and lowering the heald frame which comprises a lever connected at one end to the first of the cranks and at the other end to the means for lowering the heald frame and a tie rod connected at one end of the second of the cranks and at its other end between the ends of the lever.



3,833,028

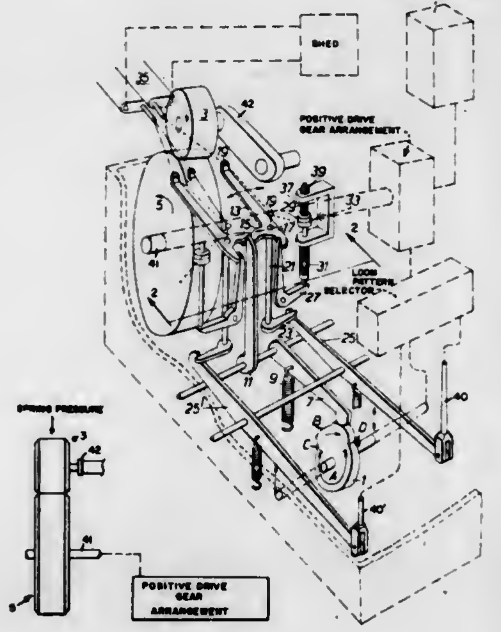
MEASURING APPARATUS

Keith Chattaway; Richard William Gillings, and Philip Austin Ormerod, all of Pontypool, England, assignors to Imperial Chemical Industries Limited, London, England

Filed June 19, 1972, Ser. No. 264,403

Int. Cl. D03d *47/34*

U.S. Cl. 139—122 **8 Claims**



Weft yarn measuring apparatus for delivering a given length of weft yarn to a shuttle-less loom comprising feed rolls in contact at their periphery forming a nip and means for introducing yarn into the nip while the rolls are rotating.

3,833,029

METHOD AND APPARATUS FOR GENERATING GASEOUS MIXTURES FOR INFLATABLE DEVICES

Alfred John Munn, Wayne, N.J., assignor to Walter Kidde & Company, Inc., Belleville, N.J.

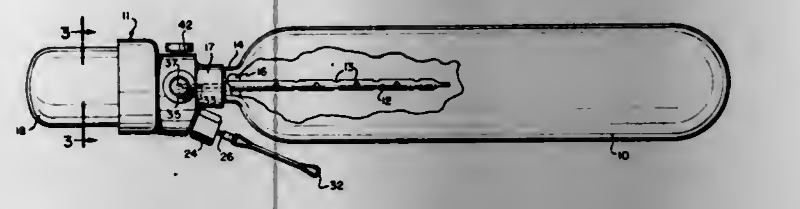
Filed Apr. 21, 1972, Ser. No. 246,365

Int. Cl. B65b *3/04*

U.S. Cl. 141—4 **13 Claims**

A pyrotechnically operated inflating apparatus is disclosed for generating gaseous inflation mixtures of carbon dioxide

and combustion products of propellants. The apparatus includes a container for storing primary fluid inflation media. A control head is mounted on the container to govern the discharge of the primary fluid into an inflatable. The control head is provided with an internal space containing a pyrotechnic charge to generate, upon ignition, high temperature gases as secondary inflation media. A quantity of the secondary media is initially diffused throughout the container to elevate the pressure of the primary media to effect discharge from the container. The remainder of the secondary media is mixed with the discharging primary media at a downstream outlet orifice within the control head immediately prior to entry into the inflatable.



3,833,030

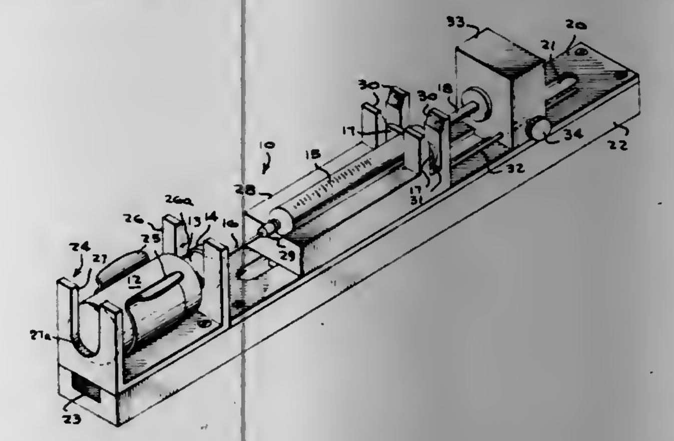
DEVICE FOR WITHDRAWING OR ADDING FLUIDS TO HYPODERMIC SYRINGES

Henry L. Waldbauer, Jr., 403 St. Christopher's Rd., Richmond, Va. 23226; Wylie T. Jones, 8324 Roland Dr., Richmond, Va. 23229, and Edward J. Flippo, Jr., 1325 Evergreen Ave., Richmond, Va. 23224

Filed Mar. 5, 1973, Ser. No. 337,761

Int. Cl. B65b *3/04;* **A61m** *5/18*

U.S. Cl. 141—26 **7 Claims**



A mechanical device to aid the visually handicapped in loading a hypodermic syringe with a predetermined charge of liquid from a bottle having a penetrable cap, including an elongated base having a cradle and spring clip for releasibly holding the bottle, a carriage for removably supporting a hypodermic syringe having a needle pointing toward the bottle, a stop member adjustably coupled with the carriage at variable distance therefrom to indicate by abutment of the syringe plunger rod therewith when it is withdrawn to the proper charge position, and the carriage and stop member being guided for reciprocative movement along the base between limits wherein the needle is inserted in and is withdrawn from the bottle.

3,833,031

FILLING MACHINE FOR CONTAINERS

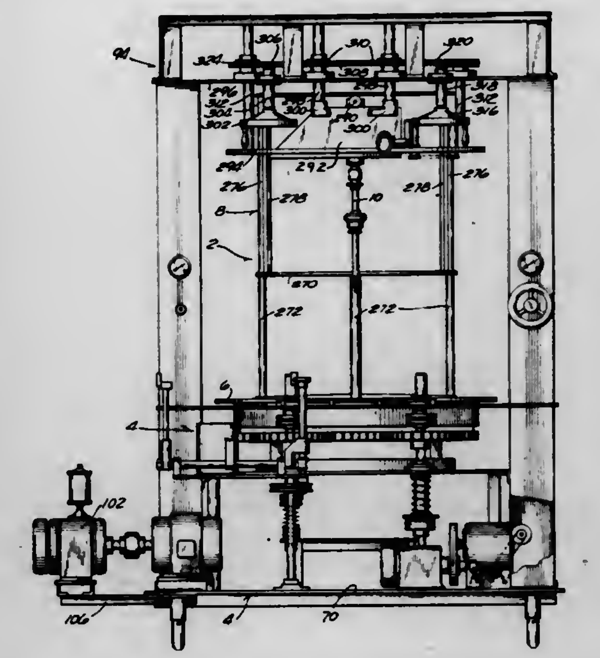
Paul R. Fechheimer, Worcester, Mass.

Division of Ser. No. 85,442, Oct. 30, 1970, abandoned. This application Sept. 11, 1972, Ser. No. 287,695

Int. Cl. B65b *3/04*

U.S. Cl. 141—84 **4 Claims**

A rotary container filling machine of the constant level type and which includes a series of radially arranged filling nozzles mounted above a supporting table for the containers which are to be filled for vertical slide movement relatively between raised, inactive positions to the containers and lowered, active or filling positions. The filling machine is adapted for vacuum, gravity or combined vacuum-gravity operation as desired and two distinct, readily interchangeable types of filling nozzles are provided the machine for the purpose of permitting the conversion from one filling mode to another. For this purpose, also, the filler machine is provided with a supply tank for the liquid which is to be introduced into the containers and which is elevationally adjustable to the filler table between a raised position thereto for gravity and combined vacuum-gravity filling and a lowered position thereto for vacuum filling.



3,833,032

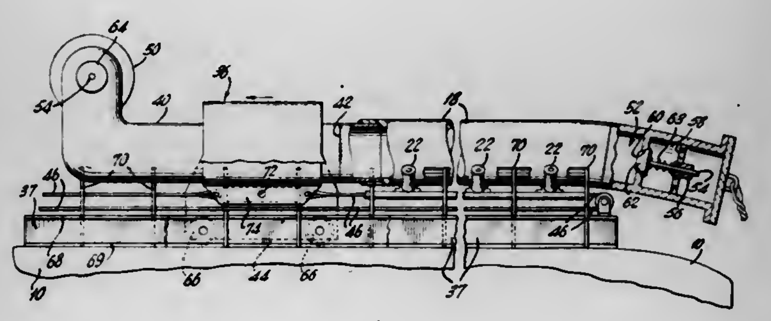
TANDEM MOORING-LOADING SYSTEM

Walter R. Hnot, Mountainside, N.J., assignor to Esso Research and Engineering Company, Linden, N.J.

Filed Oct. 31, 1972, Ser. No. 302,528

Int. Cl. B65b *3/04, 39/02*

U.S. Cl. 141—232 **15 Claims**



A combined mooring and loading system for the transfer of cargo (e.g., oil) from a floating offshore storage terminal (e.g., a vessel or other suitable floating member) to a shuttle tanker moored in tandem. The system includes a floating hose between the storage terminal and the shuttle tanker, which when not in use is stored on the storage terminal. A trolley is provided for retraction and paying out of the hose; and the hose is equipped with check valves at both ends to trap cargo within the hose when it is disconnected.

3,833,033
METHOD AND APPARATUS FOR WORKING ELONGATE COMPONENTS AT SUCCESSIVE LONGITUDINAL LOCATIONS

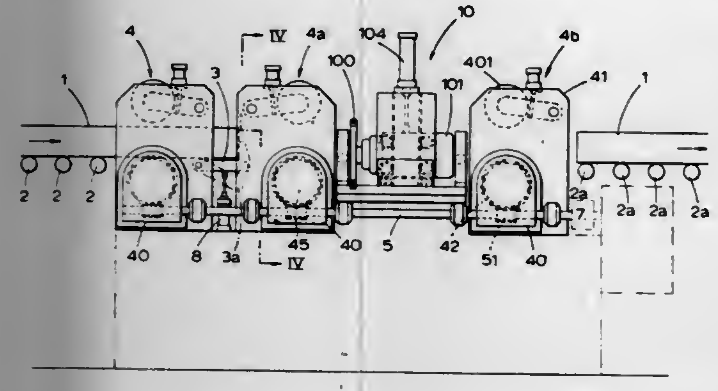
James Hurn, Somerset, England, assignor to Hurn Brothers Engineering Limited, Wiltshire, England

Division of Ser. No. 29,568, April 17, 1970, Pat. No. 3,693,683. This application June 27, 1972, Ser. No. 266,566

Claims priority, application Great Britain, Apr. 17, 1969, 19636/69

Int. Cl. B27m *3/00;* **B27c** *9/04*

U.S. Cl. 144—3 R **15 Claims**



The invention is concerned with a method of and apparatus for performing a succession of working operations at preselected locations along the length of an elongate workpiece. The leading end of the workpiece is advanced up to a datum position. On the upstream side of the datum position there is located a drive roller, and on the downstream side of the datum position there is located a working station. The work station has at a predetermined distance from the datum position, at least one working tool, for example a saw or a drill. The workpiece is held against the drive roller, and then said drive roller is rotated through a succession of rotary movements, with the drive roller being stationary between movements for predetermined time intervals. During each movement the drive roller is rotated through a predetermined amount. The workpiece is thereby advanced in successive steps through said work station and successive preselected locations longitudinally of the workpiece are brought opposite the working tool, and held stationary for predetermined time intervals between the periods of movement. A second drive roller is located on the downstream side of the work station which is driven in synchronism with the upstream drive roller. Working operations are only performed when the workpiece is stationary.

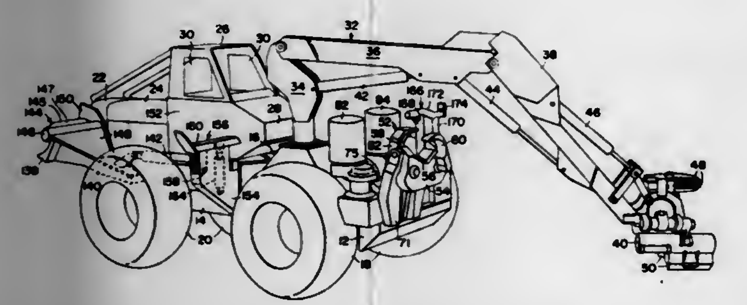
3,833,034
TREE HARVESTER

Alvin Lewis Menzel; Stanley Robert Hiseler; Kenneth Quentin Kessler, all of Dubuque, Iowa, and Edward George Nelson, Moline, Ill., assignors to Deere & Company, Moline, Ill.

Filed Mar. 19, 1973, Ser. No. 342,456

Int. Cl. B27c *9/00*

U.S. Cl. 144—3 D **24 Claims**



An articulated, four-wheel drive tree harvesting machine includes a front frame section upon which a felling boom assembly, a delimbing assembly and a feed assembly are mounted. The felling boom assembly is operable for severing a tree and lowering the same into a generally horizontal disposition from where the trunk of the tree may be released for engagement by feed rolls of the feed assembly and for encirclement by blades of the delimbing assembly. Once a tree is released by the felling boom assembly, the feed rolls may be operated to draw the tree trunk through the delimbing blades while the felling boom may be operated to sever and position a second tree. The tree harvesting machine has the capability to bunch at least three severed and delimbed trees.

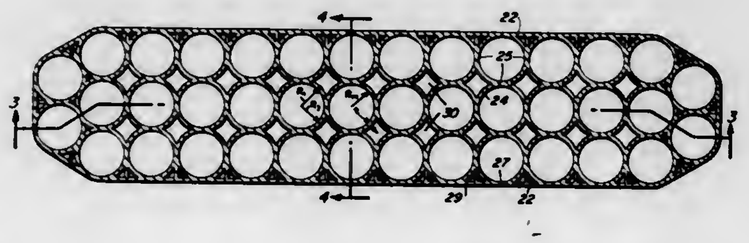
3,833,035
FLOATING OR SUBMERGED MARINE VESSEL FOR STORAGE, SUPPORT OR TRANSPORT

Alfred A. Yee, 1441 Kapiolani Blvd., Suite 810, Honolulu, Hawaii 96814

Filed Nov. 22, 1971, Ser. No. 200,882

Int. Cl. B63b *35/44*

U.S. Cl. 114—.5 T **11 Claims**



A marine structure for storage, support or transport operations, said structure comprising a plurality of vertically extending cylindrical walls formed from concrete or the like and intertangentially connected to each other to define a plurality of compartments and being connected to top and bottom hull walls such that the cylindrical walls serve as vertical shear walls strengthening the structure to withstand stresses caused by wave action and the like in both longitudinal and transverse directions.

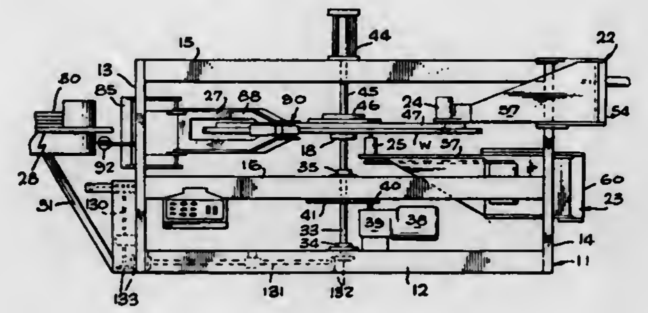
3,833,036
MACHINE FOR MAKING TABLETOPS

Daniel Marvosh, 3085 E. Clarmeya Ln., Pasadena, Calif.

Division of Ser. No. 5,672, Jan. 26, 1970, Pat. No. 3,653,113. This application Jan. 31, 1972, Ser. No. 222,087

Int. Cl. B27c *5/02*

U.S. Cl. 144—144 A **6 Claims**



A machine for making tabletops having a motor-driven rotatable work support, separate shaping, grooving and banding tools mounted on doubly pivoted arms for performing operations on a workpiece mounted on the support, and automatic means for controlling the speed of rotation of the work support in accordance with a predetermined pattern coordinated with the shape of work to be formed, and automatic means for controlling the movement of the pivoted arms.

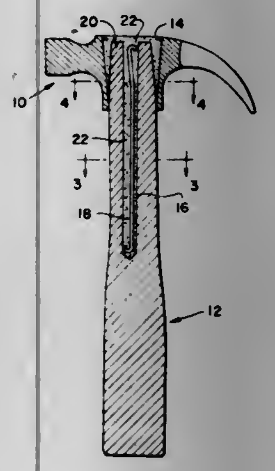
3,833,037
IMPACT TOOLS AND HANDLES THEREFOR

Herbert I. Fish, 6525 Kerns Rd., Falls Church, Va. 22044

Filed July 14, 1972, Ser. No. 271,826

Int. Cl. B25g *1/10*

U.S. Cl. 145—29 R **6 Claims**



The wooden handle of a hammer or other impact tool is strengthened and the tool is reinforced against sudden loss of the head by drilling a bore along a substantial portion of the length of the handle from the head end, inserting a tension wire into the bore, and locking the ends of the wire in the bore by means of a plastic, such as an epoxy resin.

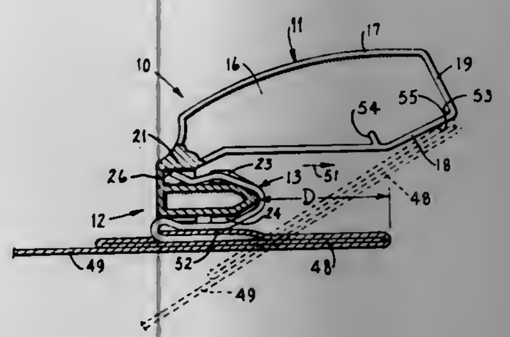
3,833,038
DRAPERY PIN INSERTER

John J. Hoare, Sturgis, Mich., assignor to Kirsch Company, Sturgis, Mich.

Filed May 7, 1973, Ser. No. 357,876

Int. Cl. B25c *3/00*

U.S. Cl. 145—46 **7 Claims**



A pin inserter having an elongated handle portion for permitting manual insertion of drapery pins into draperies. The inserter has a head portion containing groove means therein for permitting a conventional drapery pin to be mounted thereon. The head portion is connected to one end of the handle portion and projects toward the rearward end of the handle portion for permitting pins to be manually inserted into draperies by means of a pulling motion. Selected points on the handle are identified and usable to locate accurately the point of insertion of the pin with respect to the edge of the drapery.

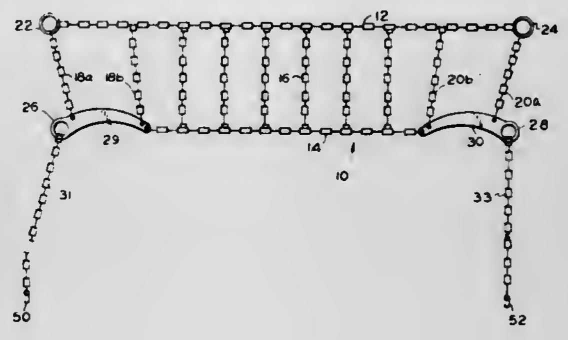
3,833,039
QUICK MOUNT TIRE CHAINS

Clarence Bear, 12720 S.W. Prince Albert, Tigard, Oreg. 97223

Filed Mar. 22, 1973, Ser. No. 343,783

Int. Cl. B60c *27/06*

U.S. Cl. 152—241 **17 Claims**



A quick mount tire chain has a pair of levers or bars each connected to a pair of end cross chains and lying against the side wall of a tire, and having eyes to receive cross ties.

3,833,040
OUTER COVER OR TYRE

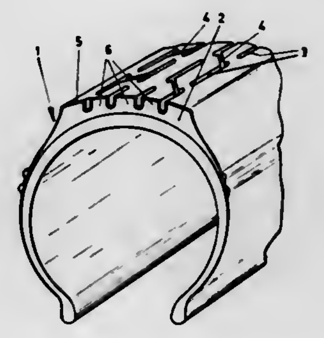
Cornelis G. Bins, Heelsum, Netherlands, assignor to N.V. Rubberfabrick Vredestein, The Hague, Netherlands

Filed June 7, 1972, Ser. No. 260,498

Claims priority, application Netherlands, June 21, 1971, 7108520

Int. Cl. B60c *11/00*

U.S. Cl. 152—330 **4 Claims**



An outer cover or tyre for bicycles, autocycles, motor-vehicles and other vehicles, of which the tread is profiled and presents grooves and elevations, said cover or tyre being recovered with a filing layer of a colour which deviates from the colour of the underlying material of the cover or tyre, the grooves or parts thereof presenting a different depth preferably arranged according to a predetermined pattern.

3,833,041
TIRE INFLATOR

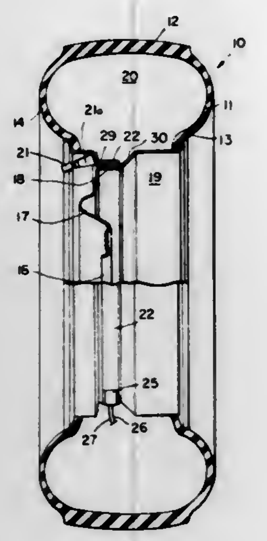
Thomas J. Glad, and Willfred G. Schmidt, both of Sacremento, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.

Filed Oct. 11, 1973, Ser. No. 405,356

Int. Cl. B60c *21/08, 23/06, 17/00*

U.S. Cl. 152—347 **13 Claims**

Apparatus and method for sealing and reinflating a tubeless tire after puncture or the like including an uncured puncture sealant material disposed in the tire casing chamber and a gas generator also disposed in the chamber and adapted to generate sufficient heat to cure the sealant material, and sufficient gas to reinflate the tire. The valve of the tire is a pressure relief valve and an igniter is provided for igniting the generator at a predetermined pressure in the chamber. In this manner, if the tire is punctured, the loss of pressure in the chamber activates the igniter which ignites the generator. The heat from



the gas being generated cures the sealant material which plugs up the puncture while the gas generated inflates the tire to a desired pressure. The pressure relief valve regulates the pressure within the chamber.

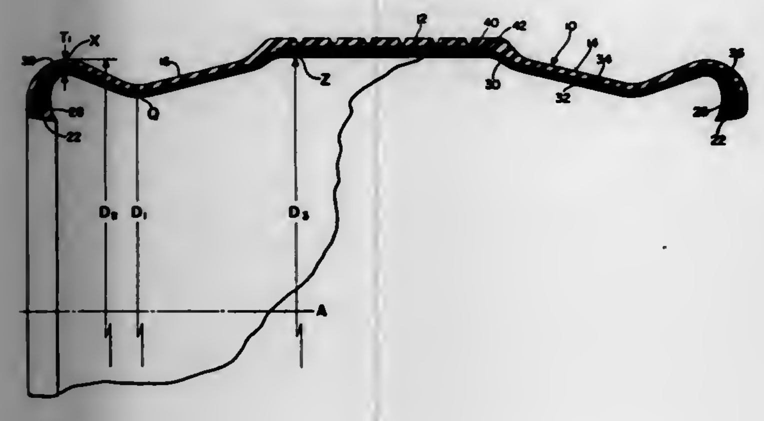
3,833,042
PNEUMATIC TIRE

George Timothy Watts, North Canton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 166,049, July 26, 1971, abandoned. This application Dec. 20, 1972, Ser. No. 316,800

Int. Cl. B60c *3/00*

U.S. Cl. 152—353 **14 Claims**



A pneumatic tire having sidewalls which are foldable to a position beneath the tread and, when in the configuration in which it was cured, having a cross-sectional configuration characterized by the sidewalls being generally cylindrical and having a first diameter intermediate the edges of the tread and the beads which is less than the maximum diameter of a second region located between the region of said first diameter and the beads. The maximum diameter of the second region is greater than the inside diameter of the tread portion minus twice the sidewall thickness and a smooth convex curve connects the maximum diameter point of each second region with the axially outer side of each bead region.

The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawings and the following detailed description.

3,833,043
CASTING TIRES

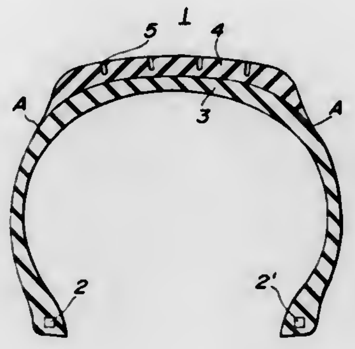
Kei Watanabe; Nobuya Yoshimura; Tasuku Saito; Naotaka Tomita, and Hisaya Uruta, all of Tokyo, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

Filed Sept. 28, 1972, Ser. No. 293,101

Claims priority, application Japan, Oct. 7, 1971, 46-78297

Int. Cl. B60c *5/00, 9/02*

U.S. Cl. 152—357 A **4 Claims**



Casting tires having high strength and various excellent driving properties are produced by firstly casting (or molding) any one of a tread-crown portion on a case body portion with a high molecular weight substance and then prior to the completion of the curing of the firstly cast (or molded) substance, casting (or molding) the other portion with another high molecular weight substance having different physical properties from the former substance successively and curing both substances concurrently, said case body not containing any reinforcing material.

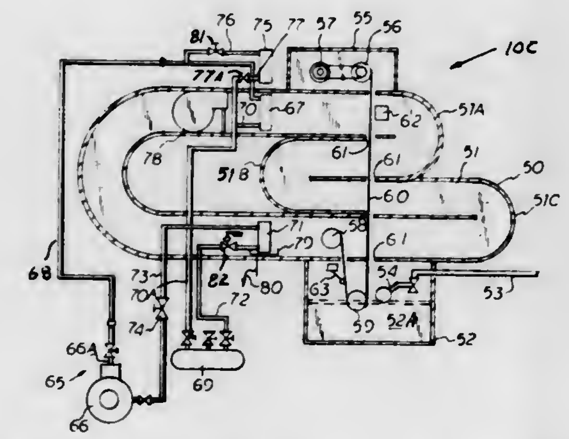
3,833,044
METHOD AND APPARATUS FOR REMOVING WATER SOLUBLE WASTES OR SALTS FROM AN AQUEOUS SOLUTION

Lee J. Wallace, 6 N. Forest Cir., West Haven, Conn. 06615

Filed Jan. 8, 1973, Ser. No. 321,690

Int. Cl. B01d *1/22*

U.S. Cl. 159—8 **15 Claims**



A method and apparatus for removing water soluble salts from an aqueous salt solution by directing an unsaturated evaporating medium, as for example, unsaturated air, across a readily disposable, movable curtain which has been saturated with an aqueous salt solution whereby the air effects a carryoff of the moisture leaving the salt residue deposited on an expendible screen, with heat being added to the incoming air in the event the air temperature falls below 38° F wet bulb temperature and/or its relative humidity is 85 percent or more. The air laden with moisture passing through the curtain may then be passed in heat transfer relationship to a condensor whereby the moisture is condensed and the condensate collected for use as desired.

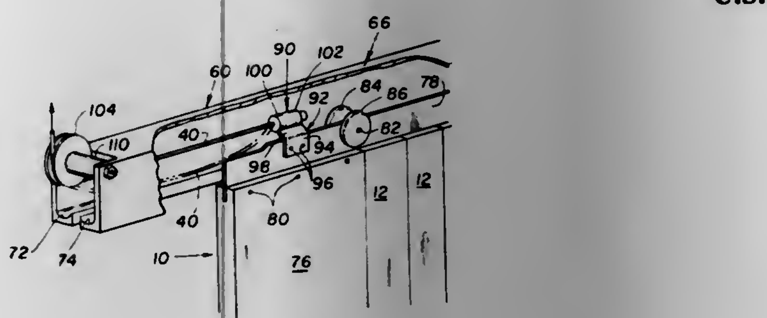
3,833,045
SIDE COILING DOOR

Bernard J. Sivin, Commack, N.Y., assignor to The Celotex Corp., Tampa, Fla.

Filed Nov. 17, 1972, Ser. No. 307,338

Int. Cl. E06b *9/08*

U.S. Cl. 160—133 **1 Claim**



The cable for pulling a side coiling door through closing movement along its upper track is held in offset relation to the vertical plane of the door so that any sag in the cable comes to rest along a horizontally oriented track surface rather than hanging down below said track and causing snagging, adversely detracting from the appearance of the door, or resulting in other shortcomings.

3,833,046
PROCESS AND DEVICE FOR DRAPING OR MAKING UP WALL OR OTHER SURFACES BY MEANS OF FLEXIBLE SHEETS, E.G., OF FABRICS

Gerard Tombu, Place de l'Hotel de Ville 37, 02 Saint Quentin, France

Filed Aug. 22, 1972, Ser. No. 282,805

Int. Cl. A47h *23/00*

U.S. Cl. 160—327 **9 Claims**

The invention pertains to a process for draping or making up wall or other surfaces by means of flexible sheets consisting in fitting, along two borders of the surface to be covered, a clamping profile part, or fixed profile part; in fitting one edge of a first fabric to a first mobile profile part clamped in waiting position to one of said fixed profile parts; in fitting the other edge of the first fabric to the other fixed profile part; in fixing one edge of a second fabric to a second mobile profile part; and in bringing successively both mobile profile parts in their final positions into said fixed profile parts, and also pertains to a device for working this process.

3,833,047
PROCESS AND APPARATUS FOR SUPPLEMENTARY COOLING OF THE CENTER OF A CONTINUOUSLY CAST METAL BAR

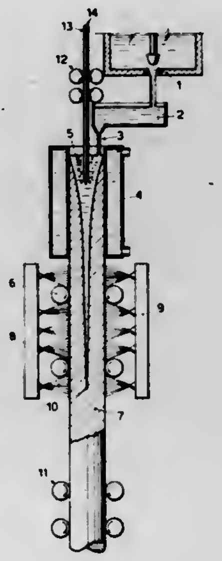
Raffaele Tovini, Milan, Italy, assignor to Dalmine S.p.A., Milan, Italy

Filed Nov. 9, 1972, Ser. No. 304,893

Claims priority, application Italy, Nov. 13, 1971, 31065/71

Int. Cl. B22d *11/10*

U.S. Cl. 164—66 **3 Claims**



An improved process and device for the continuous casting of metal bars wherein an inert gas is insufflated into the liquid metal in the mould through a metal pipe dipped into said liquid metal and having substantially the same composition of the said liquid metal.

3,833,048
APPARATUS FOR THE ACCURATE WEIGHT CASTING OF METAL PLATES

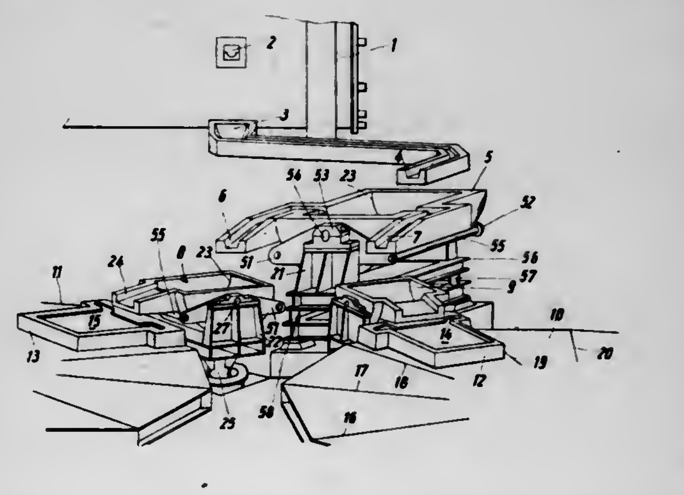
Otto Kreuz, Duisburg, and Stephan Raab, Essen, both of Germany, assignors to Denag Aktiengesellschaft, Duisburg, Germany

Division of Ser. No. 62,051, Aug. 7, 1970, abandoned. This application Apr. 24, 1972, Ser. No. 247,209

Claims priority, application Germany, Mar. 12, 1970, 2011698

Int. Cl. B22d *1/02, 41/06, 47/00*

U.S. Cl. 164—155 **7 Claims**



The apparatus includes a trough arranged to receive the melt material from a furnace which is tilted to dispense a selected quantity and deliver it along the trough into a first large sized vessel which is supported on a differential weighing apparatus. The large sized vessel is then selectively tilted either to the left or to the right in order to pour a quantity of the melt into a smaller size vessel. The quantity poured is equivalent to the weight of the anode to be cast. The smaller size vessel also is supported on a differential weighing apparatus, and, when the required quantity of metal is filled into the small sized vessel, it is tilted to pour the material into a casting mold. Each small size vessel is associated with a casting wheel which has a plurality of molds with openings adjacent the periphery thereof and which are selectively aligned with the smaller size vessels in succession in order to receive a charge of the melt material.

3,833,049

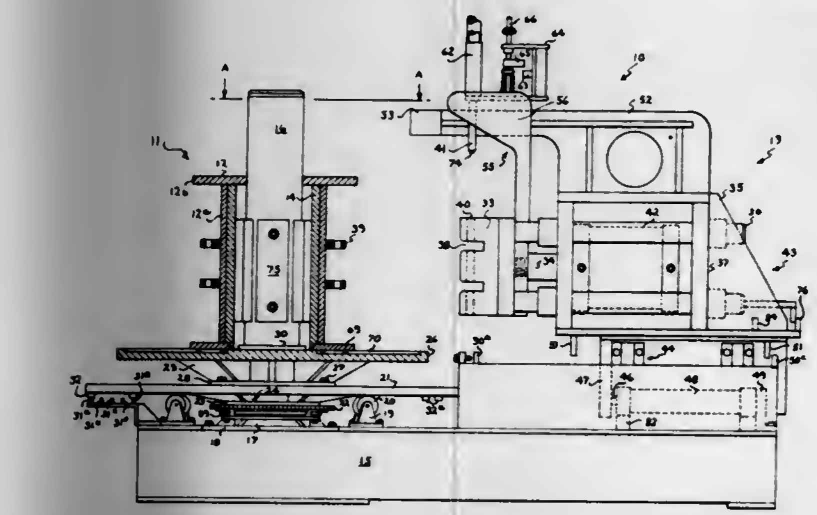
METHOD FOR AUTOMATICALLY STRIPPING A SECTIONALIZED MOLD FROM A CAST

William C. La Bahn, Scotia; Robert G. MacNary, Elnora, and William R. Smith, Ballston Lake, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 220,280, Jan. 24, 1972, Pat. No. 3,821,980. This application Apr. 5, 1973, Ser. No. 348,441

Int. Cl. B22d *29/04*

U.S. Cl. 164—131 **6 Claims**



A highly automated mold stripping machine is described wherein a single jaw sequentially strips mold sections from the cast and subsequently reassembles the stripped sections into a composite unit after removal of the cast from the interior of the stripped sections. A vertically extending, radially expandable arbor serves to retain the cast in position during stripping and dual pistons of diverse diameter drive the stripping jaw into engagement with the mold sections. As each self-supporting mold section is stripped from the cast, the section is released adjacent the edge of the turntable supporting the cast whereafter the arbor is retracted from an engaged position with the cast interior and the mold and stripped cast section are rotated independently of the arbor to register the stripping jaw with a succeeding mold section. After all mold sections have been stripped from the cast, the cast is axially removed from the interior of the stripped sections and the jaws of the stripping machine are again actuated to automatically reassemble the mold for a subsequent cast.

3,833,050

INSTALLATION FOR THE CONTINUOUS CASTING OF NON-FERROUS METALS IN A PROTECTIVE GAS ATMOSPHERE

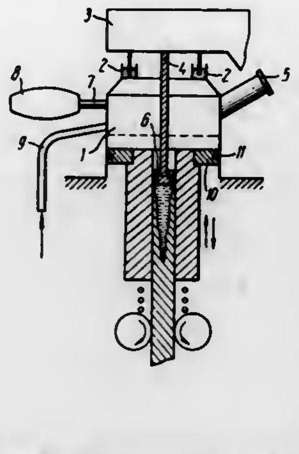
Vladimir Pavlovich Kashuba, ulitsa Lenina, 40, kv. 42; Nikolai Pavlovich Mikhailov, ulitsa Matrosova, 15, kv. 20; Lev Petrovich Fridman, ulitsa Frunze, 13, kv. 16, all of Balkhash, and Vadim Nikolaevich Rattenberg, ulitsa Sedova, korpus I, kv. 31, Moscow, all of U.S.S.R.

Continuation-in-part of Ser. No. 833,954, June 17, 1968, abandoned. This application Mar. 29, 1972, Ser. No. 239,092

Int. Cl. B22d *11/00*

U.S. Cl. 164—281 **1 Claim**

An installation for the continuous casting of non-ferrous metals in a protective gas atmosphere, comprising a mixing chamber for a liquid metal; an open-bottomed chamber filled with a protective gas and which is positioned below and hermetically connected to the mixing chamber; a mold reciprocably positioned in the open-bottomed chamber and adapted to be reciprocated with respect to an ingot being extracted therefrom and with respect to the chamber. A vessel of varying shape and made from an elastic material is connected to the open-bottomed chamber so as to maintain the pressure of the protective gas in the latter above the surface of the liquid metal in the mold at a height not exceeding 3 mm of water column.



3,833,051

HEAT EXCHANGE

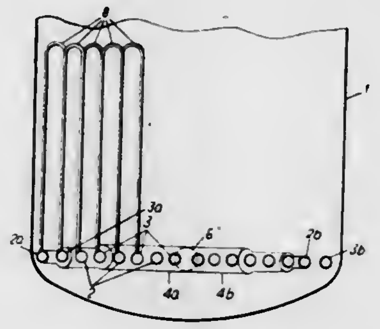
Charles Roger Frank, Stockton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England

Filed May 22, 1972, Ser. No. 255,671

Claims priority, application Great Britain, June 23, 1971, 29393/71

Int. Cl. F28d *13/00*

U.S. Cl. 165—1 **3 Claims**



An arrangement of heat-transfer conduits for a fluidisation vessel comprising a bundle of "hair pin" U-tubes upstanding from interdigitating supply and discharge heaters for the tube bundle.

3,833,052

HUMIDIFYING UNIT

Philip Cardinal, Barrie, Ontario, Canada, assignor to Conat Industries Limited, Toronto, Ontario, Canada

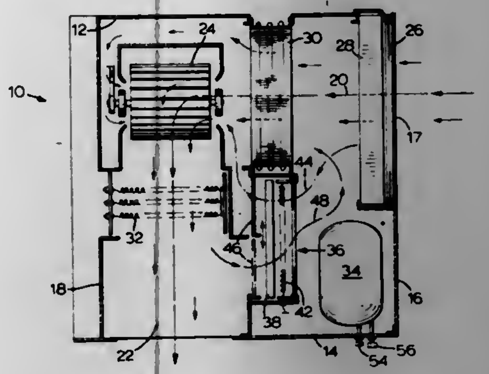
Filed Mar. 27, 1973, Ser. No. 345,268

Claims priority, application Canada, Apr. 26, 1972, 140594

Int. Cl. F24f *3/14*

U.S. Cl. 165—20 **3 Claims**

This invention relates to an air conditioning unit comprising a housing, means defining a substantially L-shaped passage through said housing, said housing having an inlet and an outlet, an air blower in said housing, an air cooling evaporator and a compressor of an air cooling system, said air cooling evaporator being in said L-shaped passage, air heating means in said L-shaped passage, said air cooling evaporator being on the leg of said L-shaped passage adjacent said inlet of said L-shaped passage, said air heating means being on the leg of said L-shaped passage adjacent said outlet of said L-shaped passage, said air blower being between said air cooling evaporator coil and said heating means, said compressor for said air cooling system being nested between the arms of said L-shaped passage.



3,833,053

INSTALLATION FOR THE CONDITIONING OF AIR

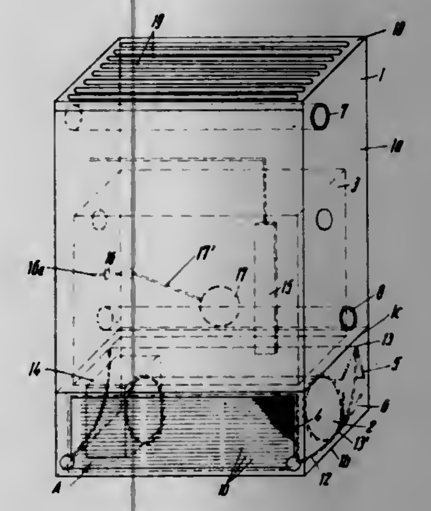
Erich Benteler, Heepen; Wilhelm Schirp, Bergneustadt-Hackenberg; Heinz Menne, Schloss Neuhaus; Otto Eckhardt, Bielefeld, and Wilhelm Mowe, Bad Salzuflen-Schotmar, all of Germany, assignors to Benteler-Werke Aktiengesellschaft, Bielefeld, Germany

Filed July 10, 1972, Ser. No. 271,342

Claims priority, application Germany, July 10, 1971, 2134619

Int. Cl. F24f *3/14*

U.S. Cl. 165—60 **18 Claims**



A first housing is provided, together with a similarly dimensioned second housing. Heat exchange elements are provided in the first housing for the purpose of conditioning the ambient air, and a humidifying arrangement is provided in the interior of the second housing and occupies a substantial portion of this interior.

3,833,054

RADIATOR OF THERMOPLASTIC MATERIAL

Erwin Gross, Burgsolms; Michael Rudbach, Hofheim/Taunus, and Hans Vowinkel, Florsheim am Main, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Luculs & Bruning, Frankfurt am Main, Germany

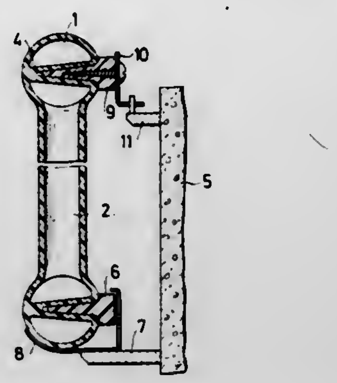
Filed May 2, 1973, Ser. No. 356,468

Claims priority, application Germany, May 5, 1972, 2221971

Int. Cl. F28f *9/26*

U.S. Cl. 165—67 **8 Claims**

A radiator of thermoplastic material having horizontal and vertical water channels is provided wherein narrow stiffening corrugations are molded at least in the back wall of the horizontal water channels and connected with the opposite wall, the corrugations containing holding elements for fixing the radiator at the wall of the building.



3,833,055

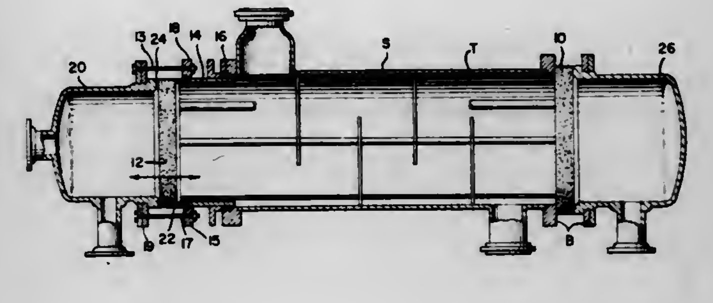
SHELL AND TUBE HEAT EXCHANGER

Frank G. Munz, and Robert W. Naidel, both of Lakewood, Ohio, assignors to Union Carbide Corporation, New York, N.Y.

Continuation of Ser. No. 49,804, June 25, 1970, abandoned. This application July 24, 1972, Ser. No. 274,612

Int. Cl. F28f *5/00*

U.S. Cl. 165—82 **2 Claims**



A shell and tube heat exchanger having a cylindrical shell and carbonaceous tubes held in place by a pair of carbonaceous tube sheets. According to the present invention, a fixed tube sheet is used at one end and a floating tube sheet is used at the opposite end. The floating tube sheet is located entirely outside of the shell and is axially spaced from the end thereof by an elongated metal skirt extending from within the shell into contact with the carbonaceous floating tube sheet. In addition, a packing material is used for sealing while also permitting sliding motion of the metal skirt. The metal skirt is held tightly in contact with the floating tube sheet by clamping means.

3,833,056

HIGH TEMPERATURE COOLING PROCESS AND SYSTEM

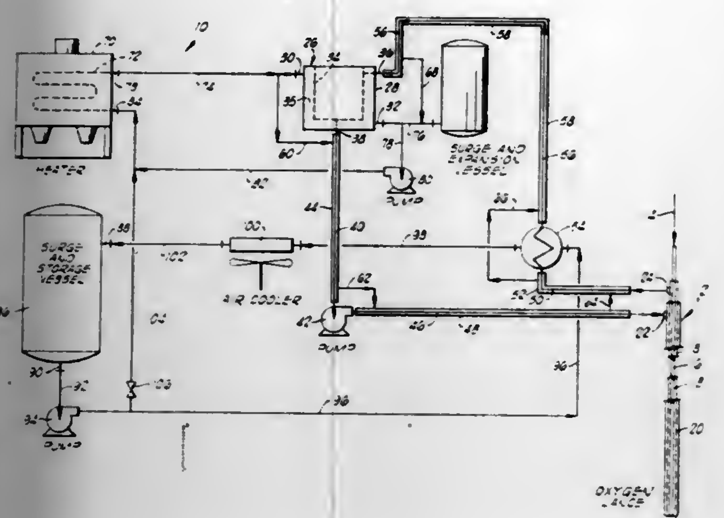
Robert E. McMinn, and Mickey B. Jamison, both of Oklahoma City, Okla., assignors to Black, Sivalls & Bryson, Inc., Oklahoma City, Okla.

Filed Jan. 15, 1973, Ser. No. 323,996

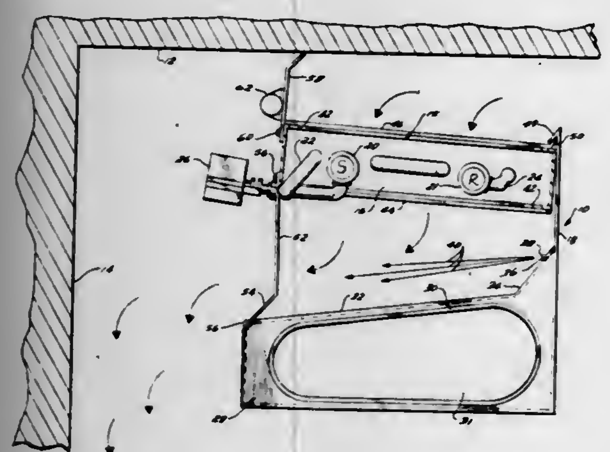
Int. Cl. F28d *15/00*

U.S. Cl. 165—107 **13 Claims**

A process and system for cooling a device subjected to high temperatures wherein a stream of coolant is flowed through the device. The resultant heated stream of coolant is passed in heat exchange relationship with a cooled stream of liquid heat transfer medium so that a quantity of heat is removed from the coolant substantially equal to the heat removed from the device. The stream of coolant is passed in heat exchange relationship with a heated stream of the liquid heat transfer medium so that the coolant is maintained at a desired temperature level and then the coolant is recirculated through the device.

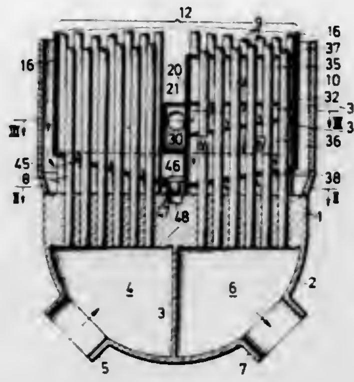


3,833,057
INDUCED AIR COOLING AND HEATING SYSTEM
Robert P. Doherty, 1709 W. 8th St., Los Angeles, Calif. 90017
Filed June 14, 1972, Ser. No. 262,575
Int. Cl. F24f *3/02*
U.S. Cl. 165—123 **18 Claims**



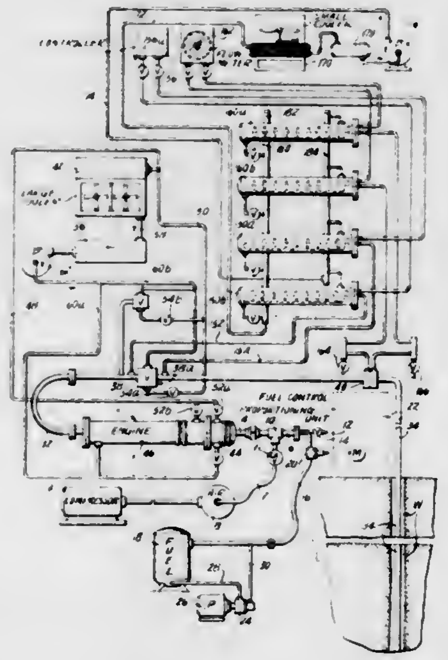
A system for heating and cooling multiple rooms includes a separate induced air heat transfer unit mounted adjacent to the ceiling in each room. Each unit includes a tubular cooling coil, a series of longitudinally spaced apart flat heat transfer fins mounted on the cooling coil, and an elongated, tubular plenum extending below the cooling coil. During the cooling cycle, chilled water is circulated through the cooling coil, and tempered air, i.e., fresh air which has been dehumidified below dew point, and preheated slightly above dew point (52°F.) in a remote central plant, is forced through the plenum. The tempered air is dispersed through slotted openings spaced along the length of the plenum to stimulate the natural convective flow of cool room air through the heat transfer unit. The supply and return pipes for the cooling coil in each room extend through the heat transfer fins and are coupled with a chiller in the central plant to provide continuous circulation of chilled water through the cooling coils. During the heating cycle, water circulation through the cooling coils is stopped, and tempered air is preheated in the central plant and forced through the openings in the plenum.

3,833,058
EVAPORATOR
Johann Gulich, Winterthur, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland
Filed Apr. 9, 1973, Ser. No. 349,569
Int. Cl. F28b *9/22*
U.S. Cl. 165—161 **10 Claims**



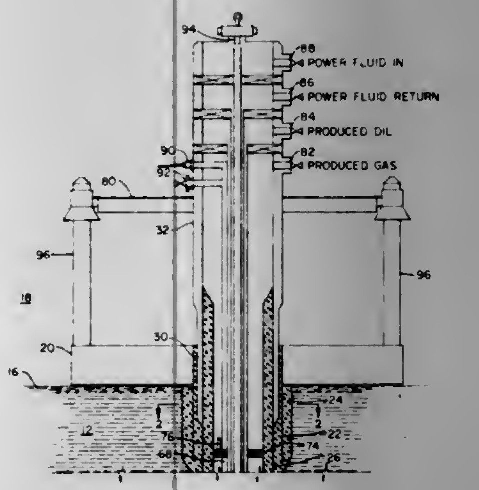
The evaporator is provided with a distributing chamber within the cold tube branches to receive an inflow of fluid to be evaporated. The chamber distributes the flow both downwardly and upwardly. The downward part-flow is directed to flow against the tubes-bottom and then into the outer annular space between the tank wall and guide wall. The flow then passes into the natural circulation flow and is distributed about the hot tube branches from below. The upward part-flow is directed into the interior of the guide wall to mix with the rest of the fluid.

3,833,059
HOT GAS APPARATUS FOR RECOVERY OF OIL VALUES
Purdy L. Sisson, Paducah, Ky., assignor to Motco Inc., Charlotte, Tex.
Filed Feb. 12, 1973, Ser. No. 331,892
Int. Cl. E21b *43/24*
U.S. Cl. 166—57 **8 Claims**



A hot gas process and apparatus for extraction of highly viscous oil from subterranean deposits which employs a rocket engine for generating hot gases which are conveyed into the interior of the oil well to heat the oil deposits. The rocket engine is supplied with compressed air and fuel through a control unit to regulate the pressure of the exhaust gases exiting from the engine. A back-pressure control valve and an orifice metering valve are connected in the exhaust conduit between the engine and oil well to control the pressure and flow of the exhaust gases into the well. A plurality of automatically controlled heat exchangers and cooling units are connected with the back-pressure control valves exhaust gas conduit, and orifice metering valve to maintain the exhaust gas temperature and back pressure at desired predetermined levels for high temperature operation, resulting in highly efficient operation and a low fuel consumption.

3,833,060
WELL COMPLETION AND PUMPING SYSTEM
Donald E. Craggs; Richard S. Gillen, both of Ventura, and Stephen C. Lipman, San Marino, all of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.
Filed July 11, 1973, Ser. No. 378,203
Int. Cl. E21b *43/00*
U.S. Cl. 166—68 **5 Claims**

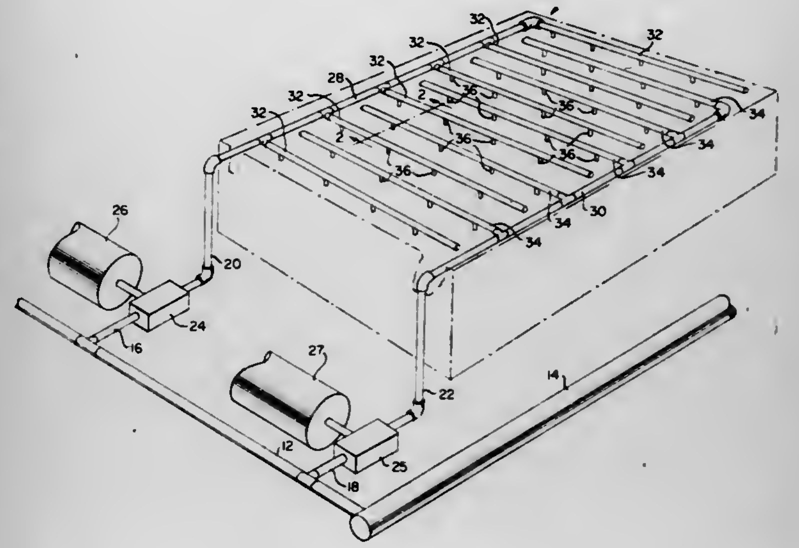


A well completion and pumping system employing a free-type, hydraulic-drive, bottom-hole pump powered by a closed power fluid system, and providing separate means for producing gas and oil. The well is completed with three concentric fluid-carrying conduits installed within a production casing. The innermost circuit is used to supply power fluid to the pump, and the pump is placed in the well and recovered through this conduit. Power fluid exhaust from the pump engine is returned up the annulus between the center conduit and the next outer conduit, and the produced oil is pumped up the annulus between the second and third concentric conduits. The well annulus between the third conduit and the production casing is vented to recover gas, and hydraulic control piping and instrumentation cable is installed in this annulus on the exterior of the third conduit.

3,833,061
METHOD FOR SELECTIVELY REDUCING BRINE PERMEABILITY IN A SUBTERRANEAN OIL-WET FORMATION
James W. Gall, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Dec. 27, 1972, Ser. No. 318,848
Int. Cl. E21b *33/13*
U.S. Cl. 166—294 **9 Claims**

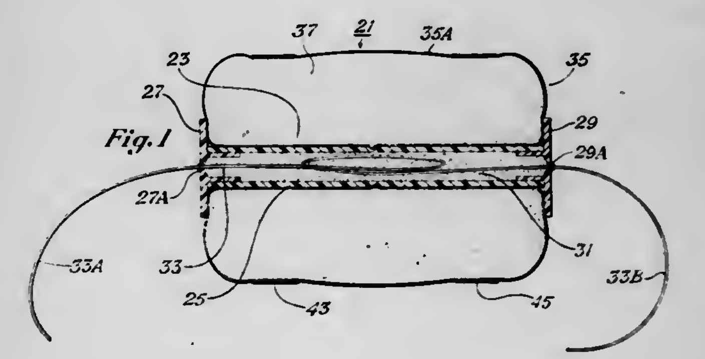
A method for selectively reducing the permeability of an oil-wet subterranean formation penetrated by at least one well bore by passing an oxidizing agent through and in contact with the formation for oxidizing and removing hydrocarbon from the surfaces of the formation and thereafter contacting the treated formation surfaces with a crosslinked polymer for selectively reducing the permeability of the formation to brine while maintaining the permeability of the formation to hydrocarbon fluids relatively unchanged.

3,833,062
SYSTEM AND METHOD FOR EXTINGUISHING FIRE
William L. Livingston, Sharon, Mass., assignor to Factory Mutual Research Corporation, Norwood, Mass.
Filed June 15, 1972, Ser. No. 263,249
Int. Cl. A62c *35/00*
U.S. Cl. 169—15 **26 Claims**



A system and method for extinguishing fires is provided which includes applying an aqueous solution of a gel-forming material to structures in an area to be protected and separately applying an aqueous solution of a gel-inducing material to the same structures so that the solutions will mix and form a blanket of gas impervious aqueous gel which flowingly envelopes the structures and tends to smother any fire therein. The preferred gel-forming material is polyvinyl alcohol and the preferred gel-inducing material is borax.

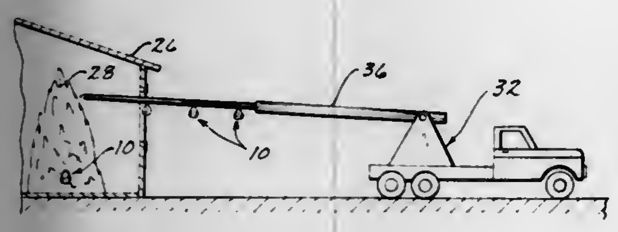
3,833,063
NONFRAGMENTING PYROTECHNIC FIRE EXTINGUISHER
Robert A. Williams, Fort Worth, Tex., assignor to Pyro Control, Inc., Fort Worth, Tarrant, Tex.
Filed Feb. 15, 1972, Ser. No. 226,792
Int. Cl. A62c *35/00*
U.S. Cl. 169—28 **9 Claims**



The specification discloses a pyrotechnic fire extinguisher comprising an explosive charge and a breakable cover forming a zone near the explosive charge for holding fire extinguishing powder. A heat sensitive metallic fuse extends to the explosive charge and has a portion thereof exposed to the exterior environment to sense for heat. Heat from a fire will ignite the fuse which in turn will cause the explosive charge to explode. This will cause the cover to break open and force the powder outward.

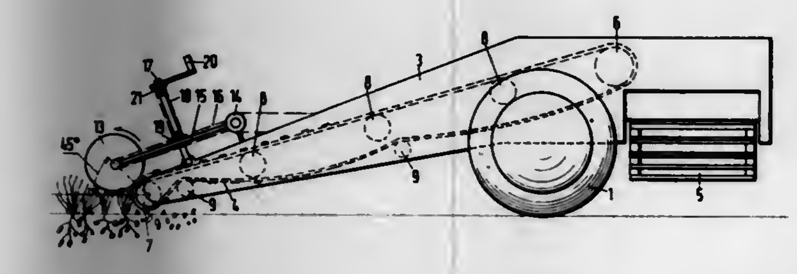
In one embodiment the explosive charge is held in a container which is grooved or notched selectively between its ends to prevent fragmentation of the container. Explosion of the charge causes the container to break open to direct the force of the explosion into the powder. In one embodiment the cover also is grooved selectively to facilitate breaking thereof and to prevent fragmentation when the charge is exploded.

3,833,064
MEANS FOR EXTINGUISHING FIRES
Joseph W. Ranney, Jr., Council Bluffs, Iowa
Filed Aug. 1, 1972, Ser. No. 277,089
Int. Cl. A62c *3/00*
U.S. Cl. 169—52 **3 Claims**



A means for extinguishing fires comprising a container filled with a fire extinguishing material such as A.B.C. A blasting agent and detonator therefor are provided in the container for exploding the container at a predetermined time so that the fire extinguishing material will be scattered over the fire to extinguish the same. The container may be manually thrown into the fire or it may be conveyed into the fire by means of a boom truck apparatus or the like. A modified form of the conveying apparatus is disclosed together with the container adapted for use therewith.

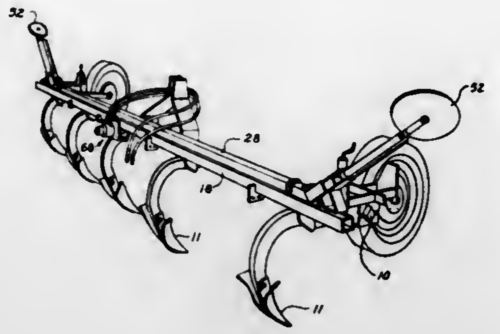
3,833,065
HAULM PLUCKER
Auko Hamminga, Siddeburen, Netherlands, assignor to Transportbandenfabriek E.A. Broekema B.V., Hellum, Netherlands
Filed Jan. 29, 1973, Ser. No. 327,760
Claims priority, application Netherlands, Jan. 27, 1972, 1102
Int. Cl. A01d *23/00*
U.S. Cl. 171—28 **11 Claims**



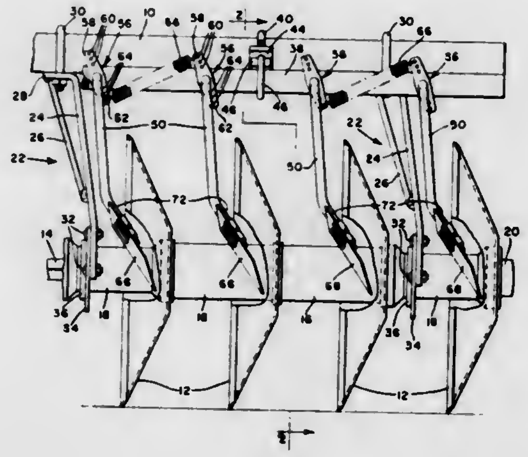
A haulm plucker is provided with means forming a nip transverse to the direction of travel. At least one surface leading to the nip is moved at a relatively high speed, thereby to cause haulm to be separated from potatoes or other tuberous crop with a sudden jerk, which the crop buried in the soil is unable to follow. In a preferred embodiment the speed is adjustable to the kind of soil and crop.

3,833,066
ROW MARKER
Lloyd A. Hitt, 6306 Raleigh Ave., Lubbock, Tex. 79414
Filed June 19, 1973, Ser. No. 371,419
Int. Cl. A01b *17/00*
U.S. Cl. 172—131 **16 Claims**

A track is clamped to a tool bar parallel thereto. A carriage in the track is reciprocated from one side to the other by a rack and pinion formed by a chain welded to the carriage and a sprocket operated by a hydraulic motor mounted on the track. A cam plate on the end of the carriage permits markers to be folded down in the marking position and folded up in the carry position. Knee action permits the marker to flop backwards when an obstruction is struck.

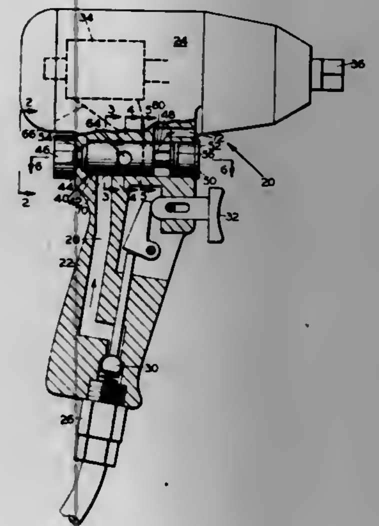


3,833,067
SPRING BIASED SCRAPER FOR DISK IMPLEMENTS
Willard Emanual Peterson, Jr., Colona, and Charles Harold Youngberg, Moline, both of Ill., assignors to Deere & Company, Moline, Ill.
Filed Oct. 30, 1972, Ser. No. 302,139
Int. Cl. A01b *15/16, 23/06, 39/22*
U.S. Cl. 172—566 **5 Claims**



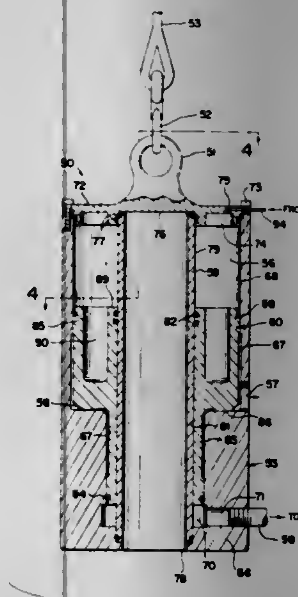
Scraper apparatus for the soil engaging disks on a disk implement, the apparatus including a plurality of scraper arms, one for each disk, pivotally mounted at their upper ends on a support member for movement of their lower ends toward and away from their associated disks. The support member is adjustably mounted on the implement frame to afford common adjustment of the scraper arms radially with respect to the disks. A scraper blade is mounted on the cylindrical lower end of each arm by means of a U-shaped bracket extending through an aperture in the blade and rotatably receiving the lower end of the arm, the bracket having a pair of outwardly flanged legs engageable with the blade to limit movement of the blade radially relative to the arm, and the arm having a stop pin engageable with the edges of a circumferential slot in the bracket to limit axial movement of the blade relative to the arm. Each scraper arm includes an upper and lower spring anchor disposed above and below, respectively, the axis of the pivotal connection of the arm and support, each anchor having a plurality of spring anchor points thereon disposed at varying radial distances from the pivot axis. A spring connects the lower anchor on one of the arms with the upper anchor on the immediately adjacent arm to bias the scraper blades on the lower ends of both arms toward their respective disks, the spring being adjustable on the spring anchor points to vary the force of the blades against the disks.

3,833,068
CONTROLLED POWER PNEUMATIC IMPACT WRENCH
Walter Dennis Hall, Portland, Oreg., assignor to Automotive Industrial Marketing Corporation, Portland, Oreg.
Filed July 26, 1973, Ser. No. 383,440
Int. Cl. B25b *21/00*
U.S. Cl. 173—169 **2 Claims**



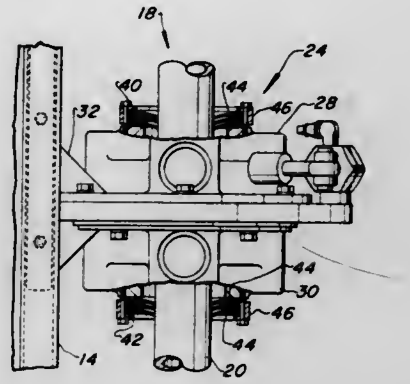
A controlled torque reversible pneumatic impact wrench for use particularly in mounting the wheels of automotive vehicles equipped with disc brakes is provided with an air regulating valve introducing differential flows of air to the rotor during the forward and reverse drive conditions of the wrench. In the reverse drive condition of the wrench full air pressure is applied. In the forward drive condition thereof, a restricted air volume is applied as required to develop a predetermined maximum torque.

3,833,069
IMPACT APPARATUS
Carl F. Back, Orrville, Ohio, assignor to The Sanderson-Cyclone Drill Company, Orrville, Ohio
Filed July 2, 1973, Ser. No. 375,508
Int. Cl. B25d *9/00;* **E02d** *7/00*
U.S. Cl. 173—120 **2 Claims**



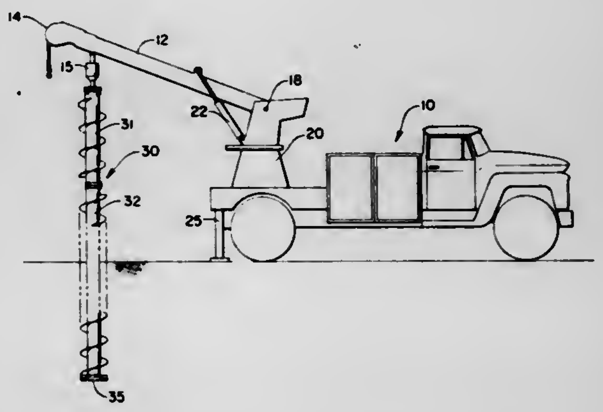
An impact apparatus, or driving tool for pipe or piling, with pneumatic-hydraulic actuation. The apparatus is selectively positioned relative to a surface or object to be impacted. The apparatus has a hammer barrel housing an anvil surface and a piston element. The piston element is reciprocated relative to the anvil surface by intermittent application of hydraulic pressure.

3,833,070
RESILIENT DRILL STRING GUIDE AND SEAL
Floyd R. Anderson, Quincy, Ill., assignor to Gardner-Denver Company, Quincy, Ill.
Filed Mar. 23, 1973, Ser. No. 344,372
Int. Cl. E21b *19/16*
U.S. Cl. 173—164 **4 Claims**



A guide or centralizer characterized by a plurality of radially inwardly projecting wire bristles formed in a ring brush assembly for engagement with the elongated drill string sections of a rock drilling apparatus. The resilient character of the brushlike guide prevents scoring or galling of the drill string section outer surface under heavy lateral forces tending to deflect the drill string. The brushlike guide also serves as a dust and rock chip seal for a joint breakout mechanism.

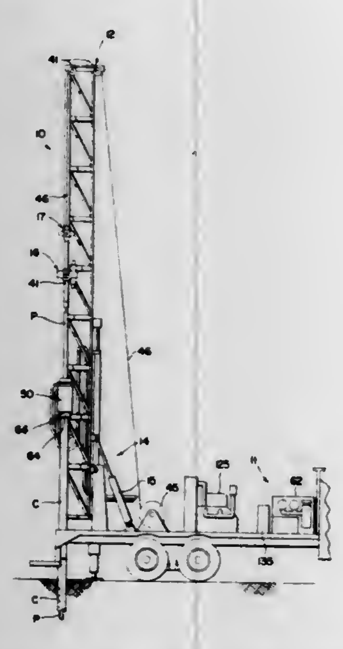
3,833,071
APPARATUS AND PROCESS FOR SOIL DEWATERING
Ronald L. Koosman, 7320 Minnetonka Blvd., St. Louis Park, and Norman E. Charlson, Jr., 1020 50th Ave. N.E., Minneapolis, both of Minn.
Filed May 3, 1973, Ser. No. 356,827
Int. Cl. E21b *3/02*
U.S. Cl. 175—57 **25 Claims**



An improved soil dewatering process and well drilling method which utilizes support equipment for a hollow core auger and a drive unit for the same which will permit drilling of a test hole, a well hole, and insertion of a well casing into the soil at a desired well depth for the purpose of lowering a water table or pumping water from the ground. The hollow auger is utilized to house the casing after the hole is initially drilled and a suitable plug in the end of the same is disposable and will be removed therefrom as the casing is inserted to insure that the auger may be backed out of the ground leaving the casing therein. The casing is sealed and incorporates its own screening in the form of slits therein which permits entrance of water into the casing so that a submersible pump and riser may be inserted into the same for pumping purposes. A quick disconnect coupling is incorporated into the method and apparatus to enable ready coupling of plural auger sections to obtain desired depth of well, the coupling providing a portion which will effect rotational thrust between sections and between the auger and the drive unit with a second portion overlapping the same and providing an axial coupling between parts to insure against separation of the same.

3,833,072
DRILLING MACHINE WITH DRIVING TOOL FOR CASING OR PIPE

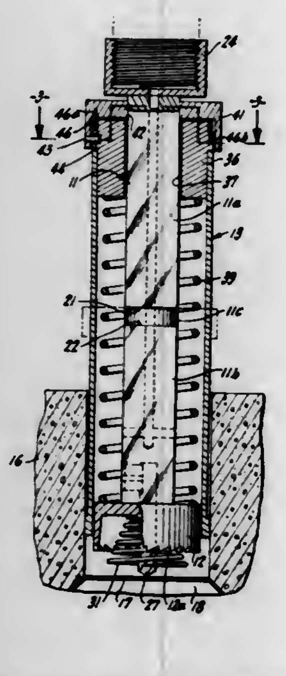
Carl F. Back, Orrville, Ohio, assignor to The Sanderson-Cyclone Drill Company, Orrville, Ohio
Filed July 2, 1973, Ser. No. 375,509
Int. Cl. F21b *19/00;* B25d *9/00*
U.S. Cl. 175—85 **5 Claims**



A drilling machine having a tower with drill power means movable lengthwise thereon and carrying drill pipe sections. The drilling machine carries a driving tool for casing sections or pipe. The driving tool has pneumatic-hydraulic actuation and is mounted to be positioned coaxially of a drill pipe section. The driving tool is used to impact a casing section relative to the drill pipe sections.

3,833,073
FLOOR TAP INSERT DRILL

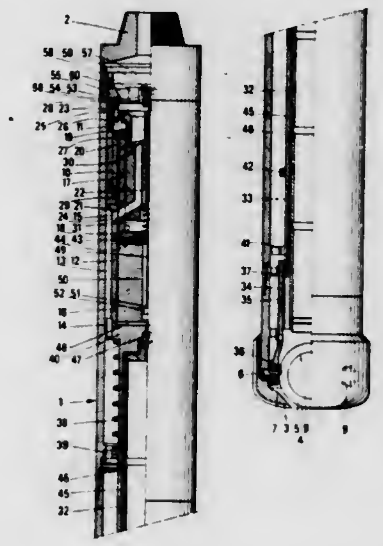
Charles M. Carver, 435 19th Ave., San Francisco, Calif. 94121
Filed July 16, 1973, Ser. No. 379,586
Int. Cl. E21c *1/14;* E21b *9/36, 11/00*
U.S. Cl. 175—173 **13 Claims**



Drill for successively drilling holes of different diameters. A circular hole saw is affixed to one end of a shaft, and a cylindrical core bit is slidably mounted on the shaft and movable between extended and retracted positions relative to the hole saw. Means is provided for releasably locking the core bit in its extended position, and shift mechanism is provided for operating the lock means and moving the core bit between the extended and retracted positions.

3,833,074
REMOTELY ACTUATED DEVICE FOR SURVEYING UNDERGROUND STRATA

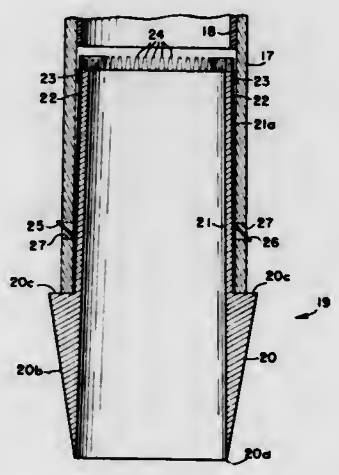
Lucien Courtois, Paris, France, assignor to Institut Francais du Petrole, des Carburants et Lubrifiants, Rueil-Malmaison, France
Filed Dec. 13, 1972, Ser. No. 314,527
Claims priority, application France, Dec. 17, 1971, 71.45655
Int. Cl. E21b *7/00, 25/00, 9/36*
U.S. Cl. 175—87 **23 Claims**



Device for taking cores of the ground formations at different levels of a well, adapted to be operated successively as a drilling apparatus and as a coring apparatus and comprising remotely controlled means for passing from drilling conditions to coring conditions and vice-versa by actuating a retractable plug member of the coring crown of the device by means of a variation of the flushing fluid pressure and/or a rotation of the device.

3,833,075
EXPENDABLE CORE NOSE AND CORE CATCHER RETAINER

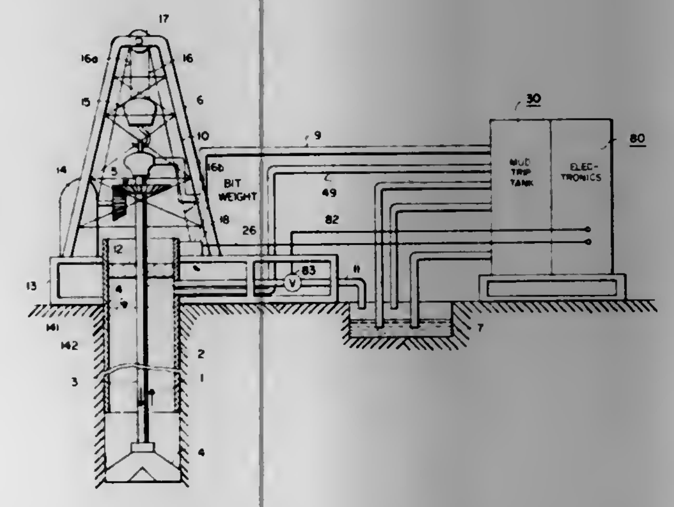
Richard T. Bachman, La Mesa, and Lawrence R. O'Mara, San Diego, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Oct. 12, 1973, Ser. No. 405,995
Int. Cl. E21b *25/00, 9/20*
U.S. Cl. 175—20 **10 Claims**



An improved corer for taking a core sample of marine sediment is dropped onto and embedded in the ocean floor. During penetration, a core sample fills an elongate barrel member. As the corer is withdrawn, a tapered corer nose remains in the sediment while the elongate barrel member is pulled free. Simultaneously, a cylindrically shaped array of flexible fingers are drawn together by an elastic band to retain the core sample inside the barrel member. Since the flexible fingers are held outside of the path of the core sample as it enters the barrel member, there is no disturbance or commingling of the different layers of the core sample when it is being taken. A one-way valve and the flexible fingers cooperate to retain the intact core sample while it is being lifted to the surface to provide an undisturbed specimen for later study by marine geologists and oceanographers.

3,833,076
SYSTEM FOR THE AUTOMATIC FILLING OF EARTH BOREHOLES WITH DRILLING FLUID

Phil H. Griffin, III, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.
Continuation-in-part of Ser. No. 231,679, March 3, 1972, abandoned. This application June 29, 1973, Ser. No. 375,261
Int. Cl. E21b *21/04*
U.S. Cl. 175—38 **5 Claims**

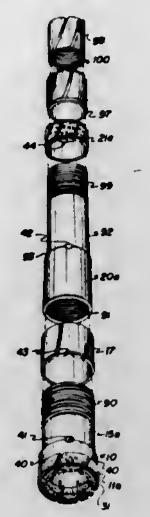


A drilling fluid tank has a float ball therein connected to one end of a flexible cable having a weight on its other end for contacting a pair of electrical switches in response to the movement of the float ball. The cable also has a plurality of spaced triggers for contacting a third switch providing electrical signals indicative of the incremental volumetric flow of mud from the tank into the well bore. Two pairs of solenoid actuated valves are logically responsive to the position of the float ball, to a deadline sensor indicative of hook load and to a paddle sensor located in the drilling fluid return line from the well bore, and automatically control the filling of the tank, the emptying of the tank and the amount of drilling fluid that is allowed to pass into the earth borehole. Electrical circuitry is also provided which measures the amount of fluid passing into the borehole and compares the measured amounts with preselected values and which causes alarms to be activated in the event that the actual fluid volume passing into the well bore falls outside the predetermined values.

3,833,077
DIAMOND DRILLS

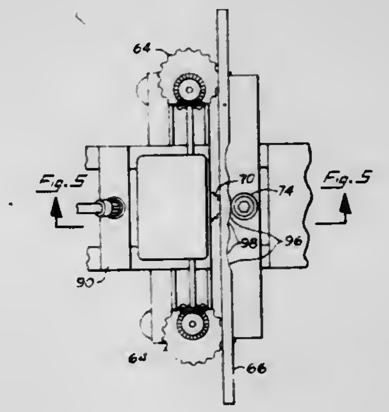
Lionel Lavallee, Errington St., Chelmsford, Ontario, Canada
Filed Apr. 1, 1971, Ser. No. 130,387
Claims priority, application Canada, Feb. 12, 1971, 105265
Int. Cl. E21b *17/10;* E21c *9/00*
U.S. Cl. 175—325 **10 Claims**

A drilling section for diamond drills consisting of a drill bit and a reamer wherein the direction of the drill hole is controlled by the provision of cylindrical surfaces behind the cutting portion of the bit and the reamer, such cylindrical surfaces having a diameter which is slightly less than that of the cutting portion and the reamer. The outer surfaces of the drill assembly including the cutting portion of the bit and the core bar may be provided with spiral grooves to assist the circulation of water.



3,833,078
SHORT TURN VEHICLE

Ray Owen Chaney, and Emsley M. Chaney, both of Rural Rt. No. 2, Sidney, Ohio 45365
Filed Nov. 13, 1972, Ser. No. 306,043
Int. Cl. B62d *3/12*
U.S. Cl. 180—42 **13 Claims**

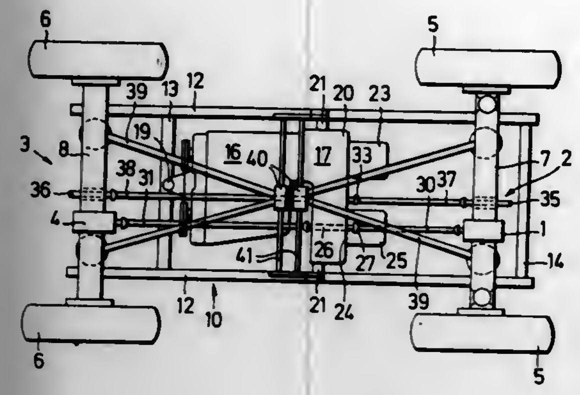


Steering mechanism comprising a pair of steerable wheels which are rotated by respective eccentric gears that are in turn rotated by a steering bar having gear tooth engaging surfaces which engage and drive the eccentric gears. The steering bar is reciprocated longitudinally by a pinion gear located between the eccentric gears and which is held in engagement with the steering bar by a retaining surface that abuts the opposite side of the steering bar from the pinion gear.

3,833,079
VEHICLE, ESPECIALLY MOTOR VEHICLE FOR AGRICULTURAL PURPOSES

Arno Gego, Aachen, Germany, assignor to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne, Germany
Filed Aug. 14, 1973, Ser. No. 388,229
Claims priority, application Germany, Aug. 17, 1972, 2240415
Int. Cl. B60k *17/34*
U.S. Cl. 180—44 F **10 Claims**

A vehicle, especially for agricultural purposes, having a frame with front and rear axles resiliently supported therebeneath and with a driving unit in the frame in about the middle of the length of the frame. The driving unit includes an engine having the crankshaft extending in the fore and aft direction of the frame and offset laterally from the longitudinal center of the frame. A hydrostatic pump is connected to the crankshaft and a hydrostatic motor in circuit with the pump drives through a geared transmission to the axles. Wishbone shaped brace members have the free ends of the legs connected to the axles and extend in about the same horizontal plane to the longitudinal center of the frame and are pivotally connected to the frame near the center thereof.



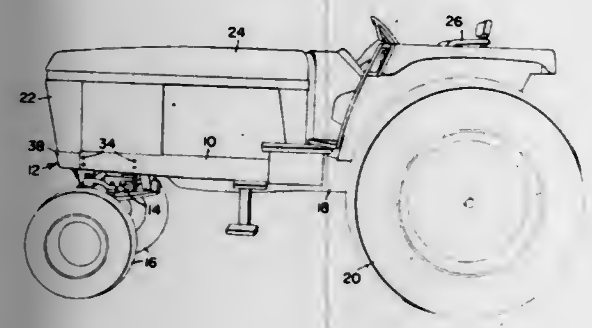
3,833,080
TRACTOR FRONT END CONSTRUCTION

Norman Frederick Lemmon, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Apr. 5, 1973, Ser. No. 348,182

Int. Cl. B62d *5/10*

U.S. Cl. 180—79.2 R **5 Claims**



A front end construction for an agricultural tractor or like vehicle comprising a unitary support mounted between the forward ends of the tractor frame and provided internally with chambers housing the hydraulic steering motor for the vehicle front wheels and provided externally with mounting portions for carrying additional tractor-related components.

3,833,081
FLUID POWER STEERING MACHINE

Akira Suzuki, Nishio, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Aichi Pref., Japan

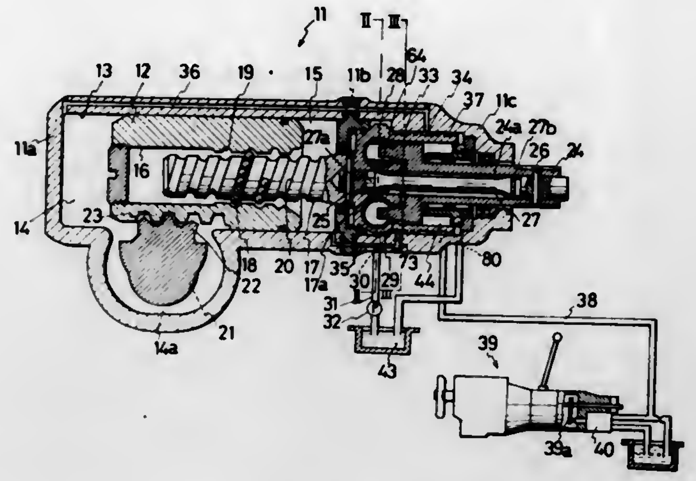
Filed Aug. 11, 1972, Ser. No. 279,776

Claims priority, application Japan, Aug. 26, 1971, 46-65366

Int. Cl. B62b *1/00*

U.S. Cl. 180—79.2 **5 Claims**

A fluid power steering mechanism for a vehicle comprising an operating rod operably connected with dirigible wheels through an actuator, a manually operable steering shaft coaxially with said operating rod and elastically connected with the same through a resilient means, a control valve means provided in said operating rod and operating said actuator by relative rotational displacement of said operating rod and steering shaft and a resistant means whereby said resistant means are communicating with a fluid pressure source generating a pressure in response to the vehicle speed and obtaining a steering resistance in response to the vehicle speed for a steering wheel cooperably connected to said steering shaft.



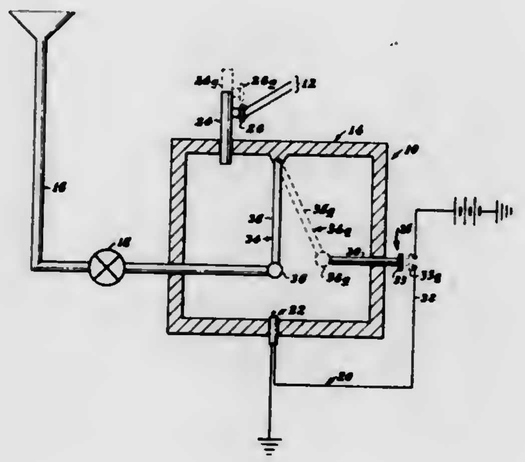
3,833,082
DE-ENERGIZING MEANS

Harry R. Wenger, 2607 S. Manhattan, Burlington Woods, Muncie, Ind. 47302

Filed Aug. 13, 1973, Ser. No. 387,685

Int. Cl. B60k *27/08*

U.S. Cl. 180—99 **4 Claims**



Automatic de-energizing means for vehicle starter circuitry, in which the vehicle is provided with a chamber into which a person may blow a specimen of his breath; and there is an auxiliary ignition means having a sparking component in the chamber means, with activation means to cause it to spark, thus providing that if the breath specimen in the chamber means is of sufficiently high alcohol content it will explode and thereby de-energize the vehicle's starter circuitry.

3,833,083
DETECTION OF ABSENCE OF CONCENTRATION AND COHERENCE IN A SUBJECT

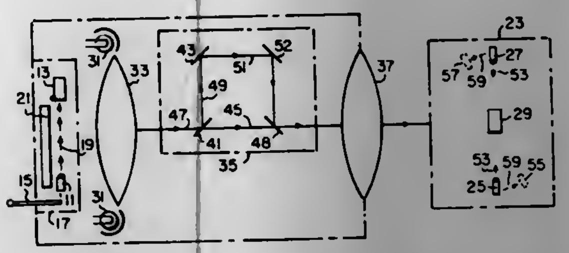
Horst Kunig, R.D. No. 1, Saltsburg, Pa. 15681

Filed Jan. 8, 1973, Ser. No. 321,689

Int. Cl. B60k *27/08*

U.S. Cl. 180—99 **5 Claims**

Absence of concentration and coherence in a subject is detected by evaluating the success which the subject has in moving a first object into engagement with a second object over a path which permits the first object to deviate from direct movement to the second object. The moving operation which the subject carries out is not directly visible to the subject; he sees only direct and reverse images of the movement which merge when the second object is engaged by the first object. Deviations from direct movement appear oppositely on the direct and reverse images and the images cannot be coordinated by a subject lacking concentration and coherence. The invention is applied to the movement of a connecting mechanism to energize the ignition of an automotive vehicle. A drunken driver would be unable to effect this movement and start the vehicle successfully.



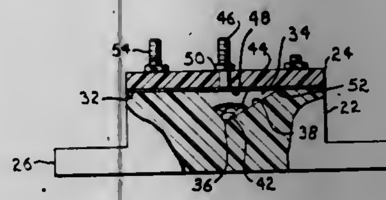
3,833,084
ATTITUDE RESPONSIVE SWITCH FOR VEHICLE SAFETY SYSTEM

Kent Doud Henderson; Kenneth T. Henderson, both of Filer, and Leon E. Smith, Jr., Twin Falls, all of Idaho, assignors to Tilt-Safe, Inc., Twin Falls, Idaho

Filed Jan. 12, 1973, Ser. No. 323,380

Int. Cl. B60k *27/08*

U.S. Cl. 180—104 **7 Claims**



Safety apparatus for a self-propelled vehicle disables the engine of the vehicle if the critical angle of pitch or roll is approached during vehicle operation. An attitude responsive switch senses the position of the vehicle, and employs a reservoir containing a small quantity of mercury. The reservoir is formed in a body of insulating material, and may be of an inverted, irregular cone shape presenting a sidewall that diverges from a vertical axis to a degree depending upon the critical angles of pitch and roll. When a critical angle (less a safety factor) is reached, the mercury gravitates along the sidewall to the edge of the reservoir and bridges a pair of contact elements that define a narrow, annular space therebetween extending completely around the edge. In diesel engine applications, closing of the switch effected by bridging the elements energizes a solenoid operated fuel shut-off valve to kill the engine.

3,833,085
LOW-FREQUENCY LOUD SPEAKER

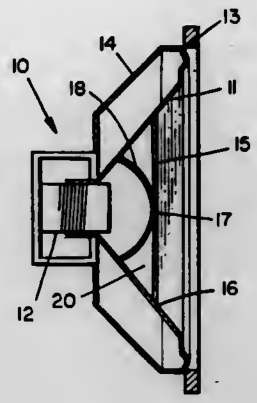
Norman Leonard Thomasen, 760 Market St., Suite 315, San Francisco, Calif. 94102

Filed Mar. 21, 1974, Ser. No. 453,512

Int. Cl. H04r *7/00;* **G10k** *13/00*

U.S. Cl. 181—32 R **3 Claims**

A low-frequency loudspeaker overcoming a tendency to provide excessive midrange acoustic output. A circular attenuator disk of a low-density material is secured axially to and covers the central radiating surface area of the loudspeaker's conical diaphragm, being attached adhesively at its periphery to the diaphragm at a circle spaced inwardly from the outer periphery of the diaphragm. The disk is also attached at its center to the support dome for the loudspeaker, and it lies substantially in a single plane, thereby forming an airtight chamber between the disk and the diaphragm. As a result, the excessive midrange acoustic output efficiency is dissipated within the chamber, only the excessive midrange acoustic output efficiency being attenuated, and this is done without altering the electro-magnetic circuit properties of the loudspeaker. The loudspeaker's acoustic output performance is thereby brought to a substantially uniform level over its entire operating range.



3,833,086
SOUND AND VIBRATION INSULATING PANEL

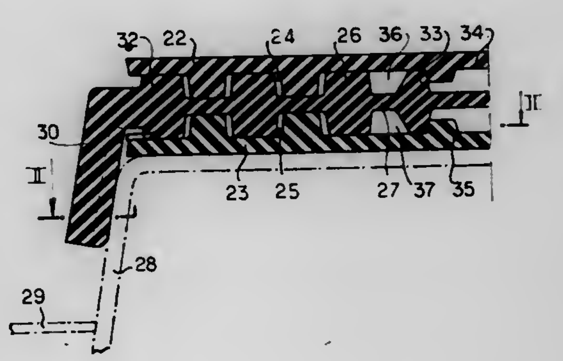
Andre Giraudeau, 3 Rue de La Republique, 95160 Montmorency, France

Filed Aug. 10, 1972, Ser. No. 279,519

Claims priority, application France, Aug. 10, 1971, 71.29241

Int. Cl. E04b *1/84*

U.S. Cl. 181—33 A **3 Claims**



A sound and vibration insulating panel is made of an elastomer material and includes upper and lower plates with annular ridges lying opposite one another. When assembled on an intermediate member having annular ridges on both faces, the two plates have their respective ridges interdigitating the ridges of the intermediate member.

3,833,087
DEVICE FOR GENERATING ACOUSTIC WAVES BY IMPLOSION

Jacques Cholet, Rueil-Malmaison, France, assignor to Institut Francais du Petrole, des Carburants et Lubrifiants, Rueil-Malmaison (Hauts-de-Seine), France

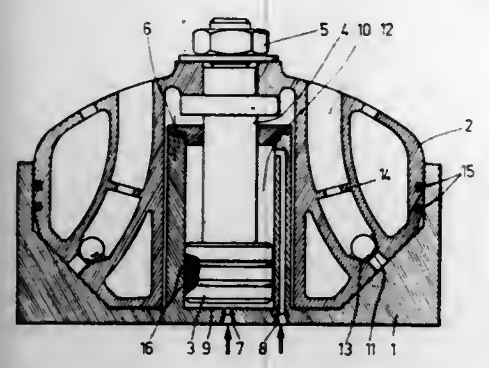
Filed Jan. 11, 1972, Ser. No. 216,962

Claims priority, application France, Jan. 19, 1971, 71.1719

Int. Cl. G01v *1/02*

U.S. Cl. 181—.5 H **17 Claims**

Device for generating acoustic waves by implosion comprising two stationary cylinders, two pistons solid with each other and each slidably mounted each in a separate cylinder but with different strokes so that one piston can be placed, by acting on the other piston, in a position of disengagement from the closed portion of its cylinder. A sealing arrangement is provided for insulating the last-mentioned cylinder from the external medium as long as its piston is not disengaged from the closed portion thereof. Intermittent communication



between said closed portion of the cylinder and the external medium is established when the piston is displaced in said closed portion towards the bottom thereof.

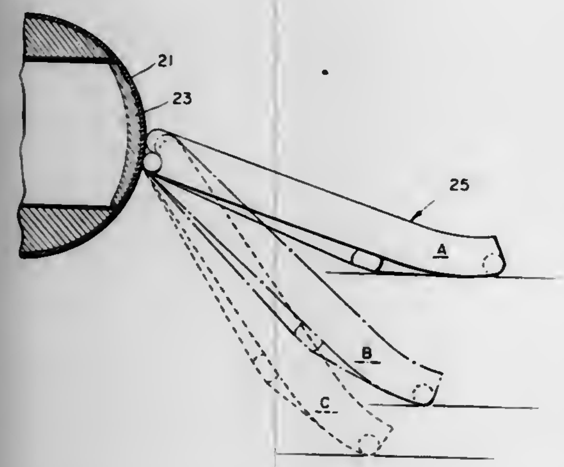
3,833,088
SLIDE-RAFT FOR EMERGENCY AIRCRAFT EVACUATION

Joseph Nmi Chacko, Corte Madera; Ronald H. Day, Mill Valley, and Robert S. Satterfield, Pleasant Hill, all of Calif., assignors to Sargent Industries, Inc., Los Angeles, Calif.

Filed Oct. 18, 1972, Ser. No. 298,563

Int. Cl. A62b *1/20*; **B65g** *11/10*

U.S. Cl. 182—48 **27 Claims**



An evacuation device which inflates automatically upon opening of the door of an aircraft unless predetermined actions are accomplished before the door is opened. The device comprises individually operable and pneumatically distinct upper and lower inflation tube assemblies which support a slide surface therebetween across which persons jumping from the aircraft may slide to ground level. A canopy is provided which may be fastened across the slide surface so that the device can be utilized as a raft in an aircraft ditching situation. If desired, the capacity of the raft can be increased by the provision of sponsons integral with each of the inflatable tube assemblies and extending laterally therefrom.

3,833,089
FOLDABLE STEP STOOL

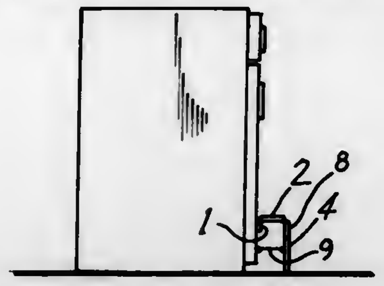
James Backwell, Kitchener, Ontario, Canada, assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed June 19, 1973, Ser. No. 371,465

Int. Cl. E06c *9/06*

U.S. Cl. 182—91 **1 Claim**

A foldable step stool adapted to be affixed to an upright surface for providing access to a height above the stool comprises a first member adapted to be affixed to an upright surface. A second member is hingedly affixed to the upright surface and is movable from a position substantially coplanar with the first member to a position at substantially right angles to the first member. A third member is hingedly affixed to the second member and is movable from a position substantially perpendicular to the second member to a position substantially parallel to the second member.



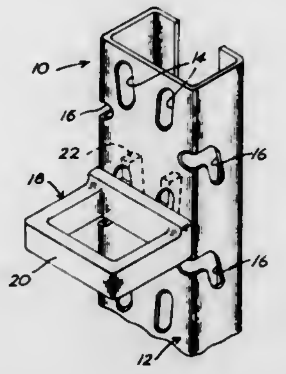
3,833,090
SETTABLE LUGS FOR CLIMBING RACKS

Rodney A. Georgianna, 320 Bridge, Ashland, Oreg. 97520

Filed Aug. 29, 1973, Ser. No. 392,435

Int. Cl. E06c *7/08*

U.S. Cl. 182—92 **3 Claims**



Warehouse racks are commonly provided which include upright posts of sheet metal having numerous slots in their faces and sides for the reception of longitudinally extending and transversely extending shelf supporting bars. The shelves may be located at various heights up to 8 feet or even more for the temporary storage of merchandise. Fork lifts are generally used for placing merchandise on the higher storage shelves and for transferring the merchandise from higher to lower shelves. Merchandise is generally withdrawn from the lower shelves for filling orders with the aid of manually propelled or automotive vehicles. There are many instances, however, where merchandise, particularly on the lower shelves, could be more conveniently withdrawn if provision is made for enabling a stock clerk to climb the rack, at least, partway, and manually transfer merchandise, either directly or through an associate, from the rack to such a vehicle. To this end, the present invention provides lugs which can be transferably applied to the racks to serve usefully as steps and/or hand-holds as convenience may require. The lugs provided are desirably sufficiently numerous to avoid the need for frequent transference of lugs from one location to another.

3,833,091
SAFETY MECHANISM FOR AUTOMOBILE LIFTS

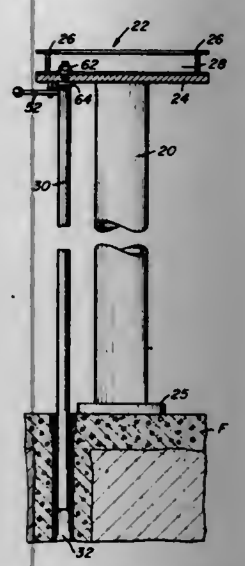
Roger MacPherson, 148 Mibank St., Rochester, N.Y. 14619

Filed Apr. 9, 1973, Ser. No. 348,882

Int. Cl. B66f *7/18*

U.S. Cl. 187—8.49 **5 Claims**

A rod is mounted to move with the piston or plunger of the lift. This rod is slabbed off at diametrally opposite sides; and it is reciprocable in the bore of a collar fixed in the floor of a garage. The collar has two balls in it which ride in diametrally opposite grooves in the collar, that have downwardly converging outer surfaces. Normally the balls ride on diametrally arcuate cylindrical surfaces of the rod to lock the rod in any elevated position. When the rod is rotated, however, to bring the slabbed off portions of the rod into engagement with the balls, the rod is released. The rack and the automobile thereon may be lowered to floor level. A handle is provided to rotate the rod. When the handle is released a coil spring returns the rod automatically to locking position; and the lift is locked in any position to which it has been raised. The only manual motion required of this device is to unlock it. The lock remains unlocked as the lift is lowered.



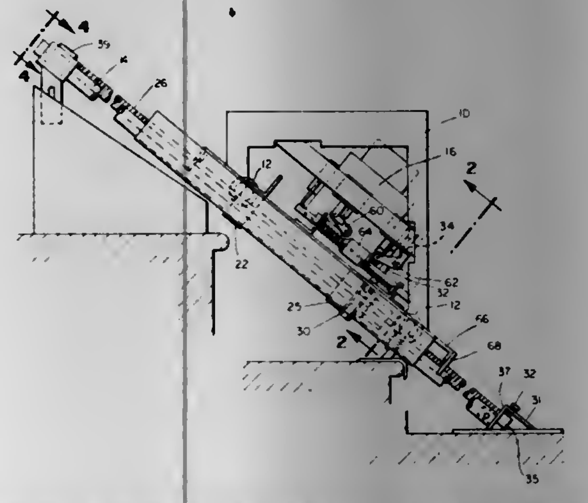
3,833,092
TRANSPORT MECHANISM FOR STAIRWAY ELEVATOR

Henry K. Flinchbaugh, York, Pa., assignor to Flinchbaugh/Murray Corporation, York, Pa.

Filed Apr. 4, 1973, Ser. No. 347,846

Int. Cl. B66b *9/06*

U.S. Cl. 187—12 **9 Claims**



A drive nut is mounted at one end of a load distributing carriage through which passes a threaded shaft which is fixed against rotation and engaged with said nut. The nut is rotationally driven about the shaft to cause the carriage to move up or down the shaft. An additional nut is carried by the shaft and connected to the drive nut for movement therewith. The additional nut is unloaded and provides a safety stop in the event of failure of the drive nut.

3,833,093
CYCLIC ENERGY ABSORBER

William Henry Robinson, Eastbourne, New Zealand, assignor to New Zealand Inventions Development Authority, Wellington, New Zealand

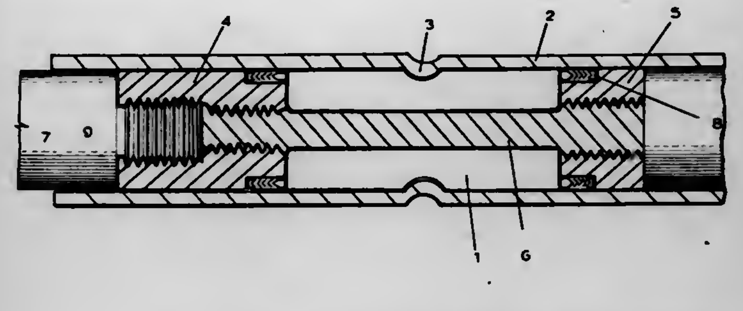
Filed Dec. 21, 1972, Ser. No. 317,431

Claims priority, application New Zealand, Dec. 22, 1971, 165897

Int. Cl. F16f *7/12*

U.S. Cl. 188—1 C **9 Claims**

An energy absorber for incorporation in bridges or buildings which must withstand earthquakes or other vibratory forces. It has two concentric members which in action move longitudinally relative to each other as the structure vibrates. At one point of its length one of the members is shaped such that the annular space between the members forms an orifice.



The space between the members is filled with lead. The forcing of the lead through the orifice absorbs energy, while the subsequent recovery and recrystallization returns the material nearly to its original state.

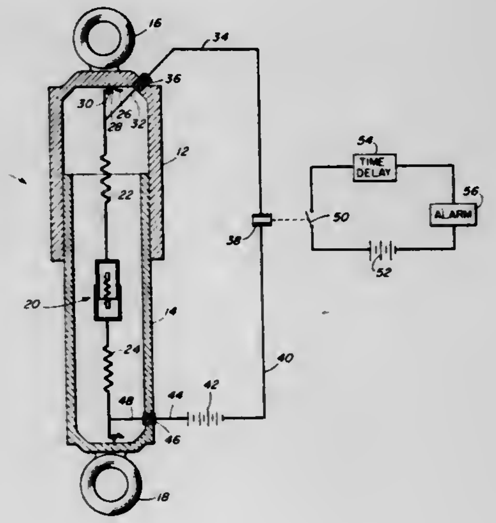
3,833,094
SHOCK ABSORBER WARNING SYSTEM

Sidney Grossman, 180 Samoset Ave., Quincy, Mass. 02160

Filed Feb. 5, 1973, Ser. No. 329,402

Int. Cl. F16d *63/00*

U.S. Cl. 188—1 A **5 Claims**



An alarm system is provided for use on motor vehicles to monitor the condition of the vehicle's shock absorbers. The system includes a spring-loaded switching device mounted to each shock absorber and connected through a circuit to an alarm such as a light or buzzer which may be installed on the vehicle's dashboard. The switching device closes if the shock absorber telescopes beyond its normal operating range.

3,833,095
HYDRAULIC POWER BRAKE SYSTEM

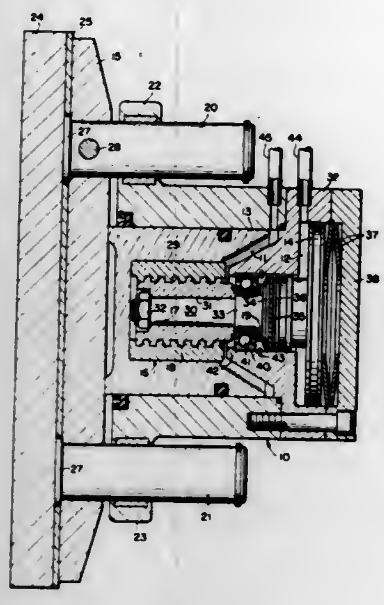
Thomas H. Engle, Cape Vincent, N.Y., assignor to General Signal Corporation, Rochester, N.Y.

Filed Mar. 5, 1973, Ser. No. 337,977

Int. Cl. F16d *55/02*

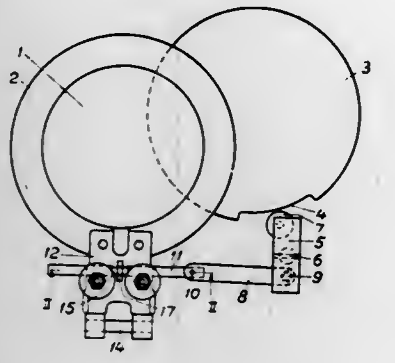
U.S. Cl. 188—71.9 **13 Claims**

A hydraulic power brake system is disclosed having a brake actuator housing containing service and hand brake pressure chambers and pistons for actuating a brake head. An automatic adjuster is provided connecting the two pistons comprising two cooperating members connecting the pistons. A first of the members is permitted substantial rotary movement and limited axial movement and a second of the cooperating members is permitted axial movement but not rotary movement. A spring such as a wave washer is used for yieldably permitting greater axial movement of the first member when brakes are applied by actuation of the hand brake piston than when brakes are applied by actuation of the service brake piston.



3,833,096
MECHANICAL BRAKE FOR TAP CHANGERS

Sivert Norman, Ludvika, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Continuation of Ser. No. 220,154, Jan. 24, 1972, abandoned. This application Aug. 20, 1973, Ser. No. 389,564
Claims priority, application Sweden, Feb. 11, 1971, 1713/71
Int. Cl. F16d *63/00*
U.S. Cl. 188—85 **1 Claim**

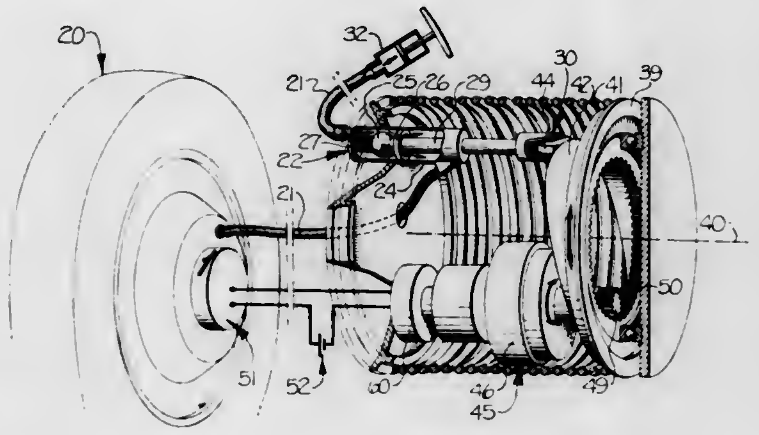


A mechanical brake for the driving device of a tap changer includes a brake disc and cooperating brake shoes. A control disc driven simultaneously with the brake disc has two parts of different radius, the higher parts of which can engage against a roller journalled on a lever which is pivoted on the shaft which controls the contact device supplying current to the driving motor. The roller carrying lever also has pivoted to it a link connected to a control rod which passes between the brake shoes and has thinner and thicker parts. Rollers journalled on the brake shoes engage this rod, so that when it is moved in either direction from a median position by the rocking of the lever it pushes the brake shoes apart and releases the braking action.

3,833,097
ANTI-LOCKING ARRANGEMENT FOR FLUID PRESSURE ACTUATED BRAKE

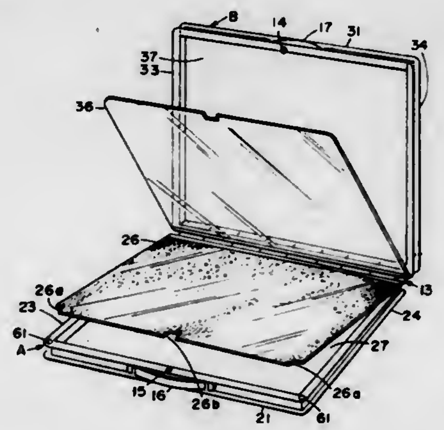
Jan-Olov Holst, Laduvagen 12, Uppsala, Sweden
Filed Sept. 26, 1973, Ser. No. 400,960
Int. Cl. B60t *8/12*
U.S. Cl. 188—181 A **24 Claims**

In a fluid pressure actuated brake for slowing a rotating member and having a conduit through which actuating pressure is applied and a valve interposed in the conduit for controllably interrupting the application of pressure, locking of the brake is prevented by an arrangement in which forces are exerted on a mass including a flywheel supported for oscillating movement by a spring which biases the flywheel toward a central position, a coupling operatively interconnecting the flywheel and the valve and transmitting force opposing the spring force which is derived from the application of actuating pressure to the valve, and a motive device controllably exerting a force opposing the spring force. By controlling application of the last mentioned force, in response to the sensed rate of the retardation of or tendency to lock the rotating member, oscillation of a vibrating system defined by the mass and spring is initiated and maintained only during such time as the sensed rate of retardation exceeds a desired predetermined rate and such oscillating movement of the vibrating system including the mass is employed to interrupt the application of pressure to the brake.



3,833,098
MULTIPLE USE REVERSIBLE CARRYING CASE AND SYSTEM

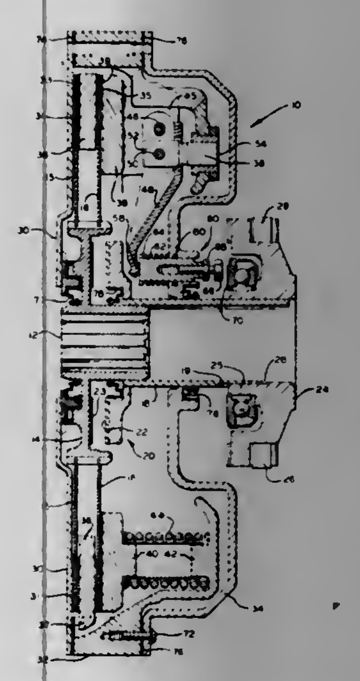
Willis H. Alderman, 11287 W. 26th Pl., Lakewood, Colo. 80215
Filed Aug. 7, 1972, Ser. No. 278,205
Int. Cl. A45c *9/00*
U.S. Cl. 190—11 **18 Claims**



A highly versatile reversible carrying case is comprised of at least two sections hinged for swinging movement from a closed position forming an attache-type carrying case to turn fully inside out or be held at a selected angle relative to one another so that an inner panel portion with a smooth, hard, planar inner utility surface of each section becomes exposed for a variety of uses including as a miniature desk, lecturn, display board, projector screen, light table and the like. At least one of the sections has an inner storage compartment formed therein with the inner panel portion being movable to provide access into the inner storage compartment. The sections are releasably fastened in the closed position and each have a retractable handle for carrying purposes. The inside surfaces of the compartment are used for light reflection or as a projector screen surface.

3,833,099
SEALED OIL FILLED CLUTCH WITH BRAKE MEANS TO INHIBIT ROTATION UPON DISENGAGEMENT

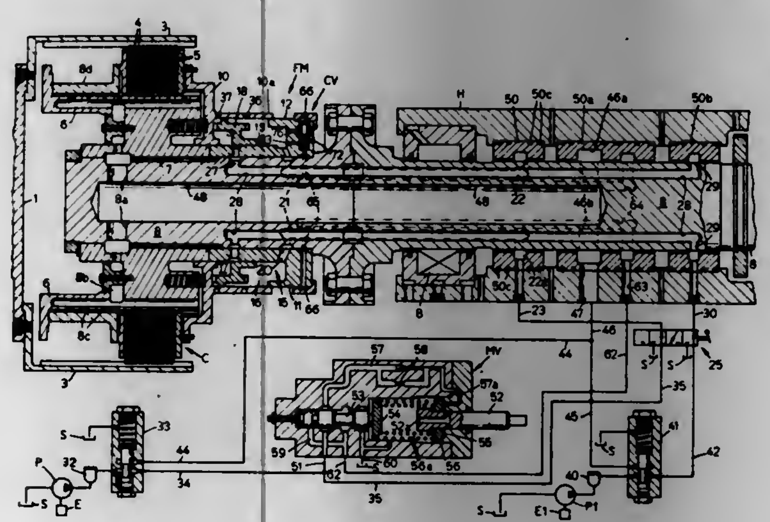
Donald F. Linn, Manlius; Carl D. Bush, Solvay, and Frederick P. Taylor, Bridgeport, all of N.Y., assignors to Like-Rollway Corporation, Syracuse, N.Y.
Filed Feb. 5, 1973, Ser. No. 329,636
Int. Cl. F16d *67/02*
U.S. Cl. 192—13 R **1 Claim**



A brake is disposed within a rotating oil tight assembly of a heavy duty friction clutch. The brake has friction surfaces which engage to inhibit the rotation of a driven shaft upon disengagement of the clutch.

3,833,100
CONTROL SYSTEM FOR A POWER TRANSMISSION CLUTCH

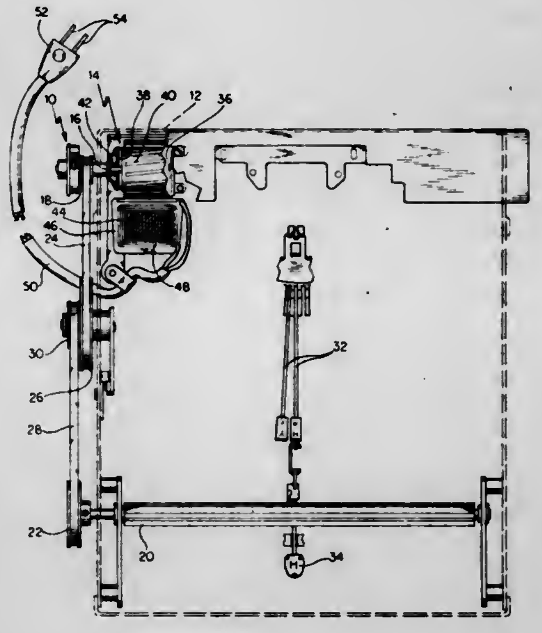
George R. Aschauer, Racine, Wis., assignor to Twin Disc, Incorporated, Racine, Wis.
Filed Jan. 2, 1973, Ser. No. 319,989
Int. Cl. F16h *3/44*
U.S. Cl. 192—85 **8 Claims**



A control system for a fluid operated clutch, which system includes an actuating chamber for the shiftable clutch actuating piston, and which chamber has a floating ring therein that divides the chamber into two separate chamber portions. Clutch actuating high pressure fluid is admitted to both of the chamber portions, each chamber portion having a separate pressure fluid source. Both of the chamber portions are pressurized at the same time so that in the event one of the sources of fluid pressure or its fluid line leading to its chamber portion become inoperative, the clutch can still be maintained in full engagement by means of the other pressurized chamber portion. This positive clutch engagement is used for operation of a water craft for example, at high speeds say over 1,800 R.P.M. The control system also provides a centrifugally operated valve on the output side of the clutch and fluid pressure is directed to the centrifugal valve by means of an operator control modulating valve. This centrifugally operated valve and its modulating control valve are used at lower or maneuvering speeds of the craft, for example under 1,800 R.P.M., by means of which the clutch can be clamped up in various degrees, that is to say, the clutch can be modulated to provide various degrees of slipping and consequently, transmission of the power through the clutch.

3,833,101
TYPEWRITER MOTOR CLUTCH

William Pozella, and Henry D. Chaplin, Jr., both of Cortland, N.Y., assignors to SCM Corporation, New York, N.Y.
Filed Feb. 8, 1973, Ser. No. 330,554
Int. Cl. F16d *43/284*
U.S. Cl. 192—105 CF **2 Claims**

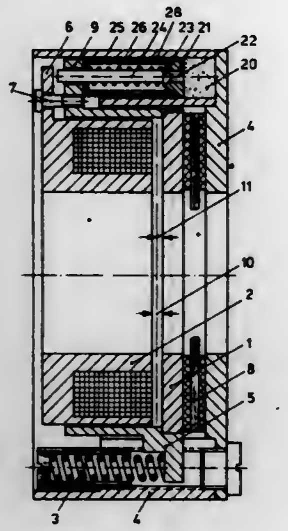


Posts are formed integrally with a plastic disk for a pivotally mounting centrifugal weights on the face of the disk. The posts have flanges on their free ends and slots in their free ends for snap retaining the centrifugal weights on the posts. The centrifugal weights are each formed integrally in one piece and have clutch dogs as thick as the centrifugal weights. For engagement with the clutch dogs, at least one tooth at least as thick as the clutch dogs is formed on a sleeve. The sleeve is connected to a pulley and both are composed of glass reinforced nylon.

3,833,102
FLUID OPERATED AUTOMATIC WEAR TAKE-UP ADJUSTING DEVICE FOR ELECTROMAGNETIC, SPRING LOADED, FRICTION ENGAGING MECHANISM

Karl Stahle, Friedrichshafen, Germany, assignor to Zahnradfabrik Friedrichshafen AG, Friedrichshafen, Germany
Filed Dec. 18, 1972, Ser. No. 316,072
Claims priority, application Germany, Dec. 24, 1971, 2164542
Int. Cl. F16d *27/00, 29/00*
U.S. Cl. 192—111 A **11 Claims**

Displacement of the magnetic body of a spring engaged, friction brake or clutch, is automatically adjusted for releasing operation by a valve controlled fluid pressure resisting stop device. Movement of a spring loaded armature in response to wear of a friction disc engaged therewith, displaces a piston confining a pressurized body of fluid by opening of a valve from which a valve rod extends to form a limit stop engaged by the magnetic body that is displaced by the armature in one direction.



3,833,103

ELECTROMAGNETIC, SPRING LOADED FRICTION ENGAGING MECHANISM WITH FLUX GAP LIMITING MEANS

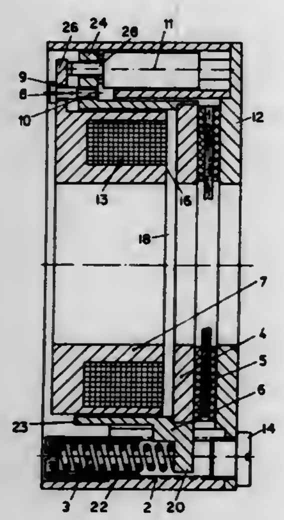
Karl Stahle, Friedrichshafen, Germany, assignor to Zahnradfabrik Friedrichshafen, AG, Friedrichshafen, Germany

Filed Dec. 18, 1972, Ser. No. 316,073

Claims priority, application Germany, Dec. 23, 1971, 2164134

Int. Cl. F16d *65/52, 65/56*

U.S. Cl. 192—111 A **6 Claims**



Increase in the flux gap spacing between the magnetic body and armature of an electromagnetic spring loaded, friction engaging mechanism, is limited to a maximum permissible distance by a mechanical coupling between the magnetic body and an axial guide to which the armature is connected. A wear take-up device automatically adjusts distance advanced by the magnetic body toward the armature during release of the friction engaging mechanism.

3,833,104

VANDAL-PROOF CENTRAL COIN RECEPTACLE

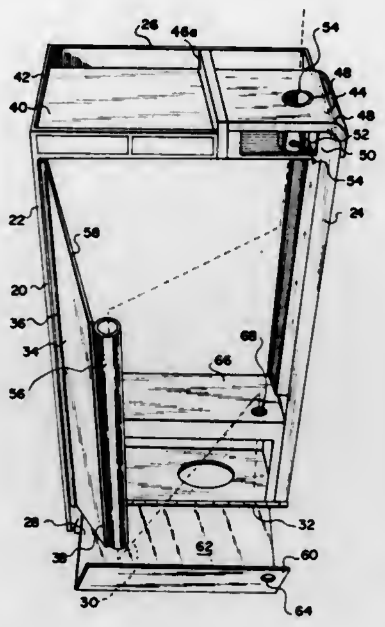
Robert Blum, Short Hills, N.J., assignor to The Coin Security Corp., Hillside, N.J.

Filed Aug. 10, 1973, Ser. No. 387,464

Int. Cl. G07f *9/06*

U.S. Cl. 194—1 B **10 Claims**

A vandal-proof central coin receptacle for controlling more than one coin operated machine is provided which includes a receptacle or cabinet-like member housing means for controlling coin operated machines coins. The receptacle is provided with two doors which cover the front portion thereof, and are adapted, when in their closed position, to engage a rod-like member which is passed through the top of the receptacle, thereby locking the two doors in their closed position. The rod-like member is locked in place at the top of the receptacle by a lock which is adapted to be positioned in a housing which is connected to the top of the receptacle in a manner such that it is virtually impossible to break open the lock by means of a crow-bar, hammer or other devices usually employed by vandals. In an alternative embodiment of the invention, the lock as well as the housing which surrounds the lock is completely enclosed in a safe-like member which is also provided with locking means.



3,833,105

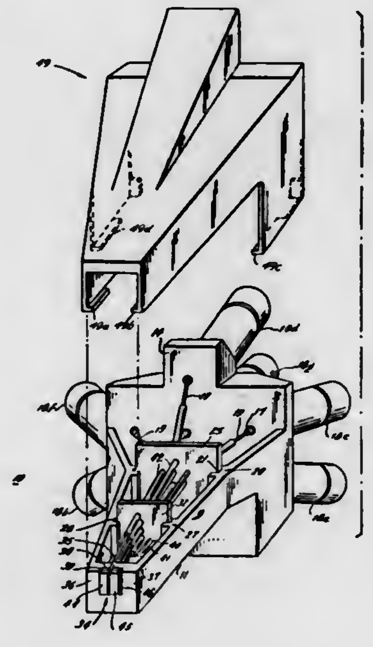
PRINTER HEAD ASSEMBLY

Robert Howard, Roslyn, N.Y., assignor to Centronics Data Computer Corp., Hudson, N.H.

Continuation of Ser. No. 37,815, May 15, 1970, abandoned. This application Sept. 10, 1971, Ser. No. 179,457

Int. Cl. B41j *3/10, 1/18*

U.S. Cl. 197—1 R **8 Claims**



A printer head assembly for use in high speed printers of the dot-matrix type. The assembly is comprised of a one-piece die cast member having a bevelled rear wall which forms a truncated pyramidal shape for mounting the driving solenoids. The print wires extend diagonally inwardly together with a centrally mounted solenoid, which print wire extends along the longitudinal axis of the printer head assembly housing whereby the print wires are ultimately aligned along the front surface thereof so as to lie along an imaginary straight line in very closely spaced fashion. Guide means are provided for imparting the appropriate curvature to the print wires in the region where they extend from the front to the rear surfaces of the housing. A jewel bearing provided along the front surface serves as a low-friction mounting of the reciprocating print wires and to prevent abrasive wear of the print wires when in the retracted position. The solenoid construction is of such a design as to be extremely lightweight and capable of high speed operation so as to cooperate with the printer head assembly to provide a compact, lightweight design adapted to be moved at high rates of speed across a paper document.

3,833,106

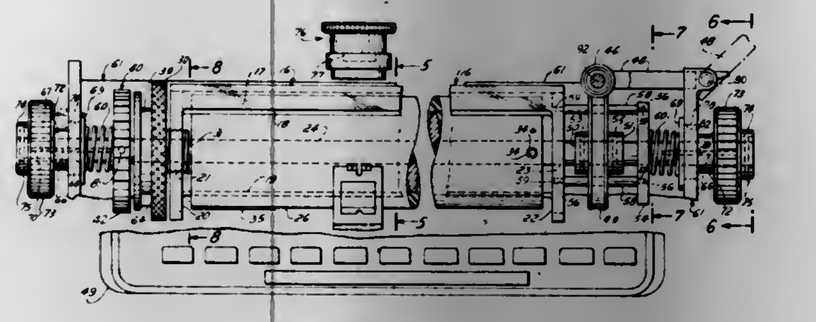
MICROSCOPIC SYMBOLS GAUGING SYSTEM FOR TYPE BAR ALIGNMENT

Seyed Khalil, Hotel Embassy, 154 W. 70th St., New York, N.Y. 10023

Filed Sept. 23, 1971, Ser. No. 183,108

Int. Cl. B41j *1/00*

U.S. Cl. 197—1 R **2 Claims**



A microscopic symbols gauging system and scale therefor, said scale being mounted in a carriage of a typewriter and having a transparent section, upon which is formed a series of gauges having a predetermined sequence and spacing, each of said gauges representing both one of the symbols of a typewriter and the background of said symbol. To automatically gauge the symbols of a typewriter, their impressions are typed in the predetermined sequence on a paper rolled over a platen in said carriage and then the typed impressions are positioned beneath their corresponding gauges. The alignment of the impressions relative to their gauges is transversely exposed through said gauges.

3,833,107

TYPEWRITER

Koh Matsuhisa, Nimomiyamachi, Kanagawa-ken, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

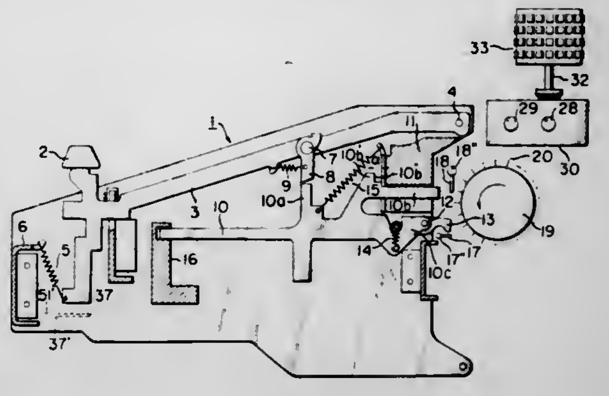
Filed Nov. 13, 1972, Ser. No. 305,874

Claims priority, application Japan, Nov. 13, 1971, 46-90707; Nov. 17, 1971, 46-92215; Nov. 17, 1971, 46-92216

Int. Cl. B41j *23/04*

U.S. Cl. 197—18 **6 Claims**

A typewriter of the type in which keys on a keyboard are divided into at least a first and second key groups, wherein a torque bar is provided which is actuated in response to the depression of a key belonging to for example the first key group so that a type or character selecting mechanism is lifted in order to bring the desired character on a typing member to the typing position.



3,833,108

INK RIBBON CARTRIDGE HAVING REMOVABLE SPOOLS

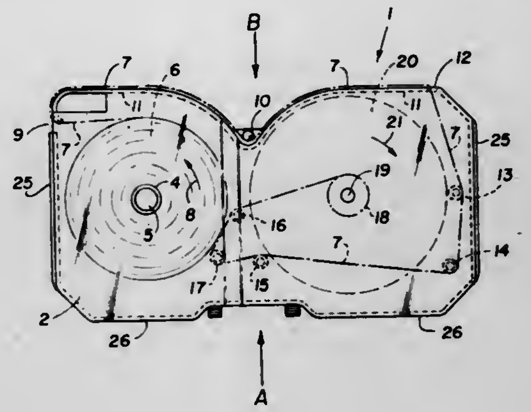
Niklaus Von Daeniken, Zurich, Switzerland, assignor to Messrs. Franz Buttner AG, Egg b. Zurich, Switzerland

Filed Sept. 12, 1972, Ser. No. 288,260

Claims priority, application Germany, Sept. 15, 1971, 2145985

Int. Cl. B41j *33/14*

U.S. Cl. 197—151 **16 Claims**



The present ribbon cartridge permits the insertion of a ribbon into a writing machine and the subsequent removal of the empty cartridge from the writing machine. For this purpose the cartridge is provided with ribbon guide means which correspond to the ribbon guide means of the writing machine whereby upon insertion of the cartridge with the ribbon into the writing machine the ribbon is transferred from the guide means in the cartridge to the guide means in the writing machine. The cartridge further includes a bottom with open ended apertures for insertion into the writing machine and with releasable interlocking means whereby the empty cartridge may be removed from the writing machine.

3,833,109

UNIVERSAL TYPEWRITER RIBBON SPOOL

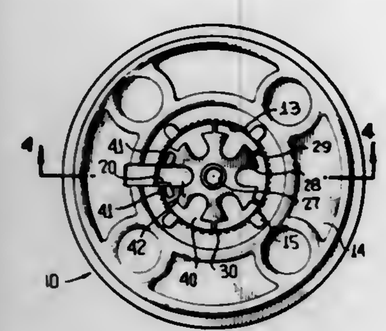
Walter David Landgraf, 9228 S. Kildare Ave., Oak Lawn, Ill. 60453

Filed Mar. 17, 1971, Ser. No. 125,179

Int. Cl. B41j *35/00;* **B65h** *75/18*

U.S. Cl. 197—175 **4 Claims**

Internal and external hubs are provided with a ribbon retaining flange fixed to each to form respective first and second spool halves with the hubs fitting together in a telescoping manner and with first and second drive engaging means on opposite sides of the spool to properly engage at least two types of typewriters. Both drive engaging means are preferably formed on the first spool half that includes the internal hub. A third drive engaging means or spline is formed on the second half having the external hub and is exposed when the spool is separated. The internal hub has a central bore to fit one mounting spindle and removable sleeve to reduce the bore to fit a smaller spindle. The internal hub presents axially extending radial arms frictionally engaging the inside of the external hub; opposed axially extending tabs on two arms receiving the spline on the external hub to rotatably fix the spool halves together. The first spool half is molded plastic and the second spool half is metal for improving the frictional holding interface and for reinforcement.



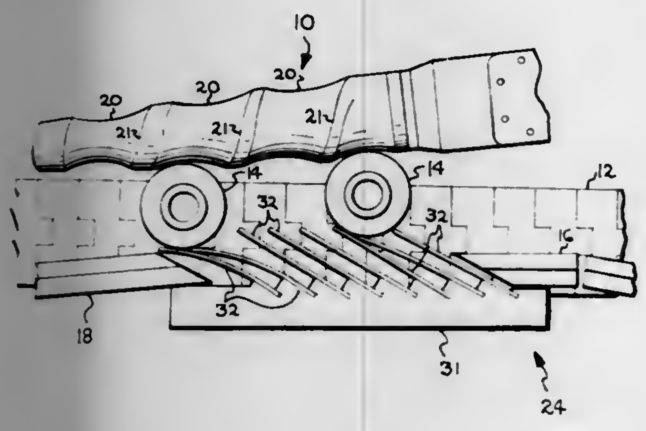
3,833,110
ARTICLE-SPACING HELIX ASSISTOR

Darius O. Riggs, Ottawa Lake, Mich., assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Oct. 20, 1972, Ser. No. 299,351

Int. Cl. B65g *47/26*

U.S. Cl. 198–34 **10 Claims**



Apparatus for holding articles in contact with an article-spacing helix and for preventing retrograde motion of the articles while in contact with the helix. Articles such as cans or bottles are frequently placed in a uniformly-spaced single file by a rotating helix, which engages the articles one-at-a-time and advances them through the helix. The articles are furnished to and removed from the helix by a moving, endless conveyor. In order to hold the articles in contact with the helix and to prevent any rearward slippage of the articles once contact has been made, a restraining means is provided opposite the helix. The restraining means may be a plurality of equally spaced sheets of a resilient material angled in the direction of flow of the articles and extending into the path of travel of the articles. As the articles contact the sheets, the sheets bend in a cantilevered mode and exert a force toward the helix, keeping the article in contact with the helix. The sheets then return to their normal, unstressed condition after the article passes. If an article slips and attempts to move backward, the sheet over which it had previously passed will contact the article edge on. The sheet has substantial resistance to bending from forces applied to its edge, and thus will restrain the article from reverse travel until it can again properly engage the helix.

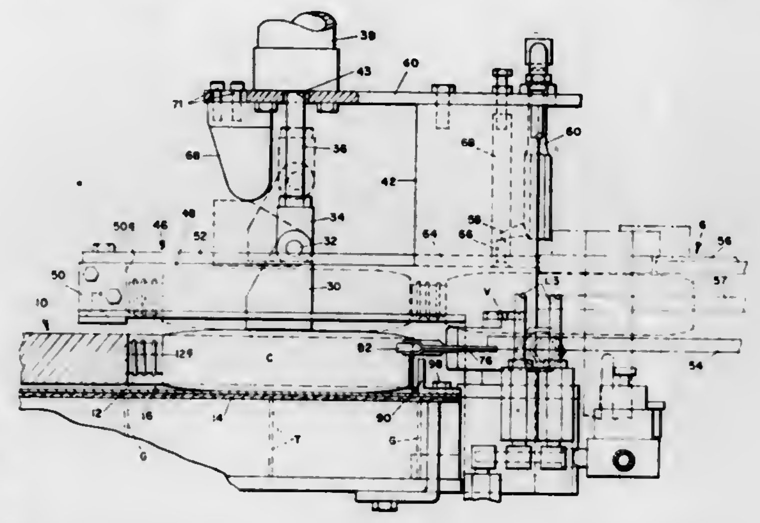
3,833,111
CONTAINER-ORIENTING APPARATUS

Walter S. Sterling, Quincy, and Robert W. Vergobbi, Braintree, both of Mass., assignors to Pneumatic Scale Corporation, Quincy, Mass.

Filed Apr. 23, 1973, Ser. No. 353,749

Int. Cl. B65g *47/24*

U.S. Cl. 198–255 **15 Claims**



Apparatus for receiving containers from a mass of containers and disposing them with their open ends upright comprising a rotor containing regularly spaced pockets peripherally thereof for movement along a predetermined circular path within which the containers are deposited in prone positions for movement along said path onto a straddle rail. The pockets are open at the top and bottom so that containers deposited in the pockets when moved onto the rail are allowed to tilt downwardly within the pockets to upright positions and to be conducted along the path and marshalled in single line for further processing. The rotor is rotated continuously to present each pocket to a predetermined position for filling and there is a platform beneath the rotor which constitutes a bottom for the pocket at that position and a power-operable, reciprocably mounted presser foot supported above the rotor at said position for thrusting containers into the pockets in timed relation with the arrival of the pockets at said position. A receiver is supported above the rotor to which the containers are supplied in succession and the reciprocable presser foot is arranged to eject containers from the receiver into the pockets.

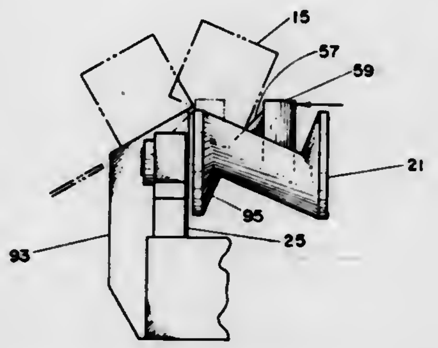
3,833,112
APPARATUS FOR CLAMPING AND DISCHARGING WORKPIECE

John L. Parris, Knoxville, and Herman J. Oldham, Oak Ridge, both of Tenn., assignors to The Carborundum Company, Niagara Falls, N.Y.

Division of Ser. No. 114,913, Feb. 12, 1971, Pat. No. 3,712,605. This application Sept. 13, 1972, Ser. No. 288,838

Int. Cl. B65g *47/24*

U.S. Cl. 198–283 **8 Claims**



In a workpiece clamping and discharging device for a frame, a work-engaging member is journaled for rotation about a vertical axis adjacent the workpiece. As the work-engaging member is turned, an inclined surface thereon which is spaced from the axis of rotation slidably contacts the workpiece to push the workpiece upwardly and outwardly. Further turning of the work-engaging member causes an abutment at the upper portion of the inclined surface to engage the workpiece thereby laterally urging the workpiece across the frame so as to clamp or discharge the workpiece.

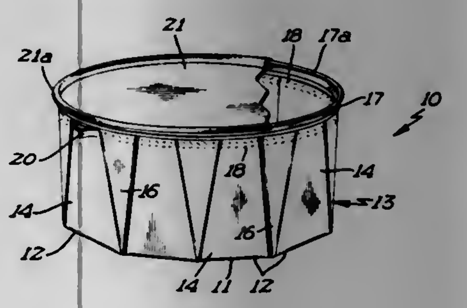
3,833,113
COLLAPSIBLE CONTAINER

James Osier, 3786 Hwy. 194, Duluth, Minn. 55811

Filed Dec. 14, 1972, Ser. No. 315,142

Int. Cl. B65d *17/16, 85/00*

U.S. Cl. 206—4 **3 Claims**



A disposable collapsible container adapted to contain a food product, such as a sandwich or the like, and being formed of an impervious non-metallic material, such as paperboard. The container includes a bottom wall having an upstanding peripheral wall secured thereto and the container is of generally cylindrical configuration. The peripheral wall is made up of wall sections interconnected by pairs of flaps which are normally folded together. In one embodiment, a tear strip is provided for the peripheral wall and when removed allows the peripheral wall to be collapsed and expanded to form the container into a plate-like receptacle. In another embodiment, removal of the cover member allows collapsing of the container into a plate-like receptacle.

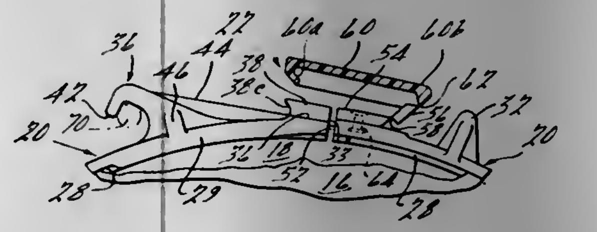
3,833,114
ONE PIECE SEALING RING

Boris M. Osojnak, 512 Roanoke Dr., Birmingham, Mich. 48010

Filed Oct. 4, 1971, Ser. No. 186,014

Int. Cl. B65d *85/67;* **B65h** *75/02*

U.S. Cl. 206—53 **6 Claims**



A sealing ring for use with a computer tape reel wherein the ring is formed as an integral molded strip having a stiff arcuate portion adjacent one strip end with a radius of curvature approximating that of the reel, and a generally flexible portion extending from the stiff arcuate portion; the stiff portion is built up adjacent its free end to provide an integral keeper structure for coaction with an overcenter latch assembly secured to the free end of the flexible portion, and the radially outer face of the stiff portion is moldingly configured to provide a hook structure adjacent the keeper structure for hanging storage of the ring and encircled reel.

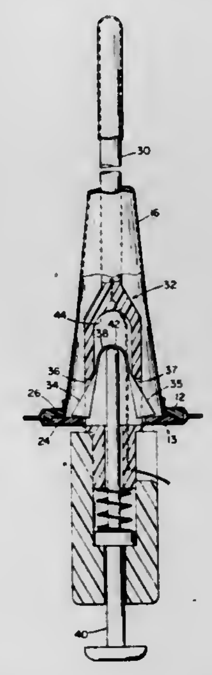
3,833,115
CLINICAL PROBE AND DISPOSABLE SHEATH

Richard L. Schapker, 134 Farnum St., North Andover, Mass. 01845

Continuation of Ser. No. 228,990, Feb. 24, 1972, abandoned. This application June 15, 1973, Ser. No. 370,480

Int. Cl. B65d *85/38;* **G01k** *7/00*

U.S. Cl. 206—306 **1 Claim**



Disposable sheath in combination with a clinical probe, the sheath, comprising a frame defining an aperture large enough to admit the probe and an elastic membrane fixed to the frame and covering the aperture, so that upon a forceable insertion of the probe through the aperture the membrane will stretch by at least 100 percent along the probe axis to conform to the probe surface to be sheathed. The probe includes inner spring-biased retainers that hold the sheath on the probe by said frame, with a movable actuator that ejects the sheath from the probe upon actuation.

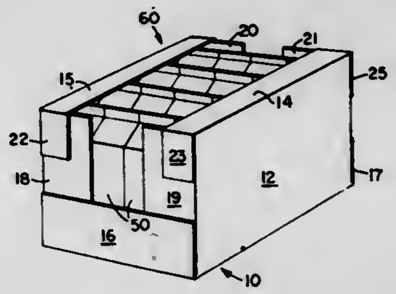
3,833,116
PACKAGE OF CONTAINERIZED GOODS

William J. Howe, Los Altos, Calif., assignor to Georgia-Pacific Corporation, Portland, Oreg.

Division of Ser. No. 883,216, Dec. 18, 1969, Pat. No. 3,704,823. This application Sept. 1, 1972, Ser. No. 285,557

Int. Cl. B65d *79/00*

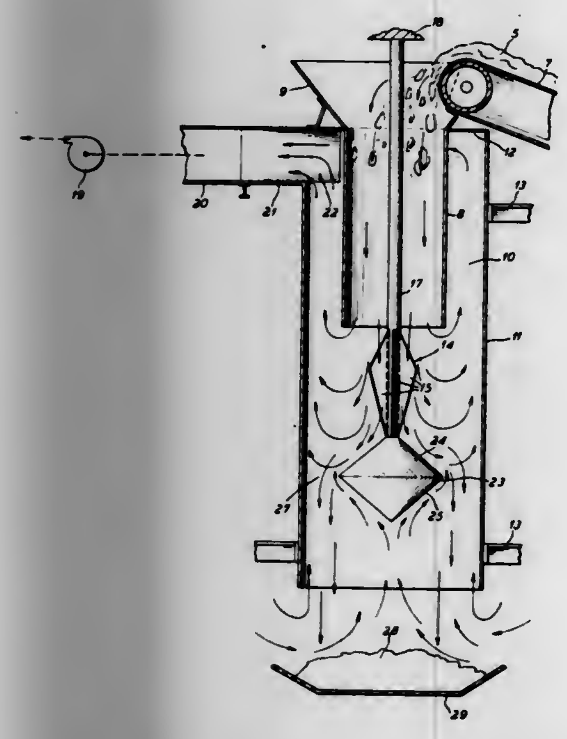
U.S. Cl. 206—431 **1 Claim**



A package of containerized goods, a packaging method, and a crate-like carton. The carton has a mostly-open top wall and partly-open front and rear walls, with closed bottom and side walls, all made from a single, continuous, generally rectangular blank of corrugated board. The vertical side walls are hinged to the bottom wall, and a top reinforcing horizontal wall portion is hinged to each of the side walls. Front and rear flaps are attached to each of the bottom, vertical and top walls. The flaps hinged to the bottom wall have a median height no more than half the height of the side walls and are secured to the flaps that are hinged to the side walls, which are substantially less than half as wide as the bottom wall. Also secured to these flaps are the flaps from the top wall, which are narrower than the flaps secured to the side walls. In one form of the invention, the top-wall flaps meet the bottom-wall flaps along a diagonal line. The containers, whether single-tiered or plural-tiered, substantially fill the carton, and individual containers can be taken out through the top of the carton without having to open it. During packaging, the carton is brought snugly around the containers, and this snugness strengthens the carton walls during subsequent stacking of cartons.

3,833,117
PNEUMATIC REFUSE MATERIAL SEPARATION SYSTEM

Harold B. Mackenzie, Wheaton, Ill.; Ingvar G. Anderson, Dunedin, and William T. S. Montgomery, Jr., Jacksonville, both of Fla., assignors to New Life Foundation, Wheaton, Ill.
Filed Jan. 29, 1973, Ser. No. 327,420
Int. Cl. B07b *4/02*
U.S. Cl. 209—3 **16 Claims**

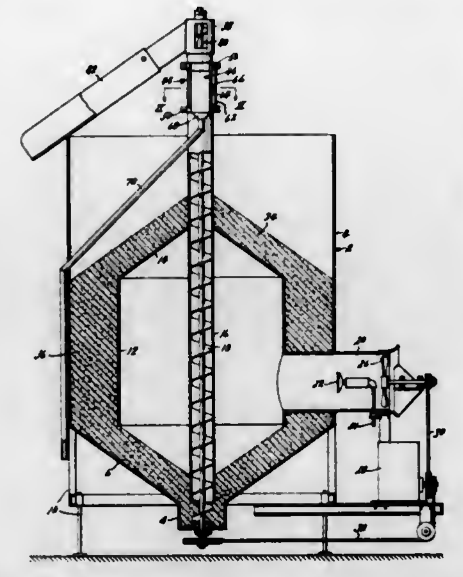


Light and heavy constituents of refuse material are separated by delivering the material through a tubular inlet into the upper portion of a vertical separating chamber to drop onto and past declumping means and then to a spreader which directs it to fall through an annular venturi throat. As the material descends it is subjected to upwardly moving air of substantial velocity to separate lighter constituents of the material and draw them off from the separating chamber above the discharge end of the inlet. Heavier constituents are collected from the lower portion of the chamber spaced below the spreader.

3,833,118
GRAIN CLEANING DEVICE

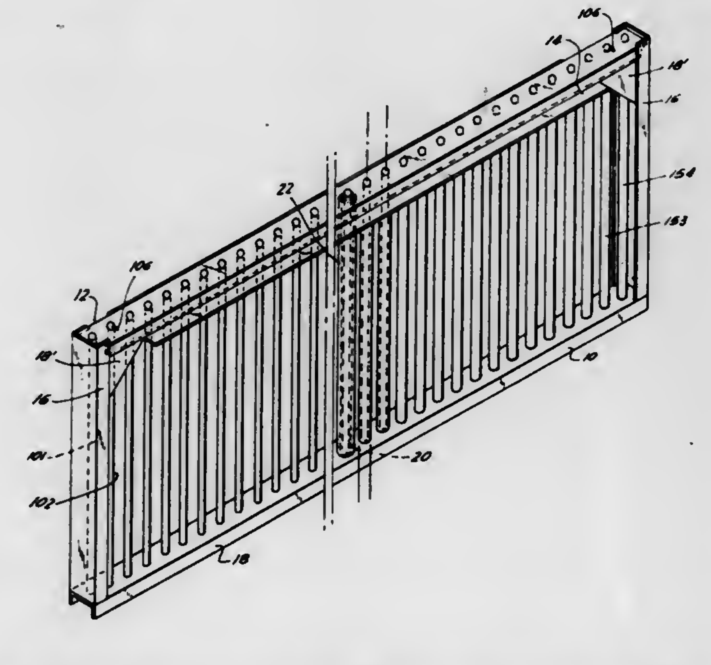
Merwin W. Gilmore, Clay Center, and Robert C. Chaffee, Green, both of Kans., assignors to Gilmore-Tatge Manufacturing Co. Inc., Clay, Kans.
Filed Dec. 21, 1972, Ser. No. 317,262
Int. Cl. B07b *7/06, 7/086*
U.S. Cl. 209—28 **8 Claims**

A grain cleaning device for removing "fines" such as broken kernels, hulls, dust and the like from grain, including a tube through which grain is moved with a whirling motion and in an elevated air pressure, the tube having an opening to the atmosphere at its periphery obstructed by a perforated screen, so that the fines are removed from grain through said opening by both centrifugal force and by air flow. The screen is interchangeable with others having different perforation sizes, for use with grains having other kernel sizes, so as to prevent passage of whole kernels but to permit passage of fines.



3,833,119
GRADING APPARATUS

Robert B. Brown, Rt. 1, Valley Head, Ala. 35989
Filed June 25, 1973, Ser. No. 373,450
Int. Cl. B07b *13/04*
U.S. Cl. 209—99 **7 Claims**

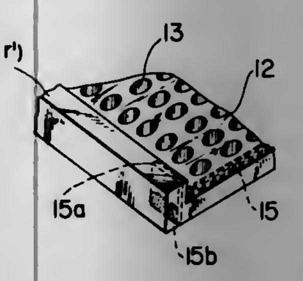


A grading device for grading various objects including live fish according to size has a frame having a multiplicity of elements spaced apart therein and defining a multiplicity of passages in the frame. Superimposed outside tubes or sleeves are insertable into the frame over these elements to change the size of these passages without having to remove the frame from operative use. Also claimed is a fish growing crate consisting of four juxtaposed devices of this type.

3,833,120
RUBBER SCREEN FOR A VIBRATING SIEVE

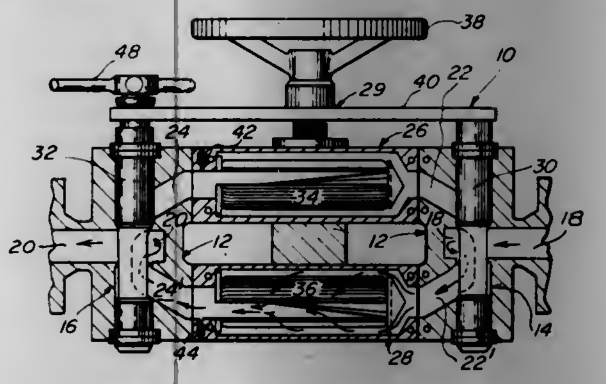
Nobuo Ogata, No. 1-5, 5-chome, Ohmachi, Kamakura City, Japan
Continuation-in-part of Ser. No. 34,654, May 5, 1970, abandoned. This application Aug. 16, 1972, Ser. No. 280,946
Int. Cl. B07b *1/46*
U.S. Cl. 209—399 **9 Claims**

A rubber screen for use in a vibrating sieve for separating smaller particles of a substance from larger particles thereof, which screen comprises a body having a plurality of apertures and containing reinforcing members embedded therein and oriented laterally to the flow direction of the substance being sifted. An abrasion-resistive coating may be applied to one or both surfaces of the rubber screen.



3,833,121
PLASTIC FILTRATION SYSTEMS

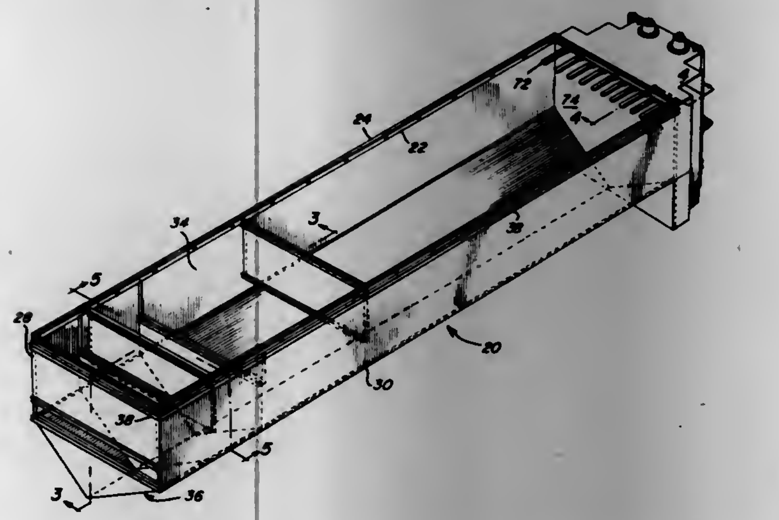
Jack S. Singleton, Sparta, and William McCaffery, Jr., Denville, both of N.J., assignors to Brunswick Corporation, Skokie, Ill.
Filed Sept. 2, 1971, Ser. No. 177,351
Int. Cl. B01d *35/12*
U.S. Cl. 210—91 **21 Claims**



A plastic filtration system for use with plastic extrusion machines is described. The filtration system comprises a pair of diverter spool valves incorporating special spool slots, ports, seals and seats for high pressure, high temperature applications, a pair of parallel filters in housings which permit easy removal and cleaning, and means for synchronously operating the diverter valves to prevent rapid changes in pressure drop through the system.

3,833,122
FLOATING CHEMICAL FEEDING AND CHEMICAL PROCESS PLANT FOR WATER PURIFICATION

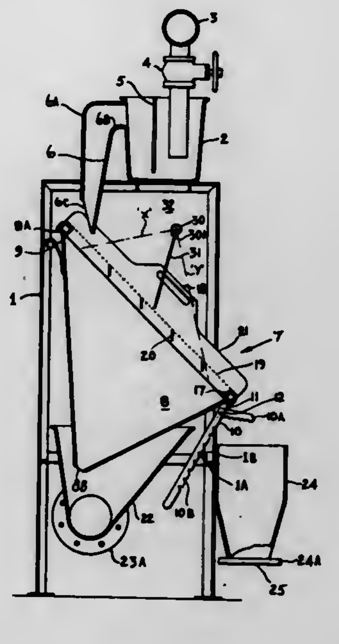
Donald F. Cook, Apartado Aereo 2987, Cali, Colombia
Filed June 9, 1971, Ser. No. 151,187
Int. Cl. B01d *21/08*
U.S. Cl. 210—207 **2 Claims**



A chemical process plant for water purification and a pure water storage tank are provided which may be floated in a river, lake, reservoir or other body of water which serves as the source of supply. Each structure is comprised of a flotation collar with a rigid support frame and an enclosure made of lightweight, relatively inexpensive materials such as flexible fiberglass reinforced plastics.

3,833,123
FILTERS

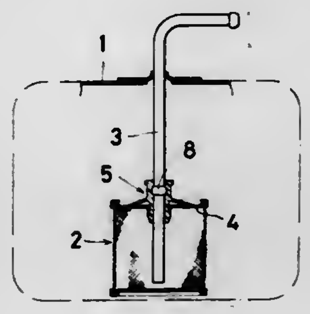
Alan John Walker, 387 Maidstone Rd., Wigmore, Gillingham, Kent, England
Continuation of Ser. No. 116,586, Feb. 18, 1971, abandoned. This application Feb. 16, 1973, Ser. No. 333,015
Claims priority, application Great Britain, Feb. 18, 1970, 7754/70
Int. Cl. B01d *33/22*
U.S. Cl. 210—241 **19 Claims**



An inclined screen filter comprising a perforate and substantially flat screen having means to supply a flow of fluid material to be filtered to the outwardly sloping face of the screen whence it falls for collection, in which means are provided to reduce the adherence of the filtrate held thereon by surface tension forces so that it falls free of the screen.

3,833,124
IMMERSION TYPE STRAINER

Masaaki Sugiyama, Fuji, and Akira Mizusawa, Fujisawa, both of Japan, assignors to Nifco Inc., Tokyo and Yamakawa Industry Company Ltd., Fuji-shi, both of, Japan
Filed Oct. 3, 1973, Ser. No. 403,146
Claims priority, application Japan, Oct. 4, 1972, 47-114534
Int. Cl. B01d *29/00*
U.S. Cl. 210—460 **5 Claims**



Disclosed is an improved immersion type strainer which is suitable particularly for use in a fuel tank of an automobile. The unique design of the pipe and associated female piece assures a loose-free connection between the pipe and the filter housing even if the strainer is subjected to continuous vibration or recurrent impacts.

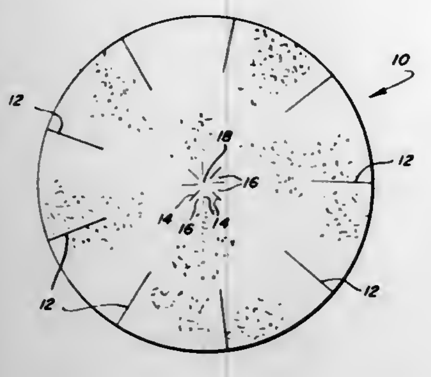
3,833,125
UNIVERSAL COFFEE FILTER

Harlan A. Schwartz, Manitowoc, Wis., assignor to Schwartz Manufacturing Company

Continuation-in-part of Ser. No. 89,616, Nov. 16, 1970, Pat. No. 3,719,282. This application Mar. 6, 1973, Ser. No. 338,607The portion of the term of this patent subsequent to Mar. 6, 1990, has been disclaimed.

Int. Cl. B01d *35/28*

U.S. Cl. 210—477 **6 Claims**



A coffee filter element having a plurality of short, non-intersecting slits adjacent its center, said slits converging toward a tab portion at the center of the filter. The filter can be used in a dripolator or percolator coffee maker.

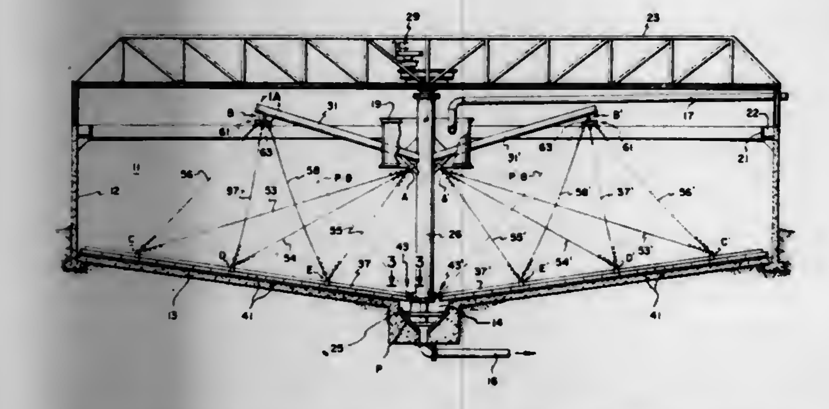
3,833,126
SEDIMENTATION APPARATUS

Bernard J. Schochet, Salt Lake City, and Peter J. Bsumek, Midvale, both of Utah, assignors to Envirotech Corporation, Salt Lake City, Utah

Continuation of Ser. No. 201,316, Nov. 23, 1971, abandoned. This application July 23, 1973, Ser. No. 381,368

Int. Cl. B01d *21/18*

U.S. Cl. 210—531 **1 Claim**



An elevated boom draws a submerged blade-carrying rake arm in rotation about a vertical column to which the rake arm is connected by a coupling having but a single pivot axis and that axis is directed towards the outer end of the boom; the rake arm, when in motion, is pulled by draft means which fasten at spaced-apart points along the arm which converge therefrom to a common connecting means mounted near the outer end of the boom.

3,833,127
DRYER FOR LAUNDRY AND OTHER OBJECTS

Wolfgang Schoen; Rainer Friedrich, and Johannes Lierscher, all of Nassau/Lahn, Germany, assignors to Leifheit International Gunter Leifheit KG, Nassau/Lahn, Germany

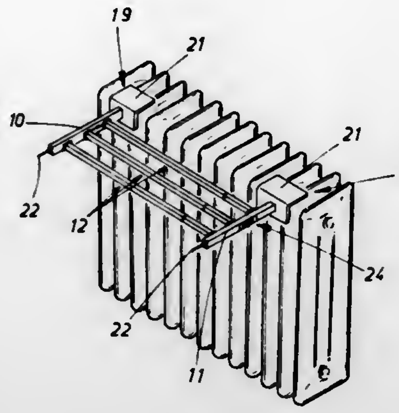
Filed Oct. 3, 1972, Ser. No. 294,606

Claims priority, application Germany, Oct. 5, 1971, 2149658

Int. Cl. A47f *5/00*

U.S. Cl. 211—86 **13 Claims**

A pair of tranversely spaced arms are connected by several hanger members from which objects to be dried may be hung. These hanger members may be of two telescopable sections each. Free end portions of the arms each carry a suspending unit composed of an abutment bracket of L shape which is rigid with the arm and a hook which has an extension portion of rod shape guided in a bore of the arm so that the hook can be slit longitudinally as well as turned with reference to the arm. Arresting devices are provided for arresting the hooks against movement relative to the arms.



3,833,128
ROTATABLE DISPLAY CABINET

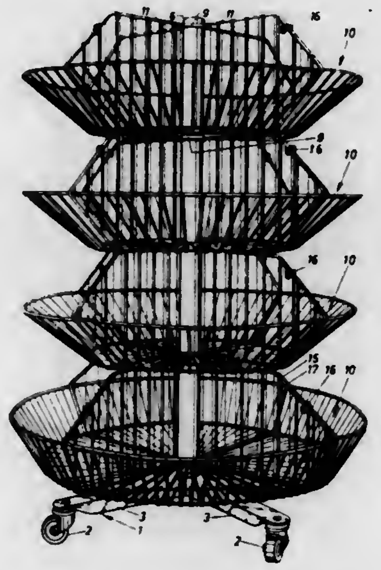
Tom Sumner, Wraysbury, near Staines, England, assignor to Moderna Butiksinredningar AB, Molndal, Sweden

Filed Jan. 23, 1973, Ser. No. 326,095

Claims priority, application Sweden, Feb. 8, 1972, 1485/72

Int. Cl. A47f *3/14, 5/02*

U.S. Cl. 211—131 **4 Claims**



A rotatable display cabinet having a rotatably mounted central post removably supporting essentially sector-shaped shelf members of basket type at several horizontal levels around said post. Each basket has upper and lower support stays merging into transverse pieces adapted to be secured in holding hooks arranged at different horizontal levels around said post, each such holding hook being capable of receiving both the transverse piece of the upper stays of one basket and the transverse piece of the lower stays of the basket positioned immediately above the first-mentioned basket.

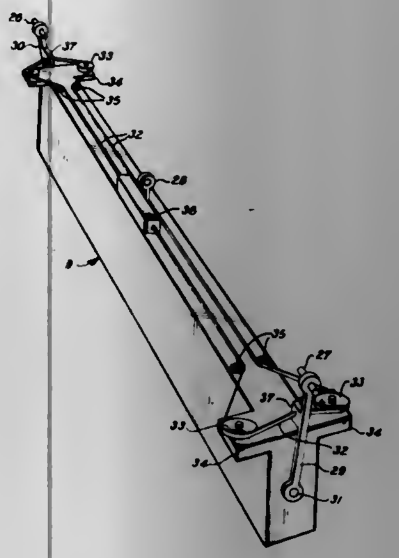
3,833,129
OVERHEAD OR GANTRY CRANE WITH A YOKE CARRYING ELECTROMAGNETS

Eigil Madsen, Svestrup Pr. Olstykke, Denmark, assignor to H. Nielsen & Son Maskinfabrik A S, Herlev, Denmark

Division of Ser. No. 138,706, April 29, 1970. This application May 21, 1973, Ser. No. 362,554

Int. Cl. B66c *17/04*

U.S. Cl. 212—14 **5 Claims**



Overhead or gantry cranes have generally a crab or trolley from which the yoke is suspended. Instead of the crab which cannot bring the yoke all out to the legs of the crane now a yoke is applied carried by four rope parts from independently operated pulleys at each of the four crane corners.

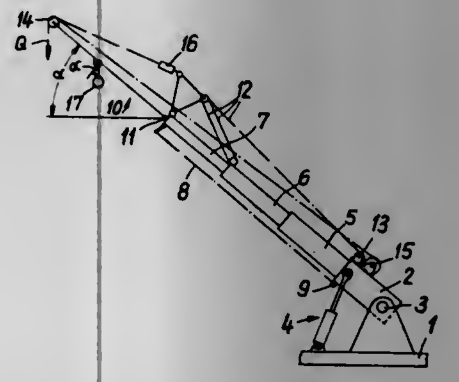
3,833,130
SAFETY DEVICE FOR A TOP BOOM PIVOTALLY MOUNTED ON A CRANE BOOM

Werner Gerdes, Langendamm, and Otto Koster, Isums, both of Germany, assignors to Fried. Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany

Filed Apr. 20, 1973, Ser. No. 353,138

Int. Cl. G08b *21/00;* **B66c** *13/16*

U.S. Cl. 212—39 R **5 Claims**



A safety device for a top boom pivotally mounted on a main boom of a crane, in which a first control system arranged on the top boom of the crane includes an angle indicator, a power indicator, a rated value indicator and a comparing device, and in which a second control system arranged on the main boom or the crane upper structure includes a source of constant current and a decoding device. The first and second control systems are electrically connected to each other only by one conductor and the mass of the main boom and of the top boom.

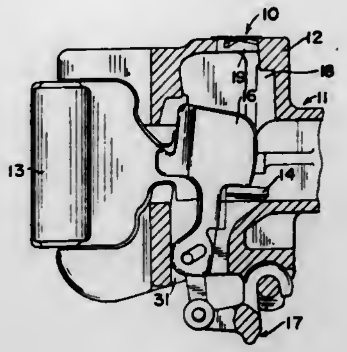
3,833,131
COUPLER LOCKLIFT HOLE CAP

Russell George Altherr, Munster, Ind., assignor to AMSTED Industries Incorporated, Chicago, Ill.

Filed Nov. 19, 1973, Ser. No. 417,245

Int. Cl. B61g *3/04*

U.S. Cl. 213—158 **6 Claims**



A coupler having a housing including a top locklift hole sealed by a removable cap. The cap is made from plastic and includes a cover plate overlying and sealing the hole. The cover plate is formed with an outwardly projecting bubble having a plurality of angularly spaced legs. Upon depressing the bubble inwardly the legs wedgingly engage the inwardly diverging side walls defining the locklift hole. The cap is removable only by force applied upwardly through the locklift chamber to return the bubble to its outwardly projecting condition thereby to release the legs from the side walls.

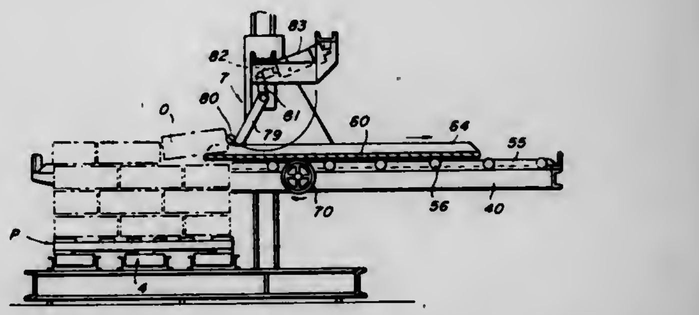
3,833,132
PALLET LOADING APPARATUS

Frank P. Alduk, 116 Guadalcanal Rd., New Castle, Pa. 16105

Continuation-in-part of Ser. No. 854,930, Sept. 3, 1969, abandoned. This application Apr. 20, 1972, Ser. No. 245,842

Int. Cl. B65g *57/22*

U.S. Cl. 214—6 G **20 Claims**



An apparatus for loading objects on a pallet has a cross frame movable vertically between upright supports. There is a shuttle table over the cross frame movably carried on it for travel from a load-receiving position at one end of the frame to a load-discharge position at the other end with means for traversing it back and forth. A restraining bar movable from a position where it is clear of the load when the table moves forward to a position over the pallet, but which obstructs the load as the shuttle table moves back, causes the load to be forced off the table onto the pallet or partially-formed load already on the pallet. One layer is deposited on the load with each forward and back cycle of the shuttle table. When the load is complete the cross frame is raised to a level above the load to clear the loaded pallet which is then removed, but at all other times the cross frame surrounds the load at or near its top to guard against accidental toppling of the load. An improved restraining bar is on dead center when it is in loadrestraining position with the pivotal axis about which it moves between load-restraining and load-clearing position so that the back thrust of the load against the bar is not transmitted to the bar-moving mechanism.

3,833,133

RACK STRUCTURE WITH MOBILE FRAMES HAVING TILTABLE BUCKETS

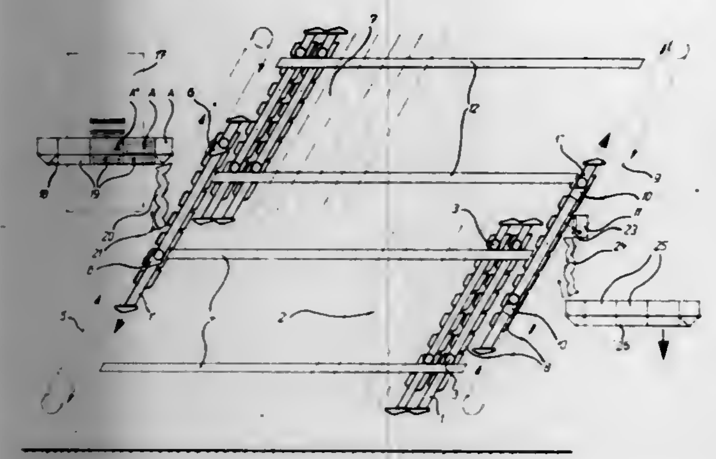
Egger Friedrich, Niederuzwil, Switzerland, assignor to Gebrueder Buehler AG, Uzwil, St. Gallen, Switzerland

Filed July 27, 1973, Ser. No. 383,052

Claims priority, application Switzerland, Aug. 10, 1972, 11823/72

Int. Cl. B65g *1/06*

U.S. Cl. 214—16.4 C **17 Claims**



A rack has pairs of substantially horizontal rails supporting a plurality of mobile supporting frames, for pasta products, which are arranged in the rack in two stacks. Each frame includes a plurality of superposed and individually tiltable buckets. The upper stack comprises empty frames and the lower stack comprises filled frames. An elevator means at one side of the rack moves the frames one by one downwardly from the upper stack to the lower stack with each bucket being filled with pasta products as it moves past a filling device. An elevator means adjacent the opposite side of the rack moves the frames one by one upwardly past a bucket emptying device for discharge of the bucket contents to a conveyor or the like. While the frames may be moved manually along the rails, stepping means preferably are provided to operate in synchronism with the other apparatus elements to shift the frames one by one along the respective rails. As each bucket is tilted to empty its contents, its pouring lip moves along a baffle to prevent falling out of the contents until the pouring lip is aligned with a hopper for receiving the discharged contents.

3,833,134

SILO DISCHARGING DEVICE

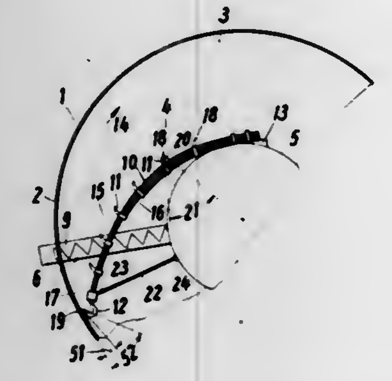
Hans Gessler, Aalen, Germany, assignor to Schwabische Huttenwerke Gesellschaft mit beschrankter Haftung, Wasseralfingen, Germany

Filed Dec. 20, 1971, Ser. No. 209,801

Claims priority, application Germany, Dec. 22, 1970, 2063140

Int. Cl. B65g *65/48*

U.S. Cl. 214—17 D **31 Claims**



A silo discharging device with a rotor in a silo container, which rotor has at least a resilient rotor arm, especially a rotor arm composed of spring leaves, in which the rotor arm extends with all radii of curvature of the rotor arm in a direction opposite to the direction of rotation of the rotor.

3,833,135

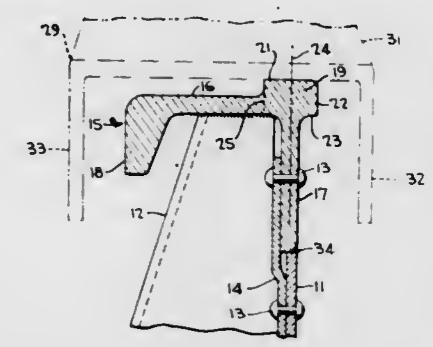
OPEN TOP RAILWAY FREIGHT CAR HAVING BULB ANGLE ELEMENT ALONG TOP EDGE OF SIDEWALLS

Glen D. Larsen, Upper Marlboro, Md., assignor to Southern Railway Company, Washington, D.C.

Filed May 2, 1973, Ser. No. 356,500

Int. Cl. B65g *67/24*

U.S. Cl. 214—64.2 **2 Claims**



An open top railway freight car having a bulb angle element joined by welding or riveting along the top edge of each of its sidewalls, each element being so designed as to concentrate one-half the resultant vertical loads of a shakeout machine resting thereon in direct vertical alignment with each sidewall thereby substantially avoiding a weakening of the joint between each element and the car sidewalls during a shakeout operation. Such a design of each element includes a built-up portion extending upwardly and inwardly along the corner thereof, the inwardly extending built-up portion also serving to space the inner leg of the foot members of the shakeout machine away from the riveted joint between the bulb angle elements and the car sidewalls during the shakeout operation.

3,833,136

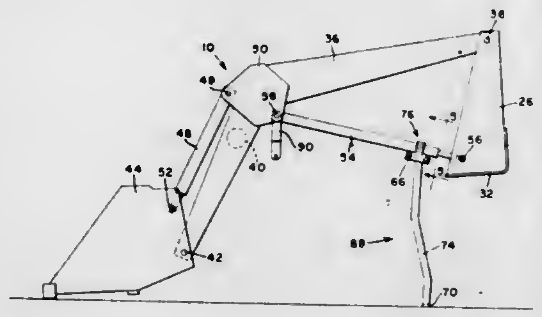
DETACHABLE FRONT END LOADER

Dalton Harold Spicer, Welland; George Francis Perdue, Lowbanks, and William Roderick MacGregor, Welland, all of Ontario, Canada, assignors to Deere & Company, Moline, Ill.

Filed July 3, 1972, Ser. No. 268,434

Int. Cl. B66f *9/04*

U.S. Cl. 214—131 A **13 Claims**



A front end loader adapted for releasable attachment to an agricultural tractor and having apparatus for facilitating removal of the loader from the tractor and for supporting the loader when so removed, the apparatus including an upright, rigid are pivotally connected at its lower end to the tractor frame and at its upper end to the loader arm, the arm extending upwardly and rearwardly from its lower to its upper pivotal connection and being swingable forwardly relative to the tractor as the latter is moved rearwardly relative to the loader, whereby the arm is operative to raise and then lower the loader as the tractor is moved rearwardly. A U-shaped parking stand is pivotally connected to the loader for movement between a raised inoperative position and a lowered operative position, the stand in the latter position being operative to engage the ground and support the loader relative thereto as the loader is lowered by the arm.

3,833,137

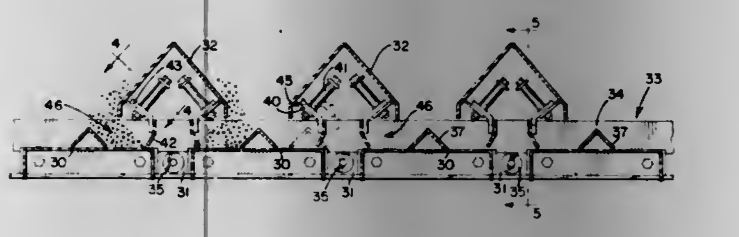
DISCHARGING HOPPER FOR GRAIN DRYER

Bernard C. Mathews, P.O. Box 70, Crystal Lake, Ill. 60014

Filed July 9, 1973, Ser. No. 377,391

Int. Cl. B65g *65/44;* **F26b** *17/26*

U.S. Cl. 214—17 D **2 Claims**



A grain dryer has imperforate side and end walls, two horizontal grain supports, and a series of exhaust ducts above the upper grain support. Each grain support has valve means to transfer periodically a controlled amount of grain downwardly from the upper to the lower grain support and from the lower grain support to a discharge means. A blower supplies hot air which passes up through the upper grain support to heat the bed of grain supported thereby, and cool air which passes through both grain supports. Level responsive means maintains a free space beneath the upper grain support. The two valve means operate only when the air supply is cut off.

3,833,138

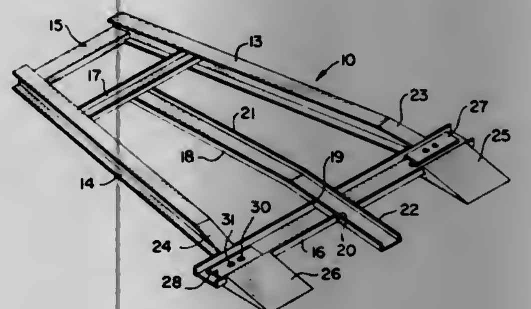
MEANS AND METHOD FOR STORING AIRCRAFT

Charles W. Dean, 2942 Palm Ave., Fort Myers, Fla. 33903

Division of Ser. No. 175,514, Aug. 27, 1971, Pat. No. 3,756,419. This application Apr. 17, 1973, Ser. No. 351,950

Int. Cl. B60b *29/00*

U.S. Cl. 214—334 **11 Claims**



A means and method for storing aircraft comprising support frame means and lifting frame means or pallet means for supporting and storing an aircraft on said frame means. Said frame means is capable of accommodating one aircraft therein, as well as supporting another aircraft thereon in vertically spaced relationship to said one aircraft. A plurality of support frame means and pallet means may be provided for supporting a plurality of aircraft in spaced, stacked relationship.

3,833,139

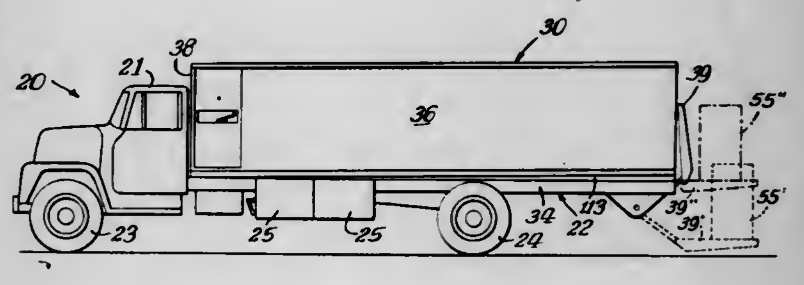
CARGO TRANSPORTING AND HANDLING VEHICLE

James D. Mahoney, 4 Ivy Ln., Oak Brook, Ill. 60521

Continuation-in-part of Ser. No. 132,319, April 8, 1971, abandoned. This application Oct. 30, 1972, Ser. No. 302,477

Int. Cl. B60p *3/00*

U.S. Cl. 214—518 **14 Claims**



A cargo transporting and handling vehicle is disclosed, which facilitates unloading of cargo elements from and loading of cargo elements onto the vehicle at the various stops along a route. The vehicle has a body having a plurality of elongated guide members mounted on the floor thereof so as to provide a plurality of longitudinally extending paths for guiding the direction of movement of cargo elements on the floor. When the cargo elements are standard sized, fifty-five gallon drums, four, closely adjacent paths are provided. A lift gate at the rear of the body serves to facilitate the loading of filled drums onto the rear ends of the paths, and doors are provided on the sides of the body, adjacent the front end thereof, through which empty drums on the paths are unloaded. A gate is provided at the front end of each pair of paths to control the movement of drums on the paths and onto an unloading station adjacent each side door.

Movement of the drums along the paths as the vehicle proceeds along its route is achieved by slanting the paths downwardly from the rear end toward the front end of the vehicle body. A diverting abutment at the front end of the inner pair of paths serves to channel drums moving forwardly on the paths laterally outwardly toward the unloading stations.

A novel side wall construction is disclosed, wherein portions of the side walls are laterally outwardly displaced at particular locations so that the side walls can be positioned close to the drums and the overall width of the vehicle body minimized. The laterally outwardly displaced portions of the side walls also serve to increase their strength.

A novel method of loading and unloading the drums from the vehicle body is also disclosed, whereby the driver of the vehicle does not have to get into the vehicle body during a loading or unloading operation

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3,833,140

LOAD HANDLING EQUIPMENT

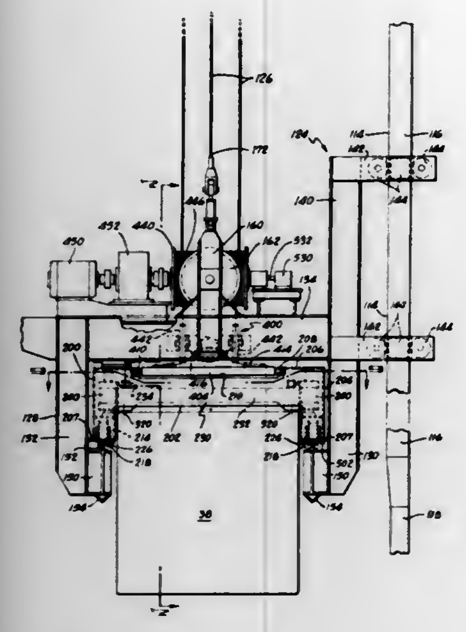
Robert R. Young, Danville, and Robert W. Medland, Hayward, both of Calif., assignors to Kaiser Industries, Inc., Oakland, Calif.

Division of Ser. No. 803,838, March 3, 1969, Pat. No. 3,608,750. This application July 10, 1970, Ser. No. 51,564

Int. Cl. B65g *47/00*

U.S. Cl. 214—658 **2 Claims**

Equipment for transferring large heavy containers and similar loads among the compartments of a vertical array of compartments and a separate transfer station and more particularly to a crane for inserting such containers into the compartments and depositing the same therein or for picking up the containers within the compartments and removing the same therefrom.



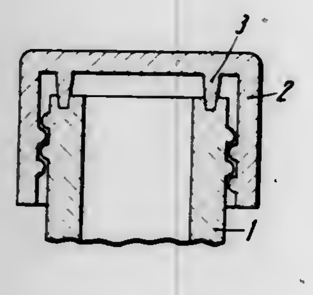
3,833,141
CONTAINER

Wilfried Leitz, Bad Krozingen, Germany, assignor to Van Leer Verpackungen GmbH

Filed Aug. 23, 1972, Ser. No. 283,033

Int. Cl. B65d *23/00, 53/00*

U.S. Cl. 215–344 **5 Claims**



A plastic cotainer of the type adapted to accept a screw cap closure member having threading is provided in which an annular groove is placed on the rim of the mouth of the container. A removable cover having a circular ring which fits securely into the groove is also provided to form an airtight seal. Threads corresponding to those on the container are provided on the cover or on a separate cap for positioning the cover with respect to the mouth of the container to therefore effect closure.

3,833,142
METHOD OF SEALING PLASTIC CONTAINERS

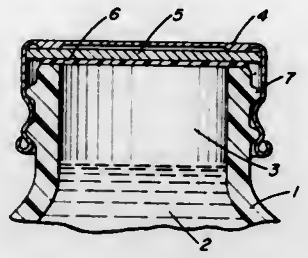
Haven Trask Owen, Cheshire, and Charles William Deeley, Fairfield, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Sept. 8, 1972, Ser. No. 287,402

Int. Cl. B65d *51/18*

U.S. Cl. 215–351 **10 Claims**

A method of sealing plastic containers so as to prevent wall collapse thereof or bubble development in or around the contents thereof wherein a thin film of stretchable plastic is sealed over the mouth of the container and a breathable closure is fitted over said film and the resultant container per se, are disclosed.



3,833,143
SLIDE CONTAINER

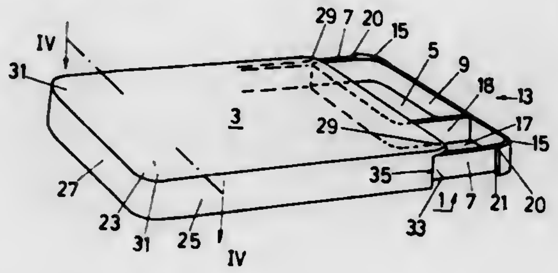
Paul Starkermann, Zurich, and Reinhold Birnath, Melide, both of Switzerland, assignors to Paul Starkermann & Co., Zurich, Switzerland

Filed Apr. 27, 1972, Ser. No. 248,215

Claims priority, application Switzerland, June 1, 1971, 7911/71

Int. Cl. B65d *83/04, 85/56, 43/12*

U.S. Cl. 220–345 **3 Claims**



A container comprising a substantially flat drawer-like shell having front, rear and parallel sidewalls, and a cover formed of a flat plate member having at least a pair of depending sidewalls overlapping the cover. The sidewalls of the cover are provided with supports and guide elements which hold the shell and permit it to slide inwardly and outwardly in a direction parallel to the sidewalls, in a telescoping manner. The supporting elements and the engaging portions of the shell are formed so that a smooth exterior surface, free of projections is provided.

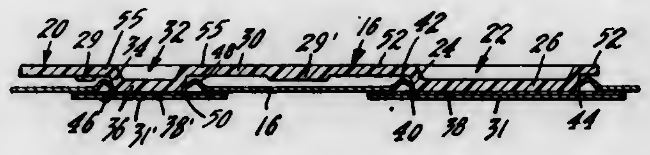
3,833,144
TWO POSITION PULL TAB EASY-OPEN CONTAINER COMPONENT

Robert Henry Bollmann, Woodstock, and Guy Curtis Richards, Crystal Lake, both of Ill., assignors to American Can Company, Greenwich, Conn.

Filed July 10, 1972, Ser. No. 270,323

Int. Cl. B65d *17/20*

U.S. Cl. 220–267 **16 Claims**



An easy-open container component comprising an end closure having an aperture therein and a reclosable two-position pull-tab having a downwardly depending plug member whose sidewall is larger at its top than at the bottom, and whose bottom surface initially is planar with, and is adhered to a sealing membrane in turn adhered to, the underside of the central panel of the end closure. Opening of the end closure is effected by pulling upwardly on the pull-tab to pull the plug member out of the aperture and to cut the sealing membrane about the edge of the rim of the aperture. Reclosure is effected by pressuredly inserting the plug member downwardly into the aperture so that the edge of the rim of the aperture pressuredly sealingly engages the larger top portion of the plug member sidewall, and so that the bottom surface of the plug member is below the plane of the underside of the central panel of the end closure.

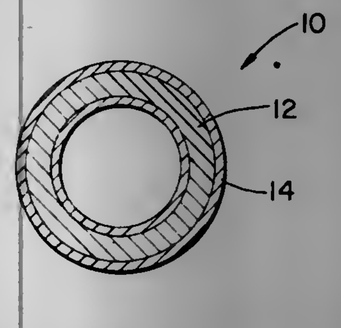
3,833,145
QUICK-RESPONDING THERMOMETER

Philip C. Crosby, Wakefield, and Robert J. Goyette, Chelmsford, both of Mass., assignors to Meditech Energy and Environmental Corporation, Danvers, Mass.

Filed Feb. 16, 1970, Ser. No. 11,615

Int. Cl. B65d *25/14;* **G01k** *7/00*

U.S. Cl. 220—64 **8 Claims**



A novel, quick-responding thermometer comprising a thin metallic container enclosing a thermosensitive element, said container being formed of (1) an inner metal of high thermal conduction and relatively low mechanical strength and (2) a coating thereover of another metal which is characterized by a relatively high mechanical strength, said latter metal advantageously forming not over about 20 percent of the total wall thickness of the probe.

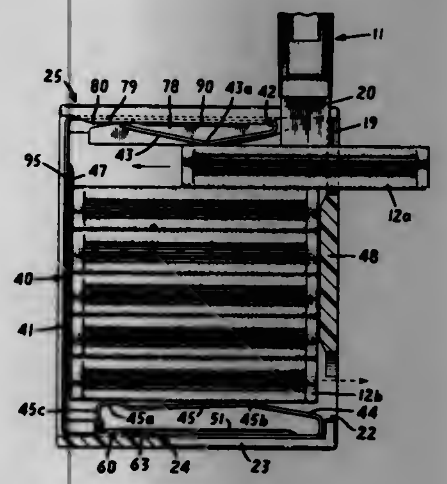
3,833,146
MAGAZINE HOLDING RAZOR BLADE CARTRIDGES IN FLOATING MANNER

Paul A. Braginetz, Staunton, Va., assignor to Philip Morris Incorporated, New York, N.Y.

Filed Feb. 22, 1973, Ser. No. 334,746

Int. Cl. B26b *21/24*

U.S. Cl. 221—66 **21 Claims**



A magazine for razor blade cartridges in which the cartridges embody a plurality of blades permanently secured in a plastic body, the magazine including a main housing into which is insertable a spring clip preloaded with a stack of the cartridges with the stack mounted in an elastic support in a floating manner between opposed spring biasing means, the housing having an edge wall with a pair of openings one being adapted for the endwise insertion of a used cartridge at one end of the stack and the other opening being adapted for the endwise extraction of a new cartridge, the stack being shiftable in its elastic support to appropriately expose the ends thereof at the respective openings for the insertion and extraction of cartridges.

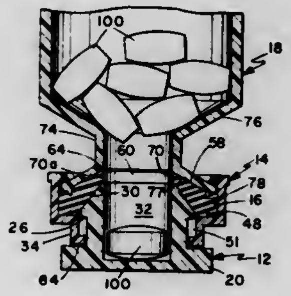
3,833,147
SAFETY DISPENSING CONTAINER CLOSURE

Adolph W. Borsum, and William K. Borsum, both of 521 Pacific Ave., Solana Beach, Okla. 92075

Continuation of Ser. No. 45,298, June 11, 1970, abandoned. This application July 3, 1972, Ser. No. 268,558

Int. Cl. G07f *11/20*

U.S. Cl. 221—202 **17 Claims**



A closure for containers having a resilient diaphragm with a valve portion configuration that prevents material from passing through the opening and out the closure, a cap member for fitting into said container in a locked position, which cap member presses against the resilient diaphragm forming a seal therebetween and the resilient contact holds the cap member in the locked position, and by pressing the cap member against the diaphragm, the valve portion in the diaphragm is enlarged allowing material in the container to pass through the opening.

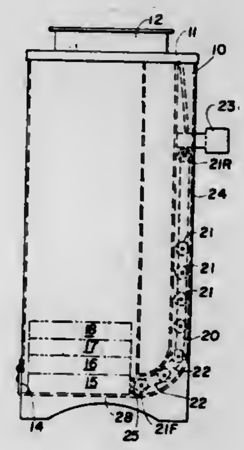
3,833,148
BREAD DISPENSER

Norbert W. Honas, Ellis, Kans., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Apr. 9, 1973, Ser. No. 349,216

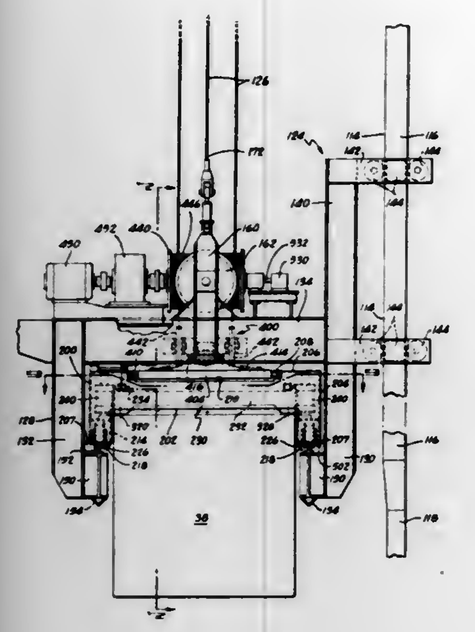
Int. Cl. B65g *59/06*

U.S. Cl. 221—250 **1 Claim**



A bread storage and dispensing unit for feeding one slice of bread at a time from a stored vertical stack of sliced bread inside the dispenser. A conveyor unit in the form of a series of rollers pushes against the rear of the bottom slice of bread to push that slice out through a slot in the side of the housing while simultaneously the rollers of the dispensing arm support the stored slices above the slice being dispensed.

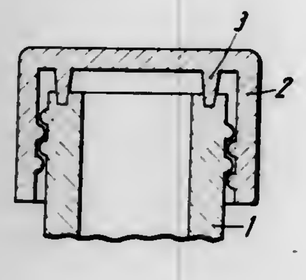
compartments and a separate transfer station and more particularly to a crane for inserting such containers into the com-



partments and depositing the same therein or for picking up the containers within the compartments and removing the same therefrom.

3,833,141
CONTAINER

Wilfried Leitz, Bad Krozingen, Germany, assignor to Van Leer Verpackungen GmbH
Filed Aug. 23, 1972, Ser. No. 283,033
Int. Cl. B65d *23/00, 53/00*
U.S. Cl. 215—344 **5 Claims**



A plastic cotainer of the type adapted to accept a screw cap closure member having threading is provided in which an annular groove is placed on the rim of the mouth of the container. A removable cover having a circular ring which fits securely into the groove is also provided to form an airtight seal. Threads corresponding to those on the container are provided on the cover or on a separate cap for positioning the cover with respect to the mouth of the container to therefore effect closure.

3,833,142
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Filed Sept. 8, 1972, Ser. No. 287,402
Int. Cl. B65d *51/18*
U.S. Cl. 215—351 **10 Claims**

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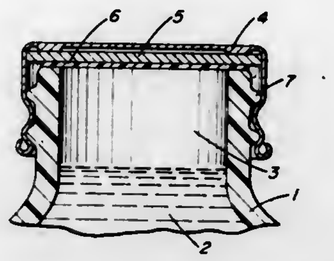

3,833,143
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Int. Cl. B65d *83/04, 85/56, 43/12*
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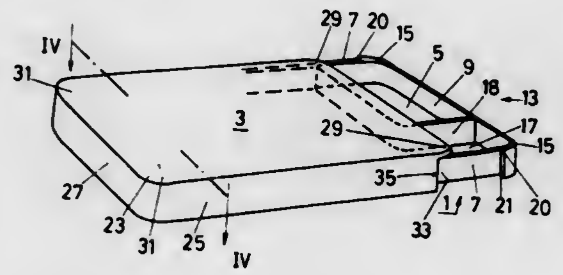

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3,833,144
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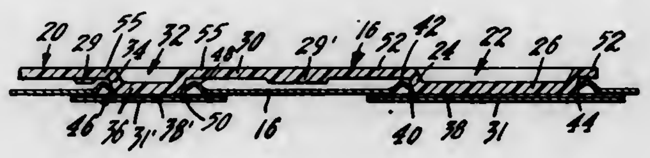
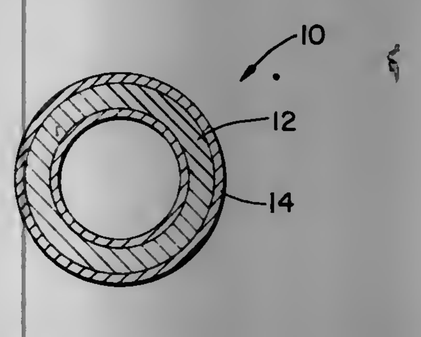
Robert Henry Bollmann, Woodstock, and Guy Curtis Richards, Crystal Lake, both of Ill., assignors to American Can Company, Greenwich, Conn.
Filed July 10, 1972, Ser. No. 270,323
Int. Cl. B65d *17/20*
U.S. Cl. 220—267 **16 Claims**



An easy-open container component comprising an end closure having an aperture therein and a reclosable two-position pull-tab having a downwardly depending plug member whose sidewall is larger at its top than at the bottom, and whose bottom surface initially is planar with, and is adhered to a sealing membrane in turn adhered to, the underside of the central panel of the end closure. Opening of the end closure is effected by pulling upwardly on the pull-tab to pull the plug member out of the aperture and to cut the sealing membrane about the edge of the rim of the aperture. Reclosure is effected by pressuredly inserting the plug member downwardly into the aperture so that the edge of the rim of the aperture pressuredly sealingly engages the larger top portion of the plug member sidewall, and so that the bottom surface of the plug member is below the plane of the underside of the central panel of the end closure.

3,833,145
QUICK-RESPONDING THERMOMETER

Philip C. Crosby, Wakefield, and Robert J. Goyette, Chelmsford, both of Mass., assignors to Meditech Energy and Environmental Corporation, Danvers, Mass.
Filed Feb. 16, 1970, Ser. No. 11,615
Int. Cl. B65d *25/14;* **G01k** *7/00*
U.S. Cl. 220—64 **8 Claims**



A novel, quick-responding thermometer comprising a thin metallic container enclosing a thermosensitive element, said container being formed of (1) an inner metal of high thermal conduction and relatively low mechanical strength and (2) a coating thereover of another metal which is characterized by a relatively high mechanical strength, said latter metal advantageously forming not over about 20 percent of the total wall thickness of the probe.

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Int. Cl. B26b *21/24*
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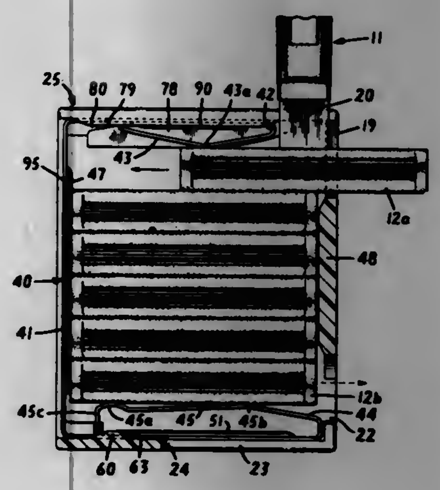
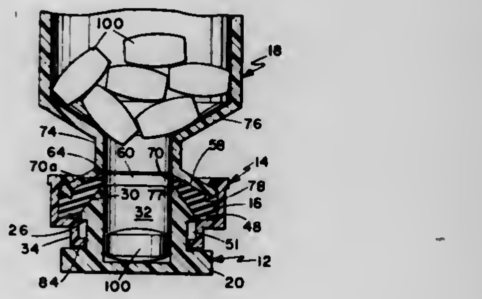


A magazine for razor blade cartridges in which the cartridges embody a plurality of blades permanently secured in a plastic body, the magazine including a main housing into which is insertable a spring clip preloaded with a stack of the cartridges with the stack mounted in an elastic support in a floating manner between opposed spring biasing means, the housing having an edge wall with a pair of openings one being adapted for the endwise insertion of a used cartridge at one end of the stack and the other opening being adapted for the endwise extraction of a new cartridge, the stack being shiftable in its elastic support to appropriately expose the ends thereof at the respective openings for the insertion and extraction of cartridges.

3,833,147
SAFETY DISPENSING CONTAINER CLOSURE

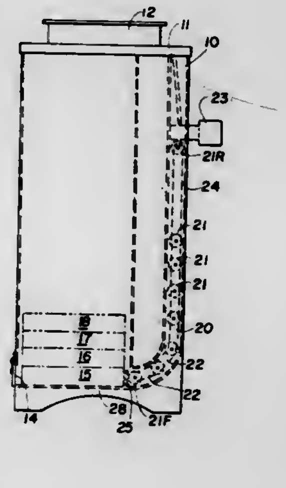
Adolph W. Borsum, and William K. Borsum, both of 521 Pacific Ave., Solana Beach, Okla. 92075
Continuation of Ser. No. 45,298, June 11, 1970, abandoned. This application July 3, 1972, Ser. No. 268,558
Int. Cl. G07f *11/20*
U.S. Cl. 221—202 **17 Claims**



A closure for containers having a resilient diaphragm with a valve portion configuration that prevents material from passing through the opening and out the closure, a cap member for fitting into said container in a locked position, which cap member presses against the resilient diaphragm forming a seal therebetween and the resilient contact holds the cap member in the locked position, and by pressing the cap member against the diaphragm, the valve portion in the diaphragm is enlarged allowing material in the container to pass through the opening.

3,833,148
BREAD DISPENSER

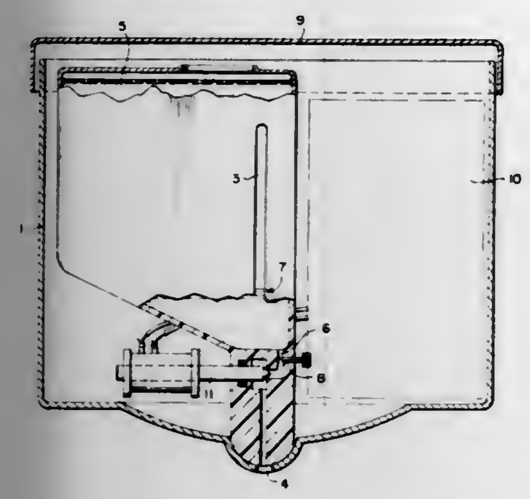
Norbert W. Honas, Ellis, Kans., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Apr. 9, 1973, Ser. No. 349,216
Int. Cl. B65g *59/06*
U.S. Cl. 221—250 **1 Claim**



A bread storage and dispensing unit for feeding one slice of bread at a time from a stored vertical stack of sliced bread inside the dispenser. A conveyor unit in the form of a series of rollers pushes against the rear of the bottom slice of bread to push that slice out through a slot in the side of the housing while simultaneously the rollers of the dispensing arm support the stored slices above the slice being dispensed.

3,833,149
HAND LOTION DISPENSING DEVICE

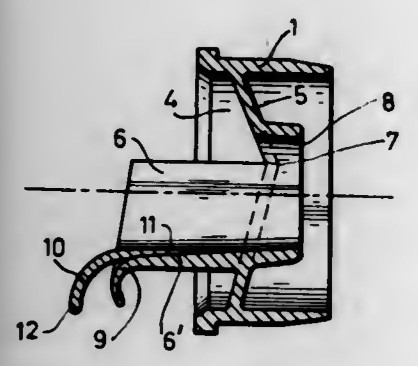
Phyllis Iozzio, Hawthorne, N.J., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Feb. 16, 1973, Ser. No. 333,052
Int. Cl. B67d *5/08*
U.S. Cl. 222—70 **3 Claims**



A hand lotion dispensing device comprises a housing having a coin slot formed therein, a viewing window therein and a lotion opening therein. Atransparent container of hand lotion in the housing has an opening therein at the lotion opening of the housing. The container is positioned at the viewing window to permit visual observation of the level of lotion in the container. A valve at the opening of the container controls the supply of hand lotion from the container via the opening. A coin meter in the housing opens at the coin slot of the housing and is coupled to the valve for controlling the operation of the valve upon the supply of a coin to the coin meter.

3,833,150
POURING STOP

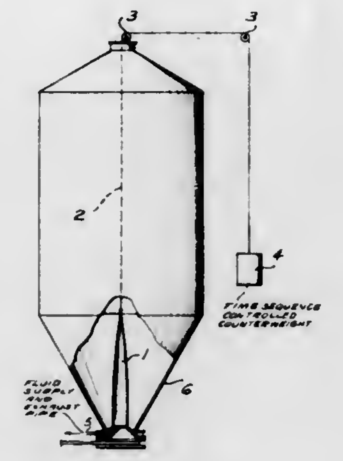
Wilhelmina Louise Maria Visser-Patings, Havendyn 505. Schiedam, Netherlands
Filed June 13, 1972, Ser. No. 262,200
Claims priority, application Netherlands, June 16, 1971, 7108244
Int. Cl. B65d *25/42*
U.S. Cl. 222—109 **4 Claims**



A pouring stop for bottles and other liquid containers. The stop comprises a spout, having a pouring lip, and cooperating with a collecting space around the spout. The spout is provided with a pouring tongue attached to the inner side of the spout, extending initially outwardly parallel to the spout axis and subsequently being curved in the same direction as and spaced from the pouring lip. The lip acts to draw the last drop back into the bottle.

3,833,151
APPARATUS FOR ASSISTING DISCHARGE OF PARTICULATE SOLIDS FROM A BIN

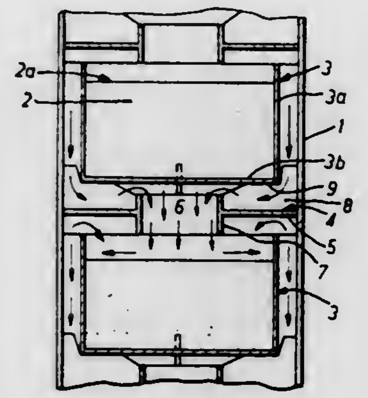
Werner Lieckfeld, Hitzhusen, Germany, assignor to Bran & Luble, Hamburg, Germany
Filed Oct. 4, 1972, Ser. No. 292,868
Claims priority, application Germany, Oct. 4, 1971, 2149476
Int. Cl. B65g *3/12*
U.S. Cl. 222—193 **9 Claims**



This disclosure teaches a device to assist in discharging (under gravity flow) particulate solids from a bin. A hollow body is positioned in the bin in the vicinity of a gravity discharge outlet thereof. The volume of the hollow body is varied pneumatically, hydraulically and/or mechanically to assist in discharging the solids. By this teaching chimney flow and bridging are obviated. Where the volume of the hollow body is varied pneumatically, air or some other gas may be emitted from the hollow body at the discharge outlet further to assist the discharging of the solids.

3,833,152
DEVICE FOR PRODUCING UNIFORM DISTRIBUTION OF PRODUCT DISSOLVING IN A CURRENT OF WATER

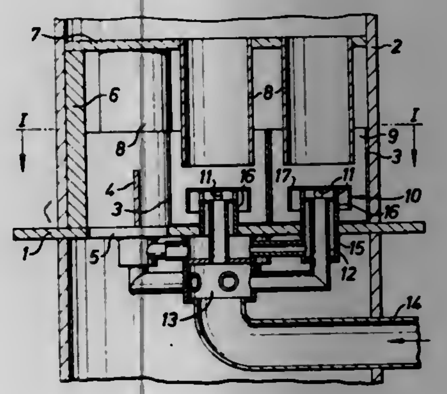
Guy J. Villette, Grenoble, France, assignor to Societe a Responsabilite Limitee dite Filtres Siebec, Fontaine, France
Filed Nov. 8, 1972, Ser. No. 304,656
Claims priority, application France, Nov. 10, 1971, 71.40265
Int. Cl. B67d *5/00*
U.S. Cl. 222—193 **7 Claims**



A device for producing even distribution of a product dissolving in a current of water, such as a cake of chlorine serving to disinfect water in a swimming bath. The chlorine is contained in cartridges arranged in successive stages in a conduit through which the current of water flows. The upstream end of each cartridge is open to expose the chlorine to the force of the water. The cartridges are supported in the conduit by transverse baffles which axially space the cartridges apart and also direct the current of water at the centre of the exposed chlorine. In one form of the device a single cartridge is provided at each stage, supported by a baffle having a central orifice. In another form two cartridges are provided at each stage, supported by a baffle having two orifices, the cartridges and the orifices being arranged symmetrical with respect to the axis of the conduit but the cartridges being disposed 90° out-of-phase with the orifices. Each orifice may have a bush to assist in directing the current of water at a downstream cartridge.

3,833,153
FLUID FLOW DISCHARGING APPARATUS

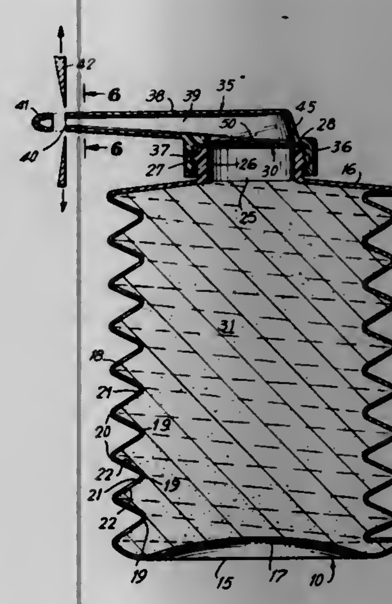
Francis Paul Somogyi, 17 Waterloo Pl., London, England
Filed Jan. 24, 1973, Ser. No. 326,271
Int. Cl. B67d *5/54*
U.S. Cl. 222—193 **4 Claims**



In order to discharge granular material from a container a discharge pipe including a trap is provided in the lower part of the container. Granular material flows upwardly in the trap to an equilibrium level. Injected fluid flushes granular material from the trap out of the container. More granular material flows into the trap to replace that which has been flushed out.

3,833,154
COLLAPSIBLE DISPENSING CONTAINER

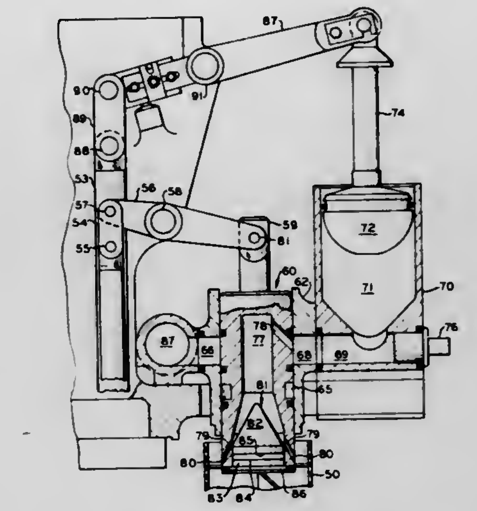
Isral J. Markowitz, Closter, N.J., assignor to Stem Development Corp., New York, N.Y.
Filed Sept. 27, 1972, Ser. No. 292,559
Int. Cl. B65d *37/00*
U.S. Cl. 222—212 **8 Claims**



A collapsible dispensing container wherein a container body is provided with an opening having a discharge member engaged over the opening, and in the opening is a one-way valve resiliently biased to permit fluent material movement outwardly upon collapse of the container body and prevent fluent material entry to the body.

3,833,155
POSITIVE DISPLACEMENT LIQUID DISPENSING MECHANISM

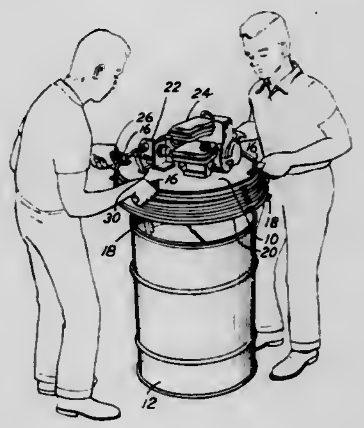
Silvio Farfaglia, Fulton, N.Y., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Sept. 7, 1973, Ser. No. 395,111
Int. Cl. G01f *3/38*
U.S. Cl. 222—275 **6 Claims**



A unitary valve body has a cylindrical opening therethrough to readily permit the insertion and withdrawal of a unitary cylindrical valve stem. The valve stem has an annular circumferential channel to provide communication between a supply conduit and a metering chamber in the intake position of the valve stem. The valve stem has an elongated cavity therein, and a passageway inclined outwardly and downwardly from the axis of the valve stem to provide communication between the metering chamber and the cavity in the dispensing position of the valve stem. A readily detachable plug closes off the bottom of the cavity, while a plurality of dispensing passageways provide communication between the cavity and the container being filled when the valve stem is in the dispensing position. An adjustable linkage is provided on the lever arm driving the piston in the metering chamber.

3,833,156
DRUM-TOP PUMP ASSEMBLY

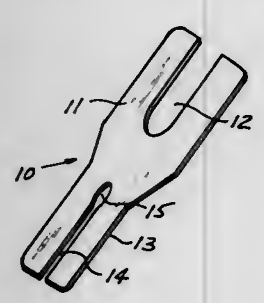
Curtis R. Hough, Zion, Ill., assignor to Chrismin Manufacturing Company, Inc., Zion, Ill.
Filed May 18, 1973, Ser. No. 361,571
Int. Cl. B67d *5/40*
U.S. Cl. 222—383 **4 Claims**



A fluid pump assembly adapted to be removably mounted upon an upright cylindrical fluid-containing drum. The assembly includes a rigid mounting plate with a motor-driven pump mounted on its upper face. Four downwardly extending shoulder flanges are attached to the plate at its periphery and are spaced to engage with the upper rim of a drum of standardized size, thus securing the plate against horizontal motion on the drum. An open-ended sleeve attached to and extending downwardly from the lower face of the mounting plate is located in an off-center position to register with and pass through the bunghole of the drum. Flexible hoses pass from the motor-driven pump, through a hole drilled in the plate above the sleeve, and through the sleeve itself to the interior of the drum. When the pump assembly is not in use, the flexible pressure output hose attached to the pump is wound around and secured by C-shaped brackets formed by the combination of the vertical shoulder members, an upper outwardly-extending carrying flange secured to the top of each shoulder member, and a lower outwardly-extending holding flange secured to the bottom of each shoulder member.

3,833,157
DEVICE FOR MAKING YARN POMPONS AND FLOWERS

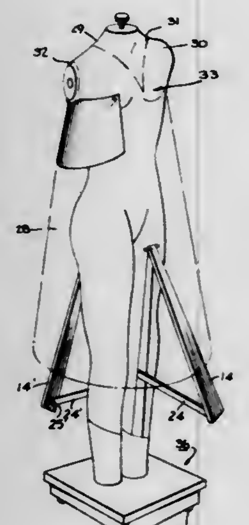
Melvyn Forrest Lofton, 6708 N. E. Roselawn, Portland, Oreg. 97218
Filed Oct. 2, 1972, Ser. No. 293,848
Int. Cl. A41h *31/00;* **B31c** *13/00;* **B65h** *81/00;* **D04d** *7/06*
U.S. Cl. 223—46 **4 Claims**



A tapered board, slotted at both ends, holds a yarn end and provides a winding area for making yarn pompons, rosettes and the like.

3,833,158
GARMENT MAKER'S MANNEQUIN

George Cavrich, 1285 Madison Ave., New York, N.Y. 10028
Division of Ser. No. 245,131, April 18, 1972, abandoned. This application Sept. 17, 1973, Ser. No. 397,801
Int. Cl. A41h *5/00*
U.S. Cl. 223—68 **3 Claims**

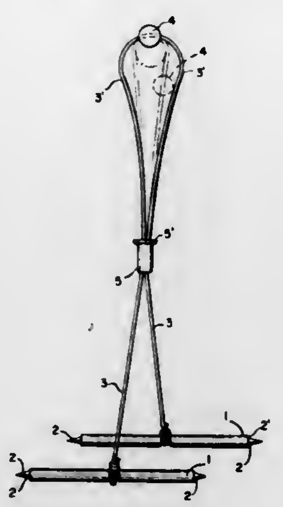


A flexible garment pattern is formed from a self-supporting plastic shell initially placed on a mannequin. The shell is cut while draped on the mannequin to the desired style and shape and then separated into several pieces of three-dimensional shape. These pieces are used as pattern pieces to cut out fabric pieces for a garment.

The mannequin is provided with an adjustable fit plate in the bustline and kicker plates in the leg portion to impart a desired silhouette to the shaped shell.

3,833,159
FLUSH HOSIERY HANGER

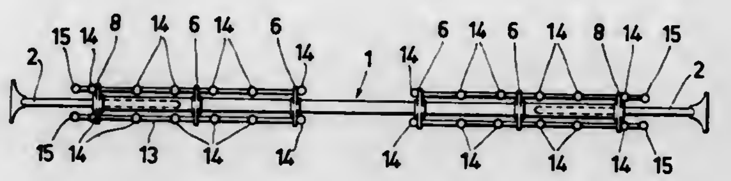
Iwao Ono, 78 Ajirokita 1-chome, Osaka, Japan
Filed May 18, 1973, Ser. No. 361,411
Claims priority, application Japan, June 26, 1972, 47-75429
Int. Cl. A47j *51/94*
U.S. Cl. 223—85 **5 Claims**



The hanger comprises a flexible cord having a loop and two standing parts, a stop member on said loop, preferably slidably mounted thereon, and a slide tube carried by said standing parts for shortening said loop, the standing parts having hanging bars at their ends with reduced tips for piercing spaced portions of the hose to be supported, the slide tube and stop enabling firm securement of the flattened loop and standing parts about a support.

3,833,160
SKI-HOLDING DEVICE WITH MOUNTINGS FOR CLAMP STRAPS

Bror Adolf Andersson, Dalsjofors, Sweden (S 51050)
Filed Feb. 9, 1973, Ser. No. 331,299
Claims priority, application Sweden, Feb. 17, 1972, 1918/72
Int. Cl. B60r *9/12*
U.S. Cl. 224—42.1 F **11 Claims**

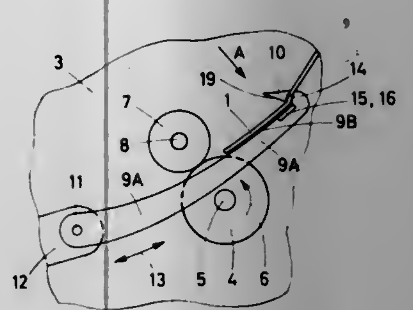


The invention concerns a ski-holding device for use on a motor car roof. At least two supporting members, secured on the roof, have clamp strap mountings which are arranged detachably to hold at least two clamp straps which are parallel to the supporting members and coact with each other (to clamp a ski or other object) in such manner that should one strap fail to function properly the companion strap acts as a reserve.

3,833,161
APPARATUS FOR INTERCEPTING AND THREADING THE LEADER OF CONVOLUTED MOTION PICTURE FILM OR THE LIKE

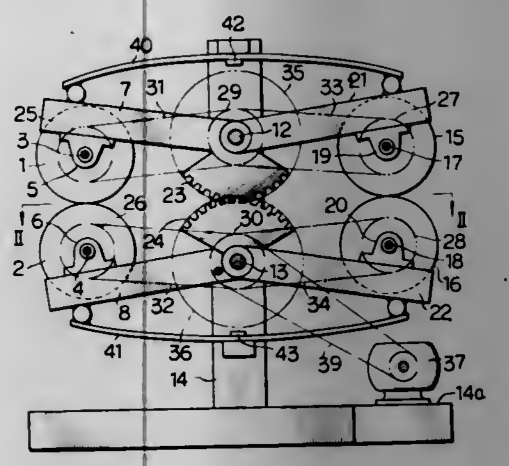
Fritz Krumbein, Stuttgart-Mohringen, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart, Germany
Filed Feb. 7, 1973, Ser. No. 330,385
Claims priority, application Germany, Feb. 8, 1972, 2205719; Feb. 24, 1972, 2208733
Int. Cl. G03b *1/56*
U.S. Cl. 226—92 **9 Claims**

Apparatus for intercepting and threading the leader of convoluted motion picture film has a catcher with a tooth which can enter an aperture of the leader and thereupon moves toward two advancing wheels which serve to transport the leader toward a takeup reel. The catcher is provided with guide means in the form of a notch or recess and/or one or more platforms which straighten out a curved or knicked leader so that the tip of the leader is more likely to find its way into the nip of the advancing wheels. The recess or notch is provided in that edge face of the tooth on the catcher which faces the advancing wheels. The platforms flank the tooth and not only serve to guide the leader but also center the catcher when they engage the flanges of one of the advancing wheels.



3,833,162
WOOD FEEDING DEVICE FOR BARK STRIPPING MACHINE

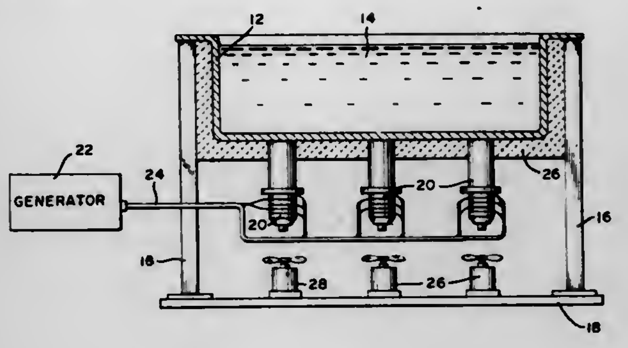
Junichi Sato, Asahikawa, Japan, assignor to Eno Industries Co. Ltd., Hokkaido, Japan
Filed July 24, 1973, Ser. No. 383,146
Claims priority, application Japan, Oct. 31, 1972, 47-108443
Int. Cl. G03b *1/46*
U.S. Cl. 226—184 **3 Claims**



A device for feeding wood to a bark stripping machine while centering the wood longitudinally with respect to the bark stripping machine, in which a pair of roller assembly units each comprising a pair of parallel arms rotatably supporting a feed roller between one ends and respectively having gears fixed to the other ends thereof are put together on one side of fixed shafts, with said feed rollers and gears of the respective units in engagement with each other, and pivotably mounted on said fixed shafts respectively with said fixed shaft extending through the centers of said gears, and another pair of similar roller assembly units are similarly put together on the other side of said fixed shafts and pivotably mounted on said fixed shaft, and further plate springs are provided to urge said engaging feed rollers each toward the center of the other one, said feed rollers being driven to cooperatively transfer the wood from one to the other side of the device to be fed to the bark stripping machine.

3,833,163
ULTRASONIC APPARATUS

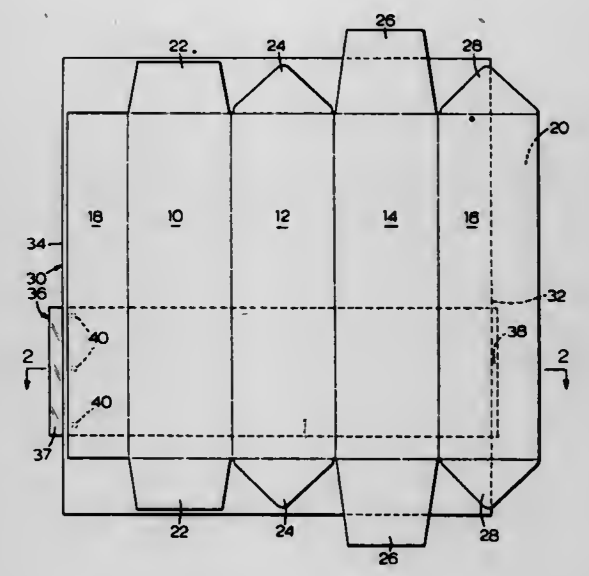
Clark A. Denslow, Wilton, and Edward G. Obeda, Brookfield, both of Conn., assignors to Branson Instruments, Incorporated, Stamford, Conn.
Filed Mar. 8, 1973, Ser. No. 339,083
Int. Cl. B23k *1/06*
U.S. Cl. 228—1 **3 Claims**



An ultrasonic soldering tank is provided with a plurality of electroacoustic transducer assemblies, each assembly comprising a stacked arrangement of juxtaposed piezoelectric disks, a plate of high thermal conductivity material for acting as a hear sink and a coupling bar of low thermal conductivity material. The coupling bar while transmitting acoustic energy from the piezoelectric disks to the tank also provides thermal insulation between the hot tank and the heat sensitive piezoelectric material.

3,833,164
DECORATIVE CONTAINER

Leslie James Dagostine, Dollard des Ormeaux, Quebec, Canada, assignor to Somerville Industries Limited, Terminal A., London, Ontario, Canada
Filed July 20, 1972, Ser. No. 273,403
Int. Cl. B65d *5/02*
U.S. Cl. 229—37 R **4 Claims**



This invention relates to a container blank comprising a paperboard blank having a series of side panels, a top wall and a bottom wall, said series of side panels being hinged together at fold lines, a glue flap hinged to said first side panel of said series of side panels, said first side panel being at one end of said series of side panels, a second side panel of said series of side panels having an adhesive receiving strip or area adjacent the marginal portions of the free edge thereof, said second side panel being at the other end of said series of side panels to said first side panel, a decorative overwrap laminated to said paperboard blank, said overwrap having a marginal edge terminating at said adhesive strip or area, a band extending across said series of side panels, said band having marginal portions of its first end adhesively secured to said adhesive strip or area and marginal portions of its second end adhesively secured to said glue flap.

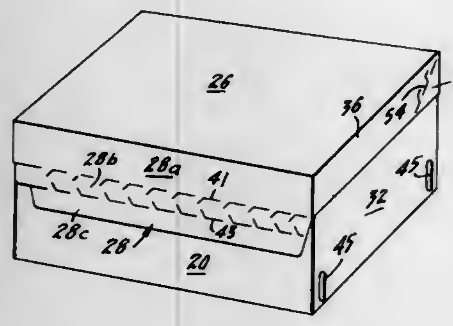
3,833,165
END WALL CONSTRUCTION FOR A CARTON

Stephen North Hoiles, Greenville, Ill., assignor to American Can Company, Greenwich, Conn.

Filed Jan. 22, 1973, Ser. No. 325,416

Int. Cl. B65d *5/02, 17/12*

U.S. Cl. 229—37 R **6 Claims**



An end wall construction for a carton including an anti-seepage or leakage barrier formed partially of embossments bridging the gap between overlapped end panels and partially of a line of water-resistant adhesive adhering the overlapped panels together.

3,833,166
VALVE BAG

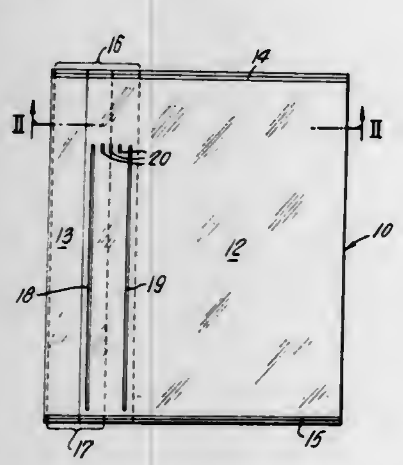
Charles Robertson Murray, Toronto, Ontario, Canada, assignor to Canadian Industries Limited, Montreal, Province of Quebec, Canada

Continuation-in-part of Ser. No. 210,836, Dec. 22, 1971, abandoned. This application Jan. 24, 1973, Ser. No. 326,546

Claims priority, application Canada, Mar. 24, 1971, 108630

Int. Cl. B65d *31/14*

U.S. Cl. 229—62.5 **10 Claims**



A valved plastics bag which has its valve adjacent and parallel to the top of the bag and is constructed of overlapping multi-ply panels in the front wall of the bag, the valve being formed between the panels, and one ply of the inner panel forming a sift-proof flap for the valve.

3,833,167
DATA MAILING SET

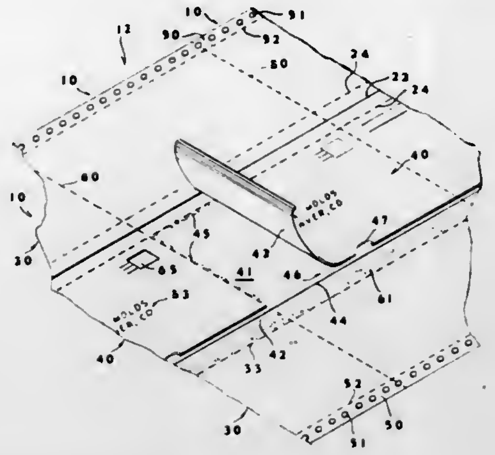
John R. Kapitan, 405 S. Kipling St., Lakewood, Colo. 80226

Filed June 12, 1972, Ser. No. 261,762

Int. Cl. B65d *27/06, 27/10*

U.S. Cl. 229—69 **5 Claims**

A data mailing set integrally comprising a message panel, address panel, and return envelope panel assembled in marginally punched continuous form stationery for precision feeding and imprinting in computer line printers and office machines without the use of carbon imprints, envelope windows, or address labels. Fixed data and postal indicia may be



preprinted during the manufacture of the form and variable data may be imprinted during data processing operations. The folded and sealed set is opened by the recipient by detaching a tear strip along one edge of the sealed set.

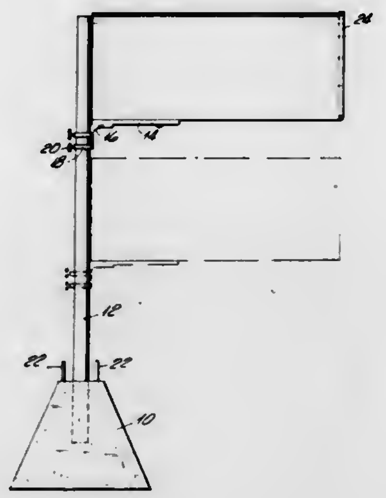
3,833,168
MAIL BOX WITH HEIGHT ADJUSTABLE SUPPORT MEANS

Carl T. Sackrison, Stratford, Iowa, assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Jan. 17, 1973, Ser. No. 324,379

Int. Cl. A47g *29/12*

U.S. Cl. 232—39 **1 Claim**



Apparatus for receiving and collecting mail comprising a heavy base, the outer surfaces of the base tapering upward and inward; a vertical post downward through the base; a rural delivery type mail box; and means supporting said box and slidable along the post to support the box at any desired height along the post, said means including a manually operable mechanism for locking the box into position, said means being rotatable about the post.

3,833,169
HIGH SPEED PUNCH

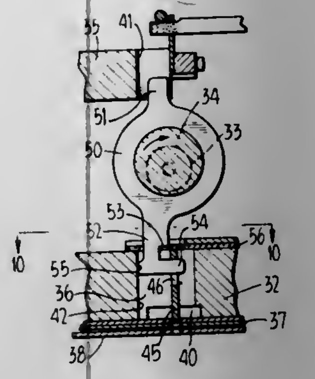
Arthur J. Malavazos, Hayward, and Jan Urdal, San Mateo, both of Calif., assignors to A. J. M. Research Corporation, Hayward, Calif.

Continuation-in-part of Ser. No. 183,151, Sept. 23, 1971, abandoned. This application Mar. 12, 1973, Ser. No. 339,985

Int. Cl. G06k *1/05*

U.S. Cl. 234—110 **7 Claims**

This invention relates to a light-weight, high-speed punch of very simple construction comprising a constantly rotating eccentric shaft; a number of interponents, or drivers, journalled on the eccentric (one for each punch to be operated); and a



number of punches slidably mounted in a guide bar are aligned with the interponents but normally not operatively connected thereto. The interponents and the punches are normally not in engagement with each other; the end of the interponent adjacent the punch being resiliently restrained, as by slight friction, in a disengaged position, leaving the other, or free, end of the interponent free tooscillate through a circular path with the rotation of the eccentric. Whenever a punch is required to be operated, a block is interposed in the path of travel of the free end of the interponent, whereby the other end of the interponent is forced by the rotation of the eccentric into engagement with the punch to push it through a punching operation. A nose on the interponent positively restores the interponent to an inoperative position at the end of that cycle of rotation. It is assumed that the card or tape to be punched will be fed by conventional feeding means.

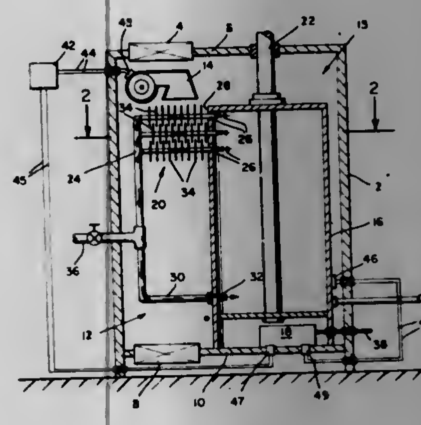
3,833,170
SINGLE UNIT AIR-WATER HEATING APPLIANCE

John Marshall, 354 Rose Cir., Seal Beach, Calif. 90740

Filed Oct. 12, 1972, Ser. No. 296,912

Int. Cl. F24h *6/00*

U.S. Cl. 236—9 R **4 Claims**



A single unit heating appliance comprising an air plenum and a water heating container with a heat exchanger extending into the plenum is shown. Water is heated by a burner and some of its heat is transferred to the heat exchanger which transfers the heat to ambient air passing thereover.

3,833,171
TEMPERATURE RESPONSIVE VALVE ASSEMBLY

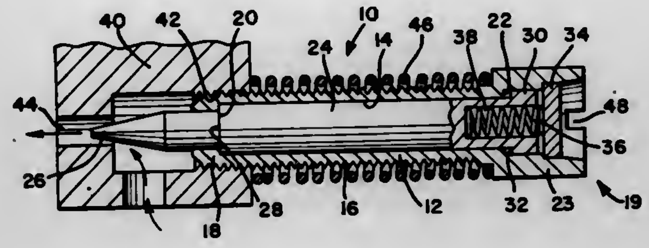
Robert T. Gifford, Yellow Springs, Ohio, assignor to Vernay Laboratories, Inc., Yellow Springs, Ohio

Filed July 18, 1973, Ser. No. 380,293The portion of the term of this patent subsequent to Oct. 10, 1989, has been disclaimed.

Int. Cl. G05d *23/275*

U.S. Cl. 236—102 **10 Claims**

A fluid flow metering valve which functions to decrease the effective area of a flow port in response to temperature decreases until a preselected temperature is reached, at which point further decreases in temperature have no appreciable effect on the effective size of the flow port area. The valve includes a valve casing constructed of a material having a relatively high coefficient of linear thermal expansion and a valve core slidably received in the casing and constructed of a



material having a relatively low coefficient of linear thermal expansion. The valve core is provided with an enlarged head at one end and a shoulder adjacent its opposite end, both of which are adapted to engage abutments or stops formed in the bore in the casing receiving the core, and a coil spring urges these portions of the core and casing into engagement with each other.

3,833,172
TRACK SYSTEM FOR ROOF TOPS

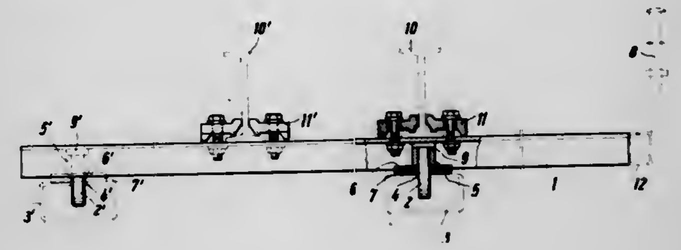
Richard Hiergeist, Munich, Germany, assignor to Mannesmann Leichtbau GmbH, Munich, Germany

Filed Dec. 27, 1972, Ser. No. 318,902

Claims priority, application Germany, Dec. 31, 1971, 2165825

Int. Cl. E01b *23/00*

U.S. Cl. 238—10 R **4 Claims**



A track and rail system for vehicles operating on roof tops is provided with rails and crossties, whereby additional support ties, two per crosstie, are interposed between roof and crossties. Spacer bushings adjust the level of the crossties individually relative to the support ties, as laid on the roof. The support ties have an opening each for receiving a pin that extends down from the respective crosstie, traversing the spacer bushing for positioning. Noise damping disks are interposed between bushings and support ties.

3,833,173
APPARATUS AND PROCESS FOR SPRAYING LIQUIDS

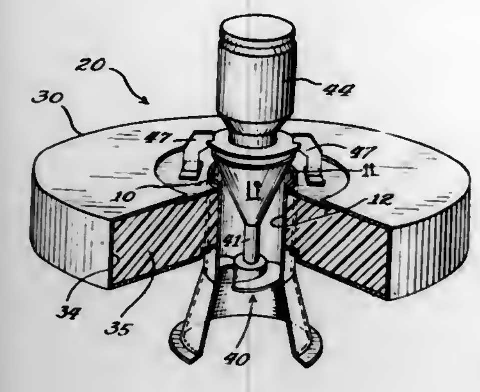
Clark B. Rose, Lagrange; Richard B. Kelley, and Richard B. Ravitts, both of Rockford, all of Ill., assignors to Richards of Rockford, Inc., Rockford, Ill.

Continuation-in-part of Ser. No. 273,181, July 19, 1972, Pat. No. 3,771,724. This application June 18, 1973, Ser. No. 370,734

Int. Cl. B05b *17/04*

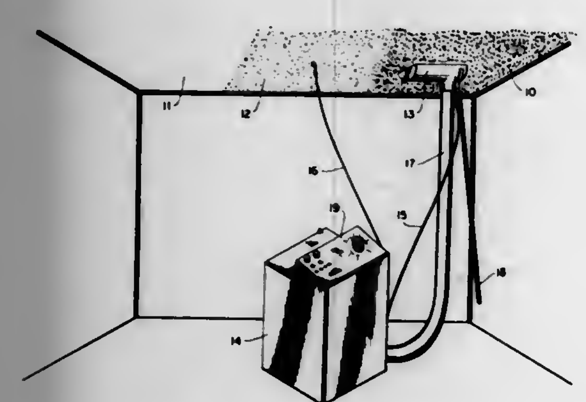
U.S. Cl. 239—11 **20 Claims**

A pressure nozzle for spraying liquid as droplets substantially free from droplets of sizes that will form a mist which will drift. A conical liquid sheet is conducted along a conical wall that extends beyond the nozzle orifice. A tubular liquid sheet intersects the conical sheet on the conical wall, and the resultant conical stream which is discharged into the atmosphere, disrupts into droplets in a predictable manner.



3,833,174
ELECTROSTATIC DEPOSITION SURFACE SYSTEM

Karl J. Sarzen, 2253 Tamasee Ct., N.E., Atlanta, Ga.
Filed Feb. 9, 1973, Ser. No. 331,275
Int. Cl. B05b *13/04, 5/02*
U.S. Cl. 239—15 **4 Claims**

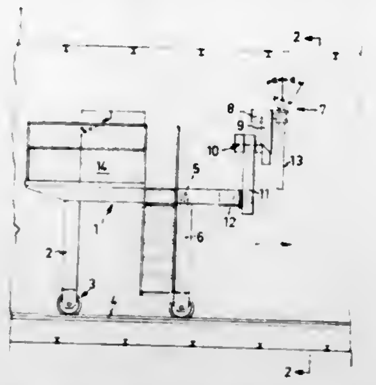


Electrostatic deposition is utilized to coat surfaces of materials with polystyrene particles. The surfaces are coated with an electrically-conductive adhesive. Then, an electrostatic field is set up between the adhesive surface and an electrode on an applicator which may or may not be connected to a continuous feed machine for polystyrene particles. Polystyrene particles are given an electrical charge when in contact with the electrode and are propelled by the electrostatic field to the adhesive surface.

3,833,175
MOBILE-PLATFORM-SUPPORTED DEVICE FOR THE APPLICATION OF A SPRAYABLE MATERIAL TO A SURFACE

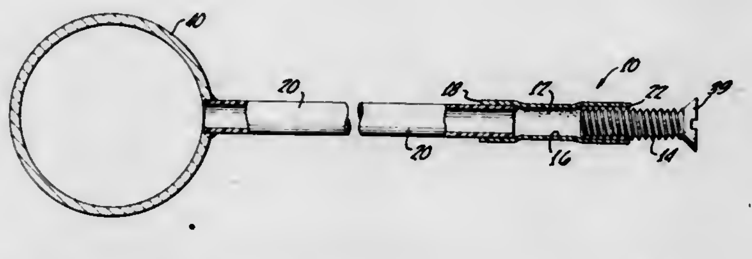
Elgas Pulk, deceased, late of Stockholm, Sweden; by Carlgustaf Hallsenius, administrator, Uppsala, and John Paul Noren, Upplands Vasby, both of Sweden, assignors to Stabilator AB, Bromma, Sweden
Filed Feb. 22, 1973, Ser. No. 334,596
Claims priority, application Sweden, Feb. 29, 1972, 2531/72
Int. Cl. B05b *3/00, 3/18*
U.S. Cl. 239—160 **5 Claims**

The present invention relates to a device supported by a mobile platform for the application of a sprayable material to a surface, for example sprayed concrete to a tunnel wall. It comprises a spray nozzle which is fitted to the free end of an extendable holder arm and it is mainly characterized in that the holder arm is pivoted at its lower end on a first swinging axis parallel to the direction of motion of the platform, the axis being situated at the free end of at least one intermediate arm, which in turn is pivoted on a second swinging axis parallel with the first swinging axis.



3,833,176
DRIP EMITTER DEVICE

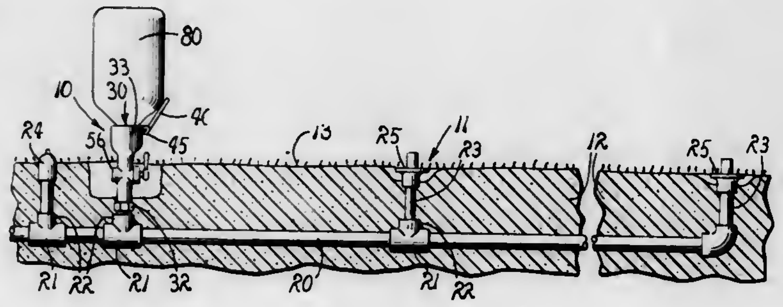
Knox V. Caldwell, Rt. 4, Box 430K, Escondido, Calif. 92025
Filed May 7, 1973, Ser. No. 357,936
Int. Cl. B05b *15/00*
U.S. Cl. 239—542 **11 Claims**



A drip emitter device for plant subsoil irrigation having a flexible tubular coupling into which a threaded control rod is slidably fitted. The interior surface of the resilient coupling is smaller than the outside diameter of the threads of the rod, resulting in a secure contact in a biased manner between the coupling and the rod to form a helical flow path. The coupling is transparent to allow observation of possible clogging within the threaded channel. The contact between the rod and the coupling is slideably adjustable. The drip rate exiting the emitter is controlled by the readily adjustable longitudinal position of the control rod within the flexible coupling. The control rod is removable from the coupling to allow easy and fast cleaning of the threaded channel.

3,833,177
FLUID DISSEMINATING DEVICE

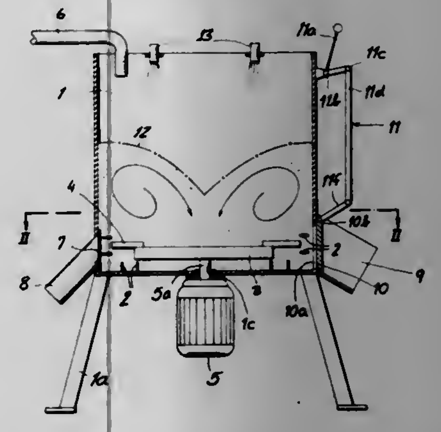
Harry M. Pasley, 5854 E. Clubview, Fresno, Calif. 93727, and Neil J. Dau, Jr., deceased, late of 910 E. Holland Ave., Fresco, Calif. 93704 (by Carol Dau, executrix)
Continuation-in-part of Ser. No. 282,415, Aug. 21, 1972, abandoned. This application Aug. 2, 1973, Ser. No. 384,800
Int. Cl. A01g *25/06*
U.S. Cl. 239—201 **13 Claims**



A fluid disseminating device having a body with opposite ends and a pair of passages of dissimilar diameters interconnecting the opposite ends, a coupling mounted at one of the ends adapted for attachment to a system containing fluid under pressure, and a receptacle for fluid contents mounted at the other end of the body in communication with both passages for the establishment of a gradual circulation of fluid from the system through the passage of largest diameter into the receptacle to mix with and gradually to flush the contents therefrom through the passage of smallest diameter for subsequent gradual dissemination through the system.

3,833,178
METHOD OF COMMINUTING SYNTHETIC-RESIN ARTICLES

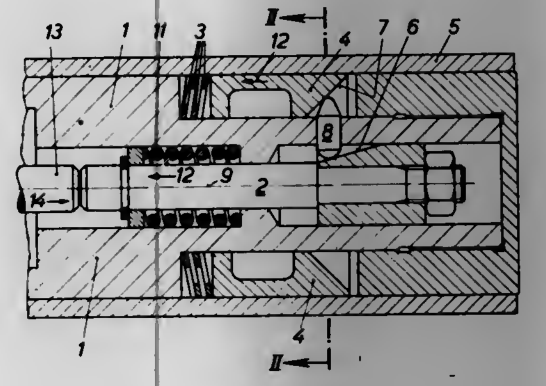
Erich Beck, 6520 Worms-Weinsheim, Am See 29, Worms-Weinsheim, Germany
Continuation-in-part of Ser. No. 110,122, Jan. 27, 1971, Pat. No. 3,717,307. This application Nov. 6, 1972, Ser. No. 304,265
Claims priority, application Germany, Feb. 6, 1970, 2005360; Nov. 12, 1971, 2156198
Int. Cl. B02c *13/06*
U.S. Cl. 241—3 **6 Claims**



A method of and an apparatus for the comminution of synthetic-resin articles wherein a rotatable grinder operating at high speed in a container comminutes the articles and, at the same time, agitates the pieces of synthetic resin in a washing liquor containing a washing agent so that both washing and comminution occur simultaneously.

3,833,179
MANDREL

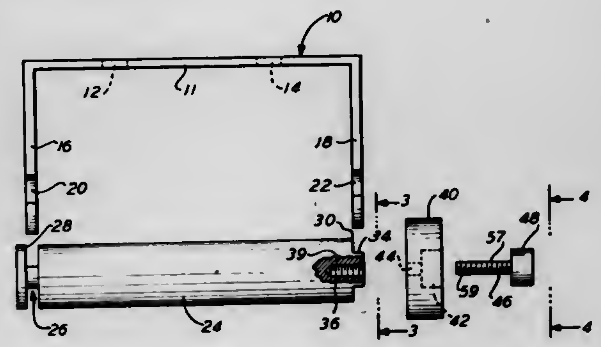
Ruprecht Maurer, Schaberweg 32-34, 6380 Bad Homburg, Germany
Filed Nov. 28, 1972, Ser. No. 309,979
Int. Cl. B65h *54/54*
U.S. Cl. 242—46.4 **5 Claims**



In spool mandrels having clutch discs which transmit torque between spool shafts and spools when axial clutching pressure is applied to the discs, a biasing arrangement in which the clutching pressure is transmitted to the disc and radially movable contact elements positioned in the spool shaft press against a cam surface of a bushing, such that at high speeds the centrifugal force on the contact members increases the clutching pressure.

3,833,180
PAPER ROLL HOLDER

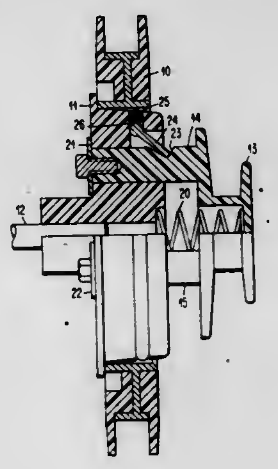
George Balasic, Clark, N.J., assignor to Carol Stamping and Manufacturing Inc., Clark, N.J.
Filed Sept. 20, 1972, Ser. No. 290,674
Int. Cl. A47k *10/16*
U.S. Cl. 242—55.2 **13 Claims**



A roll holder which can be locked to an anchoring device which supports the holder. The anchoring device has outwardly extending arms with first and second channels formed therein. A tubular member is adapted to mate with the channels formed in the outwardly extending arms. The tubular structure has an annular channel formed in one end and an axial extension formed on the other end, such that a locking device can pull the tubular structure toward one end of the outwardly extending arms and fixedly lock it thereto.

3,833,181
MANUALLY ACTUATED TAPE REEL LATCH

Norman Watkins, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 32,943, April 29, 1970, abandoned. This application Feb. 9, 1972, Ser. No. 224,993
Int. Cl. B65h *17/02*
U.S. Cl. 242—68.3 **8 Claims**

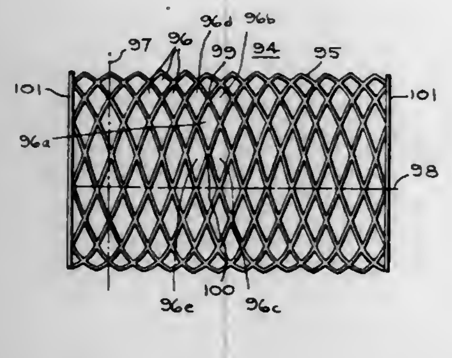


A tape reel latch which allows a reel of magnetic tape to be loosely positioned on a drive hub such that subsequent actuation of the latch is effective to couple the reel to the hub. An expandable rubber ring encircles the hub, under the reel, and is of a diameter less than the diameter of the hub so as not to interfere with the initial placement of the reel on the hub. A latching knob is mounted on the hub and is axially spring-biased away from the hub. A plurality of relatively long pins are circumferentially spaced to extend between the inside diameter of the rubber ring and a cam surface which is formed on the knob. Axial depression of the knob expands the rubber ring and causes the pins to move overcenter. The expanded rubber ring is effective to exert a force, through the pins, to the knob, to maintain the knob in this depressed position against the force of the axial spring bias. However, the rubber ring is effective to perform this function only when the ring is compressed against a reel. If a reel is not in place on the hub, the knob automatically returns to its original position, due to the axial spring bias.

3,833,182
INTEGRAL OPEN MESH SPOOL

Albert F. Wilcox, Yoder, and Robert D. Mees, Fort Wayne, both of Ind., assignors to General Electric Company, Indianapolis, Ind.

Filed Dec. 17, 1971, Ser. No. 209,182
Int. Cl. B65h *75/20, 75/10*
U.S. Cl. 242—118.1 **13 Claims**

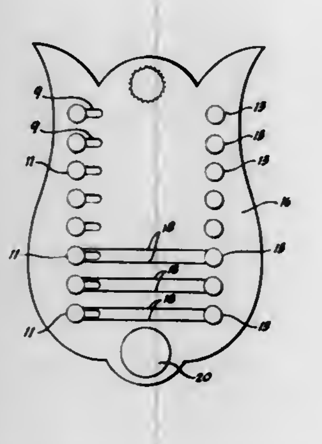


An integral, open mesh, wound spool of generally cylindrical form includes a body section of a crossed strip of material, forming plurality of open diamonds, and a pair of spaced apart substantially solid end portions. The diamonds are in rows, circumferentially and rows longitudinally of the spool, with each of the circumferential rows having a predetermined odd number of diamonds and with the number of diamonds in each circumferential row and the number of diamonds in each longitudinal row having only unity as a common factor.

3,833,183
SKEIN HOLDER WITH SLIDEABLE BIASED PEGS

Jonathan Michael Swatzell, Jr., 1430 Aires Ct., Chula Vista, Calif. 92011

Filed May 18, 1973, Ser. No. 361,833
Int. Cl. B65h *49/30*
U.S. Cl. 242—127 **7 Claims**

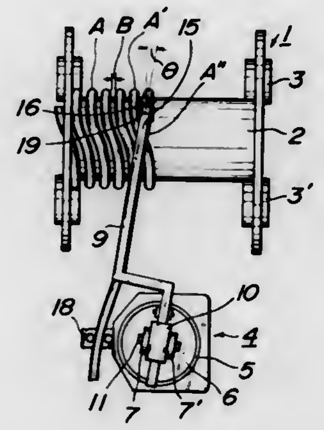


There is disclosed a device for holding skeins of stitchery material under tension. A base member has a plurality of elongated slots for receiving movable pegs. A plurality of movable pegs are inserted into the plurality of slots, each slot having one peg inserted therein. A plurality of stationary pegs are mounted on the base member oppositely disposed and spaced, respectively, from the plurality of movable pegs inserted into the base member. A bias element is attached between each of the plurality of movable pegs and the base member for biasing each of the movable pegs toward one end of the slot in which it is located most remote from the respective oppositely disposed stationary peg whereby a skein of stitchery material, which may be placed around each of the movable pegs and the respective oppositely disposed stationary peg, is automatically held in tension at all times by the bias element to secure the skein to the pegs about which it is looped.

3,833,184
WINDING TRAVERSE APPARATUS

Ryoichi Hara; Kunio Kumagai, both of Ichihara, and Tadao Ogino, Fujisawa, all of Japan, assignors to The Furukawa Electric Company Limited, Tokyo, Japan

Filed Dec. 18, 1972, Ser. No. 316,000
Claims priority, application Japan, Dec. 18, 1971, 46-103041
Int. Cl. B65h *54/28*
U.S. Cl. 242—158 R **9 Claims**

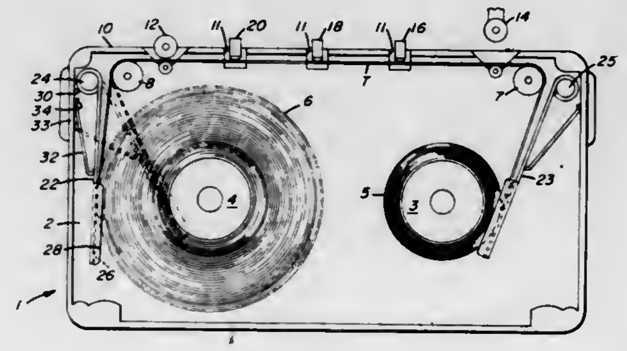


A traverse apparatus for guiding linear product or the like in winding the product on a reel, which traverse apparatus includes an arm pivotally carried by a traverser so as to extend toward the reel, and a product-engaging guide member pivotally connected to the extended free end of the arm. The guide member engages the product at the point where the product comes in touch with the drum portion of the reel, and the longitudinal axis of the guide member is kept in parallel with the longitudinal direction of that portion of the product which engages the guide member; so that the longitudinal axial direction of the guide member and the longitudinal direction of the arm define an angle θ therebetween. The traverser is controlled in such a manner that the aforesaid angle θ is kept constant by moving the traverser in parallel with the axis of rotation of the reel.

3,833,185
MAGNETIC TAPE CASSETTE

Jean Joseph Fernand Talavera, Creteil, France, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 23, 1973, Ser. No. 381,465
Int. Cl. G03b *1/04;* **G11b** *15/32, 23/04*
U.S. Cl. 242—199 **3 Claims**

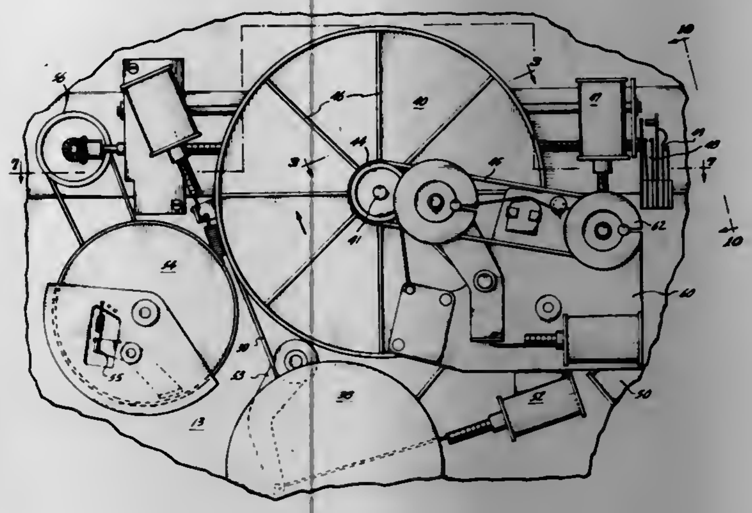


A tape cassette is provided with resiliently biased braking and guiding arms having spaced guide surfaces for guiding the tape edges to maintain alignment of the tape with the convolutions of tape wound on the tape core.

3,833,186
TELEPHONE ANSWERING DEVICE

Kenneth A. Catto, and Harold R. Burt, both of Beaverton, Oreg., assignors to Data Time, Inc., Portland, Oreg.

Filed Nov. 24, 1972, Ser. No. 308,970
Int. Cl. B11b *15/32;* **G03b** *1/04*
U.S. Cl. 242—201 **4 Claims**

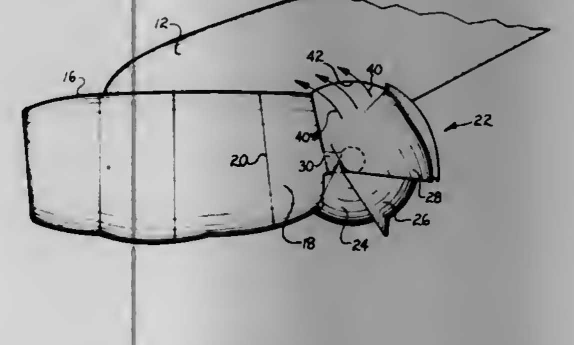


A direct coupled telephone answering device having an announcement deck for recording and reproducing an announcement in response to an incoming call and a message deck for recording and reproducing incoming messages. Forward and reverse tape motion for both decks is provided by a single flywheel and a simple system of drive belts. All rotating reels are mounted for free rotation on fixed spindles. Hubs in these wheels, which preferably are formed of plastic, comprise bearings which ride on such spindles, promoting uniform bearing wear even with substantial side-loading on the wheels. A single syllabic detector coupled to an announcement time-out circuit and a message time-out circuit provides control signals for various switching functions at predetermined time periods after termination of the announcement and message, thus affording a broad variable timing cycle for both the announcement deck and the message deck. Circuitry is provided for individually varying the durations of the time periods.

3,833,187
THRUST CONTROL APPARATUS FOR POD MOUNTED ENGINE

Charles Kahler, Kirkland, and Lucas James Kimes, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed May 11, 1973, Ser. No. 359,249
Int. Cl. B64c *15/08*
U.S. Cl. 244—12. D **7 Claims**

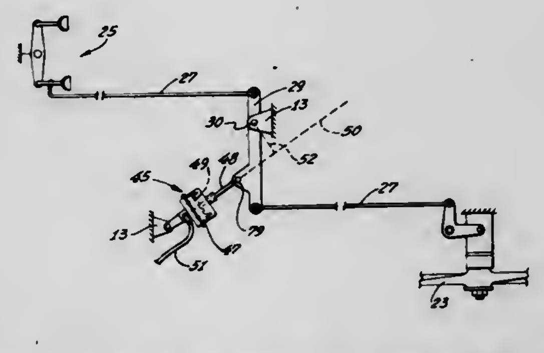


A jet engine is connected to a mounting strut which extends downwardly and forwardly from the wing so that the exhaust nozzle of the jet engine is positioned forwardly of the leading edge of the wing. A thrust control device for use in conjunction with a pod mounted jet engine on an aircraft includes three rotatable panels which are mounted aft of the discharge nozzle of the jet engine on the mounting strut. The panels are nested on top of each other above the nozzle during cruise operation of the engine. A single actuator moves only a first of the three panels through a predetermined arc to a position rearwardly of the nozzle to divert the engine exhaust stream downwardly and rearwardly for powered lift operation. Sequencing mechanism interconnects the second and third panels with the first panel so that when the latter is moved beyond the predetermined arc, the second and third panels will be moved to a position blocking the rearward and lower portion of the nozzle so that the exhaust stream from the jet engine is diverted upwardly and forwardly for thrust reversing operation.

3,833,188
PEDAL FORCE TRIMMING DEVICE

Franklin Davis Robinson, Palos Verdes, Calif., assignor to Hughes Tool Company, Culver City, Calif.

Filed Oct. 24, 1972, Ser. No. 299,928
Int. Cl. B64c *27/82*
U.S. Cl. 244—17.19 **15 Claims**

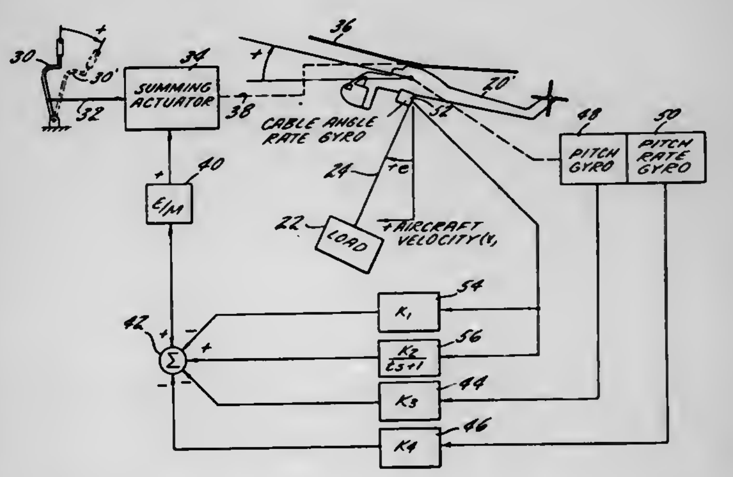


In a helicopter having a main rotor and a tail rotor each rotatable by an engine, foot pedals are operable to vary the pitch of the tail rotor through a linkage in order to maintain the desired disposition of the helicopter about a vertical axis. As the tail rotor rotates, natural forces are developed in its blades which tend to return them to a pitchless state. These forces are transmitted through the linkage to produce a load on the foot pedals. A pedal force compensator, responsive to the compressor discharge pressure of the engine, exerts a force at a particular point on the linkage to provide in all flight regimes an equivalent pedal force substantially equal in magnitude and opposite in direction to the pedal load. In this manner, the helicopter can be maintained in all flight regimes with substantially no pressure by the pilot on the foot pedals.

3,833,189
LOAD STABILITY SYSTEM

Donald W. Fowler, West Haven, and Sean J. O'Connor, Monroe, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

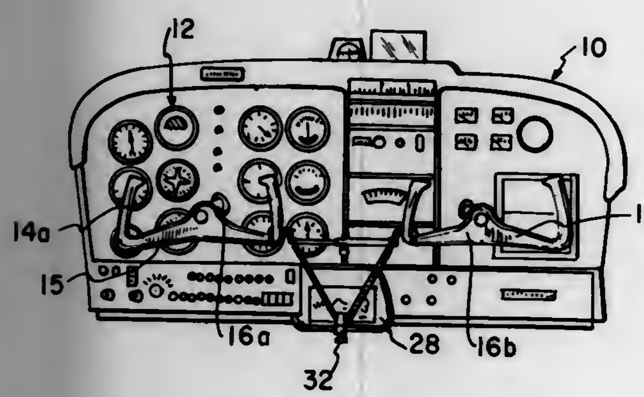
Division of Ser. No. 169,197, Aug. 5, 1971, Pat. No. 3,756,543. This application Jan. 4, 1973, Ser. No. 321,061
Int. Cl. B63c *17/04*
U.S. Cl. 244—77 R **3 Claims**



A heavy lift helicopter supporting a load suspended on a long cable is automatically controlled to minimize pendular motion of the load beneath the helicopter. The inner control loop of an automatic flight control system of a helicopter has an additional input which is the summation of a function of the rate of change of the angle between the cable and vertical, and the lag filtered rate of change of the angle, in both the lateral (roll) and longitudinal (pitch) directions of the aircraft. The sense of the rate of lag rate inputs is such as to cause the helicopter to move so as to counteract pendular motion of the load and support cable.

3,833,190
SAFETY GUST LOCK FOR AIRCRAFT CONTROLS

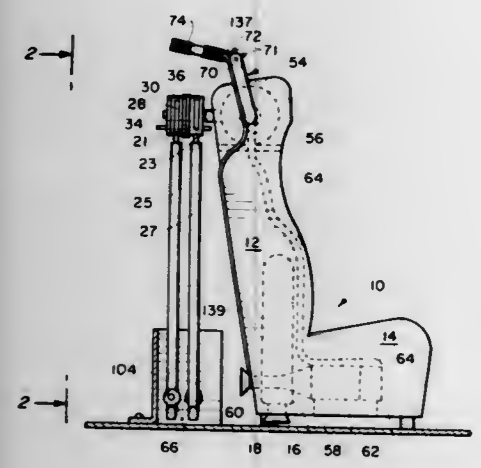
Alexander Gaio, 116 Oakside Dr., Smithtown, N.Y. 11787
Filed May 29, 1973, Ser. No. 364,818
Int. Cl. B64c *13/14*
U.S. Cl. 244—83 A **15 Claims**



A safety gust lock for aircraft controls in which the control column is locked through an elastic member to a fixed point on the aircraft.

3,833,191
POWERED AIRCRAFT EJECTION SEAT

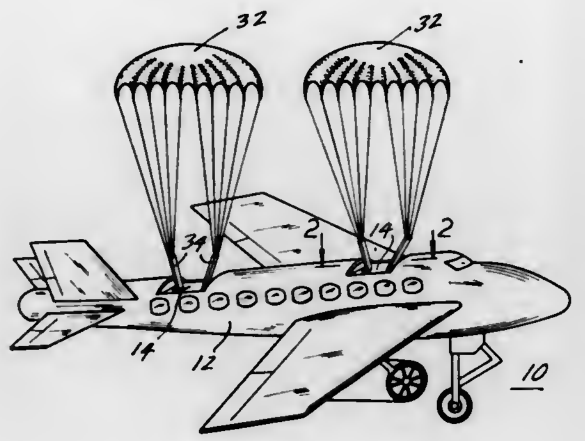
Raymond C. Morton, 3030 Citrus St., Oxnard, Calif. 93030
Filed Nov. 22, 1971, Ser. No. 201,013
Int. Cl. B64d *25/10*
U.S. Cl. 244—122 A **9 Claims**



A device for enhancing the survival prospects of a pilot evacuating an aircraft over enemy-held territory by providing him with up to fifty miles of powered flight. A turbinepowered rotor blade assembly is attached to a conventional ejection seat, and is under the control of the pilot. By directing a portion of the seat's jet blast against a movable rudder member, the pilot is able to guide the unit in any desired direction. A feature of the concept resides in the provision of contrarotating helicopter rotor blades which may be telescoped to facilitate stowage and reduce the overall size of the unit. In the event of malfunction the pilot may descend by conventional parachute.

3,833,192
SAFETY DEVICE FOR AIRPLANES LAND SAFETY

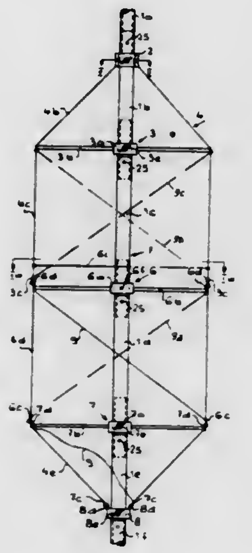
George Vitack; Rose Vitack; Josephine Vitack; George Spector, all of c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, New York, N.Y. 10007
Filed Nov. 13, 1972, Ser. No. 305,820
Int. Cl. B64d *17/80*
U.S. Cl. 244—139 **2 Claims**



An airplane is provided with folded parachutes and means when actuated for causing the parachutes to be opened to lower the airplane safely to the ground in the event of engine failure or the like.

3,833,193
DEVICE FOR HOLDING OPERATING TOOLS AT ELEVATED HEIGHTS

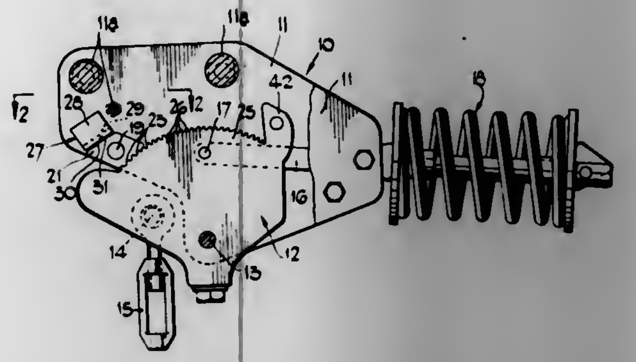
August Benz, Algierstrasse 70, Zufikon, Switzerland
Filed Dec. 11, 1972, Ser. No. 314,233
Claims priority, application Switzerland, Dec. 15, 1971, 18309/71
Int. Cl. E04h *12/34*
U.S. Cl. 248—2 **27 Claims**



To hold and carry out working operations with a tool at a considerable height above ground level, such as in washing windows and glass surfaces, a holding device is formed of a plurality of coupled rod sections forming an elongated rod with the tool positioned on one end of the rod, a holding ring is located adjacent each of the opposite ends of the rod and support members are spaced axially along the rod between the holding rings. Wire ropes extend between the holding ring and the support members and are tensioned to increase the stability of the device.

3,833,194
PIPE SUPPORTS

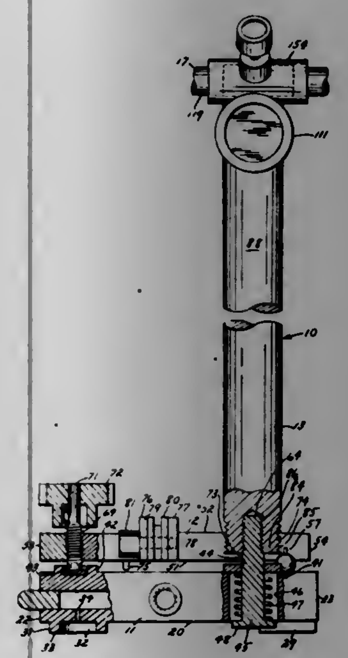
Anthony John Salter, Woodsetton, England, assignor to Pipe Supports Limited, Tividale, Warley, Worcester, England
Filed Dec. 20, 1972, Ser. No. 316,817
Claims priority, application Great Britain, Jan. 4, 1972, 225/72
Int. Cl. F16l *3/00*
U.S. Cl. 248—54 CS **4 Claims**



The specification discloses a constant tension pipe support comprising a lever pivoted to a frame and which may be locked in any one of a number of positions by engaging teeth on the lever with teeth on a locking member slidable between operative and inoperative positions, interengaging guide means being provided on the locking member and the support frame substantially to prevent rotation of the locking member in both its operative and inoperative positions.

3,833,195
AIR SURFACE GAUGE STAND

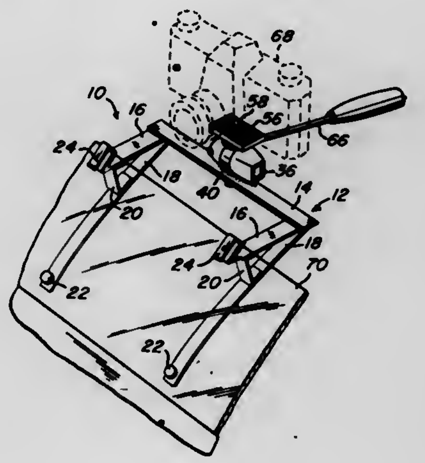
Joe Anton, 65-40180th St., Fresh Meadows, N.Y. 11365
Substitute for Ser. No. 237,746, March 24, 1972, abandoned. This application June 28, 1973, Ser. No. 374,632
Int. Cl. G01b *3/22*
U.S. Cl. 248—125 **4 Claims**



An air surface gauge stand of a type adapted to support an electronic measuring head or similar device for movement above a horizontal reference surface. The device includes a lower base having hollow feet to which a continuous supply of low pressure compressed air is fed to permit the lower base to be easily slid over the reference surface. An upper base is supported upon said lower base at points directly above the hollow feet in such manner that the upper platform is tiltably adjustable with respect to the lower platform about a substantially horizontal axis. A vertical supporting column extends from said upper base which supports a sliding clamp upon which the measuring instrument is mounted, the tiltable adjustment being employed to provide movement of the instrument relative to the lower base in which the vertical component thereof is extremely fine.

3,833,196
CAMERA SUPPORT

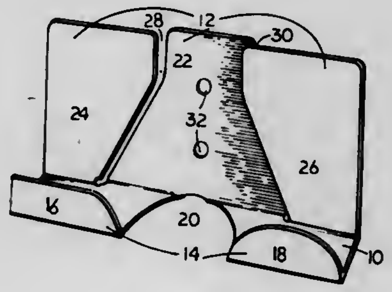
John M. Protzman, Dayton, Ohio, assignor to The Ever-Roll Manufacturing Corp., Dayton, Ohio
Filed July 10, 1972, Ser. No. 270,506
Int. Cl. G03b *17/56*
U.S. Cl. 95—86 **10 Claims**



A camera support adapted to be attached to an automobile window or similar, plate-like surface. The support includes a base frame, a pair of clips adapted to engage over an upper edge of a window, and a pair of downwardly projecting legs adapted to engage the inner surface of the window. A camera platform is mounted on the base frame in a manner that provides for movement of the camera platform about at least two mutually perpendicular axes.

3,833,197
BOOK HOLDER

Boris Dyke, 249 Newton Dr., Willowdale, Ontario, Canada
Filed Dec. 18, 1972, Ser. No. 316,125
Claims priority, application Great Britain, Dec. 29, 1971, 60348/71
Int. Cl. A47b *97/08*
U.S. Cl. 248—441 **4 Claims**



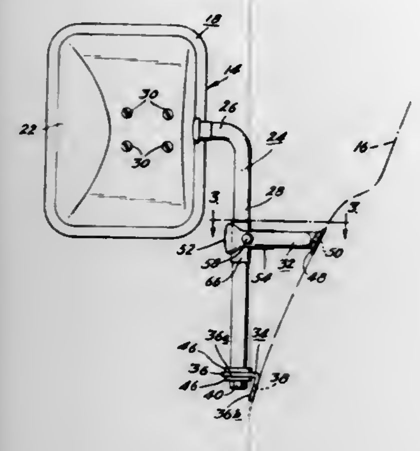
A book holder consists of a base having a pair of upstanding plates spaced apart a sufficient distance to receive the book cover; the base has a fence in front of the plates spaced therefrom a sufficient distance to accommodate the pages of the book. The fence adjacent the spine of the book tapers toward the base to facilitate turning a page.

3,833,198
VEHICLE MIRROR BRACKET ASSEMBLY

James W. Holzman, Haycock Twp., Pa., assignor to Delbar Products, Inc., Perkasie, Pa.

Filed Aug. 22, 1973, Ser. No. 390,500
Int. Cl. B60r *1/06*

U.S. Cl. 248—476 **3 Claims**



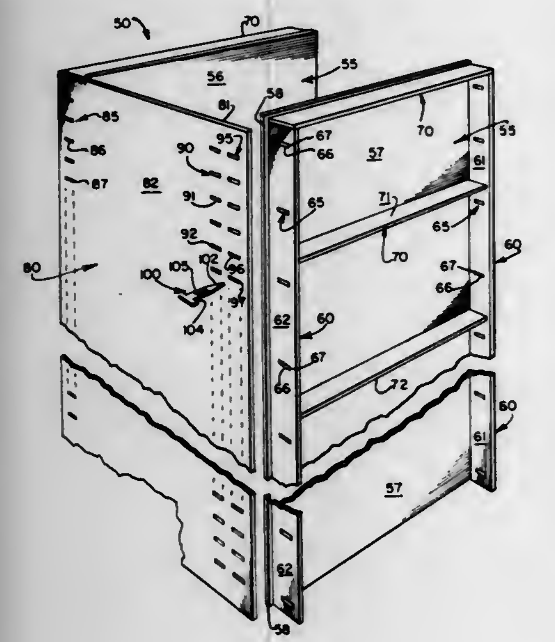
A bracket assembly for rigidly supporting a vehicle rear view mirror of the type having an L-shaped mirror support arm. The mirror is mounted on the outwardly extending horizontal leg of the arm, and the vertical downwardly extending leg of the arm is secured at its lower end to a first bracket member attached to the side of the vehicle and further supported by a second bracket member on the vehicle attached to the arm at a point vertically spaced from the first support member. Means are provided to permit a frictional rotational adjustment of the arm with respect to the bracket members.

3,833,199
END PLATE FOR CONCRETE FORMS

Allen B. Frake, 805 Huber Ln., Glenview, Ill. 60075

Filed Nov. 15, 1972, Ser. No. 306,691
Int. Cl. E04g *15/02*

U.S. Cl. 249—33 **1 Claim**



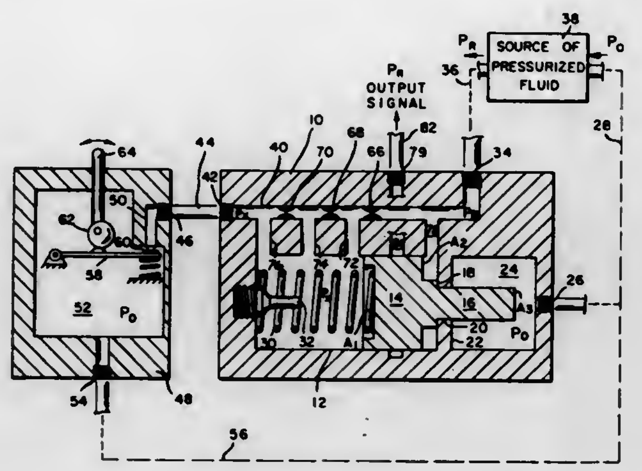
An end plate for a concrete form wherein the end plate is metal and has at least two arrays of apertures therein, the arrays being laterally spaced apart a distance slightly greater than the side walls of the concrete form. The apertures of each array are in a column so as to enable the end plate to be attached to the concrete form at a plurality of points. Also, disclosed are wedge pins which may be used to connect the end plate with the concrete form.

3,833,200
DOUBLE ACTING SNAP ACTION FLUIDIC SWITCH

Howard L. McCombs, Jr., South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind.

Filed May 21, 1973, Ser. No. 362,128
Int. Cl. F16k *31/383;* **F15b** *13/042*

U.S. Cl. 251—35 **8 Claims**



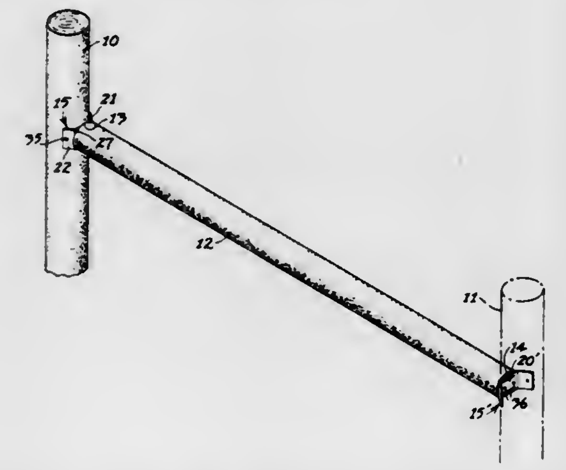
A two position fluid pressure responsive piston has a first effective area exposed to a reference fluid pressure, a larger second effective area exposed to a control fluid pressure, and an intermediate effective area exposed to a pressurized supply fluid from which the control fluid pressure is derived. The control fluid pressure is generated in a fluid passage connecting the pressurized supply fluid with the relatively lower reference fluid pressure and provided with first, second and third series flow restrictions and a variable area valve downstream therefrom and in series flow relationship therewith. A first passage is arranged in parallel with the second and third restrictions and a second passage is arranged in parallel with the third restriction. The control fluid pressure varies in response to opening of the variable area valve causing movement of the piston which, in turn, registers with the first and second passages to sequentially block the same causing a corresponding reduction in the control fluid pressure and a snap action of the piston to one of its two positions. Reverse movement of the piston with a hysteresis effect occurs in response to closing movement of the variable area valve which results in movement of the piston and subsequent opening of the second and first passages to cause snap action of the piston to the other of its two positions.

3,833,201
FENCE POST BRACE BRACKET

Joe E. Dill, Rt. 1, Lascassas, Tenn. 37085

Filed Feb. 5, 1973, Ser. No. 329,382
Int. Cl. E04h *17/14*

U.S. Cl. 256—35 **5 Claims**



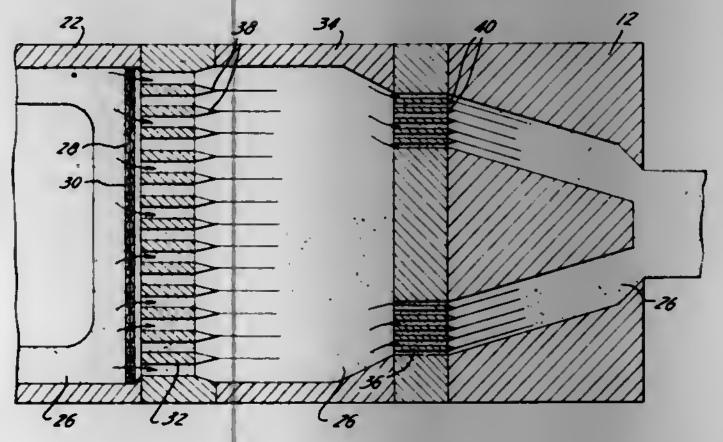
A bracket for connecting one flat end of an elongated brace member or pole to an upright fence post, having a round cross-section. The bracket is preferably an elongated unitary plate member having a middle section and flanges diverging from the ends of the inner surface of the middle section. The outer surface of the middle section is flat. Fastener members, such as nails or wood screws, are driven through holes in the middle section for securing the outer surface of the middle section flush against the flat end of the brace member and through holes in the flanges for securing the inner surfaces of the flanges to the fence post.

3,833,202
PRE-DIE CHAMBER FOR EXTRUSION APPARATUS

Milton A. Crystal, Fort Lee, N.J., assignor to American Polymers, Inc., Paterson, N.J.

Filed Dec. 7, 1972, Ser. No. 313,200
Int. Cl. B29b *1/04*

U.S. Cl. 259—4 **9 Claims**



The present invention comprises a pre-die chamber for use in an extrusion system. The pre-die chamber is located immediately following the head of a conventional extruder. Following the pre-die chamber is a standard extrusion die. The structure of the pre-die chamber comprises a housing disposed longitudinally to the direction of extrusion. The housing exhibits a front end plate and a rear end plate. Both end plates comprise apertured transverse surfaces. In the case of the first surface, a screen and orifice combination of transverse members is utilized. The second surface is a single apertured plate having its apertures disposed transversely to the direction of extrusion. In addition, these apertures lie in the path of the die entrance.

Through the use of the present pre-dye chamber, extruded material that is passed therethrough will exhibit a cell structure bearing a high degree of similarity to that of natural wood.

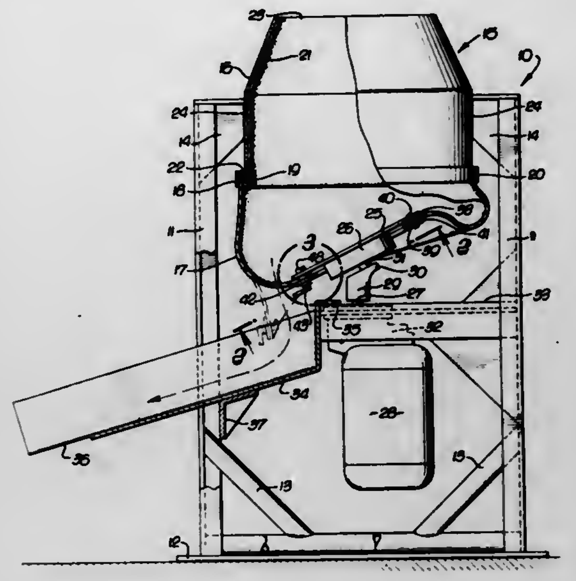
3,833,203
FLEXIBLE MIXER DISCHARGE

Leslie H. Garlinghouse, Pasadena, Calif., assignor to Garlinghouse Brothers Mfg., Inc., Los Angeles, Calif.

Filed Mar. 9, 1973, Ser. No. 339,721
Int. Cl. B01f *7/14*

U.S. Cl. 259—29 **11 Claims**

A mixer type device has a container for materials built in two parts, the upper part being rigid and mounted on a frame and the lower part being flexible. A stiff disc at the center of the flexible part has a wobbler attached to it driven by a motor mounted on the frame below the container. For discharging material from the container a section of the flexible lower part is releasably connected to the disc so that when disconnected the material will be discharged downwardly into a delivery chute. After discharge the section can be reconnected to the disc and the container then made ready to receive a new load of material which is put in at the top.



3,833,204
MOLDING MACHINE INJECTION UNIT

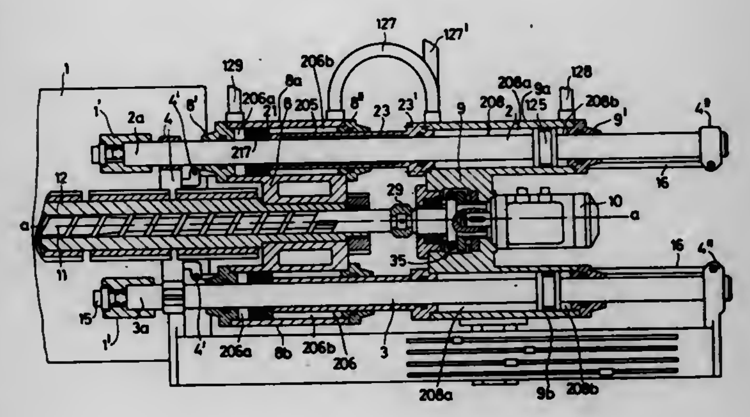
Karl Hehl, Siedlung 183, D-7291 Lossburg/Wurttemberg, Germany

Continuation-in-part of Ser. No. 186,674, Oct. 5, 1971, Pat. No. 3,738,618. This application Nov. 15, 1972, Ser. No. 306,723

Claims priority, application Germany, June 3, 1972, 2227133

Int. Cl. B01f *7/24*

U.S. Cl. 259—191 **8 Claims**

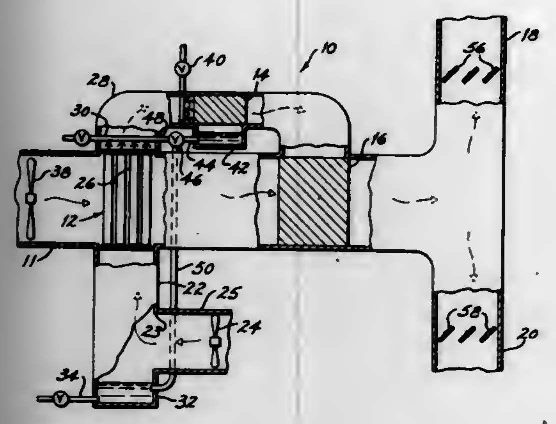


An injection unit for an injection molding machine in which selective ones of the hydraulic drive cylinders of the unit are provided with sleeve members on which the piston assemblies of those drive cylinders are mounted. These sleeves and those hydraulic cylinders which effect the movement of the injection unit relative to the injection molding machine are fastened to one of two supporting bridges while the hydraulic cylinders which effect a movement of a conveying worm of the unit relative to a plasticizing cylinder of the unit are fastened to the other of the supporting bridges. Each sleeve is moreover coaxially flanged to a respective one of the hydraulic cylinders which effect the movement of the injection unit relative to the injection molding machine, with the pistons of these cylinders being directly mounted on a respective one of the unit supporting struts.

3,833,205

APPARATUS FOR ELIMINATING WATER VAPOR FROM PROCESSED AIR

Donald McAnespie, La Salle, Quebec, Canada, assignor to Midland-Ross Corporation, Cleveland, Ohio
Filed Feb. 2, 1972, Ser. No. 212,983
Int. Cl. B05b *1/28*
U.S. Cl. 261—133 4 Claims

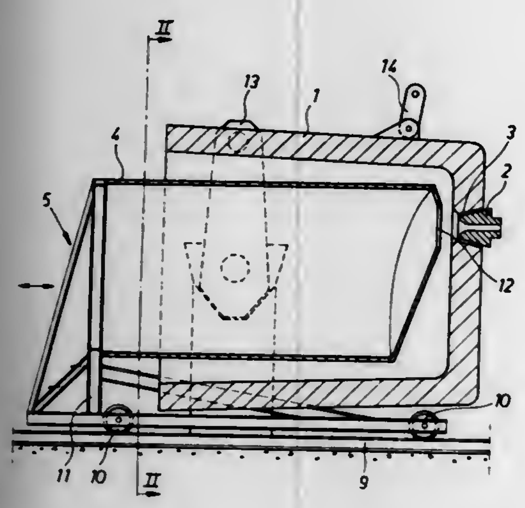


Apparatus and method for eliminating water vapor from processed exhaust air of a dryer. The exhaust air is placed in indirect heat exchange relationship with ambient air after which it is cooled by passing through a water shower. The cooled exhaust is then mixed with the ambient air which has passed through the heat exchanger and at least a portion of the mixture is discharged to the atmosphere.

3,833,206

PROTECTIVE DEVICE FOR USE IN THE MAINTENANCE OF FOUNDRY LADLES

Arvi Makynen, Imatra, Finland, assignor to Ovako Oy, Helsinki, Finland
Filed Sept. 11, 1973, Ser. No. 396,284
Claims priority, application Finland, Sept. 20, 1972, 2584/72
Int. Cl. F27d *23/00*
U.S. Cl. 266—1 R 10 Claims

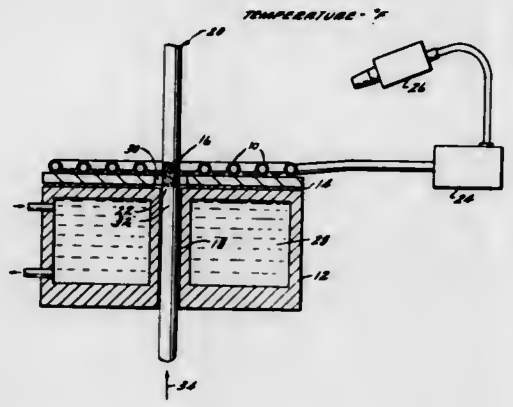


A device for use in the maintenance of foundry ladles comprises a support structure which includes a pair of upstanding beams adapted to receive and support the carriers of a foundry ladle, and an intervening supporting stage adapted to support the ladle from its carriers in a generally horizontal position. An L-shaped carriage is provided with a horizontal portion having wheels movable along tracks disposed below the horizontally supported ladle, and with a vertical portion to which an elongated protective barrel structure, having insulating walls, is attached. The protective barrel structure has a generally oval configuration and an open end which is attached to the vertical carriage portion, and the barrel structure extends in a generally horizontal direction for insertion into and out of the ladle as the carriage is moved. The interior dimensions of the barrel structure are sufficiently large to permit an inspector to enter the barrel structure via its open end and to walk along the barrel structure to its opposite end, which is closed except for a service opening, to permit the inspector to service the bottom of the ladle when the protective barrel has been moved into the ladle.

3,833,207

APPARATUS FOR ALLOY MICROSTRUCTURE CONTROL

Robert E. Allen, and Clyde D. Calhoun, both of Cincinnati, Ohio, assignors to General Electric Company, Cincinnati, Ohio
Division of Ser. No. 165,030, July 22, 1971, Pat. No. 3,772,090. This application Mar. 22, 1973, Ser. No. 343,944
Int. Cl. C21d *1/00*
U.S. Cl. 266—2 R 3 Claims



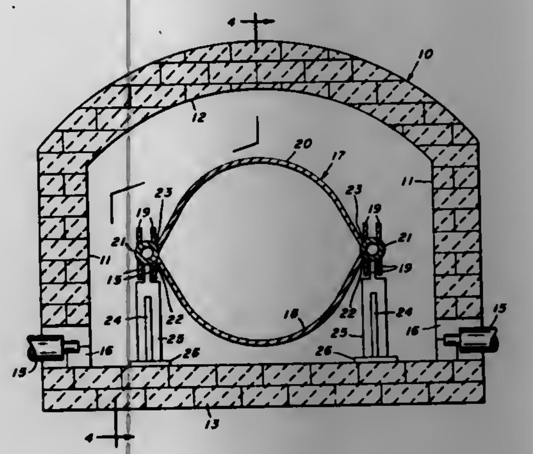
A columnar grain structure and improved high temperature, high mechanical strength properties are provided in a metal article by solid state method. First the article is formed in a manner which places the metal microstructure in a condition of dislocation density which results in the metal microstructure undergoing relatively rapid transformation to relatively large grains when heated in the range of about 50 to less than 100 percent of the metal incipient melting temperature in degrees Rankine. Then the article so preconditioned is progressively and selectively heated in that temperature range but below the incipient melting temperature of the metal. This is accomplished by heating the article in a narrow zone. Such zone traverses the article, as a result of relative movement between the article and the source of heat energy, from the cooler portion and in the direction desired for growth of the principle axis of the columnar grains, with the zone having a thermal gradient of at least about 500°F/in. A preferred form of a processed wrought article is characterized by grains of at least about 2,000 microns in diameter and a length to diameter ratio of at least about 10.

3,833,208

MUFFLE FURNACE

Poul Andersen, Wallingford, Conn., assignor to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.
Filed May 4, 1973, Ser. No. 357,420
Int. Cl. C21d *9/56*
U.S. Cl. 266—3 R 6 Claims

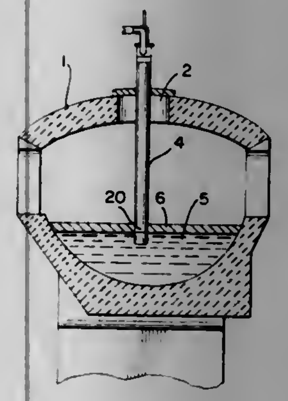
A muffle furnace is disclosed which includes an elongated furnace having an elongated chamber or muffle contained therein with the muffle constructed of upper and lower segments connected at their sides to an elongated support which in turn is supported within the furnace by vertical supports spaced along its length. The upper and lower segments of the muffle are catenary-shape in cross section.



3,833,209

APPARATUS FOR REFINING OF STEEL

Yi-Chung Chang, Murrysville, Pa., assignor to Berry Metal Company, Harmony, Pa.
Filed Apr. 4, 1973, Ser. No. 347,944
Int. Cl. C21c *7/06*
U.S. Cl. 266—34 L 22 Claims

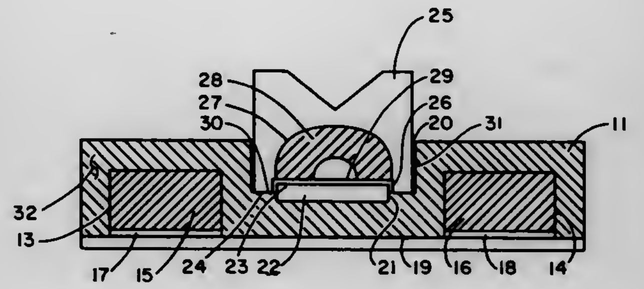


In a steel making apparatus, an oxygen injection lance having a copper tip section to which is attached a submersion nozzle for insertion into a molten bath of steel, the submersion nozzle including a short threaded copper section attached to the lance tip and a lower steel tube welded to the copper section and having extending thereabout fastener material for holding a layer of refractory material about the lower metallic tube of steel, the joint between the lance tip and the submersion nozzle being sealed by a refractory cement. The method involves the use of this submersion nozzle below the surface of the molten bath of steel, the nozzle being attached to the water-cooled lance which enters the furnace from its roof or side wall above the bath surface.

3,833,210

PIPE HOLDING ATTACHMENT FOR C-CLAMPS AND VISES

James Ivy Kotter, 3120 49th St., Metairie, La. 70001
Continuation-in-part of Ser. No. 126,471, March 22, 1971. This application Nov. 6, 1972, Ser. No. 304,275
Int. Cl. B25b *5/16*
U.S. Cl. 269—276 8 Claims



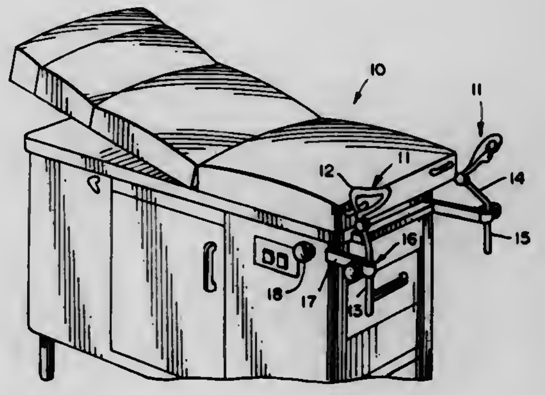
Utilization and attachment of two V-type units, oppositely positioned onto a conventional C-clamp, a machinist's vise, a woodworker's vise and other clamping devices, enables positive clamping of cross-sectionally curved objects, such as pipe and tubing. Two cross-sectionally curved objects may be positioned and positively held at any angle with respect to each other by use of alternate embodiment of invention.

Other embodiments of invention utilizing magnetic forces provide 360° jaw rotation and permit rapid interchange of jaws of various sizes and configurations for use with either vises or C-clamps.

3,833,211

CLAMPING MECHANISM FOR ADJUSTING STIRRUP ON A MEDICAL EXAMINATION TABLE

Floyd F. Mueller, Two Rivers, and Clarence J. Aulik, Manitowoc, both of Wis., assignors to American Hospital Supply Corporation, Evanston, Ill.
Filed Feb. 5, 1973, Ser. No. 329,452
Int. Cl. A61g *13/00*
U.S. Cl. 269—328 6 Claims



A clamping mechanism for the support rod of a stirrup includes a laterally extensible bar providing a bearing surface which engages the rod and a flexible metal strap extending from the distal end of the extension bar in partial wrapping engagement about the rod. A hand wheel draws the end of the strap toward the extension bar, thereby wedging the support rod in frictional engagement with the bearing surface and clamping the rod.

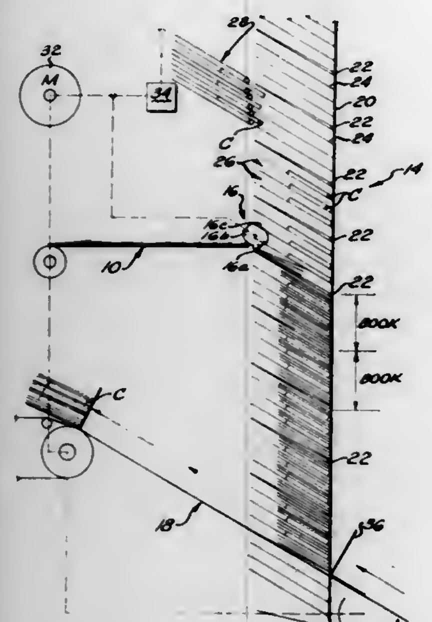
3,833,212
SIGNATURE COLLATING SYSTEM AND METHOD

James Chapman Wise, Easton, Pa., assignor to Harris-Intertype Corporation, Cleveland, Ohio

Filed Sept. 11, 1972, Ser. No. 288,110

Int. Cl. B65h *39/02*

U.S. Cl. 270—58 **2 Claims**



A signature delivery and collating system which includes an inserter mechanism for inserting preprinted cards or sheets into pockets of a collator into which signatures are also fed from a continuous stream of overlapped signatures.

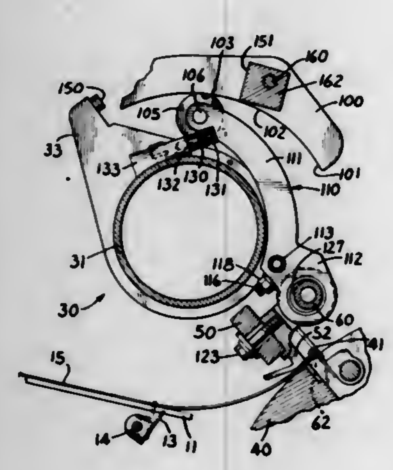
3,833,213
MEANS FOR OVERCOMING FAN-OUT IN LITHOGRAPH PRESS

Walter S. Smith, Naperville, Ill., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Apr. 17, 1972, Ser. No. 244,387

Int. Cl. B65h *9/12*

U.S. Cl. 271—254 **9 Claims**



An infeed mechanism including an oscillating transfer assembly for gripping the straight leading edge of a sheet in a sheet-fed press and for transferring it to grippers on a rotating cylinder in a bowed condition in order to overcome the tendency for the trailing portion of the sheet to spread or fan-out as it is acted upon by the press cylinders. The transfer assembly has gripper pads which are in general alinement but which are moved into the locus of a bow during a stroke of swinging movement for progressively deforming the leading edge of the sheet into a bow from the time that the sheet is engaged to the time that the sheet is released to the grippers on the rotating cylinder. In the preferred embodiment the gripper pads on the transfer assembly are mounted upon a pad bar which is progressively bowed in one direction as the transfer assembly is swung into its sheet pick-up position and then progressively restored to its straight position and into a bow of opposite direction as the transfer assembly is swung to the position where the sheet is released to the grippers on the constantly rotating cylinder. Means are provided for varying the amount of bow in the bar including levers on the transfer assembly which are actuated by a cam and cam follower which move relatively to one another as the transfer assembly swings back and forth.

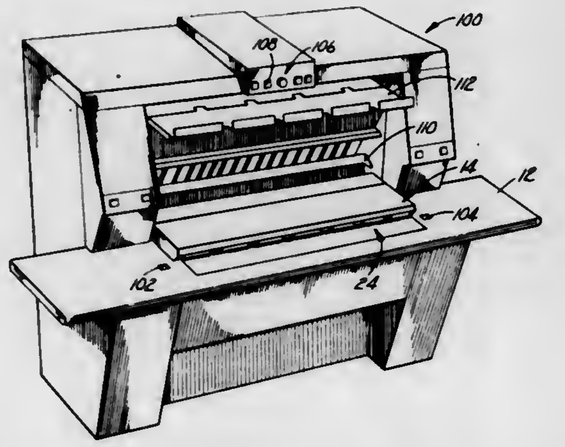
3,833,214
SHEET FEEDING APPARATUS FOR COPY MACHINE

Robert F. Zawiski, Lincolnwood; Albert A. Crider, Palatine, and Stephen Ernohazy, Mount Prospect, all of Ill., assignors to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Apr. 11, 1973, Ser. No. 350,239

Int. Cl. B65h *5/06*

U.S. Cl. 271—270 **3 Claims**



A copy machine with a pair of feed-in rollers for feeding, in superposed relation, a sensitized copy sheet and an original document to be copied into the machine. A pair of manually operable switches at either end of the feed-in portion of the machine are present to allow the speed of rotation of the feed-in rollers to be reduced when either switch is actuated. The reduction in speed allows an operator to manipulate the copy sheet and original more easily for purposes of aligning the two sheets as they enter the rollers. The rotation of the rollers is restored to the original speed by activating either of the switches.

3,833,215
ROLLING BALANCER

Francisco J. Isdith, Brooklyn, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed June 13, 1973, Ser. No. 369,780

Int. Cl. A63b *23/04*

U.S. Cl. 272—60 R **1 Claim**

A rolling balancer formed of two wheels connected together by an axle to which a U-shaped bar is attached perpendicular to the axle. The bar extends horizontally beyond the wheels and is bent at each end to form vertical handle members which are grasped by the user standing on the bar and balancing himself on the device.

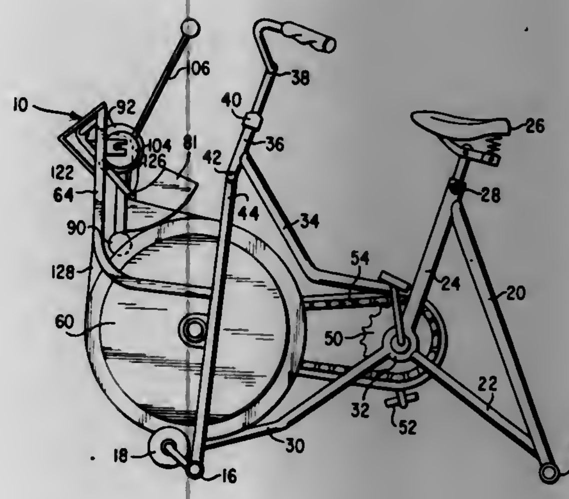
3,833,216
PEDAL ACTUATED EXERCISING DEVICE WITH ADJUSTABLE LOAD CONTROL

Robert E. Philbin, 7543 Morningstar Ave., Harrisburg, Pa. 17112

Filed Feb. 23, 1973, Ser. No. 335,333

Int. Cl. A63b *23/04*

U.S. Cl. 272—73 **11 Claims**



An exercising device having a stationary frame assembly with handlebars and a seat so as to generally resemble a conventional bicycle, has a rotatable wheel actuated by pedals and a friction belt engaging a portion of the wheel for applying a braking load on the wheel. A load control mechanism is manually operated between positions for varying the load applied by the belt and a retainer device acting on the load control mechanism precludes an inadvertent and/or actual movement thereof from its set controlling position.

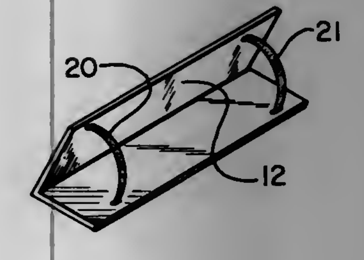
3,833,217
PRACTICE SLEEVE

Daniel F. Greaney, 85 Chesbrough St., West Roxbury, Mass. 02134

Filed July 11, 1973, Ser. No. 378,315

Int. Cl. A63b *69/40*

U.S. Cl. 273—26 B **4 Claims**



A practice sleeve having an elongated V-shaped trough configuration which is slipped over a conventional baseball bat and prevents the ball from going any great distance, due to its V shape, if the ball comes in contact with the sleeve in anything but direct center. The sleeve also absorbs the greater part of the energy from a pitched ball when it strikes dead center preventing the ball from going any considerable distance. The sleeve also forces the player to swing the bat in a direct equal plane.

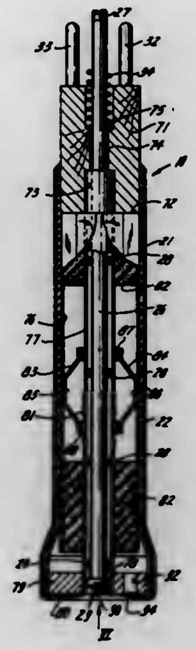
3,833,218
GAME RACKET

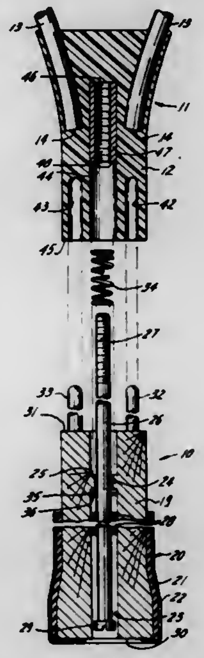
Richard E. Frenkel, 17 Kingston Rd., Scarsdale, N.Y. 10583, and Allan E. Schwartz, 3 Bristol Pl., Yonkers, N.Y. 10710

Filed Mar. 14, 1973, Ser. No. 341,156

Int. Cl. A63b *49/08*

U.S. Cl. 273—73 J **15 Claims**





A racket for use in games such as tennis, badminton, squash, paddle ball, etc. having a head and a handle detachably connected to said head at a throat. The head comprises a frame defining a stringing or ball contact area and a throat connected with the frame. The handle has at least one partially threaded bolt axially extending the length of said handle, with the threaded portion extending beyond one end thereof. An internally threaded insert in carried by said throat for receiving the bolt so that the handle may be secured to and detached from the head. Guide means are provided on the handle for engagement with the throat so that the handle will be properly aligned with the head. Grip expanding means may be carried within a partially hollow handle so as to vary the diameter of the handle.

3,833,219
RACKET WITH ADJUSTABLE HANDLE

Jesse W. Dean, 3878 Cannon Pl., Bronx, N.Y. 10463

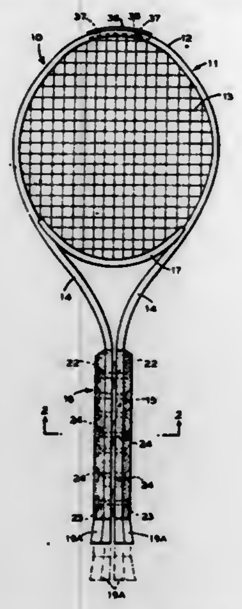
Continuation of Ser. No. 196,425, Nov. 8, 1971, abandoned.

This application Aug. 27, 1973, Ser. No. 391,626

Int. Cl. A63b *49/08*

U.S. Cl. 273—75 **4 Claims**

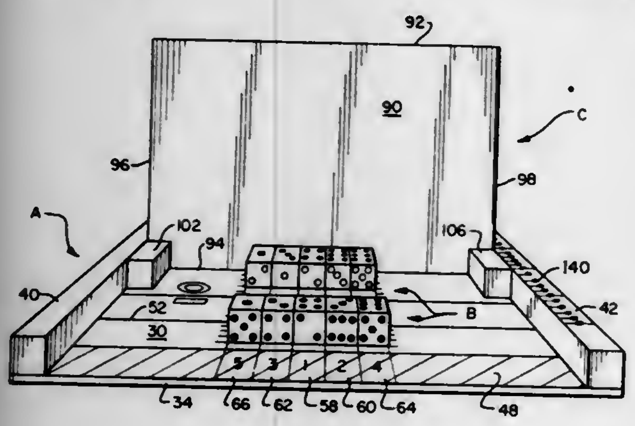
A racket for tennis, squash, badminton or similar sports, which includes a handle of adjustable length; a handle grip of adjustable perimetric size; means for adjusting the weight of the handle and/or the head portion of the racket, wherein the several adjustable features may be coordinated to suit the requirements of a particular user of the racket and to optimize his playing ability; the adjustments being simply and readily made by the user with the aid of common hand tools.



3,833,220
DECISION MAKING FOOTBALL GAME

Dennis Raymond Schurdell, 255 Franklin Dr., Berea, Ohio 44017

Filed May 8, 1972, Ser. No. 250,867
Int. Cl. A63f *9/14*
U.S. Cl. 273—94 R **21 Claims**

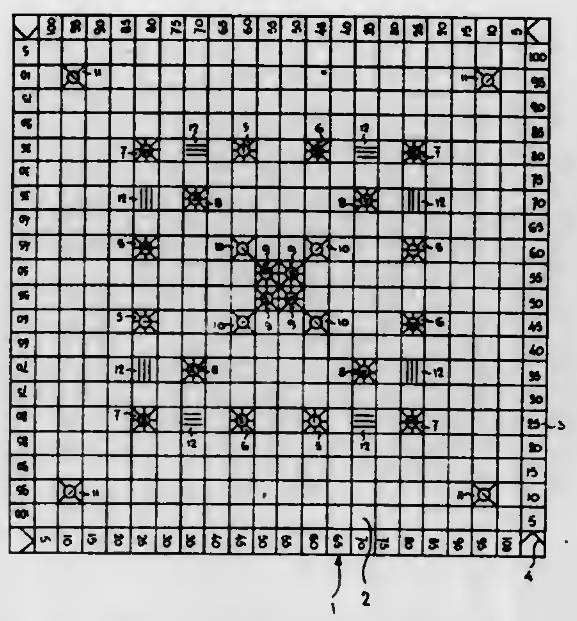


A football game including a game board dimensioned as a miniature football field and including five longitudinally extending game playing zones thereon. Ten game members, five linemen and five backfield men having a plurality of member movement indicators thereon comprise each team and are selectively positionable in the playing zones for a predetermined number of separate plays. In a typical play, each player rolls his ten game members onto the game board in full view of the opposing player in order that the players may each observe their opponent's possible plays. A screen which blocks each player's view of the opposing team is placed on the game board to extend along the "line of scrimmage" in order that the players may arrange their game members within the playing zones according to their relative offensive or defensive strengths and weaknesses. A football shaped element is employed by the offensive team to denote which of the game members will enter into a specific play with play being initiated by removing the screen from the game board. Advance or loss of the offensive team is based upon the differences in the member movement indicators of those offensive game members designated to enter play and the defensive team game members in the same playing zones. A score board is also provided to keep track of game progress and to determine other game variables so as to eliminate as much pure chance from the game as is possible.

3,833,221
BOARD GAME APPARATUS

Adrianus Gijsbertus Van Tol, Mimosastraat 31, Den Haag, Netherlands

Filed Apr. 26, 1973, Ser. No. 354,657
Int. Cl. A63f *3/00*
U.S. Cl. 273—134 C **12 Claims**

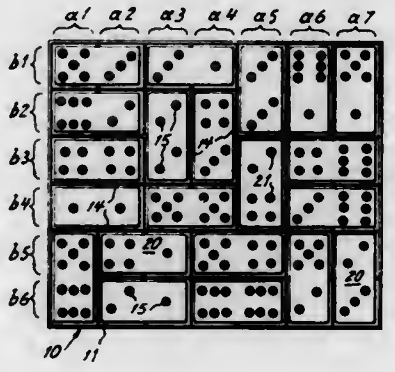


A game comprising a playing surface divided into a plurality of areas, some of said areas having identifying marks. Valued pieces identified as to value and as to location are positioned on particular marked areas. A plurality of route following pawns are provided for each player for moving on the playing surface along a particular route. The route of the pawns is determined by route charts, each chart indicating portions of the route to be followed. Points are accumulated by the players when their pawns capture an opponent's pawns or valued pieces during their movement.

3,833,222
PEGGED BOARD PUZZLE

George Castanis, New York, N.Y., assignor to Kohner Bros., Inc.

Filed Sept. 17, 1973, Ser. No. 398,137
Int. Cl. A63f *9/10*
U.S. Cl. 273—156 **9 Claims**

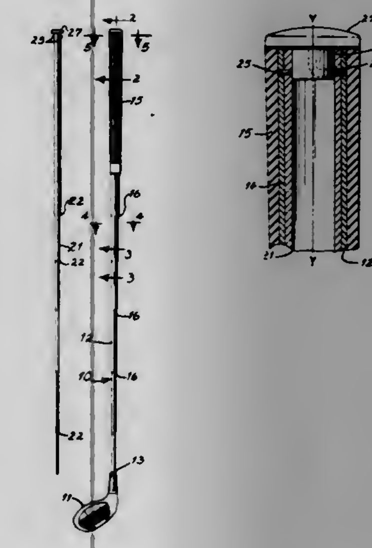


A puzzle is comprised of a playing board of a size capable of accommodating on its surface a plurality of playing pieces. Projecting from the surface of the board are a plurality of pins or pegs arranged in individual groupings or patterns of varying numbers of pegs and arrayed throughout a plurality of intersecting columns and rows with the spacing between adjoining patterns being uniform both in the column and row direction. The playing pieces are rectangular and each is perforated in individual groupings or patterns corresponding to and matching the patterns of the aforesaid pegs. Each piece has perforations representing a pair of individual perforation patterns, the spacing between the perforation patterns being the same as the spacing between adjoining peg patterns on the playing board so that a playing piece may be placed flush on the surface of the board only at a location wherein the perforation patterns on the playing piece match with and correspond to the patterns of two adjoining peg patterns. The combination of perforation patterns on each playing piece is different from that of every other playing piece and the number and arrangement of peg patterns on the board is designed so as to just accommodate every one of the playing pieces when correctly positioned on the board.

3,833,223
GOLF CLUB ASSEMBLY HAVING INTERCHANGEABLE INNER FLEX MEMBERS

Robert A. Shulkin, 24122 E. Sprague, Liberty Lake, Wash. 99019

Filed July 9, 1973, Ser. No. 377,526
Int. Cl. A63b *69/36*
U.S. Cl. 273—194 R **2 Claims**



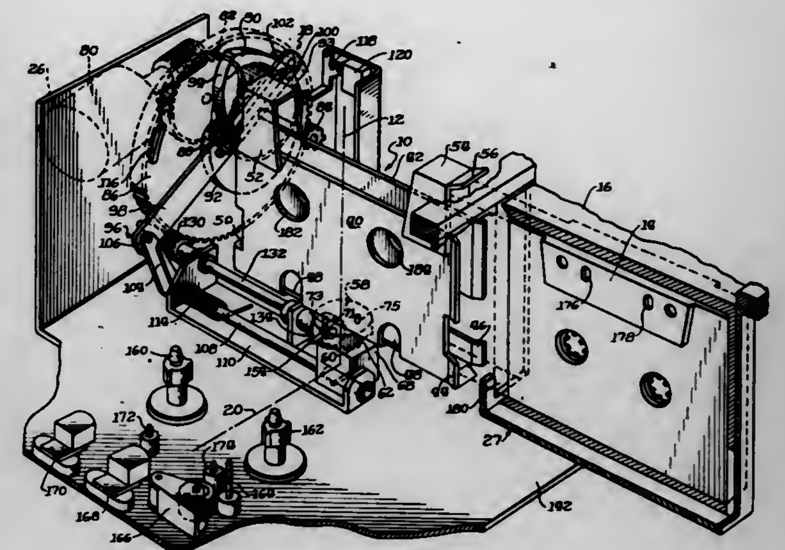
An adjustable shaft for golf clubs comprises a hollow elongated shaft fixed to a club head. The shaft is open at one end to receive an elongated flex member. The flex member is characterized by a predetermined degree of flexibility along its length to impart a specific reflex to the shaft along its length. Adjustability of flex along the club shaft enables the golfer to determine the degree of shaft flexibility to suit his specific requirements.

3,833,224
TAPE RECORDER WITH CASSETTE INVERTOR

Robert Haake, Pasadena, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Continuation of Ser. No. 50,407, June 29, 1970, abandoned. This application Jan. 12, 1973, Ser. No. 322,995The portion of the term of this patent subsequent to Sept. 7, 1988, has been disclaimed.
Int. Cl. G11b *5/00*
U.S. Cl. 360—92 **15 Claims**

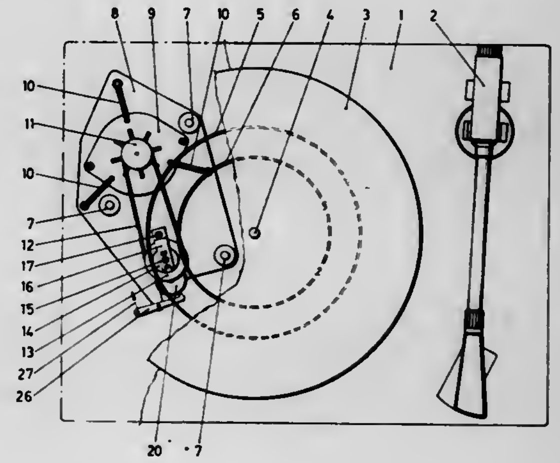
A tape recorder-reproducer having mechanical means for automatically flipping a tape cassette to reproduce each of two separately playable record tracks carried by the tape cassette. The mechanical means includes a mechanism for lifting a tape cassette away from a play station where one of the record tracks was in position for reproduction to a position substantially perpendicular to the play station, for rotating the tape cassette approximately 180° to invert its orientation and for returning the tape cassette to the play station thereby positioning the second record track for reproduction.



3,833,225
DRIVING MECHANISM FOR THE TURNTABLE IN RECORD PLAYERS

Karl Albin Bertil Pettersson, Motala, Sweden, assignor to Luxor Industri Aktiebolag, Motala, Sweden

Filed Sept. 25, 1972, Ser. No. 291,525
Claims priority, application Sweden, Sept. 27, 1971, 12154/71
Int. Cl. G11b *19/26*
U.S. Cl. 274—9 A **3 Claims**



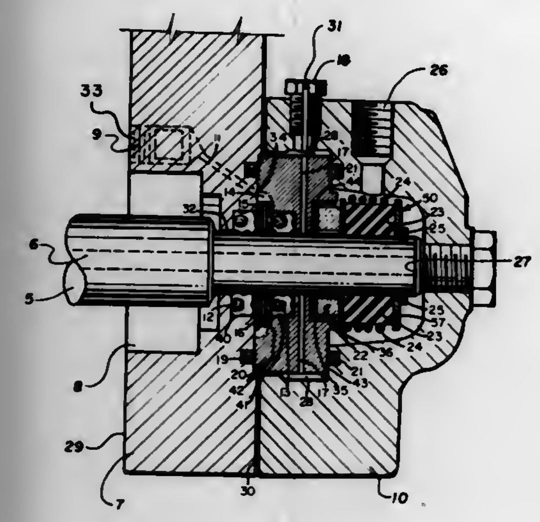
A driving mechanism for the turntable in record players having a reversible motor is provided in which reversal of the direction of rotation of the motor automatically changes the speed of rotation of the turntable.

3,833,226
SEAL APPARATUS FOR OIL DRIVEN GEAR MOTOR

Gary Paul Kerns, Fenwick, and Raymond L. McElroy, Craigsville, both of W. Va., assignors to Standard Hydraulics Service of Charleston, Inc., Craigsville, W. Va.

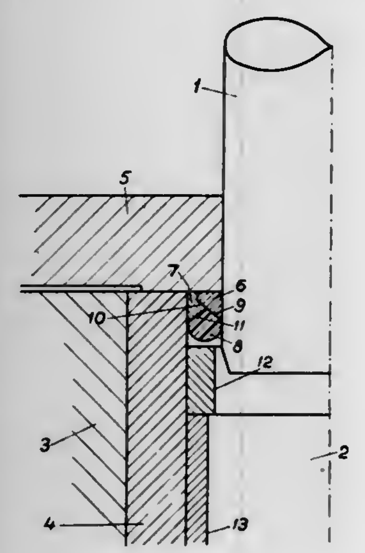
Filed Feb. 5, 1973, Ser. No. 329,637
Int. Cl. F16j *15/38, 15/40*
U.S. Cl. 277—3 **10 Claims**

In an oil driven gear motor of the type having a high oil pressure portion and a low pressure portion and a drive shaft rotatably mounted therein, a seal apparatus is provided. The seal apparatus is formed in a motor housing having oil passageways formed therein extending from the high and low oil pressure portions of the motor to an intermediate seal member. The intermediate seal member is positioned around the rotatable motor shaft, located intermediate two seal rings. The intermediate seal member contains oil ducts which communicate with the aforementioned oil passageway of the motor. A seal seating member is provided to enclose the seal assembly so as to permit the confinement of oil at high pressure within the area of the two seal rings and intermediate seal adjacent the motor shaft. This pressurized seal partially counteracts the high oil pressure present on the motor side of the seal thus yielding a more oil impervious seal. Also provided is an auxiliary motor housing having an orifice therethrough to allow the introduction of water therein. The water flows into an axial bore extending within the motor shaft. Water seal means are associated with the seal seating member to prevent water leakage around the shaft in the area of the oil seal rings. Water and oil leak detection means are also provided in the area of the seal seating member to allow visual determination of seal integrity.



3,833,227
PRESSURE SEAL

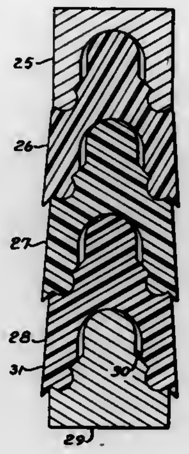
Jan Nilsson, Robertsfors, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed Mar. 1, 1972, Ser. No. 230,727
Claims priority, application Sweden, Mar. 15, 1971, 3281/71
Int. Cl. F16j *15/56*
U.S. Cl. 277—176 **2 Claims**



A high pressure seal for sealing between a movable piston and the wall of a pressure chamber is formed of two rings which have oppositely sloping inward directions forming a V within which a resilient sealing strip fits. The two rings have sloping mating faces directed inwardly towards the axis of the cylinder.

3,833,228
STACKABLE SEALING MECHANISM

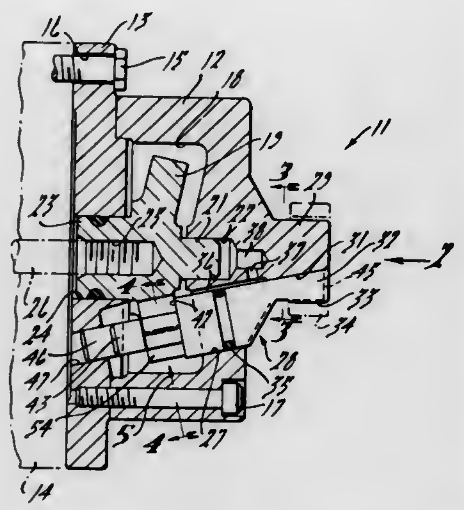
Howard E. Gilliam, Sr., North Ton Awanda, N.Y., assignor to Chenprene, Inc., Beacon, N.Y.
Filed July 19, 1973, Ser. No. 380,903
Int. Cl. F16j *15/32*
U.S. Cl. 277—205 **8 Claims**



There is disclosed a sealing design which allows seal members to be stacked upon each other in a manner which substantially reduces leakage, reduces the friction which generally accompanies expansion of a seal ring when pressure is applied thereto and offers self-aligning and high-load bearing properties. The sealing member preferably comprises at least two or more stacked seal members having similar designs which allow the individual members of the sealing mechanism to interlock giving the aforementioned benefits and advantages.

3,833,229
PIN ARBOR

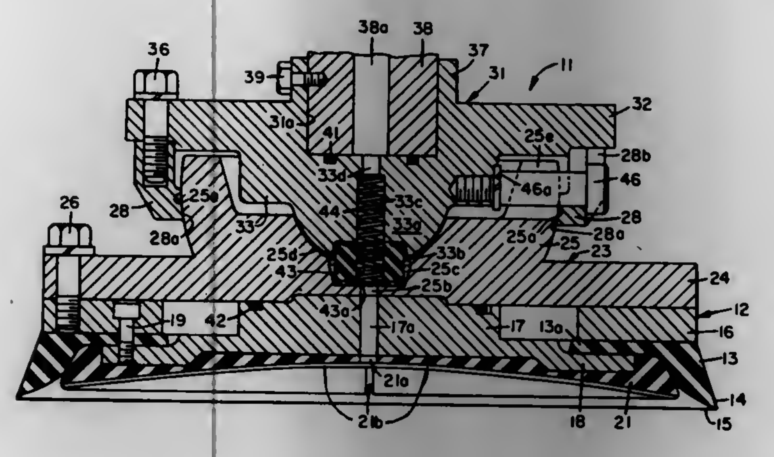
George Hohwart, Howell, and Paul Toth, Allen Park, both of Mich., assignors to N.A. Woodworth Company, Detroit, Mich.
Filed Jan. 10, 1973, Ser. No. 322,292
Int. Cl. B23b *31/12, 31/40*
U.S. Cl. 279—1 J **8 Claims**



A workpiece-supporting arbor having a body with circumferentially spaced inclined pins the outer ends of which are engageable with the workpiece. A disc-shaped pin actuator connected to a draw-bar has slots through which the pins extend, the pins having shoulders engageable by this actuator during operation. The pins are removable from the front of the body by application of a tool such as a screwdriver and rotation of the pins. Locating surfaces on the pins permit proper re-insertion, the surfaces being so shaped as to permit pin adjustment for workpiece irregularities. The pins have sufficient cross-sectional area in the portions straddled by the actuator slots to provide ample tensile strength during operation.

3,833,230
VACUUM CHUCK

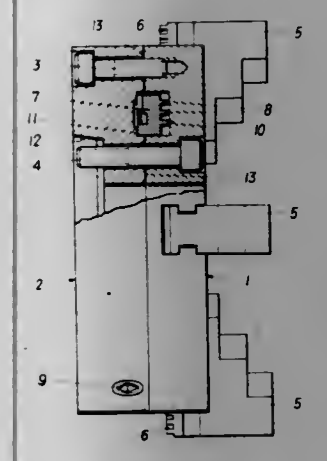
Burton A. Noll, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Sept. 13, 1973, Ser. No. 396,751
Int. Cl. B23b *31/30*
U.S. Cl. 279—3 **10 Claims**



A vacuum chuck for picking up and handling articles having relatively flat or slightly curved surfaces to be contacted by the vacuum cup of the chuck with a modified form of gimbaling arrangement permitting self-leveling or rocking floating movement of the chuck and the suction cup to adjust to a contacted surface when a preselected value of vertical force is applied to the chuck, and a locking or clamping feature to prevent floating movement or rocking motion of the chuck and vacuum cup when said preselected force is absent or terminated.

3,833,231
CHUCK

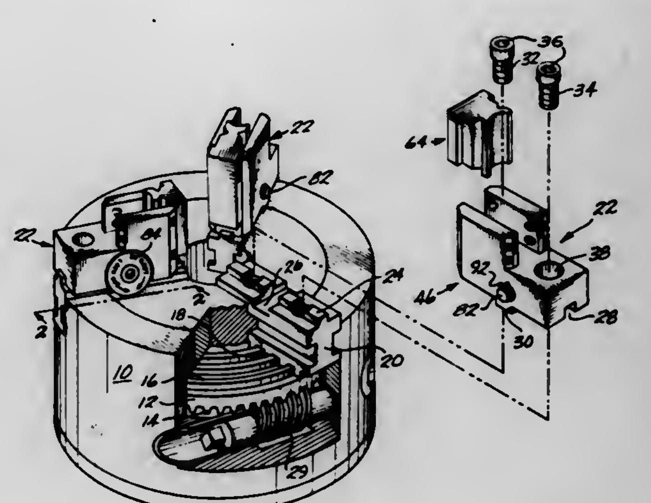
Karl Maier, 186 Heide, Hallein, Austria
Filed Jan. 31, 1973, Ser. No. 328,413
Claims priority, application Austria, Feb. 1, 1972, 793/72
Int. Cl. B23b *31/16*
U.S. Cl. 279—116 **1 Claim**



A front plate is formed in one surface with a first annular groove. A plurality of jaws are radially guided in said front plate. A cover plate has a surface which contacts said one surface and is formed with a second annular groove, which registers with said first annular groove. Screws connect said cover plate to said front plate. Said contacting surfaces of said front plate and cover plate lie in a single plane. Centering means are provided, which center said front plate and said cover plate relative to each other and consist only of a gear ring, which extends into said first and second annular grooves and is rotatably mounted therein and carries a scroll, which is in engagement with said jaws so that said gear ring is rotatable to radially adjust said jaws.

3,833,232
CHUCK JAW INSERT ASSEMBLY

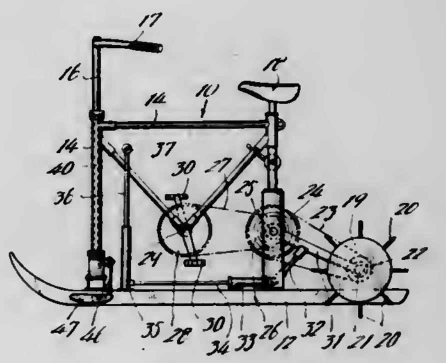
Alvin J. Behrens, Kent, Wash., assignor to The Cleveland Twist Drill Company, Cleveland, Ohio
Continuation-in-part of Ser. No. 45,499, June 11, 1970, Pat. No. 3,679,221. This application June 23, 1972, Ser. No. 265,761
Int. Cl. B23b *31/10*
U.S. Cl. 279—123 **5 Claims**



A top jaw and insert for use in connection with chucks of turning machines, or latches, are disclosed. Each insert is held in a recess in a top jaw and precisely positioned relative to said top jaw by: the outer end portion of the sidewalls forming the recess are precisely machined to provide parallel sidewall surfaces; additional mounting surfaces are provided on the opposite end portions of said sidewalls and located normal to the sidewall surfaces; an insert is provided with sidewalls to slidingly fit into said recess; the insert is provided with a head of a size to arrest further movement therepast of the insert into the recess; a machined under surface is provided on said head to mate with the surfaces at the end of the sidewalls; and set screws are threadingly mounted into said sidewalls, engage grooves in the insert, and upon rotation thereof, the set screws urge the insert and the machined surface thereof, on the underside of the head thereof, against the base surfaces and on the sidewall. Also, each of the sidewalls of the top jaws has mounting surfaces at each end portion thereof so that the insert can be carried by either end portion of the sidewall and carried by the top jaw.

3,833,233
SLEIGH

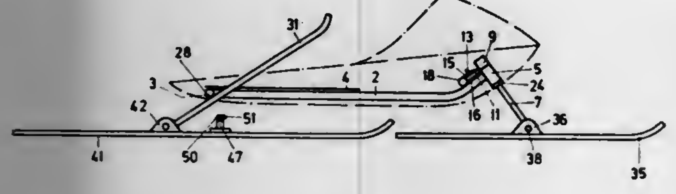
Kenichi Sugiyama, 1236-7-506 Edamachi, Yokohama, Japan
Filed Jan. 12, 1973, Ser. No. 323,225
Claims priority, application Japan, Jan. 17, 1972, 47-6805
Int. Cl. B62b *17/06*
U.S. Cl. 280—12.14 **7 Claims**



A sleigh and the like snow vehicle comprises a runner mounting an improved drive and steering structure. The structure has a drive mechanism which includes a vertically movable shaft on which a pair of bladed drive wheels are rotatably for movement therewith so as to cause the blades on the drive wheels selectively to engage and to clear the surface of snow or ice. The structure also has a steering mechanism which includes a gearing operatively connected to a steering rod and steering blades hung from opposite ends of a cross bar pivoted by the gearing.

3,833,234
VEHICLE, IN PARTICULAR FOR TRAINING IN THE COORDINATION OF SEVERAL CONTROLS

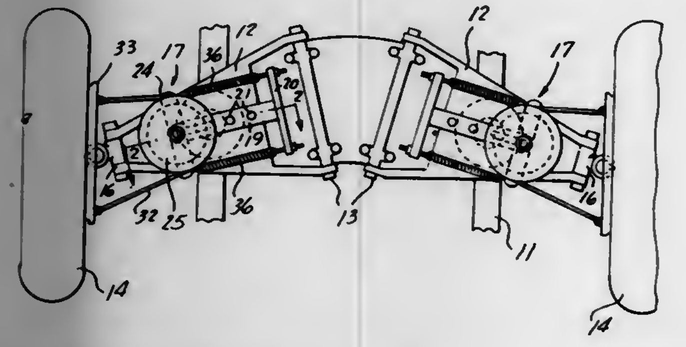
Hermann Schreiber, 9545 Waengitg, Wangi, Switzerland
Continuation of Ser. No. 128,714, March 29, 1971, Pat. No. 3,759,537. This application June 4, 1973, Ser. No. 367,010
Claims priority, application Switzerland, Mar. 31, 1970, 4714/70
Int. Cl. B62b *13/04*
U.S. Cl. 280—16 **6 Claims**



A vehicle for training in the coordination of various controls provided with at least travelling units containing skids, wheels or floats, having at least one seat, each of the travelling units being capable of being lifted or lowered for tilting about its longitudinal and/or transverse axis and at least one travelling unit being adapted to swivel about a vertical axis.

3,833,235
WHEEL CAMBER-MAINTAINING ASSEMBLY

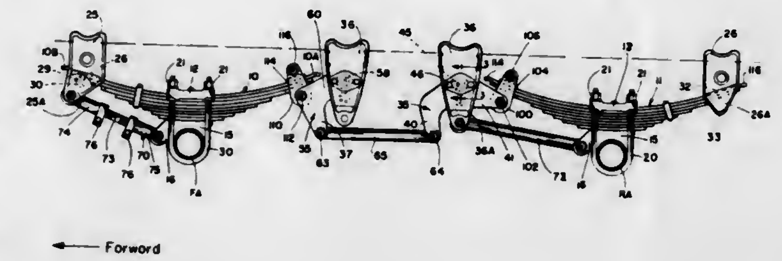
Doyle H. Worsham, Box 231, Boaz, Ala. 35957
Filed June 15, 1973, Ser. No. 370,318
Int. Cl. B60g *3/00*
U.S. Cl. 280—94 **14 Claims**



A camber-maintaining structure for a motor vehicle front wheel. The structure consists of a T-shaped bracket rigidly attached to the horizontally pivoted A-frame of the vehicle. A rigidly clamped cross bar and pulley are slidably and pivotally connected to the stem of the bracket. A cable is engaged around the pulley and its ends are attached to the backing plate of the brake drum of the adjacent wheel. A pair of coiled springs connect the ends of the cross bar to the ends of the head portion of the bracket and act to bias the wheel toward its normal camber position. A sprocket wheel and sprocket chain may be used in place of the pulley and cable. In vehicles not employing a pivoted A-frame, the bracket may be attached directly to the vehicle frame.

3,833,236
EQUALIZED SUSPENSION SYSTEM FOR A TANDEM AXLE VEHICLE

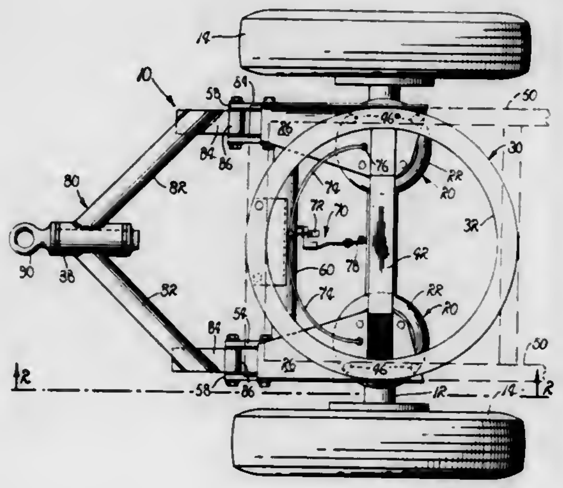
Robert W. Davis, Ozark, and James C. Ward, Springfield, both of Mo., assignors to A. J. Industries, Inc., Los Angeles, Calif.
Filed July 16, 1973, Ser. No. 379,738
Int. Cl. B60g *5/04*
U.S. Cl. 280—104.5 B **3 Claims**



An equalized suspension system is provided for the trailer of a trailer-truck combination of the tandem axle type, and which is mounted on each side of the trailer near the rear thereof. The suspension on each side of the trailer includes independent semielliptic leaf springs mounted in tandem relationship one behind the other, and which are respectively connected at their midpoints to the front and rear axles of the trailer. The remote ends of each spring are supported in respective brackets which, in turn, are secured to the frame of the trailer. Two equalizer support brackets are provided between the adjacent ends of each pair of springs, and two bell cranks are respectively supported in the equalizer support brackets. A tension bar intercouples the bell cranks. The adjacent ends of the springs are supported on bearing pads which are pivotally mounted in shackles. The shackles, in turn, are pivotally mounted to the respective bell cranks.

3,833,237
FRONT AXLE ASSEMBLY FOR A FULL TRAILER

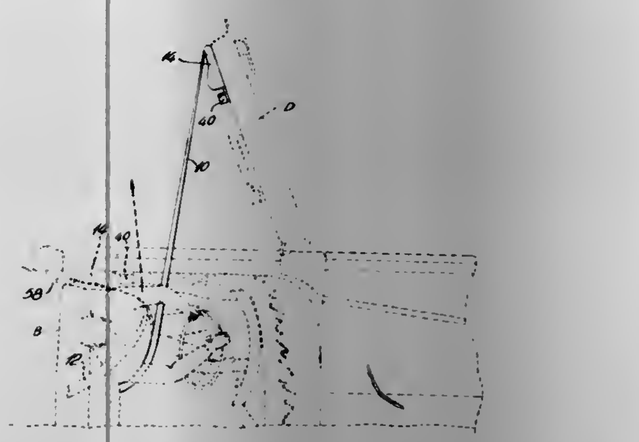
Phillip J. Sweet; Buck C. Hamlet, and David L. Sweet, all of Fresno, Calif., assignors to American Carrier Equipment, Fresno, Calif.
Filed Oct. 24, 1972, Ser. No. 299,715
Int. Cl. B62d *53/00*
U.S. Cl. 280—125 **5 Claims**



An improved front axle assembly for a full trailer characterized by a pair of laterally spaced single convolute air springs disposed in vertical alignment between a wheel-supported axle and a turntable adapted to support one end of a trailer, and a pair of cantilevered leaf springs extended between the axle and a forwardly disposed hanger integrally related with said assembly.

3,833,238
SAFETY BELT SYSTEM

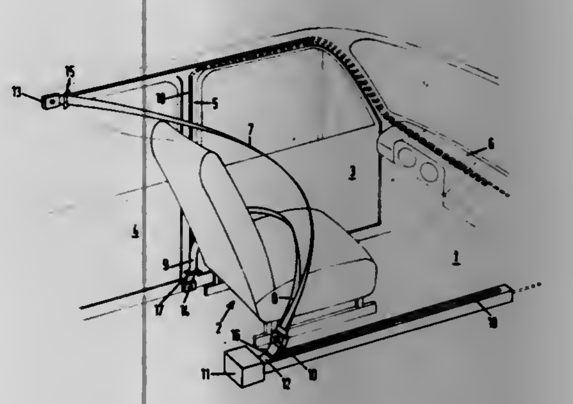
Maurice Liard, 276 DeSalaberry, Joliette, Quebec, Canada
Filed Sept. 27, 1972, Ser. No. 292,717
Int. Cl. B60r *21/02*
U.S. Cl. 280—150 SB **5 Claims**



There is disclosed a safety belt wound on a spring reel at the aft end of the door, which keeps the belt under tension, and blocked by a clamping device when the door is closed, to ensure wear of the belt and effect its locking automatically. The blocking device comprises elements which come in contact when the door is shut and clamp the belt therebetween.

3,833,239
SEAT BELT

Willem Frans Coenen, Prinses Marielaan 26, Wassenaar, Netherlands
Filed Nov. 7, 1972, Ser. No. 304,345
Claims priority, application Netherlands, Nov. 8, 1971, 7115345
Int. Cl. B60r *21/02*
U.S. Cl. 280—150 SB **2 Claims**

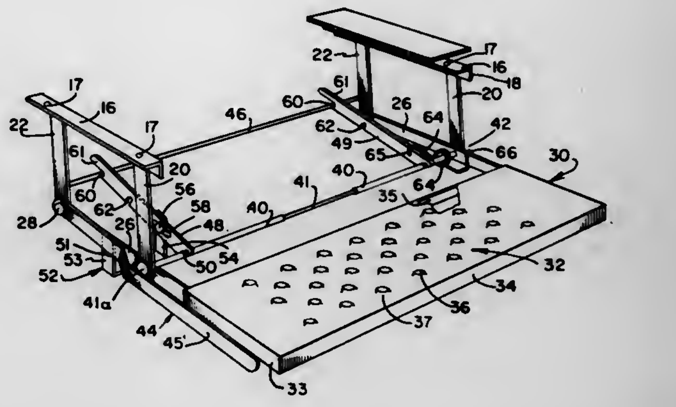


A seat belt for a motor vehicle with automatic retraction means, so that in the stored position the belt clears the doorway.

3,833,240
RETRACTABLE STEP FOR USE WITH TRAILERS, MOTOR HOMES, OR OTHER VEHICLES

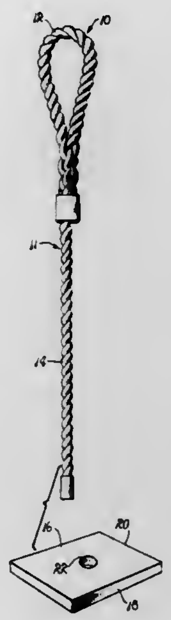
Raywood C. Weiler, 17586 Vine St., Fontana, Calif. 92335
Filed Nov. 17, 1972, Ser. No. 307,493
Int. Cl. B60r *3/02*
U.S. Cl. 280—166 **10 Claims**

A retractable step mounted on the vehicle below the door, which step is pivotally supported to move in a horizontal plane from a retracted out-of-the-way position under the vehicle body to a forwardly extending step-on position which is laterally and forwardly of the door and below the door and is provided with means for releasably locking the step in either retracted or extended position, the step being totally disconnected from the door and operable independently of the opening or closing of the door.



3,833,241
STOWABLE TIEDOWN ATTACHMENTS FOR PICKUP TRUCK BODIES

Adrian J. Acosta, 16891 S. Elm Ave., Caruthers, Calif. 93609
Filed June 14, 1972, Ser. No. 262,780
Int. Cl. B60p *7/00*
U.S. Cl. 280—179 A **8 Claims**



Disclosed is a stowable tiedown attachment for pickup truck beds consisting of a loop of rope with a tail, and a bored rectangular plate. The plate is carried on the tail by inserting the tail through the bore and then forming a knot in the tail below the plate. The bore is just large enough to pass the rope tail and too small to pass the loop or the knot, and the plate is thus captured between the loop and the knot. The tiedown attachment is placed in a stake well in the pickup truck body by either passing the tail unknotted through a hole in the bottom of the well and then affixing a knot in the tail below the hole, or in the bodies of other designs, by mounting the plate on the tail held by a knot, and then passing the plate through the top opening of the well by angling the plate downward. When the plate is in the well it is disposed horizontally so that when the rope is drawn upwardly the plate catches the sides of the well and prevents removal of the tiedown attachment from the well.

3,833,242

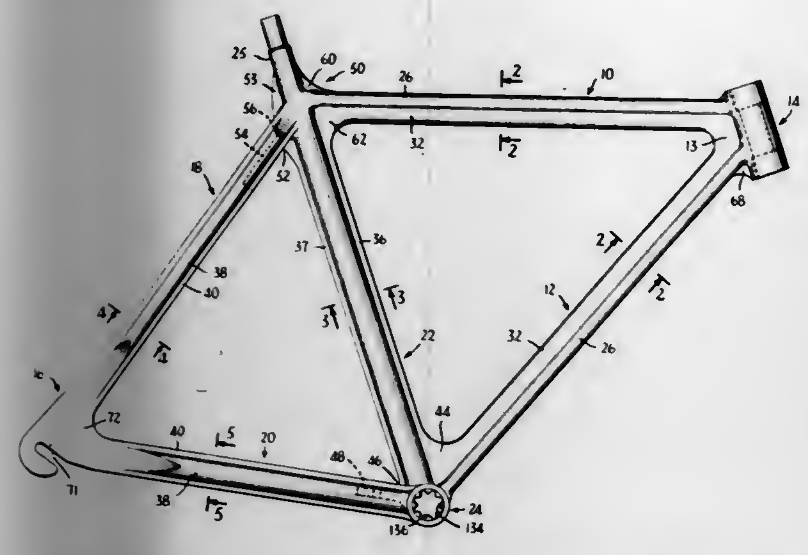
BICYCLE FRAME

William A. Thompson, Jr., Toms River, N.J., assignor to Original Plastic Bike, Inc., New York, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,843

Int. Cl. B60k *19/02, 19/16*

U.S. Cl. 280—281 **15 Claims**



A bicycle frame formed as a unitary plastic molding is, in outline, a forwardly-upwardly sloping parallelogrammatic structure having a diagonal seat post connected between the middle diagonal corners. The top and front struts are formed of a semicylindrical portion and a radial rib portion protruding perpendicularly from the face opposite the semicylindrical face of the semicylindrical portion; the back and bottom braces are formed of a semicylindrical portion and a bar portion extending beyond the flat face of the semicylindrical portion and in the plane thereof. The entire frame is molded in one piece with a hard exterior skin covering a structural foam interior.

3,833,243

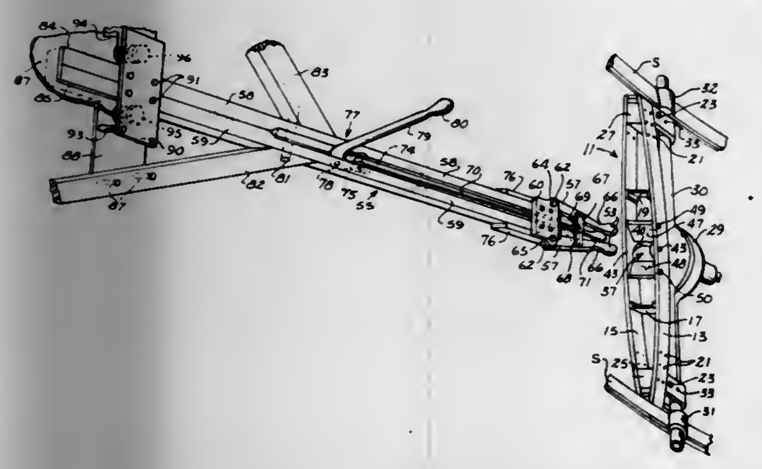
TRAILER HITCH FOR ATTACHMENT TO TOW VEHICLE AXLE

Carl J. H. Hanson, P.O. Box 312, Buffalo, S. Dak. 57720

Filed Apr. 20, 1973, Ser. No. 352,881

Int. Cl. B60d *3/00*

U.S. Cl. 280—477 **10 Claims**



A trailer hitch includes a transverse yoke with adjustable means for attaching it to tow vehicle axles of various lengths and configurations; a swivelled hollow ring, offset from the vertical axis about which it swivels is fastened in the middle of the yoke; a tongue bearing a collapsible pair of arms carry at their front ends ball members having reduced neck section which engages the opening in the swivelled ring for firm pulling and pushing engagement. Toggle means are provided for spreading the arms apart and locking them in engagement in the ring, pivoted guiding gate means direct the arms, when collapsed together, into the ring opening. A lever and a sliding control bar attached thereto arranged to selectively spread or close the arms with respect to each other to latch or unlatch the neck portions of the arms in the ring member. The trailer tongue is pivoted for movement in a vertical plane, including compression springs to absorb road shocks and to cushion the trailer load as applied to the two vehicle axle by the tongue.

3,833,244

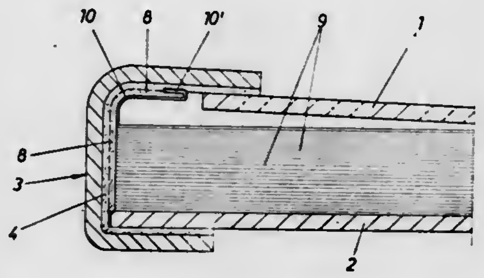
ADHESIVE BINDING COVER

Egon Heimann, Falkenberg 61, 56, Wuppertal-Elberfeld, Germany

Continuation of Ser. No. 97,412, Dec. 3, 1970, abandoned. This application Apr. 2, 1973, Ser. No. 346,887

Int. Cl. B42d *1/04*

U.S. Cl. 281—21 R **3 Claims**



Adhesive binding folder for binding loose sheets with two outside enclosing covers, joined to each other by a back strip which carries a double self adhesive layer against which the narrow rear edges of the bound inner sheets are positioned. The layer includes a removable strip to expose the adhesive and thereby adhere to the sheets. An inner protective sheet for the purpose of attachment penetrates with a narrow margin into the contact interface of the self adhesive layer. Said sheet serves to cover the self-adhesive layer laid bare by pulling out individual sheets.

3,833,245

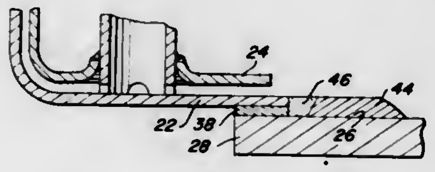
CYLINDRICAL BELLOWS

William R. Davis, Louisville, Ky., assignor to Chemetron Corporation, Chicago, Ill.

Filed Dec. 14, 1972, Ser. No. 315,046

Int. Cl. F16l *21/00*

U.S. Cl. 285—226 **9 Claims**



An end of a cylindrical bellows is mounted around and to a cylindrical surface by a method comprising the steps of depositing circumferential weldment on the surface in spaced relation to the end of the cylindrical bellows and depositing circumferential weldment on the surface as butt weldment therebetween.

3,833,246

COUPLING FOR PLASTIC CONDUIT

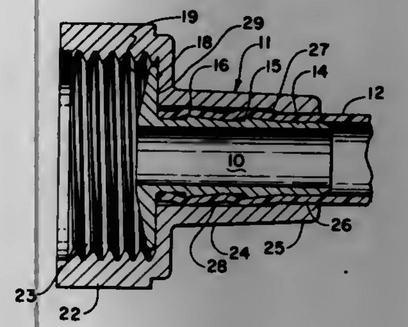
Harold E. Wake, Lindsay, Calif., assignor to Apache Corporation, Minneapolis, Minn.

Filed Aug. 6, 1973, Ser. No. 385,858

Int. Cl. F16l *33/22*

U.S. Cl. 285—247 **8 Claims**

A coupling for flexible, relatively hard plastic conduit comprising a tubular nipple which is inserted into the conduit and a sleeve which surrounds the conduit, the coupling retaining the conduit in position but permitting rotation of the outer sleeve with respect to the hose for securing the same to a mating coupling member. The nipple member is provided with annular ribs which except for an outer flange abutting the end of the conduit are the only portions of the nipple which are of a greater diameter than the interior diameter of the hose. The outer sleeve has an outer coupling portion designed to couple with a male coupling member, an intermediate section of larger internal diameter than the external diameter of the conduit, and an inner portion having an internal diameter substantially equal to but slightly greater than the external diameter of the conduit. When assembled on the conduit, the intermediate portion of the outer sleeve overlies the annular ribs of the nipple which push portions of the conduit outwardly into the intermediate portion of the outer sleeve. The outer coupling portion of the outer sleeve is preferably a female coupling member designed to be tightly coupled with a male coupling member, the end of which presses against the outer flange of the nipple members to press it into sealing engagement with the outer wall of the intermediate portion of the outer sleeve.



3,833,247

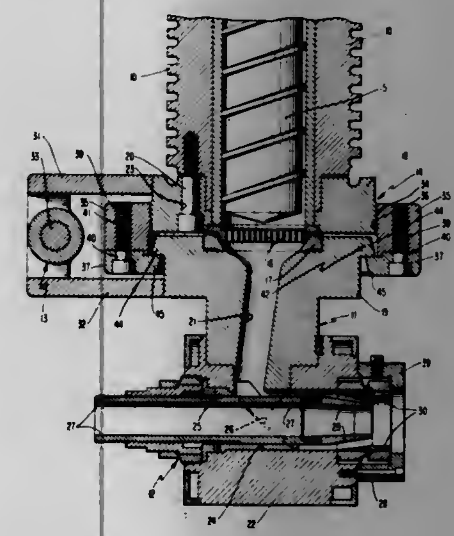
BREECH-LOCK MECHANISM FOR EXTRUSION APPARATUS

Louis Puskas, Glen Rock, N.J., assignor to John Royle & Sons, Patterson, N.J.

Filed Mar. 15, 1973, Ser. No. 341,389

Int. Cl. B29f *3/10*

U.S. Cl. 285—414 **5 Claims**



A rapidly-operated mechanism for selectively locking first and second bodies together in confronting relationship and releasing them for separation. The locking mechanism includes a multi-part annular member having coaxial first and second annular parts, the first such part having threaded connection with the first body so as to be selectively advanceable toward and retractable from the first body, the second annular part and the second body having transversely disposed sets of circumferentially spaced radially projecting lugs, the lugs of one set overlapping the lugs of the other set to pull and to hold the bodies together when the sets of lugs are turned in a first direction about their axes toward a first terminal angular position relative to each other, the lugs of the respective sets being free from axial interference with each other when the sets of lugs are turned in the opposite direction to a second terminal angular position. The mechanism includes means securing the said annular parts of the multi-part annular member for adjustment about their common axis relative to each other, whereby to compensate when necessary for the wearing of the parts of the mechanism.

3,833,248

SHOCK-ABSORBING BUMPER ARRANGEMENT

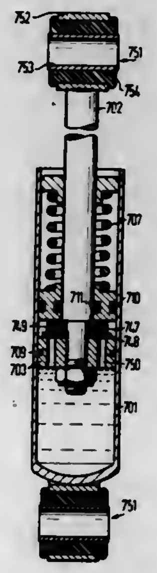
Felix Wossner, and German Schmitt, both of Schweinfurt am Main, Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Germany

Filed May 9, 1972, Ser. No. 251,813

Claims priority, application Germany, May 15, 1971, 2124275; May 15, 1971, 2124276

Int. Cl. B60r *19/06;* **F16f** *9/06*

U.S. Cl. 293—86 **7 Claims**



Telescoping shock absorbers are arranged between the frame and bumper bar of an automotive vehicle in such a manner that the piston of each shock absorber moves inward of the cylinder under the impact of a collision, and liquid flows through a restricted passage between the compartments of the cylinder cavity to reduce the velocity of cylinder movement. If the passage is a groove in the inner cylinder wall, its flow section decreases in the direction of inward piston movement in such a manner that the force opposing the piston movement remains substantially constant even though the velocity of cylinder movement decreases. The same result can be achieved by forming the restricted passage in the piston, and biasing a valve member on the piston toward the passage closing position by a heavily prestressed cup spring or helical spring.

3,833,249

INDOOR AND OUTDOOR DEBRIS PAN

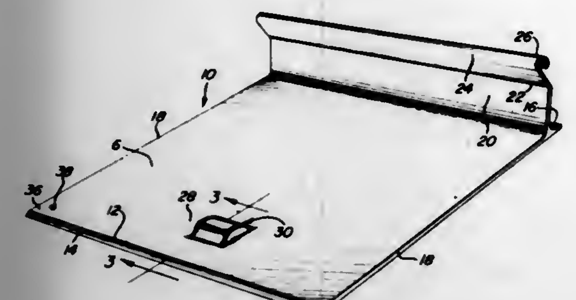
Richard F. McKinney, II, P.O. Box 252, New Galilee, Pa. 16141

Filed Apr. 18, 1973, Ser. No. 352,476

Int. Cl. A47l *13/52*

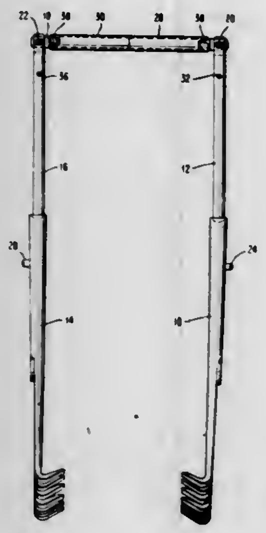
U.S. Cl. 294—1 R **4 Claims**

A dustpan-type debris gathering, carrying and trash bag or can loading implement for use indoors or outdoors comprising a flat-faced flexibly resilient sheet of moldable normally flat plastic material atop which debris, such as grass clippings, twigs, loose leaves and miscellaneous lawn trash, can be raked, swept or scooped up and safely and expeditiously emptied into a trash bag or can. The sheet is substantially rectangular in plan and has a bevelled leading edge for scooping up and guiding litter atop the sheet and a barrier or limit stop wall across and forwardly of the trailing edge. The upper edge of the wall has an oblique angled flange provided with a rolled thumb grasping bead. The forward leading edge portion is indented and fashioned into a finge accommodating well or receiver which, in turn, embodies an overhanging finger retaining ledge.



3,833,250
LAWN CLEANING TOOL

Elinor W. Lawrence, 8 Stanley Rd., Darien, Conn. 06820
Filed May 11, 1973, Ser. No. 359,253
Int. Cl. A01b *1/18;* **A01d** *7/10*
U.S. Cl. 294—50.6 **10 Claims**

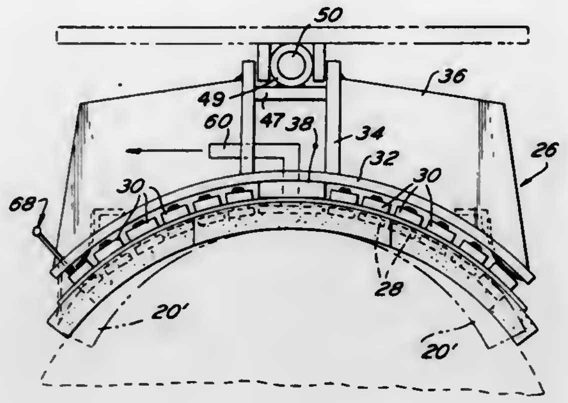


First and second elongated handles are hingedly connected to the respective ends of a cross-handle. Opposed rake heads are attached to the unhinged ends of the first and second handles to provide an articulated tool which is particularly useful in gathering and picking up loose materials such as tree leaves.

3,833,251
LONGITUDINALLY STIFFENED FLEXIBLE LIFTER FOR ARCUATE OBJECTS

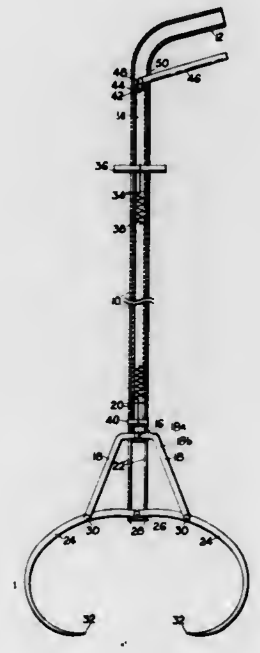
Jacob J. Creskoff, Wynnewood, Pa., assignor to Aerovac Corporation, Bala-Cynwyd, Pa.
Filed Oct. 6, 1972, Ser. No. 295,634
Int. Cl. B66c *1/02*
U.S. Cl. 294—64 R **7 Claims**

A vacuum lifter is provided for arcuately shaped objects which includes a flexible sheet having opposed parallel surfaces. A supporting member is connected to one surface of the sheet and a resilient sealing gasket is connected to the opposing surface of the sheet about the periphery thereof. A source of vacuum is provided and the sheet has a port through which the vacuum source communicates. Stiffening means are connected to the flexible sheet to prevent bending of the sheet about a line extending at an angle transverse to the longitudinal extent of the plate. The lifter is secured to an arcuate object by placing the gasket against the outer surface of the object so that a partial vacuum is formed in the compartment formed between the outer surface of the object, the sheet and the gasket. The sheet accomodates a range of diameters of arcuate objects by bending around its longitudinal axis to conform to the diameter of the objects.



3,833,252
FISH RETRIEVER

Donald E. Redding, P.O. Box 122, Sweet Home, Oreg. 97401
Filed Mar. 29, 1973, Ser. No. 346,098
Int. Cl. A01k *97/14*
U.S. Cl. 294—110 A **1 Claim**

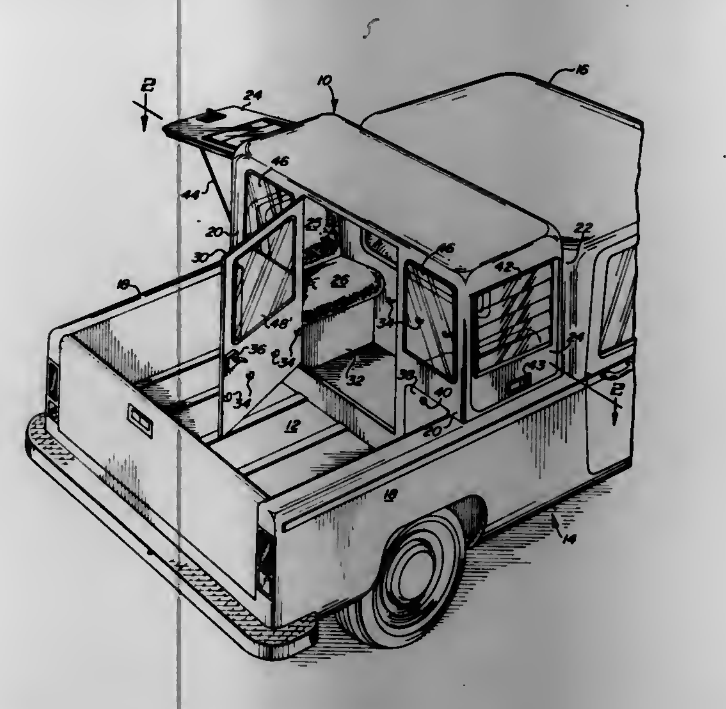


A fish retriever having a pair of jaws which engage a fish from both sides with tip portions of the jaws piercing the fish. The jaws are operated by links pivotally connected and operated by a slide movable in a supporting body portion. The slide is powered by a spring or the like to forcefully close the jaws. Means are provided for opening the jaws so that they can be moved down over the fish. A trigger holds the slide in a cocked position, and when the slide is released the jaws grasp the fish.

3,833,253
ONE-MAN TRUCK-MOUNTED CAMPER

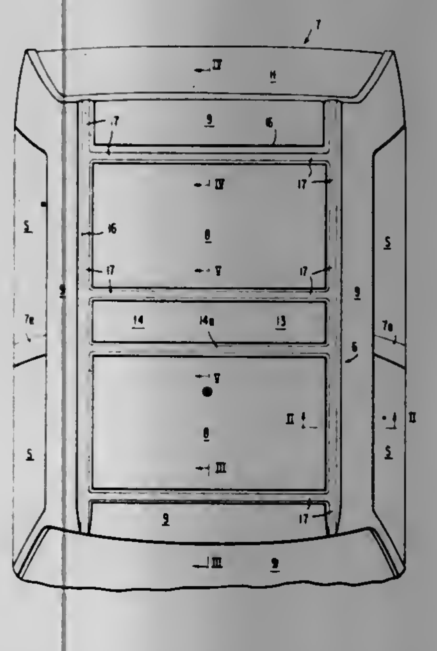
Truman G. Butler, 30 S. Lesueur St., Mesa, Ariz. 85204
Filed Dec. 11, 1972, Ser. No. 314,008
Int. Cl. B60p *3/32*
U.S. Cl. 296—23 MC **5 Claims**

A short-bodied camper shell for mounting on the bed of a pickup truck includes hinged, louvered windows, an access door, locked storage area accessible from the truck bed, and removable cushions having rods cooperating with hangers mounted to the interior of the camper to form either two seats, a cot, a storage platform, or a combination of a table and one seat.



3,833,254
MOTOR VEHICLE ROOF

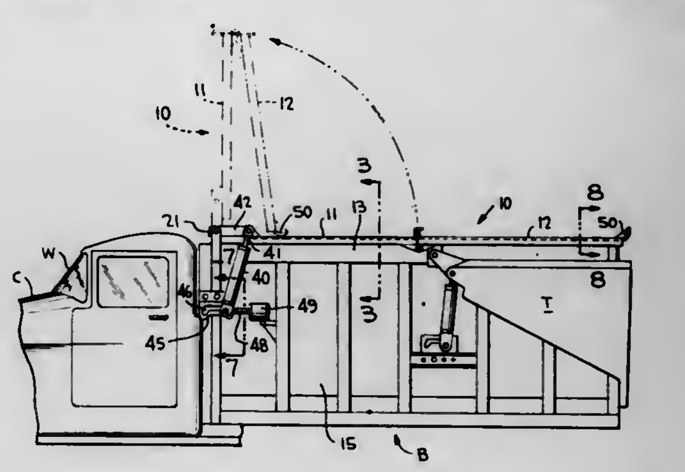
Hermann Renner, Magstadt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany
Filed Dec. 6, 1972, Ser. No. 312,513
Claims priority, application Germany, Dec. 7, 1971, 2160537
Int. Cl. B60j *91/00*
U.S. Cl. 296—137 R **36 Claims**



A motor vehicle roof with a covering panel provided with longitudinal and/or transverse beads or reinforcing seams and with a double-walled hollow roof frame formed partially by the edge of the roof covering panel; the roof frame forms a roof preferably extending peripherally along the rood edge while a web extends through the bearer which is connected with its edges.

3,833,255
COMBINED LOAD COVER AND WINDSHIELD PROTECTOR FOR DUMP TRUCK

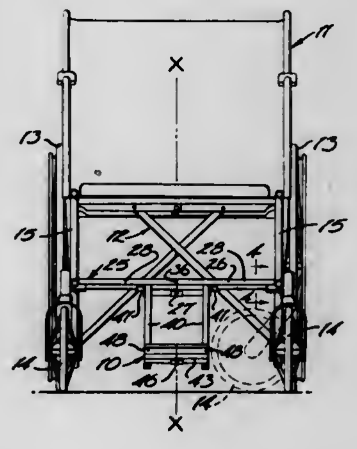
George E. Logue, 321 Winters Ln., Montoursville, Pa. 17754
Filed Oct. 29, 1973, Ser. No. 410,522
Int. Cl. B60p *7/02*
U.S. Cl. 296—137 B **8 Claims**



Two hinged cover plates are attached to a dump truck to provide a load cover. Power means is provided to lift the plates for loading, thus moving the plates through an upright semi-folded position, and then to a forward, full-folded horizontal position over the cab so as to cover the windshield and protect the same from rocks and other debris that might fall during loading. A spring is provided to give the plates spreading action in the intermediate vertical position and counterbalancing action in the cover position. The forward end of the first plate is pivotally mounted at the front of the body and the free end of the second plate is guided on the upper rail of the dump box during covering and uncovering. The power cylinder includes means for shifting the base to allow over-center action in both directions of movement of the covers. Tortuous path water seals are provided at the front of the box and at the middle hinge.

3,833,256
FOLDING FOOT REST AND BRACE FOR FOLDING WHEELCHAIRS

Charles E. Dehner, E. 1922 35th St., Spokane, Wash. 99203
Filed June 1, 1973, Ser. No. 366,194
Int. Cl. A47c *4/20, 7/52*
U.S. Cl. 297—44 **10 Claims**

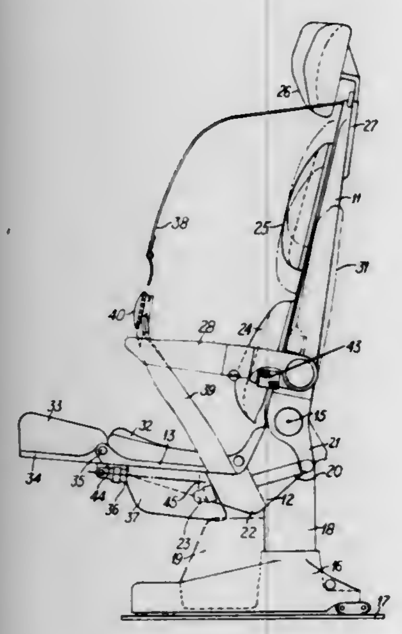


A folding footrest for foldable wheelchairs comprises a crossbar mounted to longitudinal side frame members of a wheelchair. The crossbar is comprised of two laterally aligned sections hinged together along axes lying along a vertical folding plane extending longitudinally through the wheelchair. Two upright bars are hinged to each of the crossbar sections and depend therefrom on either side of the vertical plane.

Footrest plates are pivotably mounted to and protrude forwardly from the upright bars. The plates are hinged together along a hinge axis also lying in the vertical plane. The hinged footrest assembly is foldable in response to folding of the wheelchair between an open supportive condition and a closed storage position. The footrest also includes longitudinal clamps mounting the footrest to the wheelchair which allow it to be moved longitudinally with respect to the wheelchair.

3,833,257
VEHICLE SEATS, ESPECIALLY FOR AIRCRAFT SEATS

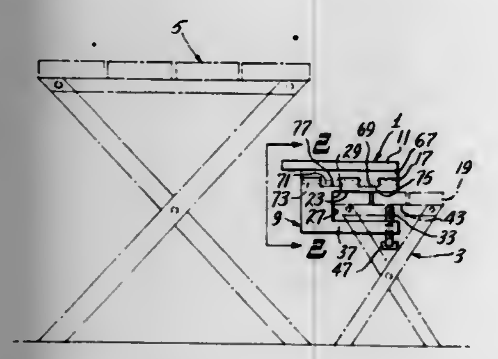
Ernest Baker Dove, Auckland, New Zealand, assignor to Teleflex Limited, Essex, England
Continuation of Ser. No. 200,326, Nov. 19, 1971, abandoned. This application July 26, 1973, Ser. No. 382,995
Int. Cl. A47c *1/02, 15/00*
U.S. Cl. 297—284 **2 Claims**



A vehicle seat comprising a central spine having a head rest and kidney pads attached thereto, projects upwardly from a pelvic support frame. A seat squab support tray is attached to said pelvic support frame and power means to adjust said central spine is provided.

3,833,258
PICNIC BENCH RISER

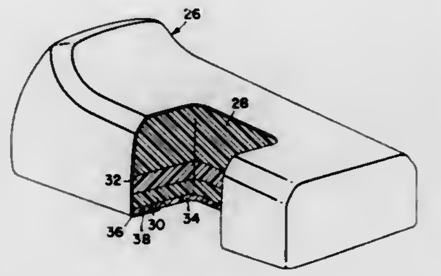
Paul Schneider, Trevett Rd., and Floyd Schneider, 21 Spring St., both of Springville, N.Y. 14141
Filed Sept. 20, 1972, Ser. No. 290,555
Int. Cl. A47c *1/16*
U.S. Cl. 297—252 **1 Claim**



The foldable side panels of the picnic bench riser have an opening extending inwardly from the back edge for receiving a conventional picnic bench seat. The top wall of the opening in each panel is substantially parallel with the seat of the riser and supports the riser seat on a picnic bench seat a substantial distance above and forward of the picnic bench seat. Clamps carried by the side panels are adapted to engage the bottom surface of the picnic bench seat and to secure the bench riser in place.

3,833,259
VEHICLE SEAT COMPRISING THREE FOAM LAYERS

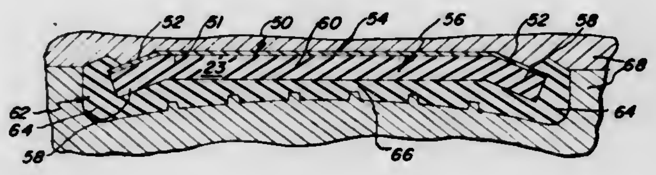
Roscoe Louis Pershing, Moline, Ill., assignor to Deere & Company, Moline, Ill.
Filed May 30, 1972, Ser. No. 257,937
Int. Cl. A47c *7/14;* **B60n** *1/06*
U.S. Cl. 297—452 **7 Claims**



A vehicle seat comprises three layers of polymer foams, the upper and lower layers being polyurethane and the center layer being polyethylene. The thicknesses and deformation characteristics of the layers of foam are optimized for a given overall seat thickness range so as to interact with an injury model correlating the deformation characteristics of the human spine such that deformation and hence injury to the spine, occasioned by the impacting of the rider's upper torso upon the seat, will be minimized. A procedure of evaluating a seat in order that the deformation characteristics of the seat may be optimized is set forth.

3,833,260
SEAT AND BACK CUSHION ASSEMBLY

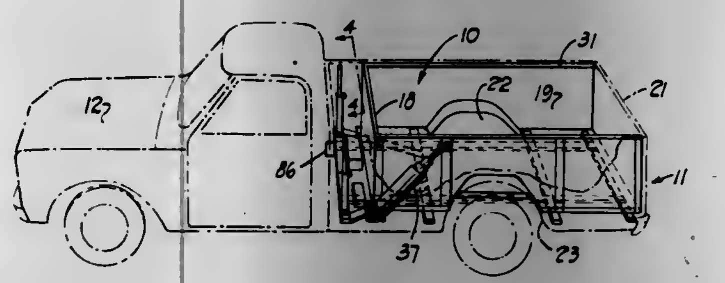
Arthur J. Harder, Jr., Franklin Park, Ill., assignor to Coach and Car Equipment Corporation, Elk Grove Village, Ill.
Continuation of Ser. No. 226,905, Feb. 16, 1972, abandoned. This application July 27, 1973, Ser. No. 383,341
Int. Cl. A47c *7/02*
U.S. Cl. 297—452 **5 Claims**



A seat comprising a seat cushion and a back cushion. The seat cushion includes a spring unit encased in a flexible, film-like cover and mounted on a bottom support member with foam covering the top and sides of the coil spring unit and underlapping the margins of the bottom support member. The back cushion comprises a less dense foam slab cemented to a rigid backing plate, with the face and edges of the backing plate and slab encased in a higher density foam.

3,833,261
DUMPING ACCESSORY FOR PICK-UP TRUCKS AND THE LIKE

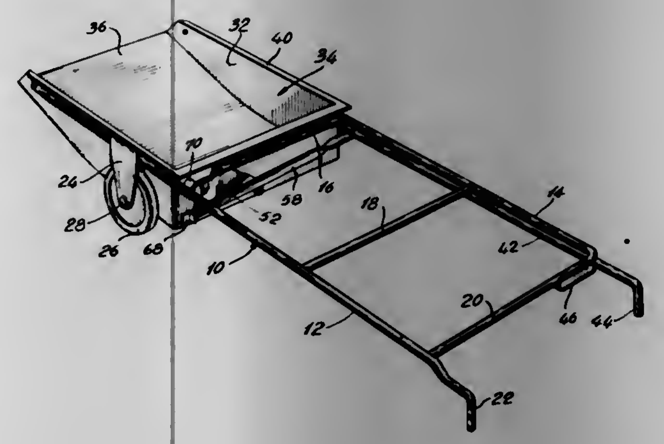
Tony Howard Dingler, 13596 Boone Rd., Columbia Station, Ohio 44028
Filed Mar. 27, 1972, Ser. No. 238,306
Int. Cl. B60p *1/64*
U.S. Cl. 298—1 A **2 Claims**



Portable apparatus for converting a flat-bed pick-up truck, and the like, to a dump truck including a support frame, a dump body or container detachably and rotatably hinged at the outer end to the frame, and a pair fo spaced hydraulic cylinders or lifters interconnecting the dump body and the frame at their nonhinged ends to raise the inner end of the body to dump its contents, together with improved hydraulic and electrical circuits for operating and controlling operation of the hydraulic cylinders and preventing damage to the accessory of the truck and improved means for holding the accessory in position within and on the truck body.

3,833,262
DUMPING SCRAPER-BARROW

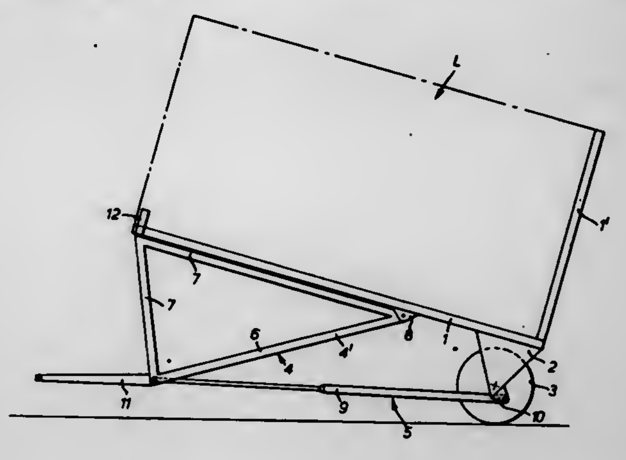
Noel Tasse, 132, rue Gauthier, St-Jerome, Comte Terrebonne, Quebec, Canada
Filed Feb. 20, 1973, Ser. No. 334,145
Int. Cl. B62b *1/24*
U.S. Cl. 298—2 **6 Claims**



There is disclosed a dumping scraper-barrow in which raising of the scoop to dumping position is effected by pulling one of the handles towards the other thereby actuating a linkage connecting the handle to the back of the scoop. The users thereby are enabled to raise the scoop or even to adjust the angle during scraping by simply squeezing together with his arms without the necessity of letting go of one of the handles. The arrangement also gives the users plenty of leverage for raising the scoop when the same is loaded down with material to be dumped.

3,833,263
TIPPER VEHICLES

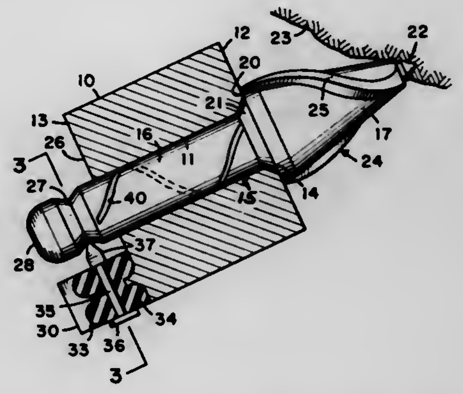
Michael Vivian Jackson, Hethersett, England, assignor to Farmhand (U.K.) Ltd., Norfolk, England
Filed June 1, 1972, Ser. No. 258,637
Claims priority, application Great Britain, June 4, 1971, 18949/71
Int. Cl. B60p *1/18*
U.S. Cl. 298—5 **7 Claims**



A tipper vehicle comprises a trailer body pivotally linked to a sub-frame in such a manner that as the trailer body is moved from its transport to its tipped position, the wheelbase of the vehicle contracts.

3,833,264
SELF-SHARPENING BIT AND MOUNTING THEREFOR

Gerald W. Elders, 10 Hillcrest St., Christopher, Ill. 62822
Continuation of Ser. No. 69,161, Sept. 2, 1970, abandoned, which is a continuation of Ser. No. 498,639, Oct. 20, 1965, abandoned. This application Nov. 6, 1972, Ser. No. 304,106
Int. Cl. E21c *35/18*
U.S. Cl. 299—86 **19 Claims**

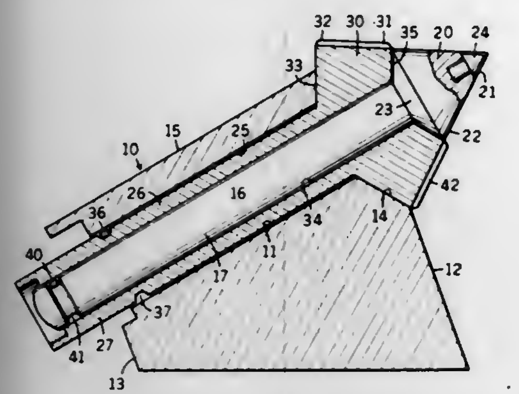


Conically shaped point attack mining bits are retained for rotation in sockets and are provided with a plurality of protuberences extending outwardly from the periphery of the conical head. The protuberences consist of fins, knobs or the like and are adapted to frictionally engage the material being mined and cause turning of the bit in the socket.

3,833,265
ROTATABLE SLEEVE FOR SELF-SHARPENING BIT

Gerald W. Elders, 10 Hillcrest St., Christopher, Ill. 62822
Continuation-in-part of Ser. No. 69,161, Sept. 2, 1970, abandoned, Continuation-in-part of Ser. No. 498,638, Oct. 20, 1965, abandoned. This application Nov. 6, 1972, Ser. No. 304,242
Int. Cl. E21c *35/18*
U.S. Cl. 299—86 **5 Claims**

A bit and block assembly in which a sleeve is rotatively mounted in a block bore and in which a point-attack bit has its elongate shank mounted in a sleeve bore and has a cutting tip on the leading end of the bit head that penetrates the material being mined with a picking action upon travel of the bit into and out of a mine face. A plurality of protuberances are provided on and extend outwardly from the periphery of the sleeve head, the protuberances providing frictional contact with the material being mined to effect positive turning of the sleeve, and hence of the bit in the sleeve, upon picking of the mine face by the bit head. In one embodiment, the protuberances consist of fins on and extending substantially lengthwise of the sleeve head and projecting laterally outwardly from the periphery of the sleeve head. In another embodiment, the protuberances consist of individual knobs formed on and projecting laterally outwardly from the periphery of the sleeve head. The protuberances are circumferentially spaced about the periphery of the sleeve head to provide longitudinal passages therebetween extending from its leading end to its trailing end, the material being mined being movable through the passages and engageable with the protuberances to effect positive turning of the sleeve and bit and to effect removal of the material being mined from the sleeve head. The sleeve head with its protuberances extends laterally outwardly beyond the outer block face to enable discharge of the material being mined from the passages between the circumferentially spaced protuberances.



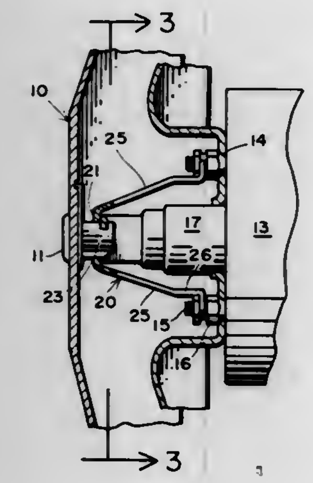
3,833,266
COMBINED BRACKET AND LUG NUTS FOR WHEEL COVERS

Robert E. Lamme, Hialeah, Fla., assignor to High Hill, Inc., North Miami, Fla.

Filed July 9, 1973, Ser. No. 377,774

Int. Cl. B60b *7/00*

U.S. Cl. 301—37 AT **3 Claims**



A combined bracket and lug nuts for automobile wheel covers having a hub portion with a centrally disposed opening for receiving the barrel of a lock and a plurality of flexible leg portions extending in one direction thereof at an oblique angle with tab portions extending from the free end of the leg portions in a plane parallel to the hub portion. The tab portions are provided with open ended slots that are seated in peripheral slots formed in lug nuts by flexing the flexible leg portions beyond the position of the lug nuts and releasing the leg portions to permit the tabs to be received by the peripheral slots in the lug nuts.

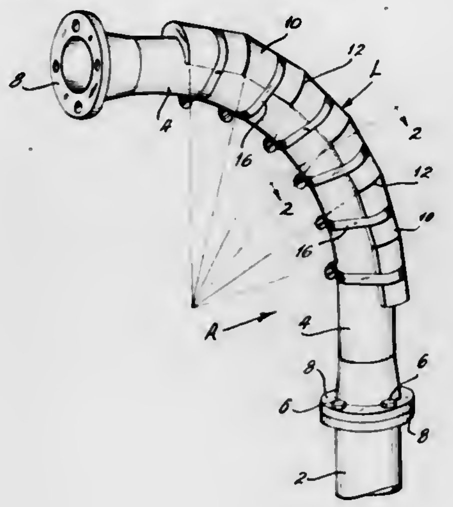
3,833,267
LINER AND PROCESS FOR COMBATING WEAR IN PNEUMATIC TRANSPORT SYSTEMS

Ralph David McCumber, Mexico, Mo., assignor to A. P. Green Refractories Co., Mexico, Mo.

Filed Nov. 30, 1972, Ser. No. 310,994

Int. Cl. B65q *53/52*

U.S. Cl. 302—64 **8 Claims**



An elbow in a pneumatic transport system is lined on the outside to combat wear from abrasive substances conveyed by the system. The lining comprises a plurality of liner segments extended only across the backside of the elbow's exterior surface and set end to end along the elbow in the directon of flow through it. The liner segments are attached to the elbow by an adhesive and by steel bands. The opposing end faces of adjacent liner segments are generally parallel and a layer of adhesive exists between them. The liner segments are preformed from a durable material such as aluminum oxide.

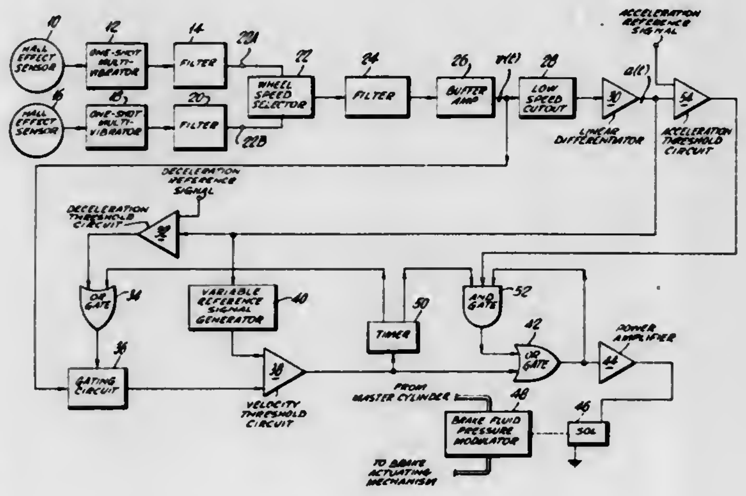
3,833,268
WHEEL SLIP CONTROL SYSTEM FOR AUTOMOTIVE VEHICLES AND THE LIKE

Joseph E. Fleagle, Overland, Mo., assignor to Wagner Electric Corporation, Parsippany, N.J.

Filed Mar. 10, 1972, Ser. No. 233,579

Int. Cl. B60t *8/12*

U.S. Cl. 303—21 BE **19 Claims**



A control system for varying the pressure applied to fluid-controlled brake actuating mechanisms upon detection of both a wheel deceleration in excess of a predetermined threshold and a subsequent incremental decrease in wheel velocity greater than a continuously-varying reference increment Δv of wheel speed. This reference increment Δv is inversely related to a variable reference signal which is directly related to the rate of change of wheel speed. Thus, the continuously-varying reference increment of wheel speed Δv is inversely related to the rate of change of wheel speed. Consequently, the period of time between occurrence of a wheel deceleration in excess of said predetermined threshold and the relief of brake line fluid pressure is shorter when wheel speed decreases rapidly and longer when wheel speed decreases slowly. Compensation is thus made for varying road and load conditions, and for the characteristics of the braking mechanism which applies braking force to the wheel.

3,833,269
FLUID OPERATED SAFETY BRAKE SYSTEM

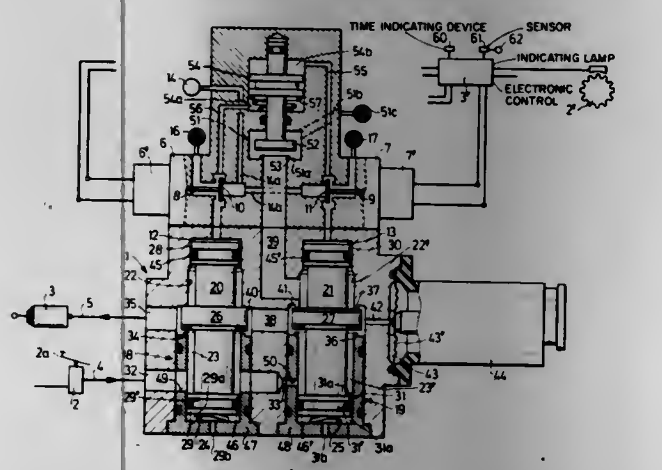
Josef Trui, Bissingen; Klaus-Otto Riesenberg, Ludwingsburg, and Inge Schwerin, Moglingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Dec. 21, 1972, Ser. No. 317,359

Claims priority, application Germany, Dec. 23, 1971, 2164094; Aug. 31, 1972, 2242745

Int. Cl. B60t *8/02*

U.S. Cl. 303—21 F **9 Claims**



A fluid operated brake system is controlled by two main valves operated by two electromagnetic valves, which are controlled by an electronic control device responding to signals of a sensor which senses a locked condition of the brake, requiring relieving of the pressure of the brake actuating means through a discharge conduit opened by one of the main valves. If the discharge conduit is opened due to a malfunction when braking is required, the wheel is not braked at all. A safety control valve is provided which is operated by pressure fluid under the control of one of the electromagnetic valves, to close the discharge conduit when not closed by the respective main valve due to malfunction of the respective electromagnetic valve, so that a braking force is assured.

3,833,270
VEHICLE WHEEL FLUID BRAKE ANTI-LOCK SYSTEM

Werner Gotz, Friolzheim, and Bernd Przybyla, Markgroningen, both of Germany, assignors to Robert Bosch GmbH, Gerlingen-Schillerhohe, Germany

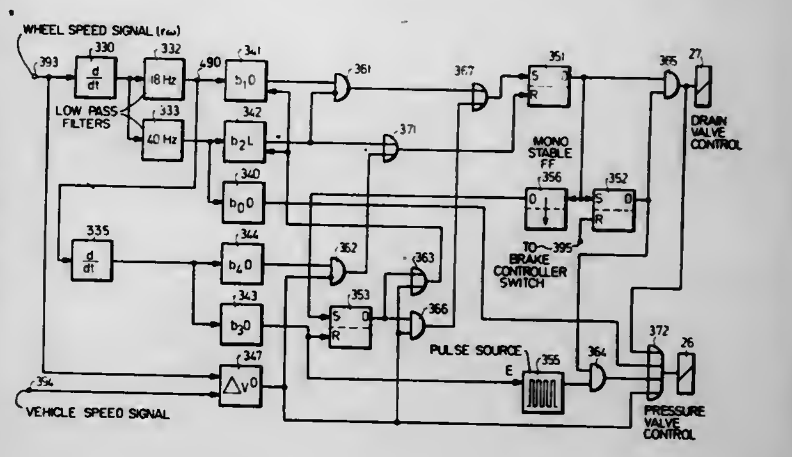
Filed Jan. 30, 1973, Ser. No. 328,047

Claims priority, application Germany, Feb. 12, 1972, 2206807

Int. Cl. B60t *8/12*

U.S. Cl. 303—21 BE **40 Claims**

Brake fluid inlet and outlet valves to supply or drain pressurized brake fluid to or from a vehicle wheel are controlled by a plurality of acceleration sensors which receive acceleration signals derived by a differentiator from vehicle wheel speed signals. The vehicle wheel acceleration signal is additionally differentiated to obtain a rate of acceleration change signal, and two of the threshold switches are responsive to the further differentiated rate of acceleration change signal to provide for better matching of response of the system to road conditions, or changes in road conditions during braking.



3,833,271
VEHICLE BRAKING SYSTEMS

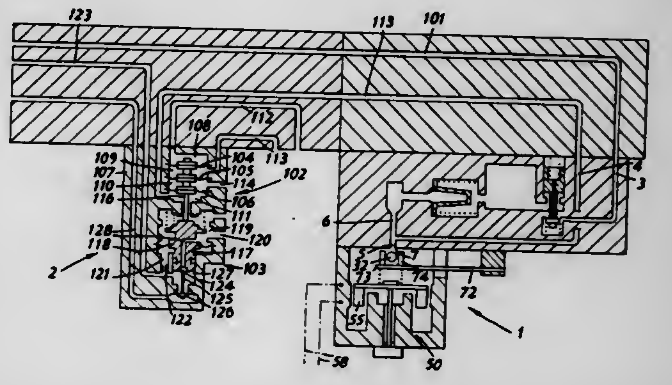
Maurice Parfitt, and Keith William Langley, both of London, England, assignors to Westinghouse Brake and Signal Company, London, England

Filed June 13, 1973, Ser. No. 369,519

Claims priority, application Great Britain, July 4, 1972, 32179/72

Int. Cl. B60t *8/04*

U.S. Cl. 303—21 A **7 Claims**



A vehicle braking system is proposed in which the fluid pressure for braking is derived from a controlled magnet valve arrangement and in this advantageous system the supply of fluid pressure to the magnet valve arrangement is provided by a variable load valve which is arranged by being provided with a pressure responsive member which is extra to the pressure responsive member for making the output thereof vehicle load responsive. The extra pressure responsive member is thus supplied with pressure from an E.P. converter responsive to an electrical vehicle speed signal so as to oppose vehicle load pressure signals and thus make the supply of fluid pressure to the magnet valve arrangement speed and load dependent down to a given value of the electrical speed signal.

3,833,272
PEDAL-OPERATED HYDRAULIC CONTROL VALVE ASSEMBLY

Glyn Phillip Reginald Farr, Warwickshire, England, assignor to Girling Limited, Tyseley, Birmingham, England

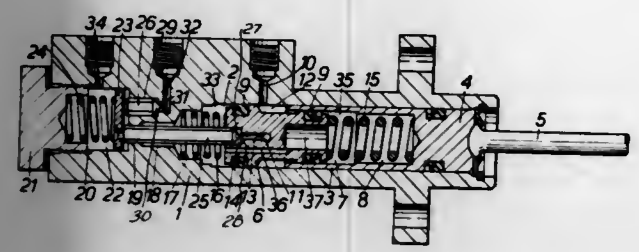
Filed Sept. 22, 1972, Ser. No. 291,169

Claims priority, application Great Britain, Sept. 24, 1971, 44621/71

Int. Cl. B60t *15/06*

U.S. Cl. 303—52 **4 Claims**

In a control valve assembly for an hydraulic braking system a brake housing has first, second, and third ports adapted to be respectively connected to a source of hydraulic fluid under pressure, to a brake actuator, and to a reservoir, a pedal-operated piston working in a bore in the housing acts through a spring on a second piston through which there is a passage providing communication between the second and third ports,



and said passage is controlled by a normally open exhaust valve member which, on axial movement of the second piston closes and acts through a resilient connection to open a normally closed inlet valve member controlling communication between the first and second ports.

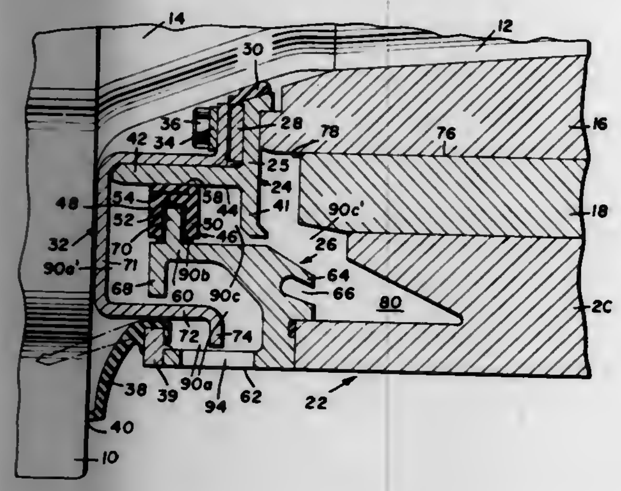
3,833,273
LABYRINTH TYPE SEAL

Samuel S. Rickley, West Boylston, and Harry Boghosian, Worcester, both of Mass., assignors to Morgan Construction Company, Worcester, Mass.

Filed July 30, 1973, Ser. No. 384,045

Int. Cl. F16c *33/80;* **F16j** *15/44*

U.S. Cl. 308—36.1 **7 Claims**



In a rolling mill, an interlocking labyrinth-type seal for a roll neck which is rotatably supported in a chock assembly. The seal includes an inner first sealing element which rotates with the roll neck, an outer second sealing element which is fixed in relation to the chock assembly, and a third sealing element which is carried on and movable axially along one or the other of the aforesaid first or second sealing elements. The sealing elements have axially and/or radially spaced flanges and surfaces which cooperate to define an interlocking sealing labyrinth for preventing the escape of lubricating oil from the bearing, while at the same time preventing the bearing and lubricating oil from becoming contaiminated with rolling lubricant cooling water, mill scale, dirt, etc.

3,833,274
DAMPING BEARING

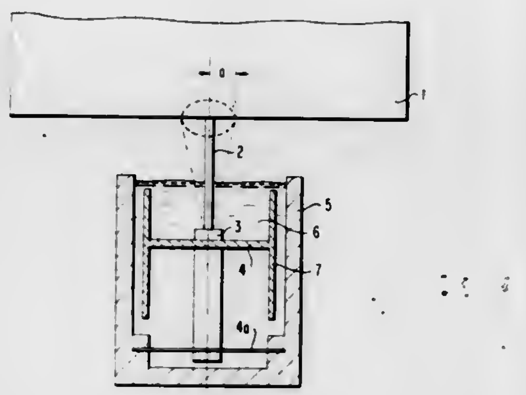
Johann Lorenz, Deutenhofen, and Eberhardt Willeitner, Munich, both of Germany, assignors to Maschinenfabrik Augsburg-1 Nurnberg Aktiengesellschaft

Filed May 8, 1972, Ser. No. 251,268

Claims priority, application Germany, May 8, 1971, 2122813

Int. Cl. F16c *27/00*

U.S. Cl. 308—143 **12 Claims**



A damping bearing for constraining a journal projecting from a rapidly spinning rotor, especially from a centrifuge barrel, in which the annular space between the damping cylinder and bearing housing is subdivided into individual, axially extending chambers.

3,833,275
FOOTSTEP BEARING

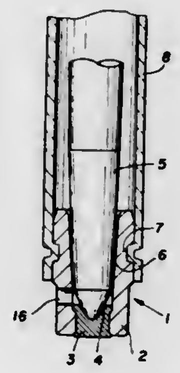
Gunther Wendel, Stuttgart, Germany, assignor to SKF Kugellagerfabriken GmbH, Schweinfurt, Germany

Filed Mar. 19, 1973, Ser. No. 342,880

Claims priority, application Germany, Mar. 24, 1972, 7211322[U]

Int. Cl. F16c *35/08*

U.S. Cl. 308—156 **5 Claims**



A footstep bearing for journalling the spindle shaft of a spinning and twisting machine comprising a tubular bearing bushing adapted to radially guide the spindle shaft and a bearing block located in the frontal end of the bushing. The block is provided with a step on which a spindle shaft fits and is adapted to absorb the axial thrust of the spindle shaft. The bearing block and the tubular bushing are joined together in a compressive interlocking arrangement such as by swaging, compressing, etc., one of the members.

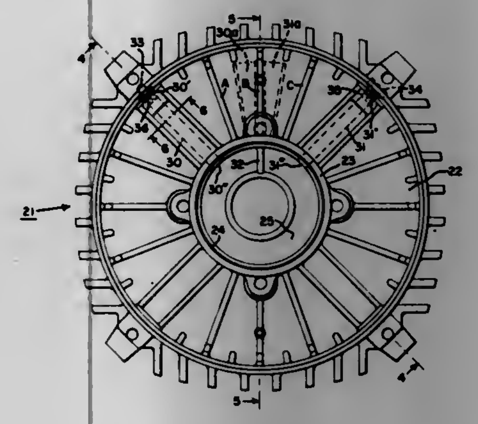
3,833,276
LUBRICATING MEANS FOR A DYNAMOELECTRIC MACHINE END SHIELD HOUSING

Frederick William Baumann, Scotia, and Albert Rayner, Albany, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 12, 1973, Ser. No. 350,602

Int. Cl. H02k *5/16;* **F16c** *33/78*

U.S. Cl. 308—187 **9 Claims**



A dynamoelectric machine end shield housing is provided with a pair of lubricant receiving passageways integrally cast into the housing and extending from spaced-apart points on the periphery thereof to an inner lubricant well surface adjacent a bearing mounted in the housing. A lubricant baffle is mounted on the inner lubricant well surface to restrict flow of lubricant in a path parallel to the shaft bearing mounted in the end shield. The outer ends of said passageways are readily accessible from a single side of the machine and means are provided in combination with the above-mentioned baffle that enables the lubricating system to be quickly adapted for reversal of grease fitting and grease drain.

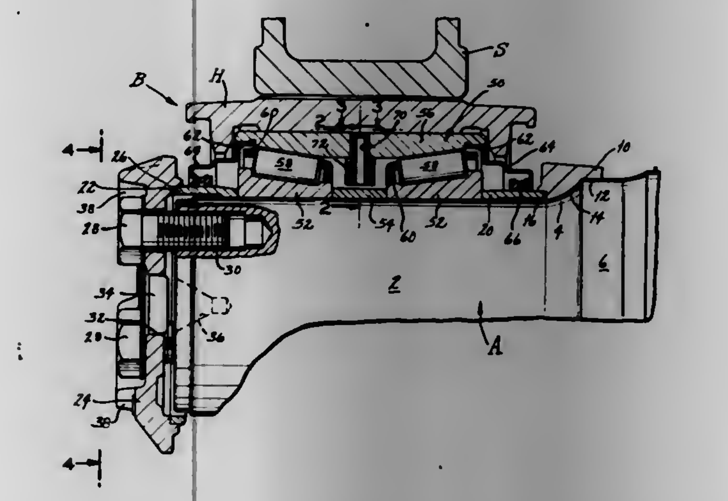
3,833,277
BEARING ASSEMBLY WITH VENT MEANS IN THE BEARING THEREOF

Harry M. Jones, Canton; Dale T. Grinstead, North Canton, and Jack O. Fickes, Dover, all of Ohio, assignors to The Timken Company, Canton, Ohio

Filed Jan. 12, 1973, Ser. No. 323,057

Int. Cl. F16c *35/04*

U.S. Cl. 308—180 **16 Claims**



A double row tapered roller bearing has a double cup provided with a vent fitting between the raceways thereof, and a portion of this vent projects inwardly beyond the inner surface of the cup to prevent grease from entering the vent fitting if the bearing cup turns such that the vent fitting is at the bottom thereof. Thus, the bearing is vented between the two raceways thereof and this minimizes the chances of the vent passageway becoming obstructed with hardened grease. The bearing is held on an axle journal by an end cap having a triangular rib, and the size of the bearing is embossed on each leg of the rib so that the size is clearly legible irrespective of the angular position of the end cap.

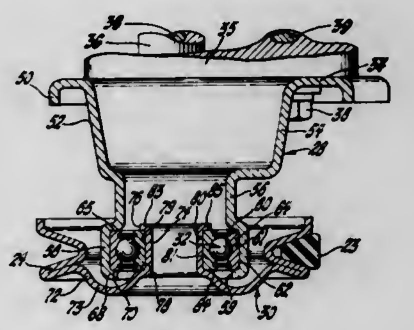
3,833,278
ANTI-FRICTION BEARING IDLER ASSEMBLY

Raymond J. Green, Northville, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 21, 1973, Ser. No. 361,976

Int. Cl. F16c *33/00*

U.S. Cl. 308—190 **2 Claims**



An idler assembly having a bracket, an idler and an anti-friction bearing with an outer race secured in a tubular portion of the bracket and an inner race secured on a central tubular portion of the idler.

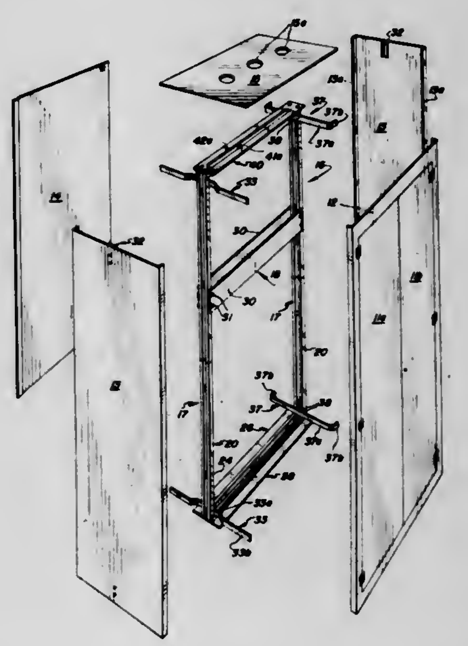
3,833,279
MODULAR SUPPORTING ASSEMBLY

Joseph H. MacKenzie, Jr., 431 Prairie Ave., Wilmette, Ill. 60091

Filed Mar. 2, 1973, Ser. No. 337,410

Int. Cl. A47b *47/00, 57/08;* **F16b** *12/00*

U.S. Cl. 312—257 SK **3 Claims**



A modular supporting assembly is provided which is formed from a plurality of complemental extruded components. A first set of components are arranged relative to one another so as to form a pair of spaced substantially parallel upright columns. A second set of components are arranged relative to one another so as to form elongated supports disposed transversely of the columns. The supports are removably secured to the columns by suitable connecting means. The height of the columns may be varied by securing the components of a set in abutting end to end relation.

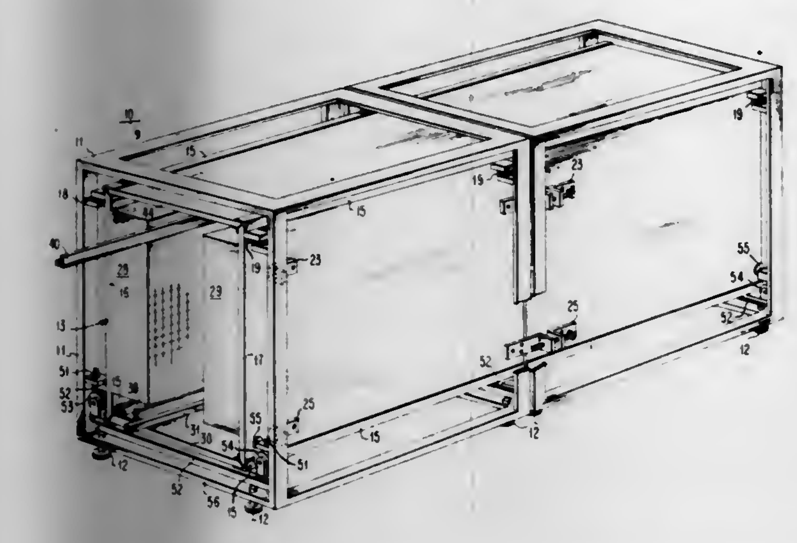
3,833,280
AUTOMATIC STORAGE APPARATUS

Arthur H. Bell, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 13, 1972, Ser. No. 306,136

Int. Cl. A47b *88/00, 95/00*

U.S. Cl. 312—319 **9 Claims**



Automatic storage apparatus particularly adapted for storage retrieval of information-bearing documents is described. The apparatus is particularly adapted to enable precision high-speed storage and retrieval operations in extensible storage systems. An outer frame securely supports an extremely rigid inner frame via shock mounts and an equalizing apparatus. The equalizing apparatus permits slight movements of the inner frame for facilitating precise colinear interconnections of a plurality of modular cabinets comprising the storage apparatus. A traveling elevator is precisely mounted on the inner frame for movements through a plurality of the connectable cabinets. Several embodiments are shown.

3,833,281
HOLOGRAPHIC MEMORY WITH FERROELECTRIC-FERROELASTIC PAGE COMPOSER

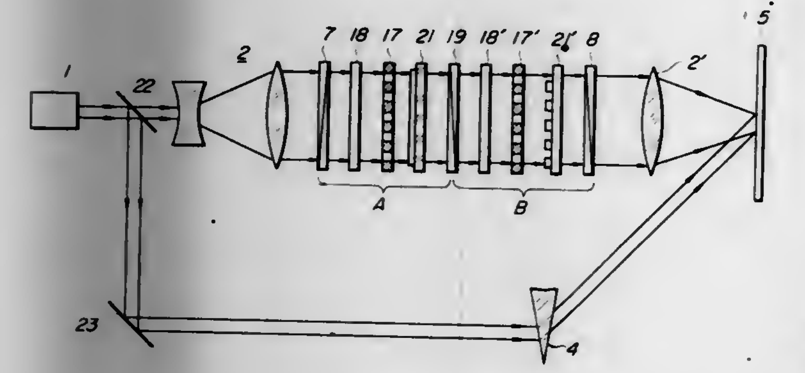
Akio Kumada, Kodaira, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 264,468, June 20, 1972, abandoned, which is a division of Ser. No. 15,134, Feb. 27, 1970, Pat. No. 3,684,351. This application May 29, 1973, Ser. No. 364,428

Claims priority, application Japan, Mar. 10, 1969, 44-18168

Int. Cl. G02b *27/00*

U.S. Cl. 350—3.5 **3 Claims**



A laser holographic memory write-in device comprising a pair of lenses, a pair of polarizers, and a quarter wave plate ($[2n+1]/4$ wave plate) and optical shutter crystal both disposed between said pair of polarizers. This optical shutter crystal is made of a ferroelectric-ferroelastic crystal having z-cut end faces the distance between which is arranged to be $[(2n+1)/4]\lambda$, one z-plane being provided with a plurality of mutually parallel transparent electrodes, the other z-plane being provided with a uniform transparent electrode, so as to apply an electric field at least equal to the coercive electric field of the crystal.

3,833,282
MICROSCOPE TRANSMITTING LIGHT ILLUMINATION SYSTEM USING THE KOHLER SYSTEM

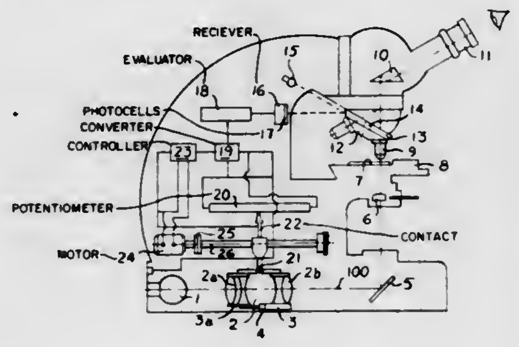
Gerhard Kappl, Vienna, and Alois F. Dehlink, Vosendorf, both of Austria, assignors to C. Reichert Optische Werke AG, Vienna, Austria

Filed May 15, 1972, Ser. No. 252,989

Claims priority, application Austria, May 13, 1971, A 4142/71

Int. Cl. G02b *21/08*

U.S. Cl. 350—87 **1 Claim**



A Kohler illumination system for a microscope having a lens of variable focal length so as to vary the illumination to suit the field of view of any objective. The adjustment of the variable lens is initiated in response to a reference signal from the microscope nosepiece or from the particular objective which is in operative position.

3,833,283
ILLUMINATION EQUIPMENT FOR MICROSCOPES

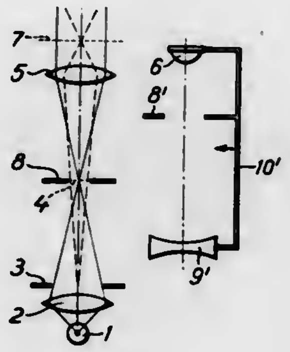
Hans-Werner Stankewitz, Steindorf, Germany, assignor to Ernst Leitz, GmbH, Wetzlar, Germany

Division of Ser. No. 239,671, March 30, 1972, Pat. No. 3,799,645. This application Jan. 28, 1974, Ser. No. 437,143

Claims priority, application Germany, Apr. 5, 1971, 2116625

Int. Cl. G02b *21/08*

U.S. Cl. 350—87 **2 Claims**



In an illumination equipment for microscopes comprising among other elements a lamp, a lamp aperture and an auxiliary condenser lens which may be interpositioned into the light path in addition to a stationary main condenser for varying the aperture of the equipment the improvement comprises a lens element which is inserted into and/or withdrawn from the light path upon interpositioning the auxiliary condenser lens. It is thereby achieved that the position of the image of both the lamp and the lamp aperture remains stationary when the aperture of the equipment is varied, thus eliminating the necessity for refocusing the image of the lamp aperture into the object plane and the image of the lamp into infinity.

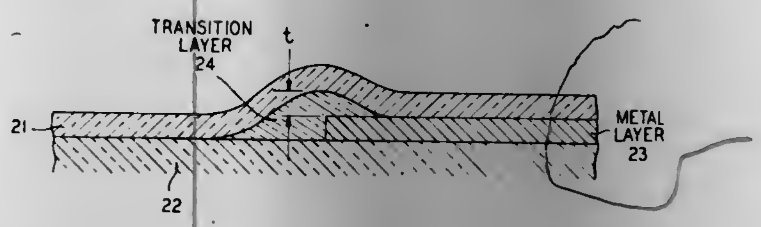
3,833,284
COUPLING ARRANGEMENTS FOR DIELECTRIC AND METAL-CLAD OPTICAL WAVEGUIDES

Ivan Paul Kaminow, New Shrewsbury, and Heinz Paul Weber, Middletown, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 27, 1973, Ser. No. 391,640

Int. Cl. G02b *5/14*

U.S. Cl. 350—96 WG **5 Claims**



There are disclosed arrangements for optically coupling dielectric waveguides to waveguides bounded on one or more sides by a metal layer or cladding. Excessive losses at the junctions between these guides are avoided according to the invention by disposing a tapered transition layer between the dielectric light-guiding layer and the edge of the metal layer. The tapered transition layer has an index of refraction that is less than that of the dielectric layer and a thickness such that little of the evanescent field of the light propagating in the dielectric layer extends to the leading edge of the metal layer. With tapers in the transition layer that are sufficiently gradual, transitions between the guides can be made essentially lossless.

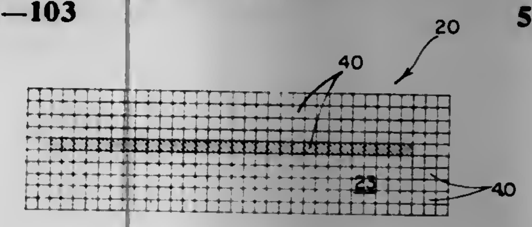
3,833,285
RETRODIRECTIVE REFLECTOR VISIBLE OVER WIDE RANGE OF OBSERVATION ANGLES

Sidney A. Heenan, Park Ridge, Ill., assignor to Amerace Esna Corporation, New York, N.Y.

Filed May 22, 1973, Ser. No. 362,653

Int. Cl. G02b *5/12*

U.S. Cl. 350—103 **5 Claims**



The reflector is constructed of transparent material and has a plurality of reflector elements at the rear and a light-receiving face at the front. Each reflector element has three faces intersecting at three edges, three dihedral angles being respectively defined by the intersection of adjacent faces. Two of the dihedral angles of all of the reflector elements are substantially 90°. The third dihedral angle of at least some of the reflector elements is substantially greater than the angle of the other two dihedral angles, so that light reflected by the reflector is diverged into an elongated pattern.

3,833,286
NON-LINEAR OPTICAL COMPONENT

Ulrich Deserno, Munich, and Siegfried Haussuehl, Cologne, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

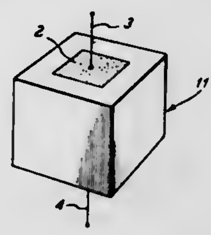
Continuation-in-part of Ser. No. 234,968, March 15, 1972, abandoned. This application Feb. 14, 1973, Ser. No. 332,313

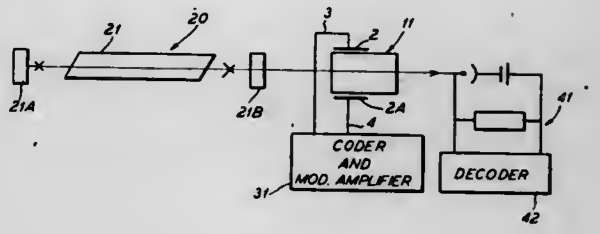
Claims priority, application Germany, Mar. 26, 1971, 2114832

Int. Cl. G02f *1/40*

U.S. Cl. 350—160 R **5 Claims**

A non-linear optical component for use in laser systems providing frequency conversion, detection and modulation of electromagnetic radiation. The component is a monocrystal of strontium formate dihydrate $[Sr(CO_2H)_2 \cdot 2H_2O]$ and includes





a pair of electrodes mounted on opposite surfaces of the component.

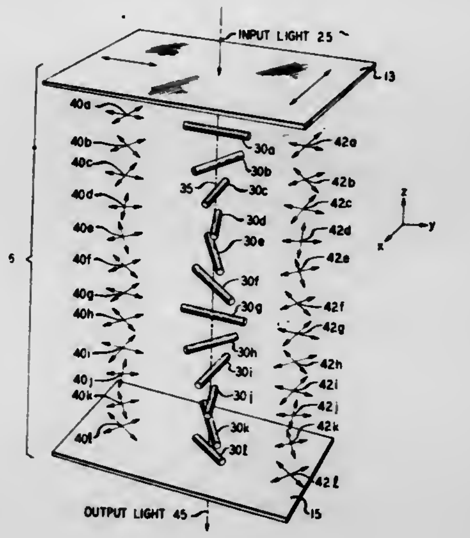
3,833,287
GUEST-HOST LIQUID CRYSTAL DEVICE

Gary Newton Taylor, Fanwood, and Donald Lawrence White, Bernardsville, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 8, 1973, Ser. No. 339,368

Int. Cl. G02f *1/36*

U.S. Cl. 350—160 LC **5 Claims**



A pleochroic material is dissolved in a helically ordered liquid crystal mixture to form a thin film which selectively absorbs unpolarized incident light. In the absence of an electric field through the film, virtually all of the unpolarized light is absorbed by the film, even without the use of an auxiliary polarizer. When an electric field is applied to the film, the molecules thereof are reoriented to a nonabsorbing state. This electrically controlled absorption phenomenon is the basis for an advantageous display device

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3,833,288
MEANS FOR PRODUCING A CONTROLLABLE SCATTERING OF LIGHT

Bjorn Olle Nilsson, Dr. Forselius gata 50, 413 26 Goteborg, Sweden

Filed Nov. 24, 1972, Ser. No. 309,029

Int. Cl. G02b *5/02*

U.S. Cl. 350—188 **10 Claims**

The invention concerns a method for producing a controllable scattering of light in optic and photographic equipment, without causing any appreciable image distortion wherein a great number of small optic inhomogenities are inserted into the path of light flux. The dimensions and refractive index of said inhomogenities being selected so as to cause a wavelength-depending light scattering substantially free from refraction effects. The invention also includes a device for carrying out the specified method.

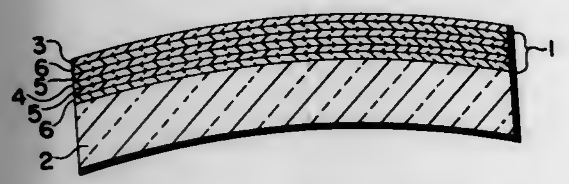
3,833,289
COMPOSITE LIGHT-POLARIZING ELEMENT

Norman W. Schuler, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 41,504, May 28, 1970, abandoned, which is a division of Ser. No. 726,141, May 2, 1968, abandoned. This application May 2, 1972, Ser. No. 249,651

Int. Cl. G02b ***1/08;*** **G02c** ***7/12***

U.S. Cl. 350—155 **9 Claims**



A composite light-polarizing lens comprising a light-polarizing element having coated on each surface thereof a layer which enhances adhesion between in situ formed lens components and inhibits migration of lens constituents between said light-polarizing elements and said in situ polymerized components during formation of said lens.

3,833,290
HIGH POWER WIDE-ANGLE LENS

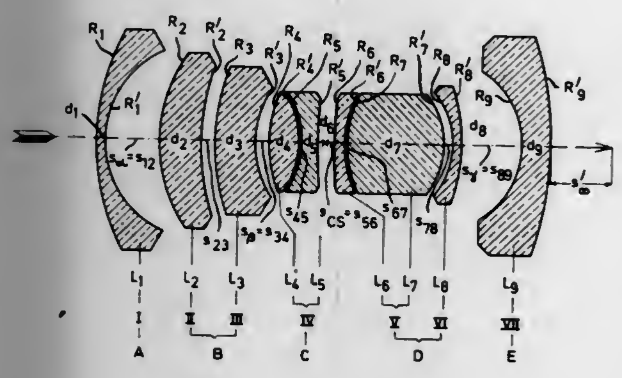
Erhard Glatzel, Heidenheim; Heinz Zajadatz, Aalen, both of Germany, and Ludwig Bertele, Heerbrugg, Switzerland, assignors to Carl Zeiss Stiftung, Wurttemburg, Germany

Filed Nov. 27, 1972, Ser. No. 309,645

Claims priority, application Germany, Nov. 25, 1971, 2158351

Int. Cl. G02b ***9/64***

U.S. Cl. 350—214 **10 Claims**



A wide-angle lens of high power, having at least five component groups, separated from each other mainly by air. The groups include two condensing members, preferably separated from each other by a central vertex distance in which there may be a diaphragm. In front of the front condensing member, there are at least two negative meniscus elements, and behind the rear condensing member at least one diverging element. Constructional rules are stated, for various refractive powers, air spaces, and other characteristics, compliance with such rules resulting in an improved lens producing a superior image as compared with prior art lenses of the same general type.

3,833,291
CAMERA LENS ATTACHMENTS

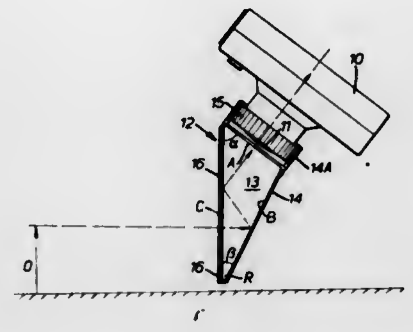
David Wylie Samuelson, London, England, assignor to Samuelson Film Service Limited, London, England

Filed Apr. 5, 1973, Ser. No. 348,051

Claims priority, application Great Britain, Apr. 6, 1972, 15970/72

Int. Cl. G03b ***17/17***

U.S. Cl. 95—11 R **1 Claim**



An attachment is provided for the taking lens of the camera for deviating the optical axis of light entering the lens from an object being photographed. The attachment comprises a Bauernfeind prism, or other deviating prism of a kind providing an even number of successive reflections of the transmitted light beam between incidence and emergence. The prism is supported by a mounting by which it is detachably mounted on the lens holder of the camera with the emergence face of the prism directly in front of the lens and perpendicular to the optical axis of the lens.

3,833,292
MOTION PICTURE CAMERA COMPRISING AN EXTERNALLY ATTACHED DETACHABLE CASSETTE

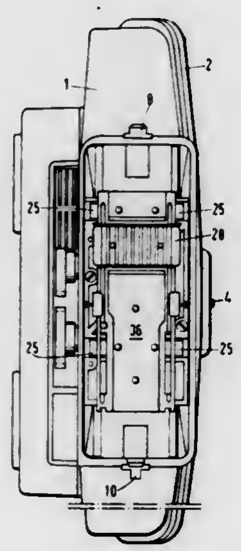
Otto Blaschek, 81 Dornach Anwanderweg 6, 8 Munich, Germany

Filed Mar. 21, 1972, Ser. No. 236,610

Claims priority, application Germany, Mar. 25, 1971, 2114485

Int. Cl. G03b ***23/02***

U.S. Cl. 352—77 **3 Claims**



A film guide is provided on the camera body. Film path means are provided on the cassette. A rigid film channel is defined outside the film gate region between the camera body and the cassette.

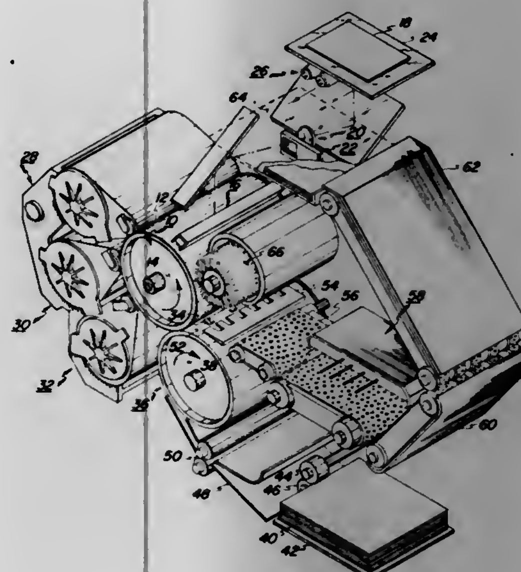
3,833,293
METHOD OF CREATING COLOR TRANSPARENCIES

John P. Serio, Webster, and Francis J. Wieloch, Penfield, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed July 20, 1973, Ser. No. 381,107

Int. Cl. G03f ***1/00***

U.S. Cl. 355—17 **10 Claims**



A method in which an electrophotographic printing machine creates a multi-color copy of an original document on a support sheet. The multi-color image is transferred from the support sheet to a transparent sheet forming a color transparency.

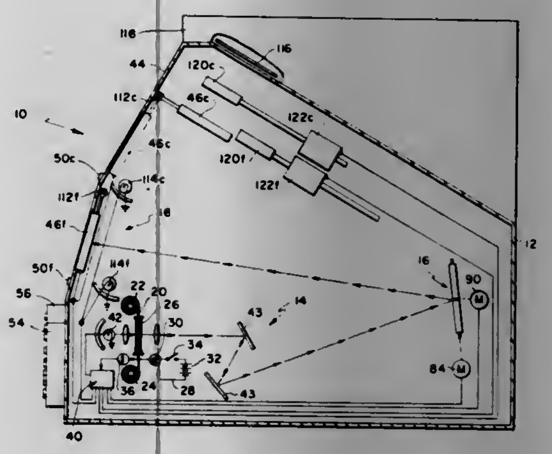
3,833,294
AUTOMATIC SEARCHING FILM READER

Lawrence P. Kessler, Penfield, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 2, 1972, Ser. No. 303,292

Int. Cl. G03b ***23/08***

U.S. Cl. 353—27 **7 Claims**



An apparatus for rapidly recording and storing a series of images from a transient source of information. A series of erasable image storage devices are provided upon which a plurality of desired pieces of information from the transient source can be rapidly recorded and stored. The transient source of information is scanned and the images of the desired pieces of information as detected are relayed via an automatically controlled multi-positional mirror to the initial available storage device for recording for subsequent viewing and optional printing without interrupting the action of the transient information source.

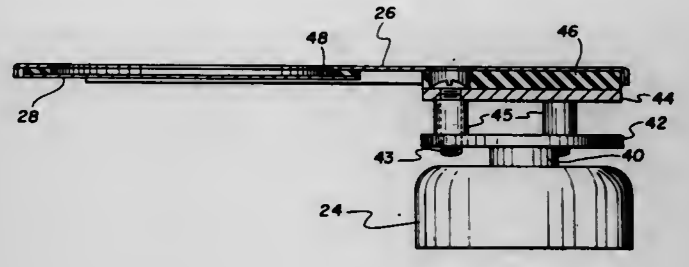
3,833,295
ENERGY ABSORBING MOUNTING FOR OPTICAL MODULATION ASSEMBLIES

William Hobart Bebb, Penfield, and Gary Boyd Gustafson, Hilton, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 16, 1973, Ser. No. 341,809

Int. Cl. G03b ***11/00, 17/12, 27/76***

U.S. Cl. 355—32 **4 Claims**



In photographic apparatus having an optical axis, optical modulation assemblies such as shutter and filter assemblies which are selectively moved into and out of the optical axis are shock mounted to reduce stresses in the optical modulation material. In a preferred embodiment, a photographic color printer is provided with subtractive color filters actuated by rotary solenoids. The rotary solenoid has a rotatable mounting plate and a filter carrier is mounted on the mounting plate by means of a shock absorbing layer of dead soft rubber compound. Preferably the filter is also mounted on the filter carrier by means of the same shock absorbing material.

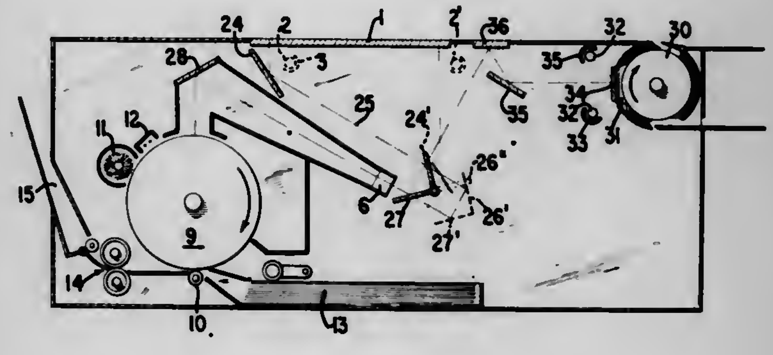
3,833,296
OPTICAL SCANNING SYSTEM FOR PHOTOCOPYING

Mathias J. J. M. Vola, Venlo, and Willem P. H. A. Janssen, Blerick, both of Netherlands, assignors to Oce-van der Grinten N.V., Venlo, Netherlands

Filed Nov. 8, 1972, Ser. No. 296,800

Int. Cl. G03b ***27/50***

U.S. Cl. 355—51 **7 Claims**



An electrophotographic copying apparatus having a movable mirror system for stripwise scanning an original laid on a support and directing the resulting light image stripwise via a stationary objective to a moving light sensitive medium is provided with a stationary slit located to a side of said support for exposure of a sheet-shaped original moved over the slit and with means including at least one mirror of the movable mirror system for stripwise projecting the light image from an original at the slit via said objective to the imaging medium. A single objective and imaging system thus serve for copying either sheet-shaped originals passed over the exposure slit or originals of various forms, including books, laid on said support.

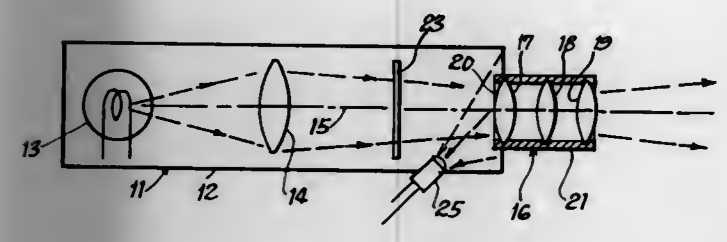
3,833,297
AUTOMATIC BRIGHTNESS CONTROL FOR PHOTOGRAPHIC PROJECTORS

James R. Swartz, Lombard, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.

Filed Mar. 13, 1972, Ser. No. 234,281

Int. Cl. G03b *21/20*

U.S. Cl. 353—85 **7 Claims**



A photographic projector having means for automatically controlling the amount of illumination generated by a projection lamp in accordance with the intensity of the light image of a transparency projected onto a projection lens. The projector in addition to the projection lamp and the projection lens, includes light intensity sensing means and potential control means connected to the light intensity sensing means and the projection lamp for controlling the potential applied to the projection lamp. The light intensity sensing means preferably is a photo-conductive cell, such as a Cadmium-Selenium cell. A solid state circuit is provided for incorporation into the projector as the potential control means.

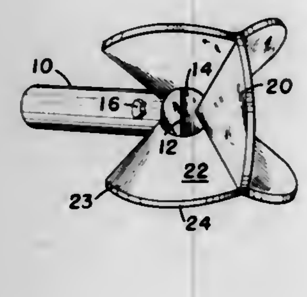
3,833,298
MECHANICAL MASKING APPARATUS FOR PRODUCING A PATTERN ON A CURVED SURFACE

Joseph L. Abita, Columbia, and Carlton F. Noyes, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 9, 1973, Ser. No. 349,160

Int. Cl. G03b *27/28*

U.S. Cl. 355—125 **5 Claims**



The invention relates to apparatus for masking selected portions of a curved surface to allow unit processing operations to be performed on the portions of the curved surface which are left exposed. In particular, the invention is a mechanical mask comprised of leaf-like projections having arcuate borders on the edges thereof. The arcuate borders are brought into engagement with a curved surface which is to have a processing operation performed thereon, thereby to mask that portion of the curved surface which is contacted by the arcuate borders of the leaf-like projections.

3,833,299
APPARATUS FOR NO-CONTACT MEASUREMENT OF THE VELOCITY, THE PATH OR THE RANGE OF OBJECTS

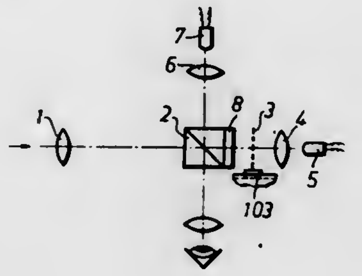
Karl Lang, Atzbach, Germany, assignor to Ernst Leitz GmbH, Wetzlar, Germany

Filed Dec. 12, 1972, Ser. No. 314,395

Claims priority, application Germany, Dec. 20, 1971, 2163200

Int. Cl. G01p *3/36*

U.S. Cl. 356—28 **11 Claims**



In a device for the no-contact measurement of the velocity, the path, or the range of objects without special optical markers with respect to a reference position, by imaging the object on a grating and measuring the light flux penetrating this grating by means of photoelectric elements, the output signals of which exhibit a frequency component proportional to the velocity of motion, the improvement comprising the support of the grating (3, (3, , 3'', 3''', 14, 44) being transparent, whereas the grating lines are made to be reflective; and photoelectric receivers (5 7; 27–30) are connected after the grating so that their output signals produced from the coaction of the image of the object with the grating are pairwise in phase opposition to one another.

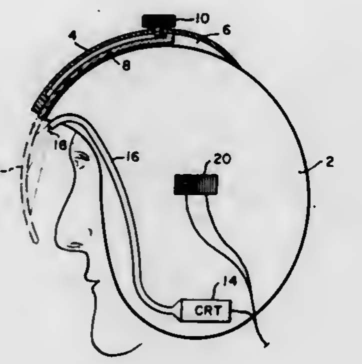
3,833,300
THREE "D" WEAPONS SIGHT

William H. Rymes, Arlington, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 14, 1973, Ser. No. 360,282

Int. Cl. G02b *27/22*

U.S. Cl. 356—13 **9 Claims**



An improved sighting device for projectile launchers that are mounted on a moving vehicle includes a dual parabolic visor slidably positioned on a helmet. The visor is in the form of two parabolas; and when locked in position, one parabola is in front of each eye of the wearer. The focal point of each parabola is at a prescribed point on the upper leading edge of the helmet opening. Fiber optic bundles, located at each focal point are connected to cathode-ray tubes and project a series of dots on to the visor in front of each eye of the wearer to simulate, in three dimensions, the trajectory of a projectile, if the projectile were fired at any given time.

3,833,301
TESTING OF SPHERICAL SURFACES BY HOLOGRAPHIC INTERFERENCE

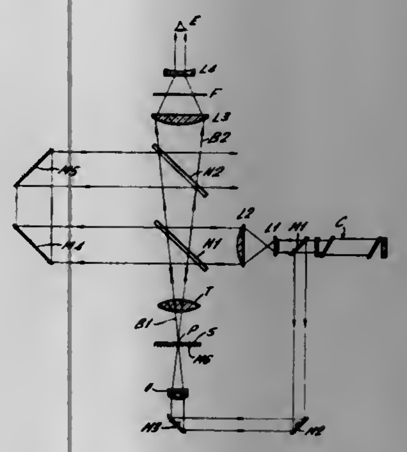
William Thomas Moore, London, England, assignor to The Rank Organisation Limited, London, England

Filed May 10, 1973, Ser. No. 358,969

Claims priority, application Great Britain, May 10, 1972, 21852/72

Int. Cl. G01b *9/02;* **G02b** *27/00*

U.S. Cl. 356—109 **7 Claims**



In place of earlier known sphericity testing techniques using accurate reference surfaces which are compared with a surface under test, this invention provides an absolute test of sphericity by making use, in effect, of the spherical wavefronts emanting from or converging to a point. A hologram plate is illuminated with coherent light from a laser to establish a first beam which forms a virtual image at the same point as that at which a beam illuminating the surface under test is focused, the illuminating beam being reflected at the surface and forming with the first beam observable interference fringes indicative of departures of the surface under test from true sphericity.

3,833,302
METHOD AND APPARATUS FOR THE AUTOMATIC PHOTOELECTRIC TRAPPING OF LOCAL CHANGES OF OPTICALLY EFFECTIVE OBJECT STRUCTURES

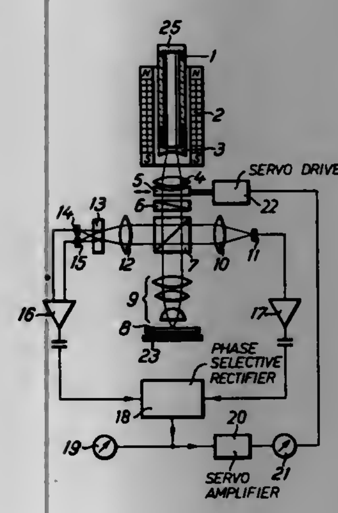
Fromund Hock, Wetzlar, Germany, assignor to Ernst Leitz GmbH, Wetzlar, Germany

Filed Aug. 20, 1973, Ser. No. 389,792

Claims priority, application Germany, Aug. 23, 1972, 2241443

Int. Cl. G01n *21/40*

U.S. Cl. 356—114 **9 Claims**



Means for the automatic photoelectric trapping of local changes of optically effective object structures, e.g., of markings or unhomogeneous objects (striae), in one or two coordinate directions, wherein:

- a. a beam of light rays having a rotating plane of polarization is produced;
- b. a reference signal is produced of which the phase is correlated with the phase of azimuth of said rotating plane of polarization;
- c. the beam of light rays is split into two components having complementary polarization states;
- d. these components are conducted to the object;
- e. these components are converted into electric measuring signals with or without taking into account polarization according to the number of coordinates after the components have been influenced by the object being locked-in;
- f. the measuring signals are combined with the reference signal for producing output signals, the arithmetic sign of which output signals being determined from the phase difference between the signals; and
- g. the output signals are evaluated with respect to the amplitude and the arithmetic sign for obtaining the position of the object structures relative to the aiming axis of the beam components.

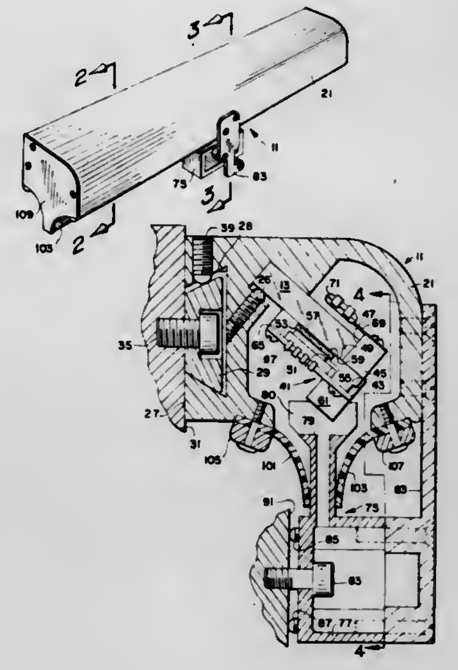
3,833,303
MEASURING APPARATUS USING THE MOIRE FRINGE CONCEPT OF MEASUREMENT

Richard H. Burns, Webster; Donald R. Hosack, and Helmut Welker, both of Jamestown, all of N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Oct. 6, 1972, Ser. No. 295,777

Int. Cl. G01b *11/04*

U.S. Cl. 356—169 **13 Claims**



Measuring apparatus using the moire fringe concept of measurement to provide a precise digital numeric indication of displacement between two relatively movable members. The apparatus includes an accurately ruled grating or scale, a transducer head in the form of an index grating supported on a movable carriage and a transducer support housing. The scale is secured in a spar which is preferably mounted to the carriage of a machine tool such as a milling machine. The transducer support housing is mounted to the stationery part or bed of the machine tool and is provided with a cantilever spring element which holds the carriage in direct contact with the scale.

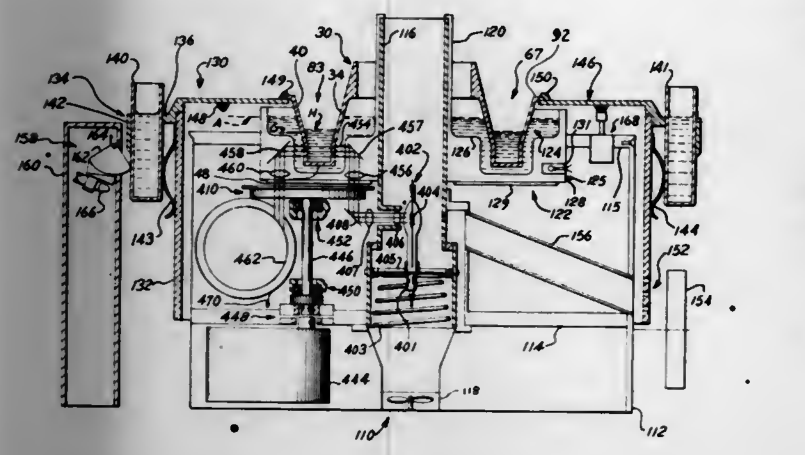
3,833,304
SPECTROPHOTOMETER USING PLURAL FILTERS

Max D. Liston, Irvine, Calif., assignor to Abbott Laboratories, Chicago, Ill.

Division of Ser. No. 133,081, April 12, 1971, Pat. No. 3,748,044, which is a continuation-in-part of Ser. No. 854,647, Sept. 2, 1969, Pat. No. 3,664,744. This application May 3, 1973, Ser. No. 357,064

Int. Cl. G01j *3/48*

U.S. Cl. 356—184 **10 Claims**



The disclosure describes apparatus for instantaneously determining the concentration of a predetermined substance that absorbs radiant energy within a predetermined band of wavelengths in the presence of other interfering substances that also absorb radiant energy in the region of the predetermined band. The determination is made by generating multiple wavelengths of radiant energy. The radiant energy is then sequentially transmitted in a single path through the substances, and the transmission is periodically interrupted by means which prevent the transmission of any radiation. The intensities of the radiant energy transmitted through the substances at the various wavelengths are then compared by electronic apparatus.

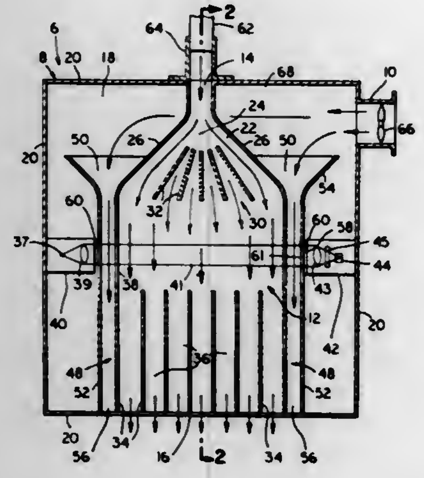
3,833,305
GAS ANALYZING APPARATUS

William A. Porter, Menlo Park; Irvin G. Burough, Santa Clara, and Donald D. Kline, Palo Alto, all of Calif., assignors to Commercial Electronics, Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 858,817, Sept. 17, 1969, abandoned. This application Feb. 22, 1972, Ser, No. 227,976

Int. Cl. G01n *21/26*

U.S. Cl. 356—201 **21 Claims**



A gas analyzing apparatus employing optical analyzing means in which a gas sample is withdrawn from a gas flow and directly passed into a chamber. Opposing, spaced-apart walls of the chamber include optically aligned openings. Gas flow directionalizing ribs are upstream of the line of sight through the openings. Downstream of the line of sight the flow is deflected 90° and discharged into an enclosed space to prevent gas flow turbulence at the line of sight. An air flow is formed on the exterior of the chamber in a direction substantially perpendicular to the openings and flows past the openings. A light source and an optically sensitive detector are mounted on the exterior of the chamber adjacent to and in alignment with the openings in the chamber and are spaced from the chamber by the air flow so that the light source and the detector come in contact with the air flow but not with the gas sample. The detector output is compensated for gas density changes due to gas temperature and vapor content variations.

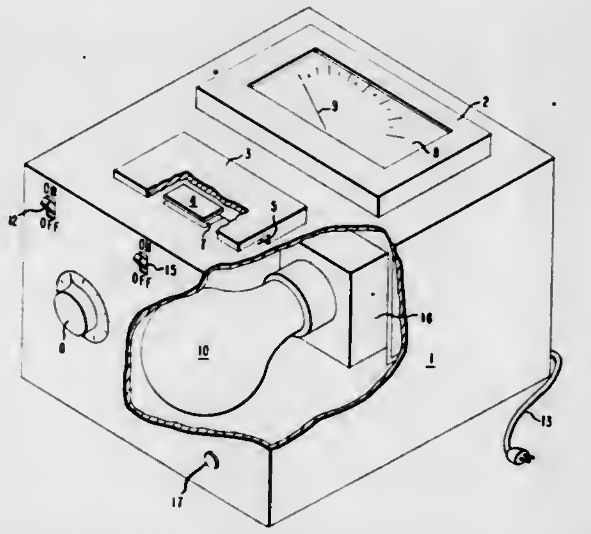
3,833,306
APPARATUS AND PROCESS FOR MEASURING THE LIGHT TRANSMISSION OF A PIGMENTED PAINT FILM

Nicos M. Komodromos, Flint, Mich., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 26, 1972, Ser. No. 318,501

Int. Cl. G01m *21/06*; **G01j** *3/46*

U.S. Cl. 356—205 **2 Claims**



The apparatus is used for measuring the light transmission of a pigmented paint film and comprises

a housing having positioned therein a microammeter electrically attached to a photoelectric cell and to a potentiometer which is used to adjust the microammeter;

an incandescent lamp positioned inside the housing and a beam of light from the lamp is directed through an opening in the housing onto the photoelectric cell;

a pigmented paint film is passed between the photoelectric cell and the beam of light from the lamp thereby changing the ammeter reading;

the amount of pigmentation in the paint film and the thickness of the film are directly related to the ammeter reading;

an improved process for preparing pigmented paints using the above apparatus is also a part of the invention.

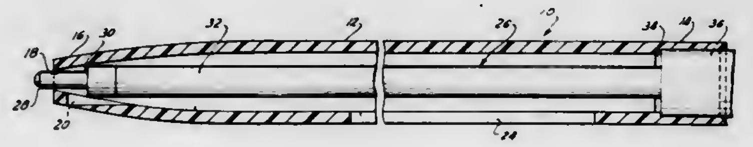
3,833,307
DISPOSABLE BALL POINT PEN WITH ERASER

Marvin Kapilow, 8 Sound Rd., Rye, N.Y. 10580

Filed May 14, 1973, Ser. No. 360,069

Int. Cl. B43k *7/06*

U.S. Cl. 401—195 **6 Claims**



A disposable ball point pen includes a tubular barrel having a forward tapered end through which the ball point is adapted

to project. The ball point extends from an ink cartridge disposed internally of the barrel and in concentric relationship therewith. An eraser is at the rear end of the barrel and is solvent cemented therein upon being placed into engagement with the rear end of the ink cartridge with both parts serving to self-locate one another within the barrel interior. A longitudinally extending slot in the barrel permits the cartridge to be observed to thereby operate as an indicator of the ink supply. In this manner the barrel need not be transparent and may adapt a variety of colors and designs. A cap covers the ball point and tip of the barrel when the pen is carried in the pocket of the user. This cap may be removed and retained by a clip on the side of the rear of the barrel, thereby enabling the user to write with the pen and at the same time have ready access to the eraser where desired.

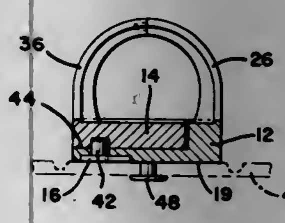
3,833,308
BINDER FIXTURE

Paul E. Seaborn, Los Gatos, Calif., assignor to The Mead Corporation, Dayton, Ohio

Filed Aug. 1, 9173, Ser. No. 384,458

Int. Cl. B42f *3/04*

U.S. Cl. 402—56 **8 Claims**



A binder fixture suitable for use in loose leaf notebooks and in which the binder loops are formed in segments with half the segments mounted on a stationary base plate and the other matching half mounted on a slide plate mounted for sliding movement transversely of the base plate. The slide plate is cam actuated by a cam bar slidably mounted in the base plate and having pins projecting upwardly through the base plate into cam grooves in the lower surface of a slide plate. The base plate is provided with T-shaped rails which are received in T-shaped slots in the lower surface of the base plate to guide the slide plate during sliding movement thereof.

3,833,309
BALL JOINT

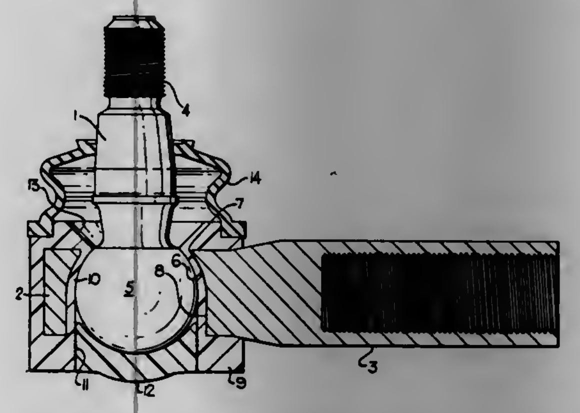
Ronald Henry Hobbs, Halstead, England, assignor to Cam Gears Limited, Hitchin, England

Filed Jan. 8, 1973, Ser. No. 321,829

Claims priority, application Great Britain, Jan. 11, 1972, 1238/72

Int. Cl. F16c *11/06*

U.S. Cl. 403—122 **7 Claims**



A ball and socket joint useful in vehicle steering assemblies composed of a metal ball stud, a metal stem with an eye end, a main open-ended plastic socket molded around the eye end of the stem defining a ball socket surrounded by the eye and receiving the shank of the ball stud through one end thereof. The other end of this plastic socket is closed by a plastic cup pressed into the socket against the ball head to preload the head against the bearing wall of the main plastic part and secured to this part by fusion, cementing or the like. The ball end of the stud is thus surrounded by a synthetic plastic bearing which in turn embraces the end of a stem extending laterally from the bearing. The ball and socket components of the joint are in preloaded relation, and articulate relative to each other in a smooth manner without accommodating shifting of the ball stud either laterally or axially from its fixed tilting center.

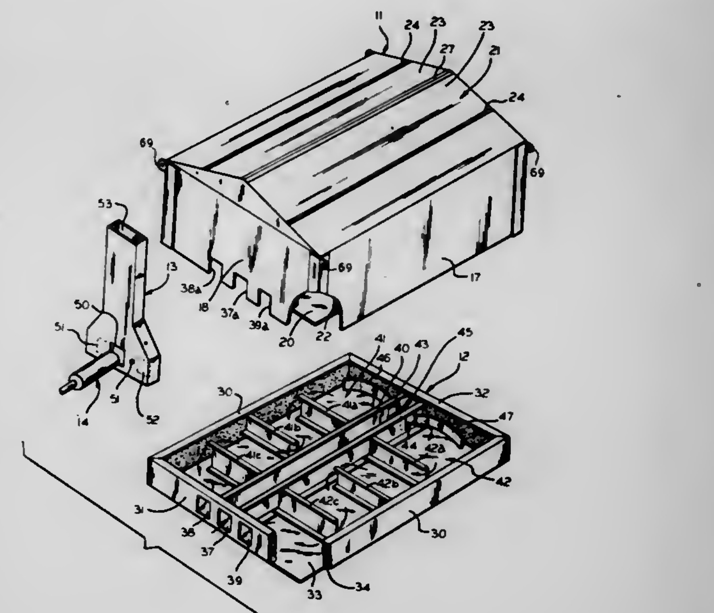
3,833,310
HOT BOX FOR ASPHALT

Herman T. Childree, Tyler, and Stewart T. Trawick, Dallas, both of Tex., assignors to Sabine Manufacturing, Inc., Dallas and Howe-Baker Engineers Inc., Tyler, both of, Tex., part interest to each

Division of Ser. No. 176,108, Aug. 30, 1971, Pat. No. 3,721,226. This application Dec. 18, 1972, Ser. No. 316,285

Int. Cl. E01c *7/06*

U.S. Cl. 404—75 **1 Claim**



A hot box for maintaining asphalt at elevated temperatures including a closed and insulated container, a service apron, a heat exchanger for heating the container, a burner capable of producing high velocity hot gases for driving a mixture of hot gases and air through the heat exchanger and a temperature control system.

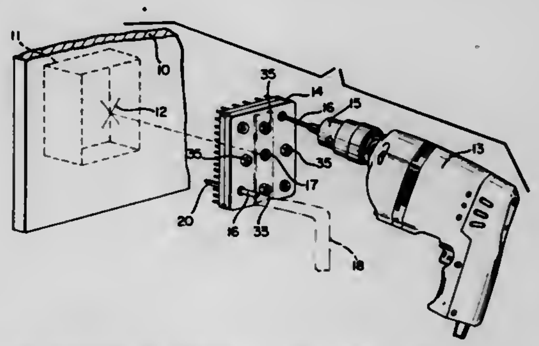
3,833,311
WALL OUTLET AND SWITCH BOX HOLE CUTTER

John D. Chailer, 2115 Weatherbee, Fort Worth, Tex. 16110

Continuation-in-part of Ser. No. 258,081, Aug. 23, 1972, abandoned. This application Sept. 25, 1972, Ser. No. 291,726

Int. Cl. B23b *51/06, 41/04*

U.S. Cl. 408—22 **2 Claims**



A cutter accessory adapted to be used with portable power tools for cutting holes in sheet material such as wallboard and panelling. The device includes a housing; an endless chain disposed in the housing for rotation therein, and a plurality of cutting edges carried by the chain and extending forwardly from the housing. A drive member located in the housing is adapted for coupling to a rotary power source such as a drill for driving the chain. Improvements are described which permit the hole to have any desired shape (e.g., rectangular), to be stable against motion in the plane of the workpiece and to facilitate centering of the cutter on a desired location.

3,833,312

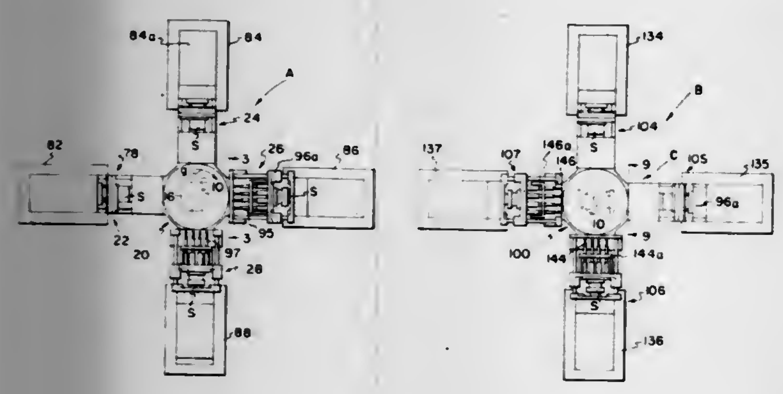
A METHOD FOR MACHINING VALVE BODY CASTINGS

Harry E. Miles, and Dale W. Wright, both of Saginaw, Mich., assignors to Miles Machinery Company, Saginaw, Mich.

Division of Ser. No. 153,205, June 15, 1971, Pat. No. 3,732,025. This application Jan. 22, 1973, Ser. No. 325,248

Int. Cl. B23b *39/20, 39/22*

U.S. Cl. 408—42 **12 Claims**



A and system for machining valve body castings, and the like, having inlet and outlet cored openings in opposite ends thereof, a valve seat, and a cored bonnet opening in the side thereof comprising: locating plugs movable into the inlet and outlet openings for positively locating the casting via the opposed cored openings a cutter for; machining the bonnet opening and/or seat of the positively located valve body; apparatus for removing the locating plugs; and mechanism for repositioning the valve body and positively locating on the machined bonnet opening and/or seat, and then machining the cored inlet and outlet openings or flange openings in opposite ends thereof.

3,833,313

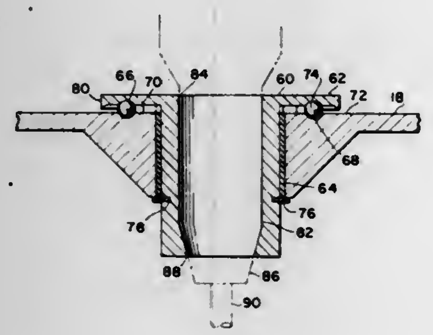
DRILLING DEVICE

Jacque K. Gallion, 1410 S. Oak Cliff Blvd., Dallas, Tex. 75208

Continuation-in-part of Ser. No. 575,740, Aug. 29, 1966, Pat. No. 3,464,295. This application Aug. 11, 1969, Ser. No. 849,113

Int. Cl. B23b *45/14*

U.S. Cl. 408—112 **7 Claims**



A drilling device for supporting a drill with the axis of the drill held in a desired relationship to a workpiece and permitting relative axial movement of the drill toward the workpiece.

3,833,314

DEVICES FOR CONTROLLING THE RELATIVE AXIAL MOVEMENTS OF TWO COAXIAL ROTARY SHAFTS

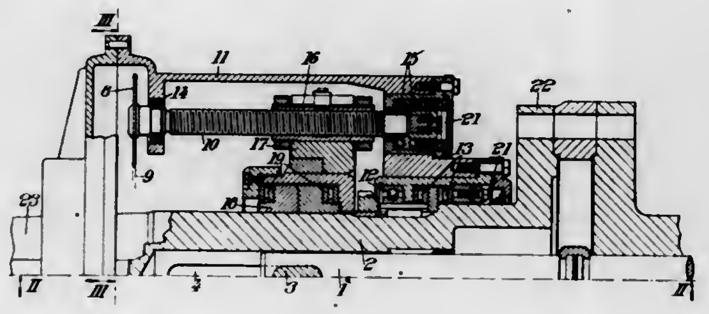
Felix Amiot, Paris, France, assignor to Constructions Mecaniques De Normandie, Paris, France

Filed Jan. 18, 1973, Ser. No. 324,658

Claims priority, application France, Jan. 25, 1972, 72.02424

Int. Cl. B63h *3/04*

U.S. Cl. 416—164 **10 Claims**



A rod is arranged axially at the centre of a rotary hollow shaft. A drive motor actuates through gear wheels and chains the rotation of two threaded rods parallel to the shaft and fixed axially each coacting with a nut fast axially to the rod through a mechanism, roller stops, a ring and a cotter pin. The device is particularly useful for controlling the variations in orientation of the propeller blades of a boat.

3,833,315

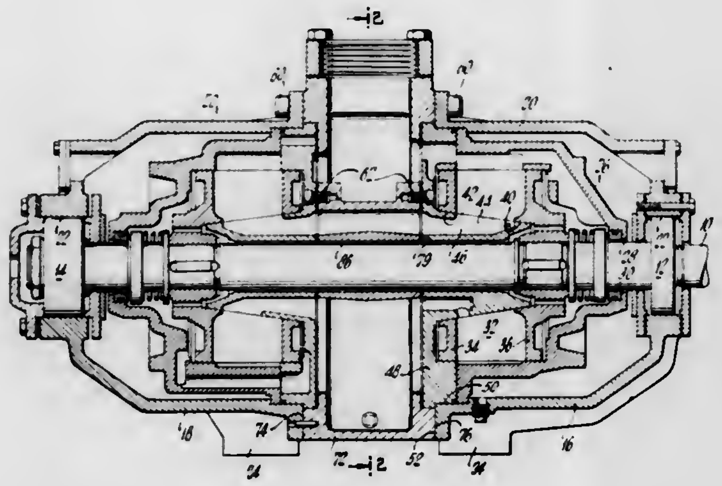
LIQUID RING PUMP OF THE DUPLEX TYPE

James B. Fitch, Stratford, Conn., assignor to The Nash Engineering Company, Norwalk, Conn.

Filed Jan. 30, 1973, Ser. No. 327,981

Int. Cl. F04c *19/00*

U.S. Cl. 417—68 **4 Claims**



A liquid ring pump of the duplex, center-port type in which the two rotors are mounted upon a common shaft and disposed between them and common to each section of the pump, is a single header to which the outlet from the pump sections are delivered and from which the intake is drawn.

3,833,316

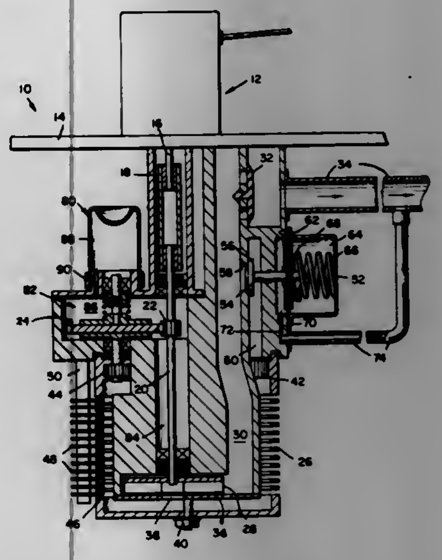
VARIABLE VOLUME PUMP

James M. Kemper, Hollywood, Calif., assignor to Monogram Industries, Inc., Los Angeles, Calif.

Division of Ser. No. 16,740, March 5, 1970. This application Jan. 17, 1972, Ser. No. 218,288

Int. Cl. F04b *49/08*

U.S. Cl. 417—307 **1 Claim**



A pumping system for a plurality of recirculating toilets sharing a common tank is described. A variable volume pump has a by-pass valve which is controlled by a pressure sensor in the flush line, to prevent excessive fluid pressure in the toilets.

3,833,317

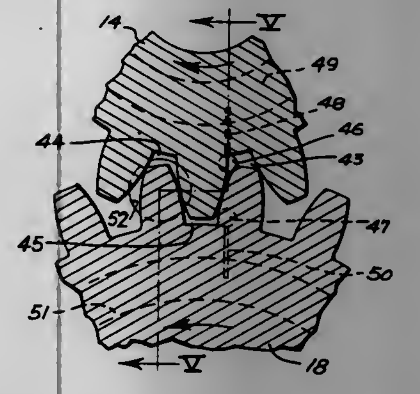
ROTARY GEAR MOTOR/PUMP HAVING HYDROSTATIC BEARING MEANS

Rolling Douglas Rumsey, 148 Summer St., Buffalo, N.Y. 14222

Continuation-in-part of Ser. No. 120,890, March 4, 1971, abandoned. This application Jan. 2, 1973, Ser. No. 319,978

Int. Cl. F01c *21/00;* **F03c** *3/00;* **F04c** *15/00*

U.S. Cl. 418—77 **7 Claims**



A gear hydraulic pump or motor utilizes a sun gear, ring gear, and pairs of planet gears in a planetary arrangement with power shafting connected to either sun or ring gear or both. All gears are centered in their clearance by hydrostatic bearings supplied with fluid from the tooth trapping zones.

3,833,318

ROTARY COMPRESSOR

Shozo Nakayama; Masayuki Kurahashi, both of Kariya, and Tuneo Sugiura, Hekinan, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya-shi, Japan

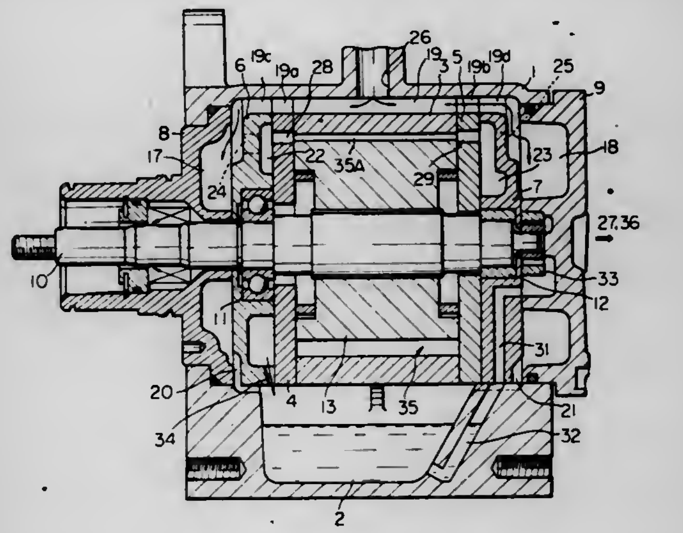
Filed June 20, 1973, Ser. No. 371,822

Claims priority, application Japan, July 27, 1972, 47-88852

Int. Cl. F04c *29/02;* **F25b** *43/02;* **B01d** *45/00*

U.S. Cl. 418—100 **10 Claims**

A rotary compressor having front, and rear housings positioned at the ends of a hollow shell, a horizontal cylinder disposed in the shell and having pressure plates attached to the front and rear ends thereof and further comprising a front housing means interposed between the front housing and the front pressure plate for defining a first front chamber connected by fluid passage means to said inlet port, between the inner wall of said front housing and the outer wall of said front housing means, and a second front chamber connected by fluid passage means to said suction chambers of said cylinder, between the inner wall of said front housing means and the outer face of said front pressure plate, said front housing means having a through-hole to connect said first and second front chambers, and channels adjacent to said oil reservoir to connect said first and second front chambers to said oil reservoir, and;



a rear housing means interposed between the rear housing and the rear pressure plate for defining a first rear chamber connected fluid passage means to said inlet port, between the inner wall of said rear housing and the outer wall of said rear housing means, and a second rear chamber by fluid passage means connected to said suction chambers of said cylinder, between the inner wall of said rear housing means and the outer face of said rear pressure plate, said rear housing means having a through-hole to connect said first and second rear chambers, and channels adjacent to said oil reservoir to connect said first and second rear chambers to said oil reservoir.

3,833,319

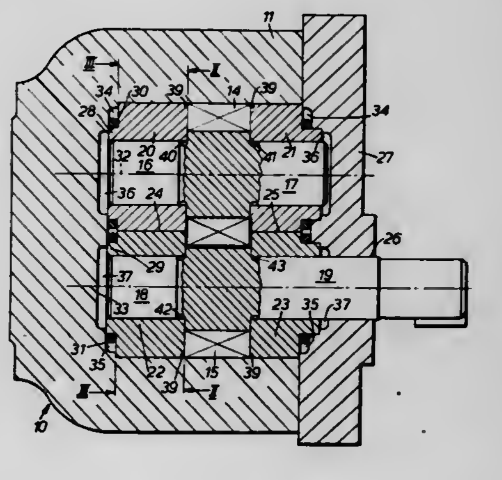
POSITIVE-DISPLACEMENT LIQUID-PRESSURE MACHINES AND PRESSURE-BALANCED JOURNAL/THRUST BUSHES THEREFOR

John Christopher Eglington, Flint, Stroud, England, assignor to Dowty Hydraulic Units Limited, Cheltenham, England

Filed Mar. 21, 1973, Ser. No. 343,456

Int. Cl. F01c *19/08;* **F03c** *3/00;* **F04c** *15/00*

U.S. Cl. 418—132 **6 Claims**

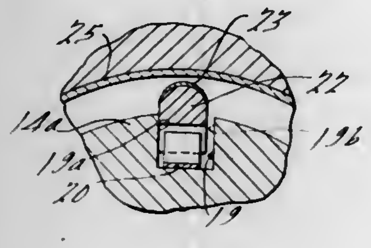


A positive-displacement machine having meshing rotors is provided with an end plate in the form of a journal/thrust bush, associated with a rotor, which has a groove forming a speed slot associated with its face adjacent to the rotor. The end plate is so subjected to liquid pressures on defined areas of its end face remote from the rotor as to be urged into adequate sealing engagement with the rotor. A zone of the said face of the end plate adjacent to the rotor which is subjected, during operation of the machine, to fluctuating pressures is placed in communication through a passage in the end plate with a zone of predetermined area associated with the end face of the end plate remote from the rotor and sealed from the surrounding area of that end face. In this way that sealed zone is subjected to fluctuating pressures which are substantially equal to but oppositely directed with respect to the fluctuating pressures to which the first said zone is subjected.

3,833,320
COATING FOR APEX SEALS OF ROTARY ENGINES AND METHOD OF MAKING

Yeshwant P. Telang, Grosse Ile, and James C. Uy, Dearborn Heights, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed July 5, 1973, Ser. No. 376,860
Int. Cl. F01c *21/00*
U.S. Cl. 418—178 **18 Claims**



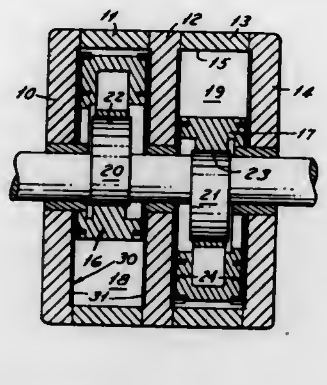
A rotary internal combustion engine is disclosed having a rotor housing presenting an internal epitrochoid surface electrolytically coated with a composite of nickel and silicon carbide or coated with tungsten carbide. A rotor piston is mounted for planetary movement within the rotor housing and carries a plurality of apex seal strips each comprised of a wear-resistant portion and a supporting portion. The wear-resistant portion is constituted of a fused composite of generally equally hard particle types, one type comprising martensitic stainless steel and the other particle type comprising a nickel-based alloy. At least one of the particle types contains molybdenum disulfide or graphite. An intermediate coating of nickel aluminide may preferably be used therebetween. The supporting portion is constituted of a material having a lower specific gravity than the wear-resistant portion and a greater yield strength. The supporting portion may be preferably comprised of aluminum.

3,833,321
WEAR-RESISTANT COATING FOR ROTARY ENGINE SIDE HOUSING AND METHOD OF MAKING

Yeshwant P. Telang, Grosse Ile, and James C. Uy, Dearborn Heights, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed July 5, 1973, Ser. No. 376,861
Int. Cl. F04c *15/00*
U.S. Cl. 418—178 **9 Claims**

An improved wear-resistant surface preparation is used on the inner side walls of the combustion chamber of a rotary piston engine. The improvement comprises deposition of two distinct but admixed metallic powders of generally equal hardness; one of the powders contains fluxing agents which enable the deposited powders to self-sinter if deposited in a semi-plastic condition. The powders are deposited on a previously undercut cast iron side housing. The resulting coating composition is characterized by minimum hardness value of R_c 30 at elevated operating temperatures of 400°F. The composition retains a stable hardness at elevated temperature levels up to 1,100°F. The coating may have a porosity of 3–9 percent, but particle size is controlled to limit the porosity to 5 percent which is compatible with lubricating requirements of a rotary engine. The coating composition is deposited across the entire area circumscribed by the path of the outer most side point of the apex seals carried by the rotary piston; the path is substantially commensurate or approaches the entire shape of the epitrochoid chamber. The coating is compatible with the composition of the rotor side seals, oil seals and corner seals bearing thereagainst. The rotor side seals are comprised of cast iron, the oil seals are cast iron coated with limited chromium, the corner seals are prepared from cast iron, and the apex seals are strips of metal coated with an alloy of iron and titanium carbide with graphite.

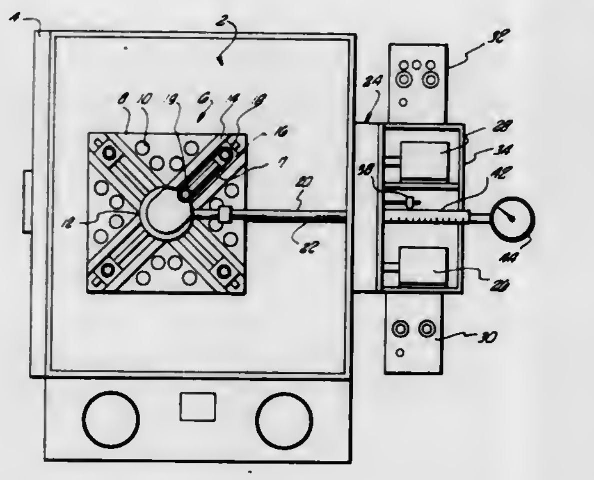


A method is disclosed comprising: (1) machining a cast side housing structure to a depth sufficient to accommodate a slightly oversized finish coating. The cast structure is undercut, grit blasted and preheated to 200°F., (2) a coating of admixed martensitic stainless steel and an equally hard nickel-based alloy is flame sprayed upon the machined area including approximately ⅜ of an inch margin beyond the undercut area, the spraying being conducted by rotating the surface to be sprayed along with radial and rotative movement of the spray gun arranged to direct the spray perpendicular to the surface, (3) soaking the flame sprayed coating immediately after deposition with oil, and (4) grinding the surface finish to a predetermined reference thickness.

3,833,322
APPARATUS FOR FORMING DRIVE BELTS

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Albert Topits, Jr., Altadena, Calif.

Filed Aug. 31, 1973, Ser. No. 393,525
Int. Cl. B29h *7/22;* **B29d** *29/00*
U.S. Cl. 425—28 B **15 Claims**

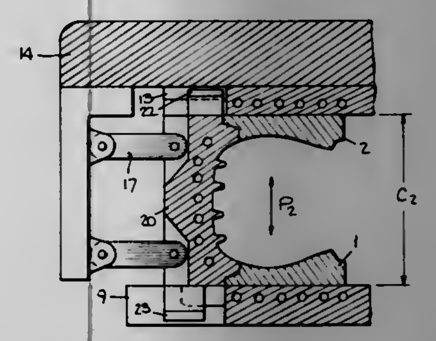


An apparatus for manufacturing belts, such as seamless belts, is provided having relatively movable rollers that are mounted in an oven. A belt blank, for example, of a thin polyester film, is rotated on the rollers as heat is applied. Four rollers, each mounted on a separate roller assembly, are movable along appropriate tracks while a fifth centrally located roller is stationary. A pair of DC motors are operatively connected to a speed reduction gear assembly to provide a pair of rotating drive shafts that extend into the oven. One rotating shaft drives all of the rollers through a rotational gear assembly while the other drive shaft is capable of positioning the movable rollers through respective rotating threaded shafts. Control devices are provided for controlling the motors while measuring devices are operatively connected to the positional drive shaft to indicate the position of the rollers.

3,833,323
SEGMENTAL MOLD

Lambert Pasch, Nutheim, Germany, assignor to Uniroyal AG, Aachen, Germany

Filed Feb. 26, 1973, Ser. No. 335,827
Int. Cl. B26h *5/02*
U.S. Cl. 425—47 **13 Claims**

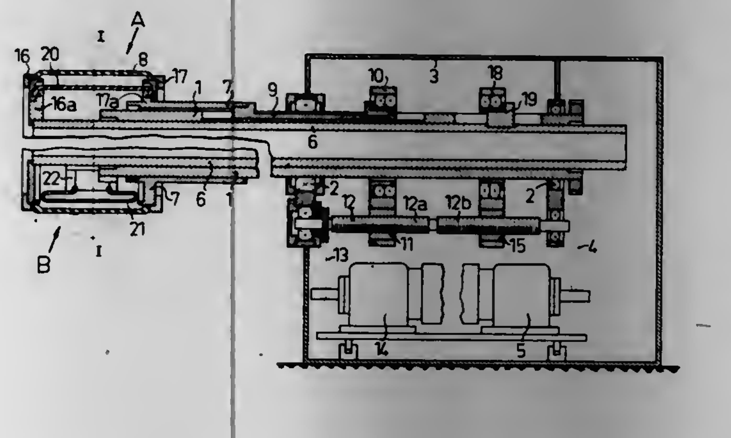


A segmental mold comprising a pair of sidewall-shaping members coaxially confronting one another and supported such that at least one is movable axially relative to the other, and an annular array of tread-shaping segments concentrically interposed between the members and supported for movement axially in parallel relation and radially from an open annular array wherein the segments are spaced from one another to a closed annular array of reduced extent wherein the segments abut one another. The segments are commonly associated with one of the members through the intermediary of loosely associated mutually interfitting portions so as to effect a reduction in sliding friction therebetween.

3,833,324
DEVICE FOR EXPANDING RAW PNEUMATIC TIRES BUILT UP IN FLAT FORM

Friedrich Klopper, Barsinghausen, and Rolf Bullmann, Hannover, both of Germany, assignors to Continental Gummi-Werke Aktiengesellschaft, Hanover, Germany

Filed May 7, 1973, Ser. No. 357,868
Int. Cl. B29b *5/02*
U.S. Cl. 425—52 **9 Claims**

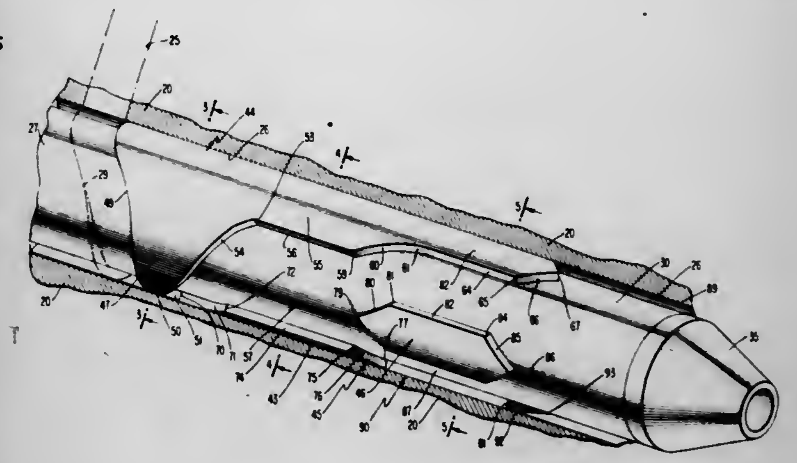


A device for expanding raw pneumatic tires built up in flat form and provided with two tire beads, which includes a rotatable axially non-displaceable shaft having axially slidably arranged therein an inner shaft with a first disc firmly connected to one end of the inner shaft while an outer shaft is axially slidably mounted on and surrounds the hollow shaft. That end of the outer shaft which is closest to the first disc has firmly connected thereto a second disc in cooperation with the first disc to receive therebetween the beads of the tire to be expanded and the inflatable bellows for expanding the tire to be shaped, an actuating mechanism being provided for selectively moving the first and second discs toward and away from each other.

3,833,325
BALANCED FLOW EXTRUSION HEAD

John C. Ramsey, 498 Island Way, Franklin Lakes, N.J. 07417

Filed Aug. 23, 1972, Ser. No. 283,059
Int. Cl. B29f *3/10*
U.S. Cl. 425—113 **7 Claims**



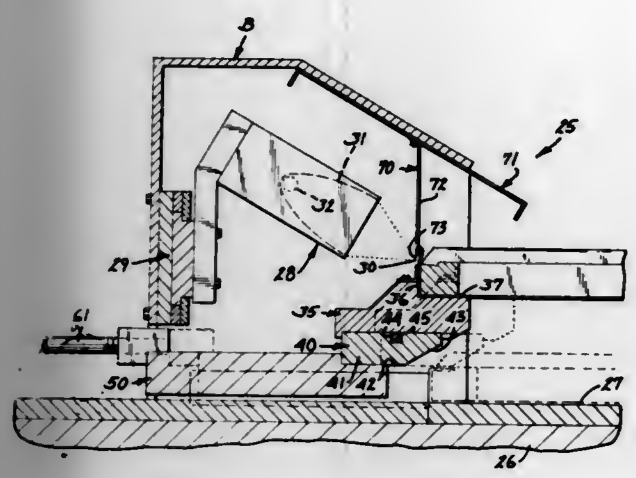
A plastic material extruding crosshead for uniformly sheathing a core passing forwardly therethrough. The crosshead has a main, circular cylindrical bore therein, and a centrally disposed elongated core guiding tube disposed within the bore coaxially thereof. An extruding die is mounted at the forward end of the bore; the bore and the central tubular member formed therebetween a sleeve-like chamber extending forwardly to the die. The apparatus includes mechanism for delivering plastic material under pressure in a sidewise direction to the rear end of the chamber, there being means at such rear end of the chamber for diverting the plastic material forwardly along the chamber as it is delivered therefrom from the material delivering mechanism. In accordance with the invention there are provided within the chamber means for creating a balanced flow of plastic material as it nears the rear face of the die and as it flows forwardly about the core being sheathed. Such means includes a first flow-constricting means which forces the plastic material to pass in a single stream longitudinally of the central tubular member in a zone remote from the plastic material delivering mechanism, a further means which divides such single stream of plastic material into a plurality of oppositely symmetrically disposed streams, and a further means which divides each of such two symmetrically disposed streams into a plurality of further streams. The resulting plurality of streams, which are similar and equally angularly spaced about the axis of the chamber, flow forwardly into an unbroken, completely annular forward portion of the chamber immediately to the rear of the extrusion die, where such four streams unite in order to flow uniformly about the core, and with the core pass outwardly through the passage in the extrusion die.

3,833,326
POST-FORMING APPARATUS

Lawrence W. Peterson, Marine-on-the-St. Croix; Thomas J. Gallo, St. Paul; Kenneth L. Peterson, Bayport, and Donald L. Garofalo, St. Paul, all of Minn., assignors to Andersen Corporation, Bayport, Minn.

Filed May 9, 1973, Ser. No. 358,721
Int. Cl. B29c *24/00*
U.S. Cl. 425—174.4 **9 Claims**

Apparatus which is useful to post-form marginal tabs of a decorative plastic shroud to embrace a supporting frame in the manufacturing of plastic shutters, panels, and the like. The apparatus comprises a first station which includes heating means which are mounted on a base (e.g., a table) to concentrate heat along one or more longitudinally extended focal lines. Means are provided for positioning the plastic shroud relative to the heating means. The apparatus further comprises a second station which includes means for post-forming the heated marginal tabs of the plastic shroud to embrace the supporting frame.



3,833,327

METHOD OF AND APPARATUS FOR REMOVING WOOD PARTICLES YIELDED IN CHIPBOARD PRODUCTION

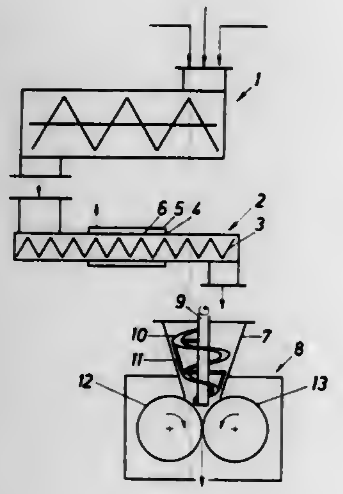
Hans-Joachim Pitzer, Heilbronn, and Wolfgang B. Pietsch, Lowenstein-Hirrweiler, both of Germany, assignors to Hutt GmbH, Leingarten, Germany

Filed Mar. 16, 1972, Ser. No. 235,209

Claims priority, application Switzerland, Oct. 22, 1971, 15430/71

Int. Cl. B29c *3/02, 3/04*

U.S. Cl. 425—203 **3 Claims**



A system for use in the manufacture of chipboard including a method and apparatus initially involving the use of wood particles including grinding dust, sawdust, scrap wood and similar particles normally available in operations involved in the conventional manufacture of chipboard. The particles are located in a mixing means along with an adhesive, and a compacting apparatus is provided for forming the mixture of particles and adhesive into chip-shaped compacts. These compacts are then employed with conventionally produced chips to provide the material for making the chipboard.

3,833,328

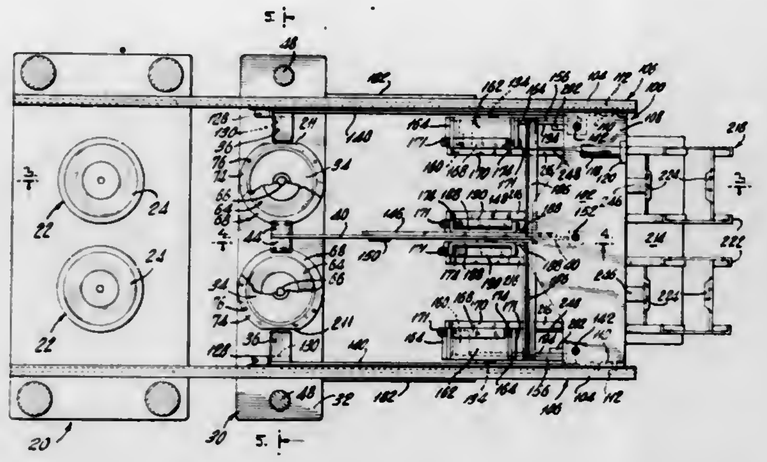
MACHINE FOR MANUFACTURING DISC RECORDS

Leonard Palmer, 22 Lakeview Ave., Elizabeth, N.J. 07932, and Joseph Flusfeder, 801 N. Broad St., Elizabeth, N.J. 07201

Filed Nov. 24, 1972, Ser. No. 309,588

Int. Cl. B29d *17/00*

U.S. Cl. 425—308 **10 Claims**



A machine for manufacturing disc records. The machine has a molding station where records are molded, a trimming station where flash is trimmed from the molded records, and a receiving station where finished records are received. A transfer assembly simultaneously transfers the molded records from the molding station to the trimming station and the finished records from the trimming station to the receiving station. At the receiving station envelopes are automatically situated in a condition for receiving the finished records so that the finished records are automatically placed in envelopes.

3,833,329

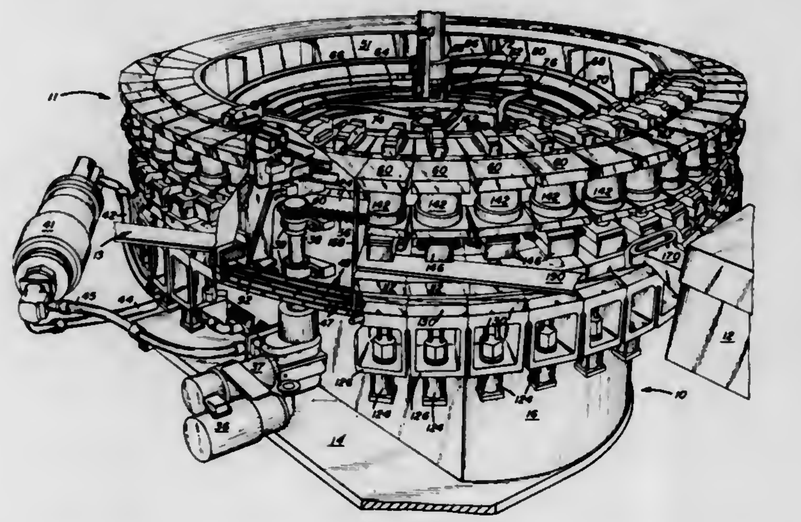
INJECTION MOLDING APPARATUS

Lawrence A. Ulmachneider, and Edward H. Dowling, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 86,668, Nov. 4, 1970, abandoned. This application Jan. 15, 1973, Ser. No. 323,606

Int. Cl. B29f *1/00, 1/14*

U.S. Cl. 425—246 **18 Claims**



Injection molding apparatus which comprises a rotatable rotor member having a plurality of mold assemblies disposed about the periphery thereof. Each mold assembly has an injection chamber and an openable mold cavity. Drive means is arranged to continuously rotate the rotor member and the mold assemblies. A stationary molten plastic supply means is disposed adjacent the periphery of the rotor member and is arranged to supply for example molten thermoplastic material to the injection chamber of a mold assembly as it is continuously moved past the supply means. Each mold assembly has an injection means arranged for movement into the injection chamber after the mold assembly has moved past the supply means to inject the molten thermoplastic material in the injection chamber into the mold cavity. Means is arranged to open each of the molds after the molten material injected therein has solidified, and to close the mold after removal of the solidified material therefrom and before the mold reaches the supply means. Conveyor means is also arranged to enter between the opened molds whereby the part may be removed with a predetermined orientation.

3,833,330

RECIPROCATING INJECTION MOLDING APPARATUS AND MOLD CLAMPING MEANS

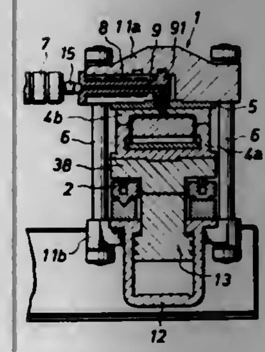
Katashi Aoki, 6037, Oaza Minamijo, Sakaki-machi, Hanishina-gun, Nagano-ken, Japan

Division of Ser. No. 94,662, Dec. 3, 1970, abandoned. This application May 23, 1973, Ser. No. 363,297

Claims priority, application Japan, Dec. 9, 1969, 44-98519; Mar. 25, 1970, 45-24628

Int. Cl. B29f *1/03*

U.S. Cl. 425—247 **1 Claim**



The apparatus generally comprising a mold clamping device including a mold clamping ram vertically operable toward a mold receiving chamber, an injection nozzle directed into the mold receiving chamber, and one or more metal molds each provided with a mold opening-and-closing device and mounted on a horizontally reciprocable plate entering into and retracting out of the mold receiving chamber, and the process is so organized that when one of the metal mold is transported, in its closed state, into the mold receiving chamber under a horizontal movement of the reciprocable plate, the mold clamping ram is operated for clamping the metal mold and a plastic material is injected into the mold cavity of the metal mold through the injection nozzle, and when the reciprocable plate moves out to another position, the metal mold thus injected is opened by means of the mold opening-and-closing device and the molded product is delivered.

3,833,331

APPARATUS FOR FORMING BUILDING BLOCKS

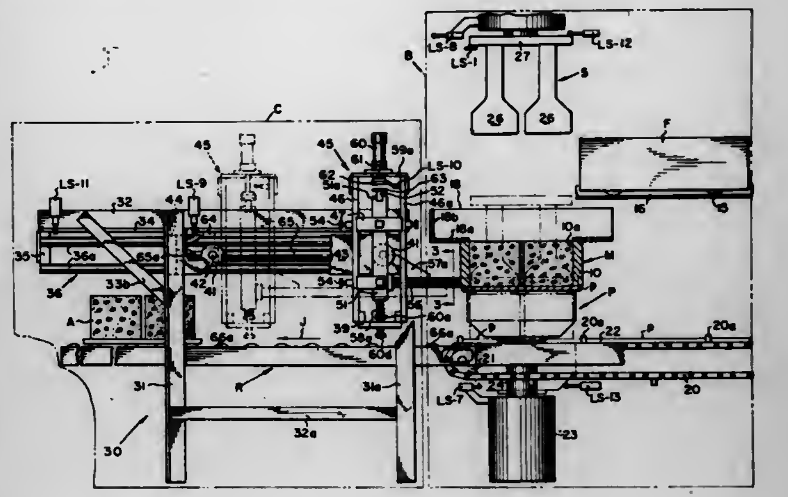
Thomas W. Springs, Alpena, Mich., assignor to Besser Company, Alpena, Mich.

Continuation-in-part of Ser. No. 858,032, Sept. 15, 1969, Pat. No. 3,679,340. This application July 21, 1972, Ser. No. 273,989The portion of the term of this patent subsequent to July 25, 1989, has been disclaimed.

Int. Cl. B28b *1/08, 7/18*

U.S. Cl. 425—253 **5 Claims**

Apparatus for forming a building block, having conventional vertically extending, upwardly opening block cavities with a longitudinally extending channel in its lower surface. The block is made in a vibrated mold box assembly, open at its upper and lower ends, and a pallet is movable into position to form a removable mold cavity closing bottom wall for the assembly. A longitudinally removable core, which is resiliently mounted on a core adapter so that it can vibrate with the mold box assembly, is moved from a removed position to a position beneath the mold cavity and the pallet is then moved vertically to sandwich the core between the mold and pallet. After cementitious material is introduced into the mold cavity to form the block and the assembly is vibrated, the core is removed, and the block and pallet are then vertically stripped from the mold assembly and moved away for further processing.



3,833,332

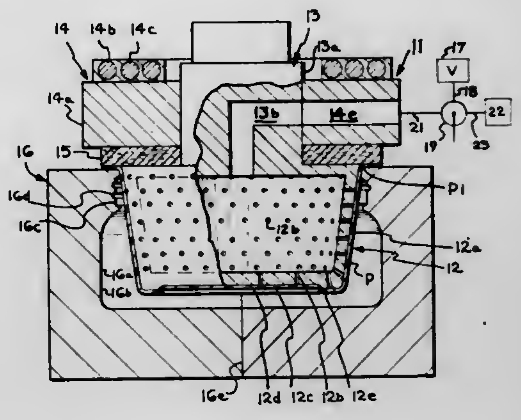
APPARATUS FOR FORMING CONTAINERS OF THERMOPLASTIC MATERIAL

Ralph G. Amberg, Monticello, Ind., and Stephen W. Amberg, St. James, N.Y., assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Nov. 17, 1972, Ser. No. 307,639

Int. Cl. B29d *23/03*

U.S. Cl. 425—387 B **6 Claims**

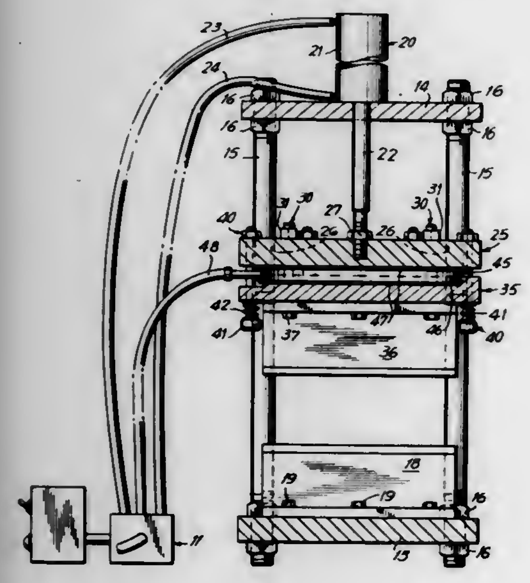


Method and apparatus for reforming thermoplastic preforms or parisons of a nestable configuration into nonnestable containers which are adapted to receive threaded metallic or plastic closures. Each preform is inserted over the end of a complementally shaped heating mandrel to heat the preform to an elevated temperature at which it is sufficiently soft to permit it to be reformed into a different configuration by blow molding. The preform is retained in place during the heating step by a vacuum applied to the inner surface of the preform through the mandrel. Prior to or during the heating step, the mandrel, with the preform in place, is inserted into the open top of a mold, the inner surface of which is, in a major lower portion, configured in the shape of a jar or other container of non-nestable configuration. The upper minor portion of the mold is configured in the shape of an internally threaded cylinder. After the preform reaches a suitably high temperature, the vacuum to the inside surface thereof is terminated and air or other gas pressure is applied thereto through the mandrel to blow or expand the preform to correspond to the interior of the mold, thereby to provide a container with an externally threaded upper neck portion which is adapted to receive a threaded closure. Good contact between the preform heating mandrel and the mold is obtained by providing the preform with a short externally extending continuous flange at its larger open end which serves as a gripping surface to be tightly engaged between the structure carrying the mandrel and mold structure. To avoid the need for a trimming operation, the lateral extent of this flange must be less than the lateral extent of the threaded portion of the neck of the finished container, to avoid interference with the associated closure to be applied thereto. Such a flange, if left in place, will serve to stiffen the mouth of the finished container.

3,833,333

PRESS CONSTRUCTION

George C. Britten, 350 Mariners Way, Copiague, N.Y. 11726
Filed Nov. 6, 1972, Ser. No. 304,192
Int. Cl. B29c *3/00*
U.S. Cl. 425—406 **7 Claims**

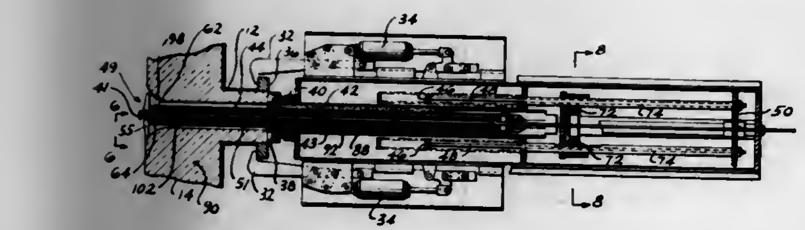


A molding press construction wherein a pair of die-holding platens are movable toward and away from each other by a primary mover of relatively large displacement and lesser force to a locked position, wherein a secondary mover of relatively small displacement and large force maintains the platens together in molding position.

3,833,334

APPARATUS FOR RELINING A BOF VESSEL TAP HOLE

Lawrence Raymond Riley, Palos Park, Ill., assignor to Combustion Engineering Inc., Windsor, Conn.
Filed July 5, 1973, Ser. No. 376,637
Int. Cl. C21b *7/12*
U.S. Cl. 425—449 **5 Claims**

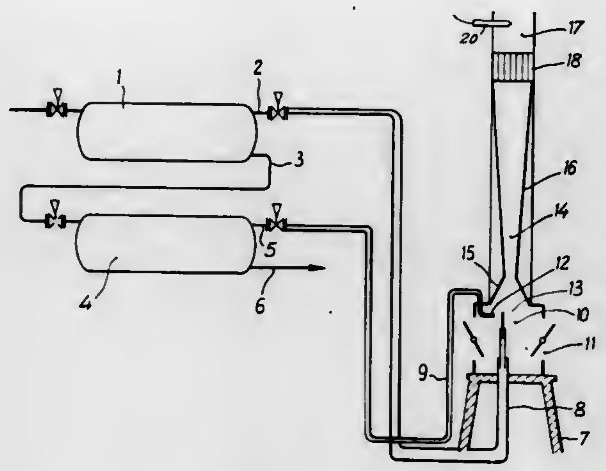


Apparatus for relining the tap hole of a BOF vessel with refractory material after it has been worn or eroded away.

3,833,335

FLARE INSTALLATION FOR THE COMBUSTION OF HYDROCARBON GAS WITH PRIOR ADMIXING OF AIR

Flavien Lazarre; Jacques Rozand; Gilbert Blu, and Jean-Pierre Bimond, all of Pau, France, assignors to Societe Nationale Des Petroles D'Aquitaine, Paris, France
Filed Aug. 3, 1973, Ser. No. 385,329
Claims priority, application France, Aug. 4, 1972, 72.28207
Int. Cl. F23d *13/20*
U.S. Cl. 431—202 **3 Claims**

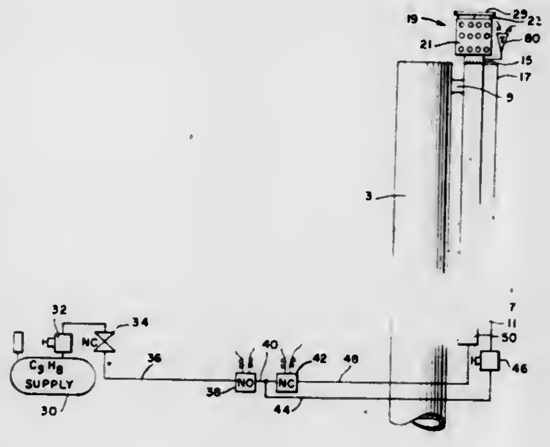


An improved flare installation to burn excess hydrocarbon gas, comprising a mixing chamber receiving atmospheric air and having an inlet for gases from a low-pressure separator, and an injector for gas from a high-pressure separator, on the same axis as a mixer, while a burner is provided below this chamber. The improved device is specially suitable for the non-polluting burning of gases accompanying liquid hydrocarbons in production fields, during testing, or in refinery plants.

3,833,336

REMOTE FIRE STACK IGNITER

William L. Ray, Huntsville, Ala., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Aug. 29, 1973, Ser. No. 392,823
Int. Cl. F23d *13/20*
U.S. Cl. 431—202 **10 Claims**

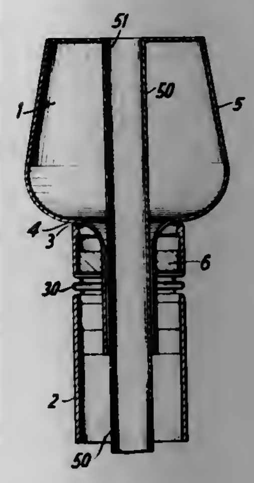


An igniter mounted on a vent stack with an upper, flame cage near the top of the stack to ignite emissions from the stack. The igniter is a tube with a lower, open, flared end having a spark plug near the lower end and a solenoid-controlled valve which supplies propane fuel from a supply tank. Propane from the tank is supplied at the top under control of a second, solenoid-controlled valve. The valve controlling the lower supply is closed after ignition at the flame cage. The igniter is economical, practical, and highly reliable.

3,833,337

FLARESTACKS

Denis Henry Desty, Weybridge, and Christopher John Young, Horton, both of England, assignors to The British Petroleum Company Limited, London, England
Filed Apr. 18, 1972, Ser. No. 245,223
Claims priority, application Great Britain, Apr. 29, 1971, 12069/71
Int. Cl. F23q *9/00*
U.S. Cl. 431—284 **5 Claims**

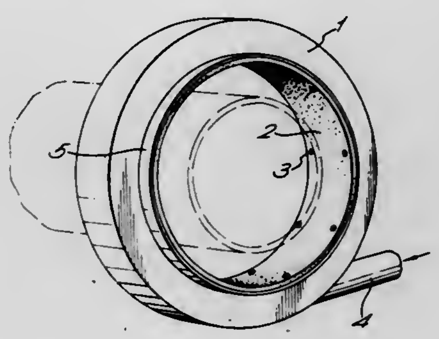


A flare stack burner tip using the Coanda effect, the bore of the Coanda body is used as a feed line for high pressure gas and the Coanda director surface is positioned across the outlet of the high pressure gas line so as to cause entrainment of air into the fuel gas stream. The feature of the invention is a self adjusting slot between the Coanda surface and gas inlet which adjusts itself automatically to the flow rate of high pressure gas so that a substantially constant pressure is maintained.

3,833,338

SURFACE COMBUSTION BURNER

John Badrock, Southport, England, assignor to Cooperheat, Southport, England
Continuation-in-part of Ser. No. 260,433, June 7, 1972, abandoned. This application Mar. 30, 1973, Ser. No. 346,457
Claims priority, application Great Britain, June 6, 1972, 19458/72; June 8, 1971, 19458/71
Int. Cl. F23d *13/12, 13/14*
U.S. Cl. 431—328 **10 Claims**



A surface combustion burner for burning a mixture of air and gaseous fuel. The burner includes a housing having an inlet for the air and gaseous fuel and an outlet covered by a layer of deformable, porous ceramic fibre material through which the air and gaseous fuel permeates and is lit on the surface. A foamed metal layer acts as a flame trap to prevent lighting back. An annular burner can be used to anneal a welded pipe.

3,833,339

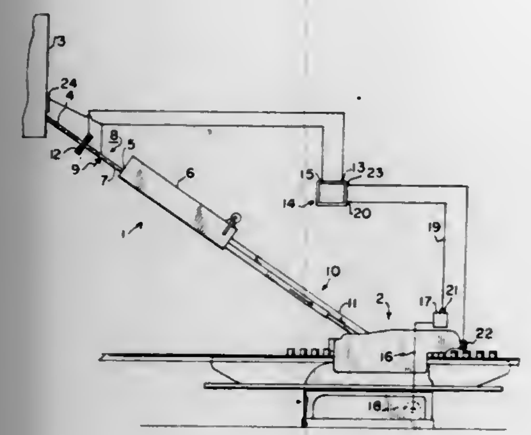
METHOD AND SYSTEM FOR STERILIZING MAGNETICALLY ATTRACTED OBJECTS

Joseph C. Pacilio, Niles, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Mar. 2, 1972, Ser. No. 231,321

Int. Cl. B65b *55/06, 57/02*

U.S. Cl. 21—80 **10 Claims**



A sterilizing conveyer system having a sterilizing chamber. In this apparatus, a chute brings a magnetizable article to the sterilizing chamber. An overhead conveyer has a magnet located above the conveyer and the articles are lifted up against the conveyer and moved along by it. The magnetizable articles are sterilized by a sterilizing fluid which is jetted against their bottom side as they are conveyed through the chamber. The second chute is of a length to accommodate in storage all of the articles in the system in the event of breakdown.

3,833,340

DETERMINATION OF WATER CONTENT OF LIQUID MIXTURES

Graham P. Jones, London, England, and Frederick R. Mahn, Verona, N.J., assignors to Drew Chemical Corporation, Parsippany, N.J.

Filed Dec. 4, 1972, Ser. No. 311,807

Int. Cl. G01n *25/56*

U.S. Cl. 23—230 HC **6 Claims**

A material which produces heat when in contact with water is added to a water containing liquid mixture and the increase in temperature is recorded. From a known relationship between water content and temperature increase resulting from contact between water and the material, the water content of the liquid mixture is easily determined.

3,833,341

SPOTTING DEVICE

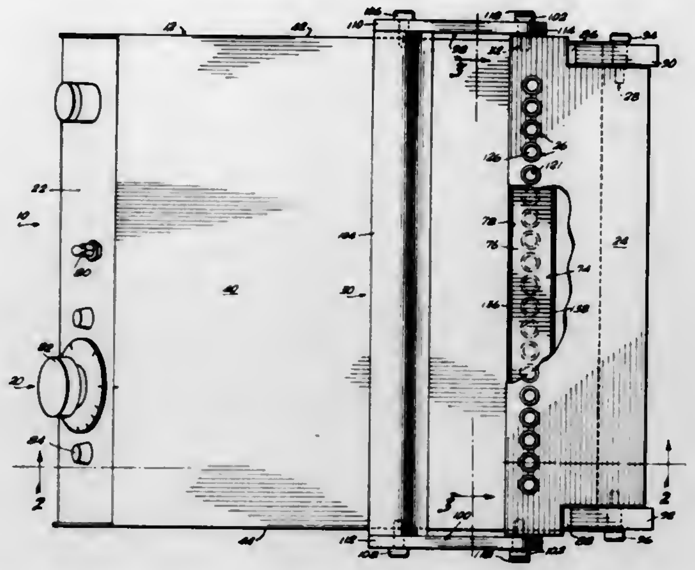
Paul M. Tocci, 12301 S. W. 64th Ave., Miami, Fla. 33156

Filed Feb. 26, 1973, Ser. No. 335,708

Int. Cl. B05c *11/00;* **G01n** *31/08*

U.S. Cl. 23—259 **12 Claims**

A spotting device for depositing samples of urine, urine extracts or blood, for example, in an organic or inorganic solvent on chromatographic plates or sheets. The device includes a holding bar, adapted to receive a plurality of disposable funnels therethrough, each funnel providing an open top, above the holding bar for reception of a sample, and a small orifice in its lower end, below the holding bar, for depositing the sample on a chromatographic plate or sheet which is carried on a heating bar which is manually set to a predetermined degree of temperature. The carrying plate is pivotal from a raised position to a position wherein the lower tip ends of the funnels are in tight contact with the chromatographic plate or sheet on the heating bar. The funnels are preferably formed of an inexpensive synthetic material such as polyethylene and are intended for one-time use.



3,833,342

APPARATUS FOR THE PREPARATION AND GROWTH OF CRYSTALLINE MATERIAL

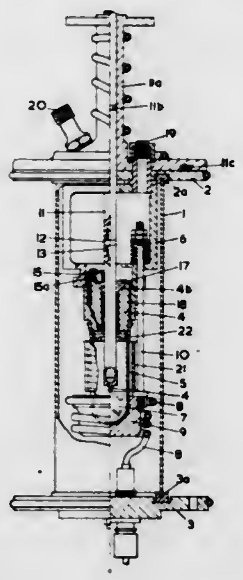
Charles Harry Holliday, Newland; William Ritchie MacEwan; John Brian Mullin, both of Malvern Link, and Alan Edward Valender Webb, Malvern, all of England, assignors to National Research Development Corporation, London, England

Filed Apr. 18, 1972, Ser. No. 245,088

Claims priority, application Great Britain, Apr. 21, 1971, 10595/71

Int. Cl. B01j *17/18*

U.S. Cl. 23—273 SP **8 Claims**



Apparatus for the treatment and growth of an at least partially volatile crystallisable material includes a chamber of the type in which the walls remain fixed relative to each other during the treatment and growth of the material, means for establishing a liquid seal sensitive to a pressure difference across the walls of the chamber and means responsive to the liquid seal for limiting the pressure difference across the walls of the chamber to achieve a pressure balance. The apparatus may be used, for example, for vertical crystal pulling or horizontal zone melting. The means responsive to the liquid seal may include a sensor responsive to the position of liquid in the means for establishing a liquid seal, and a control valve responsive to the sensor and under the control of which gas may be admitted to or withdrawn from a further chamber surrounding the first mentioned chamber.

3,833,343

PROCESS FOR PRODUCTION OF CARBON-BEARING SCRAP AND PRODUCT

Michael O. Holowaty, Crown Point, Ind., and Harold T. Stirling, Pittsburgh, Pa., assignors to Carbo-Scrap, Inc., Gary, Ind.

Continuation-in-part of Ser. No. 138,283, April 28, 1971, abandoned. This application May 1, 1972, Ser. No. 248,946

Int. Cl. B21c *37/00*

U.S. Cl. 29—180 R **10 Claims**

Scrap or other metal is heated to remove volatilizable contaminants and raise its temperature and then coated with a carbonaceous material to protect the scrap from subsequent oxidation and the entry of contaminants. The coating conditions are such to pyrolyze the carbonaceous material and provide an excellent reducing and/or recarburizing agent when the scrap is used in later refining or melting operations.

3,833,344

FRICTION MATERIAL OF THE SINTERED BRONZE TYPE

Gunter Gerloff, Glinde near Hamburg; Klaus Mertl, and Ulrich Volker, both of Reinbek, all of Germany, assignors to Jurid Werke GmbH, Glinde near Hamburg, Germany

Filed Mar. 7, 1972, Ser. No. 232,503

Claims priority, application Germany, Apr. 26, 1971, 2120260

Int. Cl. B22f *3/00*

U.S. Cl. 29—182.5 **5 Claims**

A friction material of the sintered bronze type containing, by weight, 4 to 15 percent of at least one element selected from the group consisting of titanium and a metal of Groups VI, VII and VIII of the Periodic System, 5 to 25 percent of a graphite-mixture consisting of 20 to 80 percent of an artificial graphite and the rest comprises a natural graphite, with the balance of the material being a metal compound selected from the group consisting of copper and a known bronze alloy different from a binary lead bronze. The artificial graphite preferably is electrographite, and the natural graphite preferably is lamellar graphite.

3,833,345

METHOD FOR INHIBITING THE FORMATION OF SLUDGE IN FUEL OILS

Shogo Tatsuke, Chiba; Osamu Yanagisawa, and Toshiaki Kaneko, both of Yokohama, all of Japan, assignors to Nippon Yusen Kaisha, Tokyo, Japan

Filed Dec. 28, 1970, Ser. No. 102,037

Claims priority, application Japan, May 2, 1970, 45/37199; Dec. 27, 1969, 44/104829

Int. Cl. C10l *1/20*

U.S. Cl. 44—63 **8 Claims**

Fuel oil is stabilized against sludge formation by means of an organic cationic quarternary ammonium bactericidal agent such as an alkyl pyridinium or picolinium halide.

3,833,346

ABRADING AID CONTAINING PARAFFIN AND AN INHIBITOR

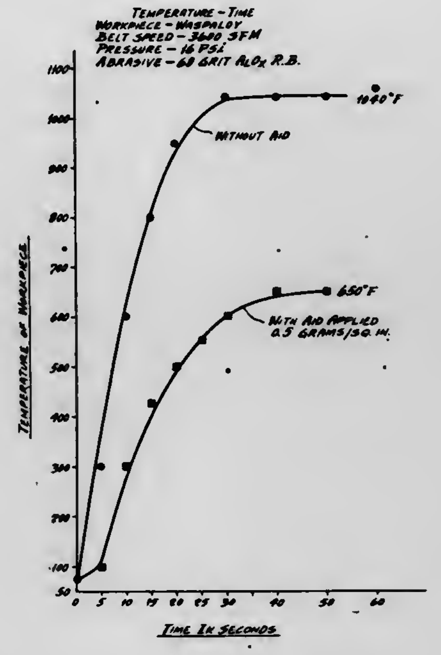
John J. C. Wirth, 98 Ponus Ave., Norwalk, Conn. 06850

Filed July 26, 1971, Ser. No. 166,093

Int. Cl. B24b *1/00;* **C10m** *3/06*

U.S. Cl. 51—306 **3 Claims**

A direct externally applied grinding, abrading and cutting aid for tools which includes a vehicle or carrier of a suitable matrix softer than the cutting material and which will readily adhere thereto without chipping while the tool is in motion. Dispersed within the matrix is a halogen salt or the like which includes hydrocarbons, chlorides, fluoborates, fluorides and various sulfides. These materials were selected on the basis that they sublime or decompose at temperatures below those that would metallurgically damage the metal workpiece. This aid is applied directly to the tool, as for example, to a coated abrasive and may be reapplied as often as is necessary, thus increasing both the life of the tool, its cutting rate, total metal removal, and its efficiency in addition to lowering the temperature of the material being cut. In addition, there is disclosed an automated system for maintaining the workpiece at a selected temperature through the controlled application of the aid.



3,833,347

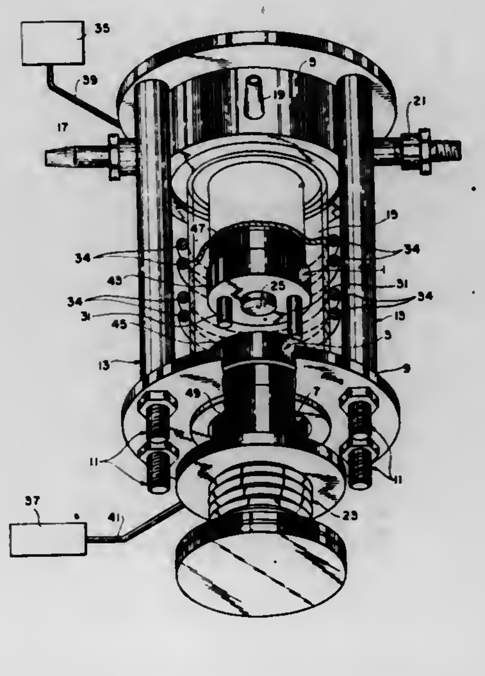
METHOD FOR MOLDING GLASS LENSES

Milton A. Angle; Gerald E. Blair, and Clarence C. Maier, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 93,351, Nov. 27, 1970, abandoned. This application Mar. 12, 1973, Ser. No. 340,139

Int. Cl. C03b , *9/14*

U.S. Cl. 65—32 **27 Claims**



A method for molding glass into finished, image-forming lenses wherein a portion of optical glass is placed in a mold cavity formed of a glasslike carbon material and subjected to heat and pressure. The walls defining the mold cavity have a high surface quality and a high surface accuracy, and the cavity is configured to produce lenses of predetermined shapes.

3,833,348

METHOD OF JOINING A PAIR OF SILICON NITRIDE PARTS

Roger Francis Stokes, Birmingham, and Brian John Hunt, Warwickshire, both of England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Mar. 14, 1972, Ser. No. 234,620

Claims priority, application Great Britain, Mar. 24, 1971, 7874/71; May 21, 1971, 16452/71

Int. Cl. C03c *27/00*

U.S. Cl. 65—43 **5 Claims**

To join a pair of silicon nitride parts, a powdered glass containing silicon, aluminium, an alkaline earth metal and oxygen is provided on at least one of the parts to be joined. The powdered glass is then heated so as to produce molten glass between the parts whereby, on cooling, the glass provides a joint between the parts.

The powdered glass can also contain silicon, manganese and oxygen, together with aluminium.

3,833,349

CERAMIC ARTICLES AND METHOD OF SEALING CERAMICS

Ronald H. Arendt, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 138,305, April 28, 1971, Pat. No. 3,719,550. This application Sept. 15, 1972, Ser. No. 289,430

Int. Cl. C03c *27/00*

U.S. Cl. 65—43 **9 Claims**

A method of forming a seal between high-density yttria bodies or between a high-density yttria body and a high-density alumina body is provided. The method involves placing an Al_2O_3-Ga_2O_3-Y_2O_3 mixture between the bodies to be sealed and heating the mixture to a temperature above the melting point of Ga_2O_3 and below the deformation temperature of the bodies such that an Al_2O_3-Ga_2O_3-Y_2O_3 seal forms between the bodies. Ceramic articles having a gas tight seal are made by the method.

3,833,350

METHOD OF INDUCING CAROTENOID ACCUMULATION IN PLANT TISSUE

Anson R. Cooke, Hatfield, and Nancy E. Gallagher, Oreland, both of Pa., assignors to Amchem Products, Inc., Ambler, Pa.

Filed Dec. 14, 1972, Ser. No. 315,760

Int. Cl. A01n *9/12*

U.S. Cl. 71—98 **22 Claims**

A method of inducing carotenoid synthesis or accumulation in plants, fruits, and vegetables by treating either before or after harvesting with halogenated phenoxytriethylamines or halogenated phenylthiotriethylamines.

3,833,351

CONTINUOUS PREPARATION OF PURE METALS BY HYDROGEN REDUCTION

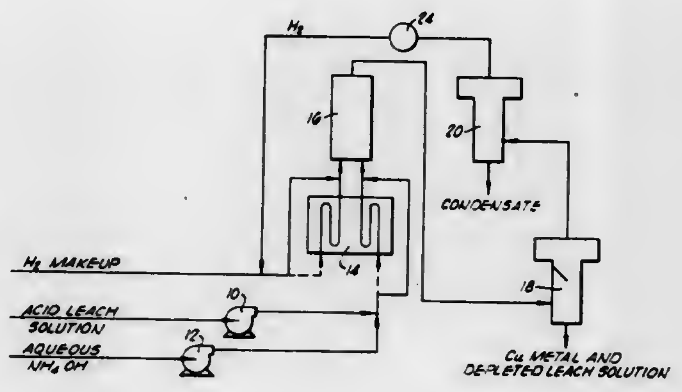
Daniel R. Neskora; Robert L. Brown, and Cedomir M. Sliepcevich, all of Norman, Okla., assignors to University Engineers, Inc., Norman, Okla.

Continuation-in-part of Ser. No. 332,679, Feb. 15, 1973,. This application July 20, 1973, Ser. No. 381,051

Int. Cl. C22b *23/04*

U.S. Cl. 75—0.5 A **27 Claims**

A process for continuously recovering metal powders of high purity from acid or ammoniacal leach solutions which comprises conditioning the leach solution to attain a selected free ammonia to metal mol ratio in the general range of from about 0.0:1 to about 6:1, depending upon the metal to be reduced, then continuously passing the conditioned leach solution through a tubular reactor under steady state conditions in modified plug flow in which localized, limited backmixing occurs, while continuously introducing a reducing gas to the inlet end of the tubular reactor to agitate the pretreated leach solution as it passes through the reactor and to continuously reduce selected metal ions therein and yield insoluble metal powder. A temperature gradient is preferably maintained over the length of the tubular reactor, from ambient temperature at the inlet to the reactor, to a temperature preferably exceeding about 200°F at the outlet end of the reactor.



3,833,352

PROCESS FOR BENEFICIATING MOLYBDENATE CONCENTRATE TO PRODUCE MOLYBDENUM TRIOXIDE

Milos Vojkovic, Residence Azure, 78 Route d'Arlon, Grand Duchy, Luxembourg

Filed May 14, 1969, Ser. No. 824,682

Claims priority, application Great Britain, May 21, 1968, 24175/68

Int. Cl. C22b *1/02;* **C01g** *39/00*

U.S. Cl. 75—1 **12 Claims**

A process for the beneficiation of molybdenite concentrate comprising preheating the concentrate under inert conditions and contacting the concentrate with oxygen when the concentrate is at a temperature that will sustain an exothermic reaction with the oxygen to produce molybdenum trioxide, the conditions being such that the maximum temperature reached by the concentrate while it is in contact with the oxygen is within the range of from 500°C to 900°C.

3,833,353

PROCESS FOR CLASS VIIIB METALS ORE REDUCTION

Paul Franklin Taylor, P.O. Box 468, Crossville, Tenn. 38555

Continuation-in-part of Ser. No. 273,284, July 19, 1972, abandoned. This application Oct. 3, 1973, Ser. No. 403,261

Int. Cl. C21b

U.S. Cl. 75—21 **3 Claims**

The class VIIIB metals are generally found clustered and bound together within common ores, and most often include gold, silver, and copper. One such ore is of the Cobalt series comprised of the metals cobalt, nickel, silver, copper, and iron. Another one is of the Platinum series comprised of the metals platinum, nickel, copper, and iron. These are known respectively as Smaltite ore, and Pentlandite ore. Other platinum ore is found as alluvial deposits in regions of known noble metal-bearing formations such as the Ural Mountains, Colombia, and the Transvaal. They are sometimes referred to as "black sand" deposits and are mined by placer operations. This group includes platinum, palladium, rhodium, ruthenium, iridium, osmium, and usually with gold and silver. Much of it's noble metal may be recovered by such means as by washing with water to produce particles and nuggets. However, much of this ore as well as all other of the types above mentioned are so bound with oxygen and gange material chemically that such simple recovery methods are rendered ineffective, and indeed, oftentimes requires definite chemical reactions for their reductions. Such material is usually the resultant "tailing" product from hydraulic concentration and benefication processes. Consequently huge amounts of such material cannot be so simply processed, as by washing, for the economic recovery of the bound-up metals. The instant process operates for the reduction of the metals within all such ores. The process requires such material to be in finely divided form and concentrated for economic advantage. It is then admixed with a certain liquid formula solution within a suitable reduction container, followed by additions of finely divided limestone and stirred for homogeneous uniformity while chemical reactions go to completion. The liquid formula is comprised of phosphoric acid, zinc oxide, and an alkylphenol polyglycol ether type sulfated surfactant. The mixture within the container is then heated by endothermic heat sources until the ore has reacted fully chemically with the liquid formula solution. Gases are expelled until the ore reaches a dry, solid state. The reduced matrix material is then pulverized for convenient entry into a smelting medium, and there smelted to produce the metals as either ingot of individual metals or in matte-alloyed forms. The smelting amounts to only a melting out of the metals from the matrix material, such metals being already chemically reduced and released by the foregoing reaction with the reduction components under heating. The smelted metal forms into either type according to selective heat applications to the smelting medium as the operator may choose. The combination of reduction ingredients are effective, therefore, in liberating the metals from chemically-bound oxygen and gange impurities upon admixing with the ore, heating the mixture, and smelting the resulting residue matrix material to the metals.

3,833,354

PROCESS FOR TRANSFORMING LIQUID FURNACE SLAG INTO GRANULES

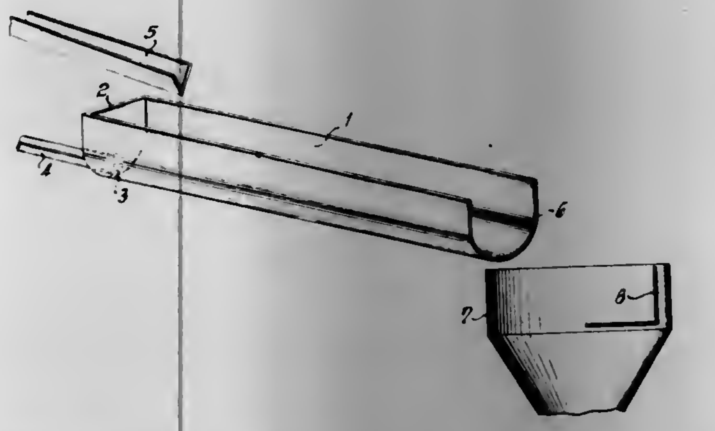
Ursus Thummler, Erftstadt Liblar; Hugo Werner, Hurth-Hermulheim, and Hans Kerber, Hurth-Knapsack, all of Germany, assignors to Knapsack Aktiengesellschaft, Knapsack near Cologne, Germany

Filed Nov. 16, 1972, Ser. No. 307,166

Claims priority, application Germany, Nov. 20, 1971, 2157653

Int. Cl. C21b *3/08*

U.S. Cl. 75—24 **1 Claim**



Liquid furnace slag, more particularly liquid phosphorus furnace slag, i[illegible]sformed into granules. To this end, impinging contact between a free falling stream of liquid slag and a focused stream of water maintained under a pressure between 0.5 and 1.5 atmospheres gauge is produced so as to effect break-up of the slag into particles. The resulting particles are delivered to, and complete solidification thereof is effected in, a cooling zone having water therein.

3,833,355

PROCESS FOR THE REDUCTION, IN LIQUID PHASE, OF IRON ORE IN A ROTARY KILN

Aldo Ramacciotti, Rome, Italy, assignor to Centro Sperimentale Metallurgico S.P.A., Rome, Italy

Filed Jan. 18, 1972, Ser. No. 218,829

Claims priority, application Italy, Feb. 3, 1971, 48149/71

Int. Cl. C21b *11/06*

U.S. Cl. 75—40 **7 Claims**

Process for the production of liquid carburized iron by direct reduction in liquid phase, of iron-containing materials in an essentially cylindrical vertical reactor, rotating around its geometrical axis, wherein the material containing iron in oxidized state mixed with flux and the reducing material is fed while the reactor is in motion, in alternate layers, which owing to the centrifugal force or to their own friction, adhere to the internal wall of the reactor, the layer next to the reactor wall consisting of the reducing material and the adjacent layer, situated nearer the geometrical axis of the reactor consisting essentially of material containing iron in oxidized state mixed with a fluxing agent and wherein the carbon monoxide developed in the reduction reactions occurring between the hereinbefore said layers is entirely burnt to carbon dioxide by means of a jet of pure oxygen injected into the reactor.

3,833,356

METHOD AND APPARATUS FOR INJECTING OIL INTO THE TUYERES OF A BLAST FURNACE

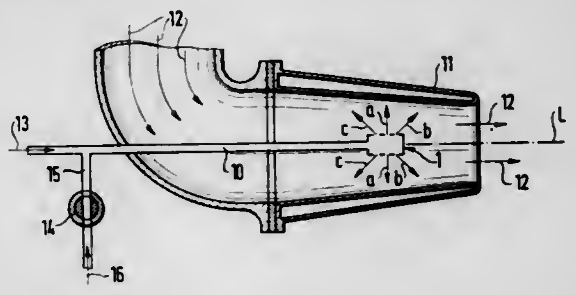
Friedrich August Karl Luth, Luegplatz 3, Dusseldorf-Oberkassel, Germany

Filed Oct. 21, 1971, Ser. No. 191,451

Claims priority, application Germany, Oct. 21, 1971, 2051676

Int. Cl. C21b *5/00*

U.S. Cl. 75—41 **9 Claims**



A method and an apparatus for injecting oil into the tuyeres of a blast furnace preferably if the substitution ratio is above 50 to 100 kg oil/ton of pig iron. The oil is injected into the blast current with a speed at which it is not atomized when leaving the nozzle but injected as coherent jets, preferably in radial direction, maintaining their coherence a substantial distance in front of the nozzle. In this way the combustion of the oil is improved and its utilization can be increased to far greater amounts of oil which can be economically injected into the blast furnace in substitution of coke.

3,833,357

A PROCESS FOR DECOMPOSING ALKALI METAL AMALGAMS INTO MERCURY, HYDROGEN AND ALKALI METAL HYDROXIDE SOLUTIONS

Giuseppe Bianchi, and Antonio E. Nidola, both of Milan, Italy, assignors to Oronzio De Nora Impianti Elettrochimici S.p.A., Milan, Italy

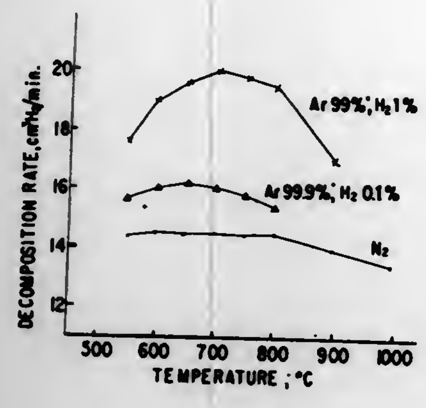
Division of Ser. No. 109,781, Jan. 26, 1971, Pat. No. 3,759,842. This application July 12, 1972, Ser. No. 271,055

Claims priority, application Italy, Nov. 24, 1970, 32119/70

Int. Cl. C22b *43/100;* **C01c** *1/18;* **C01b** *1/00*

U.S. Cl. 75—121 **9 Claims**

Graphite impregnated with at least one valve metal oxide such as zirconium oxide, tantalum oxide, titanium oxide, aluminum oxide or molybdenum oxide alone or optionally co-deposited with an oxide of a metal of the eighth group of the periodic table which is useful in an amalgam denuder and a process for the preparation and use of the said impregnated graphite to decompose an alkali metal amalgam to mercury and alkali metal hydroxide.



3,833,358
REFRACTORY IRON-BASE ALLOY RESISTING TO HIGH TEMPERATURES

Jean Bellot, Pompey, and Michel Hugo, Custines, both of France, assignors to Societe Des Acieries Du Manoir-Pompey, Paris, France

Continuation-in-part of Ser. No. 78,608, Oct. 6, 1970, abandoned. This application Jan. 19, 1972, Ser. No. 219,141

Claims priority, application France, July 22, 1970, 70.27119; Jan. 29, 1971, 71.3098

Int. Cl. C22c *39/22, 39/26*

U.S. Cl. 75—122 **7 Claims**

The refractory iron-base alloy according to the invention has the following composition:

	Percent by weight
Carbon	from 0.05 to 0.20
Nickel	from 30 to 40
Chromium	from 20 to 30
Columbium	from 0.2 to 2
Nitrogen	from 0.04 to 0.2
Manganese	from 0.6 to 2
Silicon	from 0.8 to 2
Iron and impurities	complementary percentage

Said alloy offers high resistance to creep, thermal shocks, heat fatigue and intergranular oxidation, as well as good weldability.

More specifically, the proportion of the various elements comply with the formula:

$$30 \times C\% + Ni\% + 0.5 \times Mn\% + 16 \times N\% = Cr\% + 0.5 \times (Nb + \tfrac{1}{2}Ta)\% + 3.5 \times Ti\% + 1.5 \times Si\% + Mo\% + 11 \pm 2.$$

3,833,359
HIGH CR LOW NI STAINLESS STEEL

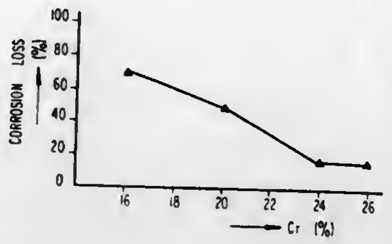
Shinichi Murakami, and Hisashi Hiraishi, both of Osaka, Japan, assignors to Kubota, Ltd., Osaka, Japan

Filed Aug. 13, 1973, Ser. No. 387,545

Int. Cl. C22c *39/54, 39/20*

U.S. Cl. 75—125 **2 Claims**

A high Cr low Ni stainless steel comprising not more than 0.10% C, not more than 2.0% Si, not more than 2.0% Mn, the sum of P and S being not more than 0.04%, 24 to 30% Cr, 2.0 to 3.0% Ni, 0.5 to 1.0% Mo, 0.03 to 0.10% Nb, 0.4 to 1.0% Cu and the remainder Fe and incidental impurities. This stainless steel predominantly exhibits the ferrite matrix and is quite resistant to the intergranular corrosion and the stress corrosion cracking.



3,833,360
SUPER-HIGH-SPEED STEELS OF HIGH CUTTING CAPACITY

Henrik Giflo; Sandor Enekes; Pal Zambo; Janos Sziklavari; Istvan Farkas; Geza Ivan; Jozsef Molnar; Jozsef Vamosi, and Janos Valko, all of Miskolc, Hungary, assignors to Lenin Kohaszati Muvek, Miskolc, Hungary

Filed Dec. 29, 1972, Ser. No. 319,857

Claims priority, application Hungary, Dec. 29, 1971, 165

Int. Cl. C22c *39/14*

U.S. Cl. 75—126 R **6 Claims**

Mo-based super-high-speed steel of high cutting capacity, containing, in addition to the iron and the usual alloying and contaminating elements, also 1.05 to 1.50 weight percent of C, 4.0 to 5.0 weight percent of Cr, 5 to 6 weight percent of W, 0.05 to 2.0 weight percent of S, 0.05 to 0.50 weight percent of Pb and optionally being alloyed with Co, improved in that it contains 6.05 to 6.95 weight per cent of Mo, 2.16 to 4.50 weight percent of V, 0.10 to 4.0 weight percent of Nb and 0.11 to 0.25 weight percent of N_2.

3,833,361
METHOD FOR ADDING SPECIAL ELEMENTS TO MOLTEN PIG IRON

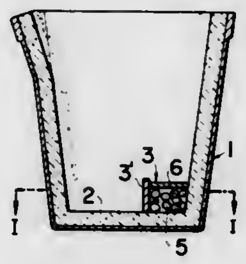
Toshihisa Kusaka, Tokyo, Japan, assignor to Kusaka Rare Metal Products Co., Ltd., Tokyo, Japan

Filed Feb. 9, 1971, Ser. No. 113,853

Claims priority, application Japan, July 16, 1970, 45-61993; Nov. 9, 1970, 45-97825

Int. Cl. C22c *37/00*

U.S. Cl. 75—130 B **7 Claims**



A method of adding a magnesium containing additive selected from the group consisting of metallic magnesium and alloys or mixtures of magnesium with at least one other metal selected from the group consisting of rare earth metals, calcium, aluminum, vanadium, zirconium, niobium, titanium, copper, nickel, chromium, molybdenum, cobalt and mixtures thereof, which comprises introducing said magnesium containing additive to at least one enclosure at the bottom of a molten pig iron ladle, covering said additive with a granular or powdered covering layer containing at least one material selected from the group consisting of carbon, silicon carbide and silicon, whereby the melting point of said covering layer is adjusted to between 1,100° and 1,600° C. and thereafter pouring the molten pig iron into said layer over said enclosure so that contact between said molten pig iron and said additive is delayed until at least a portion of the covering layer is melted.

3,833,362
ELECTROCONDUCTIVE SOLDER

Dennis S. Postupack, Lower Burrell, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 73,619, Sept. 18, 1970, Pat. No. 3,734,698. This application Feb. 20, 1973, Ser. No. 333,593

Int. Cl. C22c *11/00, 31/00*

U.S. Cl. 75—134 T **2 Claims**

A tin-free alloy for use in making an electrical solder connection between a tinned copper wire and a ceramic silver conductive stripe on a glass substrate. The solder connection is useful in electroconductive windows, particularly laminated windows fabricated at a temperature range up to about 300°F.

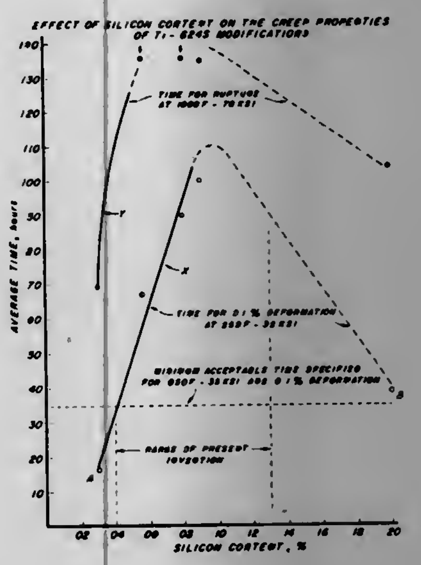
3,833,363
TITANIUM-BASE ALLOY AND METHOD OF IMPROVING CREEP PROPERTIES

Howard B. Bomberger, Jr., Canfield, and Stanley R. Seagle, Warren, both of Ohio, assignors to RMI Company, Niles, Ohio

Filed Apr. 5, 1972, Ser. No. 241,286

Int. Cl. C22c *15/00*

U.S. Cl. 75—175.5 **6 Claims**



A titanium-base alloy consisting by weight of about 5.5 to 6.5% aluminum, 1.7 to 2.3% tin, 0.7 to 5.0% zirconium, 0.7 to 3.0% molybdenum, 0.04 to 0.13% silicon, and the balance titanium. The addition of silicon to the otherwise known alloy produces a marked improvement in creep properties without significant detrimental effect to other properties.

3,833,364
METHOD OF DEVELOPING ELECTROSTATIC IMAGE CHARGE

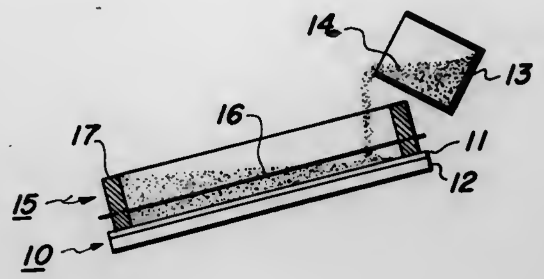
Masamichi Sato; Isoji Takahashi, and Honjo Satoru, all of Asaka, Japan, assignors to Xerox Corporation, Rochester, N.Y.

Continuation of Ser. No. 776,835, Nov. 18, 1968, abandoned. This application July 21, 1970, Ser. No. 64,032

Int. Cl. G03g *13/08*

U.S. Cl. 96—1 SD **6 Claims**

A novel development system is disclosed to be used in conjunction with an electrophotographic imaging process. A developer composition comprising a toner, carrier and an electrodeforming material is used with a development electrode in order to enhance the development phase of the electrophotographic imaging process.



3,833,365
ELECTROSTATIC POWER COATING METHOD COMBINED WITH AN ELECTROPHOTOGRAPHIC PROCESS

Kunio Hiwano; Masaki Fukagawa, both of Hiroshima; Saturu Honjo, Asaka; Masakazu Iwasa, Asaka, and Seiji Matsumoto, Asaka, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa and Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, both of, Japan

Filed June 30, 1972, Ser. No. 267,757

Int. Cl. G03g *13/08*

U.S. Cl. 96—1 SD **8 Claims**

An electrostatic powder coating method comprising;

exposing a charged photoconductive toner layer formed on an electrically conductive substrate to an optical image; selectively removing the irradiation discharged toner particles from said toner layer at irradiated areas to form a toner image corresponding to said optical image; and then, while the remaining charged toner layer still retains a sufficient amount of charge, electrostatically spraying a second powder having the same charge polarity as that of said toner layer over the toner image bearing surface, whereby said second powder is preferentially deposited on the irradiated areas of said image bearing surface, is disclosed.

3,833,366
CARRIER COMPOSITIONS

Robert William Madrid, Macedon, and Robert Joseph Hagenbach, Rochester, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Continuation of Ser. No. 814,437, April 8, 1969, abandoned. This application Nov. 17, 1972, Ser. No. 307,748

Int. Cl. G03g *9/02, 13/08*

U.S. Cl. 96—1 SD **6 Claims**

A carrier for electrostatographic developer mixtures is provided comprising a core surrounded by a pre-coated partially cured thin film of a silicone, over-coated with an unsaturated polyester, said silicone chemically coupling said polyester to said core upon curing.

3,833,367
NOVEL PHOTOGRAPHIC PRODUCTS AND PROCESSES

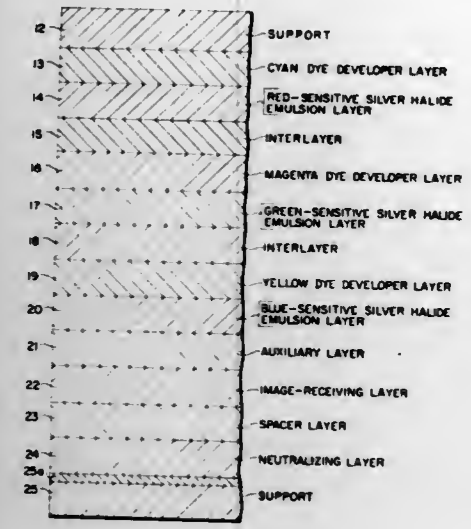
Howard C. Haas, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed May 3, 1972, Ser. No. 249,849

Int. Cl. G03c *7/00, 5/54, 1/40, 1/78*

U.S. Cl. 96—3 **30 Claims**

Novel photograhpic products for use in diffusion transfer systems for forming visible images, particularly systems for forming color images viewable, without separation as color reflection prints, which products include a neutralizing layer for lowering the environmental pH after application of an aqueous alkaline processing fluid, the neutralizing layer being prepared by coating an aqueous solution of a water-soluble cross-linkable acidic polymer on a layer of the film unit including a non-diffusible cross-linking agent for the acidic polymer, whereby to cross-link and thereby harden the thus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25a
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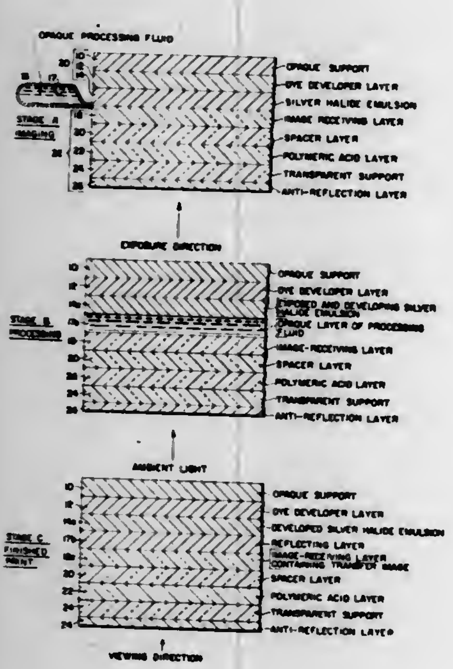
SUPPORT
CYAN DYE DEVELOPER LAYER
RED-SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
MAGENTA DYE DEVELOPER LAYER
GREEN-SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
YELLOW DYE DEVELOPER LAYER
BLUE-SENSITIVE SILVER HALIDE EMULSION LAYER
AUXILIARY LAYER
IMAGE-RECEIVING LAYER
SPACER LAYER
NEUTRALIZING LAYER
SUPPORT

applied layer of acidic polymer at least at the interface of the respective layers. The non-diffusible cross-linking agent may be the only component of the layer or substrate on which the neutralizing layer is applied or it may be present along with other materials, e.g., as the major component of the substrate.

3,833,368
PHOTOGRAPHIC PRODUCTS INCORPORATING ANTI-REFLECTION COATINGS

Edwin H. Land, Cambridge, and Stanley M. Bloom, Waban, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 4, 1972, Ser. No. 311,831
Int. Cl. G03c *7/00, 5/54, 1/76, 1/48, 1/40, 1/84, 1/78;* **B41m** *1/18*
U.S. Cl. 96—3 **60 Claims**

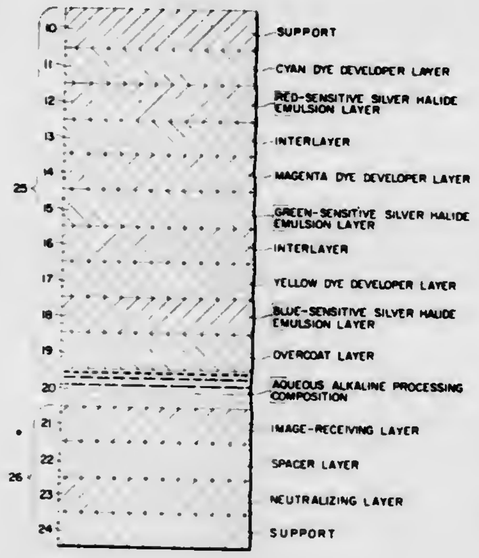


Photographic images, particularly multicolor images, viewed through a transparent support have an anti-reflection coating on the outer surface of said support. The anti-reflection coating comprises an eighth-wave layer of silica and an eighth-wave layer of a fluorinated polymer. The images may be formed by multicolor diffusion transfer processes using dye developers or other image dye-providing materials. In the preferred embodiments, the photographic image is an integral negative-positive reflection print. Where photoexposure is effected through a transparent support, e.g., the transparent support through which the final image is viewed, provision of an anti-reflection coating and effecting photoexposure therethrough will permit more effective recording of light passing through the camera lens. The transparent support preferably has an index of refraction of at least 1.6.

3,833,369
COLOR DIFFUSION TRANSFER FILMS AND PROCESSES WITH POLYMER ENCAPSULATED REFLECTING AGENTS

Charles K. Chiklis, Lexington, and Paul D. Lubin, Hudson, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 29, 1972, Ser. No. 319,291
Int. Cl. G03c *7/00, 5/54, 1/40, 1/84*
U.S. Cl. 96—3 **21 Claims**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SUPPORT
CYAN DYE DEVELOPER LAYER
RED-SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
MAGENTA DYE DEVELOPER LAYER
GREEN-SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
YELLOW DYE DEVELOPER LAYER
BLUE-SENSITIVE SILVER HALIDE EMULSION LAYER
OVERCOAT LAYER
AQUEOUS ALKALINE PROCESSING COMPOSITION
IMAGE-RECEIVING LAYER
SPACER LAYER
NEUTRALIZING LAYER
SUPPORT

Photographic systems for forming images by diffusion transfer wherein an aqueous processing composition including a reflecting agent, e.g., a white pigment, is applied between an exposed photosensitive component or element including at least one light-sensitive layer and an image-receiving component to develop the exposed photosensitive component and, as a function of development, to form a transfer image on the image-receiving component which, due to the presence of the thus applied reflecting agent, is viewable without separation as a reflection print, the essence of the invention being "encapsulating" the reflecting agent in a polymeric "skin" or wall to obtain stated beneficial results; and aqueous compositions including such encapsulated reflecting agents.

3,833,370
COLOR DIFFUSION TRANSFER WITH DEVELOPMENT CONTROLLING POLYMERIC SALT

Ronald A. Sahatjian, Bedford, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

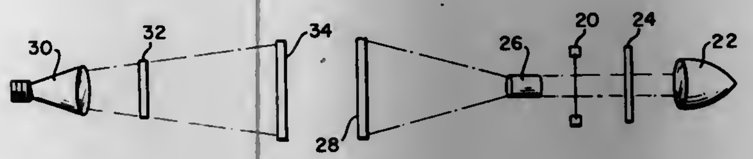
Filed Jan. 5, 1973, Ser. No. 321,289
Int. Cl. G03c *7/00, 5/54, 1/40, 1/06, 1/34*
U.S. Cl. 96—3 **46 Claims**

Color diffusion transfer processes are carried out in the presence of a salt whose anion is derived from an immobile polymeric acid and whose cation is derived from a reagent adapted to control the development of silver halide.

3,833,371
FILM ANNOTATION METHOD

Charles R. Gray, 3104 Ramblewood Dr., District Heights, Md. 20028, and DeForest D. Choha, 7809 Dassett Ct., Annandale, Va. 22003

Filed June 25, 1973, Ser. No. 373,324
Int. Cl. G03b *17/24*
U.S. Cl. 95—1.1 **5 Claims**



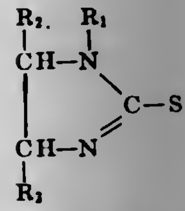
A device to add additional information to previously processed photographic film. A layer of a Diazo emulsion is adhered onto one surface of the film which is then imaged onto a gloss screen where the desired annotations are made. An ultra-violet lamp then illuminates the annotations which are optically focussed back onto the Diazo emulsion. Given sufficient exposure the Diazo emulsion forms a latent image which is processed using gaseous ammonia.

3,833,372
VISCOUS DEVELOPING LIQUID FOR USE IN A SILVER SALT DIFFUSION TRANSFER PROCESS

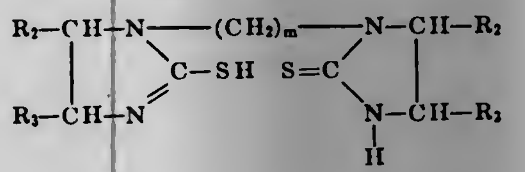
Katsumi Hayashi; Reiichi Ohi, and Tadao Shishido, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Nov. 9, 1972, Ser. No. 305,027
Claims priority, application Japan, Nov. 9, 1971, 46-89267
Int. Cl. G03c *5/54*
U.S. Cl. 96—29 R **33 Claims**

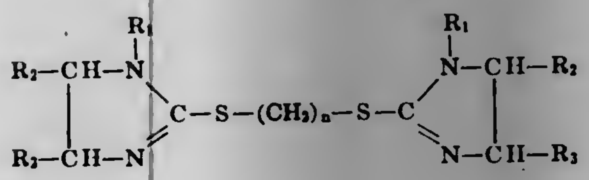
A silver halide-containing viscous developing liquid to be used in a diffusion transfer process comprising an hydroxylamine type developing agent, a sulfur-free nitrogen-containing silver halide solvent, a cellulose derivative thickener, an alkali agent and a color modifying or toning agent of at least one compound represented by the following formulae (I), (II) and (III):



(I)



(II)



(III)

(wherein R_1, R_2 and R_3 are a hydrogen atom, an alkyl or substituted alkyl group containing 1–4 carbon atoms, or a phenyl group, m is an integer of 2–4, and n is 0 or an integer of 1–4).

3,833,373
PHOTOGRAPHIC PROCESS FOR THE PRODUCTION OF COLLOID RELIEF PATTERNS

Edwin Hendrik Hazenbosch, Mechelen, and Albert Lucien Poot, Kontich, both of Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

Filed Sept. 7, 1972, Ser. No. 286,935
Claims priority, application Great Britain, Sept. 8, 1971, 41941/71
Int. Cl. G03c *5/00*
U.S. Cl. 96—35 **12 Claims**

A photographic process wherein a relief image is formed by means of a photographic material comprising in a recording layer a photosensitive dispersed phase in the form of discrete particles of an intimate mixture of N-vinylcarbazole and carbon tetrabromide in a hardenable hydrophilic colloid medium. The process includes a negative and a positive working mode. Unhardened colloid portions are removed by wash-off. Gelatin is used preferably as hardenable colloid.

3,833,374
COLORING OF ANODIZED ALUMINUM

Elbert L. Patrick, East Cleveland, Ohio, assignor to Metalphoto Corporation, a Division of Horizons Research Incorporated, Cleveland, Ohio

Continuation-in-part of Ser. No. 54,842, July 14, 1970, abandoned. This application Oct. 5, 1972, Ser. No. 295,397
Int. Cl. G03c *5/00*
U.S. Cl. 96—36 **4 Claims**

Coloring of anodized aluminum using a resist which includes a dye which can be absorbed by the anodized layer.

3,833,375
METHOD OF REPAIRING AN IMPERFECT PATTERN OF METALIZED PORTIONS ON A SUBSTRATE

John Joseph Moscony, Lancaster, and Ronald Lester Kennard, Landisville, both of Pa., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 9, 1972, Ser. No. 233,247
Int. Cl. G03c *5/00*
U.S. Cl. 96—36.2 **5 Claims**

The method comprises treating a pattern of metalized portions on a substrate which were deposited using a photomasking technique, to render the metal thereon more etch-resistant, then sensitizing and activating at least a part of the treated area on the substrate including an area containing imperfectly formed metalized portions, for autocatalytic deposition of more of the metal, depositing a coating of the metal over the treated area by autocatalytic deposition, defining the portions to be repaired by photomasking and etching techniques preferably using the same mask used to define the original pattern of metalized portions, and etching away unwanted portions of the last-deposited metal without removing any substantial amount of the first-deposited metal portions.

3,833,376
COLOR DEVELOPMENT PROCESS AND COMPOSITIONS

Norman Newman; Richard S. Fisch, both of St. Paul, Minn., and Enrico Furlanetto, Savona, Italy, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 24, 1972, Ser. No. 309,116
Int. Cl. G03c *7/00, 5/32*
U.S. Cl. 96—55 **8 Claims**

An abbreviated process for the color development of photographic elements containing an aldehyde, the heating the element in an elevated temperature environment of at least 65°C. in the presence of certain gelatin permeable compounds until full color density is attained without degradation of the photographic element. Such gelatin permeable compounds incoude aromatic alcohols, their esters and ethers, alkylene glycols having at least 3 carbon atoms per molecule and surface active compounds. These gelatin permeable compounds may be included in any processing bath after the color developer.

3,833,377
PROCESS FOR PREPARING GRANULAR COLOR DEVELOPING AGENT

Takeo Emoto, and Satoshi Kurihara, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 18, 1972, Ser. No. 281,672
Claims priority, application Japan, Aug. 19, 1971, 46-63231
Int. Cl. G03c *5/30, 7/16*
U.S. Cl. 96—66.2 **5 Claims**

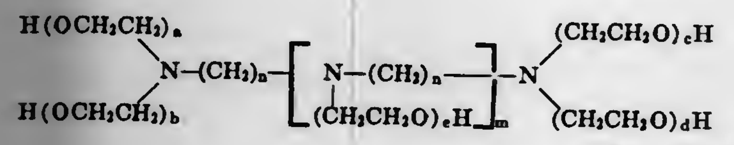
A process for preparing a granular color developing agent, which comprises kneading a mixture of at least one excipient selected from the group consisting of water and lower alcohols and a p-phenylenediamine color developing agent, and granulating the mixture is disclosed.

3,833,378
DEVELOPER COMPOSITION FOR PRODUCING PHOTOGRAPHIC MATERIALS FOR THE GRAPHIC ARTS

Katsumi Hayashi; Yoo Iijima, and Teruo Kobayashi, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 27, 1972, Ser. No. 248,275
Claims priority, application Japan, Apr. 27, 1971, 46-27816
Int. Cl. G03c *5/30*
U.S. Cl. 96—66.3 **20 Claims**

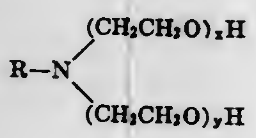
A developer composition for producing photographic materials for the graphic arts comprising a dihydroxy benzene developing agent and at least one polyethoxy amino compound represented by the following formula A



$$[H(OCH_2CH_2)_a][H(OCH_2CH_2)_b]N-(CH_2)_n-\left[N((CH_2CH_2O)_eH)-(CH_2)_n-\right]_m-N[(CH_2CH_2O)_cH][(CH_2CH_2O)_dH]$$

Formula (A)

wherein n ranges from 2 to 10;
m ranges from 0 to 6; and $a+b+c+d+e \times$ m ranges from 5 to 200 with *a*, *b*, *c*, *d* and *e* each representing an integer other than 0.
or the formula B



$$R-N[(CH_2CH_2O)_xH][(CH_2CH_2O)_yH]$$

Formula (B)

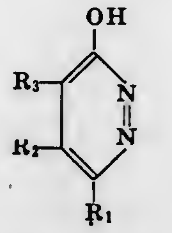
wherein R represents an alkyl group of less than four carbon atoms, where C_4 $x \times y$ ranges from 3 to 100 or R represents a $-(CH_2CH_2O)_zH$ group, where $x+y+z$ ranges from 5 to 100, in which x, y and z each represent an integer other than 0 is disclosed.

3,833,379
DEVELOPER COMPOSITION FOR LITHOGRAPHIC PRINTING PLATES

Yugoro Sakazume; Akio Oshima; Kunio Jin; Masashi Nakano, and Takashi Uchida, all of Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Jan. 11, 1973, Ser. No. 322,875
Claims priority, application Japan, Jan. 17, 1972, 47-6166
Int. Cl. G03c *5/30*
U.S. Cl. 96—66.4 **2 Claims**

A developer formulation for silver halide-containing lithographic printing plates which comprises an infectious developer containing hydroquinone as developing agent and, incorporated therein, a compound of the formula:

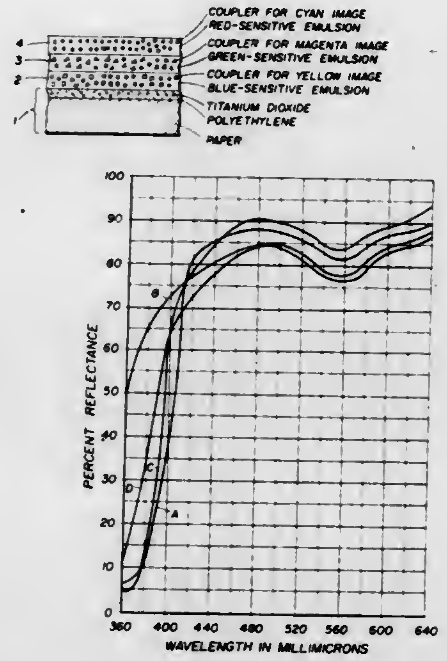


wherein R_1 is a hydrogen atom, an alkyl group, a hydroxy group or a carboxy group; R_2 is a hydrogen atom, an alkyl group, a halogen atom, or a carboxyalkyl group; and R_3 is a hydrogen atom, a cyano group, a halogen atom or a carboxy group, provided that R_2 and R_3 may bond together to form a benzene ring.

3,833,380
NOVEL PHOTOGRAPHIC ELEMENTS

Irvin H. Crawford, and Francis M. Hartman, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 447,373, April 12, 1965, abandoned. This application Sept. 26, 1972, Ser. No. 292,365
Int. Cl. G03c *1/84, 1/76*
U.S. Cl. 96—74 **18 Claims**

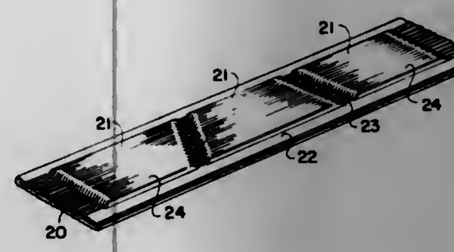


Color photographic elements having improved resistance to ultraviolet radiation, improved sharpness and low propensity to stain in the non-image areas comprise a paper support having coated thereon a silver halide emulsion layer which is sensitive to a visible region of the spectrum, which contains an incorporated color forming coupler. The paper support contains a non-fluorescing ultraviolet radiation absorbing compound and has, on its emulsion side surface, an average reflectance of no more than about 25 percent over wavelengths in the ultraviolet region of the spectrum in the range of about 360 to about 400 mμ.

3,833,381
PHOTOGRAPHIC PRODUCTS INCLUDING RUPTURABLE CONTAINERS

Richard J. Chen, Winchester, and Thomas P. McCole, South Natick, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 25, 1972, Ser. No. 300,709
Int. Cl. G03c *1/48*
U.S. Cl. 96—76 C **13 Claims**



Single use rupturable containers or "pods" are disclosed for use in diffusion transfer film units. These pods are particularly adapted for use in film units providing integral negative-positive multicolor reflection prints. The rupturable containers have a plurality of fluid-retaining compartments, and the end compartments have a trapezoidal configuration effective in assisting the uniform distribution of processing fluid released by rupture of the pod.

3,833,382
PHOTOGRAPHIC PRODUCTS INCLUDING RUPTURABLE CONTAINERS

Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 29, 1972, Ser. No. 319,488
Int. Cl. G03c *1/48*
U.S. Cl. 96—76 C **14 Claims**

Single use rupturable containers or "pods" are disclosed for use in diffusion transfer film units. These pods are particularly adapted for service in film units providing integral negative-positive multicolor reflection prints. The container walls enclosing each fluid retaining cavity are secured together at a plurality of locations within said cavity to assist in the uniform distribution of processing fluid released upon rupture of the pod.

3,833,383
HOLOGRAPHIC RECORDING MEDIUM

Robert James Ryan, and Louis Anthony, both of Di Marco, Trenton, N.J., assignors to RCA Corporation, New York, N.Y.

Filed Aug. 18, 1972, Ser. No. 282,077
Int. Cl. G03c *1/84*
U.S. Cl. 96—84 R **4 Claims**

A holographic recording medium having a non-blocking antihalation layer comprising a hydrophilic polymer having unreacted vinyl alcohol groups and an antihalation dyestuff.

3,833,384
PHOTOPOLYMERIZABLE COMPOSITIONS AND ELEMENTS AND USES THEREOF

John M. Noonan; Richard C. Sutton, and Robert C. McConkey, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 247,747, April 26, 1972. This application Apr. 6, 1973, Ser. No. 348,578
Int. Cl. G03c *1/68*
U.S. Cl. 96—115 P **17 Claims**

Novel photopolymerizable compositions comprise an ethylenically unsaturated monomer which is a bisacryloyl derivative of p- or m-hydroxy or amino benzoic acid, a film-forming carboxylated polymeric binder and a photoactivatable polymerization initiator. These compositions are easily developed with alkaline solutions and can be used to prepare resists, printing plates, and other photomechanical images. Terpolymer binders of methyl methacrylate, ethyl acrylate and methacrylic acid present in proportions of from 40 to 65 percent, 20 to 45 percent and 10 to 25 percent, respectively, on a mole basis, have been found to produce resist compositions of exceptionally clean developing characteristics which are substantially free of microresidues.

3,833,385
PREFORM CORE BODIES

Lee M. Adelsberg, Big Flats; Michael C. Carson, Corning; Ray B. Forker, Jr., Beaver Dams, and Hermann L. Rittler, Horseheads, all of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Dec. 28, 1971, Ser. No. 213,223
Int. Cl. B28b *7/34*
U.S. Cl. 106—38.9 **2 Claims**

This invention relates to the production of preform core materials which are sufficiently refractory to withstand exposure to temperatures up to and in excess of 1,600°C. and which are relatively inert to such molten metals as nickel and cobalt base superalloys. These core materials are characterized as containing pollucite (Cs_2O-Al_2O_3-$4SiO_2$) and/or mullite ($3Al_2O_3$-$2SiO_2$).

3,833,386
METHOD OF PREPAIRING POROUS CERAMIC STRUCTURES BY FIRING A POLYURETHANE FOAM THAT IS IMPREGNATED WITH INORGANIC MATERIAL

Louis L. Wood, Potomac, Md.; Philip Messina, Colonia, N.J., and Kurt C. Frisch, Grosse Ile, Mich., assignors to W. R. Grace & Co., New York, N.Y.

Filed July 7, 1972, Ser. No. 269,626
Int. Cl. B29d *27/08;* **C08j** *1/14*
U.S. Cl. 106—41 **17 Claims**

The invention disclosed is for ceramic foam structures prepared by reacting an isocyanate capped polyoxyethylene polyol reactant with large amounts of an aqueous reactant containing finely divided sinterable ceramic material. The resultant foams having the sinterable ceramic material dispersed thereon are heat treated to decompose the carrier foam under firing conditions which sinter the ceramic particles resulting in a rigid ceramic foam structure.

3,833,387
CERAMIC COATING OF HIGH THERMAL EXPANSION COEFFICIENT FOR THERMOELECTRIC MATERIALS

Edward L. Reed, Woodland Hills, and Irwin J. Groce, Canoga Park, both of Calif., assignors to North American Rockwell Corporation, El Segundo, Calif.

Division of Ser. No. 562,948, June 30, 1966. This application Feb. 2, 1968, Ser. No. 790,178
Int. Cl. C03c *5/02*
U.S. Cl. 106—49 **5 Claims**

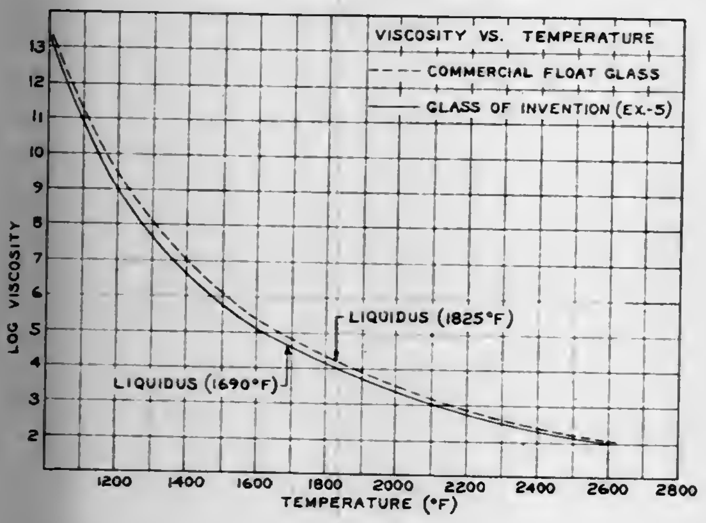
1. A protective coating composition for a thermoelectric material consisting essentially of a metal oxide dispersed in an enamel matrix:

a. the metal oxide having a thermal expansion coefficient of at least about 10 in./in./°C($\times 10^{-6}$), and
b. the enamel matrix containing as essential components lead oxide, silica, lithium oxide, and at least one other alkali metal oxide selected from the group consisting of sodium oxide and potassium oxide.

3,833,388

METHOD OF MANUFACTURING SHEET AND FLOAT GLASS AT HIGH PRODUCTION RATES

Stanley M. Ohlberg, and James V. Jones, both of Pittsburgh, Pa., assignors to PPG Industries Inc., Pittsburgh, Pa.
Continuation-in-part of Ser. No. 275,127, July 26, 1972, abandoned. This application Apr. 3, 1973, Ser. No. 347,510
Int. Cl. C03b *1/00*
U.S. Cl. 106—52 **18 Claims**



A method of increasing the rate of production (throughput) of flat glass, particularly sheet glass manufactured by the Pittsburgh Process, and float glass manufactured by the Float Process is disclosed. The method involves altering the standard commercial sheet glass formulations of the Pittsburgh Process and of the Float Process to give a lower SiO_2 and CaO containing glass which has a higher Na_2O content. The new glass composition melts and fines at lower temperatures and is a surprisingly more soluble composition for the batch sand which makes the glass composition faster melting. The new glass requires less salt cake for melting and fining than conventional sheet and float glass and also retains a higher percentage of SO_3 during melting and refining in the glass than either conventional sheet and float glass. These factors significantly reduce the pollution hazards associated with gaseous and particulate sulfur emissions. Further, since the glass is faster melting, it helps reduce particulate emissions due to dusting. Further, the new glass has a lower liquidus temperature, a wider working range, can be attenuated over a wider temperature range, and is easier to cut. Flat glass articles of the new composition can be both thermally and chemically tempered at faster rates. These improved properties all contribute to high throughput conditions. Although the new glass can be made at higher production rates, commercially desirable properties, such as chemical durability, are as good as commercially available sheet and float glass.

3,833,389

HEAT RESISTANT AND STRENGTHENED COMPOSITE MATERIALS AND METHOD FOR PRODUCING SAME

Katsutoshi Komeya, Kawasaki; Akihiko Tsuge, Yokohama; Hiroshi Inque, Kawaguchi, and Hiroyuki Murata, Yokohama, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawask-shi, Japan
Filed Dec. 23, 1971, Ser. No. 211,728
Claims priority, application Japan, Dec. 23, 1970, 45-115817
Int. Cl. C04b *35/52, 35/56, 35/58*
U.S. Cl. 106—55 **4 Claims**

Heat resistant and strengthened composite materials are obtained by mixing, and sintering in a non-oxidizing atmosphere, the combination of powders of aluminum nitride and/or silicon nitride, with powders of an oxide of lanthanum, cerium, scandium, yttrium, and/or yttrium aluminum garnet, and with powders or whiskers of silicon carbide, boron nitride and/or carbon. The composite material so produced is characterized by high shock resistance and excellent mechanical strength.

3,833,390

DEVELOPMENT OF HOT STRENGTH IN SYNTHETIC MAGNESIA REFRACTORIES HAVING HIGH B_2O_3 CONTENT

Ronald Staut, Cherry Hill, N.J., and Gunther L. Mortl, Villach, Austria, assignors to General Refractories Company, Philadelphia, Pa.
Filed Aug. 19, 1971, Ser. No. 173,302
Int. Cl. C04b *35/04*
U.S. Cl. 106—58 **7 Claims**

A magnesia refractory shape possessing good strength properties at elevated temperatures is prepared from a magnesia grain containing 90 to 99% MgO, and over 0.1% by weight B_2O_3; and which can have a Ca-Si mole ratio of less than 2.0. Fine particles of an alkali metal-containing compound are added to the magnesia grain to help volatilize the boron during firing. Fine particles of calcium-and silicon-containing material can be admixed, if needed, with the magnesia grain to increase the Ca-Si mole ratio of the fine (−100 mesh) particles of the admixture to above 2:1 and to increase the total weight percent of CaO and SiO_2 present in the fine particle component of the composition to between 3 to 7% by weight.

3,833,391

REFRACTORY COMPOSITION, METHOD OF MAKING, AND PRODUCT

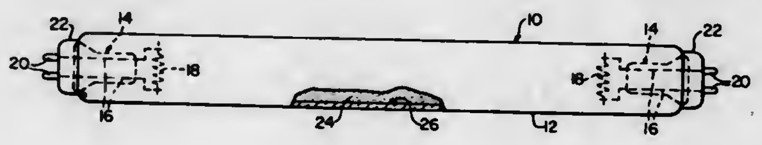
Alfred P. Dreyling, deceased, late of East Brunswick, N.J. (by Lewis J. Dreyling, executor), assignor to Quigley Company, Inc., New York, N.Y.
Continuation-in-part of Ser. No. 120,756, March 3, 1971, abandoned, which is a continuation-in-part of Ser. No. 828,338, May 27, 1969, abandoned. This application July 17, 1973, Ser. No. 379,973
Int. Cl. C04b *35/04*
U.S. Cl. 106—58 **11 Claims**

Basic refractory particles are mixed with an ammonium salt binder capable of imparting high green strength and subsequently passing out of the refractory mixture by sublimation or by decomposition and volatilization. The mixture is formed to a predetermined shape and fired to leave the original basic refractory in said given shape and substantially free of binder that would reduce refractoriness. The refractory mixture may be made by forming the binder salt directly on the surface of the refractory particles.

3,833,392

COATING COMPOSITION AND METHOD FOR PREPARING WATER-SOLUBLE CELLULOSIC POLYMER COATING COMPOSITIONS FOR COATING FLUORESCENT TUBES

Robert W. Repsher, Butler; Gordon C. Gainer, Pittsburgh; Russell M. Luck, Monroeville, and David H. Davies, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Aug. 9, 1971, Ser. No. 170,018
Int. Cl. C08b *27/04*
U.S. Cl. 106—193 **6 Claims**



Method of preparing suspension for coating discharge devices with finely divided particulate material, wherein an aqueous solution of a hydroxy alkyl cellulose is initially purified by passing the solution through an ion exchange system, and the particulate material to be coated is thereafter suspended in the purified solution. The resulting coating composition has an extremely low level of impurity material which, if present, could impair the performance of the completed discharge device, after combustion.

3,833,393

FABRIC-STIFFENING COMPOSITION AND PROCESS

Thomas V. Kandathil, Racine, Wis., assignor to S. C. Johnson & Son, Inc., Racine, Wis.
Continuation of Ser. No. 88,130, Nov. 9, 1970, abandoned, which is a continuation-in-part of Ser. No. 721,191, April 15, 1968, abandoned. This application Oct. 2, 1972, Ser. No. 294,040
Int. Cl. C08b *27/36, 27/42, 25/00, 27/46*
U.S. Cl. 106—212 **4 Claims**

The disclosure relates to fabric-stiffening compositions comprising a fabric-stiffening agent (such as starch), an organic solvent with high penetrating ability, and an emulsifiable wax. These compositions may also contain additional components, such as a water-soluble polyalkylene glycol, a salt of a water-soluble amine and a fatty acid, or a silicone. These compositions can also be pressurized.

3,833,394

ZINC SULPHIDE PIGMENTS

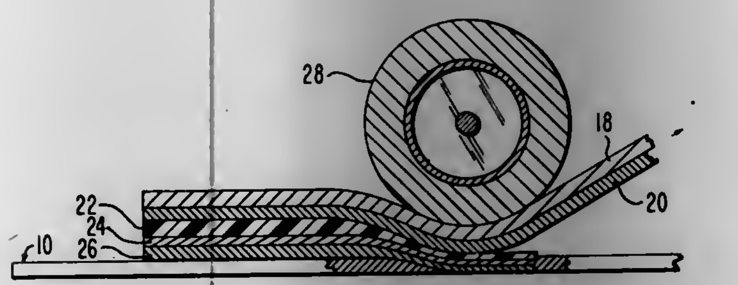
David William Harold Clark, Leigh-on-Sea, England, assignor to May R. Baker Limited, Dagenham, Essex, England
Filed Apr. 24, 1972, Ser. No. 246,762
Claims priority, application Great Britain, Apr. 28, 1971, 11907/71
Int. Cl. C09c *1/04*
U.S. Cl. 106—293 **25 Claims**

A process for increasing the refractive index of planar particles of a zinc orthophosphate is provided which comprises depositing on the particles zinc sulphide formed in situ by heating an aqueous solution of a water-soluble zinc salt and a water-soluble thiosulphate. The resulting pigments have an enhanced pearly or sparkly appearance.

3,833,395

CONTINUOUS FORM COMPUTER PRINT-OUT DOCUMENT PROTECTION SYSTEM

Earl J. Gosnell, Rochester, N.Y., assignor to Burroughs Corporation, Detroit, Mich.
Filed Sept. 11, 1972, Ser. No. 287,837
Int. Cl. B41m *5/10*
U.S. Cl. 117—1 **7 Claims**



A method of safeguarding the amount and/or signature of negotiable instruments such as a check or similar document from fraudulent alternation or forgery by providing a pressure transfer coating for application to the document to be protected during amount printing and/or signing thereof comprising a pressure sensitive tape having a release coating, a polyester or acrylic coating including fluorescent, colorless pigment and an amorphous silica, and a strata having a design with a brilliantly colored daylight fluorescent ink and a waxy-type coating thereon. The latter three strata are pressure released from the tape and transferred to the document over the amount or signature area to be.protected, and then heated so as to cause penetration of the wax-like layer and deeper penetration of the amount indicia into the document fibers.

3,833,396

PATTERN DELINEATION METHOD AND PRODUCT SO PRODUCED

Guenther Wilhelm Kammlott, Watchung, and William Robert Sinclair, Summit, both of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed May 9, 1973, Ser. No. 358,729
Int. Cl. G03c *5/00*
U.S. Cl. 117—8.5 **8 Claims**

A process for the fabrication of a supported iron oxide pattern involves selective electron irradiation of a blank. The blank consists of a layer of iron oxide which is soluble, for example, in an acidic media. Irradiation results in insolubilization so that delineation is accomplished by immersing the processed blank in a suitable solvent.

3,833,397

PROCESS FOR THE RESIN FINISHING OF CELLULOSIC FABRICS AND CELLULOSIC BLEND FABRICS WITH SIMULTANEOUS IMPROVEMENT OF THEIR AFFINITY FOR OPTICAL BRIGHTENERS

Kurt Poppenwimmer, Allschwil/Basel-Land, and Hilmar Roedel, Therwil/Basel-Land, both of Switzerland, assignors to Sandoz Ltd., Basle, Switzerland
Filed June 30, 1971, Ser. No. 158,518
Claims priority, application Switzerland, July 10, 1970, 10452/70
Int. Cl. C09j *3/00;* **D06m** *13/34*
U.S. Cl. 117—33.5 T **11 Claims**

A process for the resin finishing of cellulosic blend fabrics with improvement of their affinity for anionic optical brighteners by treating the fabrics with a solution of a) an N-methylol or N-alkoxymethyl compound b) an acid curing catalyst c) a copolymer consisting of vinyl pyrrolidone units and at least 5.5 weight percent vinyl alcohol units and curing by dry heat treatment at 120°–180°C.

3,833,398

METHOD OF PROVIDING AN ADHERENT PHOSPHOR COATING ON A FLUORESCENT LAMP

Willy P. Schreurs, Danvers, Mass., assignor to GTE Sylvania Incorporated, Danvers, Mass.
Filed May 3, 1973, Ser. No. 356,735
Int. Cl. B44d *1/02*
U.S. Cl. 117—33.5 L **4 Claims**

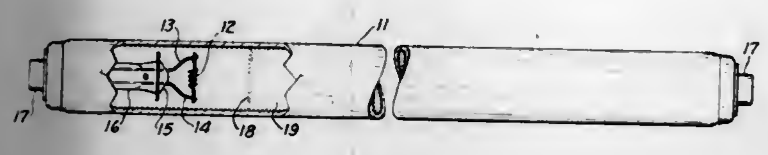
In a method of coating fluorescent lamp glass envelopes to provide improved adhesion of phosphor and alumina particles, conditioning the phosphor and aluminium oxide particles in a solution of ammonium lignosulfonate, removing the particles from the solution, washing, providing an aqueous suspension containing the conditioned particles and an organic binder and applying the particles to the glass envelope to provide a coating.

3,833,399

SURFACE TREATMENT OF FLUORESCENT LAMP BULBS AND OTHER GLASS OBJECTS

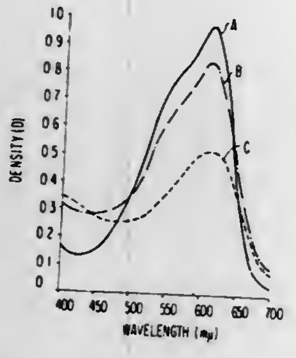
William C. Martyn, Lyndhurst, and Ronald J. Olwert, Willoughby, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.
Filed July 17, 1972, Ser. No. 272,489
Int. Cl. H01j *1/62, 63/04*
U.S. Cl. 117—33.5 L **11 Claims**

A solution of aluminum-*s*-butoxide combined with either or both of tetrabutyl titanate and tributyl antimony is applied to the surface of a glass lamp bulb or other glass object, and heated to about 400°C or higher. Such treatment on the exterior of a bulb hardens and strengthens the glass surface. When the treatment is applied to the interior of a bulb, the treated surface acts as a barrier to alkali materials in the glass, and also hardens and strengthens the bulb. Preferably, a sufficient amount of the aluminum-*s*-butyoxide is used so that the reaction produces some aluminum oxide which functions as a getter for water vapor and oxygen in the bulb.



3,833,400
SHEET WITH IMPROVED IMAGE DURABILITY
Hiroharu Matsukawa, and Takao Hayashi, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Nov. 12, 1971, Ser. No. 198,316
Claims priority, application Japan, Nov. 13, 1970, 45-99983
Int. Cl. B41c *1/06*
U.S. Cl. 117—36.2 **10 Claims**



Pressure sensitive recording sheets of improved image durability are obtained due to the pressure of a hydrogen quinoline compound.

3,833,401
DEGRADABLE POLYETHYLENE FILM
Alvin R. Ingram, Murrysville, Pa., assignor to Arco Polymers, Inc., Pittsburgh, Pa.

Filed Nov. 16, 1972, Ser. No. 307,030
Int. Cl. 47 *DIG. 7;* **B41m** *1/40*
U.S. Cl. 117—38 **3 Claims**

Polyethylene film is caused to degrade in a predetermined pattern by the printing of the pattern on the surface of the film using printing ink containing a degradation promoter such as ultraviolet sensitizers, oxidation promoters, or embrittling agents.

3,833,402
GRAPHITE FIBER TREATMENT
Wayne L. Elban, Westminster, Md., and James V. Larsen, Salt Lake City, Utah, assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 27, 1972, Ser. No. 238,262
Int. Cl. C23c *3/04*
U.S. Cl. 117—46 CA **14 Claims**

High modulus graphite fiber reinforced composites with improved interlaminar shear strength are provided by depositing a metal containing compound on the graphite fiber, decomposing the metal containing compound at elevated temperatures in an inert atmosphere and then using the fiber to form a composite.

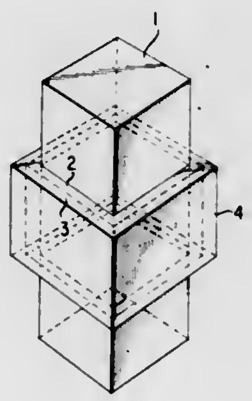
3,833,403
PROCESS FOR SUBBING PHOTOGRAPHIC POLYESTER FILMS
Motoo Kogure; Yasuji Muroi, and Hideyasu Ohta, all of Tokyo, Japan, assignors to Konishiroku Photo Industry, Co., Ltd.

Filed May 23, 1973, Ser. No. 363,051
Claims priority, application Japan, May 30, 1972, 47-52978
Int. Cl. G03c *15/00, 17/00;* **C23d** *3/00;* **B44d** *1/092, 1/52*
U.S. Cl. 117—47 A **3 Claims**

The present invention is directed to a process of subbing photographic polyester film comprising election bombard of one side the film and then treating said film side with a subbing composition containing (a) a copolymer latex of a diolefin polymerized with an ethylenically unsaturated monomer and (b) a compound having two or more groups selected from ethyleneimino and methylsulfonyloxy group.

3,833,404
VIBRATION OR SOUND DAMPING COATING FOR VIBRATORY STRUCTURES
Leslie H. Sperling, Bethlehem, and David A. Thomas, Lower Saucon Township, both of Pa., assignors to Research Corporation, New York, N.Y.

Filed May 31, 1972, Ser. No. 258,391
Int. Cl. F16f *15/00*
U.S. Cl. 117—63 **15 Claims**

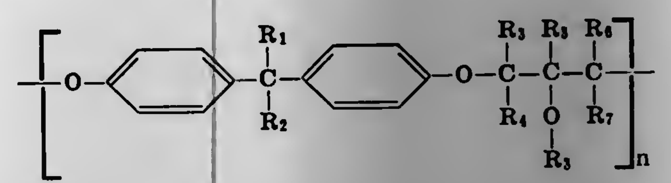


Damping means for a vibratory part comprising an inner layer of visco-elastic polyblended material comprising an interpenetrating polymer networks composition consisting essentially of 5–95 percent by weight of an elastomer (e.g., polyethyl acrylate) and 95–5 percent by weight of a plastic (e.g., polystyrene, polymethylmethacrylate), applied to said part, and an outer plastic constraining layer applied over said viscoelastic material.

3,833,405
PROCESS FOR THE PRODUCTION OF FILM BASE MATERIAL
Edward William Lee; Keith Reid Tatchell; Kenneth John Challis, and Kenneth Archibald Cockerton, all of Ilford, England, assignors to Ilford Limited, Ilford, Essex, England
Continuation-in-part of Ser. No. 113,615, Feb. 8, 1971, Pat. No. 3,701,680. This application Aug. 15, 1972, Ser. No. 280,895
Claims priority, application Great Britain, July 12, 1972, 32492/72
Int. Cl. B32b *27/36;* **G03c** *1/80*
U.S. Cl. 117—76 F **7 Claims**

Process for the production of film base material wherein one side of a film of synthetic linear polyester is treated with

an organic solvent solution of a phenolic adhesion promoting agent, the solvent is removed, the so-treated side is coated with an organic solvent solution of a phenoxy resin which has been partially esterified with an organic polycarboxylic acid and the solvent is removed, the phenoxy resin having the formula



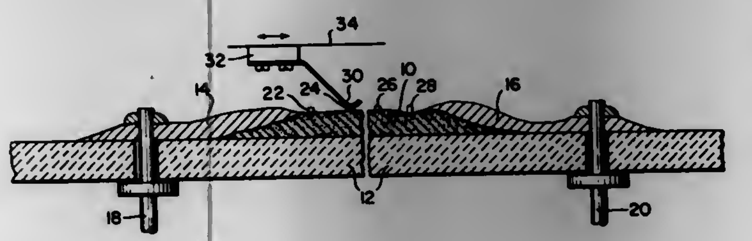
wherein each of $R_1 - R_7$ is a hydrogen atom or a lower alkyl or cyclohexyl group, R_8 is a hydrogen atom or represents the acyl residue of a partial ester of an organic polycarboxylic acid, *n* is at least 50, and from 10 to 95% of the R_8 groups are said acyl residue.

3,833,406
CLOSED CONTAINER WITH DESICCANT COATING ON INSIDE SURFACE THEREOF
Paul L. White, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Aug. 7, 1972, Ser. No. 278,402
Int. Cl. B65d *23/02*
U.S. Cl. 117—97 **7 Claims**

Good desiccant coatings can be obtained on the inside surface of a closed container such as glass, ceramic, plastic or metal by applying thereto a nonparticulate, thin film about 10 microns thick consisting essentially of aluminum monohydrate, alumina, silica or oxides of titanium, zirconium, thorium, magnesium and calcium or combinations thereof dispersed in an aqueous medium and activating said coating by heat or vacuum.

3,833,407
UNITARY RESISTOR AND SHUNT
Sergei Schebalin, Ambler, Pa., assignor to Honeywell Inc., Minneapolis, Minn.
Division of Ser. No. 122,777, March 10, 1971, Pat. No. 3,743,997. This application June 12, 1972, Ser. No. 261,971
Int. Cl. B44d *1/18;* **H01c** *13/00*
U.S. Cl. 117—212 **2 Claims**



A method of producing a distributed shunt for resistor film. The steps of this method comprising the selection of a conductive material whose sintering temperature is substantially lower than the sintering temperature of the resistive material; locating the conductive material in single or segmented form on the surfade of the resistive material intermediate end portions of the latter and firing the conductive material on the resistive material at the sintering temperature of the conductive material whereby the tendency to diffusion between said conductive and resistive materials is minimized and the resistivity of the resistive material is reduced while maintaining substantially constant the temperature coefficiient of resistivity and stability of the resistive material.

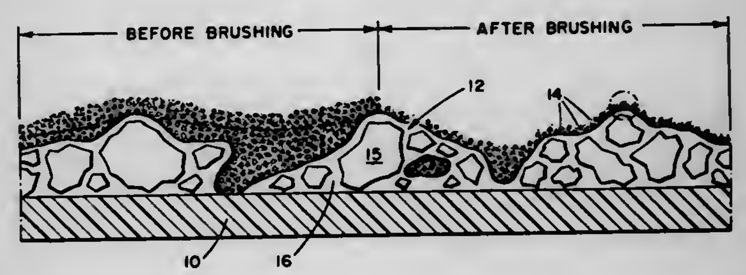
3,833,408
VIDEO DISCS HAVING A METHYL ALKYL SILICONE COATING
Dennis Lee Matthies, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 19, 1972, Ser. No. 245,663
Int. Cl. G11b *5/00*
U.S. Cl. 117—217 **5 Claims**

Application of certain methyl alkyl siloxane compounds to the surface of video disc replicas reduces surface friction generated during playback with no sacrifice in video quality.

3,833,409
DONOR SHEET FOR PULSED ELECTRICAL PRINTING
John Peshin, Westwood, Mass., assignor to The Carter's Ink Company, Cambridge, Mass.

Filed Jan. 7, 1972, Ser. No. 216,194
Int. Cl. B44d *1/16, 1/18*
U.S. Cl. 117—218 **5 Claims**



A printing ribbon for non-impact electrical printing consists of an insulating base film, having a microcavernous surface formed by microscopic crags having deep rough and irregular pits or valleys between them with fine conductive printing particles loosely retained on and in the surface.

3,833,410
HIGH STABILITY THIN FILM ALLOY RESISTORS
Choh-Yi Ang, Santa Ana; Robert F. Bailey, Los Alamitos, and John R. Ogren, Hawthorne, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Dec. 30, 1971, Ser. No. 213,980
Int. Cl. B44d *1/18;* **H01c** *7/00, 17/00*
U.S. Cl. 117—227 **10 Claims**

High stability thin film alloy resistors can be made from a constant conductivity alloy comprising a predominant amount of platinum, rhodium, iridium, palladium, gold, or silver and a minor amount of at least two metals selected from tungsten, rhenium, tantalum, molybdenum, hafnium, zirconium, or niobium. The constant conductivity alloy is deposited onto a nonconducting substrate to a thickness of between 10 and 5,000 angstroms.

3,833,411
ARTICLES COATED WITH ALKALI-SOLUBLE POLYESTER-TYPE RESINS AND METHOD OF PRODUCING THEM
Hargovind Nihchaldas Vazirani, Stirling, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Continuation-in-part of Ser. No. 190,411, Oct. 18, 1971, abandoned, which is a continuation-in-part of Ser. No. 131,478, April 5, 1971, abandoned. This application Apr. 5, 1973, Ser. No. 348,067
Int. Cl. B44d *1/34, 1/42;* **C09d** *3/64*
U.S. Cl. 117—232 **3 Claims**

The alkali-soluble polyester resins described herein contain trimellitic anhydride in the amount of 41 to 44 parts by weight, dipropylene glycol in the amount of 28 to 31 parts by weight, glycerol in the amount of 6.3 to 7.2 parts by weight and castor oil in the amount of 20 to 26 parts by weight of the total composition. In addition, neopentyl glycol may be substituted for dipropylene glycol in amounts up to 16 parts by weight of the total composition, in which case the combined proportion of dipropylene glycol and neopentyl glycol may be reduced to 26.5 parts by weight. The components are proportioned within the ranges stated to give an OH/COOH ratio of from 1.05:1 to 1.15:1. When fully cured, the resins are useful as insulating coatings on wire.

3,833,412
MAGNETIC RECORDING MEDIUM

Goro Akashi; Masaski Fujiyama, and Yasuyuki Yamada, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Continuation of Ser. No. 754,733, Aug. 22, 1968, abandoned. This application June 25, 1971, Ser. No. 157,042
Claims priority, application Japan, Aug. 24, 1967, 42-54380
Int. Cl. H01f *10/02*
U.S. Cl. 117—240 **4 Claims**

A magnetic recording medium which comprises a support; a magnetic layer carried on said support, said magnetic layer comprising: a thermo-plastic resin binder which contains: ferromagnetic material dispersed th erein, an abrasive material having a size of less than 5 μ and a hardness greater than 6 on the Mohs hardness scale and a monobasic fatty acid having at least four carbon atoms and a melting point lower than 50°C. said monobasic fatty acid being present in an amount greater than about 0.1 percent by weight, based on the whole magnetic layer.

3,833,413
SOLIDIFIED PRODUCT FROM HIGH FRUCTOSE CORN SYRUP AND PROCESS

Elmer F. Glabe, Chicago; Perry W. Anderson, Niles, and Stergios Laftsidis, Chicago, all of Ill., assignors to Food Technology, Inc., Chicago, Ill.
Filed Sept. 5, 1972, Ser. No. 286,568
Int. Cl. A23l *1/08*
U.S. Cl. 127—29 **7 Claims**

A solidified product from high fructose corn syrup is prepared by a process in which a high protein, high water soluble soy protein is incorporated with a high fructose corn syrup to form a slurry prior to dehydration and enhances the crispness and rapidity of crystalline formation when the slurry is subsequently dehydrated as a thin film on a heated surface.

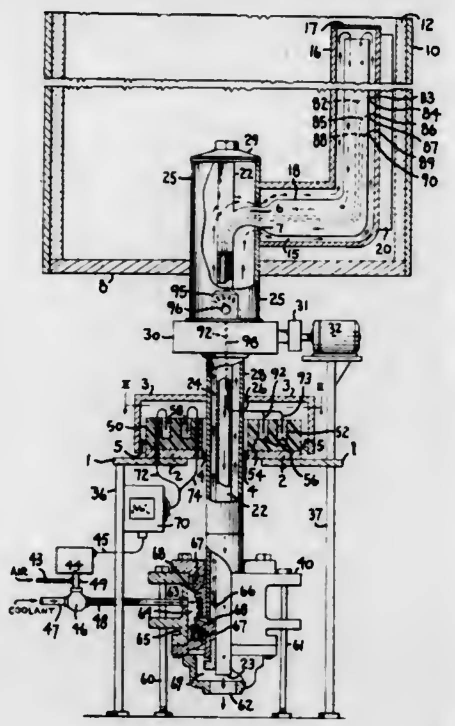
3,833,414
ALUMINIDE COATING REMOVAL METHOD

John J. Grisik, Cincinnati, Ohio, and Ellis J. Airola, Ipswich, Mass., assignors to General Electric Company, Cincinnati, Ohio
Filed Sept. 5, 1972, Ser. No. 286,196
Int. Cl. B08b *3/08;* **C23g** *1/02, 1/14*
U.S. Cl. 134—3 **6 Claims**

An improved method for removing an aluminide coating from an article includes a sequential treatment of an aqueous mixed acid solution of nitric and phosphoric acids, an alkaline permanganate aqueous solution and then the mixed acid solution repeated. In one form in which the article has been exposed to air and products of fuel combustion at elevated temperatures, the method combines a mechanical pretreatment with the chemical stripping operation. An optional final mechanical removal of residue can be included. The mechanical pretreatment includes the use of angular metallic particles, such as steel, which are soluble in a subsequently applied solution, such as the mixed acids.

3,833,415
METHOD AND APPARATUS FOR TEMPERATURE CONTROL OF A ROTATING METAL OXIDE SCRAPER ELEMENT

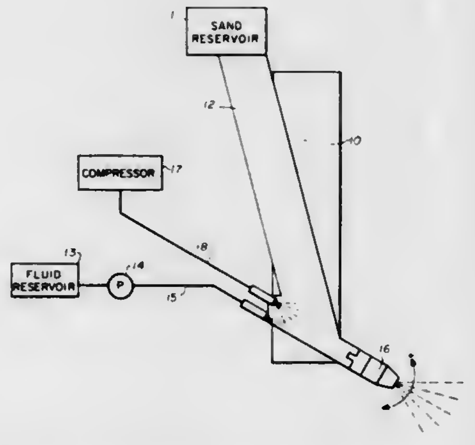
Elgin E. Young, Norton, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.
Division of Ser. No. 147,386, May 27, 1971, which is a continuation-in-part of Ser. No. 856,744, Sept. 10, 1969, abandoned. This application Aug. 30, 1972, Ser. No. 284,787
Int. Cl. B08b *9/08;* **B01j** *1/00*
U.S. Cl. 134—6 **4 Claims**



Wall temperatures within a movable, internally cooled scraper element that is used to dislodge metal oxide accumulation from the internal wall of a reactor are monitored by a thermocouple electrically connected to mercury baths which are in turn electrically connected to a temperature recorder. The thermocouple output can be used to control a regulator of coolant fed to the scraper element.

3,833,416
SAND BLASTING OF METAL SURFACES AT AN ANGLE OF LESS THAN 45°

Henry Fleischer, 18 Notch Park Rd., Little Falls, N.J. 07424
Division of Ser. No. 235,293, March 16, 1972, Pat. No. 3,769,753; which is a continuation-in-part of Ser. No. 68,151, Aug. 31, 1970, abandoned. This application May 14, 1973, Ser. No. 359,652
Int. Cl. B08b *5/02*
U.S. Cl. 134—7 **4 Claims**



A method for removing paint from a metal surface wherein a mixture of a highly volatile chemical solvent and an abrasive (such as sand) is sprayed onto the metal surface (such as an automobile) at an oblique angle. The abrasive removes the paint without chipping and roughs up the surface while the chemical solvent removes film and dirt thereby enabling the surface to receive a new coat of paint.

3,833,417
METHOD FOR CLEANING PIPLINES ASSOCIATED WITH BULK TANKS

Andrew Geo. Griparis, Joliet, Ill., assignor to The Diversey Corporation, Chicago, Ill.
Division of Ser. No. 59,828, June 22, 1970, Pat. No. 3,728,157, which is a division of Ser. No. 763,823, Sept. 30, 1968, abandoned. This application Feb. 16, 1972, Ser. No. 226,571
Int. Cl. B08b *9/06;* **C23g** *3/04*
U.S. Cl. 134—22 C **3 Claims**

Apparatus for spray cleaning the soiled interior surfaces of a tank by alternately: (1) applying a burst of cleansing liquid through a sprayer which directs a heavy spray mist to saturate the interior tank surfaces; and (2) enabling the applied cleansing liquid to soak for a timed interval on the tank surfaces. Portions of the apparatus can be used for cleaning pipelines associated with the tank. A tank sprayer which includes an equalization chamber for equalizing the flow of liquid around the spray head and a restricted outlet at one end of the equalization chamber to form a heavy spray mist in cleaning tank interiors. A quick drain valve for rapidly draining large amounts of liquid from a conduit including a solenoid actuated seal for selectively sealing or opening a series of drain openings around the perimeter of the valve. A liquid level indicating apparatus for indicating the drop in level below a preset level of liquid in any one of a number of closed containers each having a narrow neck for filling the container, including a detector inserted through each container neck for detecting the level changes, and a single air pressure sensor responsive to the detected changes in any of the containers for indicating a low level condition.

ERRATUM

For Class 134—24 see:
Patent No. 3,833,010

3,833,418
CLEANING OF HAIR BRUSHES WITH REDUCING AGENTS

Bernard Weiss, 3 Gay Dr., Kings Point, N.Y. 11024; Stanley Brechner, Orange, and Daniel Schoenholz, Basking Point, both of N.Y., assignors to said Weiss, by said Brechner and said Schoenholz
Filed Nov. 20, 1972, Ser. No. 308,101
Int. Cl. A45d *24/40;* **B08b** *3/08, 3/10*
U.S. Cl. 134—42 **10 Claims**

Hairbrushes are cleaned by contacting the hairbrush with a solution of a reducing agent. The brushes are clean as removed from the solution, or a mass of destroyed hair produced by the solution treatment is removed by rinsing.

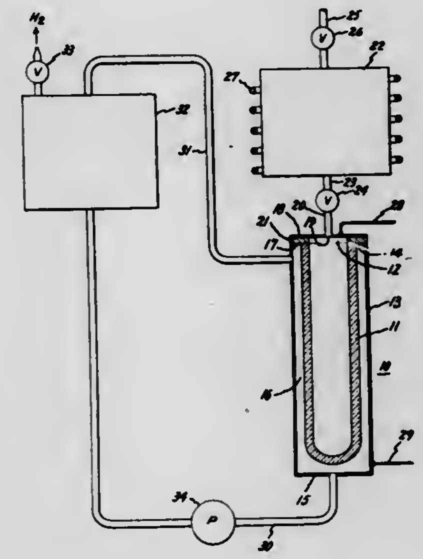
3,833,419
SOLUTION MEANS FOR REMOVING HAIR FROM HAIR BRUSHES

Bernard Weiss, 3 Gay Drive, Kings Point, N.Y.; Stanley Brechner, Orange, and Daniel Schoenholz, Basking Ridge, both of N.J., assignors to Said Weiss, by said Brechner and Schoenholz
Filed Nov. 20, 1972, Ser. No. 308,102
Int. Cl. A45d *24/40;* **B08b** *3/08, 3/10*
U.S. Cl. 134—42 **6 Claims**

Hair brushes are cleaned of matted hair by soaking them in a solution derived from a solid oxidizing agent, preferably one capable of providing available chlorine in defined concentrations. Hypochlorites, especially lithium hypochlorite, is preferred.

3,833,420
BATTERY CASING AND REGENERATIVE METAL-WATER BATTERY

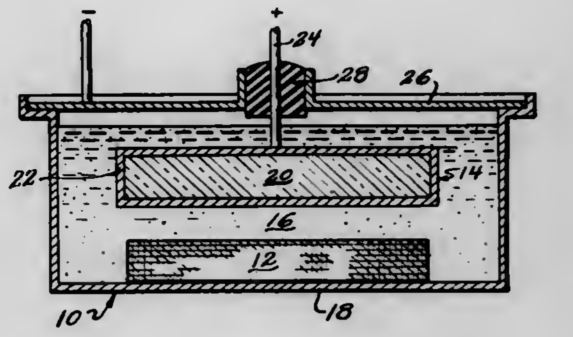
Fritz G. Will, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed Apr. 20, 1972, Ser. No. 245,840
Int. Cl. H01m *35/00*
U.S. Cl. 136—6 R **4 Claims**



A battery casing is disclosed which includes a reservoir in sealed communication with an inner vessel of a solid crystalline ion-conductive material, an outer vessel surrounds the inner vessel and defining therewith a narrow fluid passageway, and a fluid storage and circulating system for providing fluid flow through the passage. A regenerative metal-water battery has the above type of casing with a sodium or potassium anode in the inner vessel and water as the oxidant in the outer vessel.

3,833,421
SECONDARY ELECTROCHEMICAL CELLS WITH A CHALCOGEN CATHODE

Richard J. Rubischko, Minnetonka, Minn.; Elton J. Cairns, Lisle, and Robert K. Steunenberg, Naperville, both of Ill., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed Dec. 27, 1972, Ser. No. 318,806
Int. Cl. H01m *35/00*
U.S. Cl. 136—6 LF **4 Claims**



This invention consists of a novel cathode, and a novel method for making such cathode, for use in a secondary electrochemical power-producing cell having an anode containing a molten alkali-metal of low electronegativity, an electrolyte containing alkali-metal ions, and a cathode containing a reactant comprising a chalcogen. The cathode comprises a solid, porous substrate structure, impregnable by the reactant, having interconnected pores. These interconnected pores have their interior surfaces partially coated with a layer of electronically-conducting metal wettable by the electrolyte and are filled with both the electrolyte and the chalcogen-containing reactant. The novel method for making this cathode structure comprises vapor depositing the electronically-conducting metal onto the surfaces of the interconnected pores by vaporizing a volatile compound containing the metal in the presence of an inert gas, and then passing the resulting vapor-inert gas mixture through the porous substrate structure while also passing an electric current therethrough. This structure is then impregnated with both electrolyte and a chalcogen-containing reactant.

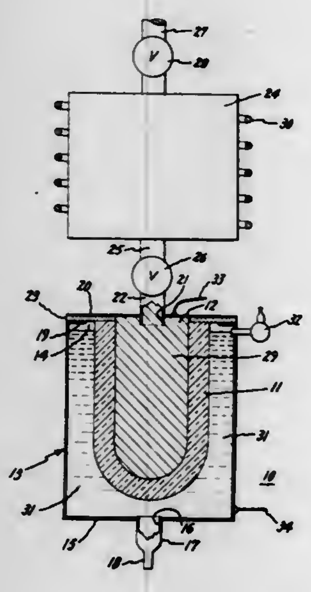
3,833,422
REGENERATIVE METAL-WATER BATTERY

Fritz G. Will, Scotia, and Stephan P. Mitoff, Elnora, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 20, 1972, Ser. No. 245,841

Int. Cl. H01m *35/02*

U.S. Cl. 136—20 **10 Claims**



A regenerative metal-water battery is disclosed which includes a metallic sodium or potassium reservoir in sealed communication with an inner vessel of a solid metal ion-conductive material, the metallic sodium or potassium in the reservoir, means for heating the metal, the metal adapted to provide an anode in the inner vessel of the battery, and water as the oxidant in the outer vessel of the battery and in contact with the outer wall of the inner vessel.

3,833,423
FUEL CELL WITH WC CATALYST-MATERIAL PROTECTION

Franz Arthur Pohl, Gotzenhain, and Harald Bohm, Oberursel, both of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Sept. 20, 1971, Ser. No. 182,144

Claims priority, application Germany, Sept. 19, 1970, 2046319

Int. Cl. H01m *27/04, 11/00*

U.S. Cl. 136—86 D **17 Claims**

Autoxidizable fuel cell catalyst material is covered after its production with a substance protecting it against autoxidation. The substance is then removed before placing the fuel cell in operation.

3,833,424
GAS FUEL CELL BATTERY HAVING BIPOLAR GRAPHITE FOAM ELECTRODES

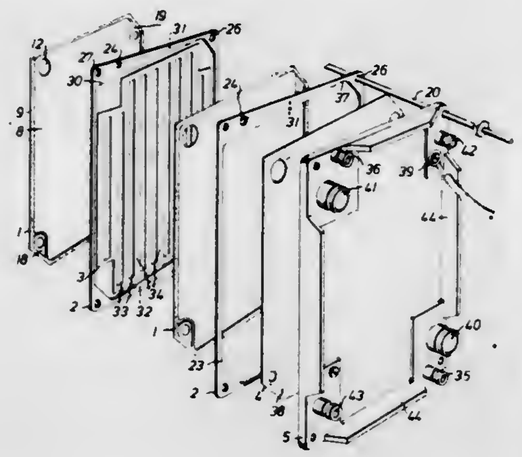
Gerhard Louis, Hofheim, and Harald Bohm, Glashutten, both of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany

Filed Mar. 27, 1973, Ser. No. 345,458

Claims priority, application Germany, Mar. 28, 1972, 2215070

Int. Cl. H01m *27/04*

U.S. Cl. 136—86 R **11 Claims**



A gas fuel cell battery is formed of a series of alternating bipolar electrodes and cell frames. Each bipolar electrode comprises a flexible graphite foam foil and active (anode and cathode) layers secured to opposite foil faces. Each face of a cell frame is in engagement with a bipolar electrode along a marginal zone of the foil that is outside the perimeter of the active layer. Gas is contacting that face of each active layer that is oriented towards the foil to which it is secured, while electrolyte is contacting that face of each active layer that is oriented away from the foil to which it is secured. The active layers are provided with openings for the gas supply, while the cell frames have throughgoing bores and channels for the electrolyte supply.

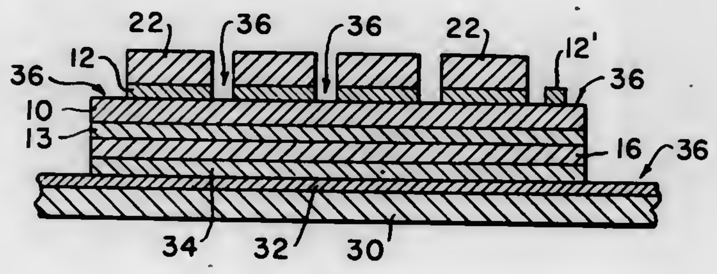
3,833,425
SOLAR CELL ARRAY

Charles Z. Leinkram, Bowie, Md.; William D. Oaks, Midland, Va.; John A. Eisele, Oxon Hill, Md., and Bruce J. Faraday, Annandale, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 23, 1972, Ser. No. 228,593

Int. Cl. H01l *15/02*

U.S. Cl. 136—89 **7 Claims**



A solar cell planar array fabricated by a method from the solar cells to the mounting panel. An electrically insulative, thermally conductive wafer is soft-soldered to the surface of the metallic mounting panel. The top surface of the wafer bears spaced electrically insulative, thermally conductive prominences thereon. The solar cells are attached on top of the prominences.

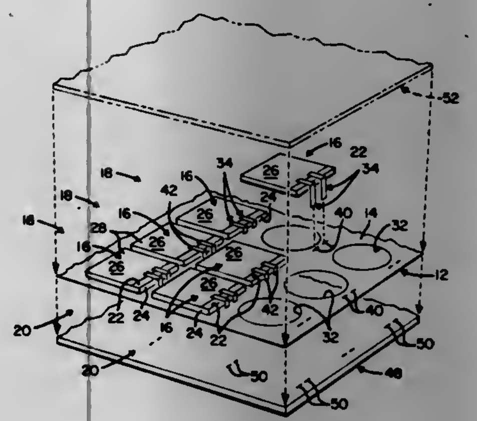
3,833,426
SOLAR ARRAY

Hans G. Mesch, Manhattan Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Nov. 8, 1973, Ser. No. 414,017

Int. Cl. H01l *15/02*

U.S. Cl. 136—89 **10 Claims**



A solar array having solar cells arranged in parallel strings at the front side of a supporting substrate with the corresponding cells in the several strings arranged in rows transverse to the strings. Each cell has a rear contact surface facing and exposed through an opening in the substrate and front contact and light sensitive surfaces. The cells in each cell string are connected in electrical series by series interconnectors, each passing between a pair of adjacent cells and through the substrate. Each interconnector is electrically joined at its front end to the front contact surface of the adjacent cell and at its rear end to the rear contact surface of the other adjacent cell through the corresponding substrate opening. The cells in each cell row are connected in electrical parallel by parallel interconnector strips electrically jointed to the rear ends of the corresponding series interconnectors.

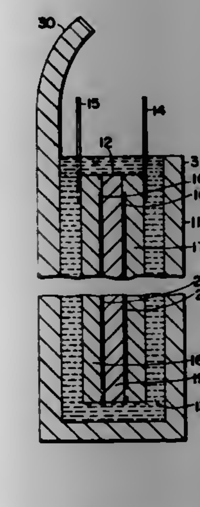
3,833,427
PLANAR BATTERY, PROCESS OF MANUFACTURE THEREOF AND FILM CASSETTE INCLUDING THE SAME

Edwin H. Land, Cambridge, and Robert M. Delahunt, Norwell, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed July 27, 1973, Ser. No. 383,173

Int. Cl. H01m *21/04*

U.S. Cl. 136—111 **38 Claims**



A relatively thin, flat or planar battery which includes one or more cells in series relationship with a planar cathode and a separator disposed intermediate and extending substantially coextensive the facing surfaces of the anode and cathode and possessing marginal portions and an aqueous electrolyte permeable central portion. Each cell includes an aqueous electrolyte disposed in the central portion of the separator and in contact with the facing surfaces of both the anode and the cathode and each battery possesses an electrically nonconducting, vapor-impervious hydrophobic sealant extending coextensive the marginal surfaces of the battery and intermediate the marginal portions of the separator and next adjacent facing surfaces. The energy generating components of the battery are disposed in and secured by the sealant to a container retaining both the energy-providing components of the battery cell or cells and the sealant selected.

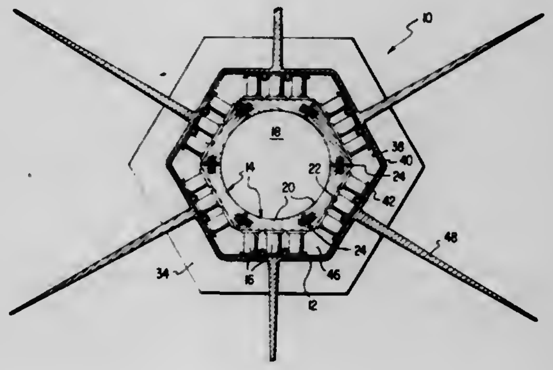
3,833,428
DIRECT HEAT REJECTION PATH RADIOISOTOPIC THERMOELECTRIC GENERATOR

Donald L. Snyder, Fork; John H. Himes, Jappa, and Milton F. Pravda, Baltimore, all of Md., assignors to Isotopes, Incorporated, Westwood, N.J.

Filed Sept. 25, 1969, Ser. No. 860,884

Int. Cl. G21h *1/10*

U.S. Cl. 136—202 **6 Claims**



Compression springs on the hot side, bias the thermoelectric elements of the radioisotopic powered thermo-electric generator into contact with the casing wall. The bus straps, which electrically connect the cold ends of the thermoelectric elements are bonded directly to the inner wall of the casing by a pressure sensitive epoxy adhesive which is preferably a dielectric but a good thermal conductor thereby eliminating the need for cold-end hardware.

3,833,429
METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE

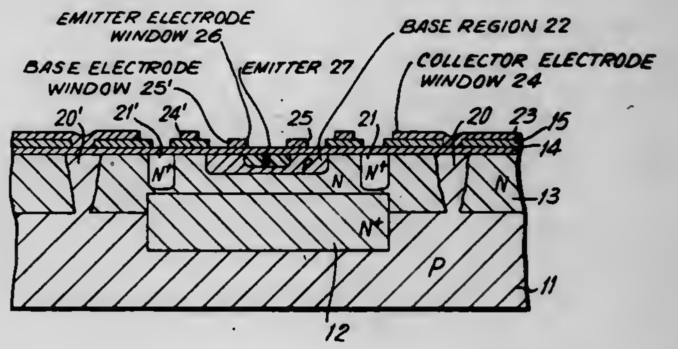
Yoshinobu Monma; Shigeharu Abe; Ryuichi Miwa, all of Kawasaki, and Eiji Mitsushima, Yokohama, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Nov. 28, 1972, Ser. No. 310,168

Claims priority, application Japan, Dec. 22, 1971, 46-104878

Int. Cl. H01l 7/44

U.S. Cl. 148—1.5 **20 Claims**


EMITTER ELECTRODE WINDOW 26
BASE REGION 22
BASE ELECTRODE WINDOW 25'
EMITTER 27
COLLECTOR ELECTRODE WINDOW 24
20'
21'
24'
25
21
20
23
15
14
N+
N
N+
N
13
N+
P
11
12

A high speed bipolar transistor with a small base area is produced by silicon nitride double films formed on a silicon substrate. The upper nitride film has a window for base diffusion and the lower nitride film has a window for emitter diffusion which overlaps the base diffusion window. The emitter diffusion occurs only in the overlapped portion of the base diffusion window and the emitter diffusion window. The diffusion source used for emitter diffusion is removed by using the nitride film as a mask.

3,833,430

TREATMENT OF STAINLESS STEEL AND SIMILAR ALLOYS TO REDUCE HYDROGEN OUTGASSING

Eugene F. Hill, Belmont, and Jack L. Walls, Saratoga, both of Calif., assignors to Varian Associates, Palo Alto, Calif.

Filed Dec. 26, 1972, Ser. No. 318,139

Int. Cl. C23b *9/00, 11/00*

U.S. Cl. 148—31.5 **3 Claims**

Outgassing of hydrogen from high-vacuum system components made of stainless steel and similar alloys can be minimized if the metal surfaces to be exposed to the vacuum are treated according to the technique disclosed herein. First, an adherent layer comprising a mixture of oxides and nitrides is formed on the metal surfaces. This oxide and nitride mixture layer serves as a barrier to hydrogen diffusion. Then, a reduced layer having a low heat of adsorption for water is formed on the exposed surface of the oxide and nitride mixture layer. This reduced layer is made sufficiently thin to preclude outgassing of significant amounts of hydrogen into the vacuum system. In effect, a vacuum envelope is formed which outgasses only from a thin layer of reduced oxide.

3,833,431

PROCESS FOR CONTINUOUSLY ANNEALED SILICON STEEL USING TENSION-PRODUCING GLASS

Karl Foster, Pittsburgh, and Jack W. Shilling, Monroeville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 9, 1971, Ser. No. 206,511

Int. Cl. H01f *1/04*

U.S. Cl. 148—113 **9 Claims**

A process is described for producing silicon steel containing nominally 3.25 percent silicon, by a continuous annealing process. The magnetic characteristics exhibited by the fully processed steel approach those of commercially available silicon steel but without the necessity of extensively desulfurizing the steel from that sulfur content which is usually obtained employing a commercial process. Essentially, the process consists of selecting a cold worked, decarburized semiprocessed silicon steel which is thereafter subjected to a continuous strand annealing at a temperature in the range between about 1,000°C and about 1,100°C in order to substantially completely recrystallize the steel by a secondary recrystallization process and the application of a tensile stress of at least 200 psi to the underlying steel for producing improved watt losses over that material having substantially the same sulfur content but which was manufactured by regular commercial processes.

3,833,432

SODIUM AZIDE GAS GENERATING SOLID PROPELLANT WITH FLUOROCARBON BINDER

Bertram K. Moy, White Plains; Gerald L. MacKenzie, Port Tobacco, and Marguerite S. Chang, Forest Heights, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 11, 1970, Ser. No. 14,827

Int. Cl. C06d *5/06*

U.S. Cl. 149—19.3 **12 Claims**

Gas generating solid propellant compositions which utilize sodium azide as a nitrogen source and are further comprised of a fluorocarbon binder material and a combustion catalyst of finely divided colloidal silicon dioxide and/or finely divided carbon black.

3,833,433

METHOD OF PRODUCING TARNISH RESISTANT COPPER AND COPPER ALLOYS AND PRODUCTS THEREOF

Elmer J. Caule, New Haven, Conn., assignor to Olin Corporation, New Haven, Conn.

Filed June 14, 1973, Ser. No. 369,904

Int. Cl. H05k *3/06*

U.S. Cl. 156—3 **15 Claims**

The disclosure teaches providing copper or a copper alloy, applying a phosphoric acid - dichromate solution to said material, immersing said material in an aqueous solution containing an alkali metal phosphate in a concentration of at least 18 percent by weight, and rinsing said material.

3,833,434

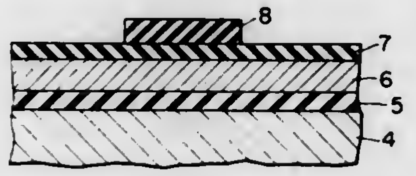
METHOD OF FORMING MULTI-LAYER INTERCONNECTIONS

Akira Kikuchi, and Takashi Agatsuma, both of Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 20, 1973, Ser. No. 334,073

Int. Cl. C23f *1/02*

U.S. Cl. 156—8 **10 Claims**



A method of forming multi-layer interconnections, wherein a porous metal oxide film overlying a metal layer is side-etched by utilizing the larger etching rate of the metal oxide film compared to that of the metal layer, so as to form an electrode interconnection portion of the metal layer which is etched into a gently sloping shape at the ends of its upper surface and its sides corresponding to the side-etched parts of the porous film. Second and higher-order layers of electrode interconnection portions are successively formed in such a manner that an insulating film is interposed between the electrode interconnection portion with the ends of its upper surface and its sides formed into the gently sloping shape and each layer of electrode interconnection portion to be formed over the former electrode interconnection portion.

3,833,435

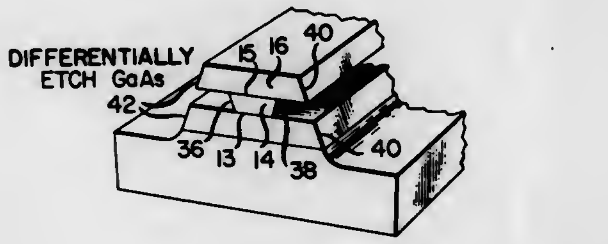
DIELECTRIC OPTICAL WAVEGUIDES AND TECHNIQUE FOR FABRICATING SAME

Ralph Andre Logan, Morristown; Bertram Schwartz, Westfield; Joseph Charles Tracy, Jr., Bernardsville, and William Wiegmann, Middlesex, all of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Sept. 25, 1972, Ser. No. 291,937

Int. Cl. H01l *7/50*

U.S. Cl. 156—11 **12 Claims**



A method of fabricating dielectric optical waveguides comprises the steps of: (1) fabricating a single or double heterostructure from the GaAs-AlGaAs system preferably by liquid phase epitaxy or molecular beam epitaxy; (2) forming a native oxide layer on the top surface of the heterostructure by anodization in H_2O_2; (3) removing a portion of the oxide layer to form a mask and hence to define the waveguide shape in the direction of light propagation; and (4) forming a mesa-like structure with optically flat side walls by etching at a slow rate in Br_2-CH_3OH. After step (4) two alternative techniques leading to structurally different waveguides may be followed. In one technique, an AlGaAs layer is epitaxially grown over the mesa to form a two dimensional waveguide. In the other technique, the edges of the active region of an AlGaAs double heterostructure are differentially etched in a neutral solution of H_2O_2. The latter step is particularly useful in the fabrication of active devices because the resulting structure is self-masking, thereby facilitating the formation of electrical contacts.

3,833,436

ETCHING OF POLYIMIDE FILMS

Benjamin F. Hillis, Lindstrom, Minn.; Russell D. Klint, Roberts, Wis., and William D. Cross, St. Paul, Minn., assignors to Buckbee-Mears Company, St. Paul, Minn.

Filed Sept. 5, 1972, Ser. No. 286,344

Int. Cl. B44c *1/22*

U.S. Cl. 156—13 **1 Claim**

A process for the etching of polyimide films which includes applying a photo sensitive resist of a predetermined viscosity and utilizing hydrazine as an etchant to remove unwanted sections of the polyimide film after exposing and developing the light sensitive resist.

3,833,437

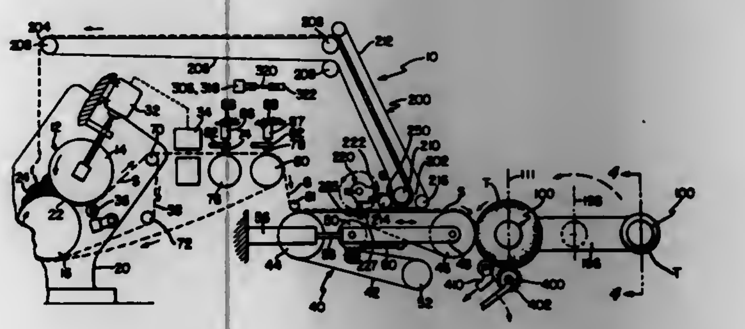
TIRE BUILDING METHOD

Paul E. Appleby, Cuyahoga Falls; Christopher E. Christie, Akron, and Edwin S. Woodhall, Cuyahoga Falls, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 832,164, June 11, 1969, Pat. No. 3,746,597. This application Oct. 10, 1972, Ser. No. 296,445

Int. Cl. B29h *17/02, 17/10*

U.S. Cl. 156—130 **7 Claims**



A mill for forming a thin sheet of a curable elastomer and a tire carcass receiving drum are combined in apparatus including a conveyor spaced from the mill and engageable with a tire carcass on the drum so as to rotate the drum and wind thereon a continuous plurality of convolutions of the sheet. Slitters located in a space traversed by the sheet between the mill and the conveyor and controlled by a profiling device to be movable in timed relation to the rotation of the carcass vary the width or widths of the sheet portion applied while a second conveyor diverts remaining portions of the sheet from the first conveyor for return to the mill.

The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawings and the following detailed description.

3,833,438

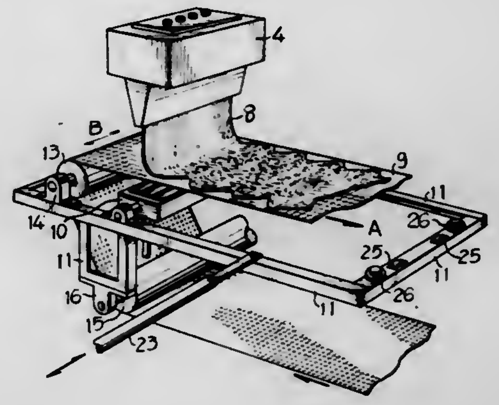
PROCESS FOR THE MANUFACTURE OF A NON-WOVEN WEB OF CONTINUOUS FILAMENTS THROUGH THE WET STRETCH SPINNING METHOD

Tutomu Kaneko; Takashi Turumi; Shuichi Emori, and Ken Ito, all of Nobeoka, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Aug. 30, 1972, Ser. No. 284,852

Int. Cl. D04h *3/16*

U.S. Cl. 156—167 **4 Claims**



A plurality of filaments are extruded simultaneously from a large number of spinning orifices arranged in a rectangular pattern. The filaments are contacted by a coagulating bath as they pass downwardly through a funnel arrangement to cause stretching and coagulation of the filaments prior to depositing the filaments onto a moving pervious conveyor which is oscillated periodically in a direction transverse to its direction of movement.

3,833,439

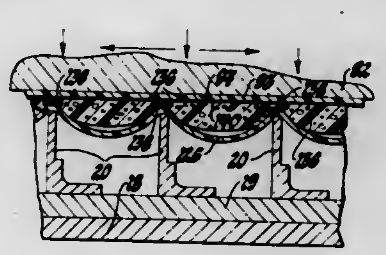
METHOD OF DIELECTRICALLY EMBOSSING RISERS IN A TRIM ASSEMBLY

Kenneth A. Smith, Washington, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 24, 1972, Ser. No. 274,821

Int. Cl. B31f *7/00*

U.S. Cl. 156—219 **4 Claims**

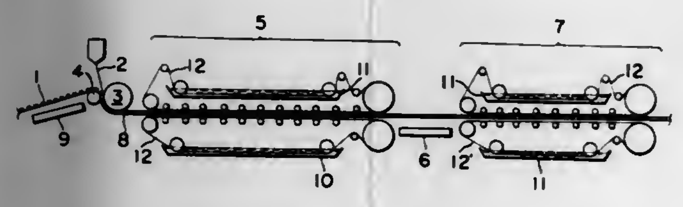


A method for making a decorative trim assembly with a dielectric embossing press in which one of the electrodes includes a plurality of spaced embossing blades and the other electrode has a flat face formed by a yieldable material. The method comprises the steps of preforming a sheet of thermoplastic material with a plurality of risers defined by spaced trim lines followed by placing the sheet on the electrode with the embossing blades contacting the trim lines. Afterwards, a coextensive sheet of filler material is positioned onto the sheet of thermoplastic material and the electrodes are moved toward each other so as to cause the embossing blades to compress the cover sheet and the sheet of filler material into the yieldable material. Sufficient pressure is then applied to the composite sheets to cause the sheet of filler material to be split along the embossing blades to form a plurality of separate strips. This is followed by opening the press and placing a base sheet over the strips of filler material and dielectrically bonding the sheet of thermoplastic material to the base sheet along the trim lines.

3,833,440
METHOD OF MAKING HOLLOW PLANAR BOARD OF SYNTHETIC RESIN MATERIAL

Yoshikazu Kashiwa; Kunio Takagi; Seiju Kezuka, all of Yokohama; Rikio Kuroda; Toshiharu Hirayama, both of Kawasaki; Takeshi Kamiya, Kamakura; Masayuki Ono, Iwatsuki, all of Japan, and Kabushiki Kaisha Tomoku, 03, Otaru-shi, both of Japan, assignors to The Nisseki Plastic Chemical Co., Ltd., Kawasaki-ku, Kawasaki

Filed June 6, 1972, Ser. No. 260,282
Int. Cl. B29c *19/00*; **B29b** *31/00*
U.S. Cl. 156—244 **7 Claims**

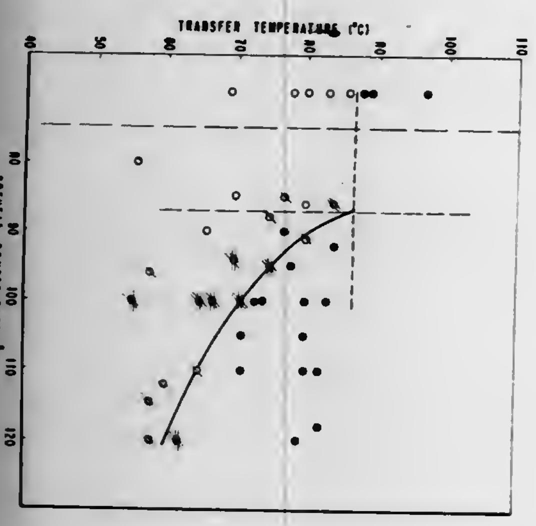


A method of making a hollow planar board of synthetic resin consisting of a core and a first and a second liner, in which the temperature of the first liner relative to that of the second liner is suitably controlled to prevent undesirable warping of the product. The core is made by embossing a synthetic resin sheet so as to provide many closed cells in the board.

3,833,441
THERMOGRAPHIC PROCESSES

Robert Bernard Heiart, Middletown, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 232,678, Oct. 24, 1962, abandoned. This application May 7, 1971, Ser. No. 141,211
Int. Cl. B41m *5/26*; **B32b** *31/26*, *31/28*
U.S. Cl. 156—234 **5 Claims**



This invention relates to a thermographic process of image formation and more particularly to such a process for forming images by heating, imagewise, to a temperature above a softening temperature, but below the thermal decomposition temperature, a solid layer of a mixture of a thermoplastic, amorphous, organic polymer and a liquid plasticizer therefor, the mixture being capable of existing in a metastable state and a stable state for a period sufficient to convert the stable polymer to the metastable state, heating the entire surface of the layer to a temperature between the softening temperatures of the stable and metastable state, and converting the softened exposed image areas to a visible image, e.g., by applying finely divided colored particles to the layer and removing them from non-exposed areas or thermally exposed image areas are transferred to a separate image receptive surface. The simple procedure is a dry process, and images of high quality and stability are obtained rapidly.

3,833,442
METHOD OF LAP-SEAMING A LACQUERED METAL CONTAINER BODY

Philip W. Russell, Belmont; Charles W. Simons, Bedford, and Francis L. Chupka, Jr., Billerica, all of Mass., assignors to W. R. Grace & Co., New York, N.Y.

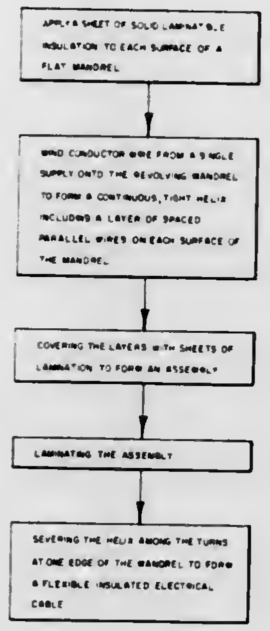
Division of Ser. No. 165,365, July 22, 1971, abandoned. This application Oct. 12, 1972, Ser. No. 297,124
Int. Cl. C09j *5/02*; **B65d** *7/38*; **B32b** *15/08*
U.S. Cl. 156—331 **1 Claim**

A novel adhesive consisting of a blend of a polyamide with 1 to 15 percent of certain polymer and copolymer additives is described, together with its use in lap-seaming lacquered metal (e.g., tin-free steel or aluminum) containers.

3,833,443
METHOD OF MAKING FLEXIBLE CONDUCTOR CABLE

Dwight D. Naseth, Saugus, and Joseph A. Delgadillo, Granada Hills, both of Calif., assignors to Fortin Laminating Corporation, San Fernando, Calif.

Filed Oct. 20, 1972, Ser. No. 299,462
Int. Cl. H01b *13/08*
U.S. Cl. 156—55 **9 Claims**

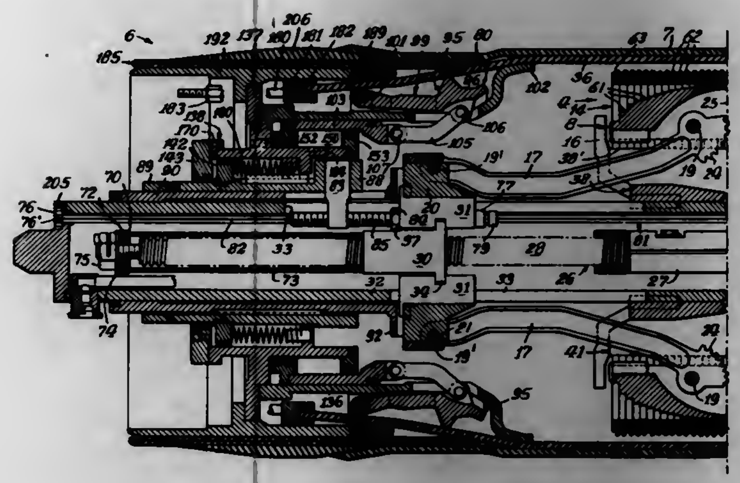

APPLY A SHEET OF SOLID LAMINATABLE INSULATION TO EACH SURFACE OF A FLAT MANDREL
WIND CONDUCTOR WIRE FROM A SINGLE SUPPLY ONTO THE REVOLVING MANDREL TO FORM A CONTINUOUS, TIGHT HELIX INCLUDING A LAYER OF SPACED PARALLEL WIRES ON EACH SURFACE OF THE MANDREL
COVERING THE LAYERS WITH SHEETS OF LAMINATION TO FORM AN ASSEMBLY
LAMINATING THE ASSEMBLY
SEVERING THE HELIX AMONG THE TURNS AT ONE EDGE OF THE MANDREL TO FORM A FLEXIBLE INSULATED ELECTRICAL CABLE

End or intermediate interruption of one or both sides of insulation is effected by selective application of release agent to the area of the conductor to be interrupted before lamination of the conductor between sheets of insulation. Multiple conductor cable is provided by winding conductor from a single supply in a controlled pitch onto a revolving flat mandrel containing sequential bands of release agent and adhesive coated insulation. The outside surfaces of the sheet are similarly covered with said bands to form an assembly which is laminated to provide a sequentially interrupted, flexible conductor cable. The system of the invention provides precision placement of insulation on the conductors, leaving exposed interrupted areas of the conductor in an absolutely clean and undamaged condition.

3,833,444
TIRE BUILDING APPARATUS OF BUILDING TIRES

Edwin E. Mallory, Niles, Mich., assignor to National Standard Company, Niles, Mich.

Filed Jan. 19, 1972, Ser. No. 219,001
Int. Cl. B29h *17/16*, *17/18*, *17/26*
U.S. Cl. 156—400 **11 Claims**



A tire building apparatus having an expandable drum defined by a plurality of circumferentially arranged deck segments each comprising a plurality of peripherally extending support members movable radially and circumferentially relative to each other to provide supporting surfaces of different radii with adjacent outer end portions of adjacent supporting members being interleaved, and in which the outer end portions of the supporting members are of less cross-sectional area than the cross-sectional area of intermediate portions of the supporting members to provide supporting members of increased length over prior known construction and to provide in the expanded position of the expandable drum a circumferentially extending supporting surface of a maximum length substantially equal to the circumferential length of the interleaved outer end portions of the supporting members and intermediate portions of the supporting members. The expandable drum, as aforenoted, in which the deck segments comprise deck former members for supporting individual supporting members, in which the deck former members have positioning surfaces for engaging radial inward surfaces of the supporting members for disposing the latter in predetermined positions upon expansion and contraction of the expandable drum, and in which the supporting members may or may not be provided with outer end portions of the supporting members as first above described.

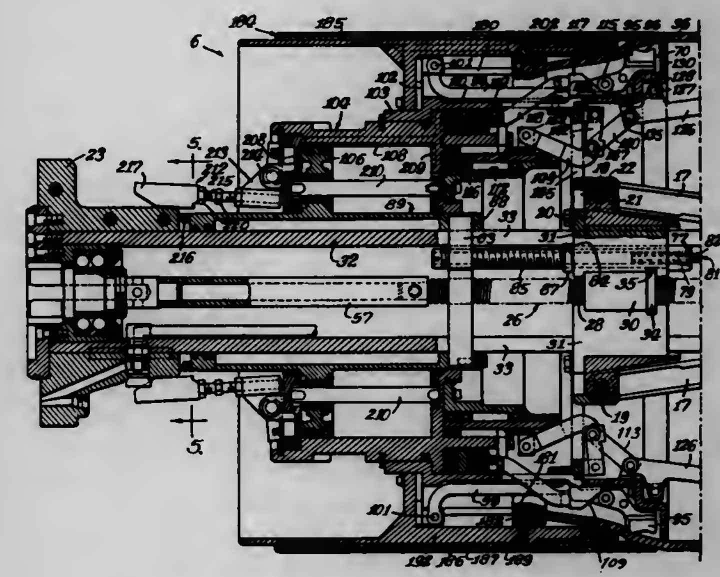
A tire building method in which tire beads are disposed inwardly of opposite outer end portions of elongated hollow tire carcass material, displacing the center portion of the tire carcass material to form the same into the true shape of the crown portion of the carcass of a cured tire, and encasing tire beads in the outer end portions of the tire carcass material.

3,833,445
TIRE BUILDING APPARATUS FOR BUILDING TIRES

Edwin E. Mallory, Niles, Mich., and Emerson C. Bryant, South Bend, Ind., assignors to National-Standard Company, Niles, Mich.

Filed Jan. 14, 1972, Ser. No. 217,787
Int. Cl. B29h *17/16*, *17/26*
U.S. Cl. 156—401 **19 Claims**

A tire building apparatus about which tire carcass material is laid for formation of the tire carcass material into substantially the form of a completed tire in which the tire beads lie axially inwardly of the circular inner end portions of the sidewall portions of the tire carcass material, in which the sidewall portions of the tire carcass material are reversely curved from the crown of the tire carcass material and the inner end portions of the sidewall portions of the tire carcass material as in a completed or cured tire, and in which suitable means, such as a pair of inflatable bag means are provided, one for effecting turning up the end portions of the tire carcass material to encase the tire beads with the tire carcass material subsequent to formation of the tire carcass material into the aforenoted configuration, and the other for applying sidewall components to the sidewall portions of the tire carcass material after the tire beads have been encased in the end portions of the tire carcass material. The tire building apparatus as aforenoted embodying an expandable and contractable intermediate drum, end drum assemblies at opposite ends of the intermediate drum for supporting tire carcass material embodying tire bead supporting and locking means at the inner ends of the end drums in an arrangement including carrier means for the end drum assemblies and in which the tire bead supporting and locking means may be positioned with respect to the carrier means in equidistant axially spaced apart relation with respect to the transverse centerline of the intermediate drum, and concentrically of the longitudinal axis of the apparatus in which the tire bead supporting and locking means in operative position lock tire beads inwardly of the ends of the tire carcass material characterized by the association therewith of a pair of the aforenoted inflatable bag means being carried by each of the end drum assemblies in which the tire bead supporting and locking means in operative position lock the inner ends of the dual inflatable bag means together with the outer ends of the tire carcass material at the tire beads together with the tire beads, tire carcass back-up means operative to take the reaction of inflation of ply turn-up bag means to encase tire beads in the end portions after formation of the tire carcass material into the aforenoted configuration and inflation thereafter of sidewall applicator bag means of the pair of inflatable bag means operable together with bag pusher means for said sidewall applicator bag means to apply sidewall components to the tire carcass material. The apparatus as aforenoted in which the drum is pressurized to take the reaction of inflation of the inflatable bag means in the application of the sidewall components, and in which the formed tire carcass material is shaped to conform or substantially conform to that of a cured tire in the bead area.

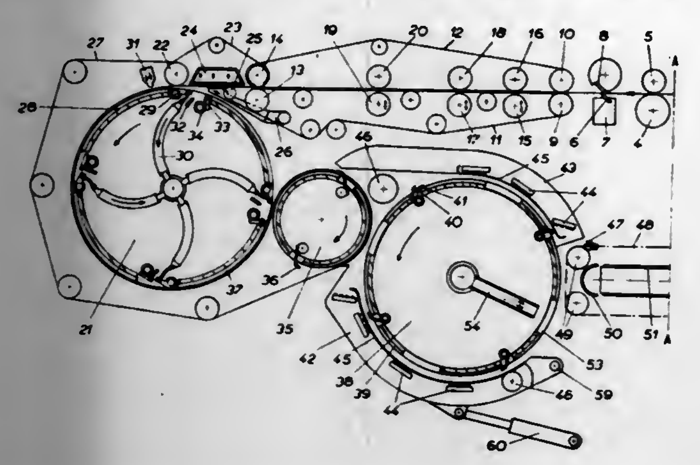


3,833,446
BAG-MANUFACTURING MACHINE

Jean Class, Strasbourg, France, assignor to Les Ateliers de Construction Mecaniques C. & A., Strasbourg, France

Filed Nov. 22, 1971, Ser. No. 201,065
Claims priority, application France, Nov. 30, 1970, 70.43599; July 16, 1971, 71.26954; Oct. 28, 1971, 71.39448
Int. Cl. B31b *19/60*
U.S. Cl. 156—499 **10 Claims**

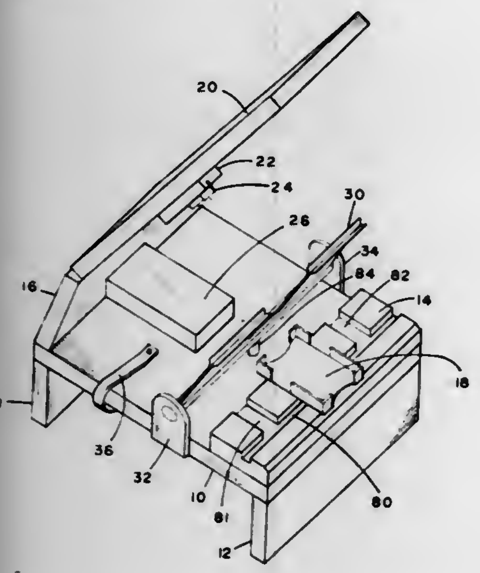
A bag-manufacturing machine wherein a tube unwinding from a reel is grasped by a set of rollers, passes into a cutting device with a notched cutter which reduces the resistance of the tube at the points determined by the length of the bags and permits the tube to be entrained, then each bag is successively pulled off by a train of rollers driven at higher speed, its bottom is welded, it is grasped by the mouth, cooled, and transferred onto a collecting drum which, by means of a set of grippers, grasps a certain number of bags which it deposits in a pack on a moving belt for removal.



3,833,447
FILM SPLICER

Axel E. Gustafson, 711 S. Summit Ave., Sioux Falls, S. Dak. 57104

Filed Apr. 5, 1973, Ser. No. 348,227
Int. Cl. B31f ***5/06***
U.S. Cl. 156—505 **6 Claims**



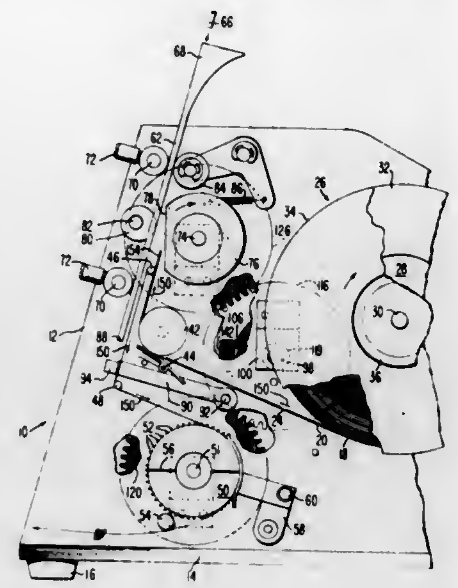
A film splicer in which two pieces of film may be cut so as to exactly abut each other and then taped on both sides while the two ends of the film are clamped firmly in place relative to each other. The two ends of the film are held firmly in clips which can be pivoted so as to carry the two ends of the film over a cutting block and also into a splicing well where the tape is applied. Provision is made to store spare tabs of splicing tape on the bottom of the device.

3,833,448
APPARATUS FOR AUTOMATICALLY ATTACHING A MAGNETIZABLE, MACHINE READABLE STRIPE TO A COMMERCIAL DOCUMENT

Robert R. Gates, Rochester, and Dunham B. Seeley, Fairport, both of N.Y., assignors to Burroughs Corporation, Detroit, Mich.

Filed Sept. 8, 1972, Ser. No. 287,336
Int. Cl. B44c ***3/00;*** **B32b** ***35/00***
U.S. Cl. 156—541 **9 Claims**

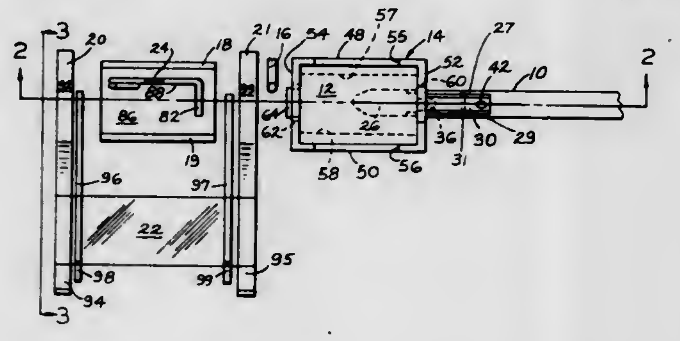
The present invention relates to a magnetic patch attaching device wherein a continuous roll or reel of adhesively backed magnetic stripes are arranged so that introduction of a document into the machine by means of which the stripe is to be attached permits the reel of tape to be advanced in such manner that an individual stripe is peeled away from the backing tape and applied to the document while the latter is simultaneously withdrawn from the apparatus, the tape being pressure bonded to the surface of the document during withdrawal of the document, leaving the apparatus available for the introduction of the next document.



3,833,449
AUTOMATIC COVERSLIPPER APPARATUS

Leighton Clifford Johnson, Edwardsburg, Mich., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Oct. 4, 1972, Ser. No. 295,007
Int. Cl. B32b ***31/12;*** **G02b** ***21/34***
U.S. Cl. 156—556 **5 Claims**



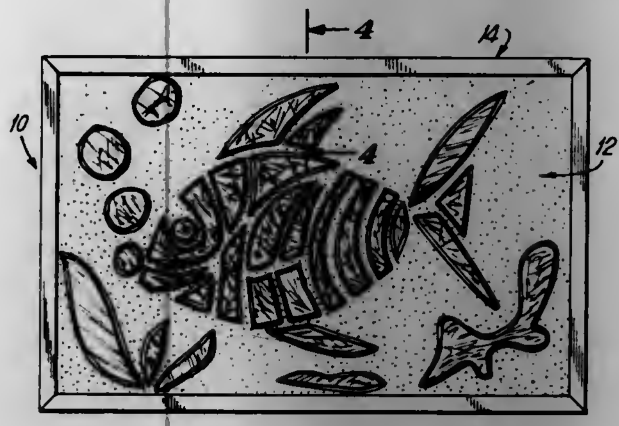
Apparatus is described for applying a coverslip to a microscope slide wherein a coverslip is dispensed from a magazine, a predetermined amount of liquid is applied to a face of the coverslip, a microscope slide is positioned in close proximity to such face of the coverslip, and a portion of the coverslip is moved toward the microscope slide so that the liquid comes into contact with the slide and bridges a portion of the space between the coverslip and the slide. Capillary action of the liquid then acts to draw the coverslip against the slide. The liquid fills the space between the coverslip and slide and capillary action maintains all the liquid within such capillary space.

3,833,450
SIMULATED STAINED GLASS IN CONCRETE ART ASSEMBLY

Charles W. Powell, 277 E. 50th St., New York, N.Y. 10022

Filed Aug. 18, 1972, Ser. No. 281,934
Int. Cl. B44f ***7/00***
U.S. Cl. 161—5 **4 Claims**

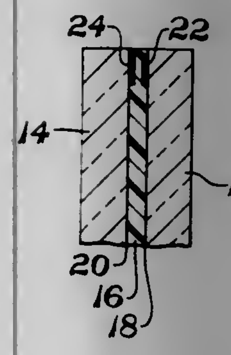
A stained glass in concrete art assembly including a plastic panel having glass texture simulating surface projections therein which are rendered visible when the back surface of the projections are painted with a coloring medium and which contribute to providing a simulated appearance of authentic stained glass to the plastic panel. The front side of the plastic panel is painted with sand paint thereby providing a simulated appearance of concrete.



3,833,451
A LAMINATED ELECTROCONDUCTIVE WINDOW

William E. Wagner, Verona, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed July 3, 1972, Ser. No. 268,381
Int. Cl. B32b ***1/04, 17/04;*** **H05b** ***3/06***
U.S. Cl. 161—45 **13 Claims**



A laminated, electrically heated window comprising accordion-folded bus bars making surface to surface contact with a transparent electroconductive film on a surface of a rigid transparent panel to insure intimate sliding contact between the bus bars and the film when the panel and the bus bars expand or contract at different rates as the temperature of the window changes during use.

A specific embodiment of the present invention suitable for an automobile windshield comprises a laminated, electroconductive window comprising one or two glass sheets, a layer of transparent, electroconductive coating on the inner surface of one or both of said glass sheets, a layer of plastic interlayer material, and a pair of accordion-folded bus bars extending along the opposite side edges of the interlayer material. Each bus bar has one surface bonded to a surface of said layer of transparent interlayer material that faces an electroconductive coating and the other surface of the folded bus bars is in sliding surface to surface contact with said coating. The folded bus bars flex in response to differences in expansion and contraction between the layer of interlayer material and the coated glass and maintain good electrical contact with the coating due to the surface to surface contact therebetween. Intimate surface to surface contact is obtained during lamination of the glass to the layer of plastic interlayer material.

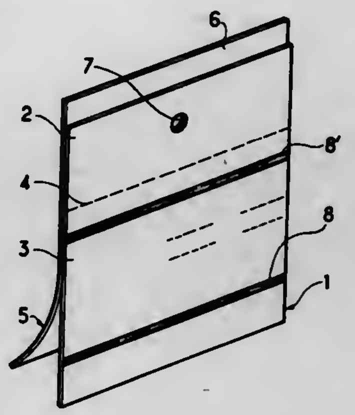
3,833,452
SELF-ADHERING LABEL

Hubert Boucris, Vigneux, France, assignor to Compagnie Generale D'Automotisme, Paris, France

Division of Ser. No. 2,093, Jan. 12, 1970, Pat. No. 3,695,981. This application July 11, 1972, Ser. No. 270,872

Claims priority, application France, Jan. 10, 1969, 69.00299

Int. Cl. B32b ***3/10***
U.S. Cl. 161—112 **7 Claims**



A self-adhering label having a protective covering member over an adhesive coating thereon and an aperture in one of two readily separable portions thereof capable of carrying data in written or coded form and a dispenser of such labels capable of automatically dispensing labels one at a time and removing the protective covering member prior to application of the label to an object.

3,833,453
NONFLAMMABLE, FIBER-FILLED, COLD-FORMABLE THERMOPLASTIC SHEET

Leon Segal, Morristown, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

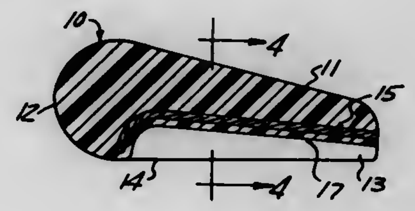
Filed Aug. 4, 1971, Ser. No. 172,348
Int. Cl. B32b ***17/04;*** **C08f** ***37/00, 45/10***
U.S. Cl. 161—151 **6 Claims**

Glass fiber-reinforced ethylene chlorotrifluoroethylene composite sheets are formable into shaped objects in a mold at ambient temperatures solely by moderate preheating of the sheet outside of the mold. This polymer comprising a high molecular weight, tough copolymer of ethylene and chlorotrifluoroethylene in an approximate 1:1 mol ratio is inherently nonflammable in air. A glass fiber of controlled length increases the mechanical properties of the composite structure and allows fabrication into suitable shapes without detracting from the nonflammable properties of the polymeric composite.

3,833,454
REINFORCED FOAM PLASTIC SEAT BUN AND METHOD OF MOLDING SAME

Jere B. Ambrose, Pontiac, Mich., assignor to Northern Fibre Products Company, Birmingham, Mich.

Filed May 11, 1972, Ser. No. 252,486
Int. Cl. B32b ***3/26;*** **A47c** ***7/02***
U.S. Cl. 161—159 **2 Claims**

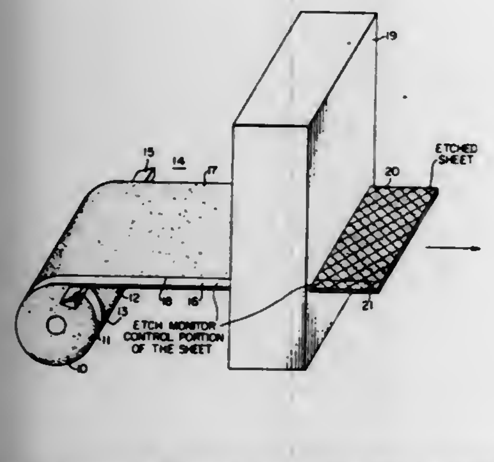


A molded foam plastic seat bun formed into a cushion shape and having a lower face for resting upon a spring support means, with a preformed, thin sheet of non-woven, randomly oriented fibrous fabric formed of linearly oriented, polypropylene fibers bonded together in relatively spaced apart relationship to provide randomly located openings between the fibers through the sheet, and the sheet being stretch resistant in its planar directions, with the sheet being embedded within the lower face portion of the bun a slight distance above the lower face surface and with foam plastic material extending through the sheet openings and forming a thin coating over its lower face.

3,833,455
MULTICOLORED ETCHED POLYTETRAFLUOROETHYLENE SHEET

Girard B. Rosenblatt, Jr., Los Altos, and Donald C. Wold, Sunnyvale, both of Calif., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 23, 1972, Ser. No. 283,256
Int. Cl. B23b
U.S. Cl. 161—164 **6 Claims**

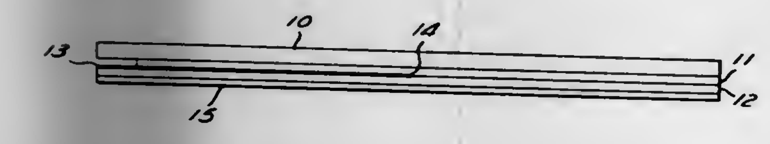


An etched polytetrafluoroethylene sheet is made having at least one non-white color pigmented portion and at least one unpigmented etch monitor control portion.

3,833,456
AREA DIVARICATION ADHESIVE MEANS

Charles F. Reed, and David T. Komendat, both of Painesville, Ohio, assignors to Avery Products Corporation, San Marino, Calif.

Continuation of Ser. No. 50,743, June 29, 1970, abandoned. This application Mar. 5, 1973, Ser. No. 338,374
Int. Cl. C09j *7/02*
U.S. Cl. 161—167 **2 Claims**



A flexible web product is disclosed which comprises a laminate having a face web and a backing web for adhesively joining portions of a substrate. The face web has a pressure-sensitive coating on one side. A portion of the total area of the pressure-sensitive coating on the face web contacts a releasecoated portion of the backing web. The backing web has an adhesive coating on its other side so that it may be permanently affixed to the substrate. The portion of the face web contacting the release-coated portion of the backing web is divaricated relative to the remainder of the backing web and, while integral with the remainder of the face web, is applied to the same or a different surface for joining purposes. Also disclosed is a flexible web product which may be used for identification purposes for inventory control and the like.

3,833,457
POLYMERIC COMPLEX COMPOSITE

Teruyuki Misumi, Yokohama; Yutaka Shimodoi, and Kazushi Ochi, both of Osaka, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Mar. 17, 1971, Ser. No. 125,366

Claims priority, application Japan, Mar. 20, 1970, 45-23080

Int. Cl. B32b *33/00*
U.S. Cl. 161—170 **21 Claims**

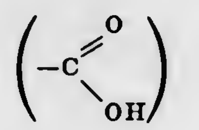
A polymeric complex composite having an improved hydrophilic property is presented. The polymeric complex composite is made from a polymeric substrate of a conventional polymeric material and a coating tightly adhered to the surface of the substrate. The coating contains 900 millimoles or more of sulfonic acid groups and 5 millimoles or more of sulfone bridges per 1 kg of the coating. The structure of the coating is a three-dimensional network. The polymeric complex composite has an excellent anti-electrostatic property as well as other improved properties such as excellent water absorption, soil release, dyeing properties and the like. Such improved properties are not temporary but durable. The polymeric complex composite is suitable for uses for various articles, particularly for fibers and films.

3,833,458
METAL-POLYMER COMPOSITES AND METHODS FOR THEIR PREPARATION

Clarence R. Bierman, and John D. Welks, both of Barrington, Ill., assignors to M & T Chemicals Inc., Greenwich, Conn.

Filed Jan. 3, 1972, Ser. No. 215,115
Int. Cl. B32b *15/04*; **C09j** *5/00*
U.S. Cl. 161—216 **6 Claims**

Strong durable bonds are formed between metals and vinyl chloride-containing polymers by maintaining at a surface of the metal a layer of polymer that contains pendant carboxylic acid groups. One surface of the polymer layer has been modified by oxidation or chemical etching agents. Between the modified surface of the polymer layer and the vinyl chloride-containing polymer is an adhesive comprising a mixture of a natural or synthetic rubber and a phenolaldehyde resin. Heating the composite above 120°C. for a short period of time yields a unitary bonded structure.



$$\left(-C\begin{matrix}{=}O\\ \diagdown OH\end{matrix}\right)$$

3,833,459
FELT BACKING FOR VINYL FLOOR COVERING HAVING A BINDER COMPRISED OF SYNTHETIC RUBBER LATEX AND A REACTIVE THERMOSET RESIN

Donald C. Winters, Plainfield, N.J., assignor to Congoleum-Industries, Inc., Kearny, N.J.

Division of Ser. No. 13,154, Feb. 20, 1970, abandoned. This application Oct. 29, 1971, Ser. No. 194,033
Int. Cl. D21h *5/18*
U.S. Cl. 162—155 **2 Claims**

An vinyl floor covering having a felt backing sheet made of cellulosic or chrysotile asbestos fibers saturated with a binder comprising 36–74% synthetic rubber latex and 17–60% reactive resin of the melamine or urea formaldehyde type to which is laminated a vinyl wear layer.

3,833,460
DRY METHOD FOR SEPARATING PAPER CONSTITUTENTS FOR RECOVERY AND RECYCLING

Fred D. Iannazzi, Andover; John W. Rafferty, Topsfield; Donald B. Sparrow, and Richard Strauss, both of Lexington, all of Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

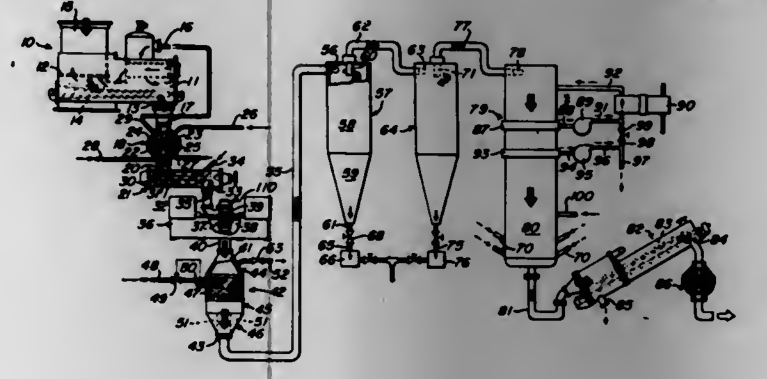
Filed Sept. 27, 1972, Ser. No. 292,662
Int. Cl. D21c *5/02*
U.S. Cl. 162—5 **16 Claims**

A method for separating mixtures of waste paper into two components using the differences in strength and/or water-receptivity characteristics of the two components which are typically the liner board and corrugated medium of corrugated paper or a mixture of magazines and newsprint. In separation, the material of the paper mixture is cut into pieces ranging in size from about one to six inches in either dimension, treated with a debonding agent and then subjected to differential size reduction wherein one of the mixture components is reduced to small pieces, e.g., one-quarter inch in either dimension, while the other remains in pieces of essentially the same size. Separation of the two distinctly different sized components is then effected.

3,833,461
CYCLONIC DIGESTER SYSTEM AND PROCESS

Maurice D. Woodruff, Springfield, Ohio, assignor to The Bauer Brothers Company, Springfield, Ohio

Filed May 17, 1971, Ser. No. 143,790
Int. Cl. D21c *7/06*
U.S. Cl. 162—19 **37 Claims**



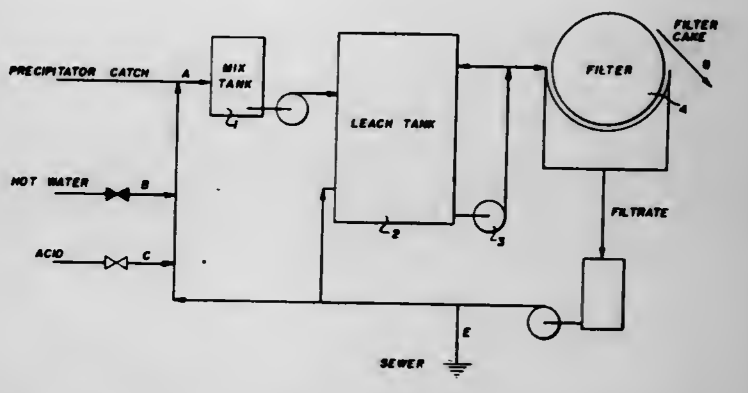
The invention system and process provides for a cyclonic digesting of fibrous pulp in a pressurized environment. It utilizes a double revolving disc refiner which reduces raw wood or like fibrous content material into fibers and fiber bundles. It features the use of a plurality of chambers in which the fiber content, as discharged from the disc refiner, is successively subjected to a vortex flow pattern under the influence of conditioning fluid such as a cooking liquor. The invention provides in this manner that lignin and other non-fibrous materials which attach and normally tend to coat and cling to the fibers are substantially solubilized and/or dissipated. The fibers resulting are not only simply and economically made individual but of such nature as to facilitate the production of high quality paper products, including, in particular, an improved Kraft.

3,833,462
PROCESS OF REMOVING SODIUM CHLORIDE FROM KRAFT PULPING PROCESS CHEMICAL RECOVERY SYSTEMS

Walick A. Moy, Nanaimo, and Garrick E. Styan, North Burnaby, British Columbia, both of Canada, assignors to MacMillan Bloedel Limited, Vancouver, British Columbia, Canada

Filed Mar. 15, 1971, Ser. No. 124,003
Int. Cl. D21c *11/06*
U.S. Cl. 162—29 **13 Claims**

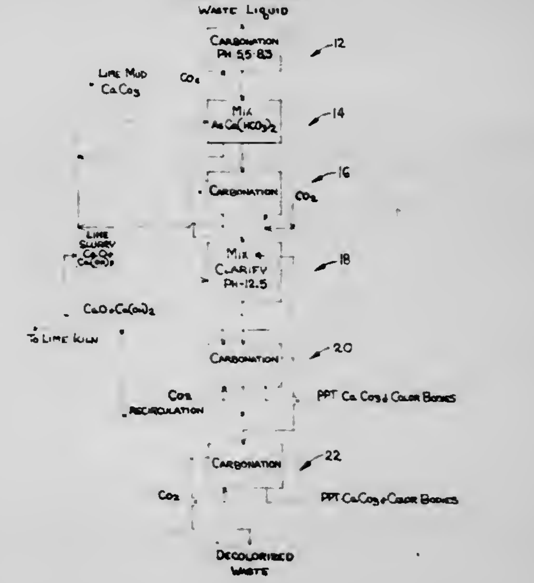
A process of removing sodium chloride which has accumulated in the precipitator catch of the kraft pulping process chemical recovery systems without undue loss of sodium sulfate and other useful chemicals. The process basically comprises leaching precipitator catch, which contains sodium sulfate, sodium carbonate, sodium chloride and organic material, with sufficient aqueous sulfuric acid solution to produce a leached slurry of pH 3–6, thereby converting sodium carbonate to sodium sulfate and recovering sodium chloride.



3,833,463
METHOD OF DECOLORIZING WASTE PROCESS LIQUID DISCHARGED BY A PAPER MILL

Hardy C. Croom, Valdosta, Ga., assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Oct. 26, 1972, Ser. No. 301,132
Int. Cl. D21c *11/00*
U.S. Cl. 162—29 **13 Claims**

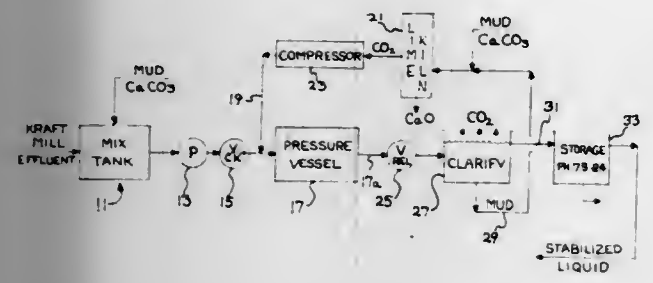


Discolored process waste liquid from a paper mill containing ecologically undesirable color bodies is subjected to a sequence of process steps serving, in aggregate, to reduce and/or eliminate the color bodies, said sequence of steps including (1) a carbonation of the waste liquid to adjust the pH to approximately neutral, (2) an addition of lime mud (principally calcium carbonate) which in the presence of carbon dioxide tends to form soluble calcium bicarbonate, (3) an optional secondary carbonation to counteract lime mud alkalinity and promote high calcium concentration, (4) a mixing clarifier addition of a slurry of lime (principally calcium oxide and calcium hydroxide), raising the pH and precipitating calcium carbonate, clarifier bottom slurry being recycled to lime slurry and bled to kiln, and (5) a carbonation of clarifier effluent with carbon dioxide to lower the pH and to react with remaining calcium to form and remove calcium carbonate and conjoint agglomeration of residual color bodies, yielding an essentially color-free effluent. The process also envisions recycling of various streams, thereby providing continuousness of the process.

3,833,464
METHOD OF DECOLORIZING PAPER MILL EFFLUENT LIQUID

Ormond E. Rolfe, Valdosta, Ga., assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Feb. 16, 1973, Ser. No. 333,285
Int. Cl. D21c *11/00;* D21f *1/82*
U.S. Cl. 162—29 **7 Claims**

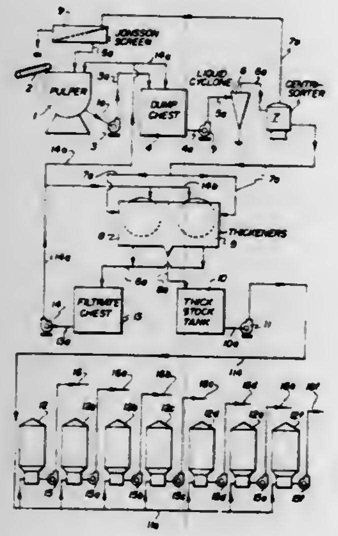


Effluent liquid normally discharged by paper mills is ecologically undesirable for return to streams, lakes or the like by reason of the presence of color-imparting substances, e.g., color bodies, desirably removed by a process which includes mixing therewith an excess of calcium carbonate, followed by a combination at a pressure above atmospheric with a fluid rich in carbon dioxide, serving to convert the calcium carbonate to soluble calcium bicarbonate which is in turn discharged to atmospheric pressure whereby the calcium bicarbonate reconverts to calcium carbonate precipitate, said precipitate attracting and sweeping said color-imparting color bodies; the precipitate and color bodies being readily separable from the color-free effluent which may be returned to the source, stream, river or lake or reintroduced as fresh water into the pulping process as needed.

3,833,465
SINGLE PULPING SYSTEM FOR MULTIPLE PULP STOCKS USED IN PAPERBOARD MACHINE

Hubert J. Campbell, Trenton, Ontario, Canada, assignor to The Miller Bros. Co. Limited, Trenton, Ontario, Canada

Filed Apr. 27, 1971, Ser. No. 137,788
Int. Cl. D21d *5/00, 5/28;* D21f *11/04*
U.S. Cl. 162—129 **5 Claims**



Various pulp stocks which are to be used in the formation of various layers of multilayered paperboard are prepared by sequential passage of each stock through a single pulping system which includes a pulper, a liquid cyclone, a centrisorter, and pulp thickeners, prior to storage in separate storage tanks. Stocks from the different tanks can be withdrawn and blended in multiple blend chests (with appropriate additive chemicals also being added to the blend chests) for passage to separate stock drop chests and formation points on the paperboard machine.

3,833,466
MANUFACTURE OF HARDWOOD PRINTING PAPER

Eugene F. McCarty, Salisbury Mills, N.Y., assignor to Aktiebolaget Svenska Flaktfabriken, Stockholm, Sweden

Filed June 15, 1971, Ser. No. 153,381
Int. Cl. D21f *11/00*
U.S. Cl. 162—142 **8 Claims**

Paper capable of being converted to printing paper and capable of being processed through high speed printing machines is manufactured from 100 percent or near 100 percent hardwood groundwood pulp by a process which includes drying the wet pulp web to below 15 percent by weight moisture under substantially no physical restraint, the drying process imparting stretch and strength to the paper without causing cockling.

3,833,467
MODIFICATION OF CLAY TO IMPROVE ELECTROSTATIC DEPOSITION

Lester L. Spiller, Indianapolis, Ind., assignor to Ransburg Electro-Coating Corp., Indianapolis, Ind.

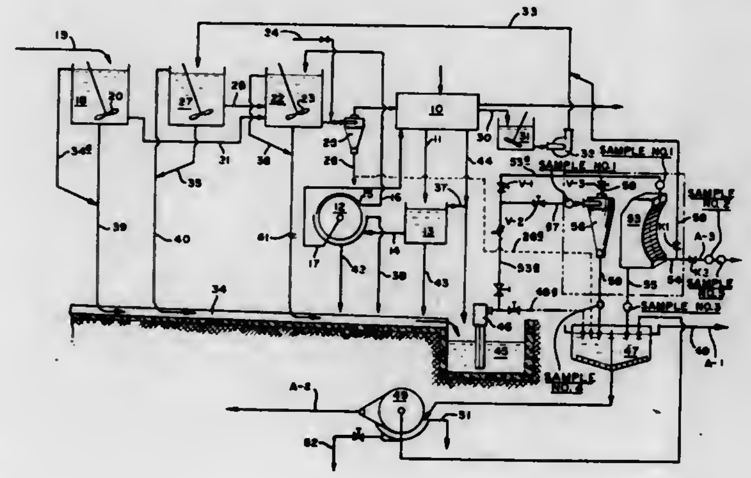
Continuation of Ser. No. 768,342, Oct. 17, 1968, abandoned. This application Apr. 26, 1973, Ser. No. 354,637
Int. Cl. D21d *3/00*
U.S. Cl. 162—181 D **5 Claims**

Dry clay is electrostatically deposited on wet paper as it is formed on a Fourdrinier machine. This clay is coated with a cationic surface active agent and especially a dialkyl dimethyl ammonium chloride in order to minimize the formation of clay clusters which adhere to the electrostatic equipment and which drop off in the form of slugs to mar the paper. Pretreatment of the clay with a mild alkaline agent such as sodium carbonate causes the cationic agent to be more effective and the treatment to be more durable.

3,833,468
SYSTEM FOR RECOVERY OF FIBER FROM PAPER MILL EFFLUENT, INCLUDING A SIEVE BEND SCREEN

Arthur Boniface, West Redding, Conn., assignor to Dorr-Oliver Incorporated, Stamford, Conn.

Continuation of Ser. No. 175,498, Aug. 27, 1971, abandoned, which is a continuation-in-part of Ser. No. 834,168, June 17, 1969, abandoned. This application Apr. 26, 1973, Ser. No. 354,711
Int. Cl. D21f *1/66*
U.S. Cl. 162—264 **11 Claims**

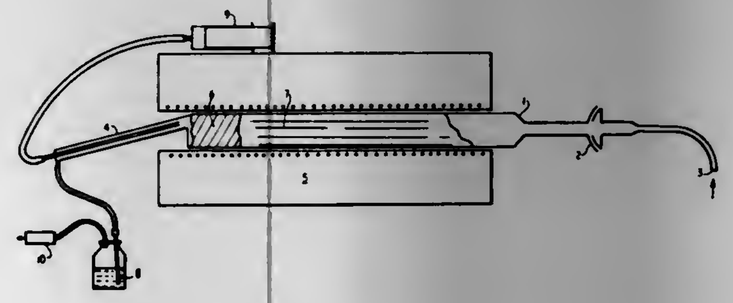


The improvement in the operation of a paper mill, whereby re-usable long fibers are recoverable from mill waste effluent, wherein the fibers are entrapped in contaminating impurities comprising coarse particles along with fibrous-and-nonfibrous fines. The present improvmeent provides a fiber recovery section whereby a suspension of the entrapped fibers is supplied under pressure to a sieve bend type of screen, effecting the decontamination of the fibers, and delivery of recovered fibers suitable for paper making.

3,833,469
PROCESS FOR THE PRODUCTION OF TECHNETIUM-99M FROM NEUTRON IRRADIATED MOLYBDENUM TRIOXIDE

John Robson, Stanwell Tops, New South Wales, Australia, assignor to Australian Atomic Energy Commission, New South Wales, Australia

Filed Aug. 30, 1972, Ser. No. 284,868
Claims priority, application Australia, Aug. 31, 1971, 6121/71
Int. Cl. C01f *13/00, 15/00*
U.S. Cl. 176—16 **10 Claims**

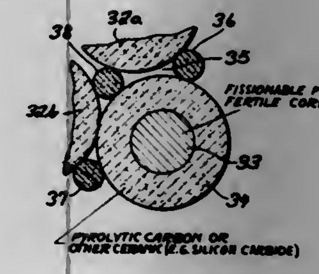


A process for producing solutions containing radioactive technetium-99m comprises irradiating molybdenum oxide in a nuclear reactor, heating the powdered product in a tube in a flowing gas stream at a temperature in the range 700°–950°C, passing the vaporised Tc-99m compound together with any vaporised molybdenum compound through a filter held at a temperature in the range 300°–700°C, condensing the Tc-99m compound in a condenser, taking-up the Tc-99m compound in a liquid, and removing the liquid containing the Tc-99m compound in a sterile container.

3,833,470
METHOD OF MAKING FUEL AND FERTILE ELEMENTS FOR NUCLEAR-REACTOR CORES

Erno Gyarmati, and Hubertus Nickel, both of Julich, Germany, assignors to Kernforschungsanlage Julich Gesellschaft mit beschrankter, Haftung, Julich, Germany

Division of Ser. No. 49,056, June 23, 1970, abandoned. This application May 3, 1972, Ser. No. 250,032
Claims priority, application Germany, June 27, 1969, 1932567
Int. Cl. G21c *3/70, 3/26, 21/02*
U.S. Cl. 176—68 **3 Claims**

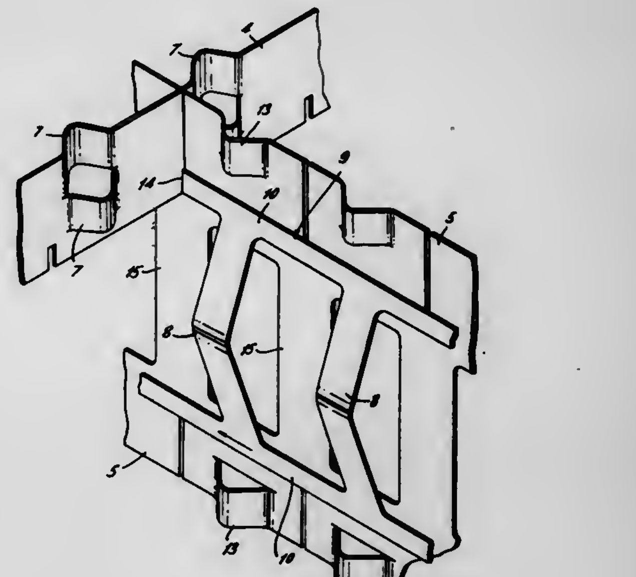

38
32a
36
35
FISSIONABLE FUEL/ FERTILE CORE
32b
33
37
34
PYROLYTIC CARBON OR OTHER CERAMIC (E.G. SILICON CARBIDE)

Fissionable-fuel or fertile elements for the core of a nuclear reactor, especially a reactor of the gas-cooled type, wherein the fuel or fertile material is introduced into graphite shells in the form of coated particles and a pyrolytically decomposable carbon-containing or silane gas is passed upwardly through the shell while the mass therein is heated by displacing an induction-furnace core downwardly around the graphite shell thereby bonding the coated particles together with pyrolytic carbon, silicon carbide or zirconium carbide being formed in situ to yield a coherent mass with a porosity of, say, 10 to 25 percent. The gas is preferably a mixture of one or more inert gases (nitrogen, argon or helium) with one or more hydrocarbons or carbon-containing gases (e.g., methane, acetylene, benzene, or silanes).

3,833,471
NUCLEAR REACTOR FUEL ELEMENT GRID

John Chetter, Lytham-St. Annes, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed June 26, 1972, Ser. No. 266,067
Claims priority, application Great Britain, July 7, 1971, 32003/71
Int. Cl. G21c *3/34*
U.S. Cl. 176—78 **1 Claim**



A spacer grid comprising a grid structure formed from intersecting strip members defining cells which are penetrated by fuel pins bearing against rigid stops projecting inside the cells and spring locating members in the form of bow springs which extend longitudinally in the cells of the grid structure to hold the fuel pins against the rigid stops in the cells, the bow spring members of each line of cells extending in one direction across the grid structure having their corresponding ends interconnected by common longitudinal bridging strips to form a ladder spring assembly.

3,833,472
PROCESS FOR ISOLATING OLEANDRIN FROM NERIUM ODORUM

Tatsuo Yamauchi, Fukuoka, Japan, assignor to Hisamitsu Pharmaceutical Company, Inc., Tosu-City, Japan

Filed Sept. 25, 1972, Ser. No. 291,529
Claims priority, application Japan, Oct. 3, 1971, 46-77254; Oct. 3, 1971, 46-77255; May 8, 1972, 47-45697
Int. Cl. C12b
U.S. Cl. 195—3 **3 Claims**

Undried leaves of Nerium odorum are subjected to a heat treatment under dry or wet conditions or incubation under heating to isolate oleandrin therefrom, which is then extracted with a solvent to obtain oleandrin of a high purity.

3,833,473

METHOD FOR PRODUCING L-ARGININE BY FERMENTATION

Koji Kubota, Kanagawa; Takiko Onoda, Tokyo; Hirotaka Kamijo; Fumihiro Yoshinaga, both of Kanagawa, and Shinji Okumura, Tokyo, all of Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

Filed June 19, 1972, Ser. No. 264,317

Claims priority, application Japan, June 21, 1971, 46-44619The portion of the term of this patent subsequent to Mar. 27, 1990, has been disclaimed.

Int. Cl. C12d *13/06*

U.S. Cl. 195—29 **2 Claims**

Extracellular L-arginine is produced in commercially useful amounts by cultures of Microbacterium ammoniaphilum FERM-P 976, a mutant capable of growth on a culture medium containing more than 1,000 μg/ml 2-thiazolealanine, a growth inhibitor for the parent strain which does not produce L-arginine.

3,833,474

ASPOROGENIC PROTEASE-PRODUCING STRAINS OF BACILLUS SUBTILIS

Jean-Paul Aubert, Montrouge; Robert Longin, Meudon La Foret, and Jacqueline Millet, Paris, all of France, assignors to Agence Nationale de Valorisation de la Recherche (Anvar), Paris, France

Filed July 25, 1972, Ser. No. 275,069

Claims priority, application France, July 28, 1971, 71.27671

Int. Cl. C12k *1/00;* **C12d** *13/10*

U.S. Cl. 195—65 **3 Claims**

A new mutant strain of Bacillus subtilis which has the property of being substantially asporogenic while showing proteolytic activity similar to that of the native strain from which it was derived. The process for preparing the new mutant strain is based on the discovery that the non-sporulated cells of *Bacillus subtilis* are not resistant to chloroform vapor whereas the spores are resistant.

3,833,475

PROCESS FOR PREPARING LINCOMYCIN

Fritz Reusser, and Alexander D. Argoudelis, both of Portage, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Apr. 23, 1973, Ser. No. 353,379

Int. Cl. C12d *9/00*

U.S. Cl. 195—80 R **8 Claims**

Microbiological process for preparing the antibiotic lincomycin at high incubation temperatures using the micro-organism *Streptomyces espinosus* and biotypes thereof.

3,833,476

PROCESS FOR PREPARING CHLORAMPHENICOL ANALOGUES

Takeo Suzuki; Fusao Tomita; Haruo Honda; Kunikatsu Shirahata; Takashi Deguchi, all of Tokyo, and Fumio Kato, Shizuoka, all of Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Continuation-in-part of Ser. No. 137,696, April 26, 1971, abandoned. This application May 21, 1973, Ser. No. 362,625

Int. Cl. C12d *13/00*

U.S. Cl. 195—96 **7 Claims**

The present invention relates to a process for preparing analogues of chloramphenicol, characterized by culturing a microorganism capable of producing D-threo-2-acetamido-1-p-nitrophenyl-1,3-propanediol (hereinafter designated as Substance C), and the derivatives of D-threo-2-propionamido-1-p-nitrophenyl-1,3-propanediol (hereinafter designated as Substance A), D-threo-2-isobutyramido-1-p-nitrophenyl-1,3-propanediol (hereinafter designated as Substance B) and Substance C of which 3-hydroxy group is substituted by O-acetyl group, under aerobic conditions in a culture medium containing assimilable carbon sources to form and accumulate said analogues of chloramphenicol therein and isolating and recovering the same therefrom, said microorganism belongs to the genera *Corynebacterium*.

These substances A, B and C are the derivatives of D-threo-2-amino-1-p-nitrophenyl-1,3-propanediol of which 2-amino group is substituted by propionamide, isobutyramide and acetamide respectively.

3,833,477

PROCESS AND INSTALLATION FOR THE OXIDATION OF AN OXIDISABLE SUBSTANCE

Jean-Renaud Brugerolle, Paris, and Pierre Petit, Chatenay, both of France, assignors to L'Air Liquid, Societe Anonyme Pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France

Filed Aug. 4, 1972, Ser. No. 278,087

Claims priority, application France, Aug. 10, 1971, 71.29152

Int. Cl. C12b *1/00*

U.S. Cl. 195—109 **26 Claims**

In a process for incompletely oxidizing an oxidisable substance, wherein there is obtained after oxidation a residual mixture which is still rich in oxygen and which contains at least one impurity (for example carbon dioxide) the residual mixture being recycled to the inlet of an installation wherein there can be prepared an oxidizing material which is richer in oxygen than the air, for oxidation of the oxidizable substance. The impurity of the residual mixture is thus selectively eliminated in the enrichment installation. The invention can be applied inter alia to the biochemical oxidation of a hydrocarbon, taking place during the aerobic fermentation thereof, for the production of proteins.

3,833,478

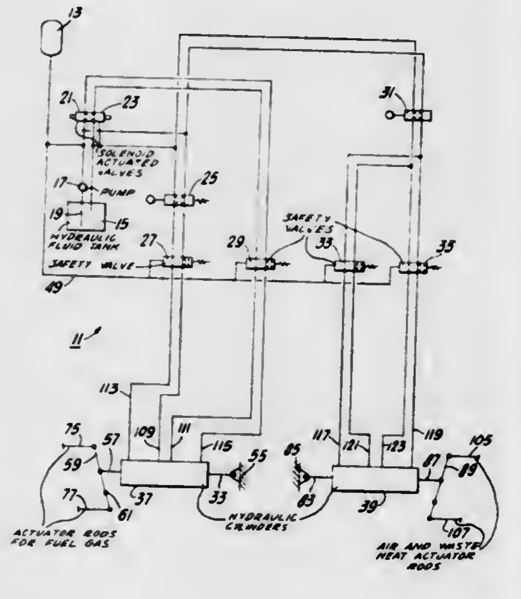
REVERSING MECHANISM FOR COKE OVEN BATTERY

Linwood G. Tucker, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 103,306, Dec. 31, 1970, abandoned, which is a continuation-in-part of Ser. No. 885,678, Dec. 17, 1969, abandoned. This application Jan. 29, 1973, Ser. No. 327,595

Int. Cl. C10b *1/06, 21/10*

U.S. Cl. 202—151 **7 Claims**



A coke oven battery reversing mechanism comprises a repeat-cycle timing device that signals the commencement of the sequence of movement of cylinder-piston assemblies to initiate the 1–4,5 reverse, and also the 2,3 reverse of the coke oven battery. Two tandem cylinder-piston assemblies are connected to the actuating rods for the air, waste heat valves and the fuel gas valves, hydraulic power being obtained from an accumulator.

3,833,479

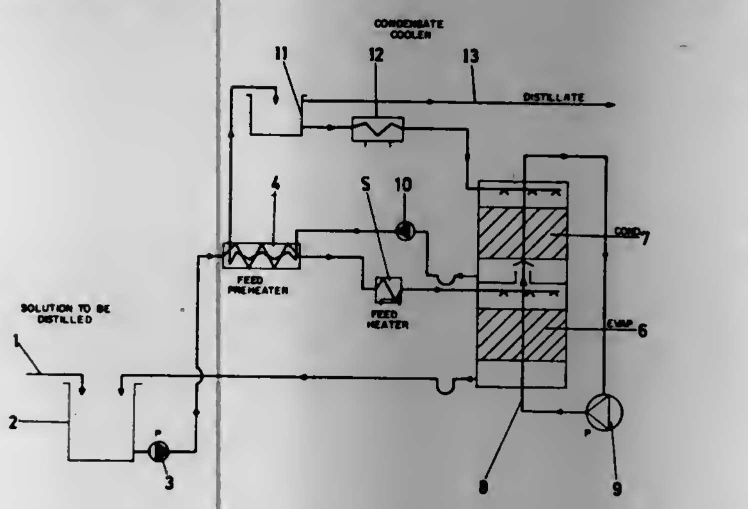
METHODS AND MEANS FOR DISTILLATION OF LIQUIDS

Carl Otto Fredriksson, Goteborg, Sweden, assignor to Nordnero AB, Goteborg, Sweden

Filed Sept. 5, 1972, Ser. No. 286,257

Int. Cl. B01d *3/34, 3/28, 3/00, 1/16, 3/08*

U.S. Cl. 202—235 **2 Claims**



A method for distillation of liquids comprises the use of two separate liquid circulation systems. The liquid of the first system passes from a tank through a heat exchanger and is then brought to an evaporator there meeting a counter running, colder gas flow and is therefrom returned to the tank. The liquid of the second system passes a condenser and meets there the same counter running gas flow, which then has passed the evaporator, this liquid receiving heat through the gas flow, which heat is emitted to the heat exchanger.

3,833,480

DISTILLATION OF LIQUID SOLUTIONS EXPANDED ALONG A CURVILINEAR SURFACE

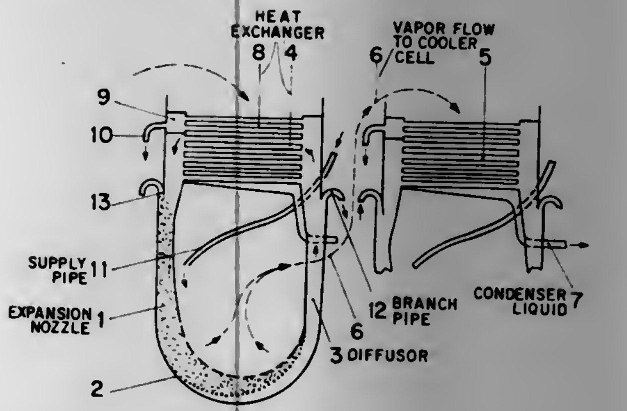
Rene Bidard, Paris, France, assignor to Compagnie Electro-Mecanique, Paris, France

Continuation of Ser. No. 133,115, April 12, 1971, abandoned, which is a division of Ser. No. 802,106, Feb. 25, 1969, Pat. No. 3,619,379. This application Sept. 4, 1973, Ser. No. 393,817

Claims priority, application France, Mar. 4, 1968, 68.142244

Int. Cl. B01d *3/06*

U.S. Cl. 203—88 **6 Claims**



Method for distillation of a liquid, particularly sea water, in which the liquid flows thru a plurality of stages each of which includes at least one cell through which the liquid flows and in which steam produced by evaporation is separated from the unevaporated liquid in order to obtain a condensate. The method employs one or more expansion nozzles in each cell through which the liquid expands and is thus converted partly into its vapour phase as a result of the reduction in pressure. The composite liquid and gaseous fluid passes along a curved flow surface which, as a result of the centrifugal forces created effects separation of the liquid from the steam. The steam is then condensed and the remaining liquid is sent to a diffusor in which its speed is transformed into pressure, delivering thus a pressure greater than the one at the inlet of the expansion nozzle. The liquid passes then through a heat exchanger and may then either be re-cycled through the cell or passed to a warmer or cooler cell.

3,833,481

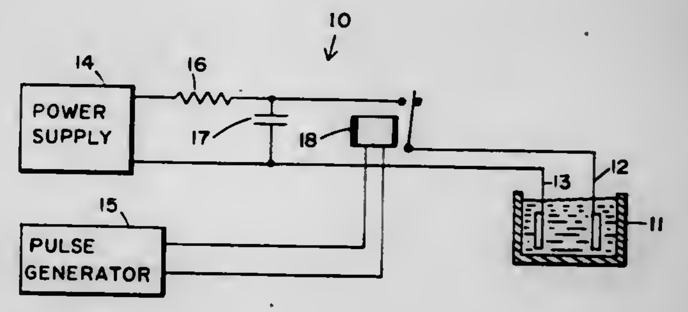
ELECTROFORMING NICKEL COPPER ALLOYS

Roger A. Olson, Amery, Wis., and Pat F. Mentone, St. Paul, Minn., assignors to Buckbee-Mears Company, St. Paul, Minn.

Filed Dec. 18, 1972, Ser. No. 316,278

Int. Cl. C23b *7/00, 5/34*

U.S. Cl. 204—3 **9 Claims**



A process for electroforming a nickel copper alloy by utilization of a nickel anode in an electrolyte solution containing copper, nickel and boric acid.

3,833,482

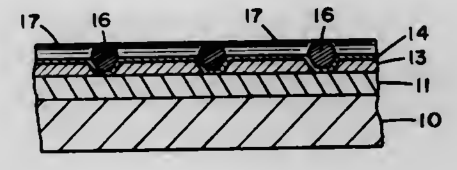
MATRIX FOR FORMING MESH

Dan Jacobus, New Brighton, Minn., assignor to Buckbee-Mears Company, St. Paul, Minn.

Filed Mar. 26, 1973, Ser. No. 344,980

Int. Cl. C23b *7/00;* **B01k** *1/00*

U.S. Cl. 204—11 **5 Claims**



A reusable sandwich type matrix for the formation of fine mesh comprising a base plate, a photoresist defining the mesh pattern, and a silica coating encapsulating the top of the base plate and the photoresist.

3,833,483

PROCESS FOR PRE-TREATING CAN MATERIALS FOR LACQUERING

Akimi Umezono; Takao Saito, and Ryousuke Wake, all of Himeji, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

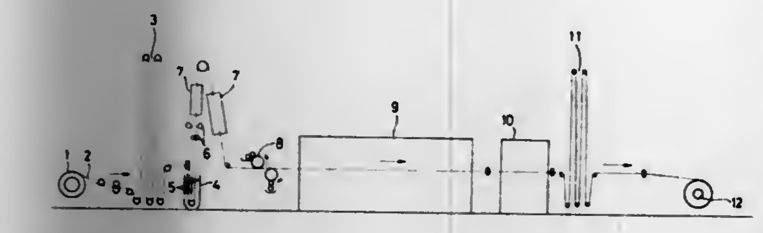
Filed Mar. 7, 1973, Ser. No. 338,957

Claims priority, application Japan, Mar. 10, 1972, 47-24558

Int. Cl. C23f *17/00*

U.S. Cl. 204—38 E **1 Claim**

The present invention comprises a process for pre-treating a steel strip intended for can making in the lacquring line in an electrolysis tank containing as the treating solution more than 50g/l of anhydrous chromic acid and sulfate ions in the amount of 2 to 5% of the anhydrous chromic acid, electrolytically treating the steel strip less than 0.2 sec. at a current density of 50 A/dm² on the downward path in the tank, then dissovling the excessive part of attached hydrated oxide of chromium on the upward path and immediately applying lacquer. The chemical treatment process of the present invention is very easily connected to the lacquring line for steel strips, and thereby lacquered can materials possessing excellent anti-under-film corrosion and suitable for cans for carbonated beverages are supplied with decreased cost.



3,833,484
METHOD OF FORMING AN INTEGRAL COLORED ANODIC OXIDE ON ALUMINUM PRESSURE DIE CASTINGS

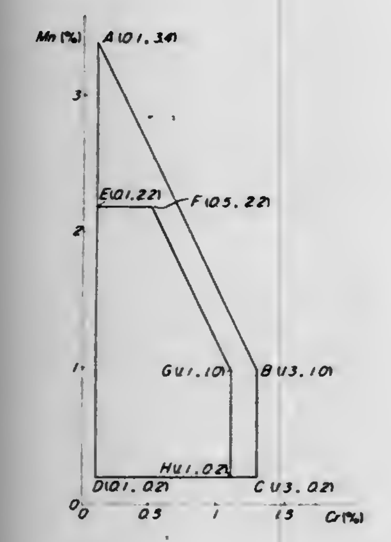
Kiyomi Yanagida, and Isao Satake, both of Nagoya, Japan, assignors to Sumitomo Chemical Company Limited, Osaka, Japan

Filed Feb. 18, 1972, Ser. No. 227,593

Claims priority, application Japan, Feb. 24, 1971, 46-9521; May 18, 1971, 46-33823; May 19, 1971, 46-34264

Int. Cl. C23b *9/02*

U.S. Cl. 204—29 **9 Claims**



An integral colored anodic oxide film free from irregular patterns of metal flow, seams and cold shuts can be formed on die castings by subjecting the surface of pressure die castings of an aluminum alloy comprising 0.1 – 1.3 percent by weight of chromium, 0.2 – 3.4 percent by weight of manganese, said chromium and manganese being present in the amounts which are within the area of quadrilateral ABCD shown in the FIGURE, up to 0.3 percent by weight of impurities and the balance of aluminum, to roughening and brightening treatments, and thereafter subjecting thus treated products to anodizing treatment. Mechanical strength and castability of the alloy is further improved by addition of cobalt or zinc.

3,833,485
ELECTROPLATING CHROMIUM AND CHROMIUM ALLOYS

John Cooper Crowther, 20 St. Leonard's Oval, and Roger Frederick Ashpole, 62 Beckwith Rd., both of Harrogate, England

Filed Feb. 22, 1972, Ser. No. 228,083

Claims priority, application Great Britain, Feb. 23, 1971, 05270/71

Int. Cl. C23b *5/32, 5/06*

U.S. Cl. 204—43 R **21 Claims**

An improved process for electroplating chromium and chromium alloys from a substantially aqueous electrolyte containing trivalent chromium ions as the source of chromium and containing oxyanions (preferably sulphate ions) as the major anion component. The improvement comprises incorporating into said electrolyte chlorine ions in an amount of at least 0.1 gram ions per litre or bromine ions in an amount of at least 0.05 grams ions per litre, and a nitrogen compound selected from the group consisting of ammonium compounds, hydroxylamine, hydrazine, urea, aliphatic amines and hetercyclic amines; and utilizing a carbon anode and electroplating chromium from said electrolyte with said carbon anode immersed in said electrolyte. The chlorine ion is preferred and the use of ammonium compounds is preferred.

3,833,486
CYANIDE-FREE ELECTROPLATING

Fred I. Nobel, Roslyn, and Lazaro C. Yoen, Brooklyn, both of N.Y., assignors to Lea-Ronal, Inc., Freeport, N.Y.

Filed Mar. 26, 1973, Ser. No. 345,041

Int. Cl. C23b *5/02, 5/18, 5/46*

U.S. Cl. 204—44 **3 Claims**

Improved cyanide-free aqueous electroplating baths for plating metals, the baths containing water soluble phosphonate chelating agents combined with at least one chelatable metal ion and containing as an additive at least one strong oxidizing agent, and electroplating processes employing said baths. Additional materials may also be added for further improvements.

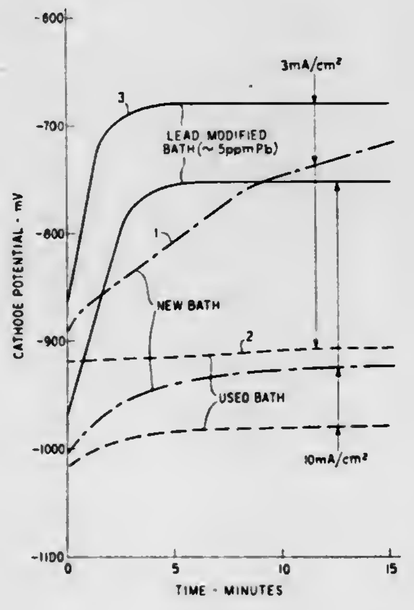
3,833,487
ELECTROLYTIC SOFT GOLD PLATING

Horst Alfred Reinheimer, Reading, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 22, 1972, Ser. No. 317,600

Int. Cl. C23b *5/28*

U.S. Cl. 204—46 G **11 Claims**



Characteristics of soft gold plating produced by electrolysis are improved by adding trace amounts of lead to the gold plating solution and by replenishing such content during use. Such characteristics include improved brightness and uniformity of deposits, better defined crystallinity of deposits, enlarged current density range, and extended solution life. Lead content generally less than about 1 ppm, based on the solution, does not affect purity of gold deposit as measured by ordinary analytical techniques.

3,833,488
GOLD ELECTROPLATING BATHS AND PROCESS

Maurice Bick, South Orange, and Jean A. Lochet, Metuchen, both of N.J., assignors to Auric Corporation, Newark, N.J.

Continuation-in-part of Ser. No. 176,263, Aug. 30, 1971, , and a continuation-in-part of Ser. No. 273,860, July 21, 1972,. This application Apr. 26, 1973, Ser. No. 354,697

Int. Cl. C23b *5/28, 5/46*

U.S. Cl. 204—46 G **21 Claims**

A gold electroplating bath for use in barrel plating, rack plating operations or the like. The bath comprises an aqueous solution of a gold-alkali metal cyanide, conducting and buffering compounds, quantities of aminoguanidine, and one or more agents selected from the bath soluble salts and complexes of lead, thallium, and/or arsenic.

3,833,489
PROCESS FOR THE PREPARATION OF SQUARIC ACID BY REDUCTIVE CYCLOTETRAMERIZATION OF CARBON MONOXIDE

Raffaele Ercoli, 49, Via G. Campolo; Giuseppe Silvestri, 48, Via Emilia; Salvatore Gambino, 31, Via L. Ruggieri; Mauro Guainazzi, 70, Via Cavour, and Giuseppe Filardo, 16/A, Via Svezia, all of Palermo, Italy

Filed July 18, 1972, Ser. No. 272,741

Claims priority, application Italy, July 24, 1971, 42019/71; June 6, 1972, 25273/72

Int. Cl. C07b *29/06;* **C07c** *35/04, 49/45*

U.S. Cl. 204—59 QM **21 Claims**

A process for preparing dihydroxycyclobutenedione ("squaric acid") and squaric acid complexes and salts which comprises electrochemical cathodic reductive cyclotetramerization of carbon monoxide to produce the squarate anion, while preventing anodic reactions from substantially interfering with the cathodic reductive reaction.

3,833,490
PROCESS FOR THE PREPARATION OF 3,5-DIIODO-4-HYDROXYBENZONITRILE OR 3-IODO-4-HYDROXY-5-NITRO-BENZONITRILE

Jean Bizot, Essonne; Jean Courteix, Val-de-Marne, and Jean-Pierre Philipot, Hauts-de-Seine, all of France, assignors to Rhone-Poulene S.A., Paris, France

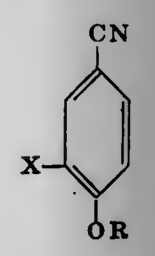
Filed Feb. 23, 1973, Ser. No. 335,178

Claims priority, application France, Feb. 25, 1972, 72.06492

Int. Cl. C07b *9/00*

U.S. Cl. 204—78 **18 Claims**

The compounds 3,5-diiodo-4-hydroxy-benzonitrile and 3-iodo-4-hydroxy-5-nitro-benzonitrile, which are known to possess herbicidal and chemotherapeutic properties respectively, are prepared by anodic iodination of a compound of the formula:



wherein X represents hydrogen, iodine or nitro, and R represents hydrogen, an alkali metal atom or alkanoyl of 1 through 4 carbon atoms, in an electrolysis cell in which the anolyte contains an alkali metal iodide or iodine and a solution or suspension of a compound of said formula.

3,833,491
PRODUCTION OF MACROCYCLIC COMPOUNDS

Carl D. Kennedy, 2302 Amity St., San Diego, Calif. 92109

Filed Mar. 2, 1973, Ser. No. 337,413

Int. Cl. B01j *1/12*

U.S. Cl. 204—158 S **10 Claims**

Cyclic ketone di- and triperoxides are converted at temperatures of from about 20°C. to 300°C. by the use of ultrasonic energy to macrocyclic hydrocarbons and macrocyclic lactones.

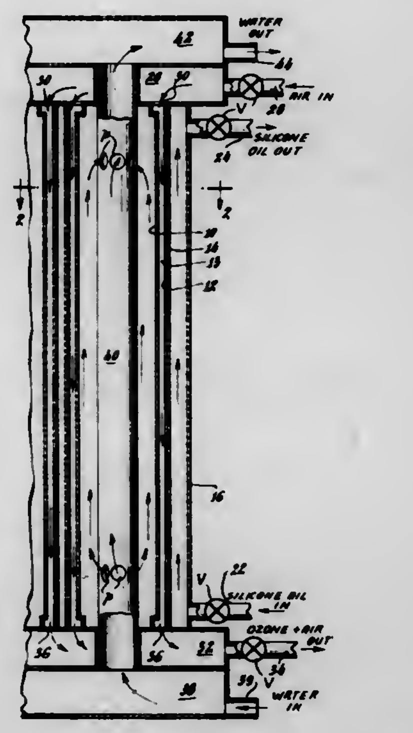
3,833,492
METHOD OF PRODUCING OZONE

L. Joseph Bollyky, Stamford, Conn., assignor to Pollution Control Industries, Inc., Stamford, Conn.

Division of Ser. No. 182,681, Sept. 22, 1971, Pat. No. 3,766,051. This application Mar. 22, 1973, Ser. No. 343,731

Int. Cl. C01b *13/10, 13/12*

U.S. Cl. 204—176 **3 Claims**



An ozone generator module of the electric discharge field type is provided having at least one cell comprising an assembly of three concentric tubular members, the inner and outer tubular members being electrodes separated by a tubular dielectric member spaced from one of the electrodes a distance sufficient to define a high density electric discharge zone between them, the cell or cells being disposed within a liquid container. Surprisingly good results are obtained by employing a combination of three method steps; — limiting variation in the cross sectional dimension of the field to within a very small range of tolerance; controlling the temperature of the electrodes; and limiting the density of the field by regulating the voltage across the field and the frequency employed.

3,833,493
IMAGING PROCESS

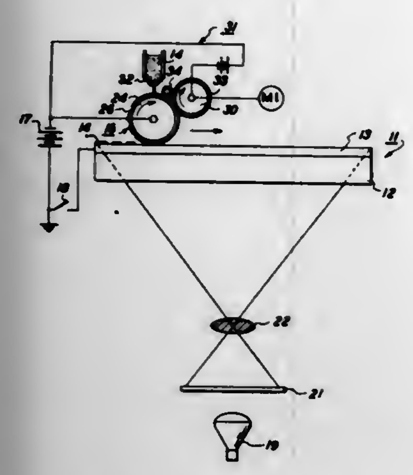
Edwin Zucker, Rochester, N.Y., assignor to Xerox Corporation, Stamford, N.Y.

Division of Ser. No. 764,721, Oct. 3, 1968, Pat. No. 3,595,772. This application Jan. 20, 1971, Ser. No. 108,213

Int. Cl. B01k *5/00*

U.S. Cl. 204—180 R **4 Claims**

This invention relates to a method and apparatus for creating high shear stresses in a particulate suspension prior to use of such suspension for imaging or inking. The method and apparatus in one environment function to stress a thin layer of an electrophoretic suspension of particles in a liquid carrier. The prestressed suspension is better suited than unstressed suspensions for preparing both monchromatic and polychromatic copies from originals by particle migration through the suspension when it is exposed to electromagnetic radiation in image configuration while in an electric field across the suspension between two electrodes. The method and apparatus is also used for printing inks in order to form a prestressed, uniform, thin layer of the ink for application to the press.



3,833,494

METHOD OF MANUFACTURING A LANTHANUM HEXABORIDE-ACTIVATED CATHODE FOR AN ELECTRIC DISCHARGE TUBE

Antonius Johannes Alberta Van Stratum, Emmasingel, Eindhoven, and Niranjan Kumar Mitra, Best, both of Netherlands, assignors to U. S. Philips Corporation, New York, N.Y.

Filed May 2, 1973, Ser. No. 356,620

Claims priority, application Netherlands, May 30, 1972, 7207275

Int. Cl. C23b *13/00*

U.S. Cl. 204—181 **1 Claim**

A layer of lanthanum hexaboride is applied cataphoretically to a rhenium wire and then sintered. The process is repeated. In this manner a cathode with small evaporation and long life is obtained.

3,833,495

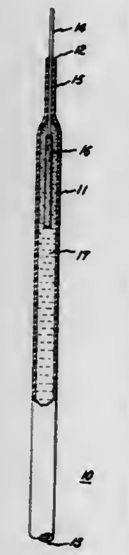
REFERENCE ELECTRODE HALF CELL

Willard T. Grubb, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 75,866, Sept. 28, 1970, Pat. No. 3,705,089. This application July 21, 1972, Ser. No. 273,847

Int. Cl. G01n *27/28;* **B01k** *3/00*

U.S. Cl. 204—195 F **2 Claims**



A reference electrode half cell has an elongated, flexible electrically insulated tube having opposite open ends, a silver wire positioned partially within the tube at one end thereof and extending outwardly from the one end, the tube bonded to the silver wire at the one end, a coating of silver chloride on a portion of the silver wire positioned within the tube, and at least one gelled equitransferent salt solution filling the tube in contact with the silver chloride coating on the silver wire and in contact with the opposite open end of the tube.

3,833,496

OIL COMPOSITION

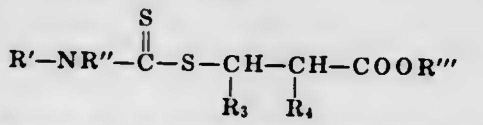
Robert E. Malec, Birmingham, Mich., assignor to Ethyl Corporation, Richmond, Va.

Filed Apr. 6, 1973, Ser. No. 348,625

Int. Cl. C10m *1/38, 1/32*

U.S. Cl. 252—33.6 **6 Claims**

Compounds having the formula:



$$R'-NR''-\overset{\overset{S}{\|}}{C}-S-\underset{R_3}{\underset{|}{C}}H-\underset{R_4}{\underset{|}{C}}H-COOR'''$$

wherein R′ is selected from the group consisting of aliphatic hydrocarbon radicals containing about 8–100 carbon atoms, and hydrocarbylaminohydrocarbyl radicals having the formula:

$$R_1\text{-}NR''''\text{-}R_2\text{-}$$

wherein R_1 is an aliphatic hydrocarbon radical containing about 8–100 carbon atoms, R′′′′ is selected from the group consisting of hydrogen and C_1–$_4$ alkyls and R_2 is a divalent aliphatic hydrocarbon radical containing about 2–10 carbon atoms, R_3 and R_4 are selected from the group consisting of hydrogen and alkyl radicals containing about 1–4 carbon atoms, R″ is selected from the group consisting of hydrogen and C_1–$_4$ alkyls and R‴ is selected from the group consisting of hydrogen, C_1–$_{10}$ alkyl and salt cations, are effective antiwear and antirust additives in lubricating oils and greases.

3,833,497

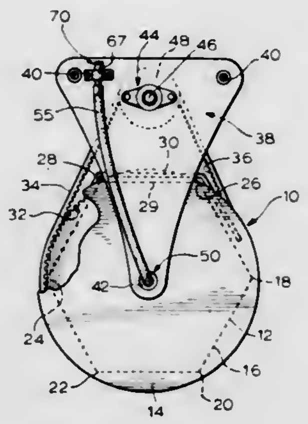
CABLE CONNECTOR CONTACT

Ralph E. Belke, Oak Park, Ill., assignor to Belke Manufacturing Company, Chicago, Ill.

Filed Jan. 2, 1973, Ser. No. 320,322

Int. Cl. B01k *3/00*

U.S. Cl. 204—279 **6 Claims**



A non-destructible electrical connecting cable system or dangle for a rotary electroplating barrel, wherein one end of such cable is inserted into the barrel at its axis of rotation to provide a cathode within the electroplating barrel and the opposite end of the cable is provided with a spherical contact universally swivable in a supporting collar clamp, so that if the cable becomes snagged with parts tumbling in the rotating barrel, the normally stationary cable will twist in the manner of a flexible cable and free itself and will not break off and will continuously transmit electrical energy even while being twisted, so that the plating operation continues for its programmed cycle without damaging the parts being plated.

3,833,498

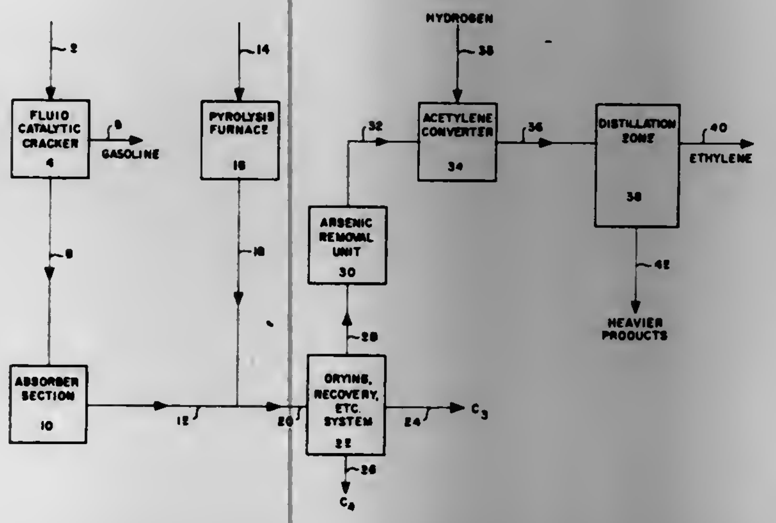
PROCESS FOR REDUCING THE ARSENIC CONTENT OF GASEOUS HYDROCARBON STREAMS BY THE USE OF SELECTIVE ACTIVATED CARBON

Donald L. Stahfeld, Glenshaw, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

Filed July 18, 1973, Ser. No. 380,208

Int. Cl. C10g *17/00, 17/02*

U.S. Cl. 208—307 **10 Claims**



A process for reducing the arsenic content of a gaseous hydrocarbon stream by contacting the stream with a sorbent comprising a specially defined metals content activated carbon prepared from a bituminous coal.

3,833,499

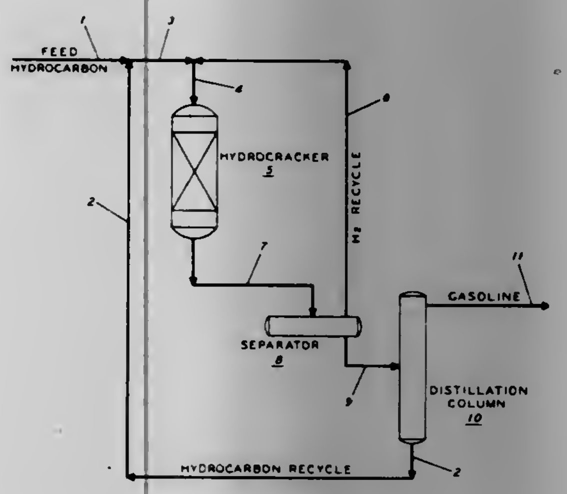
HYDROCONVERSION PROCESS

Clark J. Egan, Piedmont, and Robert J. White, Pinole, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 129,986, March 31, 1971, Pat. No. 3,769,235. This application Apr. 30, 1973, Ser. No. 355,396

Int. Cl. C10g *13/04;* **B01j** *11/40*

U.S. Cl. 208—111 **13 Claims**



A hydrocracking process using a palladium-zeolite-amorphous inorganic oxide catalyst containing 1 to 40 weight percent zeolite and wherein the catalyst is prepared by impregnating palladium into the zeolite, combining the impregnated zeolite with the amorphous inorganic oxide, and impregnating at least the amorphous inorganic oxide with palladium. Preferably the catalyst is calcined at 1,000° to 1,800° F. The catalyst is found to be especially effective in hydrocracking high end point feeds with surprisingly low buildup of heavy ends in the recycle stream.

3,833,500

EXTENDED SERVICE INTERVAL GREASE COMPOSITIONS

Crawford F. Carter, Pleasant Hill, and John L. Dreher, El Cerrito, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Feb. 14, 1972, Ser. No. 226,309

Int. Cl. C10m *5/20, 5/24*

U.S. Cl. 252—18 **10 Claims**

A grease composition is provided comprising a major portion of a mineral oil of lubricating viscosity and effective amounts of (1) an alkali metal or alkaline earth metal soap of a fatty acid, (2) a N,N-di(hydroxy-lower alkyl) saturated aliphatic carboxamide and (3) at least one alkali metal salt of a medium-to-long-chain aliphatic ortho- or pyrorophosphate ester. Preferably, the alkali metal or alkaline earth metal soap is a soap complex of a mixture of a fatty acid and a low molecular weight aliphatic acid. The greases described have superior rust inhibition properties. The greases also retain their penetration properties when contacted with water and have superior adhesiveness qualities.

3,833,501

LUBRICATING COMPOSITIONS

John Scotchford Elliott, Ian Robert Henry Crail, and Herbert Frank Askew, London, England, assignors to Burmah Oil Trading Limited, London, England

No Drawing. Continuation-in-part of application Ser. No. 213,165, Dec. 28, 1971, now Patent No. 3,788,990. This application June 27, 1972, Ser. No. 266,697

Claims priority, application Great Britain, Dec. 29, 1970, 61,619/70

The portion of the term of the patent subsequent to Jan. 29, 1991, has been disclaimed

Int. Cl. C10m *1/28, 1/40*

U.S. Cl. 252—33.4 **11 Claims**

A lubricating composition comprises a major proportion of a mineral oil of lubricating viscosity and a minor proportion of a combination of additives (a) and (b), additive (a) being a nitrogen-free random copolymer of an alkyl acrylate component and an alkyl methacrylate component wherein the copolymer is composed of up to 65% alkyl acrylate units based on the total number of alkyl methacrylate and alkyl acrylate units present in the copolymer, the alkyl acrylate component is methyl acrylate, ethyl acrylate or a mixture thereof and the alkyl methacrylate component comprises at least 50% alkyl methacrylate units in which the alkyl group contains from 1 to 10 carbon atoms, and additive (b) being an alkaline earth metal containing detergent having a total base number greater than 20.

ERRATUM

For Class 252—33 see:
Patent No. 3,833,496

3,833,502

METHOD FOR IMPROVING THE ADHERENCE OF METALWORKING COOLANTS TO METAL SURFACES

Edward F. Leary, Western Springs, and Hobart M. Krillic, South Holland, Ill., assignors to Nalco Chemical Company, Chicago, Ill.

No Drawing. Filed Apr. 30, 1973, Ser. No. 355,375

Int. Cl. C10m *1/06*

U.S. Cl. 252—49.5 **3 Claims**

Water-based, metalworking coolants may be made to adhere to metal surfaces by incorporating with such coolants small amounts of water-soluble polymers.

3,833,503
STABLE PYROELECTRIC ELEMENTS

Naohiro Murayama and Hideyuki Hashizume, Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 9, 1972, Ser. No. 224,910

Claims priority, application Japan, Feb. 9, 1971, 46/5,008

Int. Cl. H01b *3/18*

U.S. Cl. 252—63.7 **7 Claims**

The stable pyroelectric element composed of a vinylidene fluoride resin electret of which the macroscopic polarization due to space charges have been depolarized.

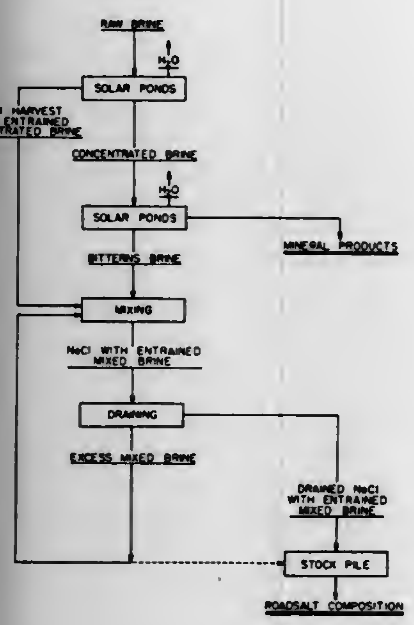
3,833,504
MOIST ROAD SALT COMPOSITION AND PROCESS FOR MAKING THE SAME

Ulrich E. G. Neitzel, Heringen (Werra), Germany, and Frederick J. Andreasen, Brigham City, Utah, assignors to Great Salt Lake Minerals & Chemicals Corporation, Ogden, Utah

Original application June 28, 1971, Ser. No. 157,147, now Patent No. 3,772,202. Divided and this application Mar. 5, 1973, Ser. No. 338,203

Int. Cl. C09k *3/18*

U.S. Cl. 252—70 **7 Claims**



A moist road salt composition comprises sodium chloride moistened with entrained brine containing between about 40 and about 75, ideally 45 to 60, moles magnesium chloride per 1000 moles water. The sodium chloride may be obtained by evaporating natural brines such as those from the Great Salt Lake of Utah. The crystal crop, together with entrained brine, may then be mixed with a similar brine having a much higher concentration of magnesium chloride to produce the desired final composition of the brine entrained by the crystal crop.

3,833,505
SILICONE FLUIDS USEFUL AS HYDRAULIC FLUIDS

Edgar D. Brown, Jr., Schenectady, N.Y., assignor to General Electric Company

No Drawing. Filed May 24, 1972, Ser. No. 256,482

The portion of the term of the patent subsequent to June 28, 1991, has been disclaimed

Int. Cl. C091 *3/00*

U.S. Cl. 252—78 **18 Claims**

A silicone fluid mixture useful as a hydraulic fluid and, more particularly, useful as a brake fluid comprising (a) 1 to 80% by weight of the total fluid mixture of a hydrocarbonoxy-containing polymer fluid and 20 to 99% by weight of the total fluid of a linear polymer silicone fluid of the formula,

$$R_n^{10}\text{SiO}_{\frac{4-n}{2}}$$

where *n* varies from 2.0 to 3.0, R^{10} is selected from monovalent hydrocarbon radicals, halogenated monovalent hydrocarbon radicals and lower cyanoalkyl radicals and the viscosity of the linear fluid varies from 20 to 500 centistokes at 25° C. There may be added to the above silicone fluid mixture various types of anti-oxidant and corrosion inhibition additives, as well as various types of rubber swell additives.

3,833,506
BLEACHING ASSISTANTS AND THE PREPARATION THEREOF

Walter Fries, Erkrath-Unterbach, Klaus Hachmann, Hilden, Rhineland, Dieter Jung, Monheim-Baumberg, Rhineland, Peter Neuhausen, Krefeld-Fischeln, and Dieter Walter, Hilden, Rhineland, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany

No Drawing. Filed July 31, 1972, Ser. No. 276,727

Claims priority, application Germany, Aug. 2, 1971, P 21 38 584.2; Feb. 21, 1972, P 22 07 974.9

Int. Cl. C11d *7/18, 7/38*

U.S. Cl. 252—99 **17 Claims**

A bleaching assistant suitable for use in pulverulent washing and bleaching compositions comprising particulate matter consisting essentially of (A) 10% to 70% by weight of an activator for active oxygen and (B) from 30% to 90% by weight of a mixture of (1) fatty acids and (2) polyethylene glycol.

The process of forming this bleaching assistant comprises spraying a homogeneous liquid mixture of the activator, fatty acid and polyethylene glycol into a solidification zone to form particles thereof of which at least 70% have an average diameter of 0.1 to 1 mm.

3,833,507
AZEOTROPIC COMPOSITION

J. Allan Schofield, Riverside, Conn., and Roger A. Delano, Dobbs Ferry, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned applications Ser. No. 54,083, June 2, 1970, and Ser. No. 677,715, Oct. 24, 1967. This application May 23, 1972, Ser. No. 255,972

Int. Cl. C11d *7/50*

U.S. Cl. 252—171 **5 Claims**

A ternary azeotrope of 1,1,2,2-tetrachloro-1,2-difluoroethane, methanol and trichloroethylene.

3,833,508
GAS REMOVAL METHOD AND COMPOSITION

Robert R. Austin, Pasadena, and Arthur Leonard Vincent, Monrovia, Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 137,994, Apr. 27, 1971, now Patent No. 3,757,488. This application Oct. 12, 1971, Ser. No. 188,540

Int. Cl. C01b *31/16;* **C01k** *3/00*

U.S. Cl. 252—189 **5 Claims**

A selective method of removing sulfur dioxide from flue gases or the like containing both sulfur dioxide and hydrogen sulfide without removing the hydrogen sulfide by bubbling the flue gas through about a 5–95 percent solution of an organic acid and an alkali metal salt of the said acid. The acid is selected from the group of: citric, malic, lactic, succinic, ascorbic and tartaric. The acid is preferably citric and the alkali metal is preferably potassium. The ratio of the weight of the salt to that of the acid may be within the range of about 1*s*:2*a* to 6*s*:1*a* or such as is needed to make the solution pH between about 4.0 and 6.0, where *s* and *a* are one mole each of said salt and said acid, respectively. The said ratio preferably is 5*s*:1*a* or the pH is preferably 5.7.

3,833,509
RADIONUCLIDE GENERATOR PRODUCTION METHOD

James L. Brown, House Springs, Mo., and Orval A. Harris, Collinsville, Ill., assignors to Mallinckrodt Chemical Works, St. Louis, Mo.

Filed Sept. 2, 1971, Ser. No. 177,269

Int. Cl. C09k *3/00*

U.S. Cl. 252—301.1 R **16 Claims**

Commercially important radionuclide generators utilize an alumina sorbent on which is adsorbed a parent radionuclide. The eluate from such generators contains significant quantities of aluminum ions in addition to the desired daughter radionuclide. Washing the alumina with an acetate fixing solution during the production of the generators substantially reduces the aluminum ion content of eluates obtained therefrom.

3,833,510
OPTICALLY BRIGHTENED COMPOSITIONS WITH UNSYMMETRICAL CARBOXYSTYRYLPHENYL-CONTAINING COMPOUNDS

Nathan N. Crounse and Kantilal B. Desai, Cincinnati, Ohio, assignors to Sterling Drug Inc., New York, N.Y.

No Drawing. Filed Feb. 7, 1972, Ser. No. 224,296

Int. Cl. D06l *3/12*

U.S. Cl. 252—301.2 W **4 Claims**

Benzofurans, benzothiophenes, and naphthofurans which are substituted by carboxystyrylphenyl groups are optical brightening agents useful for whitening and brightening natural and synthetic fibers, papers, resins and the like. The compounds are conveniently prepared by interacting benzofurans, benzothiophenes or naphthofurans, which are substituted by a *p*-tolyl group, with an aromatic aldehyde or preferably the anil derivative thereof.

3,833,511
PHOTOCHROMIC GLASS AND PROCESS FOR PRODUCING THE SAME

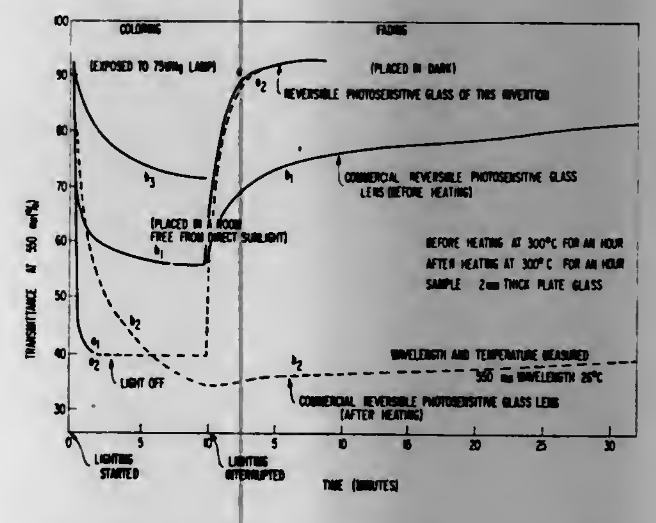
Toshiharu Yamashita and Tetsuro Izumitani, Tokyo, Japan, assignors to Hoya Glass Works, Ltd., Tokyo, Japan

Filed Mar. 8, 1972, Ser. No. 232,667

Claims priority, application Japan, Nov. 13, 1971, 46/90,909

Int. Cl. G02c *7/10;* **G02b** *9/012;* **F21v** *9/00*

U.S. Cl. 252—300 **10 Claims**



A photochromic glass comprising a base glass consisting of certain proportions of $SiO_2Al_2O_3$, B_2O_3, K_2O_3 and BaO, in which the ratio of BaO/K_2O is 0.05–0.40, and photosensitive ingredients consisting of 0.15–0.7 parts of Ag and one or more of Cl, Br and I in an amount corresponding to more than the chemical equivalent of Ag for every 100 parts of the base glass.

A process for producing the glass by preliminarily heating the glass at a temperature of 300–450° C. for not less than 30 minutes and then further heat-treating the glass at a temperature between the strain temperature and the softening temperature of the glass, thereby improving the photochromic properties.

3,833,512
SOLUTION COMPOSITIONS OF ORGANO-SILICONE POLYMERS

Bela Prokai, Mahopac, and Bernard Kanner, West Nyack, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Original application Apr. 8, 1971, Ser. No. 132,534. Divided and this application June 26, 1972, Ser. No. 266,215

Int. Cl. B01f *17/30, 17/42, 17/54*

U.S. Cl. 252—356 **9 Claims**

Solution compositions are provided consisting essentially of four different ingredients: (1) a liquid organosilicone polymer containing monomeric units (A), (B) and (C) where A is $SiO_{4/2}$, B is a polyfunctional siloxy unit in which silicon is bonded to at least one organic moiety bearing a poly(oxyalkylene) chain, and C is a monofunctional triorganosiloxy unit, the mole ratio of (A) to (B) to (C) being 0.4–2:1:0.2–2, respectively; (2) an organic acidic component consisting essentially of one or more aliphatic and cycloaliphatic carboxylic acids having 15–20 carbon atoms; (3) a non ionic organic surfactant; and (4) a water soluble glycol. The solution compositions are useful as surfactant-providing compositions finding particular application in the manufacture of flexible polyester urethane cellular products, including flame-retarded foams.

3,833,513
CORROSION INHIBITING GEL FOR ELECTRICAL CONNECTORS

Joseph Fath, Princeton, N.J., assignor to Tenneco Chemicals Inc.

No Drawing. Filed Feb. 7, 1972, Ser. No. 224,308

Int. Cl. C23f *11/10*

U.S. Cl. 252—389 R **7 Claims**

This invention provides a metal corrosion protection medium especially designed and adapted for electrical connectors, the medium comprises: (1) a base oil formed of a liquid polymeric ester of an alkylene glycol and an aliphatic dicarboxylic acid, the polymeric ester having a molecular weight in the range of from about 400 to about 1500, the ester being capped by a monohydric alcohol or a monocarboxylic acid, (2) a gelling, or thickening, agent and (3) a stabilizer combination including (a) an aromatic amine antioxidant, (b) a hindered phenol antioxidant, (c) a metal corrosion inhibitor and (d) a rust inhibitor.

3,833,514
PROCESS FOR THE PRODUCTION OF ACTIVATED CARBON

Arnold N. Wennerberg, Chicago, Ill., and Robert M. Alm, Crown Point, Ind., assignors to Standard Oil Company, Chicago, Ill.

Continuation of abandoned application Ser. No. 706,146, Feb. 16, 1968. This application Mar. 24, 1971, Ser. No. 127,854

Int. Cl. C01b *31/08*

U.S. Cl. 252—422 **8 Claims**

Process for the production of active carbon by treating an aromatic acid with a suitable electrolyte to form the salt of the acid and thermally decomposing the salt to produce an active carbon; and the product produced by such process.

3,833,515
CATALYST FOR THE PREPARATION OF POLYOLEFINS

Rudolf Amtmann, Kriftel, and Bernd Diedrich, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft, Frankfurt am Main, Germany
No Drawing. Filed Sept. 1, 1971, Ser. No. 177,101
Claims priority, application Germany, Sept. 2, 1970, P 20 43 508.9
Int. Cl. B01j *11/84*
U.S. Cl. 252—429 B **6 Claims**

A polymerization catalyst is prepared by mixing (a) the reaction product between a magnesium compound containing hydroxyl groups, a titanium alcoholate and a silicium tetrahalide with (b) an organo aluminum compound. By means of this catalyst, olefins can be polymerized under a very low pressure and the polymer obtained does not require the removal of the catalyst.

3,833,516
PLATINUM-INDIUM-MOLYBDENUM REFORMING CATALYSTS

Wilard H. Sawyer, Baton Rouge, La., assignor to Esso Research and Engineering Company
Filed Jan. 3, 1972, Ser. No. 215,170
Int. Cl. B01j *11/78*
U.S. Cl. 252—441 **5 Claims**

Process and composition for improving the octane quality of naphthas. A catalyst comprising a triumvirate of the metals platinum, molybdenum and indium, composited with a porous inorganic oxide base, is found particularly useful in reforming, especially in reforming highly paraffinic naphthas.

3,833,517
AGENT FOR THE TREATMENT OF CELLULOSIC FIBER MATERIALS AND PROCESS

Alfred Kling, Ladenburg, and Viktor Specht, Dossenheim, Germany, assignors to Benckiser-Knapsack GmbH, Ladenburg (Neckar), Germany
No Drawing. Filed Mar. 12, 1971, Ser. No. 123,903
Int. Cl. C11d *3/26, 3/36*
U.S. Cl. 252—545 **8 Claims**

Alkaline baths for treating fiber material composed of or containing native cellulose such as cotton do not cause appreciable degradation of the cellulose chain when having added thereto amino alkylene phosphonic acids and/or 1-hydroxy alkane-1,1-diphosphonic acids or their salts.

3,833,518
DENTURE ADHESIVE PREPARATION

Howard Rubin, Rockaway, and James J. Keegan, Bloomfield, N.J., and Ram N. Gidwani, Edmonton, Alberta, Canada, assignors to Warner-Lambert Company, Morris Plains, N.J.
No Drawing. Filed Apr. 13, 1972, Ser. No. 243,816
Int. Cl. C08b *21/08;* **C08f** *37/16*
U.S. Cl. 260—17 R **11 Claims**

An improved anhydrous denture adhesive is prepared to contain a mixture of a cationic polymeric material and a natural or synthetic anionic gum material as the adhesive ingredient. The mixture may be formulated as a powder or anhydrous paste, which, when applied to dentures and exposed to moisture, develops superior adhesive properties. Suitable cationic materials include at least one of the following: copolymer of substituted or unsubstituted acrylamide with vinyl quaternary ammonium salts; copolymers of substituted, or unsubstituted acrylamide with vinyl and alkyl substituted vinyl pyridinium salts; and an O-lower alkyl-trimethylammonium chloride-substituted-anhydroglucose polymer. As the anionic component there may be used at least one natural gum, such as gum karaya, gum arabic, gum Shiraz, gum tragacanth, pectin, pectinates, algin, and alginates; or at least one synthetic gum including copolymers of maleic anhydride with vinyl-lower alkyl-ethers, carboxymethyl celluloses, and cellulose sulfates.

3,833,519
STABILIZERS FOR VINYL CHLORIDE-CONTAINING RESINS

Adam J. Ejk, Piscataway, and Robert C. Ringwood, Jr., Sewaren, N.J., assignors to M & T Chemicals Inc., Greenwich, Conn.
No Drawing. Filed July 10, 1972, Ser. No. 270,069
Int. Cl. C08f *45/62*
U.S. Cl. 260—23 XA **9 Claims**

Improved stabilizer compositions which require less tin to impart a given degree of heat stabilization to vinyl chloride-containing polymers are obtained using reaction products of diorganotin compounds with esters of aliphatic polyhydroxylated organic compounds in combination with certain barium derivatives. Up to 50% of the organotin reaction product present in a polymer composition can be replaced by barium compounds without a significant decrease in heat stabilization.

3,833,520
METHOD OF CONTROLLING MICROBIAL GROWTH IN POLYVINYL HALIDE RESIN COMPOSITIONS

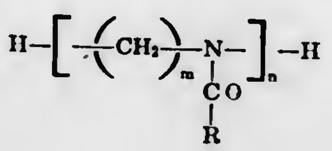
George Tirpak, East Brunswick, and Robert J. Stanaback, Gladstone, N.J., assignors to Tenneco Chemicals, Inc.
No Drawing. Filed Jan. 5, 1973, Ser. No. 321,187
Int. Cl. C08f *19/14, 21/04*
U.S. Cl. 260—23 XA **10 Claims**

Resistance to attack by fungi and bacteria that is retained even after prolonged weathering is imparted to polyvinyl halide resin compositions by incorporating in them a biocidally-effective amount of a solution that contains from 1 to 3% of N-trichloromethylthiophthalimide in a polyalkylene glycol dibenzoate solvent.

3,833,521
PROCESS FOR THE PARTIAL DEACYLATION OF POLY(N-ACYL-ALKYLENIMINES)

Bernhard Karbstein and Gerd Scheppers, Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany
No Drawing. Filed Oct. 5, 1972, Ser. No. 295,168
Claims priority, application Germany, Oct. 15, 1971, P 21 51 379.1
Int. Cl. C08g *33/08*
U.S. Cl. 260—2 EN **15 Claims**

A process for the production of partially deacylated poly(N-acyl-alkylenimines) which comprises reacting a poly(N-acyl-alkylenimine) of the formula



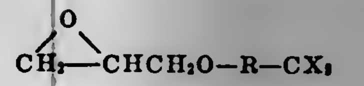
$$H-\left[-\left(CH_2\right)_m-\underset{\underset{\displaystyle R}{|}}{\underset{CO}{\underset{|}{N}}}-\right]_n-H$$

wherein *m* is 2 or 3, *n* is an integer of 10–5,000, and R is alkyl of 1–12 carbon atoms, aralkyl of 7–12 carbon atoms, aryl of 8–12 carbon atoms, or substituted aryl of 6–12 carbon atoms, with an alkanolamine at a temperature of 150°–250° C., optionally in the presence of an inert solvent. Deacylation in the absence of concentrated mineral acids or inorganic salts facilitates recovery of the deacylated product.

3,833,522
TRIHALOMETHYL HYDROCARBON GLYCIDYL ETHERS AND POLYMER COMPOSITIONS THEREOF

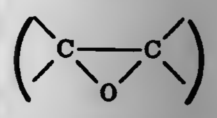
Harold A. Tucker, 16115 Fernway Road, Shaker Heights, Ohio 44120, and Richard V. Kemp, 980 Nevin, Akron, Ohio 44310
No Drawing. Original application July 19, 1971, Ser. No. 163,991, now abandoned. Divided and this application Apr. 12, 1973, Ser. No. 350,326
Int. Cl. C08f *23/00;* **C08g** *23/20*
U.S. Cl. 260—2 A **6 Claims**

Trihalomethyl hydrocarbon glycidyl ethers of the formula



$$\overset{\overset{O}{\diagup\;\diagdown}}{CH_2-CH}CH_2O-R-CX_3$$

wherein X is —Cl, —Br, or —I and R is an alkyl, cycloalkyl, aryl, alkaryl, or aralkyl radical of 1 to 12 carbon atoms, readily homopolymerize or copolymerize with other epoxide.



containing monomers to yield useful high molecular weight polyether polymers. The polyether compositions have particular utility as substrates onto which vinylidene ($CH_2=C<$) monomers can be grafted using metal complexes as catalysts to provide improved polymers.

3,833,523
RIGID CELLULAR MATERIALS HAVING A GOOD MECHANICAL STRENGTH AT LOW TEMPERATURES

Henri Tariel, Rillieux, and Roger Guyon, Oullins, France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude and la Societe Anonyme dite: Pneumatiques, Caoutchouc Manufacture et Plastiques Kleber-Colombes
Continuation of abandoned application Ser. No. 105,044, Jan. 8, 1971. This application Sept. 7, 1972, Ser. No. 286,912
Claims priority, application France, Feb. 13, 1970, 7005191
Int. Cl. C08g *22/44*
U.S. Cl. 260—2.5 R **7 Claims**

Rigid cellular materials with closed cells, prepared from polyvinyl chloride and manufactured by copolymerising at least one vinylidene monomer with an ethylenic carboxylic acid anhydride, by grafting this copolymer on the chains of a polyvinyl chloride, by crosslinking with one another the grafted copolymers, by formation of two amide functions between the isocyanate groups of a mixture of polyisocyanates and the acid anhydride groups and by decomposing a blowing agent by heat during all these operations; the mixture of polyisocyanates contains at least 50% by weight of hexamethylene diisocyanate.

They can be used with advantage for all the applications where the rigid cellular material must be excellent as regards its capacity for elongation at very low temperatures.

3,833,524
LATEX FOAMS

Benjamin F. Ward, Charleston, S.C., assignor to Westvaco Corporation, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 160,171, July 6, 1971. This application Nov. 20, 1972, Ser. No. 307,927
Int. Cl. C08d *9/00, 13/08*
U.S. Cl. 260—2.5 L **9 Claims**

Polycarboxylic acids and fatty acid-polycarboxylic acid mixtures are effective ingredients for foam latex. When a polycarboxylic acid having from 15 to 26 carbon atoms, at least one carboxyl group near the center of the hydrocarbon chain and at least one on the termial carbon, is used as an ingredient in foam latex, there is imparted to the latex faster bubble rates, good foam stability, independence from pH control, and variable foam density. It is preferable that the post stabilizers contain from 1 to 98% by weight polycarboxylic acid with the remainder being oleic acid or a fatty acid mixture having a substantial oleic acid fraction.

3,833,525
PHENOLIC BLOCKED ISOCYANATE COMPOSITIONS CONTAINING A HETEROCYCLIC NITROGEN CATALYST

Charles M. Orlando, Schenectady, and Carl M. Emerick, Mechanicville, N.Y., and Robert A. Jerussi, Fairfax, Va., assignors to General Electric Company
No Drawing. Original application Apr. 23, 1971, Ser. No. 137,022, now Patent No. 3,764,375. Divided and this application June 20, 1973, Ser. No. 371,827
Int. Cl. C08g *22/32, 22/36, 22/44*
U.S. Cl. 260—2.5 AC **10 Claims**

One package pourable polyurethane compositions convertible to the non-pourable state at temperatures above 70° C. are provided, utilizing a polyfunctional arylurethane, a hydroxy containing organic polymer and a nitrogen containing heterocyclic catalyst, such as imidazole. The polyurethane compositions are useful as wire enamels, coating compositions, etc., and can be converted to foams. A wire coating method is also provided.

3,833,526
SEMI-RIGID POLYURETHANE FOAMS FROM A MIXTURE OF OXYPROPYLATED POLYOLS

Stanley Cear and Joseph Feltzin, Wilmington, Del., assignors to ICI America Inc., Wilmington, Del.
No Drawing. Continuation-in-part of abandoned application Ser. No. 147,710, May 27, 1971. This application June 4, 1973, Ser. No. 366,331
Int. Cl. C08g *22/44*
U.S. Cl. 260—2.5 AP **13 Claims**

Semi-rigid polyurethane foam compositions are provided which have excellent energy absorption and low rebound properties while retaining other desirable physical properties characteristic of semi-rigid polyurethane foams. The polyurethane foams may be prepared by reacting an an organic polyisocyanate with a polyoxypropylene ether of 2,2-bis(4-hydroxyphenyl) propane and a polyoxypropylene ether of sorbitol. Also provided are polyol compositions suitable for the preparation of cellular polyurethanes which comprise a polyoxypropylene ether of 2,2-bis(4-hydroxyphenyl) propane wherein the ether contains from 4 to 9 mols of oxypropylene per mol of ether and a polyoxypropylene ether of sorbitol containing from 30 to 55 mols of oxypropylene per mol of ether.

3,833,527
HEMICELLULOSE REACTION PRODUCTS

Erkki J. Pulkkinen, Morris Plains, N.J., and Marten Reintjes and Laurence Dean Starr, Shelton, Wash., assignors to International Telephone and Telegraph Corporation, New York, N.Y.
No Drawing. Filed Dec. 18, 1972, Ser. No. 316,066
Int. Cl. C08b *25/00, 29/00*
U.S. Cl. 260—9 **17 Claims**

Water soluble products are prepared from hemicelluloses by reacting them in an alkaline medium with epichlorohydrin and an alkanolamine or with an adduct of epichlorohydrin and a tertiary amine or its salt. The hemicelluloses which are used have an average degree of polymerization no greater than 400. The products while still in an alkaline state or neutralized if desired are useful as adhesives forming strong, water soluble, nonhygroscopic adhesives upon drying. The water soluble products upon protonation with a mineral acid form effective flocculants for aqueous suspensions and can be dried to colorless, non-hygroscopic powders. The hemicelluloses are extracted from vegetable matter such as wood or separated from pulp bleaching and refining effluents by known methods and, depending upon their composition, can be advantageously pretreated to increase their solubility and reactivity in aqueous and alkaline solutions.

3,833,528

BITUMINOUS COMPOSITION

Rolf-Dieter Behling and Manfred Wolfgang Oelsner, Hamburg, and Erich Gunther Zenke, Halstenbek, Germany, assignors to The British Petroleum Company Limited, London, England

No Drawing. Filed Mar. 1, 1972, Ser. No. 231,023

Claims priority, application Germany, Mar. 17, 1971, P 21 12 773.1

Int. Cl. C08f *45/28, 45/52*

U.S. Cl. 260—28.5 AS **12 Claims**

Bitumen, flux oil and 5–25% by weight of EPT rubber are blown to form a concentrate which is then blended with unblown bitumen to form a paving grade material.

3,833,529

WATER-SOLUBLE ALKYD RESINS AND A PROCESS FOR THEIR PREPARATION

Kenneth H. Albers, Alden E. Blood, and Thomas C. Snapp, Jr., Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 151,952, June 10, 1971, now Patent No. 3,709,858, which is a continuation-in-part of application Ser. No. 41,577, May 28, 1970, now Patent No. 3,652,501. This application Mar. 24, 1972, Ser. No. 237,901

The portion of the term of the patent subsequent to Mar. 28, 1989, has been disclaimed

Int. Cl. C08g *20/30, 41/00*

U.S. Cl. 260—29.2 N **26 Claims**

A curable, water-soluble alkyd resin which is useful in an improved protective coating composition is a polyesteramide of at least one polycarboxylic acid and a polyol component; the polyol component comprising a substantial amount of N,N-bis[2-hydroxyalkyl]-2-hydroxyethoxyacetamide, at least one additional polyhydric aliphatic or cycloaliphatic alcohol, and a diol-acid, e.g., 2,2-bis(hydroxymethyl)propionic acid.

3,833,530

MORTAR COMPOSITION WITH VINYL CHLORIDE POLYMERIC ADHESION PROMOTING AGENT

Paul Wicht, Fribourg, and Kurt Volken, Basel, Switzerland, assignors to Linza Ltd., Basel, Switzerland

No Drawing. Original application Dec. 16, 1970, Ser. No. 98,912, now abandoned. Divided and this application May 4, 1972, Ser. No. 250,155

Claims priority, application Switzerland, Dec. 18, 1969, 18,799/69

Int. Cl. C04b *13/26;* **C08f** *45/24*

U.S. Cl. 260—29.6 S **3 Claims**

A mortar composition containing a hydraulic binder and 5–50% by weight of an adhesion promoting agent for the mortar upon hardening comprising an aqueous dispersion prepared by polymerizing a monomer mixture of 30 to 80% by weight of vinyl chloride and 20 to 70% by weight of polymerisable, internally plasticising monomers in the presence of an aqueous phase which contains, referred to the total weight of the monomers.

(a) 3 to 6% by weight of an emulsifier mixture which consists of 60 to 90% by weight of non-ionic emulsifiers and 10 to 40% by weight of anionic emulsifiers,
(b) a polymerisation catalyst,
(c) 2 to 4% by weight of a water-soluble solvent for the polymer,
(d) 0.3 to 0.5% by weight of a copolymerisable, water-soluble monomer, and
(e) a buffer agent,

and further adding 0.5 to 5% by weight, referred to the total dispersion, of an anionic emulsifier, and 0.1 to 0.5% by weight, referred to the total dispersion, of an antifoam agent to the dispersion thereby obtained.

3,833,531

REACTION PRODUCTS OF EPIHALOHYDRIN AND POLYMERS OF DIALLYLAMINE AND SALTS THEREOF AND THEIR USE IN PAPER

Gerald I. Keim, West Grove, Pa., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Application Apr. 22, 1970, Ser. No. 30,986, now Patent No. 3,700,623, which is a continuation-in-part of abandoned application Ser. No. 5,956, Jan. 26, 1970. Divided and this application Aug. 30, 1972, Ser. No. 284,842

Int. Cl. C08f *3/86, 13/06, 45/44*

U.S. Cl. 260—29.6 CM **14 Claims**

Water-soluble, alkaline curing resins which are the reaction products of an epihalohydrin and a polymer of a diallylamine are disclosed. The resins are particularly useful as wet strength agents for paper and additionally give superior dry strength to paper.

3,833,532

LATEX PREPARATION

Donald Alfred Bennett, Brockenhurst, and Edward William Duck, Southampton, England, assignors to The International Synthetic Rubber Company Limited, Hampshire, England

Filed May 5, 1972, Ser. No. 250,745

Claims priority, application Great Britain, May 13, 1971, 14,626/71

Int. Cl. C08d *3/02;* **C08f** *3/42, 3/62*

U.S. Cl. 260—29.7 SQ **28 Claims**

A process for the preparation of rubbery polybutadiene latex of large particle size especially suitable for use in grafting reactions, as in the preparation of ABS, comprises

(1) emulsifying butadiene with 0.5 to 1.5 parts by weight per hundred parts of butadiene of an anionic emulsifier and in addition a thermally decomposable free radical initiator,
(2) initiating polymerization and allowing polymerization to proceed under conditions such that the temperature of the reaction mixture is in excess of 85° C. for at least part of the reaction, and
(3) recovering the latex.

The process is advantageously used for a continuous flow polymerization in a stirred pressure vessel at a temperature not exceeding 100° C. using a mixed anionic emulsifier system and a persulphate initiator.

3,833,533

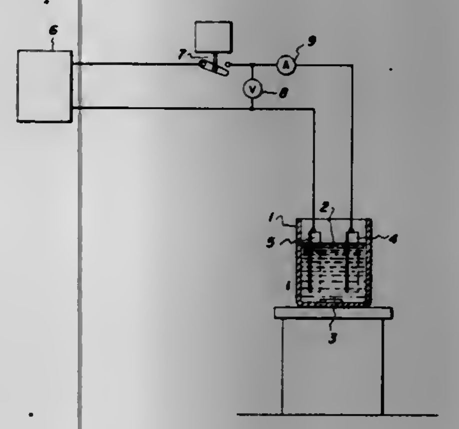
AQUEOUS ELECTROCOATING SOLUTION FROM POLYAMIDE-ACID RESIN

Fred F. Holub, Schenectady, and Richard F. Gaertner, Slingerlands, N.Y., assignors to General Electric Company

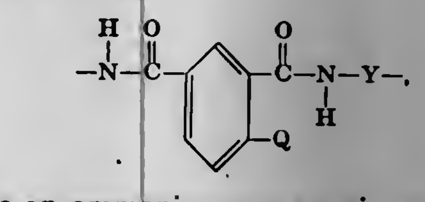
Original application May 27, 1970, Ser. No. 40,802, now abandoned. Divided and this application June 21, 1972, Ser. No. 264,949

Int. Cl. C08g *20/32, 51/24;* **C23b** *13/00*

U.S. Cl. 260—29.2 M **5 Claims**



Aqueous solutions of polyamide acids having chemically-combined divalent benzene carboxylic acid amide units of the formula



where Q is an ammonium or organic amine neutralized carboxy radical and Y is a divalent organo radical, can be electrocoated onto an electroconducting substrate to provide for polyamideimide films having valuable insulating characteristics.

3,833,534

REINFORCED POLYAMIDE COMPOSITIONS AND PROCESS OF PREPARATION THEREOF

Paul A. Tierney, Ballwin, and Ross M. Hedrick and James D. Gabbert, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation of application Ser. No. 888,047, Dec. 24, 1969, which is a continuation-in-part of applications Ser. No. 806,331, Ser. No. 806,332, and Ser. No. 806,333, all Dec. 30, 1968, all now abandoned, which are a continuation-in-part of application Ser. No. 560,247, June 24, 1966, now Patent No. 3,419,517, which in turn is a continuation-in-part of abandoned application Ser. No. 284,375, May 31, 1963. This application June 5, 1972, Ser. No. 260,000

Int. Cl. C08g *51/04, 51/08, 51/10*

U.S. Cl. 260—37 N **53 Claims**

High molecular weight polyamide compositions reinforced with from about 2 to about 55% by volume small particle size crystalline filler and an organosilane coupling agent. Compositions have improved mechanical properties such as concurrent high modulus and high multiaxial impact strength. Also disclosed are processes for preparing the above compositions as well as articles of manufacture.

3,833,535

NON-DRIPPING FLAME RETARDANT GLASS REINFORCED POLYESTER RESINS

Allen D. Wambach, Pittsfield, Mass., assignor to General Electric Company

No Drawing. Filed Aug. 30, 1971, Ser. No. 176,316

Int. Cl. C08g *51/04*

U.S. Cl. 260—40 R **18 Claims**

Non-dripping flame retardant thermoplastic molding compositions are provided comprising a normally flammable linear polyester, filamentous glass, a flame retardant agent and fumed colloidal silica. The use of the fumed colloidal silica controls dripping and permits the flame retardant agent to be used in amounts sufficient to render the compositions non-burning or self-extinguishing without detracting from their physical properties.

3,833,536

BULK DYEING OF THERMOPLASTICS

Werner Steinbeck, Cologne, and Hans-Samuel Bien, Burscheid, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

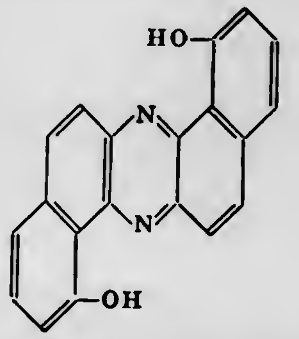
No Drawing. Filed Sept. 29, 1972, Ser. No. 293,557

Claims priority, application Germany, Sept. 30, 1971, P 21 48 850.6

Int. Cl. C08g *51/04*

U.S. Cl. 260—40 P **5 Claims**

8,8′-dihydroxy-naphthazine of the formula



is suitable for the bulk dyeing of plastics, such as polycarbonates, polyamides. polymethacrylates, polystyrene, polyesters, polyolefines, polyvinylchloride and mixed polymerisates, e.g. from acrylonitrile, butadiene and styrene.

3,833,537

OXIDATIVELY STABLE POLYCARBONATE COMPOSITION

Donald B. G. Jaquiss, New Harmony, Ind., assignor to General Electric Company

No Drawing. Continuation-in-part of abandoned application Ser. No. 265,339, June 22, 1972. This application Mar. 27, 1973, Ser. No. 345,446

Int. Cl. C08f *45/58;* **C08g** *51/58*

U.S. Cl. 260—45.8 A **4 Claims**

An oxidatively stable aromatic polycarbonate composition which is stabilized against degradation due to elevated temperatures by employing therewith a material which may be either a heavy metal salt of hypophosporous acid or the metal salt of hypophosphorous acid in combination with a particular epoxy compound. The amount of the metal salt of the hypophosphorous acid employed herein can range from about 0.005 to about 2.0 weight percent and the amount of epoxy can range from 0.01 to 1.0 weight percent all based on the weight of the aromatic polycarbonate composition.

3,833,538

POLYSTYRENE PLASTIC COMPOSITIONS CONTAINING BIS-PHENOXY FLAME RETARDANTS

Arnold L. Anderson, Alma, Mich., assignor to Michigan Chemical Corporation, St. Louis, Mich.

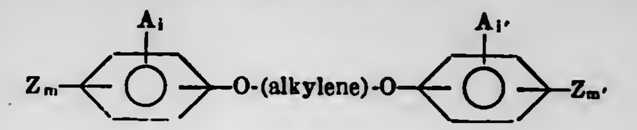
No Drawing. Continuation-in-part of abandoned application Ser. No. 260,240, June 6, 1972. This application Feb. 8, 1973, Ser. No. 330,822

The portion of the term of the patent subsequent to May 14, 1991, has been disclaimed

Int. Cl. C08f *45/60*

U.S. Cl. 260—45.9 R **17 Claims**

Plastic compositions containing polystyrenes and bis-phenoxy compounds having the formula:



wherein Z is bromine, *m* and *m'* are integers having a value of 1–4, *i* and *i'* are integers having a value of 1 or 2, alkylene is a straight or branched chain alkylene group having from 1 to 6 carbon atoms and A is cyano, nitro, lower alkoxy, lower alkyl, fluorine, dialkyl amino, phenyl, halo-phenyl, benzyl or halo-benzyl.

3,833,539
POLYOLEFIN PLASTIC COMPOSITIONS CONTAINING BIS-PHENOXY FLAME-RETARDANT

Arnold L. Anderson, Alma, Mich., assignor to Michigan Chemical Corporation, St. Louis, Mich.

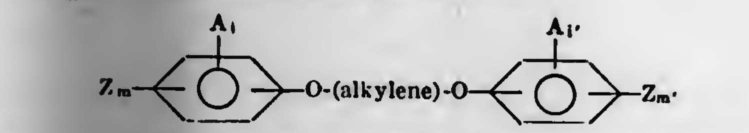
No Drawing. Continuation-in-part of abandoned application Ser. No. 260,240, June 6, 1972. This application Feb. 8, 1973, Ser. No. 330,781

The portion of the term of the patent subsequent to May 14, 1991, has been disclaimed

Int. Cl. C08f *45/60*

U.S. Cl. 260—45.9 R **17 Claims**

Plastic compositions containing polyolefins and bisphenoxy compounds having the formula:



wherein Z is bromine, *m* and *m'* are integers having a value of 1–4, *i* and *i'* are integers having a value of 1 or 2, alkylene is a straight or branched chain alkylene group having from 1 to 6 carbon atoms and A is cyano, nitro, lower alkoxy, lower alkyl, fluorine, dialkylamino, phenyl, halo-phenyl, benzyl or halo-benzyl.

3,833,540
POLYURETHANE PLASTIC COMPOSITIONS CONTAINING HALOGENATED ARYL COMPOUNDS AS FLAME RETARDANTS

Arnold L. Anderson, Alma, Mich., assignor to Michigan Chemical Corporation, St. Louis, Mich.

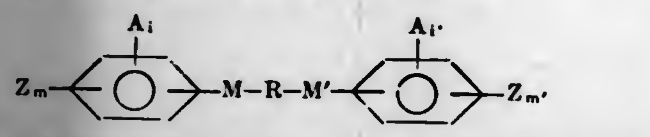
No Drawing. Continuation-in-part of abandoned application Ser. No. 260,240, June 6, 1972. This application Feb. 8, 1973, Ser. No. 330,785

The portion of the term of the patent subsequent to July 16, 1991, has been disclaimed

Int. Cl. C08g *51/60*

U.S. Cl. 260—45.9 R **29 Claims**

Plastic compositions containing polyurethanes and halogenated aryl compounds having the formula



wherein Z is bromine or chlorine, *m* and *m'* are integers having a value of 1–5, *i* and *i'* are integers having a value of 0–2, R is herein defined, M and M' are each independent and are from the group oxygen, nitrogen or sulfur with the proviso that M and M' cannot concurrently be oxygen in both cases, and A is chlorine, cyano, nitro, lower alkoxy, lower alkyl, fluorine, dialkylamino, phenyl, halo-phenyl, benzyl, or halo-benzyl.

3,833,541
MOLDING POWDER OF AGGREGATES CONTAINING CARBON BLACK EMBEDDED IN MATRIX OF VINYL CHLORIDE-ACETATE RESIN AND HEAT-STABILIZER

Ping Kang Shen, Leominster, Mass., assignor to Borden, Inc., Columbus, Ohio

No Drawing. Filed July 3, 1972, Ser. No. 268,811

Int. Cl. C08f *45/08, 45/24*

U.S. Cl. 260—42.53 **5 Claims**

A molding powder suitable for making articles such as phonograph records is prepared by suspension polymerization of vinyl chloride and vinyl acetate in the presence of carbon black and heat-stabilizer, using an azo-type initiator as the sole initiator. Said molding powder has the advantage that is it used directly for molding without the usual dust-encumbered steps of compounding resin and carbon black at the molding site.

3,833,542
MANUFACTURE OF THERMALLY STABILIZED POLYETHYLENE TEREPHTHALATE

Stanley David Lazarus, Petersburg, and Brian Armstead Dementi, Richmond, Va., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 167,809, July 30, 1971. This application Aug. 17, 1973, Ser. No. 389,298

Int. Cl. C08g *17/04, 51/62*

U.S. Cl. 260—45.75 C **1 Claim**

The preparation of linear high-molecular weight, film and fiber forming polyester wherein a polycarboxylic acid is reacted with a polyol; a stabilizing amount of dichloro (di-2-pyridylamine) copper (II)

$$[Cu\{NH(C_5H_4)_2\}Cl_2]$$

or bis(di-2-pyridylamine) copper (II) chloride

$$[Cu\{NH(C_5H_4N)_2\}_2]Cl_2$$

are incorporated therein to improve stability to carboxyl degradation.

3,833,543
TRIORGANOTIN SALTS OF THIOPHENE CARBOXYLIC ACIDS

Roger T. Guthrie, Westfield, and Bernard G. Kushlefsky, Edison, N.J., assignors to M & T Chemicals Inc., Greenwich, Conn.

No Drawing. Original application Sept. 11, 1972, Ser. No. 287,908. Divided and this application Aug. 31, 1973, Ser. No. 393,498

Int. Cl. C08f *45/62*

U.S. Cl. 260—45.75 K **5 Claims**

Triorganotin derivatives of mono- or dicarboxylic acids containing a thiophene ring structure are novel compounds that effectively inhibit the growth of microorganisms. The thiophene ring structure may contain inert substituents.

3,833,544
METHOD FOR MAKING POLYETHERIMIDES

Tohru Takekoshi and Jeannette S. Manello, Scotia, N.Y., assignors to General Electric Company

No Drawing. Filed June 22, 1973, Ser. No. 372,742

Int. Cl. C08g *20/32*

U.S. Cl. 260—47 CB **10 Claims**

A method for making polyetherimides is provided involving the reaction of aromatic bis(ether anhydride)s and organic diisocyanates in the presence of an alkali carbonate catalyst. Polymerization can be effected under melt conditions, or at elevated temperatures using a nonpolar solvent. The polyetherimides can be injection molded to useful shapes.

3,833,545
FLUORINE-CONTAINING POLYURETHANES

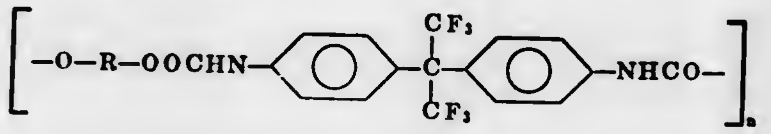
Boris Ruvimovich Livshits, Volgorgradsky prospekt 159, korpus 2, kv. 66; Tamara Khaimovna Dymshits, Maly Levshinsky pereulok 7, kv. 39; Sveltlana Vasilievna Vinogradova, Belyaevo Bogorodskoe kvartal 48A, korpus 6AB, kv. 63; and Ivan Ljudvigovich Knunyants, Kotelnicheskaya 1/15, kv. 336, all of Moscow, U.S.S.R.

No Drawing. Continuation of abandoned application Ser. No. 136,243, Apr. 21, 1971. This application Aug. 15, 1973, Ser. No. 388,410

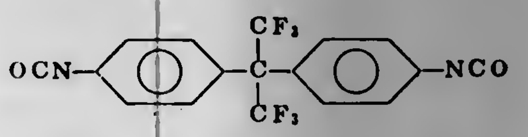
Int. Cl. C08g *22/04*

U.S. Cl. 260—47 CB **1 Claim**

A method of preparing fluorine-containing polyurethanes which comprise recurring units represented by the structural formula



wherein R represents a divalent residue of either glycols, hydroxyl-containing polyesters, bisphenols or fluorine-containing derivatives of said compounds and have degree of polymerization $n=7$–20, characterized in that they are products of the reaction of either glycols, hydroxyl-containing polyesters, bisphenols or fluorine-containing derivatives of said compounds with hexafluoroisopropylidene-p,p'-diphenyldiisocyanate represented by the formula



in organic media at a temperature ranging from 20 to 150° C. at a molar ratio said hydroxyl-containing reagents to diisocyanate equal to 1:1–1.5 respectively.

The proposed fluorine-containing polyurethanes, while preserving the properties inherent to conventional polyurethanes (high adhesion and cohesion, elasticity, wear-resistance, frost-resistance) are characterized in high hydrolytic stability and enhanced thermal stability.

3,833,546
METHOD FOR MAKING POLYETHERIMIDES

Tohru Takekoshi, Scotia, N.Y., and John E. Kochanowski, Pittsfield, Mass., assignors to General Electric Company

No Drawing. Continuation-in-part of application Ser. No. 319,372, Dec. 29, 1972. This application June 22, 1973, Ser. No. 372,743

Int. Cl. C08f *19/00*

U.S. Cl. 260—47 CP **12 Claims**

A process for making polyetherimides is provided by melt polymerizing a mixture of organic diamines and certain aromatic bis(etherdicarbonyl) compounds such as aromatic tetra-carboxylic acids and dianhydrides thereof. The polyetherimides can be made in a continuous manner. Fillers can be incorporated into the polyetherimides to produce high performance composites.

3,833,547
POLYDODECAMETHYLENE TEREPHTHALAMIDE COPOLYAMIDE

Alfred Steitz, Jr., deceased, late of Batavia, Ill., by Margaret Marie Steitz, executrix, Batavia, Ill., assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Oct. 20, 1970, Ser. No. 82,522

Int. Cl. C08g *20/20*

U.S. Cl. 260—78 R **10 Claims**

Polydodecamethylene terephthalamide copolymers and fibers prepared therefrom are disclosed. These copolymers are prepared by heating dodecamethylene diammonium terephthalate in an aqueous solution with dodecamethylene diammonium salts of modifying acid such as isophthalic acid, hexahydroterephthalic acid or 5-tertiary-butylisophthalic acid. These fibers, when woven into fabric, have improved aesthetics and wash and wear properties.

3,833,548
POLYAMIDES CONTAINING HYDANTOIN GROUPS AND/OR DIHYDROURACIL GROUPS

Jurgen Habermeier, Pfeffingen, and Daniel Porret, Binningen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Feb. 23, 1973, Ser. No. 335,214

Claims priority, application Switzerland, Mar. 7, 1972, 3,313/72

Int. Cl. C08g *20/20*

U.S. Cl. 260—78 R **19 Claims**

Polyamides containing hydantoin and/or dihydrouracil groups are obtained by polycondensing in known manner dicarboxylic acids which contain hydantoin or dihydrouracil groups, or derivatives of such dicarboxylic acids, with diamines which can also contain hydantoin or dihydrouracil groups. In general, the products are tough, elastic and flexible, and are suitable for the manufacture of fibres. They can also be used as thermoplastic adhesives. Low molecular types can be used as hardeners for epoxide resins or isocyanates.

3,833,549
COPOLYMER OF CHLOROPRENE AND DICHLOROBUTADIENE

Sidney George Fogg, Ashtead, England, assignor to BP Chemicals International Limited, London, England

No Drawing. Filed July 20, 1972, Ser. No. 273,543

Claims priority, application Great Britain, July 21, 1971, 34,154/71; Jan. 19, 1972, 2,629/72

Int. Cl. C08f *15/06, 15/40*

U.S. Cl. 260—80.7 **6 Claims**

Copolymers of (a) chloroprene and (b) 1,3-dichlorobutadiene-1,3 or (b) a mixture of 1,3-dichlorobutadiene-1,3 and 2,3-dichlorobutadiene.

3,833,550
DEODORIZATION OF SULFIDE-CONTAINING POLYMERS

Donald Dante Carlos, Middletown, and Darrell D. Hicks, Jeffersontown, Ky., assignors to Celanese Coatings & Specialties Company, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 224,586, Feb. 8, 1972. This application Aug. 8, 1973, Ser. No. 386,786

Int. Cl. C08f *47/00*

U.S. Cl. 260—80.75 **10 Claims**

Polymers of ethylenically-unsaturated monomers prepared in the presence of organic mercaptans, are deodorized by post-treating the polymers with a hydroperoxide or peroxyacid. The deodorized polymers find utility as casting and coating resins.

3,833,551
INTERPOLYMERIZATION OF ETHYLENE-PROPYLENE MONOMERS

Karl Ziegler, Heinz Martin, Heinz Breil, and Erhard Holzkamp, Mulheim (Ruhr), Germany, assignors to Karl Ziegler, Mulheim (Ruhr), Germany

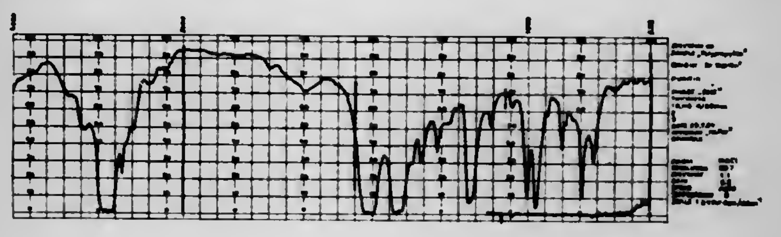
Continuation of application Ser. No. 514,068, June 8, 1955, now Patent No. 3,342,358. This application Aug. 13, 1971, Ser. No. 171,744

Claims priority, application Germany, Aug. 3, 1954, 434,839

The portion of the term of the patent subsequent to Dec. 3, 1980, has been disclaimed

Int. Cl. C08f *1/32, 1/36, 15/04*

U.S. Cl. 260—88.2 **9 Claims**



The interpolymerization of ethylene and propylene alone or with other different monomers copolymerizable therewith in the presence of a Ziegler polymerization catalyst to form a solid polymer. The ethylene and propylene must be present in relative proportions ranging between 10:90% and 90:10% by weight. Preferred Ziegler catalysts are those formed by mixing an organo-metal compound, such as an organo aluminum compound, as for example, an aluminum trialkyl, or an aluminum alkyl halide with a compound such as a salt of a metal of Group IV–B, V–B, or VI–B of the Periodic System, including thorium and uranium.

3,833,552
WATER-SOLUBLE WHIPPABLE PROTEIN MATERIAL AND PROCESS FOR PRODUCING SAME

Cavit Akin, Oakbrook, Ill., assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Feb. 4, 1971, Ser. No. 112,800

Int. Cl. A23j *1/00, 1/18*

U.S. Cl. 260—112 R **11 Claims**

A water-soluble protein material, suitable for use in whipped food products, is derived from single-cell protein (SCP) material by treatment with aqueous acid under controlled temperature and time conditions.

3,833,553
METHOD OF PRODUCING α-L-ASPARTYL-L-PHENYLALANINE ALKYL ESTERS

Yasuo Ariyoshi, Tetsuo Yamatani, Noboru Uchiyama, Naohiko Yasuda, and Koji Toi, Kanagawa, and Naotake Sato, Tokyo, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 108,555, Jan. 21, 1971, now Patent No. 3,798,206. This application July 5, 1972, Ser. No. 269,044

Claims priority, application Japan, Jan. 31, 1970, 45/8,742; Feb. 23, 1970, 45/15,401; June 26, 1970, 45/55,722; Dec. 30, 1970, 46/128,706; July 9, 1971, 46/50,877

The portion of the term of the patent subsequent to Mar. 19, 1991, has been disclaimed

Int. Cl. C07c *103/52;* **A23l** *1/26*

U.S. Cl. 260—112.5 **6 Claims**

When salts of L-aspartic anhydride with strong acids are reacted with lower alkyl esters of L-phenylalanine to produce the corresponding L-aspartyl-L-phenylalanine esters, a significant increase in yield and in the proportion of the α-isomer is obtained when the reaction mixture contains a sufficient amount of a weak acid, that is, an acid having a dissociation constant smaller than 3×10^{-2} at 25° C. The α-isomer is a known sweetener.

3,833,554
METHOD OF PURIFYING α-L-ASPARTYL-L-PHENYLALANINE LOWER ALKYL ESTERS OF PEPTIDE IMPURITIES

Yasuo Ariyoshi and Koji Toi, Yokohama, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed May 16, 1973, Ser. No. 360,673

Claims priority, application Japan, May 25, 1972, 47/51,985

Int. Cl. A23l *1/26;* **C07c** *103/52*

U.S. Cl. 260—112.5 **5 Claims**

α-L-Aspartyl-L-phenylalanine lower alkyl esters can be purified of accompanying, chemically closely similar peptides by passing their aqueous solutions at pH 4–6 over a column of a strong-base anion exchange resin in the weak organic acid ion form, commercially available resins in the acetate and formate form which retains the impurities being illustrated. The desired esters are recovered from the effluent in yields closely approaching 100%.

3,833,555
POLYSACCHARIDE CYCLIC CARBAMATE CONTAINING COMPOUNDS

Melvin H. Keys, Sylvania, and Frank E. Semersky, Oregon, Ohio, assignors to Owens-Illinois, Inc.

No Drawing. Filed Oct. 11, 1972, Ser. No. 296,634

Int. Cl. C07c *3/00*

U.S. Cl. 260—209 R **6 Claims**

New compositions of matter comprising modified polysaccharides such as agarose, dextran, cellulose, carragheenan and starch in which a minor portion of the hydroxyl groups are substituted by an N-(2,5-dioxo-4-oxazolidinyl)-alkyl carbamate or N - (2,5 - dioxo-4-oxazolidinyl)-aralkyl carbamate radical are disclosed which are useful for insolubilizing enzymes.

3,833,556
HYBRIMYCIN ANTIBIOTICS AND DERIVATIVES

Wayne Thomas Shier, Kenneth L. Rinehart, Jr., and David Gottlieb, Urbana, Ill., assignors to University of Illinois Foundation, Urbana, Ill.

No Drawing. Application Mar. 17, 1970, Ser. No. 20,433, now Patent No. 3,669,838, which is a continuation-in-part of abandoned application Ser. No. 842,712, July 17, 1969. Divided and this application Aug. 26, 1971, Ser. No. 175,358

Int. Cl. C07c *129/18*

U.S. Cl. 260—210 AB **7 Claims**

The method of making an antibiotic containing an aminocyclitol subunit. A microorganism mutant, incapable of bisoynthesizing the aminocyclitol molecule but which molecule the unmutated microorganism biosynthesizes in the formation of an antibiotic when cultivated in a nutrient medium having no added aminocyclitol, is grown in the presence of an added aminocyclitol until substantial antibiotic activity is imparted to a culture medium, and the antibiotic is separated from the medium.

Streptomyces fradiae ATCC 21401 mutant grown in the presence of added streptamine gives hybrimycins A1 and A2, and when grown in the presence of 2-epistreptamine gives hybrimycins B1 and B2.

Streptomyces rimosus forma *paromomycinus* ATCC 21485 mutant grown in the presence of added streptamine gives hybrimycins C1 and C2.

The hybrimycins have antibiotic activity.

3,833,557
N-(AR-VINYLBENZYL)AZIRIDINES

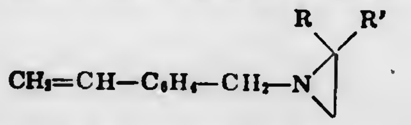
Donald A. Tomalia and Jerry D. De Vrieze, Midland, Mich., asssignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Apr. 24, 1972, Ser. No. 246,872

Int. Cl. C07d *23/06*

U.S. Cl. 260—239 E **3 Claims**

Novel N-(*m* or *p*-vinylbenzyl)aziridines are disclosed which correspond to the structural formula



wherein R and R' are hydrogen or lower alkyl. They are highly reactive difunctional monomers which can be homopolymerized or copolymerized to form many useful polymers.

3,833,558
PRODUCTION OF AMPICILLIN

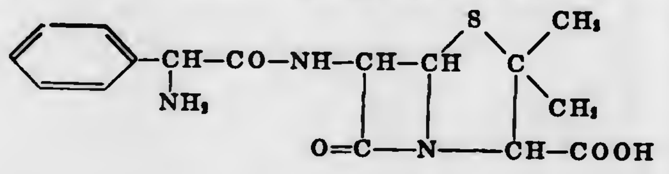
Jinnosuke Abe, Shizuoka-ken, Tetsuo Watanabe, Yokohama, and Teruo Take, Kentaro Fujimoto, Tadashiro Fujii, Yasue Hotta, Sadami Kobari, Fumihiro Ishimura, Nobuya Kitahora, and Mituru Fukushima, Shizuoka-ken, Japan, assignors to Toyo Jozo Kabushiki Kaisha, Shizuoka, Japan

No Drawing. Filed Mar. 1, 1971, Ser. No. 119,844

Int. Cl. C07d *99/16*

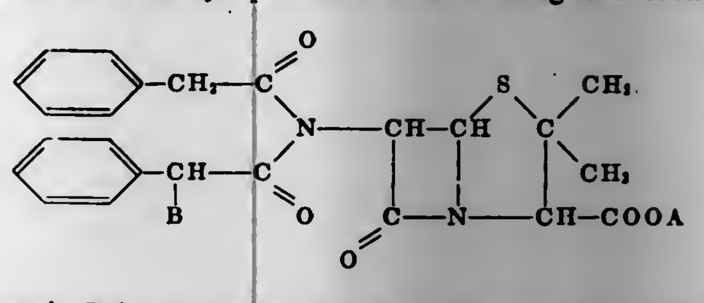
U.S. Cl. 260—239.1 **1 Claim**

A chemical process for the production of ampicillin and nontoxic salts thereof having the formula



(I)

in which a diacyl penicillin ester having the formula



(II)

wherein B is a protected amino group and A is a protective group for the carboxyl group, is subjected to dephenylacetylation, de-esterification and amination.

3,833,559
DIBENZOCYCLOHEPTENYL LACTAMIMIDES

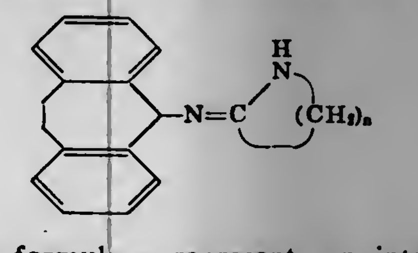
J. Martin Grisar and Robert D. MacKenzie, Cincinnati, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

No Drawing. Filed Jan. 5, 1973, Ser. No. 321,288

Int. Cl. C07d *27/04, 29/28, 41/08*

U.S. Cl. 260—239 B **5 Claims**

Novel dibenzocycloheptenyl lactamimides of the following formula and pharmaceutically acceptable acid addition salts thereof are useful as diuretic agents, anti-inflammatory agents, and as anticoagulants.



In the above formula *n* represents an integer of from 3 to 11.

3,833,560
IMPROVEMENT IN THE PROCESS FOR REARRANGEMENT OF KETOXIMES BY USING ADHESION RESISTANT PARTIALLY NITRIDED BORIC ACID CATALYSTS

Otto Immel, Krefeld-Uerdingen, and Hans-Helmut Schwarz, Krefeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Oct. 9, 1969, Ser. No. 865,194, now abandoned. Divided and this application Aug. 9, 1971, Ser. No. 170,276

Claims priority, application Germany, Oct. 12, 1968, P 18 02 887.0

The portion of the term of the patent subsequent to Apr. 6, 1988 has been disclaimed

Int. Cl. C07d *41/06*

U.S. Cl. 260—239.3 A **5 Claims**

The process of rearranging cyclic ketoximes in the gaseous phase in the presence of boric acid catalyst to the corresponding lactams is improved by using the boric acid catalysts which are more abrasion resistant by partially nitriding the catalyst with a nitrogen-containing material e.g. ammonia urea.

3,833,561
METHOD FOR THE PREPARATION OF CARBOXYL GROUP CONTAINING 6-AMINO-PENICILLANIC ACID DERIVATIVES

Magda Huhn, Geza Toth, Gabor Resofszki, Eva Somfai, and Gabor Horvath, Budapest, Hungary, assignors to Chinoin Gyogyszer- es Vegyeszeti Termekek Gyara RT, Budapest, Hungary

No Drawing. Filed Aug. 17, 1971, Ser. No. 172,551

Claims priority, application Hungary, Aug. 18, 1970, CI–1,026

Int. Cl. C07d *99/16*

U.S. Cl. 260—239.1 **6 Claims**

A method of making α-carboxy benzylpenicillin and chlorobenzylpenicillin and like penicillin derivatives especially as the disodium salts, wherein α-amino benzylpenicillin or 6-APA is reacted in weak base or water and the disodium salt is thereupon obtained.

3,833,562
OXYGENATED AZABICYCLOALKANES

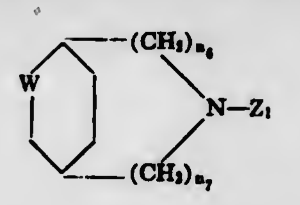
Gunther S. Fonken, Galesburg, Milton E. Herr, Kalamazoo, and Herbert C. Murray, Hickory Corners, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation-in-part of application Ser. No. 666,991, Sept. 11, 1967, now Patent No. 3,556,943, which is a continuation-in-part of abandoned application Ser. No. 453,204, May 4, 1965. This application Oct. 26, 1970, Ser. No. 84,254

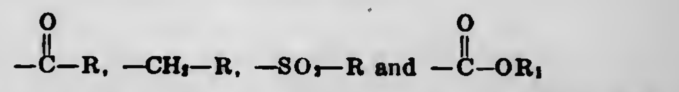
Int. Cl. C07d *39/00, 41/04*

U.S. Cl. 260—239 BA **3 Claims**

Oxygenated azabicycloalkanes of the formula



wherein W is selected from the group consisting of carbonyl, hydroxymethylene, acyloxymethylene, methylhydroxymethylene, phenylhydroxymethylene, cyclicaminomethylene, and alkylenedioxymethylene; Z_1 is selected from the group consisting of hydrogen, cycloalkyl, cyanomethyl, 2-aminoethyl, 2-guanidinoethyl



$$-\overset{\overset{\displaystyle O}{\|}}{C}-R,\ -CH_2-R,\ -SO_2-R \text{ and } -\overset{\overset{\displaystyle O}{\|}}{C}-OR_1$$

in which R is aryl and R_1 is aralkyl, n_6 is 0 or 1 and n_7 is 0 or 1, and wherein n_6 and n_7 cannot each equal 0 simultaneously. The compounds of the above formula are particularly valuable as central nervous system stimulants and fungicidal agents.

3,833,563
NOVEL PREGNANOIC ACID DERIVATIVES

Henry Laurent, Rudolf Wiechert, Klaus Prezewowsky, Helmut Hofmeister, Erich Gerhards, Klaus Mengel, and Karl Heinz Kolb, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Germany

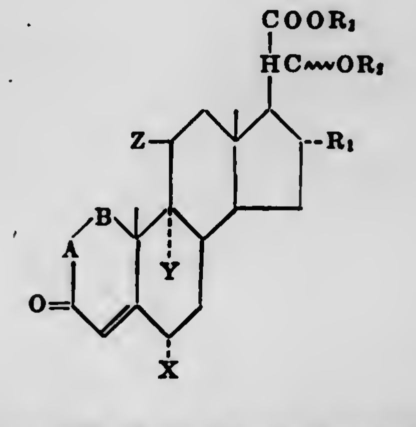
No Drawing. Continuation-in-part of application Ser. No. 284,710, Aug. 30, 1972. This application Oct. 3, 1972, Ser. No. 294,527

Claims priority, application Germany, Oct. 4, 1971, P 21 50 270.5; Feb. 22, 1972, P 22 09 298.4, P22 09 312.5

Int. Cl. C07c *173/00*

U.S. Cl. 260—239.55 D **73 Claims**

Pregnanoic acid derivatives of the formula



wherein the group OR_2 is in the α_F- or β_F-position; X is hydrogen, halogen or methyl; Y is hydrogen or halogen;

Z is hydroxy or halogen having an atomic weight no greater than Y; R_1 is hydrogen or methyl; R_2 is hydrogen or acyl and R_3 is hydrogen, alkali metal or saturated or unsaturated unsubstituted or substituted hydrocarbon of 1–18 carbon atoms, or collectively R_2 and R_3 are dialkylmethylene or cycloalkylidene; and at least one of X, Y and R_1 are other than hydrogen; and —A—B— is

$$—CH_2—CH_2—,\ —CH{=}CH—\ \text{or}\ —CCl{=}CH;$$

possess pronounced topical anti-inflammatory activity as well as being intermediates for the production of the corresponding 20-keto steroids.

3,833,564
NOVEL ESTERS AND THEIR PREPARATION

Jacques Martel, 15 Rue Douvillez, 93 Bondy, France, and Jean Buendia, 32 Avenue Foch, 94 Fontenay-sous-Bois, France

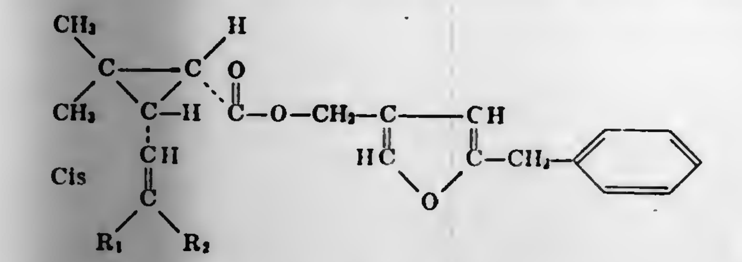
No Drawing. Continuation of abandoned application Ser. No. 9,081, Feb. 5, 1970. This application Aug. 17, 1972, Ser. No. 281,429

Claims priority, application France, Feb. 7, 1969, 6902885; Jan. 7, 1970, 7000401

Int. Cl. C07d *5/16*

U.S. Cl. 260—240 R **7 Claims**

Racemates of 5-benzyl-3-furyl-methyl esters of cis-3,3-dimethyl - 2-(2′-R_1-R2′-R_2-vinyl)-cyclopropane-1-carboxylic acids or their 1R,2S or 1S,2R isomers of the formula



I

wherein R_1 is selected from the group consisting of alkyl of 1 to 6 carbon atoms, aryl and phenylalkyl of 7 to 9 carbon atoms and R_2 is selected from the group consisting of alkyl of 1 to 6 carbon atoms, aryl, phenylalkyl of 7 to 9 carbon atoms and alkoxycarbonyl and R_1 and R_2 taken together with the carbon atom to which they are attached form a carbon homocyclic of 3 to 7 carbon atoms which may be saturated or unsaturated or substituted or not which possess utility in agriculture and in the home as insecticides and their preparation.

3,833,565
PHENYLANTIMONY BIS(2-PYRIDINETHIOL 1-OXIDE)

John Downing Curry, Oxford, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Sept. 29, 1972, Ser. No. 293,633

The portion of the term of the patent subsequent to Aug. 21, 1990, has been disclaimed

Int. Cl. C07d *31/50*

U.S. Cl. 260—270 **1 Claim**

Phenylantimony bis(2-pyridinethiol 1-oxide), a new antibacterial and antifungal compound, and compositions containing same.

3,833,566
NOVEL MEROCYANINE DYES

Roy A. Jeffreys and Susan M. Mellows, Harrow, England, assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Original application Nov. 2, 1970, Ser. No. 86,316, now Patent No. 3,672,905, dated June 27, 1972. Divided and this application Apr. 27, 1972, Ser. No. 248,296

Int. Cl. C09b *23/00*

U.S. Cl. 260—240.1 **4 Claims**

Novel methine dyes are provided in which one terminal carbon atom of the methine chain of the dye has two groups attached thereto, said groups being selected from a dialkylamino group, a diarylamino group, an alkylarylamino group, a morpholino group, a thiomorpholino group and a piperidino group; and, the other terminal atom of the methine chain of said dye is attached to a heterocyclic nucleus of the type used in methine dyes. The preparation of such dyes, and photographic emulsions containing them, are also provided herein.

3,833,567
PHENOTHIAZINES

Edgar Eriksoo, Hans Jacob Fex, and Knut Bertil Hogberg, Halsingborg, Henri Rene Moliberg, Paarp, Oskar Adolf Rohte, Raa, and Paul Hans Otto Josef Kneip, deceased, late of Halsingborg, Sweden, by Ruth Kneip, Lund, Sweden, legal representative, assignors to Aktiebolaget Lee, Halsingborg, Sweden

No Drawing. Continuation-in-part of application Ser. No. 719,665, Apr. 8, 1968, now Patent No. 3,637,660. This application Oct. 1, 1971, Ser. No. 185,879

Int. Cl. C07d *93/14*

U.S. Cl. 260—243 A **6 Claims**

Benzoylalkylaminoalkylphenothiazine derivatives of therapeutic interest, compositions containing such derivatives, and method of treating with such compositions, are disclosed. These compounds have para-sympatholytic, sympathomimetic and sedative activity useful in the treatment of central nervous system disorders, especially endogenic depressions.

3,833,568
HETEROCYCLIC UREIDOCEPHALOSPORINS

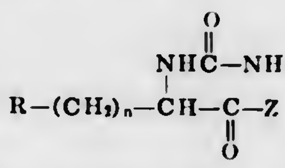
Joseph E. Dolfini, North Brunswick, Jack Bernstein, New Brunswick, and Raymond C. Erickson, Metuchen, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Filed Nov. 27, 1970, Ser. No. 93,490

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 C **3 Claims**

Compounds of the formula



$$R-(CH_2)_n-\overset{NH\overset{O}{\overset{\|}{C}}-NH_2}{\overset{|}{C}H}-\underset{\underset{O}{\|}}{C}-Z$$

wherein R is a furyl, pyridyl, pyrryl, or thienyl radical, or a substituted derivative thereof; *n* is 0, 1, or 2; and Z is the residue of the 7-ACA or of the 7-ADCA moiety, are effective antibacterial agents.

3,833,569
THIAZINYL DERIVATIVES OF O-PHENYLENEDIAMINES

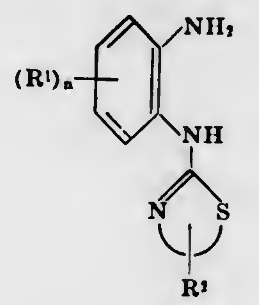
Venkatachala L. Narayanan, Hightstown, and Rudiger D. Haugwitz, Titusville, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Original application Feb. 28, 1972, Ser. No. 230,121. Divided and this application Mar. 5, 1973, Ser. No. 338,002

Int. Cl. C07d *93/06*

U.S. Cl. 260—243 R **4 Claims**

Thiazolinyl and thiazinyl derivatives of *o*-phenylenediamines are provided having the structure



wherein R^1, R^2 and n are as defined hereinafter and which are useful as disinfectants, and as starting materials in the preparation of benzimidazoles which are useful as anthelmintic agents, and also dyes.

3,833,570
7-(3-SUBSTITUTED - 1,2,4 - OXADIAZOLE-5-ONE-4-ACETAMIDO)CEPHALOSPORANIC ACIDS AND DERIVATIVES THEREOF

Charles Truman Holdrege, Camillus, N.Y., assignor to Bristol-Myers Company, New York, N.Y.

No Drawing. Original application Aug. 12, 1970, Ser. No. 63,314, now Patent No. 3,692,779, dated Sept. 19, 1972. Divided and this application Aug. 31, 1972, Ser. No. 285,179

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 C **12 Claims**

6 - [N - (substituted - imidoyl)aminoacetamido]cephalosporanic acids and their salts and the corresponding betaines and desacetoxy derivatives are valuable as antibacterial agents, nutritional supplements in animal feeds, therapeutic agents in poultry and animals, including man, and are especially useful in the treatment of infectious diseases caused by Gram-positive and Gram-negative bacteria. 6 - [N - Phenylacetimidoyl)aminoacetamido]cephalosporanic acid, a preferred embodiment of the invention, is prepared for example, by Raney nickel hydrogenation (50 p.s.i., R.T.) of an aqueous solution of sodium 7 - (3 - benzyl - 1,2,4 - oxadiazole - 5 - one - 4 - acetamido)cephalosporanate which is prepared in turn by reaction of 7 - aminocephalosporanic acid with 3 - benzyl-1,2,4-oxadiazole-5-one-4-acetyl chloride.

3,833,571
2-PHENOXYALKANOIC ACID ESTERS AS ANTICHOLESTEROL AGENTS

Norman H. Grant, Wynnewood, and Harvey E. Alburn, West Chester, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Division of applications Ser. No. 182,260, Sept. 20, 1971, now Patent No. 3,769,431, and Ser. No. 182,235, Sept. 20, 1971, now Patent No. 3,759,950, which both in turn are a division of application Ser. No. 737,837, June 18, 1969, now Patent No. 3,717,669. Divided and this application Apr. 6, 1973, Ser. No. 348,789

Int. Cl. A61k *27/00*

U.S. Cl. 424—274 **3 Claims**

This invention concerns 2-phenoxyalkanoic acid esters which are pharmacologically active as anticholesterol agents.

3,833,572
PREPARATION OF CEPHALOSPORINS HAVING A SUBSTITUTED METHYL GROUP AT POSITION-3 BY REACTION OF A 3-HALOMETHYL CEPHALOSPORIN WITH AN ONIUM SALT

John Colin Clark, Gerrards Cross, and Joseph Elks, London, England, assignors to Glaxo Laboratories Limited, Greenford, England

No Drawing. Filed Jan. 21, 1972, Ser. No. 219,858

Claims priority, application Great Britain, Dec. 22, 1971, 3,202/71

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 C **10 Claims**

A process for preparing cephalosporin compounds having a substituted methyl group at the 3-position which comprises reacting a corresponding cephalosporin compound having a different substituted methyl group at the 3-position with an onium salt which is soluble in aprotic media, the anion of the onium salt corresponding to the desired methyl substituent.

3,833,573
PHENOTHIAZINE DERIVATIVES

Daniel Farge, Thiasis, and Mayer Naoum Messer, Bievres, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed Mar. 1, 1972, Ser. No. 231,014

Claims priority, application France, Mar. 3, 1971, 7107286

Int. Cl. C07d *93/14*

U.S. Cl. 260—243 A **1 Claim**

(7-Hydroxy-3-phenothiazinyl)alkanoic acids—the numbering of the phenothiazine ring being in accordance with Beilstein—are prepared by a new multi-stage process involving reaction of 2,5-dihydroxy-thiophenol with a nitrophenyl-alkanoic acid, reduction of the resulting [3-nitro-4-(2,5 - dihydroxy - phenylthio)phenyl]alkanoic acid to the corresponding amino-diphenolic compound, oxidation of the amino-diphenol to the corresponding quinone which cyclises spontaneously into a (7-oxo-3-phenothiazinyl)alkanoic acid, and reduction of the said acid to a (7-hydroxy-3-phenothiazinyl)alkanoic acid. The products are useful as starting materials for the preparation of alkyl esters of (7-alkoxy-3-phenothiazinyl)alkanoic acids, from which therapeutically useful phenothiazine derivatives can be obtained.

3,833,574
BENZIMIDAZOLINONE COMPOUNDS

Rudiger D. Haugwitz, Titusville, and Venkatachala L. Narayanan, Hightstown, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

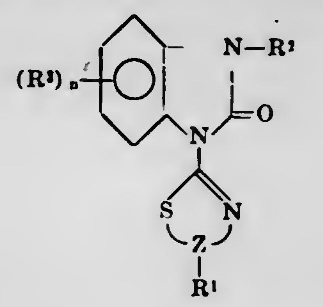
No Drawing. Original application July 31, 1972, Ser. No. 276,507. Divided and this application Nov. 6, 1973, Ser. No. 413,287

Claims priority, application Canada, July 18, 1973, 176,701

Int. Cl. C07d *93/06*

U.S. Cl. 260—243 R **3 Claims**

Benzimidazolinone compounds which exhibit antiinflammatory activity have the following formula



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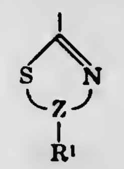
wherein

Z is ethylene or propylene;

R^1 is hydrogen, methyl, ethyl, phenyl, nitrophenyl, benzyl, phenethyl, tolyl or xylyl;

R^2 is hydrogen; alkyl of from 1 to 5 carbons; benzyl; nitrobenzyl; phenethyl; nitrophenethyl;



wherein Z and R^1 are as defined above; alkoxycarbonyl wherein the alkoxy radical is from 1 to 10 carbon atoms; phenoxycarbonyl; or substituted phenoxycarbonyl wherein the substituent is nitro, halo or alkyl of from 1 to 5 carbons; acyl of from 2 to 6 carbon atoms; benzoyl or substituted benzoyl wherein the substituent is halogen or alkyl of from 1 to 3 carbons; symmetrically dialkyl-substituted carbamoyl wherein the alkyl radical has from 1 to 3 carbons; and dialkylamino-alkylene wherein the dialkyl radicals have from 1 to 3 carbons and the alkylene radical has 2 or 3 carbons;

R^3 is hydrogen, halogen, nitro, cyano, trifluoromethyl, alkyl of from 1 to 3 carbon atoms, alkoxy of from 1 to 3 carbon atoms, amino, dialkylamino wherein the alkyl radical has from 1 to 3 carbon atoms, alkanoyl of from 2 to 6 carbons, alkylamido of from 2 to 6 carbons, or benzoyl; and

n is 0, 1 or 2.

3,833,575
OXAZINOINDOLE- AND THIAZINOINDOLE DERIVATIVES

Christopher A. Demerson, Leslie G. Humber, George Santroch, Thomas A. Dobson, and Ivo Jirkovsky, Montreal, Quebec, Canada, assignors to Ayerst, McKenna and Harrison Limited, Montreal, Quebec, Canada

No Drawing. Filed Feb. 14, 1972, Ser. No. 226,287
Int. Cl. C07d *87/38*
U.S. Cl. 260—243 R **1 Claim**

Oxazinoindole derivatives characterized by having an amino(lower)alkyl radical attached to the 1 position of a 1H-1,4-oxazino[4,3-a]indole nucleus are disclosed. The amino portion of the amino(lower)alkyl radical may be further substituted with one or two lower alkyl groups or incorporated in a heterocyclic amine radical. The derivatives are substituted further at positions 1 and 10 and may be optionally substituted at positions 3. 4, 6, 7, 8 and 9. The oxazinoindole derivatives of this invention are useful antidepressant and antiulcer agents. Methods for the preparation and use of these derivatives are also disclosed.

3,833,576
PROCESS FOR THE PREPARATION OF AROMATIC ETHERS AND INTERMEDIATES USEFUL THEREFOR

Albrecht Edenhofer, Riehen, and Hans Spiegelberg, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application June 14, 1971, Ser. No. 152,979, now Patent No. 3,723,445. Divided and this application Jan. 4, 1973, Ser. No. 321,068
Int. Cl. C07d *87/20*
U.S. Cl. 260—244 R **5 Claims**

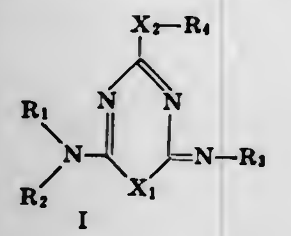
Substituted acetanilides and oxazines, useful as intermediates in the preparation of aromatic ethers, are disclosed. The end products are useful as antiphlogistic, antiallergic, antitussive and analgesic agents.

3,833,577
HERBICIDAL OXADIAZINES AND THIADIAZINES

Kang Lin, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Nov. 13, 1972, Ser. No. 305,883
Int. Cl. C07d *87/52*
U.S. Cl. 260—244 **10 Claims**

Herbicidal oxadiazines and thiadiazines of the formula



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wherein

R_1, R_2 and R_3 are selected from hydrogen and certain organic radicals, at least one of R_1, R_2 and R_3 being an organic radical;

R_4 is selected from certain organic radicals; and

X_1 and X_2 are selected from oxygen and sulfur and salts of the above compounds.

Preparation of the compounds by cyclization of the appropriate allophanimidate with phosphoryl chloride ($POCl_3$).

An exemplary compound: 2-*tert*-butylimino-4-methylthio-6-*tert*-butylamino-2H-1,3,5-oxadiazine, phosphorodichloric acid salt.

3,833,578
PYRAZINOYLALKYLBENZENESULFONYLUREAS AND PROCESS FOR THEIR PREPARATION

Vittorio Ambrogi, Bresso, and Willy Logemann, Marcantonio Parenti, and Raffaele Tommasini, Milan, Italy, assignors to Carlo Erba S.p.A., Milan, Italy

No Drawing. Continuation-in-part of abandoned application Ser. No. 80,141, Oct. 12, 1970. This application June 11, 1971, Ser. No. 152,447
Claims priority, application Italy, Oct. 17, 1969, 23,489/69
Int. Cl. C07d *51/76*
U.S. Cl. 260—250 R **26 Claims**

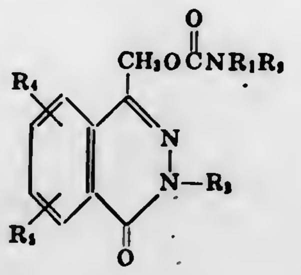
New pyrazinoylalkylbenzenesulfonylureas and a process for their preparation are disclosed, for example N-(1-azacyclohept - 1 - yl)-N'-{4-[β-(5-methyl-pyrazine-2-carboxamido)ethyl]benzenesulfonyl}urea, and N-(4-methylpiperidino)-N'-{4- [β-(5-methyl-pyrazine-2-carboxamido) ethyl]benzenesulfonyl}urea. These compounds are useful for their hypoglycemic activity.

3,833,579
4-CARBAMOYL PHTHALAZONES

Michiro Inoue, 26–3, 6-chome, Kokuryo-cho, Chofu-shi; Masayuki Ishikawa, 14–13, 3-chome, Akazutsumi, Setagaya-ku; Takashi Tsuchiya, 17–25, 5-chome, Minamikoiwa, Edogawa-ku; and Takio Shimamoto, 13 Kitamachi, Shinjuku-ku, all of Tokyo, Japan

No Drawing. Filed Feb. 16, 1972, Ser. No. 226,960
Claims priority, application Japan, Feb. 23, 1971, 46/8,368; Feb. 27, 1971, 46/9,835, 46/9,836, 46/9,837; Aug. 5, 1971, 46/58,644; Aug. 10, 1971; 46/59,905, 46/59,906
Int. Cl. C07d *51/06*
U.S. Cl. 260—250 P **10 Claims**

4-Carbamoxymethyl-1-phthalazone derivatives represented by the general formula I:



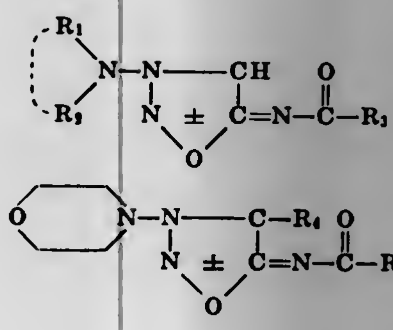
wherein R_1 stands for a hydrogen atom or an alkyl group, R_2 stands for a hydrogen atom, an alkyl group which can be branched or cyclic, or an alkenyl, aryl, aralkyl, dialkylaminoalkyl, furfuryl, picolyl, or pyridyl group, R_3 stands for a hydrogen atom, an alkyl, aryl carbamoyl, N-alkylcarbamoyl, N,N-dialkylcarbamoyl, alkylsulfonyl, or arylsulfonyl group, R_4 stands for a hydrogen or halogen atom, an alkyl or alkoxy group, R_5 stands for a hydrogen or halogen atom, an alkyl, alkoxy, amino, acylamino, alkoxycarbonyl, or carbamoyl group, and R_1 can form together with R_2 a divalent alkylene group which can be interrupted by a hetero atom, and R_4 and R_5 can be present in any of the C–5, C–6, C–7, or C–8 positions of the phthalazone nucleus, and a process for their manufacture.

3,833,580
3-MORPHOLINO-N⁶-CYCLOHEXYLCARBONYL SYDNONIMINE

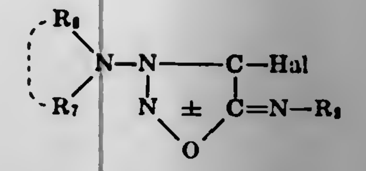
Manfred Gotz, Hudson, Quebec, Canada, Karl Zeile, Ingelheim am Rhein, Germany, Kurt Freter, Beaconsfield, Quebec, Canada, and Gisela Wehlmann, Wiesbaden-Sonnenberg, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

No Drawing. Continuation-in-part of applications Ser. No. 658,610, Aug. 7, 1967, and Ser. No. 809,392, Mar. 21, 1969, both now abandoned. This application Aug. 18, 1970, Ser. No. 64,817
Claims priority, application Germany, Aug. 9, 1966, B 88,408; Mar. 26, 1968, P 17 70 061.7; Aug. 22, 1969, P 19 42 854.7
Int. Cl. C07d *87/40*
U.S. Cl. 260—247.2 A **1 Claim**

Compounds of the formula



and



wherein

R_1 is methyl, allyl or phenyl-lower alkyl,

R_2 is methyl or allyl,

R_1 and R_2, together with each other and the nitrogen atoms to which they are attached, are piperidino, hexamethyleneimino or tetrahydroisoquinolino,

R_3 is methyl, cyclohexyl, lower alkoxy, phenyl, phenoxy, pyridyl or 5-nitro-furyl,

R_4 is hydrogen, chlorine, bromine or iodine,

R_5 is cyclohexyl or lower alkoxy,

R_6 and R_7 are each methyl or, together with each other and the nitrogen atom to which they are attached, piperidino, N'-methyl-piperazino or, when R_8 is hydrogen, morpholino,

R_8 is hydrogen, acetyl, cyclohexylcarbonyl, lower alkoxycarbonyl or phenoxycarbonyl, and

Hal is chlorine, bromine or iodine,

and their non-toxic, pharmacologically acceptable acid addition salts; the compounds as well as the salts are useful as hypotensives in warm-blooded animals.

3,833,581
VAPOR PHASE SUBSTITUTION FLUORINATION OF AROMATICS WITH XENON DIFLUORIDE

Donald R. MacKenzie, Bellport, Jack Fajer, Brookhaven, and Robert Smol, East Patchogue, N.Y., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed July 23, 1971, Ser. No. 165,591
Int. Cl. C07c *25/00;* **C07d** *51/76*
U.S. Cl. 260—250 R **2 Claims**

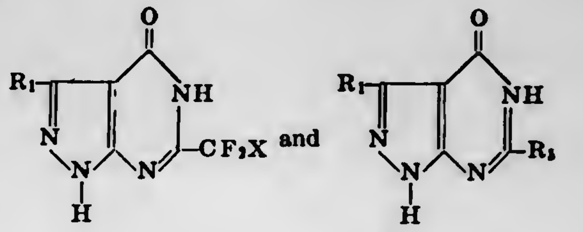
The process of producing a fluorine-substituted aromatic compound comprising the step of reacting an aromatic compound in the vapor phase with xenon difluoride vapor at a moderate temperature on the order of about 200° C. at a mole ratio of xenon difluoride to said aromatic compound of no greater than 1.

3,833,582
HERBICIDAL 1H-PYRAZOLO[3,4-d]PYRIMIDIN-4-ONES

Beryl W. Dominy, Groton, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Aug. 21, 1972, Ser. No. 282,383
Int. Cl. C07d *51/46*
U.S. Cl. 260—256.4 F **7 Claims**

Herbicidal 1H-pyrazolo[3,4]pyrimidin-4-ones of the formulae



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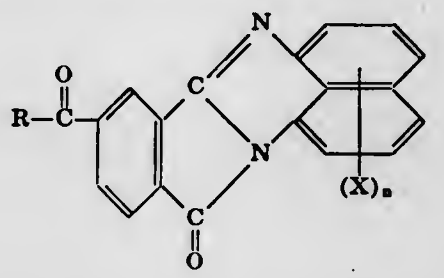
or the alkali metal, ammonia, mono-, di- and trialkylamine salts thereof, wherein each of the alkyl groups has from 1 to 12 carbon atoms, wherein X is hydrogen, chloro, fluoro and $CR_2R_3R_4$ wherein each of R_2, R_3 and R_4 is hydrogen, chloro and fluoro; R_1 is hydrogen and alkyl of from 1 to 4 carbon atoms; and R_5 is alkyl of from 3 to 5 carbon atoms.

3,833,583
PERINONE DYESTUFFS

Dietmar Kalz, Cologne, and Gerhard Wolfrum, Opladen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 21, 1971, Ser. No. 136,234
Claims priority, application Germany, Apr. 25, 1970, P 20 20 299.7
Int. Cl. C07d *51/48*
U.S. Cl. 260—256.4 Q **3 Claims**

Perinone dyestuff which is free from any sulphonic acid groups and corresponds to the general formula:



in which

R denotes a radical of an optionally substituted cyclic amine,

X stands for halogen, and

n represents 0, 1 or 2

as well as their production and use for the dyeing and printing of hydrophobic fibre materials.

3,833,584
4-SUBSTITUTED-AMINO-QUINAZOLINES AND NITRATES THEREOF

Lloyd P. Gabel and William R. J. Simpson, Morris Plains, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Application June 26, 1969, Ser. No. 838,050, now Patent No. 3,637,701, dated Jan. 25, 1972, which is a continuation-in-part of abandoned application Ser. No. 803,933, Mar. 3, 1969. Divided and this application Aug. 2, 1971, Ser. No. 168,446
Int. Cl. C07d *51/48*
U.S. Cl. 260—256.4 Q **7 Claims**

The invention disclosed compounds of the class which are nitrates of 4-substituted-amino-quinazolines, e.g., 4-(2-hydroxyethyl)amino - 6,7 - dimethoxyquinazoline nitrate, having pharmacological activity in animals and useful, for example, as hypotensive and anti-anginal agents. Also disclosed are the hydroxy intermediates useful in preparation of said nitrates.

3,833,585

(5R,8R)-8-(3-AZA-BICYCLO[3,2,2]NONAN-3-YLMETHYL)-6-METHYLERGOLENE

Paul Stadler, Biel-Benken, and Peter Stutz, Reinach, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Mar. 15, 1973, Ser. No. 341,510

Claims priority, application Switzerland, Mar. 17, 1972, 4,043/72, 4,044/72

Int. Cl. C07d *43/20*

U.S. Cl. 260—285.5 **1 Claim**

This invention concerns the new compound, (5R,8R)-8 - (3-azabicyclo[3,2,2]nonan-3-ylmethyl) - 6 - methylergolene, useful as a sedative and sleep-promoting agent.

3,833,586

1-(SUBSTITUTED BENZYL) - 2-(1H)PYRIMIDONES AND 1-(SUBSTITUTED BENZYL)TETRAHYDRO-2-(1H)PYRIMIDONES

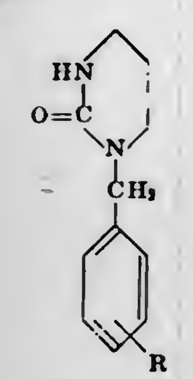
Thomas J. Schwan, Norwich, Leroy J. Honkomp and Alan W. Castellion, Oxford, and Richard H. Burns, Norwich, N.Y., assignors to Morton-Norwich Products, Inc., Norwich, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 128,143, Mar. 25, 1971. This application Feb. 6, 1973, Ser. No. 330,113

Int. Cl. C07d *51/38*

U.S. Cl. 260—251 R **10 Claims**

Certain 1-(substituted benzyl)tetrahydro-2-(1H)pyrimidones of the formula:



wherein R in the 4-position is carbomethoxy, carboxy, or carboxamido, and in the 3-position trifluoromethyl possess pharmacological activity as anticonvulsants and tranquilizers.

The corresponding 1-(substituted benzyl)-2-(1H) pyrimidones are useful intermediates in their preparation.

3,833,587

6,7,8-TRIALKYL-QUINAZOLINES HAVING A HYDROXYALKYL BEARING 4 - AMINO FUNCTION

Lloyd P. Gabel, Morris Plains, and William R. J. Simpson, Hanover, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Application Nov. 13, 1970, Ser. No. 89,472, now Patent No. 3,637,700, which is a continuation-in-part of abandoned application Ser. No. 870,439, Dec. 5, 1969. Divided and this application Sept. 15, 1971, Ser. No. 180,762

Int. Cl. C07d *51/48*

U.S. Cl. 260—256.4 Q **5 Claims**

Disclosed are compounds of the class of quinazolines substituted in the benzene ring portion of the quinazoline by trialkoxy and further substituted at the 4-position by an amino function bearing a hydroxyalkyl moiety, e.g., 4-(5-hydroxypentyl)amino - 6,7,8-trimethoxyquinazoline. The compounds have pharmacological activity in animals and are useful, for example, as hypotensive, coronary dilators and antianginal agents. The compounds are prepared from the corresponding 4-haloquinazolines by known procedures and are also useful in preparation of the corresponding hydroxy nitrates which are useful, e.g., as antianginal agents.

3,833,588

UNSATURATED-SUBSTITUTED TRICYCLIC QUINAZOLINONES

Goetz E. Hardtmann, Florham Park, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 247,435, Apr. 25, 1972. This application Mar. 2, 1973, Ser. No. 337,381

Int. Cl. C07d *51/48*

U.S. Cl. 260—256.4 F **17 Claims**

The compounds are pharmacologically active tricyclic quinazolinones of the class of imidazo[2,1-b]quinazolin-5 - ones, pyrimido[2,1 - b]quinazolin - 6 - ones and diazepino[2,1 - b]quinazolin - 7 - ones, bearing an unsaturated substituent on the available nitrogen of the quinazolinone portion and useful, for example, as anti-inflammatory and bronchodilator agents. Processes for preparation of said compounds include the reaction of a N-carboxy-anthranilic anhydride (an isatoic anhydride) with a cyclic pseudothiourea such as 2 - organomercapto-4,5 - dihydroimidazole or 2 - organomercapto - 3,4,5,6-tetrahydropyrimidine.

3,833,589

SUBSTITUTED SYDNONIMINE NITRATE ESTERS

William R. Simpson, Mendham, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed July 31, 1972, Ser. No. 276,396

Int. Cl. C07d *51/70*

U.S. Cl. 260—268 N **5 Claims**

Nitrate esters of sydnonimines, e.g. 3-(4-[β-hydroxyethyl]piperazino)-N^6-ethoxycarbonyl sydnonimine nitrate ester, are useful as anti-anginal agents.

3,833,590

CHELATES FOR THE CONTROL OF METAL-DEFICIENCY PHENOMENA IN BIOLOGICAL SYSTEMS

Joachim Dazzi, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

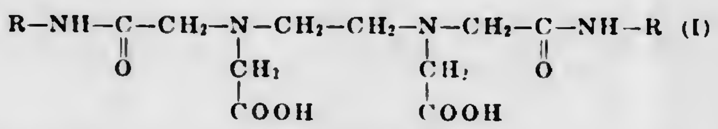
No Drawing. Filed July 24, 1972, Ser. No. 274,377

Claims priority, application Switzerland, July 29, 1971, 11,172/71

Int. Cl. C07c *101/26;* **C07f** *15/02*

U.S. Cl. 260—270 R **14 Claims**

Heavy metal chelates of ethylenediaminetetraacetic acid derivatives



$$R-NH-\underset{\underset{O}{\|}}{C}-CH_2-\underset{\underset{COOH}{|}}{\underset{CH_2}{\underset{|}{N}}}-CH_2-CH_2-\underset{\underset{COOH}{|}}{\underset{CH_2}{\underset{|}{N}}}-CH_2-\underset{\underset{O}{\|}}{C}-NH-R \quad (I)$$

are useful for the control of metal-deficiency phenomena in biological systems. In the formula

R represents the phenyl or naphthyl radical which can be substituted by halogen, hydroxy, mercapto, nitro, cyano, thiocyano, alkyl, alkoxy, halogenoalkyl, acyl, acylamino, acyloxy, carboxyl, alkoxycarbonyl, carbamoyl, pyridoylamino, N-carboxyalkyl-carbamoyl, sulpho, sulphamoyl, mono- or dialkylated or phenylated sulphamoyl which can also carry one of the groups

$$-CH_2-CH_2-SO_3H \text{ or } -CH_2-COOH,$$

alkylsulphonyl, alkoxysulphonyl, or by an optionally hydroxy-containing phenylsulphonyl or phenoxysulphonyl; or wherein R represents the pyridine or quinoline radical which can be substituted by halogen, hydroxy, alkyl, or carbamoyl.

3,833,591

1,3,4,5 - TETRAHYDROPYRROLO[4,3,2-d,e]ISOQUINOLINES AND RELATED COMPOUNDS

James M. McManus, Old Lyme, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Feb. 23, 1972, Ser. No. 228,743

Int. Cl. C07d *57/04*

U.S. Cl. 260—288 R **7 Claims**

A series of novel tricyclicazaindole compounds have been prepared by condensing the appropriate 4-aminoalkylindole or a corresponding 4-aminoethoxyindole with a suitable aldehyde reagent. The resulting tricyclic derivatives are found to be useful as oral hypoglycemic agents. Preferred member compounds include 1,3,4,5-tetrahydro - 3 - isopropylpyrrolo[4,3,2 - d,e]isoquinoline, 3,4,5,6-tetrahydro-3-isopropyl - 8,10 - dimethoxy-1H-azacino[3,4,5-c,d]indole and 3,4,5,6-tetrahydro-3-isopropyl-8-methoxy-1H - 1,4 - oxazocino[6,7,8-c,d]indole, and their pharmaceutically acceptable acid addition salts.

3,833,592

TROPANYL α,α-DIPHENYL-α-FLUOROACETATE ESTERS

Zinon B. Papanastassiou, Lexington, and Edward R. Atkinson and Donna D. McRitchie, Wellesley, Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

No Drawing. Filed May 31, 1966, Ser. No. 553,728

Int. Cl. C07d *43/06*

U.S. Cl. 260—292 **3 Claims**

2-, 3-, or 6-(8-R_3-nortropanyl) α,α-diphenyl-α-fluoroacetate esters having anticholinergic activity and prepared by transesterification of a lower-alkyl α,α-diphenyl-α-fluoroacetate with a 2-, 3-, or 6-(8-R_3-nortropanol).

3,833,593

3-(2-CHLOROETHYL)-4-PIPERIDINEACETIC ACID AND ESTERS THEREOF

Guenter Grethe, North Caldwell, and Milan Radoje Uskokovic, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 100,370, Dec. 21, 1970. This application June 5, 1973, Ser. No. 367,307

Int. Cl. C07d *29/24*

U.S. Cl. 260—293.77 **8 Claims**

Cis or *trans* 2-(1-acyl-3-vinyl-4-piperidine)acetic acid esters and *cis* or *trans* 3-(1-acyl-3-vinyl-4-piperidine)propionic acid esters, antipodes and racemates thereof, are prepared, inter alia, from the corresponding *cis* or *trans* 2- or 3-[1-acyl-3-(2-chloroethyl)-4-piperidine] acetic or propionic acid esters, respectively. The *cis* or *trans* 2- or 3-(1-acyl-3-vinyl-4-piperidine)acetic or propionic acid esters are useful as intermediates for the synthesis of quinine and quinidine and analogs and stereoisomers thereof.

3,833,594

AMINO DERIVATIVES OF PYRAZOLOPYRIDINE CARBOXYLIC ACIDS AND ESTERS

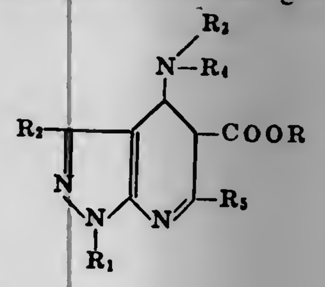
Hans Hoehn, Tegernheim, and Theodor Denzel, Nuremberg, Germany, assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Application Aug. 5, 1971, Ser. No. 169,536, now Patent No. 3,755,340, which is a continuation-in-part of abandoned application Ser. No. 41,568, May 28, 1970. Divided and this application June 11, 1973, Ser. No. 368,562

Int. Cl. C07d *49/18*

U.S. Cl. 260—293.6 **8 Claims**

New amino derivatives of pyrazolo[3,4-b]pyridine-5-carboxylic acids and esters have the general formula



They are useful as ataractic, analgesic and antiinflammatory agents. In addition, the new compounds increase the intracellular concentration of adenosine-3′,5′-cyclic monophosphate.

3,833,595

2-AROYLALKYL BENZOMORPHANS

Toshio Atsumi, Kenji Kobayashi, and Yoshiaki Takebayashi, Takarazuka, and Hisao Yamamoto, Nishinomiya, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

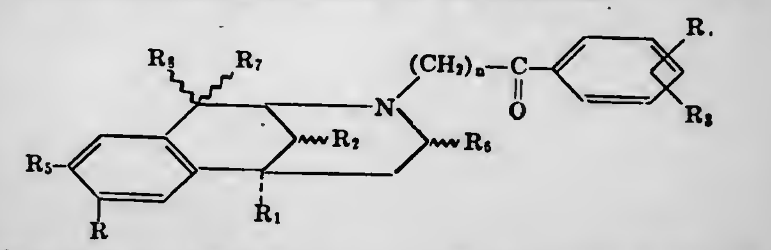
No Drawing. Continuation-in-part of application Ser. No. 883,319, Dec. 8, 1969. This application Aug. 10, 1971, Ser. No. 170,640

Claims priority, application Japan, Dec. 26, 1968, 43/96,270, 43/96,271; Aug. 14, 1970, 45/71,637, 45/71,638; Sept. 17, 1970, 45/81,810, 45/81,811; Oct. 20, 1970, 45/92,611, 45/96,301; Dec. 8, 1970, 45/109,972, 45/109,973; Dec. 17, 1970, 45/114,363; Dec. 24, 1970, 45/130,369; Dec. 28, 1970, 46/129,967, 46/129,968; Jan. 29, 1971, 46/3,397; Dec. 1, 1971, 46/3,900

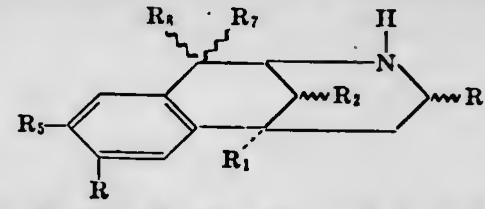
Int. Cl. C07d *39/00*

U.S. Cl. 260—293.54 **44 Claims**

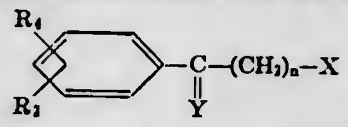
Benzomorphan derivatives of the formula:



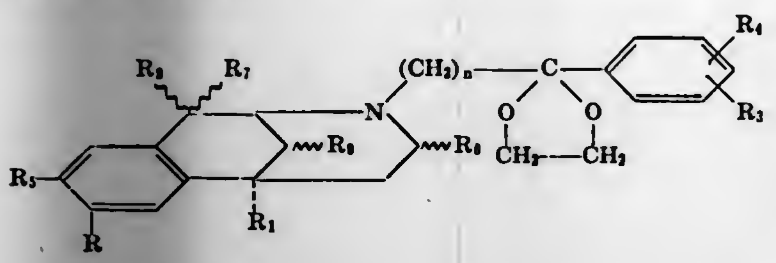
wherein R is a hydrogen atom, a C^1–C^3 alkoxy group, an acyloxy group, a hydroxy group, a nitro group, a halogen atom, a cyano group, an amino group, a carboxyl group, a carbamoyl group or a sulfo group; R_1 is a hydrogen atom, a C^1–C^3 alkyl group or a group of the formula, $(C_mH_{(2m-p)+1})-(R_9)_p$ (wherein *m* is an integer of 1–6; *p* is an integer of 1–2, and R_9 is a hydroxyl group or a C^1–C^3 alkoxy group); R_2 is a hydrogen atom or a C^1–C^3 alkyl group; R_3 and R_4 are independently a hydrogen atom, a halogen atom, a C^1–C^3 alkyl group, a C^1–C^3 alkoxy group, a C^1–C^3 alkylthio group, a nitro group, a trifluoromethyl group, an amino group or a hydroxyl group; R_5 is a hydrogen atom or a methyl group; R_6 is a hydrogen atom or a C^1–C^3 alkyl group; R_7 is a hydrogen atom, a C^1–C^3 alkyl group, a phenyl group or a C^1–C^3 alkoxyphenyl group; R_8 is a hydrogen atom or a hydroxyl group, or R_7 and R_8 may form a C^1–C^3 alkylidene group or a carbonyl group together with a carbon atom to which these substituents are bonded; and *n* is an integer of 2–4, provided that, when *n* is an integer of 2, R_1 and R_2 are a methyl group, R is a hydrogen atom or a hydroxyl group and R_4, R_5, R_6, R_7 and R_8 are hydrogen atoms, R_3 must be a halogen atom, a C^1–C^3 alkyl group, a C^1–C^3 alkoxy group, a C^1–C^3 alkylthio group, a nitro group, a trifluoromethyl group, an amino group or a hydroxyl group, which are useful as non-addicting, analgesic and pain-relieving agents with calming effect. These benzomorphan derivatives are prepared by reacting a 6,7-benzomorphan derivative of the formula:



wherein R, R_1, R_2, R_5, R_6, R_7 and R_8 are as defined above, with a halogen derivative of the formula:



wherein R_3, R_4 and *n* are as defined above, X is a halogen atom and Y is an oxygen atom or an ethylenedioxy group, and further, in the case of Y=ethylenedioxy group, by hydrolyzing the resulting ethylenedioxy derivative of the formula:



wherein R, R_1, R_2, R_3, R_4 R_5, R_6, R_7, R_8 and *n* are as defined above.

3,833,596
CARBAZOLE DERIVATIVES

William L. Albrecht, Cincinnati, Ohio, and Robert W. Fleming, Ann Arbor, Mich., assignors to Richardson-Merrell Inc., New York, N.Y.
No Drawing. Filed Dec. 21, 1972, Ser. No. 317,149
Int. Cl. C07d *29/28*
U.S. Cl. 260—293.61 4 Claims

Novel 3,6-bis-basic alkanes of carbazole, their preparation and use for the prevention and inhibition of viral infections are disclosed.

3,833,597
QUATERNARY AMMONIUM COMPOUNDS

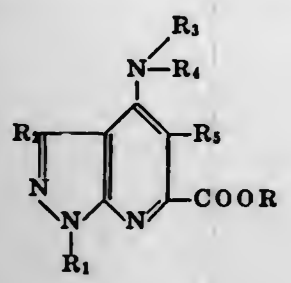
Frederick Edward Hardy, Newcastle-upon-Tyne, and Peter Roscoe Hartley Speakman, Gateshead, England, assignors to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed May 25, 1972, Ser. No. 256,999
Claims priority, application Great Britain, June 9, 1971, 19,644/71
Int. Cl. C07c *103/30;* **C07d** *31/22*
U.S. Cl. 260—295 Q 8 Claims

Quaternary ammonium imides having surface-active properties are described. The imides are able to exist in zwitterionic or cationic form and thus find applicability in the treatment of textiles and hard surfaces. Surface treating compositions containing quaternary ammonium imide and a pH buffering compound are described. Also described are methods for treating fabrics and hard surfaces.

3,833,598
AMINO DERIVATIVES OF PYRAZOLOPYRIDINE-6-CARBOXYLIC ACIDS AND ESTERS

Theodor Denzel, Nuremberg, and Hans Hoehn, Tegernheim, Germany, assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.
No Drawing. Filed Dec. 29, 1972, Ser. No. 319,949
The portion of the term of the patent subsequent to Aug. 28, 1990, has been disclaimed
Int. Cl. C07d *31/36*
U.S. Cl. 260—295 F 10 Claims

New amino derivatives of pyrazolo[3,4-b]pyridine-6-carboxylic acids and esters have the general formula

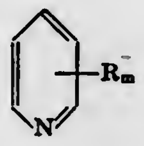


They are useful as central nervous system depressants and anti-inflammatory agents. In addition, the new compounds increase the intracellular concentration of adenosine-3′,5′-cyclic monophosphate.

3,833,599
PROCESS FOR THE OXIDATION OF ALKYLPYRIDINES

Monique G. S. Hanotier-Bridoux and Jacques D. V. Hanotier, Brussels, Belgium, assignors to Labofina S.A., Brussels, Belgium
No Drawing. Filed Apr. 2, 1973, Ser. No. 347,049
Int. Cl. C07d *31/36*
U.S. Cl. 260—295 R 8 Claims

A process for the oxidation of alkylpyridines of the formula

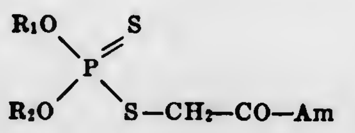


wherein R is an alkyl radical containing 1 to 2 carbon atoms and *m* is an integer of 1 to 4, into corresponding pyridinecarboxylic acids, which process comprises reactting said alkylpyridine with a cobalt salt in a molar ratio of alkylpyridine to cobalt salt of lower than 2 while maintaining such a concentration of cobaltic salt that $2x-A$ is between 0.1 and 1.5 *x* and A being respectively the molarity of cobaltic ions and of said cobalt salt in the reaction mixture, at a temperature of between 20 and 150° C., in an aliphatic carboxylic acid having from 2 to 4 carbon atoms and in the presence of molecular oxygen at a partial pressure of 0.2 to 20 atmospheres.

3,833,600
DITHIOPHOSPHATES

Werner Toepfl, Basel, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland
No Drawing. Continuation-in-part of applications Ser. No. 160,897 and Ser. No. 160,898, both July 8, 1971, which are a continuation-in-part of application Ser. No. 782,736, Dec. 10, 1968, all now abandoned. This application Jan. 2, 1973, Ser. No. 320,338
Int. Cl. C07d *29/36*
U.S. Cl. 260—293.85 5 Claims

New dithiophosphates of the formula I



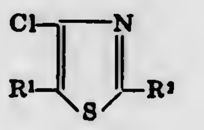
(I)

and their use as herbicides are disclosed. In formula I R_1 and R_2 are identical or different and each represents an alkyl or alkenyl or alkoxyalkyl radical with 1 to 5 carbon atoms, —CO—Am is an amide and Am is a piperidyl radical substituted by methyl or ethyl.

3,833,601
CERTAIN 4-CHLOROTHIAZOLES AND PROCESS FOR PREPARING SAME

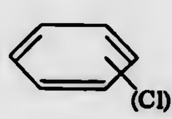
Günther Beck and Hans Holtschmidt, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Mar. 2, 1973, Ser. No. 337,611
Claims priority, application Germany, Mar. 22, 1972, P 22 13 865.4
Int. Cl. C07d *91/32*
U.S. Cl. 260—302 R 4 Claims

Chlorothiazoles having the formula:



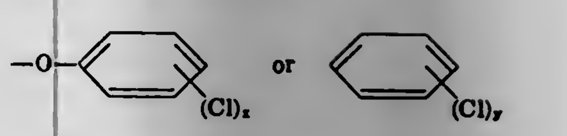
wherein R^1 is chlorine,

CCl_3, CN, $-N=CCl_3$ or

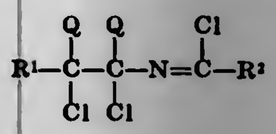


where *x* is 0, 1 or 2; and R^2 is chlorine,

CCl_3, CN,



where *x* is as defined above and *y* is a number from 0 to 5 are prepared by reacting compounds having the formula:



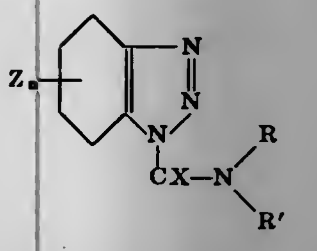
$$R^1-\underset{Cl}{\overset{Q}{C}}-\underset{Cl}{\overset{Q}{C}}-N=\overset{Cl}{C}-R^2$$

wherein R^1 and R^2 are as defined above and Q is chlorine or together represent a C—C— bond; with substantially the stoichiometrically necessary quantity of sulphur at a temperature in the range of from 150 to 350° C. Such chlorothiazoles can be used for the production of plant protection agents, especially as insecticides.

3,833,602
N-CARBAMOYL- AND N-THIOCARBAMOYL-4,5,6,7-TETRAHYDROBENZTRIAZOLES

Karl Heinz Buchel, Wuppertal-Elberfeld, and Ingeborg Hammann, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Apr. 4, 1972, Ser. No. 241,071
Claims priority, application Germany, Apr. 16, 1971, P 21 17 464.1
Int. Cl. A01n *9/12, 9/22;* **C07d** *55/04*
U.S. Cl. 260—308 B 5 Claims

N-carbamoyl- and N-thiocarbamoyl-4,5,6,7-tetrahydrobenztriazoles of the general formula



(I)

in which

R is lower alkyl or optionally substituted phenyl,
R′ is R or hydrogen,
Z is alkyl, haloalkyl or halogen,
n is an integer from 0 to 4, and
X is oxygen or sulfur,

which possess insecticidal and acaricidal properties.

3,833,603
1-(α,α-DISUBSTITUTED 4-PHENOXYBENZYL)IMIDAZOLES

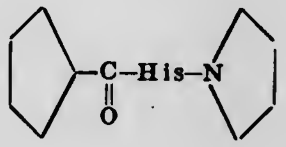
Karl-Heinz Buchel, Wilfried Draber, Erik Regel, and Axel Haberkorn, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Continuation-in-part of abandoned application Ser. No. 130,849, Apr. 2, 1971. This application Oct. 18, 1972, Ser. No. 298,599
Claims priority, application Germany, Apr. 9, 1970, P 20 16 839.2
Int. Cl. C07d *49/36*
U.S. Cl. 260—309 16 Claims

1 - (4-Phenoxybenzyl)imidazoles bearing a phenyl or alkyl group in the α-position and a second phenyl group in the α-position are effective agents against protozoa. The compounds, of which 1-[α-phenyl-α-(4-biphenylyl)-4-phenoxybenzyl]imidazole is a typical example, can be obtained from the reaction of imidazole and the appropriately substituted α,α-disubstituted-4-phenoxybenzyl halide.

3,833,604
HISTIDINE DERIVATIVES

Derek John Schafer, Beverley, England, assignor to Reckett & Colman Products Limited, Hull, Yorkshire, England
No Drawing. Filed Jan. 9, 1973, Ser. No. 322,124
Claims priority, application Great Britain, Jan. 20, 1972, 2,695/72
Int. Cl. C07d *49/36*
U.S. Cl. 260—309 3 Claims

The invention relates to a novel derivative of histidine of formula:



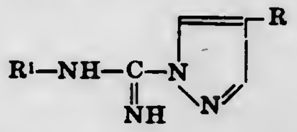
in which His is L-histidyl, and its pharmaceutically acceptable salts.

The novel compound and its salts with pharmaceutically acceptable acids are useful because of their inhibiting action on the hypothalamic thyrotropin releasing hormone (TRH).

3,833,605
SUBSTITUTED 1-CARBOXAMIDINE-PYRAZOLES AND THEIR ACID ADDITION SALTS

Isaac Karadavidoff and Michele Moreau, Paris, France, assignors to Fuveau S.A., Paris, France
No Drawing. Filed Apr. 26, 1972, Ser. No. 247,833
Claims priority, application France, Apr. 30, 1971, 7115592; Mar. 8, 1972, 7207995
Int. Cl. C07d *49/18*
U.S. Cl. 260—310 R 2 Claims

Compounds of formula:



in which R represents a hydrogen atom or a lower alkyl group and R^1 represents a hydrogen atom, an alkyl or arylalkyl group and their therapeutic application as anti-inflammatory and analgesic agents, both R and R′ not being hydrogen.

3,833,606
PREPARATION OF INDAZOLES

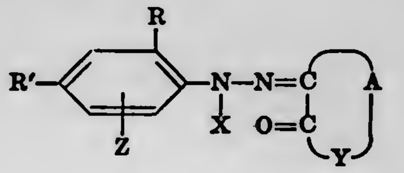
Arthur Gaudens Mohan, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed June 13, 1972, Ser. No. 262,426
Int. Cl. C07d *49/18*
U.S. Cl. 260—310 C 8 Claims

2-alkyl- and 2-aryl-2H-indazoles are prepared by heating an N-(o-nitrobenzylidene)amine in an inert solvent in the presence of iron carbonyl.

3,833,607
DIALKYLAMINOPHENYLHYDRAZONES

Edgar Enders, Cologne, Ferdinand Grewe, Burscheid, and Paul-Ernst Frohberger, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Jan. 31, 1972, Ser. No. 222,288
Claims priority, application Germany, Feb. 10, 1971, P 21 06 298.6
Int. Cl. C07d *27/08*
U.S. Cl. 260—326.5 FL 5 Claims

Dialkylaminophenylhydrazones of the general formula



(I)

in which

A is an ethylene, propylene or butylene radical which may be substituted by alkyl of 1 to 3 carbon atoms,
X is hydrogen or acyl,
Y is oxygen, sulfur or the group >N—R″,
    R″ is hydrogen, alkyl or alkenyl with up to 12 carbon atoms, aralkyl, cycloalkyl with 5 or 6 carbon atoms, aryl optionally substituted by halogen, methyl, methoxy, or acyl,
Z is hydrogen, halogen or acylamino, or alkyl or alkoxy with up to 4 carbon atoms, and
R and R′ are hydrogen, dialkylamino or a —N-hetero radical, with the proviso that R and R′ are not simultaneously hydrogen,

which possesses fungicidal, insecticidal, acaricidal bactericidal and yeasticidal properties.

3,833,608

INDOLE-3-METHANESULFONAMIDES

Clarence Stanley Rooney, Beaconsfield, Quebec, and Clarence Henry Gleason, Montreal, Quebec, Canada, assignors to Merck, Sharp & Dohme (I.A.), Rahway, N.J.

No Drawing. Original application Nov. 23, 1970, Ser. No. 92,210, now Patent No. 3,673,186. Divided and this application Sept. 15, 1972, Ser. No. 289,511

Int. Cl. C07d *27/56*

U.S. Cl. 260—326.12 R **5 Claims**

Derivatives of indole-3-acetamide and indole-3-methylsulfonyl compounds are prepared which have utility as skeletal muscle stimulants.

3,833,609

N(N′-MALEIMIDOMETHYL) CITRACONIMIDE

John R. Ladd, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

No Drawing. Filed Apr. 21, 1972, Ser. No. 246,287

Int. Cl. C07d *27/18*

U.S. Cl. 260—326.26 **1 Claim**

A method is provided for making a variety of N,N′-methylene bismaleimides by introducing boron trifluoride into a maleimide mixture containing either paraformaldehyde or methanol maleimide. The N,N′-methylene bismaleimides made by the subject method can be symmetrical or unsymmetrical and are useful for making polyimides.

3,833,610

3,5-DIOXO-2,3,5,6-TETRAHYDRO-(4H)-PYRANE AND THIOPYRANE-4-CARBOXANILIDES

Goetz E. Hardtmann, Florham Park, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 246,351, Apr. 21, 1972. This application Mar. 5, 1973, Ser. No. 338,302

Int. Cl. A61k *27/00;* **C07d** *65/04, 7/04*

U.S. Cl. 260—327 TH **9 Claims**

Disclosed are compounds of the class of 3,5-dioxo-2,3,5,6-tetrahydro-(4H)-pyrane and -thiopyrane-4-carboxanilides e.g. 3,5-dioxo-2,3,5,6-tetrahydro-(4H)-thiopyrane-4-carboxanilide, which exhibit biological activity and are useful, for example, as anti-inflammatory and anti-fungal agents. The compounds may be prepared by reacting 3,5-dioxo-2,3,5,6-tetrahydro-(4H)-pyrane or thiopyrane with a phenyl isocyanate in the presence of a base.

3,833,611

3,7-METHANO-BENZOXONIN COMPOUNDS

Raphael Mechoulam, Jerusalem, and Shlomo Houry, Ramat-Gan, Israel, and Bernard Loev, Broomall, Pa., assignors to Yissum Research Development Company, Jerusalem, Israel, and Smithkline Corporation, Philadelphia, Pa.

No Drawing. Filed Apr. 5, 1973, Ser. No. 348,423

Int. Cl. C07d *9/00*

U.S. Cl. 260—333 **3 Claims**

The compounds are 3,7-methano-benzoxonins having pharmacological activity such as central nervous system activity.

3,833,612

DERIVATIVES OF 5 - OXO - 1β-CYCLOPENTANEHEPTANOIC ACID, 5-ETHYLENE ACETALS

Norman L. Wendler, Summit, David Taub, Metuchen, Harry L. Slates, Westfield, and Zbigniew S. Zelawski, Piscataway, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Nov. 24, 1971, Ser. No. 201,979

Int. Cl. C07d *13/04*

U.S. Cl. 260—340.9 **2 Claims**

Racemic or optically active prostaglandin E_1 is synthesized from racemic or optically active precursors in good yield at the various steps from 3α,6,7,7α-tetrahydro-4-methyl-2-oxo - 1β - indaneheptanoic acid methyl ester proceeding through 2β - (2-carboxyethyl)-3β-hydroxy-5-oxo-1β-cyclopentaneheptanoic acid methyl ester, δ-lactone, 5-cyclic ethylene acetal, 2α-(2-carboxy-2-formylethyl)-3β-hydroxy-5-oxo-1β-cyclopentaneheptanoic acid methyl ester, δ-lactone, 5-cyclic ethylene acetal, 2α-(2-carboxy-2-oxoethyl)-3β-hydroxy-5-oxo-1β - cyclopentaneheptanoic acid methyl ester, δ-lactone, 5-cyclic ethylene acetal, and 3β-hydroxy-2α-(3-oxo-1-octenyl)-5-oxo-1β - cyclopentaneheptanoic acid methyl ester, 5-cyclic ethylene acetal.

3,833,613

PRODUCTION OF ESTERS

Peter Graham Spencer Field, London, England, assignor to Burmah Oil Trading Limited, London, England

No Drawing. Filed Nov. 2, 1972, Ser. No. 303,074

Claims priority, application Great Britain, Nov. 5, 1971, 51,563/71

Int. Cl. C07d *7/06, 9/00*

U.S. Cl. 260—343 **7 Claims**

A process for the production of cyclic esters comprises reacting a cyclic ketone and a hydroperoxide in the presence of a catalytic amount of metaboric acid, the anhydride thereof or an ester thereof in an inert diluent under substantially anhydrous conditions.

The cyclic esters are useful as intermediates in the production of corresponding lactams which are employed in the production of nylon.

3,833,614

PHTHALIDES AND NAPHTHALIDES

Myron S. Simon, West Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

No Drawing. Filed Jan. 4, 1971, Ser. No. 103,865

Int. Cl. C07d *7/20*

U.S. Cl. 260—343.2 R **22 Claims**

This invention relates to 1-naphthol phthalein indicator dyes including phthalides and naphthalides wherein one of the p-hydroxynaphthyl radicals is substituted with a hydrogen-bonding group on a carbon atom adjacent to the carbon atom containing the naphtholic —OH. In a preferred embodiment, both of the p-hydroxynaphthyl radicals are substituted with hydrogen-bonding groups. These indicator dyes, especially those of the preferred embodiment, possess a relatively high pKa.

3,833,615

NAPHTHALIDES AND PHTHALIDES

Myron S. Simon, West Newton, and David P. Waller, Arlington, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

No Drawing. Filed Jan. 4, 1971, Ser. No. 103,864

Int. Cl. C07d *7/26*

U.S. Cl. 260—343.2 R **18 Claims**

This invention relates to phenol phthalein indicator dyes containing as the ring-closing moiety, a naphthalide group or a carboxyphthalide group possessing a carboxy substituent in either the 4- and/or 7-position of the phthalide ring. In a preferred embodiment, the phenol radicals are substituted with a hydrogen-bonding group on a carbon atom adjacent to the carbon atom containing the phenolic —OH. These dyes, due to the naphthalide or carboxyphthalide ring-closing moiety exhibit improved stability in highly alkaline media and when substituted with hydrogen-bonding groups as in the preferred embodiment, possess a relatively high pKa as well.

3,833,616

6a,10a-TRANS-6a,7,8,10a-TETRAHYDRODIBENZO(b,d)-PYRANS

Theodor Petrzilka, 6 Rigistrasse, Erlenbach, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 760,055, Sept. 16, 1968. This application Feb. 1, 1971, Ser. No. 111,669

Int. Cl. C07d *7/20*

U.S. Cl. 260—345.3 **9 Claims**

This invention is directed to a process of producing (—)-1-hydroxy-3-n-amyl-6,6,9-trimethyl - 6a,10a - trans-6a,7,8,10a - tetrahydrodibenzo(b,d) - pyran and related pyrans from resorcinols, including intermediates therein. The pyrans produced by this invention possess psychotomimetic and analgesic activity.

3,833,617

BIS(DIBENZOPYRANS)

Jimmey L. Webb, Jonesville, N.Y., and Walter L. Hall, Mount Vernon, Ind., assignors to General Electric Company, Schenectady, N.Y.

No Drawing. Original application May 26, 1971, Ser. No. 147,162. Divided and this application Jan. 11, 1973, Ser. No. 322,780

Int. Cl. C07d *7/24*

U.S. Cl. 260—345.3 **7 Claims**

Bis(dibenzopyrans) prepared by reacting 2-phenylphenol and its higher homologues wherein the 6-position is substituted with a lower alkyl, including cycloalkyl, or phenyl, including lower alkyl substituted phenyl, substituent with bisketones are new chemical compounds. The bis(dibenzopyrans) are readily isomerized to the bisfluorenols. Since the latter compounds have two phenolic hydroxyl groups, they are useful in making polyesters, including polycarbonates, either as homopolymers or as copolymers with other dihydric phenols.

3,833,618

4-[HIGH MOLECULAR WEIGHT ALKYL-SUBSTITUTED CARBOPHENOXY] PHTHALIC ANHYDRIDE AND ANALOGOUS DIACID

Edmund J. Piasek, Chicago, and Imre Puskas, Glen Ellyn, Ill., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Original application Sept. 16, 1970, Ser. No. 72,831. Divided and this application Sept. 29, 1972, Ser. No. 293,647

Int. Cl. C07c *63/18, 69/76*

U.S. Cl. 260—346.3 **8 Claims**

Title compounds are novel oil-soluble anhydrides and their analogous diacids. The anhydrides are obtained by reaction of C_{30}–C_{214} alkyl-substituted phenol with 4-acid chloride of trimellitic anhydride which can be readily hydrolyzed with water to the analogous diacids. The title compounds are useful anti-rust and/or anti-wear addition agents for lubricants and as intermediate reactants with alcohols and amines for preparation of ester, amide and imide derivatives also useful as addition agents for lubricants, especially mineral oil based lubricants.

3,833,619

PROCESS FOR THE MANUFACTURE OF DIMETHYLMALEIC ANHYDRIDE

Marcus Baumann and Hans Bosshard, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed June 22, 1972, Ser. No. 265,383

Claims priority, application Switzerland, July 13, 1971, 10,264/71

Int. Cl. C07d *5/04*

U.S. Cl. 260—346.8 **7 Claims**

A new improved process for preparing dimethylmaleic anhydride is disclosed which comprises reacting certain heterocyclic primary amides or salts thereof with fumaric acid, maleic acid or a derivative thereof at temperatures above 70° C.

3,833,620

PRODUCTION OF CHENODEOXYCHOLIC ACID

William H. Saltzman, New Rochelle, N.Y., assignor to Intellectual Property Development Corporation, New Rochelle, N.Y.

No Drawing. Filed Nov. 16, 1972, Ser. No. 307,060

Int. Cl. C07c *169/48*

U.S. Cl. 260—397.1 **3 Claims**

This invention relates to novel methods of synthesizing $3\alpha,7\alpha$-dihydroxy-5β-cholanic acid and novel intermediates therefor.

3,833,621

3-KETO-7(α,β)-LOWERALKYL-Δ^5 STEROIDS AND PROCESS FOR PREPARING SAME

Joyce F. Grunwell, Hamilton, and Harvey D. Benson and Vladimir Petrow, Cincinnati, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

No Drawing. Filed Mar. 20, 1972, Ser. No. 236,186

Int. Cl. C07c *169/22, 169/34*

U.S. Cl. 260—397.4 **11 Claims**

Novel 7(α,β)-loweralkyl - 3 - keto-Δ^5-androstanes and 7(α,β) - loweralkyl-3-keto-Δ^5-pregnanes having anabolic, androgenic, claudogenic, progestational and anti-progestational properties are prepared by reacting 3-keto-4,6-dienic androstanes and pregnanes with organocopper reagents such as dialkyllithium cuprate. The isomerization of these compounds to yield 7(α,β)-loweralkyl-3-keto-Δ^4-steroids is also described.

3,833,622

CRYSTALLINE 25-HYDROXYCHOLECALCIFEROL HYDRATE AND STRUCTURALLY RELATED COMPOUNDS

John C. Babcock and J Allan Campbell, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Mar. 17, 1969, Ser. No. 807,929

Int. Cl. C07c *171/10*

U.S. Cl. 260—397.2 **13 Claims**

This invention relates to 25-hydroxycholecalciferol, a biologically active metabolite of Vitamin D, and especially to its hydrate and structurally related compounds possessing Vitamin D activities and uses.

3,833,623

N-ACYL-O-HYDROCARBYLPHOSPHOROAMIDOTHIOATE SALTS

Philip S. Magee, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Dec. 21, 1972, Ser. No. 317,477

Int. Cl. C08h *3/00, 9/02*

U.S. Cl. 260—402.5 **11 Claims**

S-alkali metal and S-ammonium salts of N-acyl-O-hydrocarbylphosphoroamidothioates are prepared by reacting an N-acyl-O,O-dihydrocarbylphosphoroamidothioate with an alkali metal mercaptide or ammonium mercaptide.

3,833,624

OIL-SOLUBLE ESTERS OF MONOCARBOXYLIC ACIDS AND POLYHYDRIC OR AMINO-ALCOHOLS

John Fred Bork, Timberlake, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Continuation of abandoned application Ser. No. 20,800, Mar. 18, 1970, which is a division of application Ser. No. 712,627, Mar. 13, 1968, now Patent No. 3,542,678. This application Nov. 22, 1971, Ser. No. 201,156

Int. Cl. C07c *69/32, 93/16;* **C01m** *1/24*

U.S. Cl. 260—404.5 **15 Claims**

Esters of monocarboxylic acids and polyhydric or aminoalcohols useful as additives for lubricants and fuels. The esters of a monocarboxylic acid having at least about fifty aliphatic carbon atoms exclusive of the carboxyl carbon atom and polyhydric alkanols constitute preferred embodiments.

3,833,625

PROCESS FOR THE SELECTIVE OXIDATION OF KETONES

Jean-Noel Marie Bertrand, Tervueren, and Joseph Marie Vaerman, Brussels, Belgium, assignors to Labofina S.A., Brussels, Belgium

No Drawing. Filed Oct. 27, 1971, Ser. No. 193,199

Claims priority, application Belgium, Jan. 4, 1971, 98,262

Int. Cl. C07c *51/28*

U.S. Cl. 260—408 **11 Claims**

A process for the oxidation of ketones in the liquid phase which comprises subjecting an asymmetrical ketone R—CO—R′, where R is a paraffinic or olefinic hydrocarbon radical containing at least 2 carbon atoms, substituted or not, and R′ is a saturated aliphatic radical containing not more than 2 carbon atoms, to oxidation in the presence of molecular oxygen at a partial pressure of 0.1 to 50 atmospheres and in the presence of a manganese salt, the molar ratio of manganic salt to ketone being higher than 0.1, at a temperature from 20 to 130° C., with the selective formation of the acid R—COOH wherein R is as defined above.

3,833,626

PROCESS FOR PREPARING PERFLUORINATED MONO- AND DICARBOXYLIC ACIDS

Armin Ferse and Wolfgang Koch, Dresden, Germany, assignors to VEB Chemiewerk Nunchritz, Nunchritz, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 761,787, Sept. 23, 1968. This application Sept. 17, 1971, Ser. No. 181,622

Int. Cl. C07c *53/16, 51/16;* **B01j** *1/10*

U.S. Cl. 260—408 **6 Claims**

Process for preparing perfluorinated carboxylic acids, more particularly perfluorinated mono- and dicarboxylic acids and derivatives thereof, which comprises in a first stage degrading PTFE (polytetrafluoroethylene) or related perfluorinated polymers or copolymers by exposure to high-energy radiation at a dosage between $8 \cdot 10^8$ and $5 \cdot 10^{10}$ r. and at a temperature between about 10 and 95° C. until perfluorinated aliphatic hydrocarbons are formed in the form of viscous oils of a chain length of C_4 to C_{20}, and thereafter in a second stage subjecting the same to oxidation with a strong oxidant, thus obtaining perfluorinated aliphatic acids of the corresponding chain length.

3,833,627

ALUMINUM POLYGLYCERYL FATTY ACID ESTERS

Martin M. Rieger, Morris Plains, N.J., assignor to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Filed Oct. 5, 1972, Ser. No. 296,362

Int. Cl. A61k *27/00;* **C07f** *5/06*

U.S. Cl. 260—410.6 **4 Claims**

Aluminum polyglyceryl fatty acid esters having prolonged acid neutralization characteristics and anti-foam activity.

3,833,628

OIL EXTRACTION PROCESS

Marshall Pike, Camberley, and Alan Watson Routledge, Whitehaven, England, assignors to Albright and Wilson Limited, Oldbury, near Birmingham, England

No Drawing. Filed Sept. 30, 1970, Ser. No. 77,011

Claims priority, application Great Britain, Oct. 2, 1969, 48,586/69

Int. Cl. C09f *5/00*

U.S. Cl. 260—412 **12 Claims**

Glyceride oils are extracted from vegetable or fish sources by treatment of the source with an aqueous solution containing an effective amount of a sulphonate salt selected from the group consisting of alkali metal, alkaline earth metal and ammonium salts of phenyl and alkylphenyl sulphonic acids wherein there are not more than 3 alkyl groups comprising not more than 4 carbon atoms in the aggregate, and subsequently separating from a mixture of liquid phase comprising oil and said sulphonate solution and recovering oil from said liquid phase. In preferred cases, e.g. with palm fruit, the source is such that the sulphonate salt treatment brings about the removal of a major proportion of available oil without expressing.

3,833,629

PROCESS FOR THE PRODUCTION OF LIGHT-COLORED, COLOR-STABLE FATTY ACIDS

Sasanka Sekhar Naskar and Gustav Renckhoff, Witten (Ruhr), Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

No Drawing. Filed Mar. 1, 1971, Ser. No. 119,826

Int. Cl. C08h *17/36*

U.S. Cl. 260—419 **15 Claims**

Light-colored, color-stable fatty acids of 8–18 carbon atoms are produced by heating the crude fatty acids in the presence of vanadium oxide, a lower alkyl vanadate, a lower alkyl ester of zirconic acid, an aromatic carboxylic acid or lower alkyl ester thereof, or a mixture of the aromatic carboxylic acid or ester with the alkyl ester of titanic or zirconic acid at about 180°–260° C., and then distilling, the resulting mixture under a vacuum.

3,833,630

PREPARATION OF ANTIMONY GLYCOLOXIDE

Otto Ernest Loeffler, Rahway, N.J., assignor to NL Industries, Inc., New York, N.Y.

No Drawing. Filed Aug. 24, 1973, Ser. No. 391,122

Int. Cl. C07f *9/90*

U.S. Cl. 260—446 **10 Claims**

A novel process for the production of antimony glycoloxide is described which comprises; heating a mixture of ethylene glycol and an antimony trisorganic carboxylate; wherein the mole ratio of ethylene glycol to antimony trisorganic carboxylate is at least 1.5; and separating an organic carboxylic acid from said mixture, said organic carboxylic acid having a boiling point below the boiling point of ethylene glycol in said mixture.

3,833,631

ALUMINUM SALTS OF ESTERS AS STABILIZING AGENTS FOR CHLORINATED VINYL POLYMERS

Gabriella Balint nee Berczi, Lajos Csonka, Gyorgy Galambos, Pal Gomory, Tibor Kelen, Ferenc Nagy, Janos Szerecz, and Ferenc Tudos, Budapest, Hungary, assignors to Intercooperation Kereskedelemfejlesztesi Rt., Budapest, Hungary

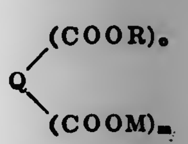
No Drawing. Filed Mar. 27, 1972, Ser. No. 238,468

Claims priority, application Hungary, Apr. 1, 1971, MA 2,217

Int. Cl. C07f *5/06*

U.S. Cl. 260—448 R **3 Claims**

Compounds of the formula



$$Q\begin{cases}(\mathrm{COOR})_n\\(\mathrm{COOM})_m\end{cases}$$

wherein

Q is a member selected from the group consisting of aryl, saturated straight-chained or branched hydrocarbon of 2 to 20 carbon atoms and unsaturated straight-chained or branched hydrocarbon of 3 to 20 carbon atoms,

R is a member selected from the group consisting of aryl and saturated straight-chained or branched aliphatic hydrocarbon of 2 to 20 carbon atoms, and R may be substituted with at least one hydroxy,

M is one equivalent of aluminum,

n and *m* each represent an integer of 1 to 3, and the sum of $n+m$ is at least two and not more than four, but if Q is phenyl, *n* may not represent 1.

have been prepared by reacting the alkali metal salts of the appropriate partial esters with compounds supplying aluminum.

The compounds of the general formula I exert excellent stabilizing effect on chlorinated vinyl polymers. The stabilizers may be added to the polymers in an amount of 0.1 to 30% by weight, preferably in an amount of 1 to 20% by weight. The novel stabilizers can be used in admixture with conventional stabilizers as well.

3,833,632

ALKYL FLUOROHEXAHALOGENOISOPROPOXYCARBOXYLATE SILICON DERIVATIVES AND POLYMERS AND COPOLYMERS THEREOF

François Meiller, Palaiseau, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Original application June 30, 1971, Ser. No. 158,614. Divided and this application Jan. 4, 1973, Ser. No. 320,906

Claims priority, application France, July 6, 1970, 7024957

Int. Cl. C07f *7/08*

U.S. Cl. 260—448.2 B **6 Claims**

This invention is addressed to derivatives of alkyl fluorohexahalogenoisopropoxycarboxylate silicon derivatives and polymers and copolymers formed thereof. The silicon derivatives of the present invention are useful as intermediates in the preparation of such polymers and copolymers which are useful as lubricants, as water repellent and oil repellent agents and as solvent resistant fluorinated elastomers.

3,833,633

PEROXY CONTAINING SILANES

William John Owen, Penarth, and Bryan Ewart Cooper, Bridgend, Glamorgan, Wales, assignors to Dow Corning Limited, London, England

No Drawing. Filed Sept. 22, 1972, Ser. No. 291,510

Claims priority, application United Kingdom, Sept. 29, 1971, 45,320/71; May 2, 1972, 20,311/72

Int. Cl. C07f *7/08, 7/18*

U.S. Cl. 260—448.2 B **4 Claims**

Organosilicon compounds containing the peroxide grouping in the molecule. The compounds have the general formula

$$R_nX_{3-n}SiR'OOR''$$

in which R is alkyl or phenyl, X is alkoxy, alkoxyalkoxy or t-alkylperoxy, *n* is 0, 1 or 2, R′ is a specified divalent organic radical and R″ is t-alkyl, t-aralkyl, acyl or aroyl.

The compounds are useful as curing agents for organic resins, polymerisation initiators for organic monomers and as coupling agents for improving the bonding of unsaturated organic resins to inorganic substrates.

3,833,634

MANUFACTURE OF POLYFUNCTIONAL COMPOUNDS

Roy L. Pruett and Wellington E. Walker, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 210,538, Dec. 21, 1971. This application Jan. 19, 1972, Ser. No. 219,130

Int. Cl. C07c *27/06*

U.S. Cl. 260—449 R **21 Claims**

A process for the preparation of polyfunctional oxygen-containing compounds such as ethylene glycol and/or derivatives thereof which comprise reacting an oxide of carbon with hydrogen using a rhodium complex catalyst.

3,833,635

2,4-DIENE THIOLESTERS AND ACIDS

Clive A. Henrick, Palo Alto, Calif., assignor to Zoecon Corporation, Palo Alto, Calif.

No Drawing. Continuation-in-part of application Ser. No. 265,922, June 23, 1972, which is a continuation-in-part of abandoned application Ser. No. 201,102, Nov. 22, 1971, which is a continuation-in-part of abandoned application Ser. No. 111,673, Feb. 1, 1971, which is a continuation-in-part of abandoned application Ser. No. 111,701, Feb. 1, 1971, which is a continuation-in-part of abandoned application Ser. No. 111,767, Feb. 1, 1971, which in turn is a continuation-in-part of application Ser. No. 187,898, Oct. 8, 1971, now Patent No. 3,752,843. This application Nov. 1, 1972, Ser. No. 302,983

Int. Cl. C07c *153/07*

U.S. Cl. 260—455 R **23 Claims**

Novel aliphatic hydrocarbon di-olefinic acids, esters, thiolesters, and derivatives thereof, intermediates therefor, syntheses thereof, and the control of insects.

3,833,636

POLYMERS STABILIZED WITH ACYL HYDRAZONES

Brian Holt, Royton, Donald Richard Randell, Stockport, and James Jack, Bramhall, England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application Mar. 13, 1972, Ser. No. 234,333, now Patent No. 3,745,163. Divided and this application Nov. 22, 1972, Ser. No. 308,910

Int. Cl. C08f *45/60;* **C08g** *51/60*

U.S. Cl. 260—45.8 N **8 Claims**

New acyl hydrazones of 2,2,6,6-tetramethylpiperidin-4-one are used as stabilizers for organic materials.

3,833,637

PREPARATION OF UNSATURATED NITRILES

Raymond L. Cobb, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Nov. 22, 1971, Ser. No. 201,192

Int. Cl. C07c *121/30, 121/48, 121/72*

U.S. Cl. 260—465 K **6 Claims**

Condensation of aldehydes with alkyl nitriles over a basic catalyst yields alpha,beta-unsaturated nitriles. In one embodiment, acetonitrile reacted with either acetaldehyde or benzaldehyde in the presence of a catalyst comprising a basic inorganic compound yielded, respectively, crotonitrile and cinnamonitrile. The product nitriles are chemical intermediates to acids, amides or amines.

3,833,638

AMMOXIDATION OF SATURATED HYDROCARBONS

Walter R. Knox, Town and Country, Keith M. Taylor, Ballwin, and Gerald M. Tullman, Overland, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of abandoned application Ser. No. 100,366, Dec. 21, 1970. This application Nov. 14, 1972, Ser. No. 306,506

Int. Cl. C07c *121/02, 121/32*

U.S. Cl. 260—465.3 **4 Claims**

Method for the production of acrylonitrile or methacrylonitrile from propane or isobutane, ammonia and oxygen employing catalyst containing cerium, molybdenum and bismuth or tellurium. A halogen may also be used.

3,833,639

PROCESS FOR PREPARATION OF UNSATURATED NITRILES

Luciano Moreschini, Franco Marciandi, Guido Petrini, and Franco Faletti, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed June 14, 1972, Ser. No. 262,562

Claims priority, application Italy, June 16, 1971, 25,902/71; July 21, 1971, 7,518/71; Sept. 15, 1971, 28,657/71, 28,658/71

Int. Cl. C07c *121/02*

U.S. Cl. 260—465.9 **8 Claims**

Method of preparing alpha-beta-unsaturated nitriles. Comprises reacting, in the gaseous phase, a saturated aldehyde containing from 3 to 8 carbon atoms with oxygen and ammonia in the presence of a catalyst containing (1) tellurium oxide and (2) an oxide of titanium, cerium, or molybdenum, or a mixture of oxides of cerium and molybdenum.

3,833,640

PROSTAGLANDIN E_1, F_1, AND A_1 ANALOGS

John E. Pike, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich

No Drawing. Continuation-in-part of abandoned application Ser. No. 748,158, July 29, 1968. This application Aug. 4, 1971, Ser. No. 169,071

Int. Cl. C07c *61/32, 61/36, 69/74*

U.S. Cl. 260—468 D **28 Claims**

This invention is a group of prostaglandin E_1, F_1, and A_1 analogs which differ from the natural compounds in having one or more alkyl or fluoro substituents near the end of the terminal alkyl portion. These compounds are useful for the same pharmacological purposes as the natural compounds.

3,833,641

HALO-ARYL AMIDE-ESTER POLYOLS

Anthony Joseph Papa, Saint Albans, W. Va., and William Robert Proops, Claymont, Del., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Aug. 16, 1971, Ser. No. 172,296

Int. Cl. C07c *101/42*

U.S. Cl. 260—471 R **16 Claims**

Novel aromatic compounds are provided in which the aromatic nucleus has bonded thereto (1) at least one bromine or chlorine atom, (2) an amido group wherein nitrogen is bonded to at least one hydroxyalkyl group or an organic moiety bearing a hydroxyalkyl group, and (3) a hydroxyl-terminated oxyalkylated carboxylic acid ester group. The halogen-substituted aromatic amide-ester polyols of the invention are useful in imparting flame-retardancy to organic polymers normally susceptible to burning including polyurethanes such as, in particular, flexible polyurethane foams.

3,833,642

ALKENYLOXY BENZOIC ACID AND ESTERS THEREOF

Madhukar Subraya Chodnekar, Basel, Albert Pfiffner and Norbert Rigassi, Arlesheim, Ulrich Schwieter, Reinach, Basel-Land, and Milos Suchy, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Apr. 23, 1970, Ser. No. 31,422

Claims priority, application Switzerland, May 30, 1969, 6,597/69

The portion of the term of the patent subsequent to Oct. 30, 1990, has been disclaimed

Int. Cl. C07c *69/78*

U.S. Cl. 260—473 R **20 Claims**

Phenyl ethers, thioethers or sulfoxides of alkyl or alkenyl derivatives having a chain length of at least 6 carbon atoms and wherein the ring of the benzyl or phenyl moiety is substituted with carboxyl or esters thereof which are useful in killing and preventing proliferation of insects by upsetting their hormone balance.

3,833,643

PROCESS FOR THE PRODUCTION OF PURE ARYL ESTERS OF DICARBOXYLIC ACIDS

Hans Leo Hulsmann, Wetter (Ruhr), and Gustav Renckhoff, Witten (Ruhr), Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

No Drawing. Filed Feb. 28, 1972, Ser. No. 230,116

Claims priority, application Germany, Feb. 26, 1971, P 21 09 102.1

Int. Cl. C07c *69/80, 69/82*

U.S. Cl. 260—475 PN **14 Claims**

A process for the production of aryl esters of polycarboxylic acids such as isophathalic and terephthalic acid is disclosed which is an improvement in the process disclosed in U.S. Patent 3,471,549. The improvement of the subject process involves the addition of a carbonic acid diaryl ester in place of the lower fatty acid anhydride used in the process of the patent. The carbonic acid diaryl ester is added in an amount which is at least equivalent to the alkyl ester groups still present in the reaction mixture which contains the desired aryl ester of the polycarboxylic acid.

3,833,644

B,D-SECO-Δ^4 AND $\Delta^{5(10)}$-STEROIDAL COMPOUNDS

Pierre Crabbe, Mexico City, Mexico, and John H. Fried, Palo Alto, Calif., assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed July 20, 1971, Ser. No. 164,459

Int. Cl. C07c *171/07*

U.S. Cl. 260—488 R **19 Claims**

New 5,6;16,17-diseco- and 5,6;15,17-diseco - 16 - nor steroidal compounds of the estrane series, unsaturated at C–4,5 or C–5(10) useful as antiandrogenic agents, and methods for their preparation.

3,833,645

PREPARATION OF 2-CHLOROETHANE-PHOSPHONIC ACID

Hans Theobald, Limburgerhof, and Karl Kiehs, Lampertheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Apr. 16, 1973, Ser. No. 351,155

Int. Cl. C07f *9/38*

U.S. Cl. 260—502.4 R **7 Claims**

New process for the preparation of 2-chloroethanephosphonic acid by splitting the corresponding bis-2-chloroethyl ester.

3,833,646

AMMONIUM AROMATIC CARBOXYLATE CONVERSION TO THE CORRESPONDING ACIDS

Richard V. Norton, Wilmington, Del., assignor to Sun Research and Development Co., St. Davids, Pa.

No Drawing. Filed Apr. 16, 1973, Ser. No. 351,219

Int. Cl. C07c *63/14, 63/26, 63/40*

U.S. Cl. 260—515 P **8 Claims**

A process for converting an ammonium salt of an aromatic mono- or dicarboxylic acid to the free acid in high yield by adding acetic acid to a 0.25 to 15 molar aqueous solution of said salt in an amount so that the mole ratio of acetic acid to ammonium ion is greater than about 3:1, and thereafter recovering the free acid.

3,833,647

PRODUCTION OF AROMATIC POLYCARBOXYLIC ACIDS

Abraham Perry Gelbein, Plainfield, Benjamin Joseph Luberoff, Upper Montclair, Morgan Chuan-Yuan Sze, Summit, and Richard T. Whitehead, Westfield, N.J., assignors to The Lummus Company, Bloomfield, N.J.

Filed Sept. 7, 1971, Ser. No. 178,382

The portion of the term of the patent subsequent to Dec. 4, 1990, has been disclaimed

Int. Cl. C07c *63/00, 63/26*

U.S. Cl. 260—515 P **38 Claims**

Aromatic polycarboxylic acids and their anhydrides are produced from the corresponding nitriles by aqueous catalytic hydrolysis with countercurrent stripping to produce an acid ammonium salt of the aromatic acid, followed by thermal decomposition of the salt to form the acid, and purification if necessary.

3,833,648

PROCESS FOR PREPARING ACYLPHENOXY-ALIPHATIC ACID DERIVATIVES

Hiroaki Moriyama and Hisao Yamamoto, Nishinomiya, Shigeho Inaba, Takarazuka, and Hideo Nagata and Toshio Tamaki, Ibaraki, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

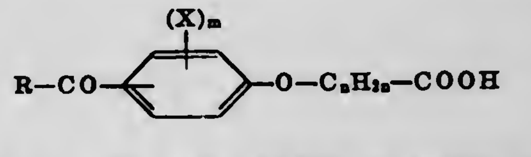
No Drawing. Filed Oct. 28, 1970, Ser. No. 84,875

Claims priority, application Japan, Oct. 30, 1969, 44/87,459

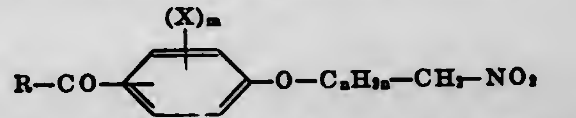
Int. Cl. C07c *65/14*

U.S. Cl. 260—520 **3 Claims**

A process for producing acylphenoxy aliphatic carboxylic acid derivatives represented by the general formula,



wherein R is a lower alkyl, alkenyl or alkynyl group, X is the same or different hydrogen atom, halogen atom, lower alkyl group, trifluoromethyl group or lower alkoxy group, and when substituted on adjacent carbon atoms of the benzene ring, two X's radicals may be joined together to form a hydrocarbylene chain containing four carbon atoms between its points of attachment, for example, tetramethylene, 1,3-butadienylene, etc., *m* is an integer of 1 to 4 and *n* is an integer of 1 to 4, characterized by reacting an *ω*-nitroacylphenoxyalkyl hydrocarbon derivative represented by the general formula,



wherein R, X, *m* and *n* are as defined above, with a strong acid.

3,833,649

PROCESS FOR PRODUCING UNSATURATED CARBOXYLIC ACIDS

Masahiro Wada, Nishinomiya, Isao Yanagisawa, Ikeda, Michikazu Ninomiya, Kobe, and Takashi Ohara, Nishinomiya, Japan, assignors to Nippon Shokubai Kagaku Kogyo Co., Ltd., Osaka, Japan

No Drawing. Filed Oct. 19, 1971, Ser. No. 190,661

Int. Cl. C07c *51/26, 57/04*

U.S. Cl. 260—530 N **8 Claims**

A process for producing unsaturated carboxylic acids, which comprises oxidizing unsaturated aldehydes in the vapor phase in the presence of a catalyst comprising a catalytic oxide supported on an inert carrier, such catalytic oxide containing metal elements in the atomic ratio Mo:V:Cu:Cr:W of 12:2–14:1–6:0–4:0–12 with the proviso that Cr+W is not O.

3,833,650

PREPARATION OF NITRILOTRIACETIC ACID

Heinz Schulze and Edward Thomas Marquis, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed Aug. 19, 1971, Ser. No. 173,315

Int. Cl. C07c *99/00, 101/20*

U.S. Cl. 260—531 C **4 Claims**

An improved process is provided for preparing nitrilotriacetic acid (NTA) and its salts from triethanolamine (TEA) in the presence of alkali metal hydroxides and cadmium salts that is characterized by employment of high temperatures and very short reaction times.

3,833,651

PROCESS FOR THE PREPARATION OF DL-METHIONINE

Shunji Ouchi and Chisei Shibuya, Tokyo, Japan, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt, Germany

No Drawing. Filed Aug. 5, 1971, Ser. No. 169,495

Claims priority, application Japan, Aug. 12, 1970, 45/70,105

Int. Cl. C07c *149/20*

U.S. Cl. 260—534 S **5 Claims**

Improved process for the preparation of DL-methionine wherein the addition reaction of methyl mercaptan and hydrocyanic acid to acrolein and the hydantoin ring forming reaction are simultaneously effected in one-stage to give a hydantoin type intermediate, which is then hydrolyzed. The process can be simply and easily conducted to obtain high purity DL-methionine in high yield at low cost.

3,833,652

PREPARATION OF TETRACHLOROTEREPHTHALOYL CHLORIDE FROM CHLORINATION OF TEREPHTHALOYL CHLORIDE OR TEREPHTHALIC ACID IN A SOLUTION OF CHLOROSULFONIC ACID

James O. Knobloch, Naperville, Ill., assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Dec. 29, 1972, Ser. No. 319,502

Int. Cl. C07c *63/30*

U.S. Cl. 260—544 M **6 Claims**

Tetrachloroterephthaloyl chloride is prepared from terephthaloyl chloride or terephthalic acid in a single step by chlorinating terephthaloyl chloride or terephthalic acid in solution in chlorosulfonic acid containing sulfur trioxide and employing an iodine catalyst. The reaction is carried out under mild conditions. The product, tetrachloroterephthaloyl chloride is recoverable by extraction with an inert solvent or by low temperature crystallization. Adhering chlorosulfonic acid is flashed from the recovered solid tetrachloroterephthaloyl chloride which is then sublimed or recrystallized. Chlorosulfonic acid is formed as a by-product of the chlorination reaction.

3,833,653

2-AMINO-ADAMANTANE METHYLAMINE

Jiban Kumar Chakrabarti, Frimley, and Stephen Slomo Szinai, Wokingham, England, assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Application Apr. 5, 1971, Ser. No. 131,439, now Patent No. 3,746,761, which is a division of application Ser. No. 821,063, May 1, 1969, now Patent No. 3,644,356. Divided and this application Mar. 7, 1973, Ser. No. 338,772

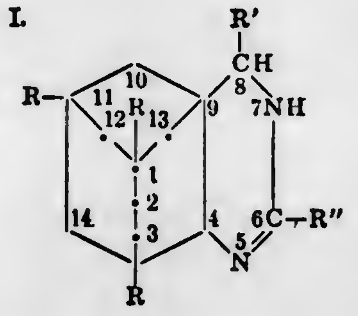
Claims priority, application Great Britain, May 21, 1968, 24,224/68

Int. Cl. C07c *87/40*

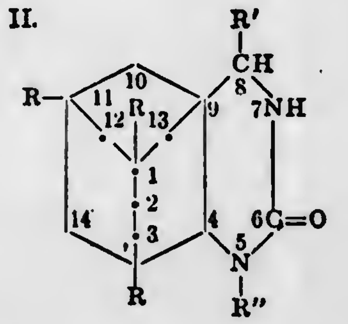
U.S. Cl. 260—563 P **2 Claims**

Adamantanopyrimidine compounds of the formulae:

I.



II.



useful as analgesics and as local anaesthetics; and intermediates useful in the synthesis of the foregoing adamantanopyrimidine compounds.

3,833,654

SWEETENERS BASED ON SYN OXIMES OF 4-(METHOXYSUBSTITUTED) - 1 - CYCLOHEXENE-1-CARBOXALDEHYDES

Edward M. Acton, Menlo Park, Kazuko Yamamoto, Fremont, and Herbert Stone, Menlo Park, Calif., assignors to Stanford Research Institute, Menlo Park, Calif.

No Drawing. Filed May 16, 1973, Ser. No. 360,844

Int. Cl. C07c *131/10*

U.S. Cl. 260—566 A **1 Claim**

The 4-methoxymethyl-, 4-methoxy-, and 4-(1-methoxyethyl)-analogs (I, II, and III, respectively) of 1-cyclohexene-1-carboxaldehyde *syn*-oxime retain good levels of sweetness and taste intensity in water solution, and are free of "phenolic" or "medicinal" off-tastes.

3,833,655

AMINO-DIBENZO[a,d]CYCLOHEPTA[1,4] DIEN-5-ONE COMPOUNDS

Albrecht Edenhofer, Riehen, and Hans Spiegelberg, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Application Feb. 11, 1971, Ser. No. 114,718, now Patent No. 3,705,168, which is a division of application Ser. No. 838,317, July 1, 1969, now Patent No. 3,586,718, which in turn is a division of application Ser. No. 517,893, Jan. 3, 1966, now Patent No. 3,478,048. Divided and this application Aug. 25, 1972, Ser. No. 284,518

Claims priority, application Switzerland, Jan. 8, 1965, 232/65; Jan. 14, 1965, 525/65; Dec. 17, 1965, 525/65

Int. Cl. C07c *87/28*

U.S. Cl. 260—570.9 **9 Claims**

2,3;3a,12b - Tetrahydro-8H-dibenzo[3,4;6,7]cyclohept[1,2-d]oxazoles and dibenzo[a,d]cyclohept[1,4]dienes bearing, for example, substituents at the 10- and 11-positions, are prepared, inter alia, from the corresponding dibenzocycloheptatrienones. The products are useful as antidepressants.

3,833,656

INTERMEDIATES FOR PRODUCING PROSTAGLANDINS

George E. Just, 499 Mount Pleasant Ave., Westmount, Quebec, Canada, and Chaim Simonovitch, Rishon le Zion, Israel; said Simonovitch assignor to said Just

No Drawing. Continuation-in-part of abandoned application Ser. No. 657,085, July 31, 1967. This application Dec. 31, 1970, Ser. No. 103,342

Int. Cl. C07c *49/54*

U.S. Cl. 260—586 R **5 Claims**

Prostaglandin $F_{1\alpha}$, prostaglandin $F_{1\beta}$ and analogs of those are produced from bicyclo[3.1.0]hexane intermediates.

3,833,657

SYNTHESIS OF 2-METHOXYTROPONES

David H. Evans, Cambridge, and Richard B. Greenwald, Framingham, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

No Drawing. Filed May 30, 1972, Ser. No. 258,056

Int. Cl. C07c *45/00*

U.S. Cl. 260—586 M **1 Claim**

This invention relates to an improved method of synthesizing 2-methoxytropones in high yields by reacting a 2-hydroxytropone with dimethyl sulfate in the presence of potassium carbonate.

ERRATUM

For Class 260—590 see:
Patent No. 3,833,726

3,833,658

2-HYDROXY-4-PHENOXYBENZOPHENONE COMPOUNDS

Lajos Avar, Binningen, Basel-Land, and Kurt Hofer, Munchenstein, Basel-Land, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Aug. 17, 1971, Ser. No. 172,588

Claims priority, application Switzerland, Aug. 28, 1970, 12,886/70

Int. Cl. C07c *49/80, 49/82*

U.S. Cl. 260—591 **12 Claims**

The purpose of this invention is to render accessible 2 - Hydrox - 4' - phenoxybenzophenone, unsubstituted or substituted by alkyl or alkoxy radicals or by halogen, which compounds absorb ultraviolet rays and protect light-sensitive organic materials, notably plastics, from the detrimental action of this radiation.

3,833,659

PREPARATION OF OXYGEN-CONTAINING COMPOUNDS

Louis Schmerling, Riverside, and Herman S. Bloch, Des Plaines, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 883,322, Dec. 8, 1969. This application Apr. 5, 1973, Ser. No. 348,380

Int. Cl. C07c *45/02*

U.S. Cl. 260—597 **12 Claims**

Oxygen-containing compounds as exemplified by ketones and aldehydes are prepared by converting diolefinic compounds to the desired products by reacting said olefins with water in the presence of an acidic catalyst and a water-soluble polyether solvent at an elevated temperature in the range of from 100° to 250° C.

3,833,660

PROCESS FOR MAKING AROMATIC ALDEHYDES

William E. Smith, Schenectady, N.Y., assignor to General Electric Company

No Drawing. Filed Apr. 26, 1972, Ser. No. 247,867

Int. Cl. C07c *47/50, 47/56*

U.S. Cl. 260—599 **5 Claims**

Aromatic aldehydes can be prepared by effecting reaction between an aromatic compound containing a nuclearly bonded hydrogen and hexamethylenetetramine in the presence of trifluoroacetic acid. Upon hydrolysis of the reaction product, the desired aryl aldehydes are obtained.

3,833,661

NOVEL PROCESS FOR THE PREPARATION OF TRIS(HYDROXYMETHYL)PHOSPHINE AND TRIS(HYDROXYMETHYL)PHOSPHINE OXIDE

Samuel E. Ellzey, Jr., and William J. Connick, Jr., New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed July 18, 1972, Ser. No. 272,812

Int. Cl. C07f *9/02*

U.S. Cl. 260—606.5 P **3 Claims**

Tris(hydroxymethyl)phosphine was prepared from tetrakis(hydroxymethyl)phosphonium salts by interaction with one equivalent of a strongly basic anion exchange resin in the hydroxide form. The corresponding phosphine oxide resulted from interaction of the phosphonium salts with an excess of the basic ion exchange resin.

3,833,662

PROCESS FOR THE MANUFACTURE OF DIALKYLPHOSPHINE OXIDES

Horst Staendeke, Bruhl, and Werner Klose, Hurth-Knapsack, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

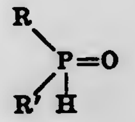
No Drawing. Filed Nov. 9, 1972, Ser. No. 305,135

Claims priority, application Germany, Nov. 12, 1971, P 21 56 203.8

Int. Cl. C07f *9/28*

U.S. Cl. 260—606.5 P **13 Claims**

Production of dialkylphosphine oxides of the general formula:



$RR'P(H)=O$

in which R and R' stand for identical or different, straight chain or branched alkyl groups containing between 1 and 3 carbon atoms. The oxides are made by oxidizing a hydrohalic acid solution of a dialkylphosphine with an oxidant having an oxidizing power greater than that of atmospheric oxygen. The oxidant is more particularly added substantially in the stoichiometric proportions necessary to effect the oxidation to dialkylphosphine oxide.

3,833,663

OXIDATION OF HYDROCARBONS

James McAvoy, Norton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Dec. 16, 1968, Ser. No. 784,198

Claims priority, application Great Britain, Jan. 5, 1968, 860/68

Int. Cl. C07c *73/08*

U.S. Cl. 260—610 B **4 Claims**

Hydrocarbon hydroperoxides are produced by oxidising a hydrocarbon having at least one secondary or tertiary carbon atom, for example cumene, in the liquid phase with a gas containing free oxygen in the presence of a fluoride of an alkali or alkaline earth metal, particularly sodium fluoride.

3,833,664

METHOD FOR PRODUCING ORGANIC PEROXIDES

Kazuyoshi Aoshima and Takeshi Komai, Taketoyo-machi, Japan, assignors to Nippon Oils and Fats Company Limited, Tokyo, Japan
No Drawing. Filed Dec. 14, 1970, Ser. No. 98,067
Claims priority, application Japan, Dec. 17, 1969, 44/100,916
Int. Cl. C07c *73/00*
U.S. Cl. 260—610 R **3 Claims**

An organic peroxide is prepared by reacting a tert.-hydroperoxide with a tert.-alcohol by using an acid catalyst in the presence of magnesium sulfate having a dehydrating ability. Said magnesium sulfate can effectively remove water formed during the condensation reaction of the tert.-hydroperoxide with the tert.-alcohol.

3,833,665

CYCLOALIPHATIC POLYOLS

Anthony Joseph Papa, St. Albans, W. Va., and William Robert Proops, Claymont, Del., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Aug. 16, 1971, Ser. No. 172,262
Int. Cl. C07c *43/18*
U.S. Cl. 260—611 R **13 Claims**

Oxyalkylated derivatives of a 3 - cyclohexane-1,1-dimethanol and a 3.4-dibromocyclohexane-1,1-dimethanol are provided which are useful polyols in the manufacture of polymeric compositions including polyurethanes. Also provided are polymeric compositions to which flame-retardant properties have been imparted by the incorporation therein of a 3,4-dibromocyclohexane-1,1-dimethanol, an oxyalkylated 3,4-dibromocyclohexane-1,1-dimethanol, or a combination thereof. The dibromo-cycloaliphatic diols of the invention are especially useful in the formation of flame-retarded polyurethanes including cellular polyurethanes and, in particular, flexible foams.

3,833,666

PROCESS FOR BROMOMETHYLATING AROMATIC HYDROCARBONS

Herbert Jenkner, Cologne, Germany, assignor to Chemische Fabrik Kalk GmbH
No Drawing. Filed May 7, 1971, Ser. No. 141,410
Claims priority, application Germany, June 3, 1970, P 20 27 162.9
Int. Cl. C07c *41/00, 43/20*
U.S. Cl. 260—612 R **9 Claims**

Bromomethylation of an aromatic hydrocarbon by the reaction of an aromatic hydrocarbon with formaldehyde or paraformaldehyde and an aliphatic carbonic acid with a solution of hydrogen bromide in an aliphatic carbonic acid.

3,833,667

PROCESS FOR THE PREPARATION OF 1,2-DI-(o- OR p-NITROPHENYL)-ETHANOL

Jan Magnus Bakke, Trondheim, Norway, assignor to Aktiebolaget Bofors, Bofors, Sweden
No Drawing. Filed Jan. 10, 1972, Ser. No. 216,759
Claims priority, application Sweden, Feb. 1, 1971, 1,220/71
Int. Cl. C07c *31/14*
U.S. Cl. 260—618 C **10 Claims**

1,2-di-(o- or p-nitrophenyl)-ethanol may be prepared by oxidation of o-nitrotoluene and p-nitrotoluene, respectively, in high concentrations with oxygen in an aprotic, polar, cation-solvating solvent under basic conditions.

3,833,668

DIMETHYL ACETAL OF 1-(2,4-DI-SEC-BUTYLPHENOXY)-2-PROPANONE

Chester E. Pawloski, Bay City, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Mar. 5, 1973, Ser. No. 337,864
Int. Cl. C07c *43/20*
U.S. Cl. 260—613 D **1 Claim**

The invention relates to the dimethyl acetal of 1-(2,4-di-sec-butylphenoxy)-2-propanone having useful pharmacological properties as determined by the reduction of cholesterol in the blood of mammals.

3,833,669

MANUFACTURE OF POLYALKYLENE ETHERS

Robert Gehm, Limburgerhof, and John J. Hutchison, Ilvesheim, Germany, assignors to BASF Wyandotte Corporation, Wyandotte, Mich.
No Drawing. Filed Dec. 7, 1972, Ser. No. 313,105
Claims priority, application Germany, Feb. 24, 1972, P 22 08 614.2
Int. Cl. C07c *41/12, 41/02*
U.S. Cl. 260—615 B **5 Claims**

Basic catalysts for the polymerization of alkylene oxides are removed from the resulting polyalkylene ether by precipitating the catalysts with carbon dioxide in the presence of basic magnesium salts. The resulting polyalkylene ethers are especially suited for use in polyurethane foams.

3,833,670

2-[3,5-DI(TRIFLUOROMETHYL)PHENYL] HEXAFLUORO-2-PROPANOL

Scott A. Reines, Fort Lee, N.J., assignor to the United States of America as represented by the Secretary of the Navy
No Drawing. Original application Feb. 4, 1971, Ser. No. 112,826, now Patent No. 3,707,483, dated Dec. 26, 1972. Divided and this application Oct. 17, 1972, Ser. No. 298,192
Int. Cl. C07c *33/00, 35/00*
U.S. Cl. 260—618 D **1 Claim**

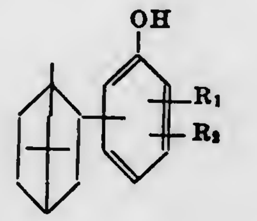
Fluorine-substituted benzyl monoglycidyl ethers and their precursors have been prepared containing a hexafluoroisopropyl group. These compounds are useful as coupling agents for bonding fluorinated monomers to chemically active surfaces, as fluorinated surface active agents, or as viscosity reducers for fluorinated epoxy resins.

3,833,671

PROCESS FOR THE PREPARATION OF ISOBORNYLPHENOL

Jean Mardiguian and Pierre Fournier, Paris, France, assignors to Societe a Responsabilitee Limitee dite: Mar-Pha Societe d'Etudes et d'Exploitation de Marques, Paris, France
No Drawing. Filed July 1, 1970, Ser. No. 51,664
Claims priority, application Great Britain, July 4, 1969, 33,959/69
Int. Cl. C07c *37/00*
U.S. Cl. 260—619 D **14 Claims**

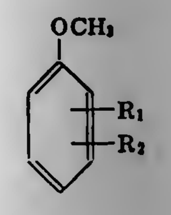
A process for the preparation of isobornylphenols of the formula:



I

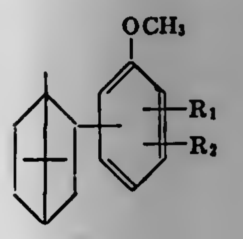
in which R_1 and R_2 may be identical or different and each represent a hydrogen or halogen atom or a straight or branched chain lower alkyl group, containing not more than 4 carbon atoms, provided that R_1 and R_2 are not

simultaneously hydrogen atoms, which process comprises (a) condensing camphene with a methyl ether of a phenol of the formula:



II

to yield a methyl ether of an isobornylphenol of formula:



III

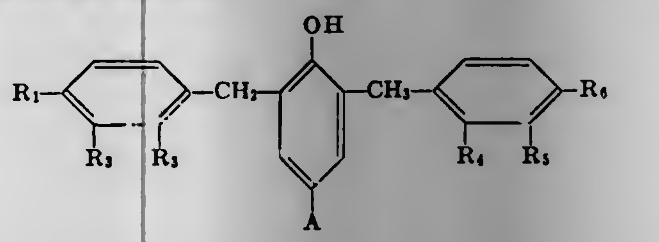
and (b) demethylating the intermediate compound of formula III to give the isobornylphenol of formula I.

3,833,672

HALOGENATED DIBENZYLPHENOLS AND THEIR PREPARATION

Jacques Debat, Paris, France, assignor to Institut de Recherches Chimiques et Biologiques Appliquees, I.R.C.E.B.A., Paris, France
No Drawing. Filed June 30, 1972, Ser. No. 268,204
Claims priority, application France, July 6, 1971, 7124696
Int. Cl. C07c *39/16*
U.S. Cl. 260—619 A **9 Claims**

The invention provides novel halogenated dibenzylphenols of the formula:



in which A is a halogen atom and each of R_1, R_2, R_3, R_4, R_5 and R_6 is a hydrogen or halogen atom provided that (a) A is not a fluorine atom when

$$R_1=R_2=R_3=R_4=R_5=R_6=H,$$

and (b) A is not a chlorine atom when

(1) simultaneously $R_3=R_4=H$ and $R_1=R_2=R_5=R_6=Cl$,
(2) simultaneously $R_2=R_3=R_4=R_5=H$ and $R_1=R_6=Cl$, and
(3) simultaneously $R_1=R_2=R_5=R_6=H$ and $R_3=R_4=Cl$.

These compounds have bacteriostatic and fungistatic properties.

3,833,673

SYNTHESIS OF ALKYLATED PHENOLS FROM CARBONYL COMPOUNDS

Kent C. Brannock, Kingsport, and Charles W. Hargis, Johnson City, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Nov. 9, 1971, Ser. No. 197,124
Int. Cl. C07c *39/06*
U.S. Cl. 260—621 R **8 Claims**

Alkylated phenols such as mono-, di-, tri- or tetramethylphenols are synthesized from carbonyl compounds, with or without an alcohol, by passing the reactants over a lithium phosphate or magnesium oxide catalyst at a temperature of between about 450° and 600° C. The carbonyl compounds include, for example, acetone, isophorone and isobutyraldehyde, while the alcohol may be methanol. The alkylated phenols are useful as intermediates in the production of vitamin E, germicidal materials and resin or polymer products.

3,833,674

RECOVERY OF BROMINATED BIPHENYL

David R. Brackenridge, Royal Oak, Mich., assignor to Ethyl Corporation, Richmond, Va.
No Drawing. Filed Aug. 24, 1972, Ser. No. 283,324
Int. Cl. C07c *25/04, 25/18*
U.S. Cl. 260—649 DP **4 Claims**

A process for preparing polybrominated aromatic compounds which comprises (a) reacting an aromatic compound with bromine in the presence of a metal halide halogenation catalyst and solvent quantities of methylene bromide, and (b) adding a lower alkanol to the thereby produced reaction mixture to precipitate polybrominated aromatic product.

3,833,675

BROMINATION OF UNSATURATED HYDROCARBONS IN MIXED SOLVENTS

Jack Newcombe, Freehold, and Anderson O. Dotson, Jr., Somerset, N.J., assignors to Cities Service Company, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 99,515, Dec. 18, 1970. This application July 28, 1972, Ser. No. 275,981
Int. Cl. C07c *17/02*
U.S. Cl. 260—648 R **8 Claims**

In the bromination of an unsaturated hydrocarbon, such as the bromination of 1,5-cyclooctadiene to form tetrabromocyclooctane, improved product purities and yields are obtained when the reaction takes place in a mixture of solvents, such as heptane and t-butyl alcohol.

3,833,676

FLUORINATION OF 1,1,1-TRICHLOROETHANE WITH HYDROGEN FLUORIDE

Rokuo Ukaji, Ibaragi, and Ichiro Morioka, Matsubara, Japan, assignors to Daikin Kogyo Co., Ltd.
Filed July 28, 1971, Ser. No. 166,729
Claims priority, application Japan, July 28, 1970, 45/66,339
Int. Cl. C07c *17/20, 19/08*
U.S. Cl. 260—653.7 **9 Claims**

In the fluorination of 1,1,1-trichloroethane with hydrogen fluoride, a process wherein one molar amount of 1,1,1-trichloroethane is treated with a not less than 4 molar amount of hydrogen fluoride in a liquid phase in the absence of any catalyst at a temperature from 70 to 140° C. to give 1,1,1-dichlorofluoroethane and 1,1,1-chlorodifluoroethane selectively. The advantages of such process are (1) the use of no catalyst, wherein the various problems encountered in the use of a catalyst are overcome, (2) the elimination of the formation of tar substances as by-products and (3) the smooth proceeding of the reaction without agitation.

3,833,677

PROCESS FOR THE PREPARATION OF SUBSTITUTED AROMATIC COMPOUNDS

Charles Grard, Lyon, France, assignor to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed Feb. 25, 1970, Ser. No. 14,222
Claims priority, application France, Feb. 27, 1969, 6905185
Int. Cl. C07c *15/00*
U.S. Cl. 260—668 R **11 Claims**

Friedel-Crafts-type condensation may be effected by utilising, as catalyst, a derivative of ruthenium, rhodium, osmium, or iridium, particularly a halide or halonitrile complex, which catalyst may be used in conjunction with a Brönsted acid catalyst.

3,833,678

STABLE AND PUMPABLE LIQUID ALUMINUM CHLORIDE AND BROMIDE COMPLEXES

James A. Brennan, Cherry Hill, N.J., assignor to Mobil Oil Corporation

Continuation-in-part of application Ser. No. 41,709, May 27, 1970, now Patent No. 3,725,498, which is a continuation of application Ser. No. 745,415, July 17, 1968, which is a continuation-in-part of application Ser. No. 598,564, Oct. 17, 1966, which in turn is a continuation-in-part of application Ser. No. 334,394, Dec. 30, 1963, all now abandoned. This application Sept. 8, 1972, Ser. No. 287,303

Int. Cl. C07c *3/18*

U.S. Cl. 260—683.15 B **12 Claims**

Solutions of aluminum chloride or aluminum bromide, in molar excess, in methyl esters of certain normal and branched-chain alkanoic acids remain stable and pumpable at least 20 days or more. These solutions are useful catalysts for reactions, such as olefin polymerization or ethylation of isobutane, and can be recovered and recycled.

3,833,679

PARAFFIN ISOMERIZATION UTILIZING HF TO CHANGE THE SELECTIVITY OF $HSbF_6$ CATALYST

Lloyd E. Gardner and John E. Mahan, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed July 20, 1972, Ser. No. 273,636

Int. Cl. C07c *5/28*

U.S. Cl. 260—683.68 **3 Claims**

Isomerization of paraffins employing $HSbF_6$ catalyst and anhydrous hydrogen fluoride vapor results in increased selectivity.

3,833,680

PAINTING COMPOSITION

Michiaki Torii, Tokyo, Japan, assignor to Nippon Petrochemicals Company, Limited, Tokyo, Japan

No Drawing. Filed Mar. 26, 1973, Ser. No. 344,772

Claims priority, application Japan, Mar. 27, 1972, 47/29,705

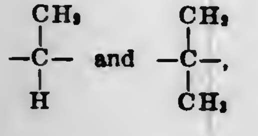
Int. Cl. C08c *11/22, 13/04*

U.S. Cl. 260—735 **6 Claims**

A painting composition containing a chlorine-containing polymer selected from the group consisting of chlorinated rubber and chlorine-containing synthetic resin, and at least one of compounds represented by the formula (I):

$$Ar_1—R—Ar_2—R—Ar_3 \qquad (I)$$

wherein R is alkylene selected from the group consisting of



$$-\overset{CH_3}{\underset{H}{C}}- \text{ and } -\overset{CH_3}{\underset{CH_3}{C}}-,$$

and any one of Ar_1, Ar_2, and Ar_3 is alkylphenyl (Ar_1 or Ar_3) or alkylphenylene (Ar_2), said alkyl having 1–3 carbon atoms, the number of alkyl radicals being 1–3, and the number of carbon atoms contained in all of the alkyls being 1–3, alternatively any two of Ar_1, Ar_2, and Ar_3 are phenyl or tolyl (Ar_1 and/or Ar_3), or phenylene or methylphenylene (Ar_2).

3,833,681

POLYIMIDOSILOXANE ESTER CARBONATE COPOLYMERS

Fred F. Holub, Schenectady, and Denis R. Pauze, Scotia, N.Y., and Charles A. Bialous, Evansville, Ind., assignors to General Electric Company

No Drawing. Filed June 29, 1972, Ser. No. 267,360

Int. Cl. C08g *31/06*

U.S. Cl. 260—824 R **7 Claims**

Polyimidosiloxane ester carbonate copolymers are prepared by reacting a carbonyl halide or other carbonate precursor with a mixture of a bis(carboxyphthalimide), organopolysiloxane having hydroxy or carboxy functional terminal groups and a dihydroxy aromatic compound. The novel copolymers are particularly useful as electrical insulation, molding compounds, and tough flexible coatings and films.

3,833,682

RUBBER-MODIFIED THERMOSETS AND PROCESS

Ray A. Dickie, Birmingham, and Seymour Newman, Southfield, Mich., assignors to Ford Motor Company, Dearborn, Mich.

No Drawing. Original application Dec. 21, 1970, Ser. No. 100,465, now abandoned. Divided and this application May 29, 1973, Ser. No. 364,390

Int. Cl. C08g *45/04*

U.S. Cl. 260—836 **8 Claims**

Improvements in impact strength and fatigue properties in thermoset materials are made by incorporating therein particulate graded-rubber having surface functionality for reaction with constituents of the thermosets. A variety of novel thermoset materials are produced under variations of this process. The graded-rubber particles are characterized by having a rubbery core and a glass-like polymeric outer shell.

3,833,683

RUBBER-MODIFIED THERMOSETS AND PROCESS I

Ray A. Dickie, Birmingham, and Seymour Newman, Southfield, Mich., assignors to Ford Motor Company, Dearborn, Mich.

No Drawing. Original application Dec. 21, 1970, Ser. No. 100,465, now abandoned. Divided and this application May 29, 1973, Ser. No. 364,392

Int. Cl. C08g *45/04*

U.S. Cl. 260—836 **20 Claims**

Improvements in impact strength and fatigue properties in thermoset materials are made by incorporating therein particulate graded-rubber having surface functionality for reaction with constituents of the thermosets. A variety of novel thermoset materials are produced under variations of this process. The graded-rubber particles are characterized by having a rubbery core and a glass-like polymeric outer shell.

3,833,684

STABLE, HOMOGENEOUS SOLUTIONS OF POLYALKYL GLUTAMATES CONTAINING DISSOLVED ELASTOMERS

Akira Akamatsu, Kazushi Togo, and Makoto Iwatsuki, Kanagawa, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 99,693, Dec. 18, 1970. This application Oct. 16, 1972, Ser. No. 297,982

Claims priority, application Japan, Dec. 10, 1969, 44/1,751

Int. Cl. C08g *41/044*

U.S. Cl. 260—857 UN **7 Claims**

A stable, clear homogeneous solution of a polyalkyl glutamate and of an elastomer is produced by polymerizing an optically active γ-lower-alkyl glutamate N-carboxy anhydride in a solution of the elastomer, if the elastomer is inert to the anhydride and to the polyalkyl glutamate produced under the polymerization conditions, and the polyalkyl glutamate is soluble in the solution. Shaped objects and coatings combining the desired properties of both polymers may be prepared from the solutions.

3,833,685

FLAME RETARDANT THERMOPLASTIC COMPOSITIONS

Allen D. Wambach, Pittsfield, Mass., assignor to General Electric Company

No Drawing. Filed Mar. 10, 1972, Ser. No. 233,754

Int. Cl. C08g *39/10;* **C09k** *3/28*

U.S. Cl. 260—860 **21 Claims**

Normally flammable polyester resins (a) are rendered flame-retardant without loss in toughness by combination with (b) a flame retardant amount of (i) an aromatic carbonate copolymer, from 25 to 75 wt. percent of the repeating units comprising chloro- or bromo-substituted dihydric phenol units; (ii) an aromatic carbonate homopolymer having repeating units comprising chloro- or bromo-substituted dihydric phenol units in combination with an aromatic carbonate homopolymer having repeating dihydric phenol units; or (iii) a combination of (i) with an aromatic carbonate homopolymer having repeating dihydric phenol units, and (c) an antimony-containing compound.

3,833,686

SEQUENTIALLY PRODUCED ALKYL ACRYLATE POLYMERS BLENDED WITH POLY(VINYL HALIDES)

Raymond John Grochowski, Feasterville, Pa., Roger Kenneth Graham, Cherry Hill, N.J., and Jong Jai Whang, Seoul, Korea, assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 865,198, Oct. 9, 1969. This application Sept. 10, 1971, Ser. No. 179,561

Int. Cl. C08f *15/00, 19/00*

U.S. Cl. 260—876 R **12 Claims**

Processing aids of improved dispersibility in low molecular weight poly(vinyl chloride) compositions comprise a sequentially produced polymer characterized by 1 to 30 weight percent of (A) a first relatively soft stage characterized by a glass transition temperature of 60° C. or less; and 99 to 70 weight percent of (B) a final substantially thermoplastic stage polymerized in the presence of a product containing the first stage, and in intimate contact with the first stage and further characterized in that if the monomer or monomers were polymerized in the absence of the product of the first stage, a polymer would be formed having a glass transition temperature of 25° C. or greater.

3,833,687

COMPOSITION OF A POLYPHENYLENE ETHER, A BLOCK COPOLYMER OF A VINYL AROMATIC COMPOUND WITH A CONJUGATED DIENE AND A GRAFT INTERPOLYMER OF AN ACRYLIC MONOMER WITH A DIENE RUBBER

Gim F. Lee, Jr., Albany, N.Y., assignor to General Electric Company

No Drawing. Filed Aug. 23, 1972, Ser. No. 283,091

Int. Cl. C08f *15/00, 19/00*

U.S. Cl. 260—876 R **12 Claims**

There are provided compositions comprising (a) a polyphenylene ether, (b) a normally rigid block copolymer of a vinyl aromatic compound and a conjugated diene, and (c) a graft interpolymer of an acrylate monomer and a diene rubber. The three-component composition provides unexpected improvements in toughness in parts molded therefrom and such properties are improved without substantially impairing gloss or surface appearance.

3,833,688

COMPOSITION OF A POLYPHENYLENE ETHER AND AN ACRYLIC RESIN IN COMBINATION WITH A DIENE RUBBER-CONTAINING RESIN

Visvaldis Abolins, Delmar, and Donald L. Reinhard, Albany, N.Y., assignors to General Electric Company

No Drawing. Filed Oct. 14, 1971, Ser. No. 189,393

Int. Cl. C08d *9/10;* **C08f** *29/12, 41/12*

U.S. Cl. 260—876 R **7 Claims**

There are provided compositions comprising a polyphenylene ether and an acrylic resin in combination with a diene rubber-containing resin, the compositions optionally containing a styrene resin. Illustratively, the addition of an acrylic resin modified butadiene rubber-acrylonitrile-styrene resin to polyphenylene ethers or mixtures of polyphenylene ethers and polystyrenes provides unexpected improvements in toughness in parts molded from the compositions, and in their resistance to gasoline. Such properties are improved without substantially impairing gloss or surface appearance.

3,833,689

ELASTOMERIC COMPOSITIONS CONTAINING OLEFIN-ACRYLIC ESTER COPOLYMER

Teruyoshi Usamoto, Higashi-osaka, Taisuke Okita, Toyonaka, Nobuyuki Yoshida, Takatsuki, Masaaki Hirooka, Ibaraki, Isoji Taniguchi, Toyonaka, and Shyozaburo Imai, Ibaraki, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka-shi, Japan

No Drawing. Continuation of abandoned application Ser. No. 29,276, Apr. 16, 1970. This application Aug. 10, 1972, Ser. No. 279,289

Claims priority, application Japan, Apr. 16, 1969, 44/29,900; Mar. 5, 1970, 45/19,442

Int. Cl. C08f *37/18*

U.S. Cl. 260—897 B **26 Claims**

Elastomeric compositions comprising 1 part by weight of at least one curable elastomer and 0.01 to 100 parts by weight of at least one copolymer having olefin and acrylic ester monomer units as the main constituents, which possess improved properties in tackiness, processability, oil resistance, thermal resistance, weathering resistance and the like.

3,833,690

ETHANE DIPHOSPHONIC ACID ESTERS

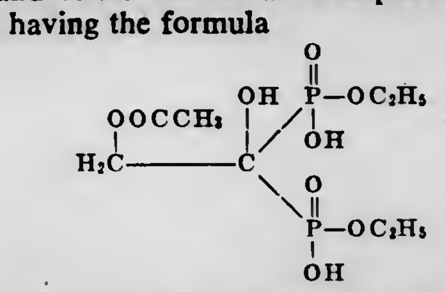
Al F. Kerst, Littleton, Conn., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Original application Apr. 13, 1970, Ser. No. 27,988, now Patent No. 3,705,191. Divided and this application Aug. 23, 1972, Ser. No. 283,147

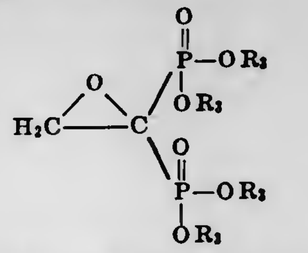
Int. Cl. C07f *9/40*

U.S. Cl. 260—932 **2 Claims**

New and useful substituted ethane diphosphonic acids and salts and esters thereof as exemplified by the ester compound having the formula



diethyl-2-acetoxy - 1 - hydroxy - ethane-1,1-diphosphonate and processes for preparing the same which generically comprise the "de-oxiranization" of an epoxy ethane diphosphonate having the formula



wherein R_3 is hydrogen, a metal ion, or an organic radical.

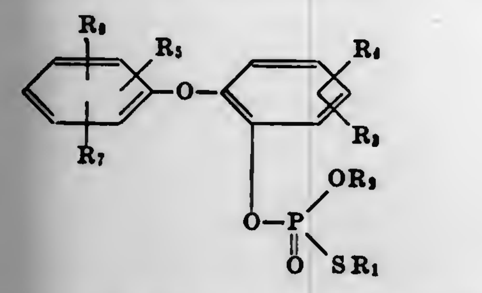
3,833,691

2-(O,S-DILOWER ALKYL-THIOLPHOSPHORYL) DIPHENYL ETHERS

Paul Rathgeb, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed June 20, 1973, Ser. No. 371,905
Claims priority, application Switzerland, June 23, 1972, 9,529/72; May 22, 1973, 7,290/73
Int. Cl. A01n *9/36;* **C07f** *9/16*
U.S. Cl. 260—951 **10 Claims**

New diphenyl ethers of the formula



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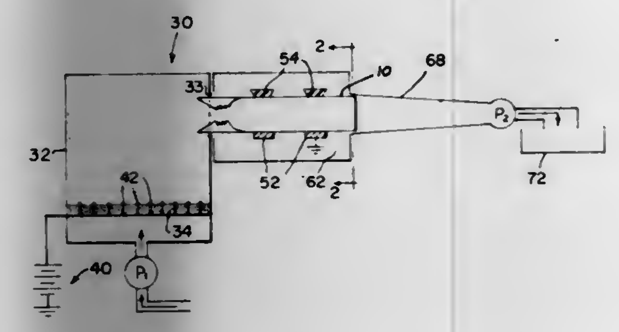
wherein R_1 represents alkyl with 1 to 4 carbon atoms, R_2 represents methyl or ethyl, R_3, R_4, R_5, and R_6 represent hydrogen, chlorine, or bromine, and R_7 represents hydrogen, chlorine, or nitro and their use for combating insects and members of the order Acarina are disclosed.

3,833,692

METHOD FOR MAKING TUBULAR CONTAINERS

Richard R. Szatkowski, Western Springs, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Nov. 7, 1972, Ser. No. 304,443
Int. Cl. B29c *1/14*
U.S. Cl. 264—24 **3 Claims**



A method for making seamless tubular containers having a first end terminating in a shoulder and threaded neck of a reduced diameter with increased wall thickness and a second open end. The process uses a mold having an internal surface configuration corresponding to the exteral configuration of the desired tubular container. Suction means draws electrostatically charged powder through the mold and permits a portion thereof to deposit on the internal surface, the amount of deposition being partially controlled by the surface configuration. Subsequently, the container is heated to fuse the deposited powder into homogeneous mass, while subsequent cooling permits shrinking of the container away from the mold walls such that it may be removed by hand or by mechanical apparatus.

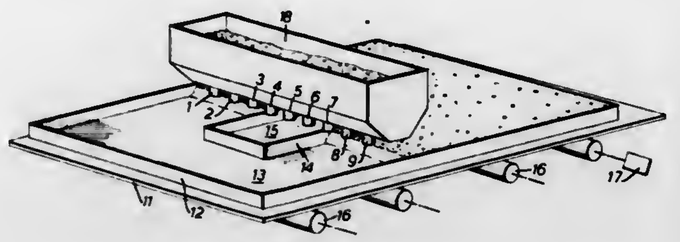
3,833,693

DISPENSING OF A MATERIAL INTO A MOULD

Keith Ross, Sheffield, England, assignor to Go-Con Concrete Limited, London, England

Filed May 21, 1971, Ser. No. 145,649
Claims priority, application Great Britain, May 26, 1970, 25,166/70
Int. Cl. B28b *13/02, 17/00*
U.S. Cl. 264—40 **5 Claims**

To dispense flowable material, such as wet concrete, into an open topped mould from a reservoir having a plurality of separately controllable outlets arranged side-by-side in line, the mould and the outlets are positioned with the outlets above a datum at one end of the mould and relative movement is caused to take place between the outlets and the mould in a horizontal direction normal to the line of the outlets. Signals are obtained continuously representing the position of the outlets from the datum and these signals are compared with signals on a prepared programme for the operation of the outlets. The outlets are opened and closed automatically to bring about flow of the material into the mould.



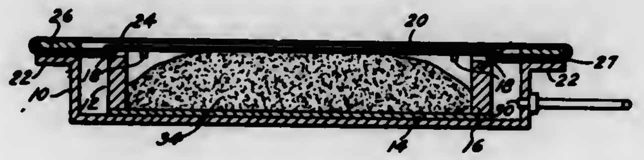
The weight of material which has been dispensed may at all times be compared with the calculated weight which should have been dispensed and the speed of displacement between the mould and the outlets is adjusted to bring about a correct rate of delivery of the material.

3,833,694

MOLDING POLYURETHANE FOAM IN A MOLD HAVING A CYCLICALLY FLEXING COVER

Charles R. Hughes, Hellertown, Pa., assignor to Bethlehem Steel Corporation

Filed July 5, 1972, Ser. No. 268,942
Int. Cl. B29d *27/00*
U.S. Cl. 264—51 **2 Claims**



A polyurethane foam core wall panel is produced by placing a quantity of foam in a mold comprising a bottom panel, a border and a top panel, and, while the expanding foam is in contact with the top panel, cyclically flexing the top panel until the foam has completely filled the mold.

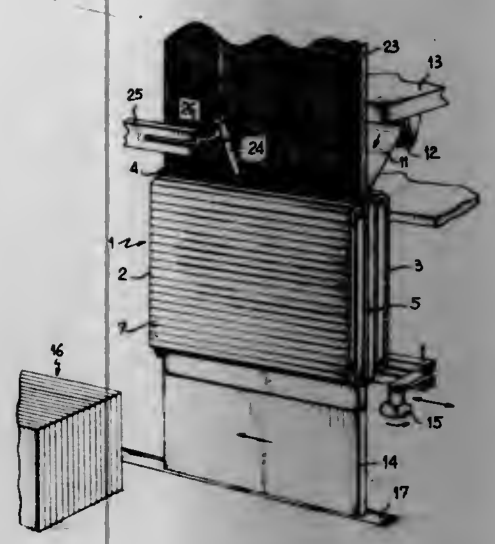
3,833,695

METHOD AND APPARATUS FOR PRODUCING ELEMENTS BY MOULDING

Paul Benjamin Vidal, Parc de la Noue, Villepinte, Seine Saint-Denis, France

Filed Mar. 20, 1972, Ser. No. 236,073
Claims priority, application France, Mar. 22, 1971, 7109982
Int. Cl. B29d *27/03*
U.S. Cl. 264—47 **7 Claims**

The disclosure herein describes a method for producing panels by moulding. A porous grid is introduced into a vertical mould consisting of endless belts moving from top to bottom of the mould. At the same time, a filler material, such as an expansible phenolic resin, is fed into the mould through pouring heads which carry out a reciprocating motion along the upper part of the mould. The phenolic resin expands in the grid, occupying all of the pores or cells therein. The panel obtained may be used in building to construct walls, partitions, floors, and ceilings.



3,833,696

METHOD OF MAKING A DISPLAY DEVICE FOR PLANTS

Fritz Kramer, 60—11 Broadway, Woodside, N.Y. 11377

Continuation-in-part of abandoned application Ser. No. 259,483, June 5, 1972. This application July 9, 1973, Ser. No. 377,286
Int. Cl. B29d *27/00*
U.S. Cl. 264—51 **7 Claims**

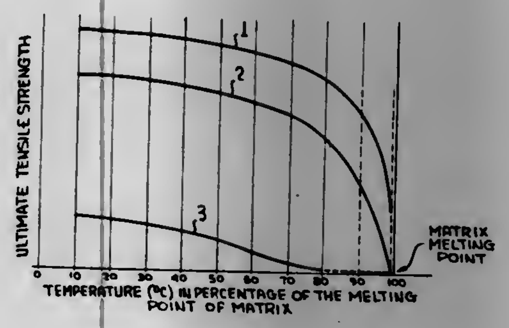
A display device for cut flowers is prepared by injecting an aqueous solution of urea-formaldehyde precondensate containing about 40% by weight of solids, a small amount of phosphoric acid as a catalyst, and a foam-stabilizing surfactant, with compressed air into an open polyethylene bag, and heat-sealing the open side of the bag before the water could evaporate from the foam which gradually solidifies. When small holes are punched in the bag and the stems of flowers are inserted, the flowers are kept fresh.

3,833,697

PROCESS FOR CONSOLIDATION AND EXTRUSION OF FIBER-REINFORCED COMPOSITES

Paul J. Lare, Bowie, Md., and Amarnath P. Divecha, Falls Church, Va., assignors to Melpar, Inc., Falls Church, Va.

Filed Feb. 14, 1969, Ser. No. 799,329
Int. Cl. C04b *33/32, 35/72*
U.S. Cl. 264—60 **10 Claims**



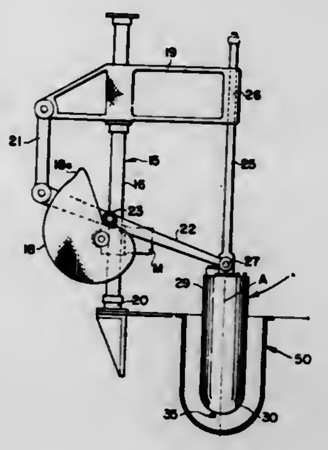
A fiber-reinforced metal composite of desired shape is produced by consolidating a mixture of the metal matrix and the fibers under pressure with the mixture maintained at a temperature above the solidus of the matrix system. Following the desired consolidation, the composite is extruded by lowering its temperature to a value in the range from 90% to 98% of the melting point of the matrix, and increasing the pressure to a value exceeding the consolidation pressure. To permit extrusion of the just consolidated body, the press in which consolidation is performed contains a die cavity plugged by an extrudable seal.

3,833,698

METHOD FOR FORMING FIBER PREFORMS

Arthur J. Wiltshire, Cleveland, Ohio, assignor to Structural Fibers, Inc., Chardon, Ohio

Original application May 14, 1970, Ser. No. 37,173, now Patent No. 3,687,587. Divided and this application Apr. 6, 1972, Ser. No. 241,718
Int. Cl. B29c *5/06*
U.S. Cl. 264—91 **5 Claims**



A method of forming a fiber preform for use in the manufacture of fiber-reinforced molded resin articles is disclosed. In accordance with the method, a perforated screen form having an interior surface which defines the shape of the preform to be formed is rotated about its longitudinal axis within a surrounding vacuum chamber. Chopped fibers are directly deposited in a localized manner onto the interior surface of the screen form from a moving fiber dispensing point within the screen form. The fiber dispensing point is moved along a path which closely follows the rotating, longitudinal contour of the interior surface of the screen form so as to progressively, uniformly cover the entire interior surface with chopped fibers which are held in place by the air flow through the screen form and into the vacuum chamber. The deposited chopped fibers are sprayed with a heat curable resin binder which is subsequently cured.

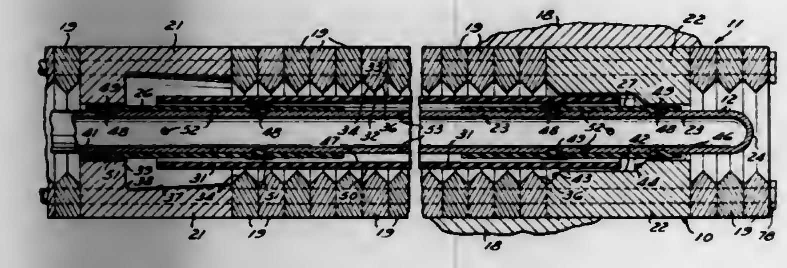
3,833,699

METHOD OF FORMING CORRUGATED TUBING USING A MANDREL HAVING INFLATABLE SLEEVES ADJACENT THE ENDS

Joseph Anthony Stefanka, North Baltimore, Ohio, assignor to Norbalt Rubber Corporation, North Baltimore, Ohio

Filed Oct. 26, 1971, Ser. No. 192,439
Int. Cl. B29c *17/07*
U.S. Cl. 264—94 **12 Claims**

A method for forming corrugated tubing is disclosed. The corrugated tubing is formed from a cylindrical uncured tube of plastically deformable material. Such tube is inflated in a separable mold to an intermediate shape in which shallow extended corrugations are provided. The intermediate tube is subsequently placed on a curing mandrel in the final shape required and is cured. The apparatus for forming the intermediate tube includes separable mold halves each consisting of a plurality of separate corrugation forming sections and two end forming sections. The initial tube is positioned over an inflatable mandrel having spaced elastic sleeves and is enclosed within the mold halves. The sleeves extend to deform the ends of the initial tube and form a seal therewith. Subsequently, air under pressure is admitted to the interior of the tube to complete its inflation. The number of corrugations formed in the tube can be changed by



removing or inserting corrugation forming sections in the active portion of the mold halves. Similarly, the type of end formed on the tube can be changed by changing the end forming sections in the mold halves.

3,833,700

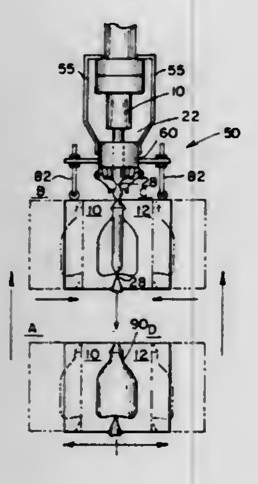
PROCESS FOR CLOSING TUBULAR PARISONS AND BLOW MOLDING HOLLOW CONTAINERS THEREFROM

Domas Adomaitis, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Mar. 9, 1972, Ser. No. 233,136

Int. Cl. B29c *17/07*

U.S. Cl. 264—96 **10 Claims**



Process for blow molding hollow containers. A tubular parison is extruded and a portion thereof is closed to form a parison bottom by circumferentially reducing the diameter thereof and welding the interior surfaces together. A blow mold is aligned with its bottom in alignment with the parison bottom and a further portion of the parison is closed above the mold. The mold is closed about the parison and the parison is expended thereagainst, the closed mold grasping the first closed portion of the parison to form a weld line of reduced length.

3,833,701

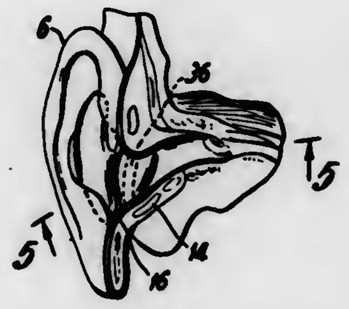
METHOD OF MAKING AN AURAL HEARING PROTECTING DEVICE

Theodore K. Johnson, Elnora, N.Y., and Joseph Sataloff, Bala-Cynwyd, Pa., assignors to Marion Health and Safety, Inc., Rockford, Ill.

Original application Sept. 28, 1970, Ser. No. 75,877, now abandoned. Divided and this application Nov. 6, 1972, Ser. No. 304,298

Int. Cl. A61f *11/02*

U.S. Cl. 264—129 **9 Claims**



An aural hearing protecting device of formed-in-place elastomeric composition constructed especially to provide a smooth, tight seal over the mouth of the ear canal when stretched.

3,833,702

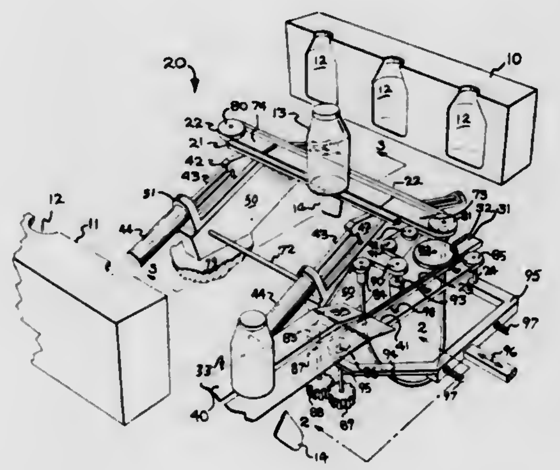
METHOD FOR REMOVING FLASH MATERIAL FROM BLOWN PLASTIC ARTICLES

Joseph E. Boyer, Warson Woods, Mo., assignor to Owens-Illinois, Inc., Toledo, Ohio

Original application June 3, 1970, Ser. No. 42,929, now Patent No. 3,677,454, dated July 18, 1972. Divided and this application May 17, 1972, Ser. No. 254,182

Int. Cl. B29c *17/12*

U.S. Cl. 264—161 **2 Claims**



The present invention relates to a method for making blown plastic articles such as bottles. A coacting chain and bar mechanism is positioned below the dies of a blow molding machine to facilitate removal of the blown article by grasping the tail portion thereof. Separation of the tail from the blown article is achieved by moving the article up an inclined plane in a direction away from the moving chain.

3,833,703

STRUCTURED SYNTHETIC WEB MATERIAL AND METHOD FOR THE PRODUCTION THEREOF

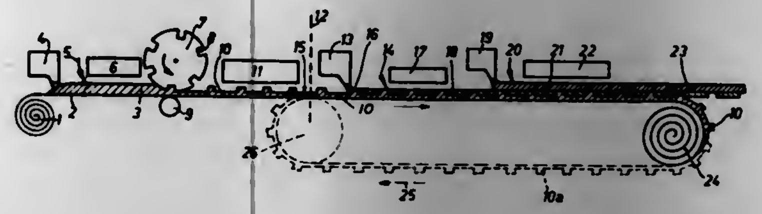
Pierre Emmanuel Joos, Gleize par Villefranche-sur-Saone, France, assignor to Continental Linoleum-Union Betriebs AG, Zurich, Switzerland

Filed Mar. 17, 1972, Ser. No. 235,669

Claims priority, application France, Mar. 22, 1971, 7109967

Int. Cl. D01d *5/20*

U.S. Cl. 264—167 **7 Claims**



A flexible synthetic surface structured web material embodying a discontinuous upper layer formed of cross-linked plastic with a Young's bending modulus of elasticity in a range of 10,000 to 30,000 kg./cm.^{2} and a continuous lower layer or stratum formed of cross-linked plastic with a Young's bending modulus of elasticity in a range of 3,000 to 10,000 kg./cm.^{2}, both layers being bonded to one another by common or joint polymerization.

The method for the production of such flexible synthetic surface structured web materials comprises applying to a molding band possessing recesses a first mass containing a hardenable polyester mixture, possessing a Young's bending modulus of elasticity following polymerization which is in a range of 10,000 to 30,000 kg./cm.^{2}. There is applied such quantity of this mass to the molding band that only the recesses thereof are filled, and thereafter such mass is gelled. A second mass is applied to the gelled cooled mass discussed above, this second mass containing a hardenable polyester mixture possessing a Young's bending modulus of elasticity following polymerization which is in a range of 3,000 to 10,000 kg./cm.^{2}, the second mass is then levelled into a layer and the entire structure or arrangement is then hardened at elevated temperatures and removed from the molding band so that there is obtained a dual-layer structured web material.

3,833,704

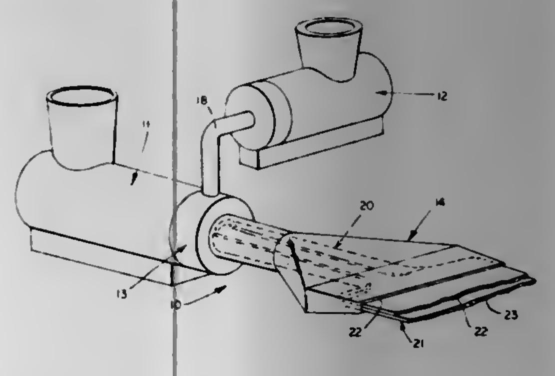
METHOD OF EXTRACTING A PLURAL LAYERED SHEET

Frank R. Nissel, Ambler, Pa., assignor to Welex, Inc., King of Prussia, Pa.

Continuation-in-part of abandoned application Ser. No. 118,410, Feb. 24, 1971. This application June 19, 1972, Ser. No. 264,387

Int. Cl. B29f *3/10;* **B32b** *15/08, 31/30*

U.S. Cl. 264—171 **11 Claims**



A thermoplastic sheet comprising a lamina bearing base is produced by feeding a heat-plastified laminated rod into a conventional sheet forming die. The laminated rod is formed using an adapter die which is interposed between a rod-forming die and the sheet forming die and which deposits a layer of heat-plastified material constituting the lamina on a segment of the peripheral surface of the cross-section of a heat-plastified rod of the base material, as the rod is extruded from the rod-forming die. The sheet forming die converts the heat-plastified laminated rod into a laminated sheet.

3,833,705

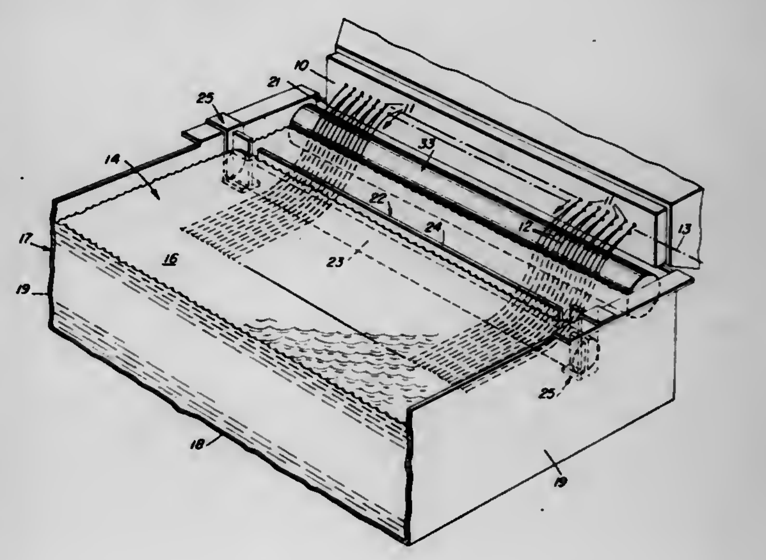
PROCESS FOR CONTROLLING STRAND DROP-OFF

John Moziek, South Hadley, Mass., assignor to Monsanto Company, St. Louis, Mo.

Original application May 14, 1971, Ser. No. 143,574, now Patent No. 3,733,153. Divided and this application Sept. 21, 1972, Ser. No. 290,991

Int. Cl. D01d *5/08*

U.S. Cl. 264—178 F **1 Claim**



A process for controlling strand drop-off at an extrusion die in a plastic stranding operation is provided. A plurality of hot polymer strands generally uniformly spaced from one another in a horizontal direction from the extrusion die pass downwardly into a cooling bath beneath a hold down bar assembly. The continuously moving strands slidably engage circumferential surface portions of a cylindrical member positioned in the surface of the cooling bath which is revolvably driven by the strands passing thereover. When a strand breaks, it almost immediately contacts an adjacent strand and is immediately bonded thereto, all strands still being in a thermoplastic condition, so that all strands continue to move forward down into the cooling bath without loss of the broken strand.

3,833,706

METHOD OF FORMING STRESSED CONCRETE

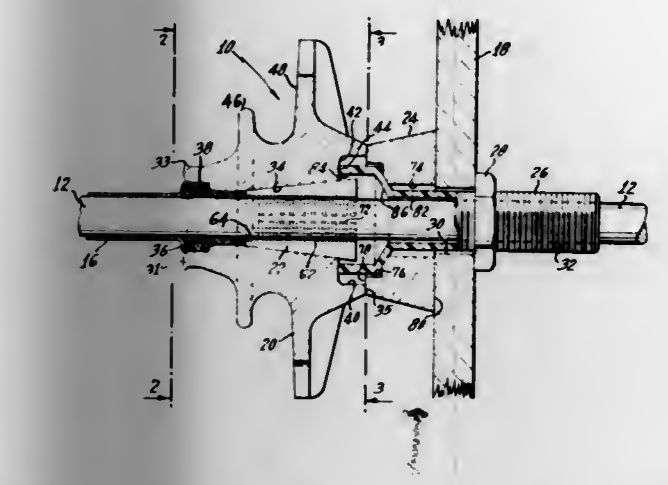
Hugh J. W. Edwards, Cobham, England, assignor to Cable Covers Limited, London, England

Original application Aug. 27, 1968, Ser. No. 755,577, now abandoned. Divided and this application July 19, 1971, Ser. No. 163,777

Int. Cl. B28b *23/04*

U.S. Cl. 264—228 **10 Claims**

A method of forming stressed concrete articles including post tensioning of a stressing tendon and utilizing an anchorage assembly including an anchor having a hollow housing and means therein for engaging a stressing tendon passing therethrough. The assembly includes a hollow member removably attached to the anchor housing and to the concrete formwork and fixing the relative position of the anchor housing to the formwork. The member surrounds the tendon between the anchor housing and the formwork and is adapted and arranged to be detached from the anchor housing after the concrete has set. A cavity forming spacer is provided which surrounds the member and is disposed between and seals against the anchor housing and the formwork to form a cavity in the concrete. The spacer is adapted and arranged to be removed from around the member after the concrete has set.



3,833,707

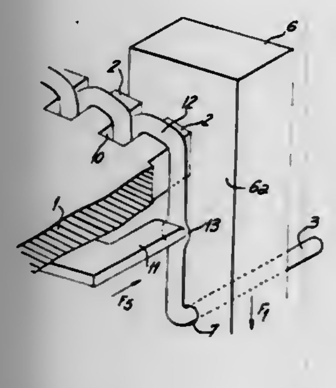
PROCESS FOR THE MANUFACTURE OF A ROW OF LINKING COMPONENTS FOR A SLIDE FASTENER

Horst Jakob, Choisy-le-Roi, France, assignor to Societe Financiere Francaise de Licences et Brevets, Choisy-le-Roi, France

Original application Oct. 5, 1971, Ser. No. 186,612, now Patent No. 3,787,164. Divided and this application July 25, 1973, Ser. No. 382,584

Int. Cl. B29d *5/00*

U.S. Cl. 264—285 **1 Claim**



In a known process and apparatus for the production of a continuous row of linking components for a slide fastener, using a plastic thread, the plastic thread is shaped into a spiral over and between a series of studs by means of a thread guide. One of the ends of each whorl of the spiral is crushed by means of a punch to form a linking component, while holding the corresponding whorl between the studs. The invention provides the improvement in that, on the crushing-point side of each whorl, the corresponding portion of the thread is stretched out rectilinearly beyond the crushing point and facing the corresponding side face of the thread guide. The required point of the thread is then crushed against the thread guide, which is used as an anvil, the punch used being independent of the other working tools, and the folding back of the corresponding portion of the thread being performed only after the crushing has been carried out.

3,833,708

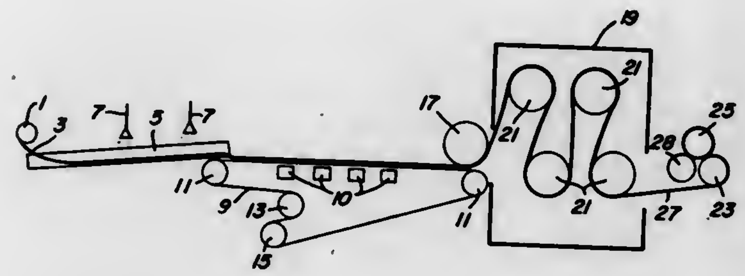
IMMISCIBLE POLYMER PRODUCTS AND PROCESSES

Walter A. Miller and William P. Mulvaney, Somerville, N.J., assignors to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of abandoned application Ser. No. 831,659, June 9, 1969. This application Aug. 4, 1972, Ser. No. 278,076

Int. Cl. B29c *25/00*

U.S. Cl. 264—344 **7 Claims**



The invention relates to making shaped articles of immiscible polymers using as one of the polymers, a copoymer of ethylene and acrylic and/or methacrylic acid which can be readily solubilized to allow its rapid extraction with water. These may also be added in an extraction aid, such as glycerine, in making the shaped article.

The water extracted product can be a tow or web of ultra-fine fibers.

3,833,709

RECOVERY OF MAGNESIUM CHLORIDE HEXAHYDRATE FROM CARNALLITE ORE

Pierre J. Chassagne, Palo Alto, Calif., assignor to Bechtel International Corporation

No Drawing. Continuation-in-part of abandoned application Ser. No. 230,986, Mar. 1, 1972. This application Apr. 2, 1973, Ser. No. 347,222

Int. Cl. B01d *11/02;* **C01d** *3/18;* **C01f** *5/30*

U.S. Cl. 423—157 **2 Claims**

The various standard texts on mineralogy give the composition of carnallite as $MgCl_2 \cdot KCl \cdot 6H_2O$. In industrial usage, the term "carnallite ores" is used as referring to the foregoing salt mixture together with various other salts such as sodium chloride and other insoluble materials either as a broken ore or in the form of a natural deposit. I have found that by treating carnallite ores with any one of the lower saturated monohydric aliphatic alcohols having from 1 to 4 carbon atoms such as methanol, ethanol, propanol, isopropyl alcohol, n-butyl alcohol, secondary-butyl alcohol, iso-butyl alcohol and tert-butyl alcohol, the magnesium choride hexahydrate goes into soution leaving the potassium chloride and other salts and insoluble materials as an insoluble residue.

3,833,710

PROCESS FOR PURIFYING A GAS CONTAINING OXYGEN AND SULFUR COMPOUNDS

André Deschamps, Chatou, Claude Dezael, Maisons-Laffitte, and Philippe Renault, Noisy-le-Roi, France, assignors to Institute Francais du Petrole des Carburants et Lubrifiants, Rueil-Malmaison, France

Filed June 7, 1972, Ser. No. 260,653

Claims priority, application France, June 8, 1971, 7120818; Nov. 16, 1971, 7141068

Int. Cl. C01b *17/00, 17/02*

U.S. Cl. 423—573 **10 Claims**

The purification process, which may be used for removing sulfur dioxide from industrial fumes, comprises several interconnected steps: absorption in a solution of alkali metal or ammonium sulfite, contact of the latter with a weak anion exchanger, for example an amine or a

polymeric amine, periodic regeneration of the exchanger by means of ammonia, recycling of the absorption solution and conversion of the recovered ammonium sulfite to sulfur. The so defined process has low power requirements and yields sulfur practically free of by-products.

3,833,711

REMOVAL OF SULFUR DIOXIDE FROM GAS STREAMS

John F. Villiers-Fisher, Kendall Park, N.J., assignor to Chemical Construction Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 89,868, Nov. 16, 1970, now Patent No. 3,709,977. This application Aug. 14, 1972, Ser. No. 280,728

Int. Cl. C01b *17/00;* **C01j** *9/041, 9/08*

U.S. Cl. 423—244 **9 Claims**

Sulfur dioxide is removed from a gas stream which initially contains sulfur dioxide and sulfur trioxide, by initially contacting the gas stream with discrete porous solid particles of an inorganic alkali which may be in equilibrium with respect to sulfur dioxide absorption and which could be primarily alkali sulfite during much of its effective life. The sulfur trioxide component of the gas stream reacts with the inorganic alkali solid generally, displacing any previously absorbed, sulfur dioxide, and a second gas stream is produced which is substantially devoid of sulfur trioxide. The second gas stream is scrubbed with a liquid containing an active alkaline component for the absorption of sulfur dioxide, and a final gas stream free of sulfur oxides is produced. The invention prevents the absorption of sulfur trioxide by the scrubbing liquid, and thus greatly reduces the build up of sulfates in the scrubbing liquid, which are difficult to regenerate. Thus, a net loss of active alkaline component due to sulfate formation is prevented.

3,833,712

ANTI-POLLUTION BY-PRODUCT FROM PHENOLIC CONTAMINANTS

Edgar Bradbury Baker, Springfield, Oreg., assignor to Borden, Inc., Columbus, Ohio

No Drawing. Filed Aug. 25, 1972, Ser. No. 283,920

Int. Cl. C08g *51/24*

U.S. Cl. 423—245 **4 Claims**

Atmospheric pollution by volatile phenolic contaminants in industrial effluent gas streams is substantially reduced by absorbing said contaminants in an aqueous solution of a water-soluble alkaline phenolformaldehyde resin, condensing the mixture of absorbing resin and absorbed contaminants to form an augmented resin, optionally repeating the absorbing and recondensing steps finally to form a useful by-product resin suitable as a component of an adhesive.

3,833,713

METHOD OF MANUFACTURING SYNTHETIC CRYOLITE

Jacqueline C. Kane, Leonia, N.J., assignor to Stauffer Chemical Company, Westport, Conn.

No Drawing. Continuation of application Ser. No. 124,418, Mar. 15, 1971, which is a continuation-in-part of application Ser. No. 23,516, Mar. 27, 1970, which in turn is a continuation-in-part of abandoned application Ser. No. 687,983, Dec. 5, 1967. This application Jan. 5, 1973, Ser. No. 321,199

Int. Cl. C01b *33/00, 33/12;* **C01f** *7/50*

U.S. Cl. 423—465 **17 Claims**

A process for recovering fluorine values from effluent gases and converting them to cryolite which involves the steps of reacting said gas with ammonium derivatives to produce ammonium fluoride. Then the ammonium fluoride is reacted with clay which is an aluminosilicate composition containing clay forming minerals such as kaolinite, halloysite, montmorillonite, illite and mixtures thereof. Optionally, the ammonium cryolite thus produced can be reacted with sodium hydroxide to produce sodium cryolite.

3,833,714

REMOVAL OF THE HYDROGEN SULFIDE CONTAINED IN A GAS OF HIGH CARBON DIOXIDE CONTENT

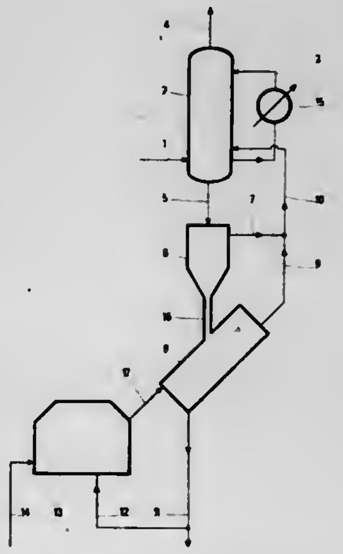
Philippe Renault, Noisy-le-Roi, Andre Deschamps, Chatou, and Claude Dezael, Maisons-Laffitte, France, assignors to Institute Francais du Petrole, des Carburants et Lubrifiants, Rueil-Malmaison, France

Filed June 19, 1972, Ser. No. 264,374

Claims priority, application France, June 24, 1971, 7123180

Int. Cl. C01b *17/00, 17/60;* **C01c** *1/10*

U.S. Cl. 423—567 **10 Claims**



Process for removing hydrogen sulfide from a gas containing the same in admixture with a large amount of carbon dioxide, comprising the successive steps of contacting said gas with an aqueous solution of ammonium sulfite so as to form ammonium thiosulfate, decomposing the latter to sulfur, ammonia, sulfur dioxide and water, recovering said sulfur and recycling said ammonia, sulfur dioxide and water to the contact zone in order to regenerate the ammonium sulfite solution.

3,833,715

PROCESS FOR MANUFACTURING SULFUR OR SULFUROUS ANHYDRIDE FROM AMMONIUM SULFATES

Andre Deschamps, Chatou, Claude Dezael, Maisons-Laffitte, and Philippe Renault, Noisy-le-Roi, France, assignors to Institut Francais du Petrole, des Carburants et Lubrifiants, Rueil-Malmaison, France

No Drawing. Filed July 17, 1972, Ser. No. 272,449

Claims priority, application France, July 20, 1971, 7126613; Oct. 20, 1971, 7137788

Int. Cl. C01d *17/02;* **C01c** *1/10, 11/60*

U.S. Cl. 423—573 **9 Claims**

Sulfur and/or sulfurous anhydride are manufactured by reacting hydrogen sulfide or ammonium sulfide with an ammonium salt of an oxygenated sulfur acid. The improvement consists of carrying out the reaction within molten sulfur, whereby corrosion is considerably reduced.

3,833,716

METHOD FOR USING REHEAT GAS IN SULFUR RECOVERY SYSTEMS

John W. Palm, Tulsa, Okla., assignor to Amoco Production Company, Tulsa, Okla.

Filed Aug. 2, 1972, Ser. No. 277,421

Int. Cl. C01b *17/04*

U.S. Cl. 423—574 **4 Claims**

Proper reheat gas temperature is maintained in a sulfur plant operation at a high turn-down ratio by providing parallel flow paths in the boiler and withdrawing portions of the hot products from each of the flow paths and mixing with first condenser effluent to bring the gas to reaction temperature. This maintains the optimum temperature and flow rate of reheat gas at high turn-down ratios.

3,833,717

PRODUCTION OF CUPROUS OXIDE

Philip R. Haskett, Donald J. Bauer, Roald E. Lindstrom, and Carl H. Elges III, Reno, Nev., assignors to the United States of America as represented by the Secretary of the Interior

No Drawing. Filed Aug. 1, 1972, Ser. No. 277,016

Int. Cl. C01g *3/02, 5/00, 7/00*

U.S. Cl. 423—604 **1 Claim**

Cupric ammine complex is reduced to cuprous ammine complex in aqueous solution by means of conventional reducing agents such as H_2 or CO. The cuprous complex is then treated with a base, such as NaOH, to precipitate cuprous oxide.

3,833,718

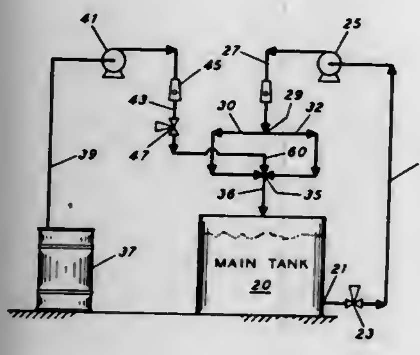
METHOD OF MIXING AN AQUEOUS ALUMINUM SALT SOLUTION AND AN ALKALINE BASE SOLUTION IN A JET MIXER TO FORM A HYDROXY-ALUMINUM SOLUTION

Marion G. Reed, Hacienda Heights, and Ralph S. Millhone, Brea, Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation of abandoned application Ser. No. 130,689, Apr. 2, 1971. This application July 2, 1973, Ser. No. 376,024

Int. Cl. C01f *7/02*

U.S. Cl. 423—629 **6 Claims**



Method and apparatus for high shear mixing particularly useful in preparing hydroxy-aluminum solution for use in well treating.

3,833,719

METHOD AND APPARATUS FOR MIXING GAS AND LIQUID

Heribert Kuerten, Mannheim, Otto Nagel, Neustadt, Rolf Platz, Mannheim, and Richard Sinn, Ziegelhausen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

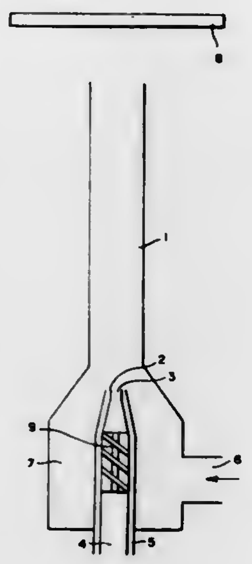
Filed Feb. 16, 1972, Ser. No. 226,808

Claims priority, appilcation Germany, Feb. 19, 1971, P 21 07 960.7

Int. Cl. B01f *3/00*

U.S. Cl. 423—659 **7 Claims**

The invention relates to a method of mixing a gas with liquids in a tubular reactor by feeding the gas and the liquids to a mixing zone. The invention also relates to an apparatus for carrying out this method. Rapid mixing is effected by feeding a stream of liquid to the mixing zone through one or more nozzles whose axes extend in the same direction as the axis of the mixing zone, the injected liquid having a velocity of from 5 to 100 m./s., whilst a second stream of liquid of much lower velocity is introduced into the reactor inlet zone surrounding said nozzles. The gas is fed to the mixing zone through one or more gas inlets located near the orifices of the liquid nozzles. The mean cross-sectional area of the mixing zone bears a specific ratio to the cross-sectional area of the orifices of the liquid nozzles and the length of the mixing zone bears a specific ratio to the hydraulic diameter thereof. The method and apparatus are particularly suitable for carrying out reactions in which short residence times are desirable and the reaction products must not recontact the starting materials.



3,833,720

ASTRINGENT COMPOSITIONS

James M. Crotty, Beverly, Daniel C. Geary, Acton, Edward F. Levy, Newtonville, Dolores V. Lopiekes, Bridgewater, Robert L. Raymond, Marblehead, and Bernard Siegal, Bedford, Mass., assignors to The Gillette Company, Boston, Mass.

No Drawing. Filed July 14, 1972, Ser. No. 272,043

Int. Cl. A61k *7/00*

U.S. Cl. 424—47 **6 Claims**

The present invention is concerned with aerosol spray anti-perspirant compositions of the type in which the astringent material is suspended as a solid in an anhydrous liquid vehicle and dispensed in this form and more particularly with anti-perspirant compositions of this type which have substantially reduced propensity to stain clothing. Generally such improvements are brought about by using as the liquid vehicle for such compositions esters of mono-, di-basic acids which are miscible with the propellant and which are selected from the group consisting of methyl lactate, ethyl lactate, propyl lactate, isopropyl lactate, butyl lactate, dimethyl succinate, diethyl succinate, diisopropyl succinate, dipropyl succinate, dibutyl succinate, diethyl malate, diethyl maleate, diethyl tartrate, diisopropyl tartrate, dipropyl tartrate, dibutyl tartrate, dimethyl glutarate, diethyl glutarate, diisopropyl glutarate, dipropyl glutarate, dibutyl glutarate, dimethyl adipate and diethyl adipate.

3,833,721

ASTRINGENT COMPOSITIONS

Robert E. Saute, Los Angeles, Calif., and Bernard Siegal, Bedford, Mass., assignors to The Gillette Company, Boston, Mass.

No Drawing. Filed July 14, 1972, Ser. No. 272,044

Int. Cl. A61k *7/00*

U.S. Cl. 424—47 **9 Claims**

The present invention is concerned with aerosol spray anti-perspirant compositions of the type in which the astringent material is suspended as a solid in an anhydrous liquid vehicle and dispensed in this form and more particularly with anti-perspirant compositions of this type which have substantially reduced propensity to stain clothing. Generally such improvements are brought about by using as the liquid vehicle for such compositions esters which are miscible with the propellant and which are formed from tri-basic acids and lower aliphatic alcohols.

3,833,722

METHOD FOR CONTROLLING ALLERGIES

Doris Elaine Graybill, 2136 New Holland Pike, Lancaster, Pa. 17601

No Drawing. Filed Mar. 16, 1971, Ser. No. 124,946

Int. Cl. A61k *27/00*

U.S. Cl. 424—104 **2 Claims**

A method is provided for treating and controlling allergies caused by excess concentrations of certain metal ions in the body tissues of warm-blooded animals. In the method of this invention, the excess concentrations of the metallic ions are removed from the body tissues of the animal, preferably by administrating secretin which naturally induces the release of alkaline materials which in turn assists in the neutralizing and removal of the excess concentrations of the metal ions.

3,833,723

ALAMETHICIN AND PRODUCTION THEREFOR

John H. Coats, Kalamazoo, Curtis E. Meyer, Galesburg, and Fritz Reusser, Portage, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Dec. 29, 1965, Ser. No. 527,635

Int. Cl. A61k *21/00*

U.S. Cl. 424—118 **10 Claims**

This invention relates to new compound, alamethicin and to the process for the production thereof by culturing *Trichoderma viride* NRRL 3199.

3,833,724

TREATMENT OF SICKLE CELL ANEMIA

Anthony Cerami and James M. Manning, New York, N.Y., assignors to Research Corporation, New York, N.Y.

No Drawing. Filed Sept. 15, 1971, Ser. No. 180,900

Int. Cl. A61k *27/00*

U.S. Cl. 424—129 **5 Claims**

It has been discovered that cyanate, such as a 0.01–1.0M potassium cyanate solution, is useful to prevent the sickling of the red blood cells of sickle cell anemia patients. It has also been discovered that red blood cells when taken from sickle cell anemia patients and treated *in vitro* with a cyanate, such as a sodium cyanate solution, evidence an increased survival or prolonged life when returned to the patient.

3,833,725

DIALKYLATED GLYCOL COMPOSITIONS AND MEDICAMENT PREPARATIONS CONTAINING SAME

Geoffrey F. Thompson, Sunnyvale, Calif., assignor to Syntex Corporation, Panama, Repubilc of Panama

No Drawing. Filed Dec. 8, 1972, Ser. No. 313,431

Int. Cl. A61k *27/00*

U.S. Cl. 424—243 **30 Claims**

A pharmaceutical preparation having a minor amount of a medicament, a major amount of a dialkylated mono- or poly-alkylene glycol vehicle therefor, and a minor amount of one or more antioxidants for the dialkylated glycol vehicle.

3,833,726

1-OXO-SUBSTITUTED-TETRAHYDRONAPHTHALENES (SUBSTITUTED-TETRALONES)

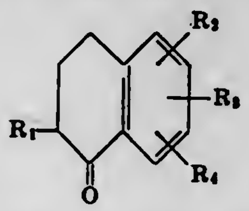
Charles F. Schwender, Lebanon, and John Shavel, Jr., Mendham, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Filed Dec. 13, 1971, Ser. No. 207,540

Int. Cl. C07c *49/80, 49/82*

U.S. Cl. 260—590 **9 Claims**

Compounds of the formula are disclosed:



wherein R_1 is hydrogen, hydroxymethylene, benzylidene or benzylidene substituted by halogen or nitro; R_2, R_3 and R_4 are hydrogen, alkyl, alkoxy, amino, acylamino, carboxy, carboxyalkyl, halogen, hydroxy, nitro, allyl and methanesulfonylamino. These compounds are useful in providing symptomatic relief in allergic conditions such as asthma, hay fever and the like.

3,833,727

HYDRALAZINE AND β-ADRENERGIC BLOCKING AGENT COMPOSITIONS FOR TREATING HYPERTENSION

Carl E. Nelson and Alexander Scriabine, Ambler, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Mar. 6, 1972, Ser. No. 232,294

Int. Cl. A61k *27/00*

U.S. Cl. 424—248 **12 Claims**

Enhancement of the antihypertensive activity of hydralazine by the co-administration with a β-adrenergic blocking agent.

3,833,728

INDOLE DERIVATIVES IN THE TREATMENT OF SKELETAL MUSCLE FATIGABILITY

Nathan Norman Share and Cyril Stephen McFarlane, Montreal, Quebec, Canada, assignors to Merck Sharp & Dohme (I.A.) Corp., Rahway, N.J.

No Drawing. Original application Nov. 23, 1970, Ser. No. 92,299, now Patent No. 3,689,657. Divided and this application Mar. 24, 1972, Ser. No. 237,930

Int. Cl. A61k *27/00*

U.S. Cl. 424—269 **9 Claims**

Skeletal muscle fatigability is treated by administration of a composition containing a skeletal muscle stimulant which is a derivative of indole-3-acetic acid or of indole-3-ylmethyltetrazole.

3,833,729

NOVEL PYRAZOLIDONE DERIVATIVES IN PHARMACEUTICAL COMPOSITIONS AND METHODS

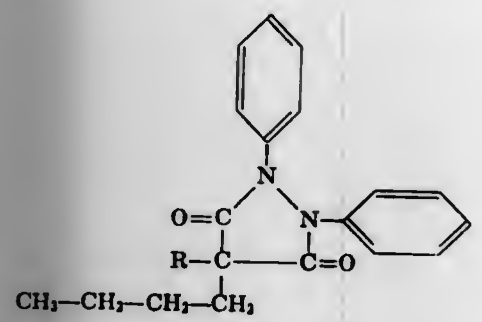
Georges Negrevergne, Bordeaux, France, assignor to The Purdue Frederick Company, Norwalk, Conn.

No Drawing. Application May 14, 1969, Ser. No. 856,508, now Patent No. 3,629,282, which is a division of application Ser. No. 691,197, Dec. 18, 1967, now Patent No. 3,487,046, which is a continuation-in-part of abandoned application Ser. No. 362,393, Apr. 24, 1964, which in turn is a continuation-in-part of abandoned application Ser. No. 121,796, Apr. 24, 1961. Divided and this application Nov. 18, 1971, Ser. No. 200,260

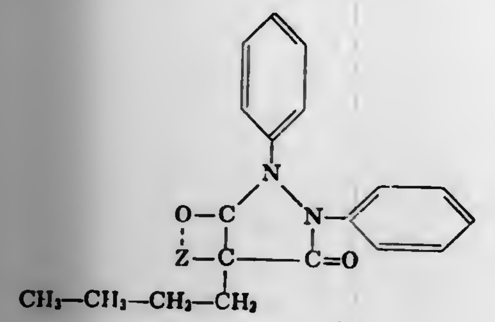
Int. Cl. A61k *27/00*

U.S. Cl. 424—273 **10 Claims**

Diphenylpyrazolidone derivatives, substituted on the 4 position and having the formula:



wherein R is selected from the group consisting of glycoses of from 3 through 6 carbons in chain length, polyoxyethylene having a molecular weight of from 200 through 2000 and an ionic exchange resin which is a polymeric condensation product of a phenol, formaldehyde and an alkylene polyamine which are known in the trade as Amberlite resins, and hydrogen bonded compounds of the structure:



wherein Z is a compound of the group selected from algin, gum guar, pectin, psyllium, dextran and polyvinylpyrrolidone and the methods for the preparation of the aforesaid compounds. The compounds are useful in achieving an anti-inflammatory effect.

ERRATUM

For Class 424—274 see:
Patent No. 3,833,571

3,833,730

ANIMAL FEED CONTAINING 7-ISOPROPOXYISOFLAVONE

László Feuer, Mihály Nógrádi, Agnes Gottsegen, Borbála Vermes, János Streliszky, András Wolfner, Loránt Farkas, Sándor Antus, and Maria Kovács Tóth, Budapest, Hungary, assignors to Chinoin Gyogyszer-es Vegyeszeti Termekek Gyara Rt., Budapest, Hungary

No Drawing. Filed May 25, 1971, Ser. No. 146,773

Claims priority, application Hungary, May 27, 1970, CI–996

Int. Cl. A61k *27/00*

U.S. Cl. 424—283 **1 Claim**

An animal feed containing 0.00002 to 0.1% of 7-isopropoxyisoflavone as a weight-gain promoting anabolic ingredient.

3,833,731

DIHALOMETHYLGLUTARONITRILES USED AS ANTIBACTERIAL AND ANTIFUNGAL AGENTS

Nathaniel Grier, Englewood, and Seymour J. Lederer, Fair Lawn, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Dec. 28, 1970, Ser. No. 102,197

Int. Cl. A01n *9/06, 9/20*

U.S. Cl. 424—304 **1 Claim**

2-halo-2-halomethylglutaronitriles are useful in agricultural and in industrial applications as fungicidal and bactericidal agents.

3,833,732

METHOD OF TREATING INFLAMMATION UTILIZING ALKYL ESTERS OF GALLIC ACID

Sheikh Arshad Saeed, London, and Cyril Schneider, Middlesex, England, and Barrie Maurice Phillips, Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed May 24, 1973, Ser. No. 363,553

Int. Cl. A61k *27/00*

U.S. Cl. 424—308 **4 Claims**

The invention provides a method of alleviating inflammation, edema and/or pain in a mammal by administering to said mammal by the topical route gallic acid or an alkyl ester of gallic acid, the alkyl moiety of said ester having 1 to 8 carbon atoms.

3,833,733

METHOD OF ANESTHETIZING A MAMMAL BY ADMINISTRATION OF A SUBSTITUTED 2-ARYLALKYLOXY BENZAMIDE

Michel Leon Thominet, Paris, France, assignor to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France, Paris, France

No Drawing. Application Jan. 22, 1971, Ser. No. 108,963, now Patent No. 3,723,416, which is a continuation-in-part of application Ser. No. 714,795, Mar. 21, 1968, now Patent No. 3,594,417. Divided and this application Jan. 17, 1973, Ser. No. 324,509

Claims priority, application France, Apr. 3, 1967, 101,328; June 23, 1967, 111,808

Int. Cl. A61l *27/00*

U.S. Cl. 424—324 **8 Claims**

Mammals are anesthetized by administration of 2-arylalkyloxy benzamides. When administered, the 2-arylalkyloxy benzamides of this invention are useful for the production of anesthesia, such as local anesthesia, in mammals. When administered intramuscularly, compounds of this invention show significant anesthesia when compared with xylocaine. Again, intradermic injections of 0.2 ml. of a solution of such a compound in concentrations varying from 0.1 to 1.25 mg./ml. effect suppression of platysma tremor produced by the prick of a pin in guinea pigs. The LD_{50} dosage of the compounds evaluated on mice and rats proved compatible in therapeutic use on mammals.

3,833,734

P-PHENYLENEDIAMINES AS HYPOLIPIDEMICS

Robert E. Manning, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of application Ser. No. 111,106, Jan. 29, 1971, which is a continuation-in-part of application Ser. No. 69,429, Sept. 3, 1970, which in turn is a continuation-in-part of application Ser. No. 9,972, Feb. 9, 1970, all now abandoned. This application Jan. 15, 1973, Ser. No. 323,628

Int. Cl. A61k *27/00*

U.S. Cl. 424—330 **9 Claims**

Certain p-phenylenediamines, e.g., N^1,N^2-di-(2-octyl)-p-phenylenediamine, are useful as hypolipidemics.

3,833,735

GERMICIDAL USE OF 2,3,3-TRI-IODO-ALLYLALCOHOL

Sadaaki Mase and Shigeo Seki, Tokyo, Fumio Kai, Fujisawa, Tetsuro Watanabe, Yokohama, and Michiaki Iwata, Kawasaki, Japan, assignors to Meiji Seika Kaisha, Ltd., Tokyo, Japan

No Drawing. Filed Apr. 17, 1973, Ser. No. 352,072

Claims priority, application Japan, Apr. 16, 1972, 47/41,351

Int. Cl. A01n *9/24*

U.S. Cl. 424—343 **2 Claims**

2,3,3-Tri-iodo-allylalcohol is now found to be useful as a germicide of a low toxicity to control the growth of various bacteria and fungi which infest in crop plants, deteriorate organic material and/or form the slime occurring in the paper-making process.

3,833,736

CONTROL OF FUNGI

Eric Lionel Frick, Maidstone, and Roy Terry Burchill, Bearstead, England, assignors to National Research Development Corporation, London, England

No Drawing. Filed May 11, 1973, Ser. No. 359,505

Claims priority, application Great Britain, June 15, 1972, 28,026/72

Int. Cl. A01n *9/24*

U.S. Cl. 424—343 **11 Claims**

A method for the control of fungi which have an overwintering phase inside the buds of a plant or on other parts thereof comprises treating a plant selected from the group consisting of food crop and ornamental plants whilst the plant or at least the buds thereof are dormant or in a state of near dormancy with a fungicidal composition comprising as an active component a compound selected from the group consisting of medium chain aliphatic acids and alcohols, and esters of medium and short chain aliphatic acids.

3,833,737

TREATMENT OF GRAIN WITH YEAST AND FLOUR PRODUCED FROM SAID GRAIN

**Jack Siegel, 10970 Palms Blvd.,
Los Angeles, Calif. 90034**

No Drawing. Filed Nov. 6, 1972, Ser. No. 304,116

Int. Cl. A21d *8/02;* **A23l** *1/10*

U.S. Cl. 426—18 **7 Claims**

Cereal grains, such as wheat, rye, and the like, are contacted with a mixture of water and yeast for a time sufficient for said grains to imbibe a substantial quantity of said water. The grains are then milled into flour, either with or without a preliminary washing and/or a preliminary drying.

3,833,738

ALFALFA EXTRACT PROCESS

George Wheeler Edwards and Arrie Wood Edwards, both of Rte. 4, Kay Drive, Jackson, Tenn. 38301

No Drawing. Continuation-in-part of application Ser. No. 109,714, Jan. 25, 1971, now Patent No. 3,780,183. This application Sept. 19, 1973, Ser. No. 398,648

Int. Cl. A23l *1/42*

U.S. Cl. 426—52 **13 Claims**

Alfalfa or clover which has been previously treated with an aqueous basic solution is simultaneously digested with pancreatin and a bile containing material. A soluble fraction is then separated from the residue, both substances being useful as food for humans.

3,833,739

VITAMIN ENRICHED POTATO FLAKES

Dennis C. Pedersen, Minneapolis, and Philip M. Sautier, Edina, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

No Drawing. Filed Aug. 25, 1972, Ser. No. 283,880

Int. Cl. A23b *7/03;* **A23l** *1/12, 1/30*

U.S. Cl. 426—72 **5 Claims**

A vitamin enriched, dehydrated potato flake product is described herein. The potato flakes are irregular in shape having a thickness ranging from 0.005 to 0.015 inches and a diameter of approximately ⅛ to ¼ inch. Vitamin flakes of approximately the same size are incorporated with the potato flakes and are nonsegregating and difficult to detect visually. The vitamin flakes comprise from 50% to 75% fat which has a melting point of from 110° F. to 165° F. and alkyl chain lengths containing from 6 to 26 carbon atoms. Water-soluble vitamins and minerals make up the remainder of the flakes and are incorporated in and encapsulated by the fat.

3,833,740

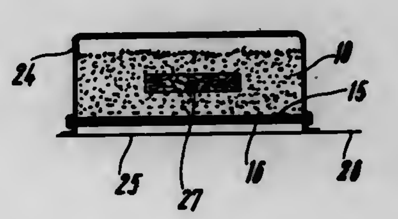
ONE-PORTION PACK FOR THE PREPARATION OF GROUND ROASTED COFFEE READY FOR DRINKING

**Ernst Schmidt, Bremen, Germany, assignor to
Joh. Jacobs & Co., Bremen, Germany**

Filed June 17, 1971, Ser. No. 154,106

Int. Cl. A23f *1/00;* **B65b** *29/02*

U.S. Cl. 426—80 **3 Claims**



A pack, particularly in the form of a container for ground roasted coffee, provided with filter paper for the preparation of a filtered coffee for drinking, wherein said roasted coffee in said container is separated from said filter paper by a water-permeable parting layer through which said ground roasted coffee cannot pass.

3,833,741

BAKERY PRODUCTS CONTAINING HEAT STABLE FOOD FILLINGS

Morris H. Katz, Minneapolis, and Jack R. Durst, Champlin, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

No Drawing. Filed Oct. 18, 1972, Ser. No. 298,733

Int. Cl. A21d *13/00;* **A23g** *3/00*

U.S. Cl. 426—94 **7 Claims**

A solid or semisolid flavored filling for bakery products which resists flow upon being heated is composed of a homogeneous external polar phase having a pH range of from about 3.2 to 5.4 and optionally an internal phase of minute fat globules in the amount ranging from about 5 to 75 parts by weight encapsulated within the external polar phase. The external phase contains about 100 parts by weight of water and from about 5 to 35 parts by weight of an edible protein to provide resistance to flow upon heating, an edible saccharide and a minor amount of flavoring. The edible protein is in the amount of from about 2 to 35% by weight and optionally gelatin or egg albumin each in amounts up to about 10 parts by weight.

3,833,742

FOOD PRODUCT PACKAGE

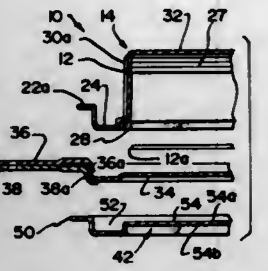
Thomas H. Wetmore, Ronald L. Davis, and Roland R. Vaughn, Fort Wayne, Ind., assignors to Peter Eckrich & Sons, Inc.

Continuation-in-part of abandoned application Ser. No. 793,465, Jan. 23, 1969. This application June 21, 1971, Ser. No. 154,733

Int. Cl. B65b *25/06*

U.S. Cl. 426—129 **14 Claims**

A package for stackable food products such as luncheon meat or the like including a shell having a food receiving and storage cavity and a peripheral bead, with an upraised handle on one portion of the bead; a sealing film across the cavity and releasably sealed to the shell peripheral bead with an extended portion of the film in the area of the handle; and a bottom panel having a peripheral



recess mating with shell peripheral bead and nestably receiving the same therein.

3,833,743

SOLUBILIZATION OF WATER AND AQUEOUS SOLUTIONS IN NON-AQUEOUS LIQUIDS

Lewis D. Morse, Princeton, Paul A. Hammes, Westfield, and Charles W. Everson, Warren, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation of abandoned application Ser. No. 20,402, Mar. 17, 1970. This application Aug. 8, 1972, Ser. No. 279,131

Int. Cl. A23l *1/00, 1/26, 1/30*

U.S. Cl. 426—195 **4 Claims**

Micelles are formed by surfactants above their critical micelle concentration and this is used to solubilize water and aqueous solutions in oils and other non-aqueous liquids.

3,833,744

TEXTURIZING MATERIALS FOR FOODS

Ralph A. Bomstein, Hopkins, Minn., assignor to General Mills, Inc.

No Drawing. Filed Aug. 24, 1972, Ser. No. 283,615

Int. Cl. A22c *18/00*

U.S. Cl. 426—212 **14 Claims**

Chitosan is complexed with acidic polysaccharides to yield materials useful as texturizing agents for foods.

3,833,745

SWEETENING COMPOSITION

John Frank Lontz, 515 Eskridge Drive, Wilmington, Del. 19809, and Richard Titus D'Alonzo, 2511 Lovitt Drive, Memphis, Tenn. 38117

No Drawing. Filed June 1, 1971, Ser. No. 149,037

Int. Cl. A23l *1/26*

U.S. Cl. 426—217 **3 Claims**

A non-toxic, low calorie sweetening composition derived from a selective and critical balance of amino acids comprising a non-benzenoid base sweetener, a synergist with a benzenoid substituent and an intensifier with an amido configuration, collectively formulated with a polyhydric carrier.

3,833,746

PROCESS FOR TANNING EDIBLE COLLAGEN CASING

Mauj A. Cohly, Danville, Ill., assignor to Tee-Pak, Inc., Chicago, Ill.

No Drawing. Filed Jan. 8, 1973, Ser. No. 321,617

Int. Cl. A22c *13/00*

U.S. Cl. 426—277 **7 Claims**

An improved process for tanning an edible collagen meat casing comprises immersing a coagulated and washed collagen casing, substantially free of ammonium salts, in a first bath substantially saturated with an alkali metal salt of a strong acid, acidified to a pH less than about 3, containing an effective amount of an edible, non-toxic aldehyde, and then fixing the aldehyde in the casing on withdrawal of the casing from the first bath by immersing the casing in a second bath substantially saturated with an alkali metal salt of a strong acid and made alkaline to a pH of about 12 or higher.

3,833,747

PROCESS FOR REDUCING THE HYGROSCOPICITY OF DEHYDRATED FRUITS

James Cording, Jr., 420 Paoli Ave., Philadelphia, Pa. 19128, and Roderick K. Eskew, Box 205, Spring House, Pa. 19477

No Drawing. Continuation-in-part of application Ser. No. 66,082, Aug. 21, 1970, which is a continuation-in-part of application Ser. No. 662,193, Aug. 21, 1967, both now abandoned. This application Aug. 7, 1972, Ser. No. 278,661

Int. Cl. A23b *7/08, 7/10*

U.S. Cl. 426—289 **1 Claim**

Dehydrated fruit of reduced hygroscopicity is obtained by removing from fruit pieces, by osmotic transfer or partial expression of the juice, natural hygroscopic monosaccharides, replacing the monosaccharides in a second osmotic transfer with a sugar such as sucrose, and then processing to provide dehydrated fruit pieces of porous structure. In the process of this invention, fruit acids removed with the monosaccharides are replaced by dry-coating the pieces after they are partially dried. Since the acid is put on the fruit and not into it, the acid has only very limited contact with the sugar and inversion does not occur, even after prolonged storage. Removing monosaccharides reduces or prevents caramelization during processing, improves rate of drying, and provides a markedly less hygroscopic porous dehydrated fruit product which is ideal as a snack type food.

3,833,748

METHOD FOR CONTINUOUSLY TREATING PARTICULATE MATERIAL

Takuzo Tsuchiya, Minneapolis, Minn., assignor to General Mills, Inc.

Filed Feb. 2, 1972, Ser. No. 222,751

Int. Cl. A23l *1/10, 1/18*

U.S. Cl. 426—447 **7 Claims**

A heat and pressure reactive particulate material such as cereal, protein material or cocoa is propelled through a treatment zone at a pressure at least 15 p.s.i.g. and a temperature at least 250° F. by a stream of hot pressurized gas. The residence time of the material in the zone is increased by flowing a second stream of gas in opposition to the first stream.

3,833,749

GRAIN TREATING OPERATIONS

Lloyd M. Triplett, Rte. 1, Claude, Tex. 79019

Original application Dec. 27, 1971, Ser. No. 212,131, now Patent No. 3,741,717, dated June 26, 1973. Divided and this application Jan. 22, 1973, Ser. No. 325,316

Int. Cl. A23l *1/18*

U.S. Cl. 426—450 **5 Claims**

An agitating and transport and heating process adjusted to a non-oxidizing flame provide inexpensive yet reliable and safe grain drying, using improved contact of the heating gases and the solid particulate material.

ELECTRICAL

3,833,750

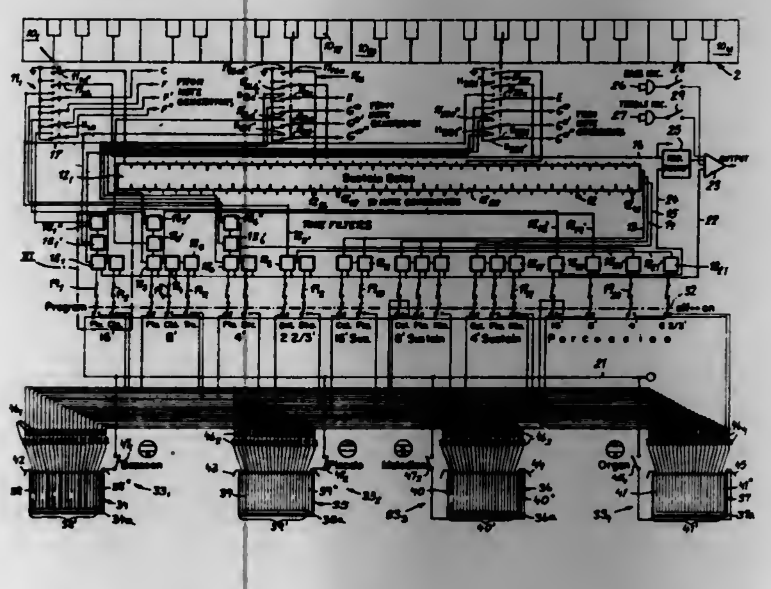
REED ACCORDION WITH PROGRAMMABLE ELECTRONIC ORGAN SOUND

Amedeo Iorio, Long Island City, N.Y., assignor to SYN Cordion Musical Instruments Corp., Long Island City, N.Y.

Filed Feb. 1, 1973, Ser. No. 328,531

Int. Cl. G10h *1/00*

U.S. Cl. 84—1.01 **8 Claims**



A reed accordion has a set of note generators each coupled to a respective key and is connected through a plurality of tone filters to an output. Each filter corresponds to a respective organ voice and is controlled by a respective tab which disconnects its filter from a bus (otherwise common to all filters) when actuated and thereby renders it operative. A plurality of registration program cards removably received in multicontact sockets on the instrument each carry a registration program network which is connectable through a respective registration switch to selected filters such that actuation of this switch will automatically cut in selected filters by disconnecting them from the bus. Each card bears two registrations in the form of conductors printed on its two faces so that simple scratching-through of a conductor programs that network for the respective organ voice, allowing the user to establish his own organ-voicing programs. A further switch, in one position, permits the accordion treble shifts to operate without preprogrammed organ-voicing and, in another position, provides programmed organ voicing for each treble shift.

3,833,751

GUITAR-LIKE INSTRUMENT WITH MAGNETIC PICKUP

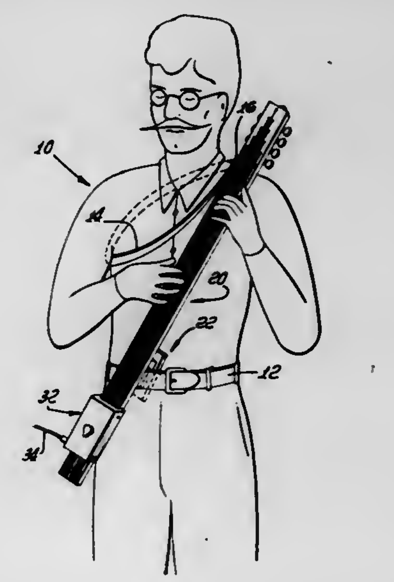
Emmett H. Chapman, 8320 Yucca Trl., Los Angeles, Calif. 90046

Filed Feb. 22, 1973, Ser. No. 334,859

Int. Cl. G10g *3/08*; **G10h** *5/00*

U.S. Cl. 84—1.16 **3 Claims**

An electric guitar having a body of generally rectangular cross-section and consisting essentially of an elongated fretted wooden fingerboard, a headpiece extending upwardly therefrom, and a tailpiece extending downwardly therefrom. A set of tuned strings, preferably nine in number, extends in parallel relation immediately above and out of contact with the frets, in a plane substantially parallel to the fretted face of the fingerboard, the strings being anchored to the tailpiece and each string being attached to an individual tensioning member forming part of the headpiece. A magnetic pickup assembly is carried by the tailpiece, including an individual magnetic pickup in operative relation with each of the strings. The instrument is light in weight, and is supported by a bracket or hook engageable with the user's belt and by a strap around the user's neck and upper chest, the strap being attached to the instrument at or adjacent to the headpiece, whereby to maintain the instrument in correct playing position, upwardly more nearly vertically and across the user's torso, and freeing the user's hands from the need of supporting the instrument. The user is thereby enabled to execute unusual musical effects with the fingers of both hands engaging selected strings against selected frets of the fingerborad during play. In the preferred form of the invention having nine strings, the strings are uniquely tuned as follows: A first, highest pitched string; a second string tuned a perfect fourth interval below the first



string; a third string tuned a perfect fourth interval below the second string; a fourth string tuned a perfect fourth interval below the third string; a fifth string tuned a perfect fourth interval below the fourth string; a sixth, lowest bass string tuned a major seventh interval below the fifth string; a seventh string tuned a perfect fifth interval above the sixth string; an eighth string tuned a perfect fifth interval above the seventh string; and a ninth string tuned a perfect fifth interval above the eighth string. The first five strings constitute a melody group, and the remaining four strings constitute a bass and chord group.

3,833,752

ELECTRONIC MUSICAL INSTRUMENT WITH PLURAL CHANNELS PROVIDING DIFFERENT PHASE SHIFT

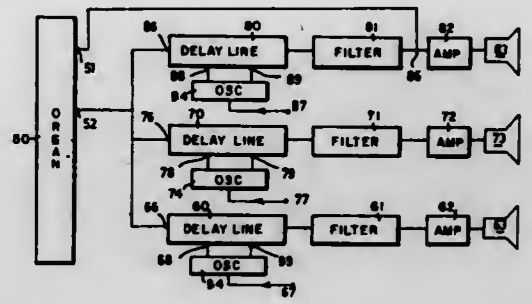
Tijmen van der Kooij, Bodegraven, Netherlands, assignor to N. V. Eminent, Bodegraven, Netherlands

Filed Feb. 26, 1973, Ser. No. 335,496

Claims priority, application Netherlands, Mar. 3, 1972, 722834

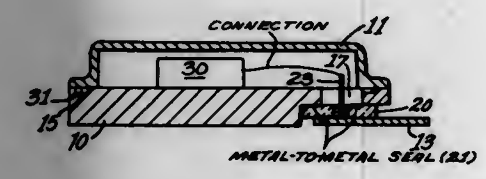
Int. Cl. G10h *1/04*

U.S. Cl. 84—1.24 **3 Claims**



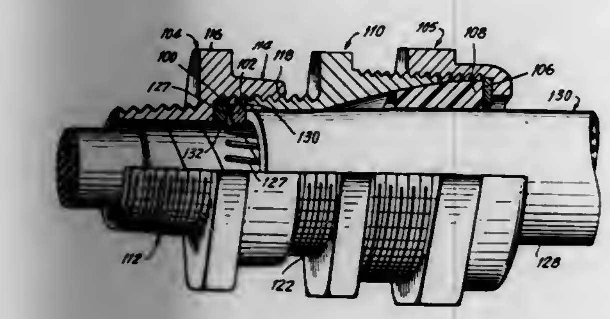
The invention disclosed provides an electric musical instrument having an audio frequency signal source, an output from which the audio frequency signal passes to a plurality of parallel transmitting channels each of which comprises a delay line series circuit, a lowpass filter, an amplifier and loud speaker. Switching oscillators are disposed to provide 2 gate pulse trains, one running in opposite phase with regard the other, to the delay line series curcuit. Low frequency generators are disposed for generating a sine shaped sub-audio frequency signal to one of the switching oscillators while remaining units of the switching oscillators are connected to phase shifting networks. A second output from the audio frequency signal source connects to the amplifier of the last of the plurality of transmitting channels. The resultant combination of elements produces an ensemble effect.

3,833,753
HERMETICALLY SEALED MOUNTING STRUCTURE FOR MINIATURE ELECTRONIC CIRCUITRY
Vahan Garboushian, 3905 Mesa St., Torrance, Calif. 90505
Filed Nov. 30, 1972, Ser. No. 310,820
Int. Cl. H05k *5/00*
U.S. Cl. 174—525 **6 Claims**



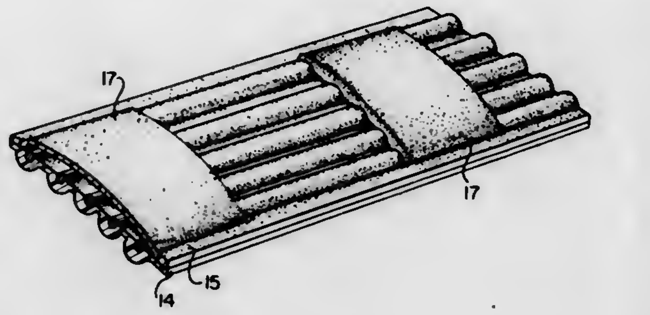
A mounting and hermetically sealing and encapsuling structure for miniature electronic circuit elements which are supported on ceramic carrier wafers or the like; a base element is used, made of a material of high thermal conductance to serve as heat sink and having an integral flat bar along one side, the flat bar has windows in which are mounted lead-in support members each constructed from a ceramic wafer element with peripheral metallization on one side and several metallized apertures with current leads therein, metallization islands surround the apertures on one side, and the metal leads in the apertures are respectively connected to the metallization islands. External leads on the other side of the wafer are cemented thereto as well as connected to the leads in the apertures, the external lead, the internal lead, the metallization lining and the island being in metallic contact including metallic sealing from one side of the wafer element to the other side. A cover is riveted to the end portions of the base element.

3,833,754
GROUNDING CONNECTOR FOR STRAND CABLE ASSEMBLY
Robert A. Philibert, Long Island, N.Y., assignor to General Signal Corporation, Rochester, N.Y.
Filed Apr. 23, 1973, Ser. No. 353,289
Int. Cl. H02g *15/00*
U.S. Cl. 174—65 SS **5 Claims**



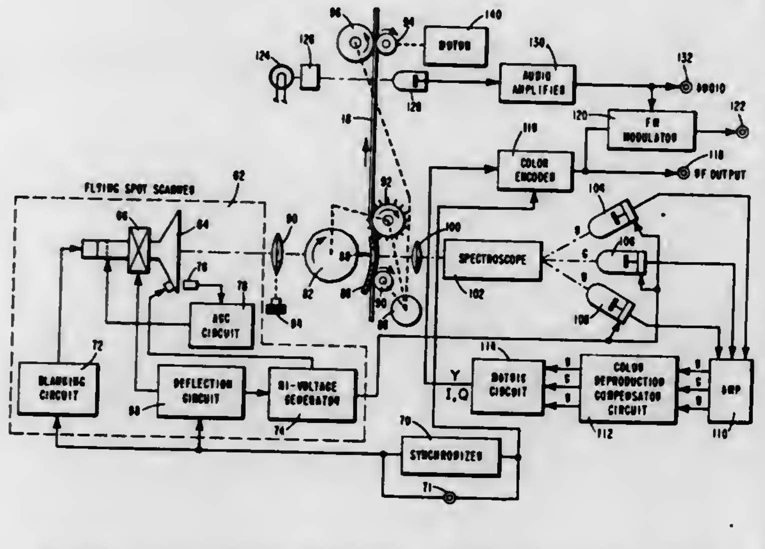
A cable grounding connector is disclosed which is adapted to be used with cable type SNM (Shielded Non-Metallic-Sheathed). The cable connector arrangement fulfills the "pullout" and equipment grounding conductor continuity requirements of the National Electrical Code. An adapter or connector body fits over the hub provided at one end of the intermediate body, or fitting, for the connector. This insures that a pair of flat plates or washers, which abut the hub, are effective to firmly clamp the strands of the grounding conductors.

3,833,755
EASILY STRIPPABLE RIBBON CABLES
R. Keith Soelberg, Flagstaff, Ariz., assignor to W. L. Gore & Associates, Inc., Newark, Del.
Filed Aug. 16, 1973, Ser. No. 388,798
Int. Cl. H01b *7/08*
U.S. Cl. 174—117 F **16 Claims**



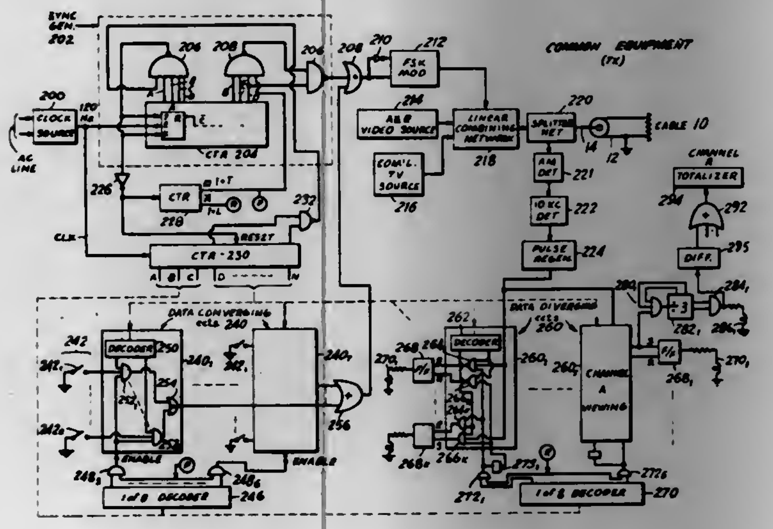
Continuous lengths of flat electrical cable have segments of the cable easily strippable for termination purposes. Flat multiconductor cable may be produced by laminating conductors between sheets or ribbons of plastic insulation material. Easily strippable segments of such a cable may be made by interrupting the laminations in the insulating sheets at periodic intervals. The insulating material which has not been laminated may subsequently be cut transversely just prior to end-use application, and pulled away from all conductors simultaneously, thereby exposing all conductors for termination.

3,833,756
COLOR TELEVISION SIGNAL GENERATOR
Mituru Kumagai, Kawasaki; Takeshi Sasaoka, and Yoshiaki Nakayama, both of Tokyo, all of Japan, assignors to Fuji Shashin Film Kabushiki Kaisha and Ikegami Tsushinki Co., Ltd., both of Kanagawa-ken, Japan
Filed Aug. 9, 1972, Ser. No. 279,231
Claims priority, application Japan, Aug. 9, 1971, 46-60439
Int. Cl. H04n *9/02*
U.S. Cl. 178—5.4 R **16 Claims**



Disclosed is a color television signal generator which is capable of producing color television signals directly from an 8 mm-width color film to reproduce the colored images of the film on a home-use color television. The present generator uses a polygonal prism which is rotated in synchronous relation with the feeding of the film, thus assuring that the raster on the flying-spot scanner is in register with the frame of the film, no matter what the feeding speed of the film is. Also, the present generator includes a color reproduction compensator which functions to subtract green and blue contents from the red component color, thus reproducing the color image of the film on the home-use color television with high fidelity of color.

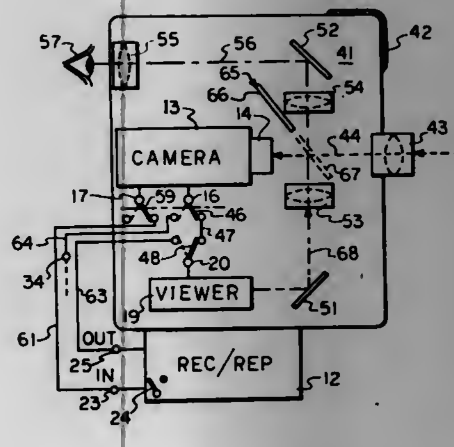
3,833,757
ELECTRONIC BILATERAL COMMUNICATION SYSTEM FOR COMMERCIAL AND SUPPLEMENTARY VIDEO AND DIGITAL SIGNALING
Donald Kirk, Jr., and Michael J. Paolini, both of St. Petersburg, Fla., assignors to Computer Television Inc., New York, N.Y.
Filed Apr. 10, 1972, Ser. No. 242,721
Int. Cl. H04n *1/44, 7/18*
U.S. Cl. 178—5.6 **18 Claims**



A bilateral cable communications system — as for a lodging facility, distributes commercial and supplementary video programs from common equipment to spaced subscriber stations located, for example, in each hotel-motel room. Heterodyne converter apparatus is included at each station for viewing the supplementary programing on a standard television receiver.

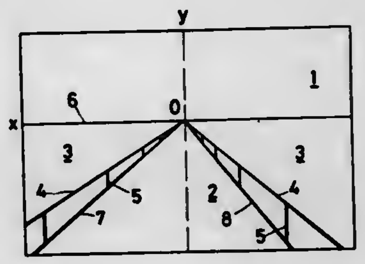
Time division multiplexed, full duplex digital communications are also effected via the distribution cable for providing signaling between the common equipment and the subscriber locations. The digital signaling implements administrative and supervisory control for supplementary video reception and monitoring — as for extra fee accounting purposes, and also general lodging service tasks.

3,833,758
VIDEO INFORMATION RECORDING AND DISPLAY
Leonard A. Ferrari, San Clemente, Calif., assignor to Bell & Howell Company, Chicago, Ill.
Filed July 7, 1972, Ser. No. 269,644
Int. Cl. H04n *5/78, 7/18*
U.S. Cl. 178—6.8 **26 Claims**



Several video recording and playback methods and apparatus are disclosed in which played-back video information is displayed to a video camera which, in turn, produces electrical video signals for display by a video display set, such as a conventional television receiver. The video camera may operate at different scanning rates during recording and during playback. The device that displays the played-back video information to the camera may operate at a scanning rate different from the camera's scanning rate during playback. Also, the device for displaying the played-back video information to the camera may be synchronized by played-back synchronization information which is affected by timing errors. No automatic frequency control is then employed in the particular display device.

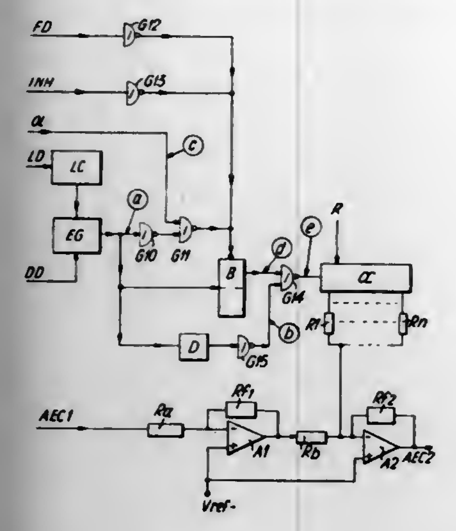
3,833,759
ELECTRONIC SYSTEM FOR DISPLAYING ARTIFICALLY PRODUCED ENVIRONMENT PATTERNS
Teruo Yatabe, and Shuntetsu Matsumoto, both of Tokyo, Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan
Filed July 24, 1972, Ser. No. 274,254
Claims priority, application Japan, July 22, 1971, 46-60718; July 22, 1971, 46-60719; Nov. 22, 1971, 46-93879
Int. Cl. G09b *9/04;* **H04n** *7/18*
U.S. Cl. 178—6.8 **9 Claims**



The display system of the present invention produces simplified environment patterns and these simplified patterns are projected on a screen which is assumed to be located a certain distance to the front of the moving body by converting the *x-y* coordinate of the projected patterns to voltage values, applying these voltage values to an analog electronic circuit constructed in accordance with the equations of the patterns, converting the output electric signals of the analog electronic circuit to electric signals having widths corresponding to the spatial regions, controlling respective color signal generators in proportion to the time widths so that the color signal generators generate color signals corresponding to the color distribution of the environment patterns and producing the environment patterns on a color TV monitor screen by feeding the color signals to the color TV monitor.

3,833,760
TELEVISION SYSTEMS
John Edward Tickle, Heald Green, England, assignor to Ferranti Limited, Hollinwood, England
Filed Feb. 27, 1973, Ser. No. 336,374
Int. Cl. H04n *5/22*
U.S. Cl. 178—6.8 **5 Claims**

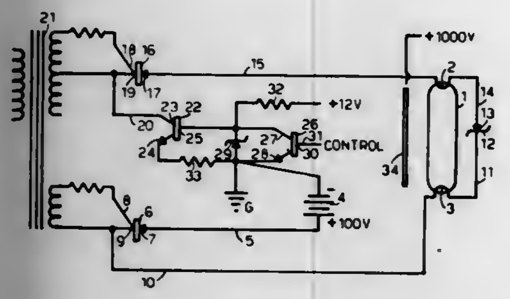
A television system for producing overlay effects by replacing part of a background image by an overlay image includes a detector operable to detect the presence or absence of the overlay image during a predetermined scan line. The detector



output is connected to control means operable to move the overlay image vertically to the desired position.

3,833,761
FLUORESCENT LAMP SYSTEM FOR FACSIMILE

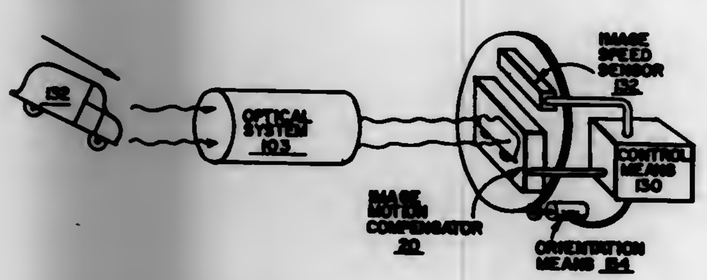
Deward J. Houck, Mastic Beach, N.Y., assignor to International Scanatron Systems Corp., Central Islip, N.Y.
Filed July 12, 1971, Ser. No. 161,685
Int. Cl. H04n *1/24*
U.S. Cl. 178—7.1 **5 Claims**



A fluorescent lamp for facsimile copy scanning is provided with regulated constant current for constant illumination; all solid state starter circuitry; and automatic current direction reversal once for each scanning line to prevent uneven darkening due to prolonged DC passing through the lamp in one direction.

3,833,762
SOLID STATE INTEGRATING, IMAGE MOTION COMPENSATING IMAGER

Richard A. Gudmundsen, Santa Ana, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.
Filed June 4, 1973, Ser. No. 366,828
Int. Cl. H04n *5/30*
U.S. Cl. 178—7.1 **24 Claims**

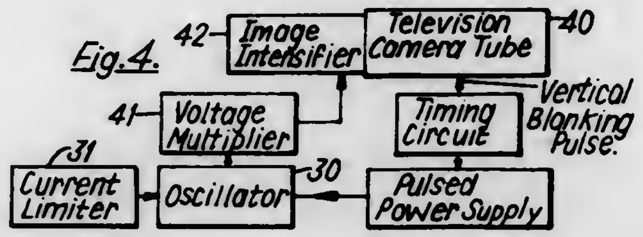


An integrating image motion compensator is disclosed. The compensator comprises photo-responsive charge transfer means, overlying transparent insulation means and transparent charge transfer electrode means spaced from the charge transfer means by the insulation means. Channel isolation means associated with the charge transfer means define individual charge transfer channels. The operating system further comprises means for inducing separate charge collection regions within each channel and for transferring the regions along the charge transfer means at a controllable rate. Image speed sensing means sense the image speed and synchronize the rate of charge transfer with the rate of image movement. When large area image motion compensators are needed, optical image segmentation means are provided to allow the use of many small compensators to form a composite, large, image motion compensator. In the preferred embodiment the photo-responsive charge transfer means is a semiconductor layer having a gap energy less than the energy of the photons forming the image to be converted. A plurality of parallel charge transfer channels are defined at the surface of the semiconductor by stripes of heavily doped semiconductor material which isolates the channels. The transparent control electrodes are preferably divided into four sets to form a four-phase charge transfer control system. The photons comprising the image to be converted are incident on the semiconductor through the overlying transparent insulator and electrodes. Potential wells within the charge transfer channels are stepped along the channels at the same rate at which the image is traveling along the channel. Thus, all the photons arriving from a given image point strike in the same potential well and contribute to the charge therein. At the end of the transfer channel, any charge therein is sensed in any appropriate manner, such as by a back-biased pn junction.

Non-transparent control electrodes may be employed if a thin semiconductor chip is used, and the light is focused onto the back surface of the device.

3,833,763
PULSED OSCILLATOR FOR LOW LIGHT LEVEL TELEVISION SYSTEM

Melvin Murray Ramsay, Broxbourne, and Anthony Ian McLennan, Harlow, both of England, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Feb. 22, 1973, Ser. No. 334,820
Int. Cl. H04n *5/38*
U.S. Cl. 178—7.2 **4 Claims**



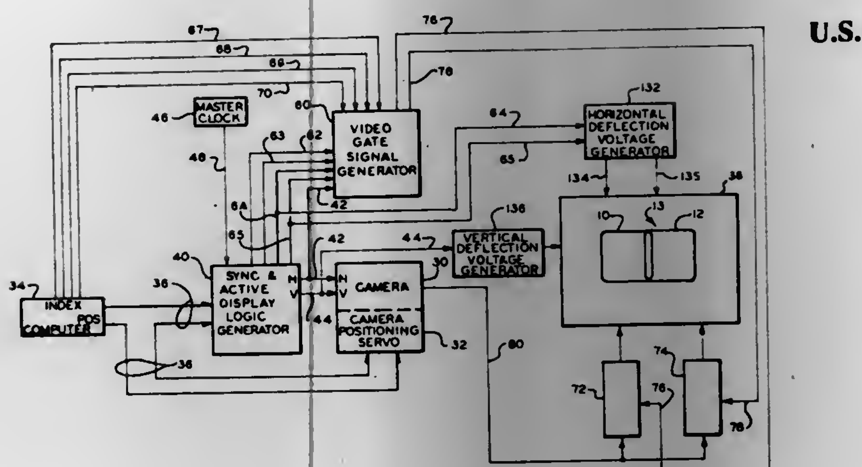
A low light level television system employs an image intensifier tube coupled to a camera tube. An oscillator supplying a high voltage multiplier for the image intensifier is triggered by a pulse that occurs before the vertical blanking pulse of the camera tube. This avoids video interference from the R.F. power supply. The shorter vertical blanking period occurs during the oscillator conducting period. The timing circuit includes a crystal oscillator and monostable voltage dividers which supply a clock pulse to the drive circuitry for the voltage supply oscillator.

3,833,764
MULTIPLE VIEWING SURFACE DISPLAY

Arthur Roger Taylor, Kirkwood, N.Y., assignor to The Singer Company, Binghamton, N.Y.
Filed Dec. 14, 1972, Ser. No. 314,966
Int. Cl. H04n *5/68*
U.S. Cl. 178—7.5 D **3 Claims**

The faces of a pair of cathode ray tubes are optically combined to provide a viewing surface. The beam of each cathode

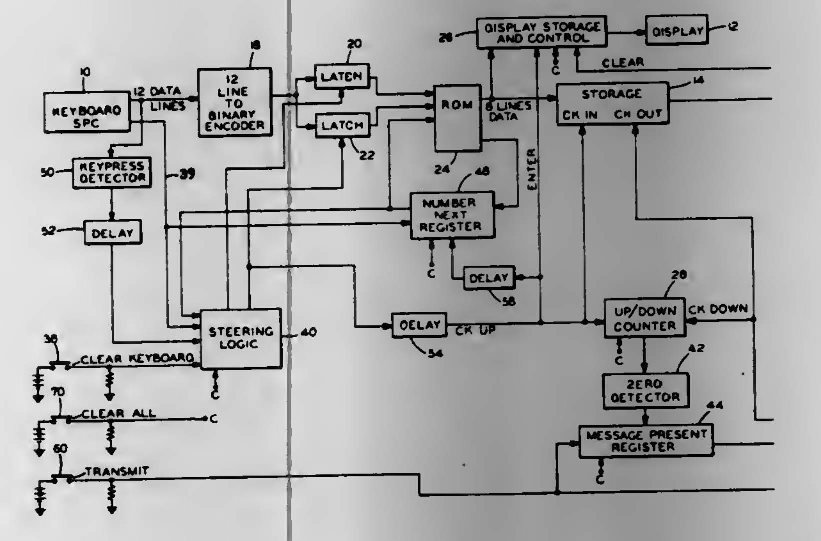
ray tube traces a display raster, the lines thereof being optically combined to overlap and the modulation of a video signal being selectively gated therewith to vary the intensity of the beams, thereby providing a modulated composite raster



for producing a desired scene having a desired deployment on the viewing surface. The composite raster appears to an observer as being traced by a single beam which has an intensity in accordance with the video signal.

3,833,765
KEYBOARD AND MESSAGE SYSTEM

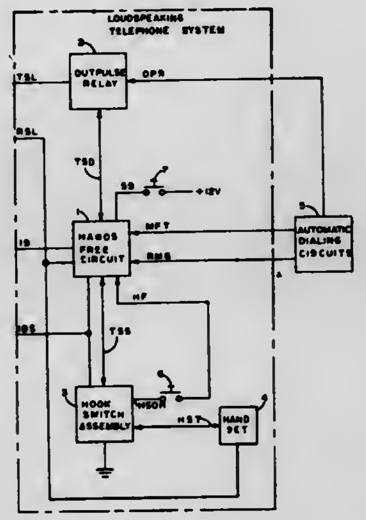
Edwin H. Hilborn, Framingham; Joseph D. Brabel, Concord, and Kenneth J. Bray, Medway, all of Mass., assignors to The United States of America as represented by the Secretary of the Department of Transportation, Washington, D.C.
Filed Jan. 30, 1973, Ser. No. 327,953
Int. Cl. G08b *1/00;* **H04b** *1/00;* **H04l** *15/02*
U.S. Cl. 178—79 **21 Claims**



A keyboard entry digital data transmission and reception system employing a one-handed keyboard is disclosed. The novel keyboard arrangement and the logic circuitry associated therewith permits single data characters to be rapidly entered by a plurality of sequential key depressions which uniquely define each character.

3,833,766
VOICED CONTROLLED GAIN SWITCHED LOUD-SPEAKING TELEPHONE SYSTEM

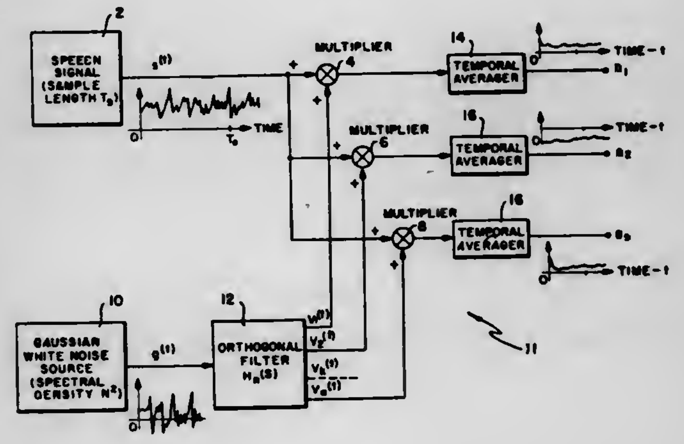
Anders A. Eklof, Fayetteville, and Ronald Binks, Chambersburg, both of Pa., assignors to Global Systems Design Corporation, Chambersburg, Pa.
Filed Oct. 18, 1972, Ser. No. 298,513
Int. Cl. H04m *1/00*
U.S. Cl. 179—1 HF **8 Claims**



A loud-speaking telephone system having voice controlled gain switched transmit and receive channel amplifiers, voice controlled gain switched amplifier gain control circuits, a two to four wire hydrid bridge with telephone line loop d.c. current bypass circuit and a telephone line impedance balancing network. The loud-speaking telephone system has provisions for permitting alternative conventional handset usage and it may be integrated with an automatic telephone dialing system.

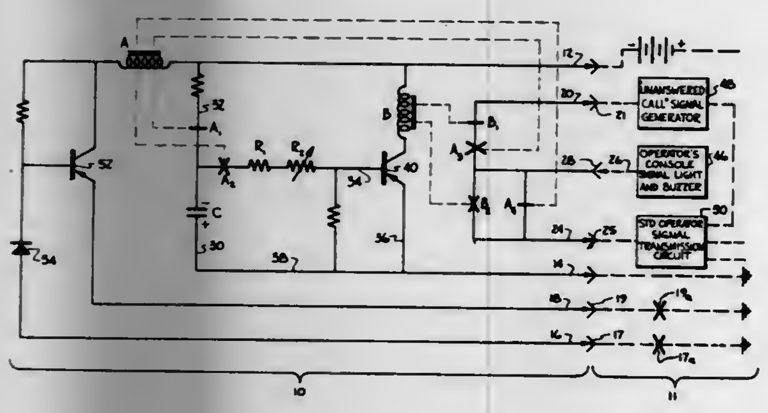
3,833,767
SPEECH COMPRESSION SYSTEM

Alfred A. Wolf, RFD 3, Box 327, Annapolis, Md. 21403
Continuation-in-part of Ser. No. 191,003, Oct. 20, 1971, which is a continuation-in-part of Ser. No. 155,988, June 23, 1971.
This application Dec. 8, 1972, Ser. No. 313,239
Int. Cl. H04b *1/66*
U.S. Cl. 179—15.55 R **10 Claims**



The generation of a set of a certain kind of coefficients related to the speech signal is obtained by simultaneously operating upon a sample of the speech signal with a set of orthogonal random functions derived from a white noise source and the white noise itself. These coefficients are sequentially AM or FM modulated for transmission by any suitable means. The transmitted signal is received and demodulated and sequentially processed through the system of this invention to recover the coefficients which are related to and can be used with a second source of white noise to reconstruct the original speech signal. The speech compression is accomplished by utilizing the coefficients as the information carrier source and later at the receiving ends to reconstruct the speech signal from these coefficients to obtain the vocal intelligence.

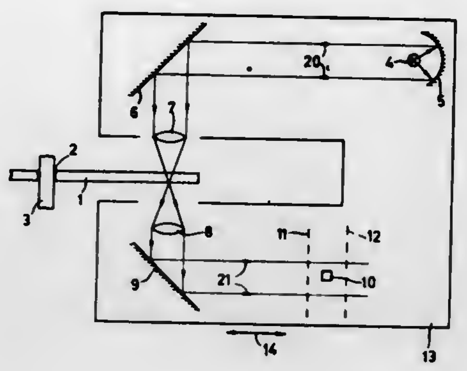
3,833,768
PBX AUTOMATIC OPERATOR RECALL ACCESSORY
Gene E. Scott, 5445 S.W. Watson, Beaverton, Oreg. 97005
Filed Dec. 1, 1972, Ser. No. 311,366
Int. Cl. H04m *5/04*
U.S. Cl. 179—42 10 Claims


A
B
"UNANSWERED CALL" SIGNAL GENERATOR
OPERATOR'S CONSOLE SIGNAL LIGHT AND BUZZER
STD OPERATOR SIGNAL TRANSMISSION CIRCUIT
C
R
10
11
12
20
21
30
32
34
36
40
44
46
50

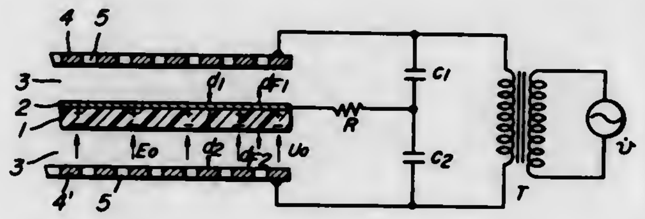
An automatic operator recall accessory adaptable for attaching to the trunk circuitry of private branch telephone exchange switchboards. The accessory comprises a time-delay switching circuit on a printed circuit board adaptable to be interposed between the operator's console light and buzzer and the standard PBX switchboard circuit which normally selects and transmits signals to the light and buzzer. When the operator extends a trunk call by connecting it to an idle extension, placing the call on hold, or "camping on" the call to a busy extension, the recall circuit begins a time delay period during which the operator's light and buzzer are permitted to receive signals from the standard switching signal transmission circuit. If, however, after a predetermined period of time dependent upon the adjustment of the accessory's time delay circuit the caller has been unable to complete his call, the recall circuit automatically disconnects the operator's light and buzzer from the standard signal transmission circuit and simultaneously connects the light and buzzer to the switchboard's "unanswered call" signal generator, thereby alerting the operator to switch onto the trunk line and attend to the caller. One such recall accessory is required for each separate trunk line of the switchboard unit.

3,833,769
APPARATUS FOR POSITIONAL CONTROL OF A READING HEAD IN A DEVICE FOR REPRODUCING OPTICALLY CODED VIDEO DISK RECORDINGS
Klaas Compaan, and Gijsbertus Bouwhuis, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Feb. 25, 1972, Ser. No. 229,291
Claims priority, application Netherlands, Mar. 11, 1971, 7103234
Int. Cl. G11b *7/12, 7/16, 7/24*
U.S. Cl. 179—100.3 V 15 Claims

An apparatus is described for reading, by means of a beam of radiation, a disk-shaped information carrier which contains spirally arranged video and/or audio signals coded in optical form, which apparatus comprises a source of radiation and a radiationsensitive signal detector cell, the information carrier being disposed in the radiation path between this source and this detector cell. By providing at least one grating, consisting of radiation-transmitting and radiation-absorbing stripes and on which an image of part of the grating-shaped structure of the information track in the vicinity of the portion of this track to be read may be formed, and a radiation-sensitive detection system, an accurate indication of axial and radial displacements of the optical imaging system relative to the information carrier can be obtained.



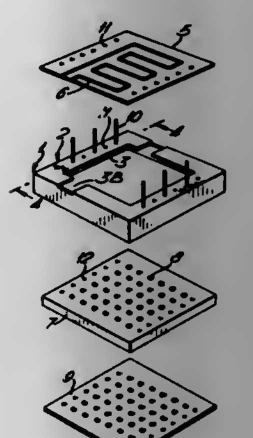
3,833,770
ELECTROSTATIC ACOUSTIC TRANSDUCER
Nobuhisa Atoji, Shijonawato, and Takahisa Aoi, Moriguchi, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Feb. 29, 1972, Ser. No. 230,435
Claims priority, application Japan, Mar. 11, 1971, 46-13828
Int. Cl. H04r *19/00*
U.S. Cl. 179—111 E 5 Claims



A high-fidelity electrostatic acoustic transducer comprising a pair of fixed electrodes with a multiplicity of small openings and supported opposite to each other and a vibrating film electret with a conductive layer formed on one side thereof, the vibrating film being held between the fixed electrodes as an acoustic transducer section. An electrostatic field is generated between the electret and one of the fixed electrodes by the electret and thereby the second higher harmonics generated between one of the fixed electrodes and the vibrating film electret are capable of being eliminated on the other fixed electrode.

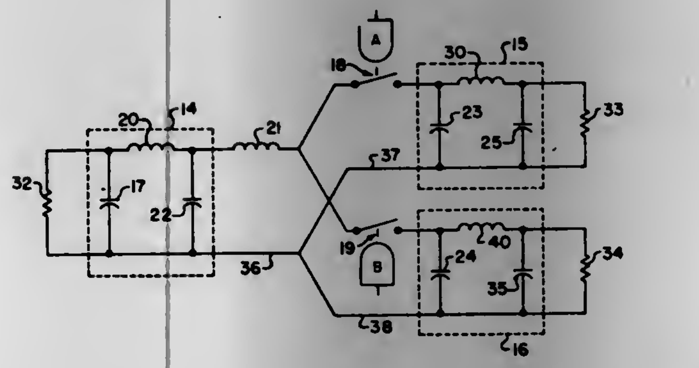
3,833,771
ELECTRO-ACOUSTIC TRANSDUCERS
John Dunn Collinson, Otley, England, assignor to The Rank Organisation Limited, London, England
Filed May 29, 1973, Ser. No. 364,486
Int. Cl. H04r *9/04*
U.S. Cl. 179—115.5 PV 12 Claims

A transducer assembly for a flat diaphragm transducer of the type having a non-magnetic diaphragm with a conductor in the form of spaced parallel strips on one face with a cooperating magnet structure comprising a plurality of elongate alternate magnetic poles, which can be readily assembled by unskilled labour is disclosed. The transducer assembly comprises two polygonal frames having inwardly directed flanges and peripheral upstanding flanges. The inwardly directed flanges serve to define the spacing between the magnet structure and the diaphragm when two such frames are assembled with the diaphragm therebetween and the magnet structures located by the upstanding peripheral flanges of the frame members which flanges project away from one another.



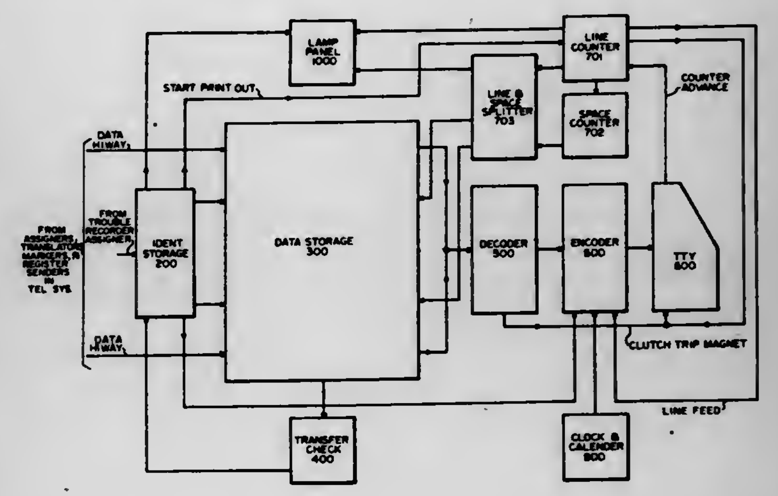
The two frame members are clamped along at least two sides in correspondence with the inwardly directed flanges, and the clamping means also holds the magnet structures and a perforated backing plate onto the frame members.

3,833,772
TIME DIVISION RESONANT TRANSFER HYBRID CIRCUIT AND METHOD
Lawrence E. Getgen, Redwood City, Calif., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Apr. 9, 1973, Ser. No. 349,572
Int. Cl. H04b *1/58*
U.S. Cl. 179—170 NC 11 Claims



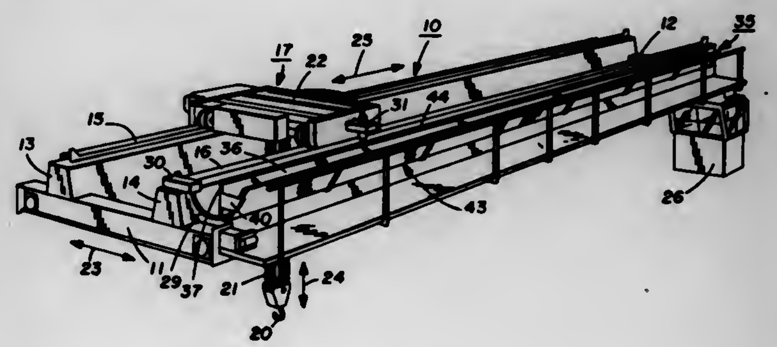
A time division hybrid circuit for communications systems which functions by means of a plurality of resonant transfer energy storage devices connected to the line, transmitting and receiving terminals of the system and a plurality of gates for periodically connecting the devices in a manner achieving the desired hybrid function. More specifically, the line connected device is periodically connected to the transmitting terminal connected device at a sampling frequency of at least two times the highest message frequency of interest (Nyquist theorem) to establish periodic conducting periods effecting resonant transfer of energy from the line device to the transmitting device; and the receiving terminal connected device is connected to the line connected device at the same sampling frequency for establishing second conducting periods effecting resonant transfer of energy with each of the second conducting periods closely following each first named conducting period and within the sampling interval.

3,833,773
TELEPHONE SYSTEM TROUBLE RECORDER
John G. Johnson, Elmhurst, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Aug. 28, 1972, Ser. No. 284,030
Int. Cl. H04m *3/24*
U.S. Cl. 179—175.2 R 6 Claims



A trouble recorder for use in a telephone system. Internal storage is provided for trouble messages received from the telephone system. A plurality of input data highways are provided with facilities for connecting the highway to alternate storage devices if the normally connected storage devices are in use.

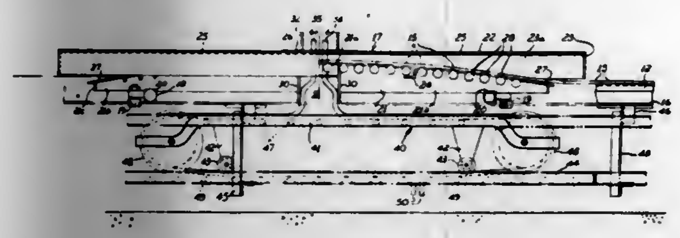
3,833,774
CABLE SUPPORT FOR OVERHEAD CRANE TROLLEYS
Robert George Mills, Galt, Ontario, Canada, assignor to Dresser Industries, Inc., Dallas, Tex.
Filed Sept. 19, 1972, Ser. No. 290,282
Int. Cl. H02g *11/00*
U.S. Cl. 191—12 R 7 Claims



Cable support apparatus for an extensive length of power supply cable connecting an electrical power source to an overhead crane trolley. An elongated, open V-trough is defined extending longitudinally juxtaposed to a cross girder of the trolley bridge. Electrical power cable extending from a power source at the bridge end truck to the trolley, is received and contained in the trough from which it is dragged by the trolley over its traversing course on the bridge.

3,833,775
UNDERFLOOR POWER SUPPLY SYSTEM FOR A VEHICLE
Adolf E. Lodder, Montreal, Quebec, Canada, assignor to Dominion Bridge Company Limited, Montreal, Quebec, Canada
Filed Aug. 7, 1972, Ser. No. 278,210
Claims priority, application Canada, July 5, 1972, 146425
Int. Cl. H02g *11/00*
U.S. Cl. 191—12 R 11 Claims

A trench in a floor parallels the path of movement of a vehicle along the floor, the trench being covered by a series of floor plates. A trolley moves alongside of the vehicle on rails in the trench and a hump on the trolley successively raises the floor plates above floor level. A power supply in the trench is connected to a power conduit on the trolley and the conduit projects through a space between the floor and the raised floor plates to supply power to the accompanying vehicle.



3,833,776

WIRE GRIP

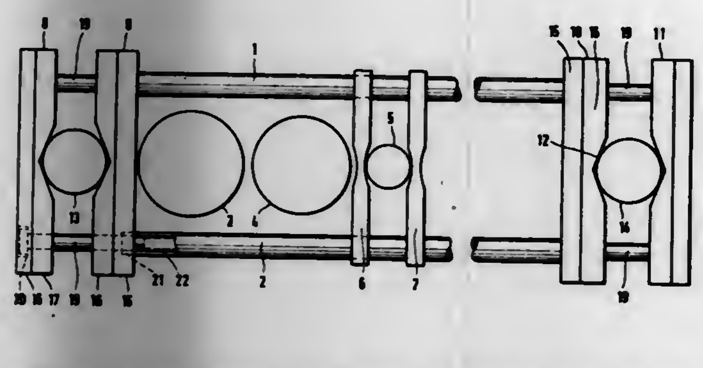
Manfred Wampfler, D-7859 Markt, and Werner Krugel, Haltingen, both of Germany, assignors to said Wampfler, by said Krugel

Filed Feb. 1, 1973, Ser. No. 328,576

Claims priority, application Germany, Feb. 1, 1972, 2204591

Int. Cl. B60l *5/36*

U.S. Cl. 191—57 **12 Claims**



Wire gripping means which may be used at a cable carriage such as is used in guiding and supporting a plurality of wires feeding power to a moveable electric machine such as a travelling crane. Each wire gripping means comprises two strips which are spaced a predetermined position from each other by a distance at least as great as the diameter of the largest wire to be supported. One wire is clampingly engaged by wire gripping means, and this serves the purpose of moving the cable carriages either closer or further apart from each other. Additional wires are held loosely between the strips so that they can shift their position relative to each other along the direction of their axes. This arrangement ensures that the wire loops which are formed between carriages can be freely formed dependent upon the stiffness of the wires and their diameters in contrast with prior art gripping means which tightly clamps the various wires so that the different wires form different curves and have a tendency to bend in diverse ways.

3,833,777

PRE-GAPPED BREAKER POINT ASSEMBLIES

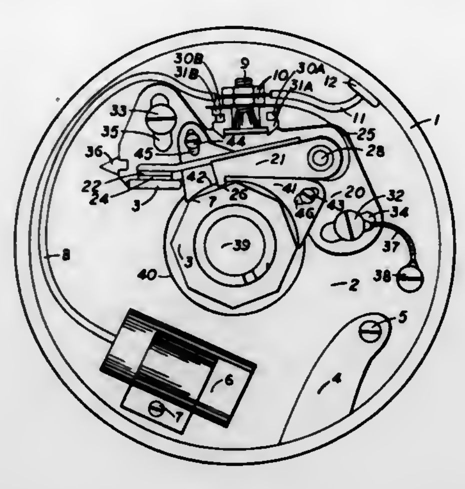
William E. Clark, P.O. Box 702, Pinedale, Wyo. 82941

Filed Apr. 30, 1973, Ser. No. 356,062

Int. Cl. H01h *19/62*

U.S. Cl. 200—31 **4 Claims**

A pre-gapped breaker point assembly for use with distributors of internal combustion engines including a contact arm, with a cam follower and breaker contact points, adapted for reciprocatory movement in consonance with the cam follower, and a novel spacing block, adapted to make contact with the distributor cam lobes, thereby establishing the distance the movable contact point separates from the stationary contact point in response to the rotating cam lobes moving the cam follower.



3,833,778

BELLOWS-TYPE TIME DELAY DEVICE FOR RETARDED SWITCH

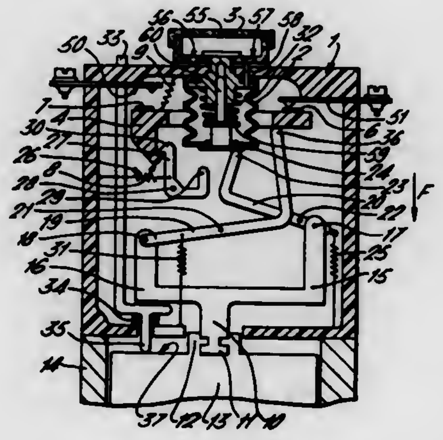
Georges Andre Faffari, Nanterre, France, assignor to La Telemecanique Electrique, Nanterre, France

Filed Dec. 7, 1972, Ser. No. 313,104

Claims priority, application France, Dec. 8, 1971, 71.44021

Int. Cl. H01h *7/03, 43/00*

U.S. Cl. 200—33 R **4 Claims**



Particularly compact, removable bellows-type timing device for electric contacts whose closing or opening can be delayed. This timing device comprises a movable contact-holder pivotally mounted on two pivots disposed on the internal surface of the shell of the device, on either side of the bellows, the shape of the holder, ring or fork, being such that it surrounds at least partially the bellows when the latter is in expanded configuration: as a result, the dimension of the device, parallel to the direction of displacement of ghe bellows, is reduced.

The device further comprises a flexibly mounted mechanical coupling component which enables dove-tail coupling with the mobile unit of an eventual relay.

3,833,779

TELEVISION TIMER TO REGULATE TELEVISION VIEWING TIME

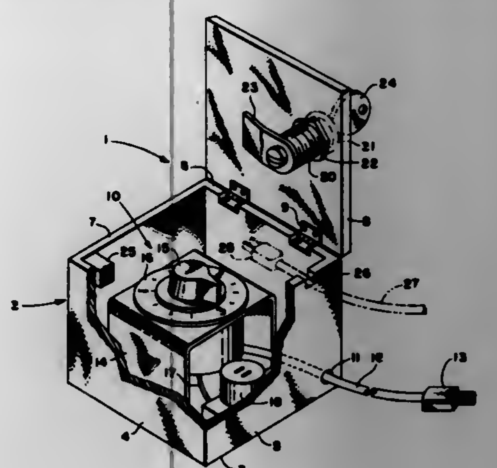
Louis A. Leone, 12809 Chippewa Rd., Brecksville, Ohio 44141

Filed May 18, 1973, Ser. No. 361,450

Int. Cl. H01h *7/08*

U.S. Cl. 200—33 R **10 Claims**

A timer and electrical receptacle controlled thereby are positioned within a container having a top which can be locked in a closed position to prevent access to the interior of the container. An electrical cord extends through an opening in the container and is adapted for connection to a source of electrical energy to provide power to the electrical receptacle as controlled by the timer, and a notch formed in one of the walls of the container is adapted for receipt of the power cord from an electrical appliance for connection in the electrical receptacle, the notch and the movable top of the container cooperating to prevent removal of the power cord.



3,833,780

DRAW OUT TYPE ELECTRICAL SWITCHGEAR WITH IMPROVED MOVABLE CONTACT ASSEMBLY MOUNTING MEANS

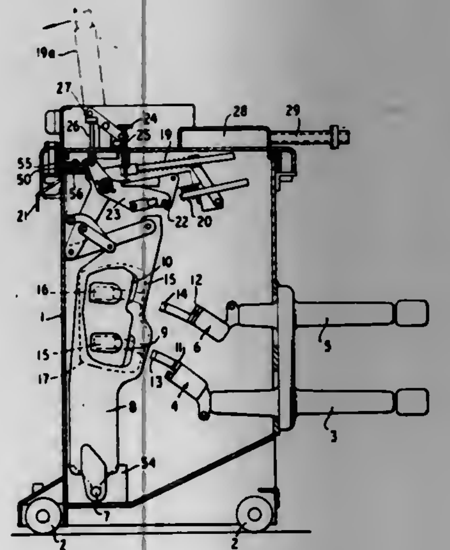
George Caton, Ilkley, England, assignor to Yorkshire Switchgear and Engineering Co., Limited, Yorkshire, England

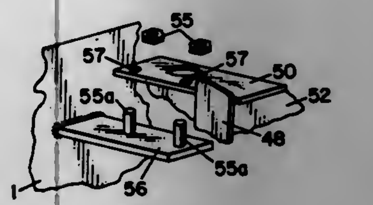
Filed Mar. 12, 1973, Ser. No. 340,303

Claims priority, application Great Britain, Mar. 16, 1972, 12483/72

Int. Cl. H01h *9/00*; **H02b** *1/10*

U.S. Cl. 200—50 AA **8 Claims**





An oil-immersed circuit breaker comprising one or more pairs of arcuate fixed contacts, an equivalent number of arcuate bridging contacts insulated from and supported on a carrier structure, means mounting the carrier structure for pivotal movement about an axis remote from the fixed contacts and coaxial with the arcuate contacts, and operating means for moving the carrier structure pivotally to effect engagement and disengagement of the bridging contacts with the fixed contacts. The removable mounting means consists of an apertured plate on the movable bridging contact assembly which coincides with structure plate with studs. Nuts are threaded onto the studs to hold the movable bridging contact assembly in fixed relationship to the framework structure.

3,833,781

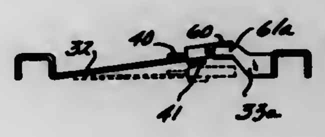
SEAT BELT BUCKLE SWITCH WITH KNIFE AND CLIP CONTACT ASSEMBLY

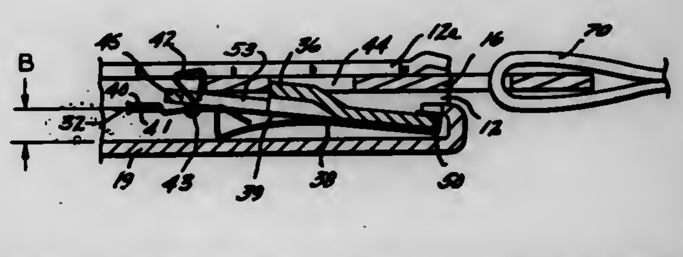
Robert J. Rumpf, Grosse Pointe, Mich., assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Sept. 10, 1973, Ser. No. 395,745

Int. Cl. H01h *3/20, 1/42*

U.S. Cl. 200—61.58 B **4 Claims**





A switch for safety buckles which is concealed from external tampering and view by location in the channel frame of the buckle and which is sensitive to the closure of the latch element on the tongue element. The switch comprises a blade and receiver, the blade being responsive to the latch position and by substitution of the receiver element the switch is convertible from normally open to normally closed. A harness jacket houses the electrical leads and the switch elements, projecting the switch elements into the channel frame housing. An actuating leaf projects from beneath the latch element and grips the blade of the switch. A cocking element or lever engageable by the tongue on insertion in the buckle is provided and is movable on closure of the latch urged by the latch spring and selectively opening or closing the switch.

3,833,782

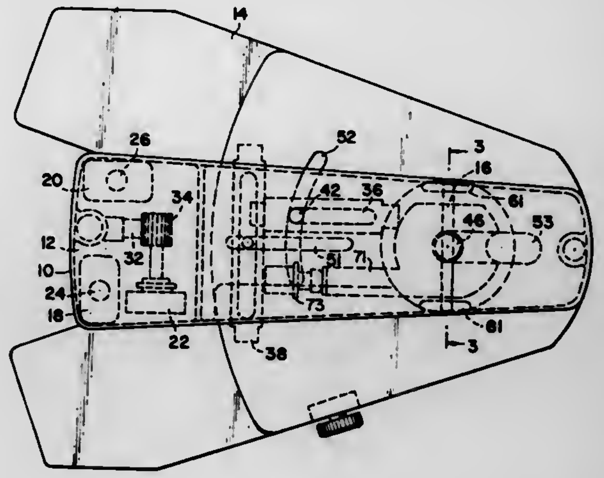
FOOT PEDAL SWITCH

Roger P. Bartel, North Tonawanda, N.Y., assignor to Raymond Lee Organization, New York, N.Y., a part interest

Filed Aug. 15, 1973, Ser. No. 388,606

Int. Cl. H01h *13/16*

U.S. Cl. 200—86.5 **4 Claims**



A foot pedal switch that can independently turn three switches on or off and can independently vary the settings of three potentiometers. As such, the foot pedal switch is readily applicable to the adjustment of a musical instrument amplifier, with the switches and potentiometers activating modular effect circuits. Each switch and potentiometer can be controlled with a foot pedal independently of the other switches and potentiometers.

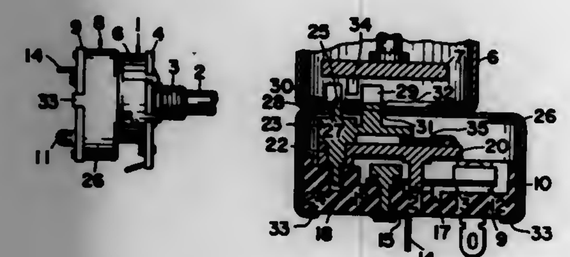
3,833,783
ROTARY SWITCH WITH SPRING LOADED CAM MEANS

Heiroku Tanaka, and Katsuyoshi Onda, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 195,438, Nov. 3, 1971, abandoned. This application Aug. 6, 1973, Ser. No. 385,677

Int. Cl. H01h *3/42*

U.S. Cl. 200—153 L **12 Claims**



A single-pole single-throw, single-pole double-throw, double-pole single-throw or double-pole double-throw switch used primarily with a variable resistor, in which not only accurate operations are secured but also the lowering of a dielectric strength, due to an arc or abrasive dust or soot, is prevented in cutting off a circuit which develops an especially high surge current.

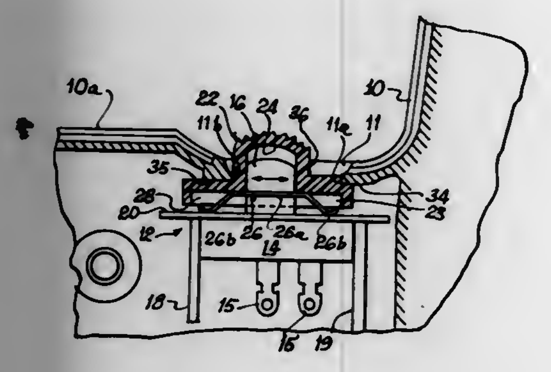
3,833,784
SAFETY SLIDE SWITCH

David J. Bobel, Buffalo Grove, and Robert F. Lotter, Mundelein, both of Ill., assignors to Skil Corporation, Chicago, Ill.

Filed Dec. 29, 1972, Ser. No. 319,920

Int. Cl. H01h *3/20, 9/06*

U.S. Cl. 200—157 **3 Claims**



The actuator of the slide switch is associated with contact means for opening and closing the same when the actuator is moved back and forth along a first path. The actuator includes an abutment surface arranged for abutting engagement with a fixed abutment surface, the latter being contained in a plane perpendicular to the first path. The actuator is mounted by support means including yieldable means permitting movement of the actuator back and forth along a path contained in said plane thereby to disengage the abutment surfaces for thereafter permitting movement of the actuator along the first path.

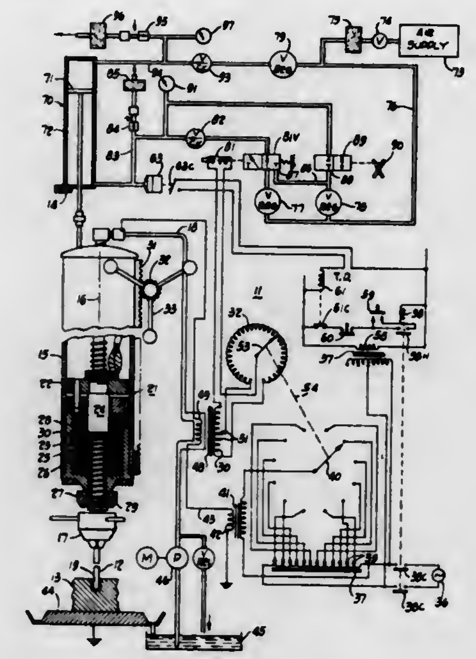
3,833,785
ELECTRODE MOVEMENT CONTROL

Jere H. Roach, Rocky River, Ohio, assignor to Cammann Manufacturing Company, Cleveland, Ohio

Filed July 2, 1973, Ser. No. 375,800

Int. Cl. B23k *9/16*

U.S. Cl. 219—69 G **12 Claims**



An electrode movement control is disclosed for an electric arc disintegrator to disintegrate an aperture into a workpiece. The electrode is held in a chuck in an electrode head which can move along an axis to move the electrode toward or away from the workpiece. Current supply means supplies current for an electric arc to disintegrate particles from the workpiece. A vibrator moves the head in a vibratory movement primarily toward the workpiece, and a fluid motor such as an air pressure cylinder and piston is connected to move the electrode head away from the workpiece whenever a current sensing transformer senses arc current in excess of a predetermined amount. The fluid motor is also controlled normally to balance the weight of the electrode head and optionally can be made to move the electrode head toward the workpiece if the head is beneath the workpiece.

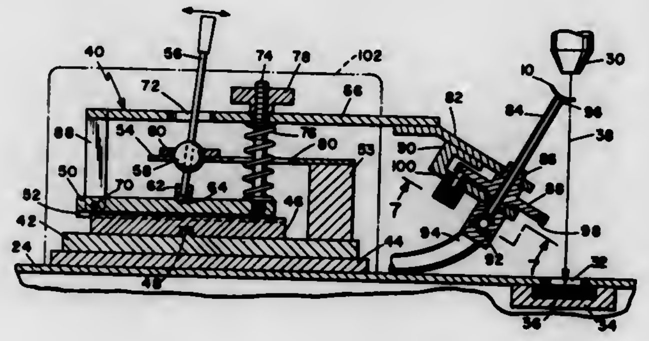
3,833,786
LASER APPARATUS FOR FENESTRATION OF CONTACT LENSES

Donald Brucker, San Diego, Calif., assignor to Continuous Curve Contact Lenses, Inc., San Diego, Calif.

Filed June 8, 1973, Ser. No. 368,193

Int. Cl. B23k *27/00*

U.S. Cl. 219—121 L **5 Claims**



Laser apparatus for fenestration of contact lenses by forming consistently precise perforations being normal to the adjacent surfaces of the lens and with the inside diameter of the perforations being larger than the outside diameter; and having smooth and effectively polished surfaces. A lens is held by vacuum on a positioning mechanism, which is magnetically held on a base for coarse positioning, and incorporates two-axis stick controlled adjustment means for precise positioning of the lens relative to the laser beam. The lens support has indexing means for rotating the lens to a predetermined number of positions to space the perforations evenly adjacent the periphery of the lens.

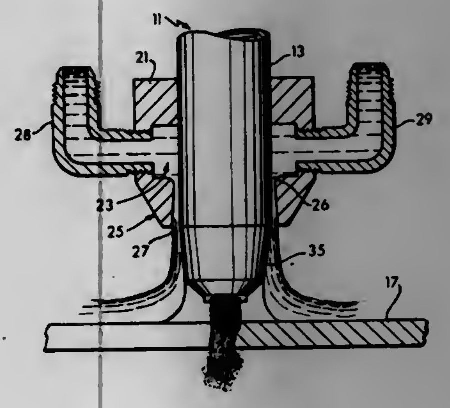
3,833,787
PLASMA JET CUTTING TORCH HAVING REDUCED NOISE GENERATING CHARACTERISTICS

Richard W. Couch, Jr., Hanover, N.H., assignor to Hypotherm, Incorporated, Hanover, N.H.

Continuation of Ser. No. 262,091, June 12, 1972, abandoned. This application Oct. 15, 1973, Ser. No. 406,333

Int. Cl. B23k *9/00*

U.S. Cl. 219—121 P **3 Claims**



In the plasma jet cutting torch construction disclosed herein, a low velocity annular water sheath is provided around the plasma jet to absorb and dampen acoustic energy generated by the jet. This sheath forms an essentially continuous shield around the jet between the torch and the workpiece.

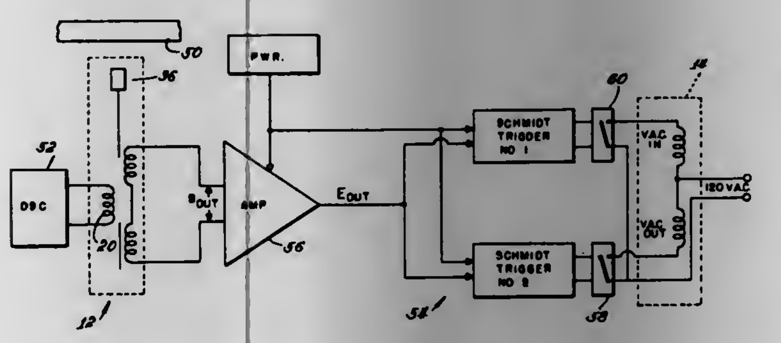
3,833,788
WELD HEAD POSITION CONTROL SYSTEM

Hubert Thomas Hovance, Revenna, and Michael Joseph Tobin, Medina, both of Ohio, assignors to Miller Electric Mfg., Co., Appleton, Wis.

Filed Aug. 16, 1972, Ser. No. 280,989

Int. Cl. B23k *9/12*

U.S. Cl. 219—124 **7 Claims**



A control system adapted to guide a weld head in a welding position along a seam configuration by positioning a probe, which is attached to the weld head, in a closely spaced floating relation to the weld seam. The probe and associated weld head are mounted on a motorized slide. The probe provides a signal having a magnitude inversely proportional to the distance from the weld seam, and this signal is used to energize the motorized slide in either the forward or reverse directions to maintain the probe within a predetermined range away from the seam.

3,833,789
THERMAL PRINTING HEAD

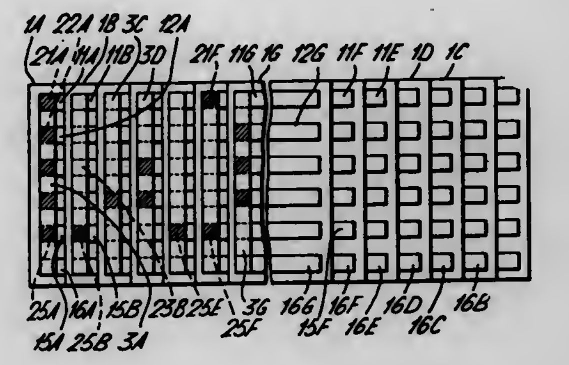
Hideo Taniguchi, Kyoto, Japan, assignor to Toyo Electronics Industry Corp., Ukyo-ku, Kyoto, Japan

Filed Mar. 8, 1973, Ser. No. 339,432

Claims priority, application Japan, Mar. 16, 1972, 47-4726795

Int. Cl. H05b *1/00*

U.S. Cl. 219—216 **18 Claims**



A thermal printing head comprising a plurality of thin insulating layers each being provided on one surface thereof with a plurality of lower slips made of an electrically conductive material arranged in spaced parallel relation to one another. The insulating layers are piled stepwise one upon another so that one end portion of the upper surface of each of the layers with the corresponding end portions of the conductive slips thereon are exposed from beneath the end of the layer immediately above. A square element made of an electrically resistive material is placed on each of the exposed end portions of the lower conductive slips. An upper slip made of an electrically conductive material extending transversely of the exposed ends of the lower conductive slips on each of the insulating layers covers the resistive elements so that the elements are sandwiched between the upper and lower conductive slips. Upon impression of a voltage between the upper and lower conductive slips, the resistive elements sandwiched therebetween are heated. By selecting the lower conductive slips between which and the upper conductive slip a voltage is to be impressed it is possible to heat those of the resistive elements which are combined to take the shape of a symbol, and with a sheet of heat-sensitive paper being applied onto the surface of the printing head, the symbol is printed on the paper.

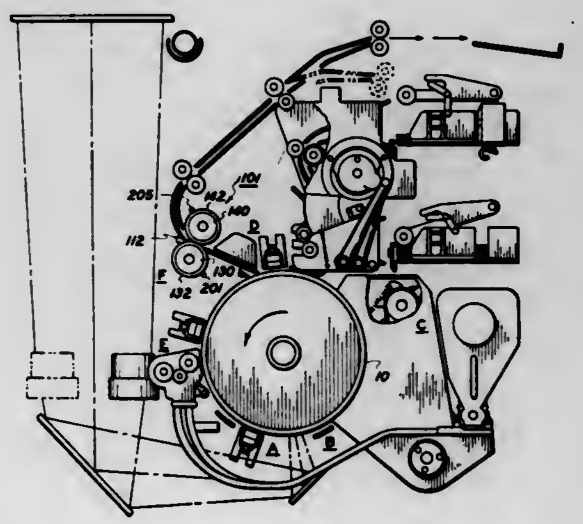
3,833,790
HEATED PRESSURE FUSING SYSTEM

Donald J. Quant, Rochester, and Edward C. Braband, Penfield, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed July 5, 1973, Ser. No. 376,770

Int. Cl. H05b *1/00*

U.S. Cl. 219—216 **4 Claims**



An improved control for maintaining a substantially constant temperature at the contact arc or nip defined by pressure heated fusing rolls. A sensing device senses the surface temperature of each of the rools and supplies signals to a control circuit which combines the signals in a parallel resistance network. An output signal is supplied to electrical heating elements associated with at least one of the rolls to maintain a constant temperature at the nip.

3,833,791

RESISTANCE TYPE FLUID HEATING APPARATUS

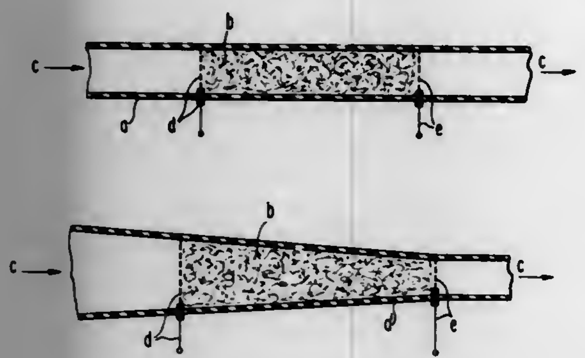
Hermann J. Schladitz, Munich, Germany, assignor to Schladitz-Whiskers A.G., Zug, Switzerland

Continuation of Ser. No. 474,797, July 26, 1965. This application Apr. 6, 1970, Ser. No. 23,090

Claims priority, application Switzerland, July 28, 1964, 9872/64

Int. Cl. H05b *1/00*

U.S. Cl. 219—381 **7 Claims**



A method and apparatus for rapidly heating gases, liquids, vapors and aerosols to a desired temperature by electric resistance heating. More particularly, the present disclosure is directed to a method and apparatus for rapidly heating up a medium such as gases, liquids, vapors, and aerosols to a desired temperature by means of an electric resistance heater, comprising the steps of guiding the medium to be treated through the electric resistance heater in such a manner as to expose said medium to a structural surface of at least about 800 square centimeters per cubic centimeter of medium to be treated.

3,833,792

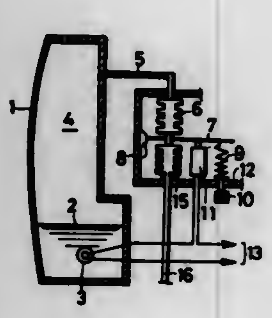
AUTOMATIC TEMPERATURE REGULATING DEVICE FOR USE WITH APPARATUSES FOR HEAT TREATMENT OF SYNTHETIC YARN

Nobuhisa Kodaira, 1-1-10 Shoan, Suginami-ku, and Mikio Kusunose, 423 Sunagawa-cho, Tachikawa-shi, both of Tokyo, Japan

Filed Aug. 23, 1973, Ser. No. 390,851

Int. Cl. F27b *9/06*

U.S. Cl. 219—388 **5 Claims**



A plurality of pressure-sensing bellows are communicated with a plurality of heating vessels, respectively, through thin tubes, and a plurality of counter bellows are coupled to said respective pressure-sensing bellows in an opposed relationship thereto. Each of said pressure-sensing bellows is provided with a lever for actuating a micro-switch. Said plurality of counter bellows are communicated with a common constant-pressure chamber, so that the pressures in said plurality of counter bellows may be regulated as a whole by varying the pressure in said common constant-pressure chamber. In accordance with the variation of the pressures in said plurality of counter bellows, the temperatures of the heating vessels are regulated as a whole.

3,833,793

ELECTRICAL COOKER UNIT FOR A CERAMIC GLASS PLATE TYPE ELECTRICAL COOKER

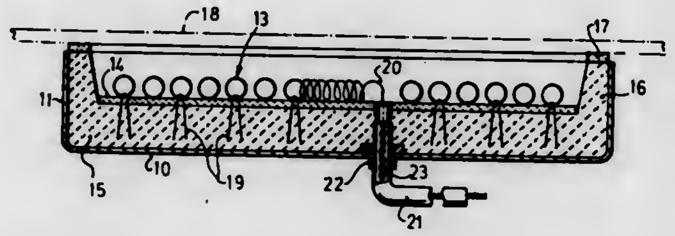
Joseph Anthony McWilliams, 160 Sutton Park Rd., and John Thomas Hughes, 3 Moorfields, Mamble, both of Kidderminster, Worcestershire, England

Filed Aug. 3, 1973, Ser. No. 385,558

Claims priority, application Great Britain, Aug. 5, 1972, 36682/72

Int. Cl. H05b *3/68*

U.S. Cl. 219—464 **3 Claims**



An electrical cooker unit for use in the type of cooker in which a ceramic glass plate is placed above the electrical heating elements. The cooker unit consists of a cylindrical metal tray, the base and side wall of which is lined with electrical and thermal insulating material formed from particulate microporous thermal insulating material which has been consolidated into block form. The base layer of insulating material has a flat planar upper surface and the electrical heating element consists of a helically coiled uncovered wire laid out in the form of a flat spiral on such upper surface and secured solely by metal staples which engage in the base layer for part of the depth thereof. The ceramic glass plate rests upon the upper edge of the side wall of the thermal insulation, leaving a space between the under side of the plate and the electrical element.

3,833,794

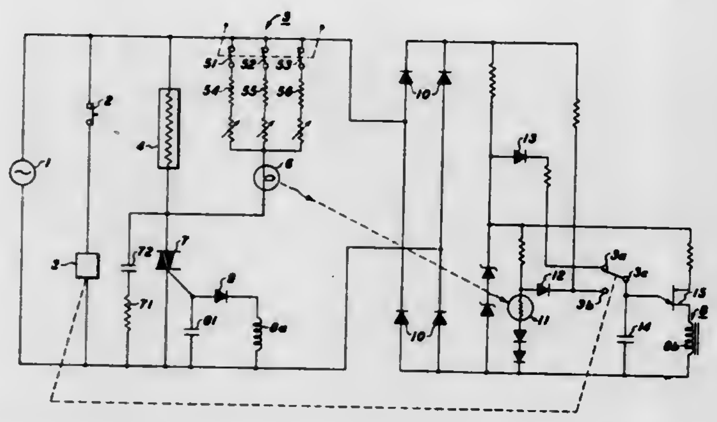
FIXING UNIT FOR USE IN A DUPLICATING APPARATUS

Munetaka Moriyama, Tokyo, Japan, assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 2, 1972, Ser. No. 303,297

Int. Cl. H05b *1/02*

U.S. Cl. 219—502 **7 Claims**



Apparatus for controlling the temperature of an infrared heating lamp used for fixing. The lamp is preheated and extra current is diverted through the lamp during fixing. A lamp and photocell arrangement senses input voltage variations and controls the apparatus to maintain the temperature of the heating lamp at a predetermined level.

3,833,795

METHOD AND MEANS FOR ASCERTAINING THE AUTHENTICITY OF SERIALLY NUMBERED OBJECTS

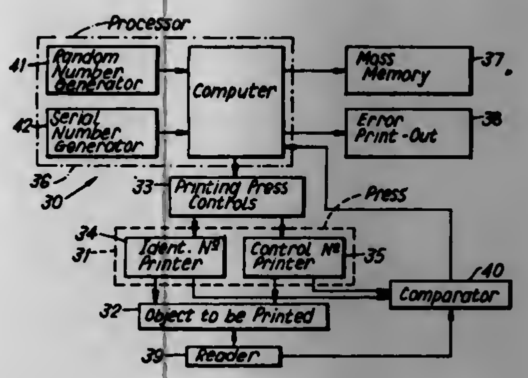
Avraham Shoshani, Kiryat Bialik; Dan Laor, Haifa; Dan Ben Zeev, Haifa; Dan Inbar, Haifa, and Benjamin Prosper Sabbah, Haifa, all of Israel, assignors to Elscint Limited, Haifa, Israel

Filed July 26, 1972, Ser. No. 275,310

Claims priority, application Israel, Aug. 5, 1971, 37456

Int. Cl. G06k *3/00*

U.S. Cl. 235—61.7 R **8 Claims**



Control over the authenticity of serially numbered objects is provided by applying an ordered pair of numbers (including alpha-numeric characters as well as any other type of indicia, visible or not visible, used for identification purposes and readable by humans and/or machines) to each object, one of the pair being serially selected and constituting an identification number, and the other of the pair being ramdomly selected and constituting a control number. A master list is kept of the ordered pairs of numbers as they are applied to objects so that the authenticity of an object can be ascertained at a later date by comparing the control number of an object with the control number in the master list associated with the identification number of the object.

3,833,796

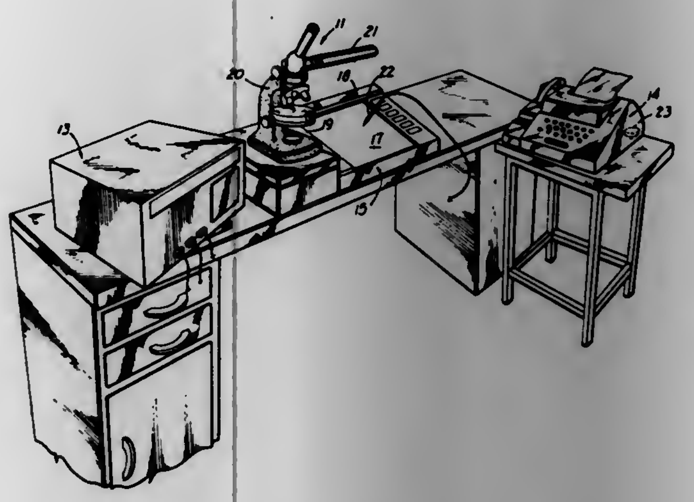
METHOD AND APPARATUS FOR CHROMOSOME DIGITIZING

Robert H. Fetner, and John C. Alderman, Jr., both of Atlanta, Ga., assignors to Georgia Tech Research Institute, Atlanta, Ga.

Filed Oct. 13, 1971, Ser. No. 188,716

Int. Cl. G06f *15/42*

U.S. Cl. 235—151.3 **14 Claims**



A chromatizer including an apparatus for and method of effecting the analysis of chromosomes including means for establishing an image of at least one chromosome, means for digitizing the distance each arm of the chromosome is from a preselected reference point, and means for automatically computing a number of quantitative measurements of the chromosome, including the length of each arm and the centromere index. The digitizing means includes means for identifying and recording the location of a plurality of points along each arm of the chromosome relative to the reference point. The establishing means includes means for superimposing the identifying means onto the image of the chromosome. The computing means includes means for displaying the computed quantitative measurements.

3,833,797

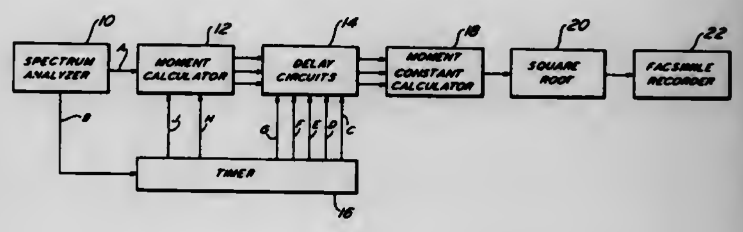
STATISTICAL NOISE PROCESSOR

Leon Grobman, Philadelphia; Benson Polin, Warminster, and Donald Savage, Danboro, all of Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 14, 1973, Ser. No. 415,910

Int. Cl. G06f *15/20*

U.S. Cl. 235—151.3 **10 Claims**



A statistical processing device for improving the signal to noise ratio of signals and transients within a noise environment. Samples of electrical signals indicative of ocean noise are applied to a calculator that obtains the mean, variance and third moment of the electrical signal. A delay circuit delays the calculator output signal for comparison with later produced electrical signal samples. A second calculator receives the outputs from the delay circuit and manipulates the difference between a first higher order moment signal to obtain an output signal having an amplitude indicative of a transient or target. The output signal is displayed on a lofargram which provides an enhanced visual indication of the sampled electrical signal contents.

3,833,798

DATA PROCESSING SYSTEMS HAVING MULTIPLEXED SYSTEM UNITS

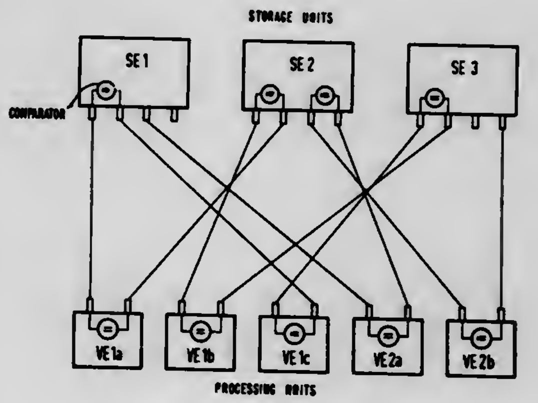
Josef Huber, Munich, and Bernhard Schaffer, Munich, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Oct. 20, 1972, Ser. No. 299,283

Claims priority, application Germany, Oct. 28, 1971, 2153830

Int. Cl. G06f *11/00*

U.S. Cl. 235—153 AE **2 Claims**



A circuit arrangement is described for the connecting of system units constituting a program controlled data processing system. These system units are data processors and storage units. The individual system units are redundantly connected in multiplex fashion in order to insure system reliability. That is, a given defective system unit will be replaced by a like redundantly provided system unit, while the defective unit is placed in a testing state and isolated from the rest of the system. The redundance of the various processors may be provided for by providing them either in duplicate or in triplicate. Each said processor contains two standard data terminals. The individual processors are cyclically connected to storage units provided in triplicate, and these storage units which are equipped with a plurality of parallel, standard data terminals. Thus, at any given time, two like processing units are connected to one of the storage units.

3,833,799

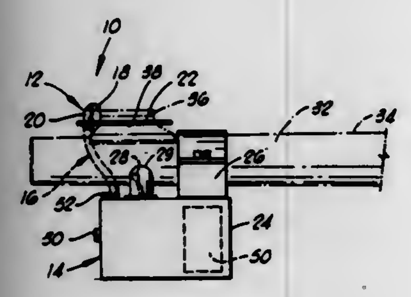
GUN SIGHT SYSTEM FOR USE UNDER LOW AMBIENT LIGHT CONDITIONS

Normand A. Audet, 27 Bomber Cir., Midwest City, Okla. 73110

Filed Dec. 15, 1972, Ser. No. 315,533

Int. Cl. F41g *1/34*

U.S. Cl. 240—6.41 **8 Claims**



A gun sight system for use with a conventional firearm or the like under low ambient light conditions. The system includes a conventional rear sight and an illuminated front sight bead employing a light-emitting diode as the source of visible light for the bead. Also included is a direct current power supply and driving circuit for operating the light-emitting diode. Another aspect of the invention is the employment of a photosensitive transistor and associated circuitry for adjusting the light output of the light-emitting diode so that will be proportion from to the ambient light. Thus the intensity of light from the diode increases when the amount of ambient light increases, and alternately, the output of the diode decreases when the amount ambient light decreases.

3,833,800

BOAT POLE LIGHT BASE ASSEMBLY

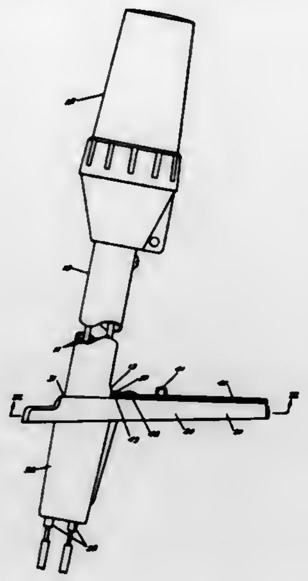
Donald E. Stewart, Grand Rapids, Mich., and Thomas J. Stonehouse, deceased, late of Wyoming, Mich. (Penny L. Stonehouse, administratrix), assignors to Atwood Corporation, Lowell, Mich.

Filed Jan. 2, 1973, Ser. No. 320,511

Int. Cl. B63b *45/04*

U.S. Cl. 240—7.5 **14 Claims**

A base assembly for a removable pole light including a base plate having a bore therethrough for telescopically receiving a light pole. The base assembly has a cover plate which is horizontally slidable over the bore. In the preferred embodiment, the cover plate urges a locking clip member against the light pole to frictionally secure the pole within the base plate bore. When the pole is removed, the cover plate is slidable to cover the bore and is locked in the covering position by the locking clip member.



3,833,801

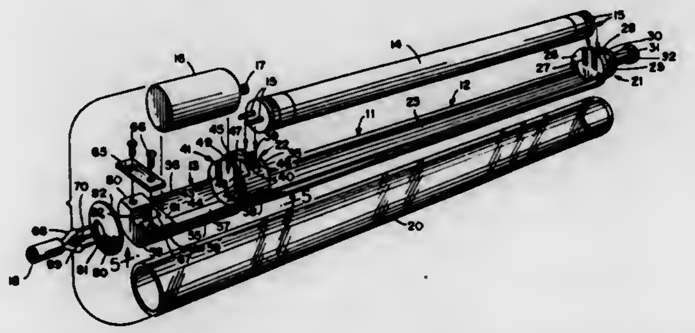
TUBE LIGHT HAND LAMP

Tony Trevithick, Gurnee, Ill., assignor to Daniel Woodhead, Inc., Northbrook, Ill.

Filed Oct. 12, 1972, Ser. No. 296,804

Int. Cl. F21l

U.S. Cl. 240—11.4 R **4 Claims**



A hand lamp with a fluorescent light tube having an elongated base with axially aligned light tube and lamp starter cradle portions, preferably made as an integral, plastics molding with slotted sockets receiving the electrical contact pins of a fluorescent light tube and a starter therefor, a light transmitting, envelope tube slidably fitted over the base in encasing relationship about said base and an elongated light tube and cylindrical starter mounted in said cradle portions, and elastomer discs closing the open ends of the envelope tube.

3,833,802

WIDE ANGLE OPTICAL SYSTEM FOR UNIFORM PLANAR ILLUMINATION

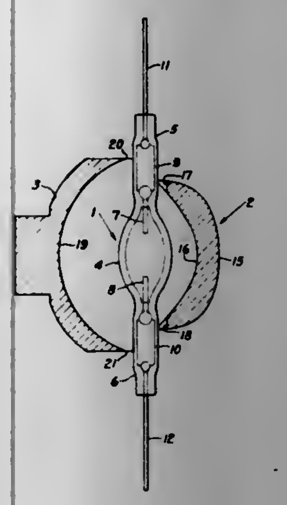
Elmer G. Fridrich, Chardon, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed May 15, 1972, Ser. No. 253,475

Int. Cl. F21v *13/04*

U.S. Cl. 240—41.3 **8 Claims**

A compact system providing uniform illumination of a plane by means of a compact source and a correcting optical system. The illumination from a point source by itself is proportional to the cosine^3 of the angle which a ray from the source makes with the normal to the plane. A wide angle lens refracts radiation from the source into a 90° cone and redistributes it within the cone inversely as the cosine^3 of the angle so that the effective illumination on the plane is uniform. The system is particularly useful for obtaining uniform printing exposure of photosensitive plates in offset printing.



3,833,803

PARABOLIC SPOTLIGHT FIXTURE HAVING ROTATABLE LAMP HOLDER

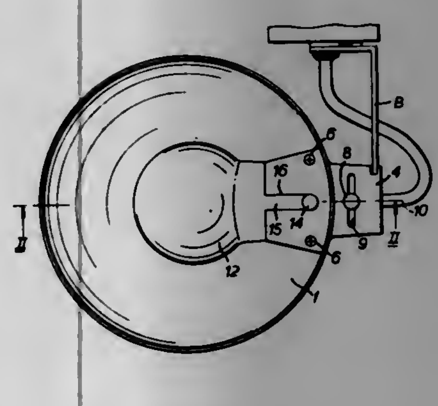
Robert Heritage, Mortlake, England, assignor to Rotaflex (Great Britain) Limited, London, England

Filed May 14, 1973, Ser. No. 360,350

Claims priority, application Great Britain, May 22, 1972, 23943/72

Int. Cl. F21v *19/02*

U.S. Cl. 240—44.2 **1 Claim**



A spotlight fitting for use with standard service lamps has a laterally extending lamp-holder, an auxiliary reflector in front of the lamp position, to conceal the lamp filament and to reflect forwardly projected light rays, and the lamp holder is rotatable to permit focusing of the lamp filament relative to the reflectors.

3,833,804

LOW LEVEL LIGHT ASSEMBLY

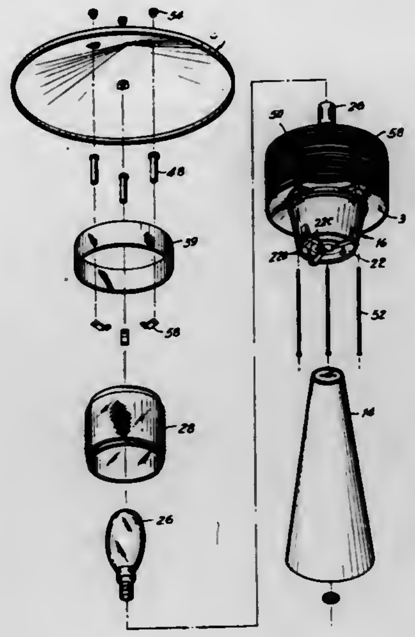
Donald V. Vesely, Lombard, Ill., assignor to Gerneral Signal Corporation, New York, N.Y.

Filed July 5, 1973, Ser. No. 376,531

Int. Cl. F21p *5/00*

U.S. Cl. 240—125 **5 Claims**

A low level light assembly or fixture for projecting light downwardly on a surrounding area while eliminating direct light to persons walking nearby. A louvered light-distributing housing is provided and also a hood for the fixture; the hood and louvered housing being locked together by a special arrangement which includes louver locking means in the form of upper and lower interfitting sleeves, the upper sleeve serving as the hood support. The hood locking means comprises a locking rod and a locking nut. The locking nut is held in a recess in the hood; the locking rod, which has a recessed head



located at the base of the fixture, extends through the aforesaid sleeves and threadedly engages with the locking nut at the top of the hood.

3,833,805

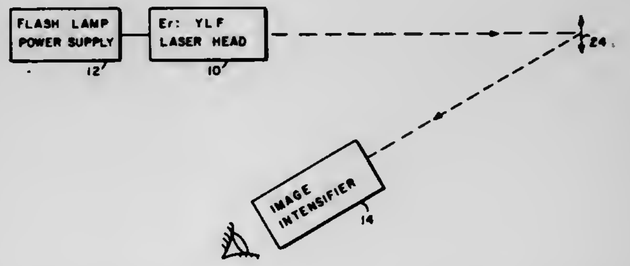
LASER SYSTEM

Charles S. Naiman, Brookline, Mass.; E. P. Chicklis, Merrimack, N.H., and Arthur Linz, Winchester, Mass., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed May 1, 1972, Ser. No. 249,172

Int. Cl. H01s *3/12*

U.S. Cl. 250—199 **4 Claims**



A room temperature optically pumped solid state laser operating in the 0.8 to 0.9 micron region with inherently low beam divergence enchances covert laser systems because of compatability with high quantum efficiency low noise photocathodes.

3,833,806

AUTOMATIC FOCUS CONTROL CIRCUIT

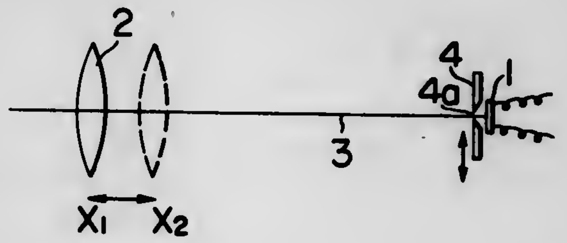
Takayoshi Sato, Tokyo, Japan, assignor to Fuji Photo Optical Co., Ltd., Omiya-shi, Japan

Filed Oct. 2, 1973, Ser. No. 402,763

Claims priority, application Japan, Oct. 4, 1972, 47-99572

Int. Cl. G03b *3/00*

U.S. Cl. 250—201 **7 Claims**



A vibrating slit is provided in front of a photoelectric element which is positioned on a focal plane of a taking lens of a camera and receives a light image focussed thereon by the lens. The output current of the photoelectric element is differentiated through a differentiation circuit and is put into a differential amplifier at two input terminals thereof through memory circuits of different time constant connected with the two input terminals of the amplifier respectively. The output of the differential circuit is connected with an operating circuit for controlling a focussing ring and the like.

3,833,807

DIGITAL LENGTH MEASURING MEANS

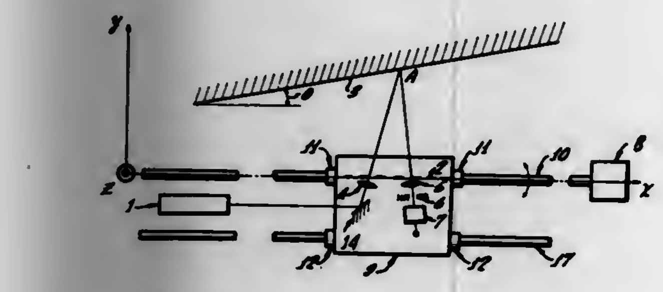
Hideomi Takeda, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed June 8, 1973, Ser. No. 368,307

Claims priority, application Japan, June 21, 1972, 47-62108

Int. Cl. G01d *5/30*

U.S. Cl. 250—234 **10 Claims**



A digital length measuring means including a transparency diffraction grating, a base plate having a mirror plane which is inclined with respect to the surface of the grating and an optical system arranged with respect to said diffraction grating and said base plate to produce Moire fringe contour lines, which are photoelectrically transformed into pulses which indicate certain unit lengths of relative shift of the Moire fringe lines caused by moving said diffraction grating and said optical system as a unit in a direction perpendicular to the grating lines.

In a variation, two or more photoelectric elements may be provided to divide into equal parts one period of the Moire fringe lines produced at the image forming plane of the optical system. Also the transparency diffraction grating may be formed of two complex gratings whose grating lines are shifted by one-fourth pitch from each other, and two photoelectric transforming devices are provided corresponding to each of these two gratings so that the pulses indicating unit length are more finely divided. In another variation, the mirror plane of the base plate placed opposite to the transparency diffraction grating is formed with a triangular waveform and is positioned parallel to the grating surface.

3,833,808

DEFLECTION ANGLE MEASURING APPARATUS AND METHOD

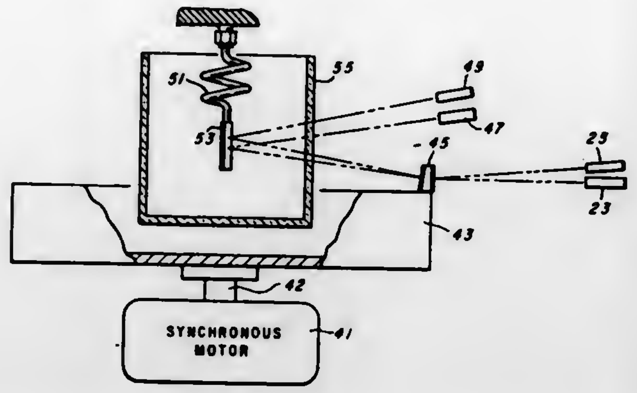
Harold A. Armand, Houston, Tex., assignor to Teaxs Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 212,455, Dec. 27, 1971, Pat. No. 3,788,144. This application Feb. 15, 1973, Ser. No. 332,966

Int. Cl. H01j *3/14*

U.S. Cl. 250—236 **5 Claims**

In an apparatus for measuring the rotation angle of a rotatable member, the rotation angle is measured as a function of the time required for a uniformly rotating object to rotate through the angle of deflection. An optical electrical system is employed to optically detect the deflection angle and electronically count the number of pulses of a reference oscillator signal which occur during the time required to uniformly rotate through the detected angle. A display device is calibrated to display the count of the counter in actual units of angular rotation.



3,833,809

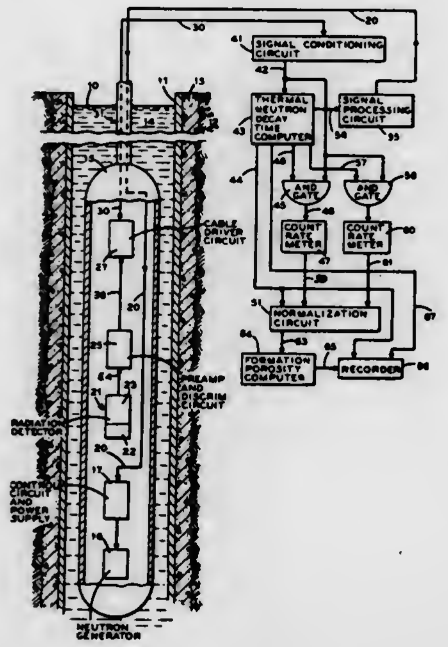
NEUTRON LOGGING OF FORMATION POROSITY AND CHLORINITY

Ralph G. Beil, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Continuation of Ser. No. 126,750, March 22, 1971, abandoned. This application May 9, 1973, Ser. No. 358,601

Int. Cl. G01v *5/00*

U.S. Cl. 250—270 **28 Claims**


SIGNAL CONDITIONING CIRCUIT
THERMAL NEUTRON DECAY TIME COMPUTER
SIGNAL PROCESSING CIRCUIT
AND GATE
AND GATE
COUNT RATE METER
COUNT RATE METER
CABLE DRIVER CIRCUIT
NORMALIZATION CIRCUIT
FORMATION POROSITY COMPUTER
RECORDER
PREAMP AND DISCRIM CIRCUIT
RADIATION DETECTOR
CONTROL CIRCUIT AND POWER SUPPLY
NEUTRON GENERATOR
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51

An embodiment of the invention shows a pulse neutron technique for measuring earth formation porosity. For example, the inelastic neutron scattering gamma radiation emitted from a formation in a broad energy range provides a measure of the porosity in a way that is free of formation fluid and matrix composition influences. Preferably, the inelastic scattering gamma rays characterizing this measurement are observed in a 10 microsecond interval that is initiated during an early part of each neutron pulse. The observed inelastic scattering gamma ray activity is normalized to compensate for variations in neutron source strength. The normalized data then is converted directly into a formation porosity output.

3,833,810

METHOD OF X-RAY DIFFRACTION TOPOGRAPHY OF MONOCRYSTALS AND APPARATUS FOR EFFECTING SAME

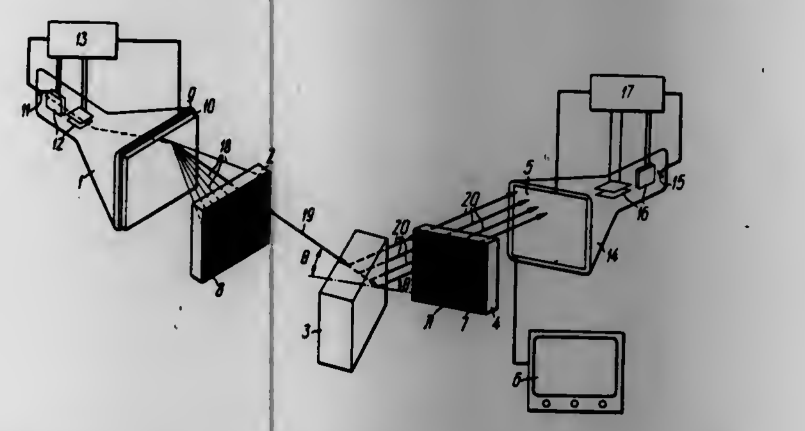
Valery Pavlovich Efanov, ulitsa Profsojuznaya, 96, kv. 192, Moscow; Nikolai Ivanovich Komyak, Kostromskoi prospekt, 22, kv. 71, Leningrad; Vsevolod Grigorievich Ljuttsau, ulitsa Garibaldi, 19, korpus 1, kv. 49, Moscow, and Nikolai Vasilievich Rabodzei, ulitsa Institutskaya, 6a, kv. 39, Fryazino Moskovskaya oblasti, all of U.S.S.R.

Filed Jan. 24, 1973, Ser. No. 326,335

Claims priority, application U.S.S.R., Jan. 28, 1972, 1743310; Jan. 28, 1972, 1747007

Int. Cl. G01n *23/20*

U.S. Cl. 250—273 **3 Claims**



A method of X-ray diffraction topography of monocrystals, consisting in irradiation of every point of an investigated area of the cross-section of a monocrystal by X-rays and separation of the radiation diffracted at a specific angle from said every point of the investigated area of the cross-section of the monocrystal, simultaneously for all these points of the investigated area. An apparatus for X-ray diffraction topography of monocrystals, realizing the above method, comprising a source of X-rays and an investigated monocrystal, a collimator, a radiation detector and a means for recording the topogram of the monocrystal, positioned successively in the path of the X-radiation. The collimator, of which the direction of collimation is oriented at a specified orientation angle in relation to the crystallographic axes of the monocrystal, is in the form of a two-dimensional matrix of parallel capillaries.

3,833,811

SCANNING ELECTRON MICROSCOPE WITH IMPROVED MEANS FOR FOCUSING

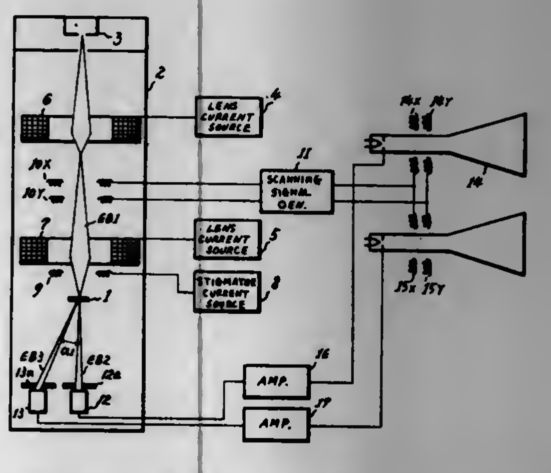
Hirotami Koike; Shigekata Sakurai, and Katsuyoshi Ueno, all of Tokyo, Japan, assignors to Nihon Denshi Kabushiki Kaisha, Tokyo, Japan

Filed July 9, 1973, Ser. No. 377,524

Claims priority, application Japan, July 11, 1972, 47-69360

Int. Cl. H01j *37/26*

U.S. Cl. 250—306 **7 Claims**



A scanning electron microscope for observing a transmitted electron scanning image of a specimen incorporating a means for detecting electron beams transmitted in more than one direction separately and a means for displaying scanning images corresponding to said detected beams, thus facilitating the focusing adjustment of the condenser lens system incorporated in said scanning electron microscope.

3,833,812

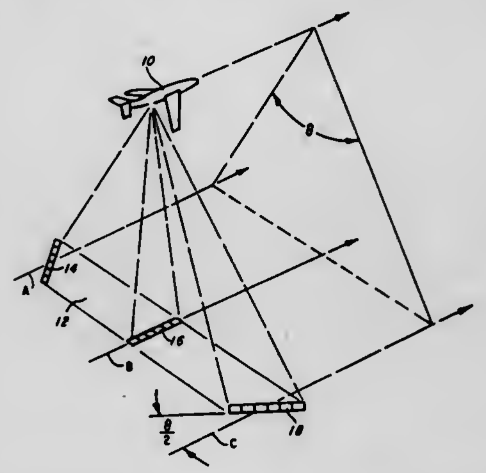
STABILIZATION SYSTEM FOR AIRBORNE SCANNERS

Frank N. Reilly, Plano; Jesse C. Wilson, and Charles P. Cole, both of Richardson, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 12, 1973, Ser. No. 350,565

Int. Cl. G01j *5/00*

U.S. Cl. 250—330 **10 Claims**



A system is provided for achieving stabilization and image derotation of an airborne scanner. The system includes a multichannel scanner, each channel producing a series of signals as a desired area is scanned. The relative time location of the signals in the various channels varies according to the scan position. A charge transfer device shift register is provided for receiving the output of each channel. Each shift register is in turn controlled by a variable frequency source for sampling the output of the scanner at a variable rate. The variable rate for each shift register is different and is related to the scan position such that rotation components of the scanner are eliminated. In a preferred embodiment, the output of the shift-registers is advantageously connected to a light-emitting-diode display.

3,833,813

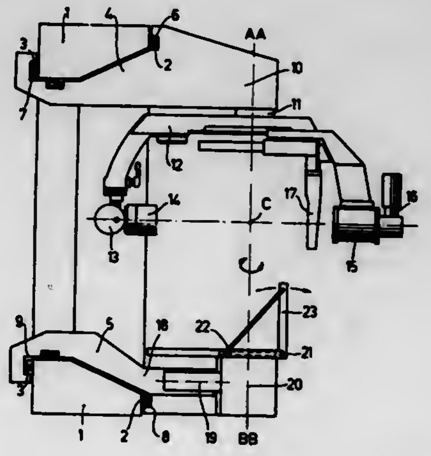
DEVICE FOR EXAMINING A PATIENT, IN PARTICULAR BY MEANS OF X-RAYS

Pierre Lucien Jules James, Saint-Gratien (Val D Oise), France, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 162,564, July 14, 1971, abandoned. This application Sept. 25, 1972, Ser. No. 292,120

Int. Cl. G03b *41/16*

U.S. Cl. 250—446 **3 Claims**



An x-ray examination device including on the frame two guides defining circular paths about a single horizontal axis, with a first and a second carriage movable along said paths, the first carriage supports a radiation section, and the second carriage accommodates a patient support. The radiation section and patient support are also pivotable about a common vertical axis extending between them.

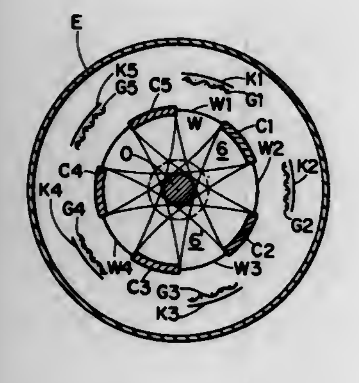
3,833,814
APPARATUS FOR SIMULTANEOUSLY UNIFORMLY IRRADIATING A REGION USING PLURAL GRID CONTROLLED ELECTRON GUNS

Samuel V. Nablo, Lexington, Mass., assignor to Energy Sciences Inc., Burlington, Mass.

Continuation of Ser. No. 151,640, June 10, 1971, abandoned. This application June 20, 1973, Ser. No. 371,763

Int. Cl. H01j *37/00;* G01n *23/00*

U.S. Cl. 250—492 **5 Claims**



This disclosure deals with novel techniques and apparatus for the electron-irradiation of objects bilaterally, by directing energetic electron beams substantially simultaneously into such objects from a plurality of widely different directions.

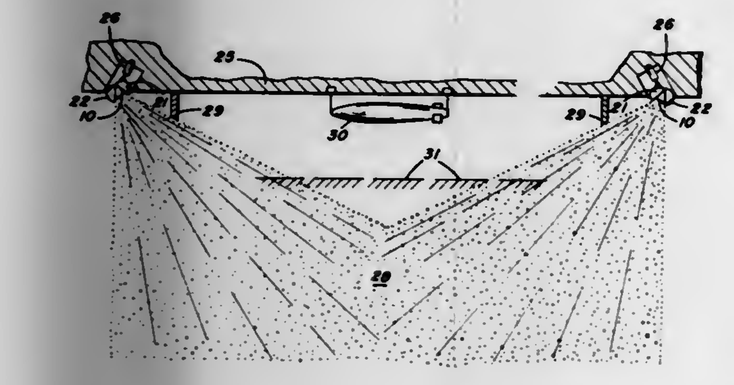
3,833,815
KRYPTON SOURCE

Ronald J. Fowler, Columbus, Ohio, assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 18, 1969, Ser. No. 800,837

Int. Cl. H01j *17/20;* F41f *5/02*

U.S. Cl. 250—496 **10 Claims**



A radiation source for use in an arming system for airborne weapons comprising a stainless steel sphere filled with krypton-85 (Kr^{85}) radioactive gas at high pressure and having gold plated internal surfaces to form Bremsstrahlung targets which continuously emit gamma radiation when subjected to the beta radiation from the Kr^{85}. A depleted uranium (U^{238}) or tungsten shield surrounds the steel sphere and means are provided for pivoting part of the shield away from the steel sphere to permit the gamma radiation to escape and irradiate part of the path followed by a released bomb. The Kr^{85} may be harmlessly dissipated in the atmosphere, if desired, by activation of an explosive squib fixed to a fill tube on the sphere.

3,833,816
APPARATUS FOR DETECTING THE CONDITION OF AN OPAQUE BAND-SHAPED MATERIAL TRAVELLING ON A DELIVERY SYSTEM

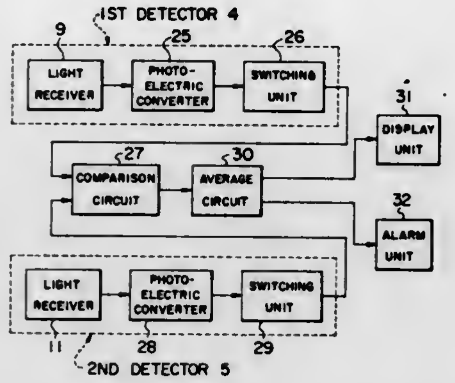
Tokumatsu Emura, Yokohama; Shigeo Kawabata, Tokyo, and Takashi Shimoma, Yokohama, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 5, 1973, Ser. No. 348,111

Claims priority, application Japan, Apr. 6, 1972, 47-34671

Int. Cl. G01n *21/18, 21/30;* G02b *5/14*

U.S. Cl. 250—561 **3 Claims**



An apparatus for detecting the parallelism between the lengthwise edge of an opaque band-shaped material travelling on a delivery system relative to the longitudinal axis of the delivery system wherein a first and a second detector are spatially arranged along the lengthwise edge, in the direction of travel of the lengthwise edge on the delivery system, so as to detect the position of the lengthwise edge, each detector including of a light projector and a light receiver facing said projector across the lengthwise edge of the travelling material. Each light receiver preferably includes an aggregate of numerous fine optical fibers and numerous photoelectric conversion elements connected to the individual fibers. Outputs from the first and second detectors are conducted from the numerous photoelectric conversion elements supplied with light from the light projectors to two input terminals of a differential amplifier which in turn generates outputs for detecting the parallelism of the edge of the band-shaped material travelling on the delivery system.

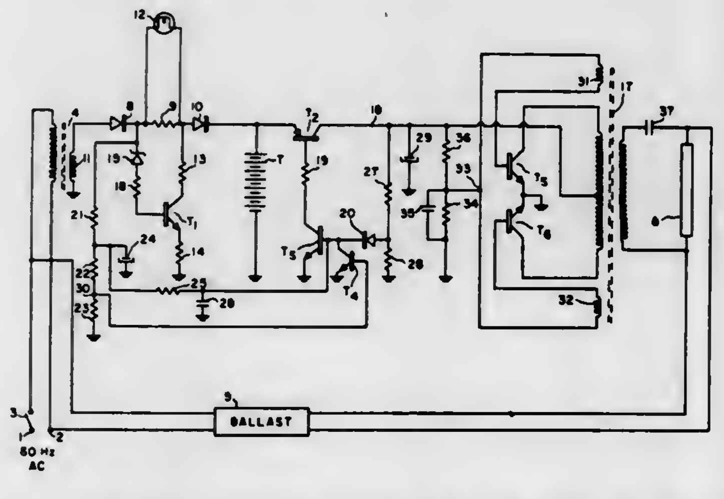
3,833,817
EMERGENCY LIGHTING SYSTEM

Raoji Patel, Watertown, Mass., assignor to North American Philips Corporation, New York, N.Y.

Filed Apr. 16, 1973, Ser. No. 351,243

Int. Cl. H02j *9/06*

U.S. Cl. 307—66 **12 Claims**



An emergency lighting system that includes an electric discharge lamp and a DC-AC converter to supply emergency power to the lamp upon failure of the AC line voltage. A battery is charged with a constant current from the AC supply voltage. A transistor switching device connects the battery to the converter when a sensing device senses the absence of the AC voltage. A bias voltage that holds the switching device closed is derived from the battery via the emitter-collector path of the transistor switch. A given drop in the battery voltage is sensed to open the switching device to prevent an excessive current drain on the battery. The presence of the AC voltage is sensed to hold the switching device open and thereby prevent operation of the converter during normal operation of the lighting system.

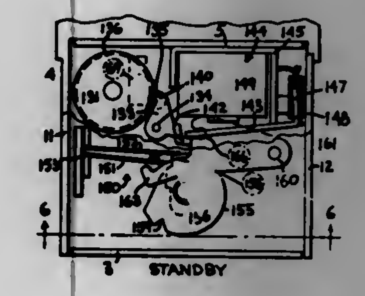
3,833,818
CONTROL DEVICE AND SYSTEM

John L. Harris, Clearwater, Fla., assignor to Deltral Corp., Bellwood, Ill.

Division of Ser. No. 179,422, Sept. 10, 1971, Pat. No. 3,745,273. This application Jan. 8, 1973, Ser. No. 321,715

Int. Cl. H01h *7/00*

U.S. Cl. 307—141 R **9 Claims**



A heavy duty contactor mechanism for refrigeration compressor motors is directly actuated by a timing mechanism controlled by a thermostat. The timing mechanism protects against false starts from thermostat vibration, and interposes a delay between stopping and starting of the compressor sufficient to allow pressures to equalize. Power for operating the contactor switches is stored in a spring while the timer motor is running through the delay period.

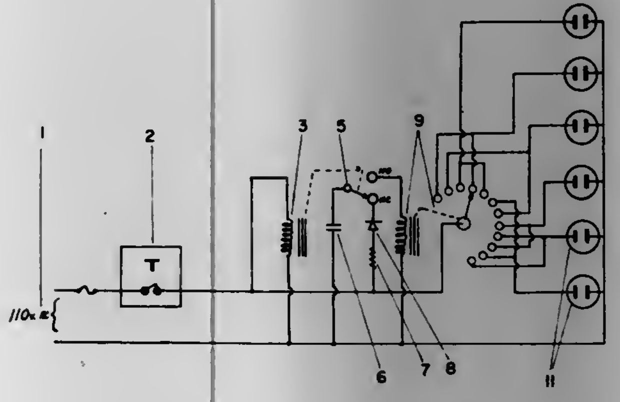
3,833,819
HOME SIMULATOR

John W. Dietrich, 3591 Snyder Dr., Wooster, Ohio 44691

Filed May 29, 1973, Ser. No. 364,433

Int. Cl. H01h *7/00*

U.S. Cl. 307—141.8 **1 Claim**



This device is a system for pseudo-random electrical switching of lights and/or small radios in the home or office. Timing of the switching intervals is unpredictable, except by long-time (weekly) observance. A combination of two (2) non-synchronous clocks and a random-cut cam-wheel is used to operate a microswitch. That switch controls the action of a stepping-switch for electrical distribution to lamps or small radios. The stepping-switch is wired for non-consecutive distribution to increase the appearance of random time intervals.

3,833,820
ELECTRIC POWER SUPPLYING AND RECEIVING DEVICE

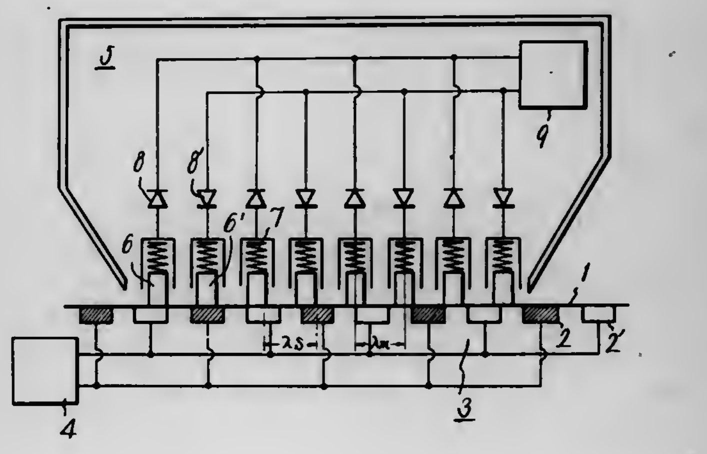
Shinobu Itoh, 401, 6-10 Shinkawa-5, Mitaka-shi, Tokyo, Japan

Filed Nov. 20, 1972, Ser. No. 307,789

Claims priority, application Japan, Dec. 1, 1971, 46-97515

Int. Cl. H02m *1/18*

U.S. Cl. 307—146 **7 Claims**



The device comprises an electric power supplying member including a plurality of sets of electric power supplying contact pieces and an electric power receiving member including a plurality of sets of electric power collecting contact pieces, the arrangments of the supplying and collecting contact pieces being not dimensionally coincident with each other. The supplying contact pieces or contacts are arranged in sets each including a number thereof equal to the number of different polarity terminals of a source of electric potential, with each supplying contact of a set being connected to a different respective terminal of the source and corresponding supplying contacts of successive sets being connected to the same respective terminal of the source. Respective diodes are connected to the collecting contact pieces or contacts, with adjacent diodes being poled in opposite respective directions and connected to different respective terminals of a load. The receiving member is selectively positionable in engagement along the supplying member, and the respective arrangements of the supplying and receiving contacts is such that, when the receiving member is engaged with the supplying member, the input terminals of the load are continuously electrically connected to the same respective output terminals of the source irrespective of the relative positions of the supplying and receiving members. Thereby, responsive to a voltage from the source being impressed on the supplying contacts, a rectified current is supplied to the load in accordance with the relative polarities of the diodes.

3,833,821
VOLTAGE CONVERTER

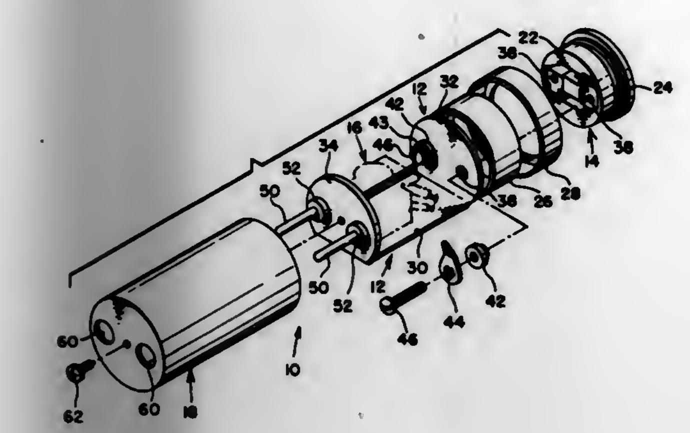
Donald R. Weaver, 9710 N.E. 24th, Bellevue, Wash. 98004

Filed Apr. 19, 1973, Ser. No. 352,639

Int. Cl. H02j *7/00*

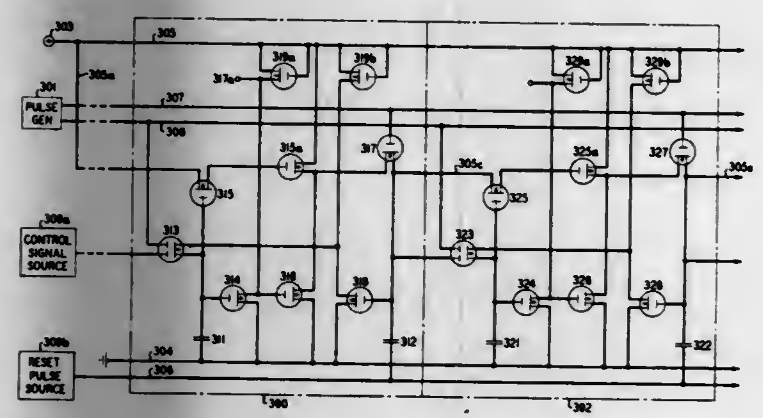
U.S. Cl. 307—150 **8 Claims**

Voltage converter primarily for travelers to transform 220/240 volts A.C. to 110/120 volts A.C. The device is constructed of all solid state electrical components. It is designed so that the mounting bracket for the components also acts as a heat sink. The device includes a resistance across the output terminals to allow its use with a wide variety of appliances.



3,833,822
RIPPLE FREE COUNTER

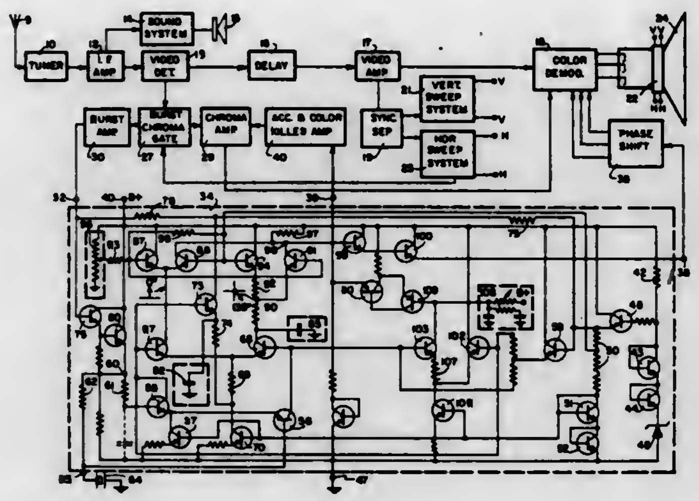
Robert Lawrence Carbrey, Boulder, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 21, 1972, Ser. No. 317,183
Int. Cl. H03k *23/08*
U.S. Cl. 307—225 C **25 Claims**



A ripple free counter includes a plurality of cascaded stages and an input stage. The input stage input is connected to a voltage source and counting signals are applied to all stages simultaneously. Each stage includes first and second storage devices operative in first and second states. The second storage device is connected to the stage output. A first switching arrangement is responsive to the counting signal and the first storage device being in its first state to connect the stage input to the stage output. When all preceding stages have their first storage devices in their first state, the source voltage is applied to the stage input via the series connected first switching arrangements of all preceding stages to place the stage second storage device in its first state. A second switching arrangement is responsive to the counting signal and the stage first storage device being in its second state to place the second storage device in its second stage. Upon termination of the counting signal, a third switching arrangement is responsive to the stage second storage device being in its first stage and the second storage device of the immediately preceding stage being in its first state to place the stage first storage device in its second state and is responsive to the stage second storage device being in its second stage and the second storage device of the immediately preceding stage being in the first state to place the first storage device of the stage in its first state.

3,833,823
SIGNAL PROCESSING CIRCUIT FOR A COLOR TELEVISION RECEIVER

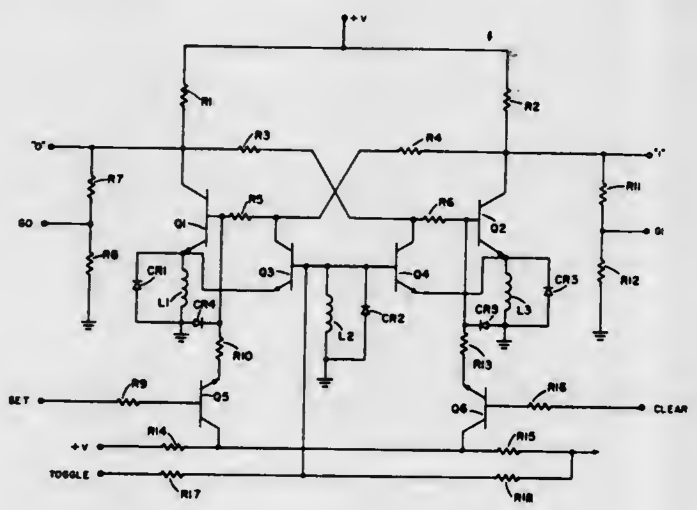
Gildo Cecchin, Niles, and Francis H. Hilbert, Rover Grove, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Continuation of Ser. No. 121,009, April 4, 1971, abandoned, which is a division of Ser. No. 880,320, Nov. 26, 1969. This application May 15, 1973, Ser. No. 360,431
Int. Cl. H03k *9/02*
U.S. Cl. 307—235 **2 Claims**



A color television receiver uses an integrated circuit to provide the subcarrier reference signals and ACC control voltage for the receiver. The circuit includes a first differential amplifier, unbalanced at the burst signal frequency, operated as the color reference oscillator to provide first and second differently phased output signals which are applied to a pair of differential steering gates. A phase-shift hue control of the color reference signal is obtained by adding selected outputs of the pair of differential steering gates. In addition, a differential amplifier is operated as a diodeless detector for deriving an ACC voltage from the oscillator output when burst signals are applied to the input of the oscillator.

3,833,824
RADIATION HARDENED FLIP-FLOP

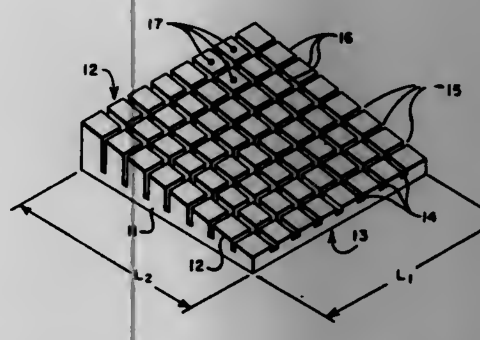
Kenneth B. Parks, Staley, N.C., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Sept. 6, 1972, Ser. No. 286,789
Int. Cl. H03k *3/286*
U.S. Cl. 307—291 **1 Claim**



Two inductors are inserted in series with the controlling transistors' paths to ground, and diodes shunt the inductors. Further diodes are back connected between the base circuits of the controlling transistors and ground. A third inductor shunted by a diode is connected between the base circuits of the toggle transistors and ground. The time constants of these circuits are selected such that the flip-flop returns to its initial state after a high radiation level has subsided due to the stored energy in one of the inductors.

3,833,825
WIDE-BAND ELECTROACOUSTIC TRANSDUCER

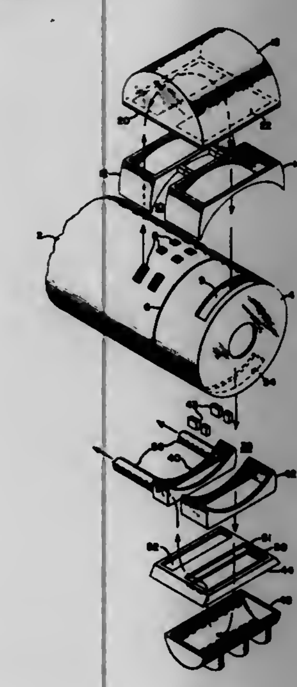
David E. Haan, Edmonds, Wash., assignor to Honeywell, Inc., Minneapolis, Minn.
Filed Apr. 11, 1973, Ser. No. 349,937
Int. Cl. H01j *7/00*
U.S. Cl. 310—9.5 **9 Claims**



A thickness-mode electroacoustic transducer wherein an active body of non-uniform thickness is employed to provide uniform wide-band frequency response. The body may be wedge-shaped, having non-parallel planar major surfaces. At least one of the major surfaces is subdivided into a two-dimensional array of poles by means of grooves formed in the surface for the purpose of providing improved frequency and directional response.

3,833,826
GAS-COOLED DYNAMOELECTRIC MACHINE

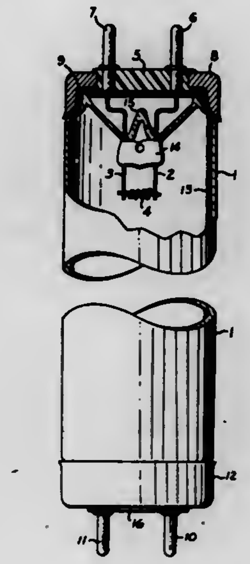
Sterling C. Barton, Scotia; James B. Archibald, and Robert W. Albright, both of Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed June 21, 1973, Ser. No. 372,052
Int. Cl. H02k *9/14*
U.S. Cl. 310—52 **5 Claims**



A dynamoelectric machine with a mid-frame section and an end-frame section has manifold means comprised of a mid-frame manifold and an end-frame manifold, each sealingly connected to the respective frame sections. A gas-carrying transition means for conveying cooling gas between the manifolds is sealingly connected to the manifold means. Sealing rails facilitate the attachment of the gas-carrying transition means to the manifold means and reduce the overall space occupied by the dynamoelectric machine.

3,833,827
LAMP EMPLOYING A SILICA MODIFIED PHOSPHER

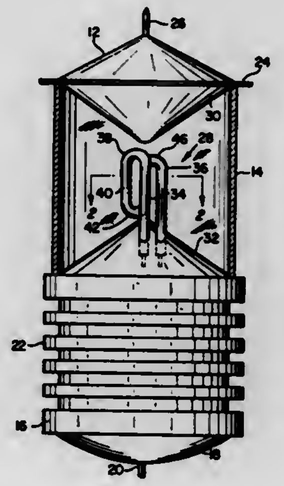
Francis Nathan Shaffer, Towanda, Pa., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.
Division of Ser. No. 183,516, Sept. 24, 1971, Pat. No. 3,790,494, which is a continuation-in-part of Ser. No. 30,461, April 21, 1970, abandoned. This application Apr. 13, 1973, Ser. No. 350,920
Int. Cl. H01j *61/44, 61/48*
U.S. Cl. 313—486 **3 Claims**



Silica-modified, lead-activated calcium tungstate phosphor compositions having a Ca:W ratio of substantially 1 and substantially all calcium and tungsten present as calcium tungstate are disclosed wherein the phosphor contains, as a modifier, silicon dioxide in an amount sufficient to produce increased brightness to about 0.03 mole per mole of calcium tungstate and as an activator, lead in an amount sufficient to produce luminescence to about 0.03 mole per mole of calcium tungstate. A process for producing the phosphor composition is also disclosed wherein in addition to the sources of calcium and tungstate in a Ca:W ratio of about 1 and a lead source there is added extremely finely divided silicon dioxide to form a relatively uniform admixture that is thereafter milled to a particular particle size and heated under controlled temperature conditions for a time sufficient to produce the luminescent phosphor composition. Additionally, an improved lamp utilizing a silica modified lead activated calcium tungstate phosphor is disclosed.

3,833,828
ILLUMINATION ARRAY STRUCTURE

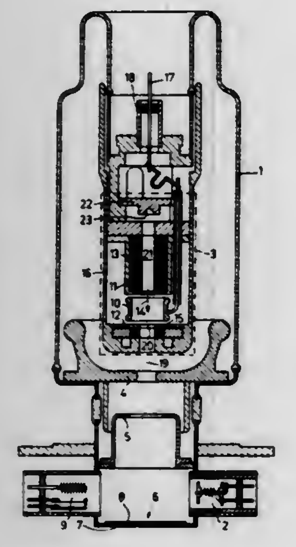
Joseph Vivari, 5015 Fort Summer Dr., Montgomery, Md. 20016
Filed Aug. 16, 1972, Ser. No. 281,006
Int. Cl. H01j *61/32*
U.S. Cl. 313—111 **17 Claims**



A lighting element for illumination preferably having a single elongated envelope containing a gaseous medium emitting white or colored, continuous or intermittent, light upon excitation by electrical current. The envelope is formed in a tortuous configuration and, preferably includes within a single envelope all of the poles of the array. The said poles each have a substantially parallel, preferably vertical axis and are at least four in number with one of this number being substantially centrally located relative to the remaining poles of the array. The array is so constructed that at least 75 percent of the surface areas of the exterior facing poles thereof are viewable on any vertical plane substantially parallel to the vertical axis of the array from any point on any such vertical plane spaced a distance at least equal to the closest spacing between the exterior surfaces of the most proximate viewable pole and the nearest pole thereto. Preferably the point of viewing is many multiples of such distance. In preferred embodiments, the amount of light viewable from any of said points on any of said planes is substantially equal. In further preferred embodiments, the exterior poles, excluding the central pole, are cylindrically disposed, as if they were positioned on the outer wall of a cylinder substantially parallel to the poles and to the vertical axis of the array. The poles are so disposed as to achieve maximum effective viewable illumination per unit of light lumens and per unit of wattage. The described embodiments eliminate, or reduce to a minimum, any flicker observable by a viewer as the viewer moves relative to the lighting element.

3,833,829
ION SOURCE

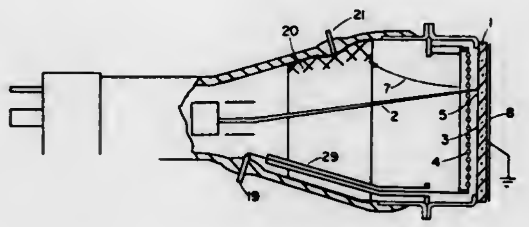
Otto Reifenschweiler, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Dec. 14, 1972, Ser. No. 315,096
Claims priority, application Netherlands, Jan. 3, 1972, 7200001
Int. Cl. H05h *5/02*
U.S. Cl. 313—360 **2 Claims**



An ion source having an anode between two cathodes and means for producing an axial magnetic field. Detremental heating of the cathode present opposite to the ion exit aperture by particles which are accelerated in the reverse direction and have a charge which is opposite to that of the extracted ion beam is prevented. For that purpose said cathode and the means for producing an axial magnetic field have an axial aperture. A collector electrode is present for capturing the relevant particles. The ion source is particularly suitable for a sealed neutron generator.

3,833,830
ULTRASONIC IMAGING TUBE

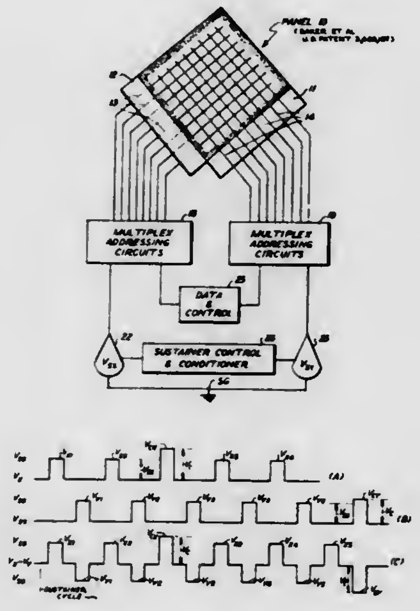
William R. Turner, Silver Spring, Md., assignor to Automation Industries, Inc., Silver Spring, Md.
Continuation of Ser. No. 79,135, Oct. 8, 1970, abandoned, which is a division of Ser. No. 756,866, Sept. 3, 1968, Pat. No. 3,577,171. This application June 13, 1972, Ser. No. 262,418
Int. Cl. H01j *31/495*
U.S. Cl. 313—369 **4 Claims**



An improved ultrasonic imaging tube having a piezoelectric face plate or conversion plate, a controlling screen adjacent thereto and a collector electrode back of the screen for receiving current generated by the conversion plate. The collector current is utilized to control a video tube synchronized with the ultrasonic tube, and is shunted in feedback fashion to the screen to control terminal admittance thereof and thereby increase the signal to noise ratio of the system as well as to raise the effective signal level.

3,833,831
ELECTRONIC CONDITIONING OF GASEOUS DISCHARGE DISPLAY PANELS

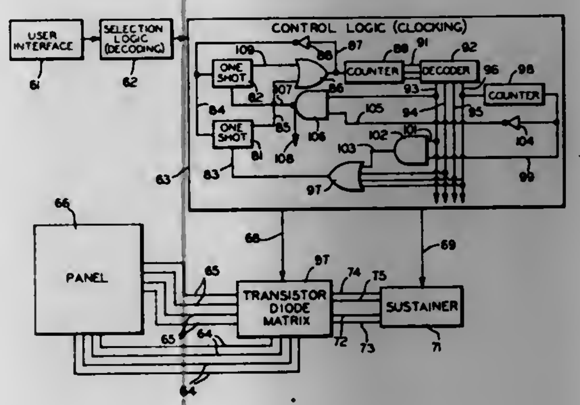
William D. Petty, Perrysburg, Ohio, and J. Kirkwood H. Rough, Riverside, Calif., assignors to Owens-Illinois, Inc., Toledo, Ohio
Filed Mar. 31, 1972, Ser. No. 240,022
Int. Cl. H05b *37/00*
U.S. Cl. 315—169 TV **2 Claims**


MULTIPLEX ADDRESSING CIRCUITS
MULTIPLEX ADDRESSING CIRCUITS
DATA CONTROL
SUSTAINER CONTROL & CONDITIONER

There is disclosed a method and apparatus for electronic conditioning of gaseous discharge display panels particularly of the type disclosed in Baker et al. U.S. Pat. No. 3,499,167 and Bitzer et al. U.S. Pat. No. 3,559,190. Electronic conditioning is achieved by periodically causing unstable discharges in the panel particularly at all sites which are not in the on state. This is achieved by applying an increased amplitude sustainer pulse at regular intervals not exceeding about 200 microseconds between pulses. By applying larger magnitude pulses which are above the firing voltage but below the voltage level required to turn a cell "on", the discharge sites in the panel are conditioned for uniform operation.

3,833,832
ELECTRONIC CONDITIONING OF GAS DISCHARGE PANELS BY INVERSION INTERNAL EXTENSION

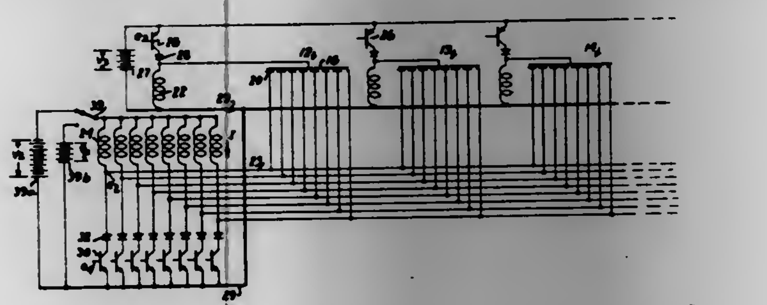
Michael E. Fein, Toledo, and Jerry D. Schermerhorn, Swanton, both of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio
Filed June 22, 1973, Ser. No. 372,543
Int. Cl. H05b *41/29*
U.S. Cl. 315—169 R **22 Claims**



The conditioning or priming of multicelled gas discharge display-memory panels, of the type in which a discharge in a hermetically enclosed ionizable gas generates charges alternately collectable on pairs of discrete areas of spaced dielectric surfaces which are backed by conductors of first and second conductor arrays to define a plurality of discharge cells, is enhanced and their operation made more reliable by periodically inverting the state of all cells in the panel. Extension of the interval of inversion of the discharge state of the panel beyond the half period of a normal sustainer voltage cycle increases the probability that the cells normally in the "off state" will be transferred to the "on state." This improvement permits less frequent inversions of discharge state without detriment to the cell writing reliability of the panel thereby enhancing the contrast ratio between "on" cells and "off" cells. A clocking circuit for regular sustainer voltage cycles and for a regular, periodic, extended interval device inverting sustainer voltage is shown with a number of sustainer wave form constructions for the inverting condition.

3,833,833
DRIVE CIRCUITRY FOR LIGHT EMITTING FILM DISPLAYS

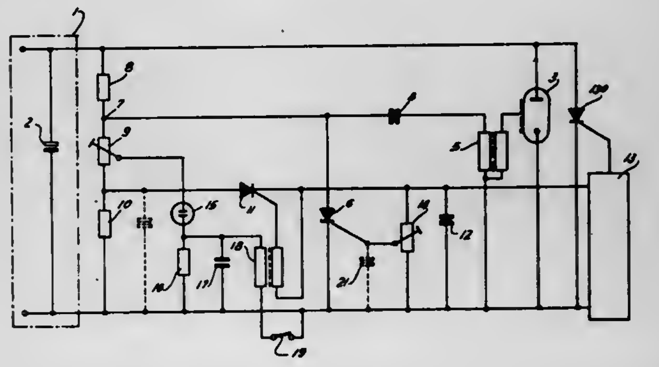
Alan H. Nelson, 4232 La Concetta Dr., Yorba Linda, Calif. 92686
Filed Aug. 20, 1973, Ser. No. 390,097
Int. Cl. H05b *33/00*
U.S. Cl. 315—169 TV **16 Claims**



Driving circuitry for multiplexed light emitting film displays is shown wherein the unselected segment electrodes of a segment matrix and/or the unselected digit electrodes are connected together to prevent establishment of floating complex series-parallel capacitance networks which could otherwise drive certain of the unselected electrodes to emit unwanted light. Also, the polarity of the voltage applied to inductors forming part of the electrode drive circuits is reversed during each segment drive cycle to eliminate decrease of light intensity of a respectively fired electrode due to energy losses incurred in the inductors and in the display.

3,833,834
METHOD AND ARRANGEMENT FOR INITIATING A FLASH IN AN ELECTRONIC FLASH UNIT HAVING AUTOMATIC EXPOSURE CONTROL

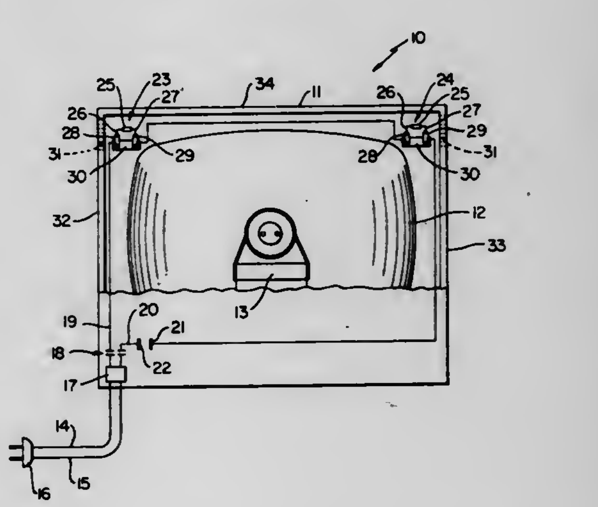
Heinz Engelstatter, Bad Soden, and Gotthard Christoph Mahlich, Kronberg/Ts., both of Germany, assignors to Braun Aktiengesellschaft, Frankfurt, Germany
Filed Feb. 8, 1973, Ser. No. 330,872
Claims priority, application Germany, Feb. 12, 1972, 2206773
Int. Cl. H05b *37/00*
U.S. Cl. 315—241 P **9 Claims**



The operating voltage for the automatic exposure control circuit terminating the flash is furnished from a storage capacitor which in turn is energized from the ignition voltage source upon activation of the flash release contact. A threshold circuit is responsive to the voltage across the storage capacitor and activate the ignition circuit, thereby igniting the flashtube, when the voltage across the capacitor is substantially equal to the operating voltage required for the automatic exposure control circuit.

3,833,835
MEANS AND METHOD FOR PROTECTING AN OVERHEATING COMMUNICATION UNIT

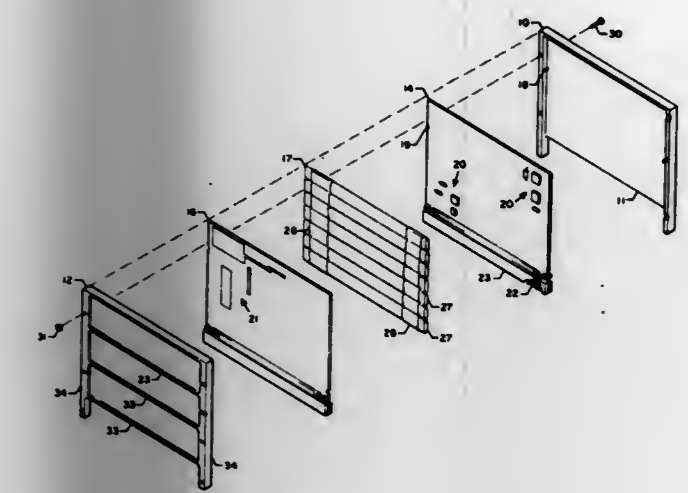
Emil Robert Plasko, Washington Township, Ohio, assignor to Micro Devices Corp., Dayton, Ohio
Filed Jan. 8, 1973, Ser. No. 321,754
Int. Cl. H02h *5/04*
U.S. Cl. 317—40 R **3 Claims**



In an electrically operated communication unit, such as a television set, radio, etc., having an outer casing and electrically operated parts disposed in the casing and being supplied electrical current through power source lines of the unit, the improvement of a thermally responsive device disposed in one of the power source lines to open that line when the device is heated to a certain amount by a malfunctioning and thereby an overheating part of the unit. The thermally responsive device is located adjacent the ventilation openings of the casing so that air flow from inside the casing out through the openings will pass over the device to be sensed thereby.

3,833,836
PRINTED CIRCUIT BOARD PACKAGE WITH COOLING AND VIBRATION DAMPING MEANS

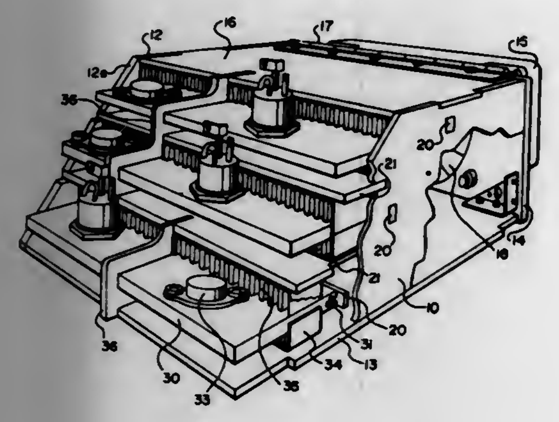
Alan W. Moksu, Nashua, and Joseph C. Briley, Milford, both of N.H., assignors to Sanders Associates, Inc., Nashua, N.H.
Filed June 18, 1973, Ser. No. 370,901
Int. Cl. H05k *7/20*
U.S. Cl. 317—100 **6 Claims**



Printed circuit board package for severe environmental conditions of temperature, humidity and altitude as well as for relatively high vibration applications. First and second printed circuit boards are arranged in the recesses of first and second metallic plates and a resilient means located between the two printed circuit boards presses each board against its corresponding recess surface. In one embodiment, the resilient means takes the form of a sheetlike assembly consisting of a plurality of parallel arranged strips of rubber tubing which are held together by means of a severe environmental tape, such as high temperature fluorocarbon tape.

3,833,837
MODULAR COOLING ENCLOSURE WITH EXPANDABLE COOLING CELLS

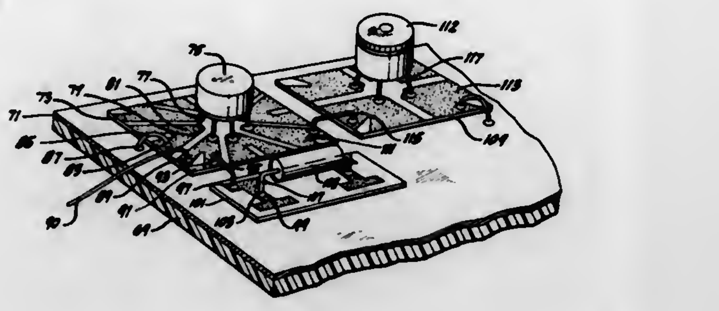
Barry R. West, 2921 Croydon, Denton, Tex. 76201
Filed July 20, 1973, Ser. No. 380,966
Int. Cl. H01l *1/12*
U.S. Cl. 317—100 **7 Claims**



Disclosed is a forced convection cooling apparatus for mounting and cooling electronic components. Modules carrying closely spaced fins are adapted for mounting within an enclosure in a repetitive gridwork pattern leaving the electronic devices exposed on the downstream end of the enclosure.

3,833,838
ELECTRONIC COMPONENT MOUNTING WAFERS FOR REPEATED CONNECTION IN A VARIETY OF CIRCUIT DESIGNS

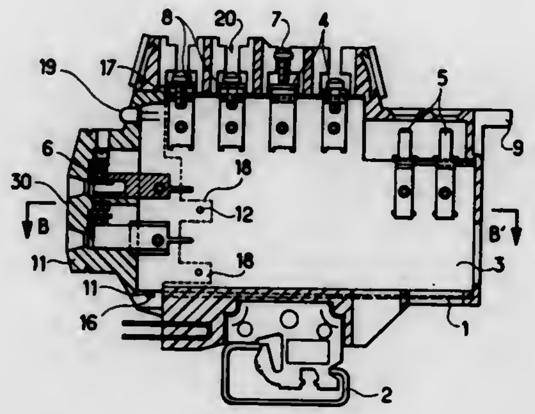
Allan Dale Christiansen, 3034 Nestall Rd., Laguna Beach, Calif. 92651
Filed Nov. 13, 1972, Ser. No. 305,724
Int. Cl. H05k *1/14*
U.S. Cl. 317—101 CC **7 Claims**



There is disclosed a plurality of wafers, each having a multiplicity of sets of electrically conducting pads, the pads within one set being electrically connected together and electrically isolated from each of the other sets. At least one pad in each of the sets has a connecting area adapted to receive and be soldered and unsoldered repeatedly to a conductive mounting lead of an electronic component. At least another pad in each of the sets having a connecting area adapted to receive and be soldered and unsoldered repeatedly to a conductive interconnecting lead which may connect one set of conducting pads with another. Each of the sets of pads has a thickness and shape which provides an electrically conducting path of sufficient length between each pad connecting area in the set to substantially isolate from one connecting area excessive and damaging heat from soldering and unsoldering conductive leads at another connecting area.

3,833,839
TERMINAL BOX CONTAINING A PRINTED CIRCUIT CARD

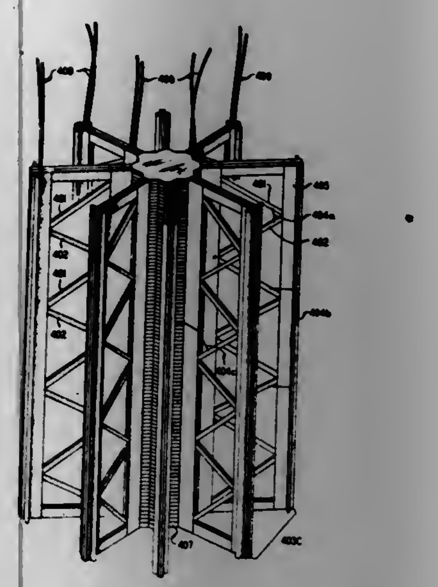
Jean Debaigt, Maisons Laffitte, France, assignor to CGEE Alsthom, Levallois-Perret, France
Filed Jan. 22, 1973, Ser. No. 325,796
Claims priority, application France, Jan. 21, 1972, 72.2084
Int. Cl. H05k *7/14*
U.S. Cl. 317—118 **10 Claims**



Terminal box containing a printed circuit card, characterized more particularly in that it comprises, moreover, electrical connection terminals forming, with the printed circuit card, a single-piece block, and a body in the form of a plate which is placed transversely and standing on its narrowest edge on a support such as a profiled ledge, one of whose sides has a hollowed part for accommodating the block formed by the terminals and the printed circuit card.

3,833,840
CYLINDRICALLY ARRANGED MODULAR MAIN DISTRIBUTION FRAME

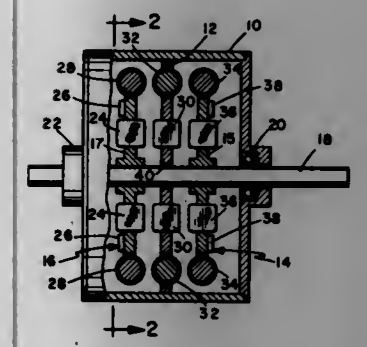
Frank William Sinden, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed June 14, 1973, Ser. No. 369,901
Int. Cl. H02b *1/04*
U.S. Cl. 317—122 **6 Claims**



A modular main distribution frame having a plurality of modules is configured such that the modules are radially arranged about a stack of quasi-circular interconnection circuit boards. Each of the modules has a plurality of terminal strips affixed thereto in an angularly alternating arrangement. Those terminal strips having a first angular orientation terminate outside cable pairs while those with the opposite angular orientation terminate equipment cable pairs. Interconnection between equipment and outside cable pairs normally occurs between adjacent terminal strips. Where the cable and equipment terminal pairs are not in the same module, interconnection is effected through one of the interconnection circuit boards. This arrangement permits any equipment terminal pair to be accessible to any line terminal pair by using only short, easily removable jumpers.

3,833,841
PRIME MOVER WITH INTERNAL POWER SOURCE

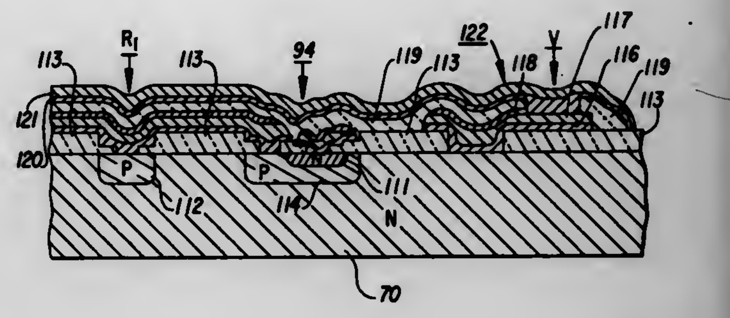
Donald D. Loomis, 5402 Gilbert Dr., San Diego, Calif. 92115
Filed Nov. 26, 1971, Ser. No. 202,160
Int. Cl. H02p *13/18*
U.S. Cl. 318—139 **6 Claims**



A prime mover utilizing an internal direct current power source. The preferred source is a battery adapted to convert energy from spontaneous nuclear disintegration into electrical current. Such a nuclear battery is employed to take advantage of its long life and is utilized in conjunction with a solid state electronic switch to convert the DC current generated by the battery into alternating current to produce periodic polarity reversal on a coil. The timing of the polarity reversal and the number of coils utilized determine the operating speed of the motor.

3,833,842
MODIFIED TUNGSTEN METALLIZATION FOR SEMICONDUCTOR DEVICES

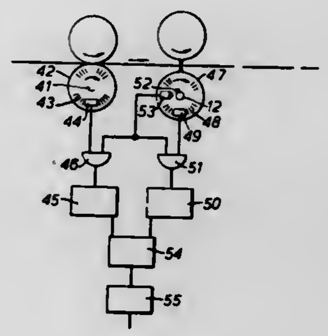
James A. Cunningham, Dallas, and Clyde R. Fuller, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 730,047, May 17, 1968, abandoned. This application Mar. 9, 1970, Ser. No. 17,040
Int. Cl. H01l *3/00, 5/00*
U.S. Cl. 317—234 R **12 Claims**



Disclosed is a tungsten-modifying metal ohmic contact and electrical interconnection system for semiconductor devices that are subjected to corrosive environments. A contact and interconnection system is formed using a layer composed of a mixture of tungsten and a modifier metal, such as titanium, the system having the desired characteristics of the tungsten system but with greatly increased corrosion resistance which allows devices using such a system to be mounted in nonhermetic packages.

3,833,843
ROTARY DRIVE CONTROLS

Walter Howard Bossons, Almondsbury, England, assignor to Masson Scott Thrissell Engineering Limited, Bristol, England
Filed Jan. 18, 1973, Ser. No. 324,864
Int. Cl. H02p *1/04, 5/16*
U.S. Cl. 318—11 **9 Claims**



Two rotary members are required to rotate not necessarily with the same or related circumferential speeds throughout a cyclic period, but at least during part of each revolution the speeds should have a given relationship. The relative cyclic periods are also required to be adjustable while maintaining that relationship intact. The speed of one rotary member over at least the part revolution is detected and compared with the speed of the other member detected over the same period. Any departure of the speeds from their required relationship gives a signal that is used to adjust the drive to one of the members to restore that relationship. When the relative cyclic periods are altered the correcting circuit follows that adjustment and maintains the relationship.

3,833,844

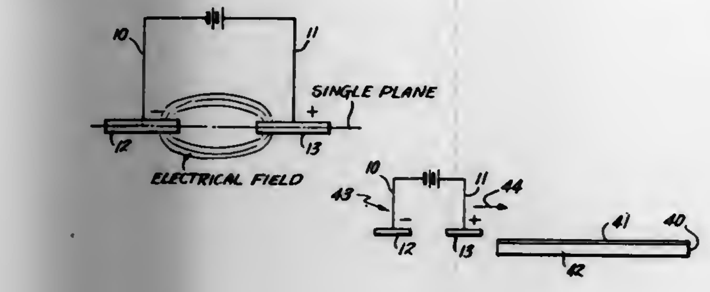
TRIBOELECTROSTATIC CHARGING

Edward W. Wagner, Elmhurst, Ill., assignor to DeSota, Inc., Des Plaines, Ill.

Filed June 5, 1972, Ser. No. 259,581

Int. Cl. G03g *15/02*

U.S. Cl. 317—262 A **9 Claims**



Surfaces are electrostatically charged using a triboelectrostatic effect enabling conventional corona discharge to be eliminated and making a grounded support unnecessary. The surface to be charged is rubbed against an electrode of one charge sign while it is passed through an electrical field between that electrode and a second electrode of opposite charge sign, both of which are positioned on the same side of the surface to be charged. At least one of the electrodes is surfaced with a low conductivity friction shield which is preferably made of chrysotile asbestos. Only one surface of a conventional photoconductive sheet is contacted, and small batteries are ample to power the electrodes which are supplied with high voltage at low amperage.

3,833,845

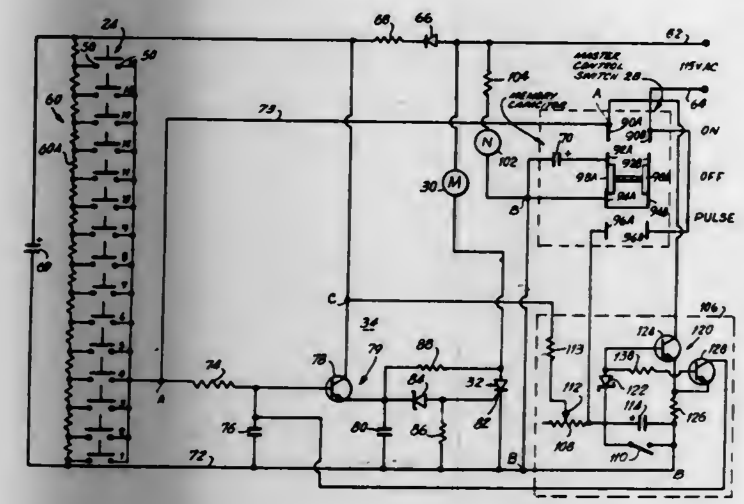
TOUCH BUTTON CONTROL SYSTEM

Christopher R. Smallbone, Port Colborne, and Laurent W. Beaudoin, Welland, Ontario, both of Canada, assignors to General Signal Corporation, Rochester, N.Y.

Filed July 18, 1973, Ser. No. 380,416

Int. Cl. H02p *5/16*

U.S. Cl. 318—305 **11 Claims**



An electronic control system especially adapted to control a universal motor with respect to pre-determined speeds, in order to provide a variety of desired functions, and with respect to its energization time

3,833,846

DIGITAL VELOCITY SENSOR FOR MOTOR BRAKING

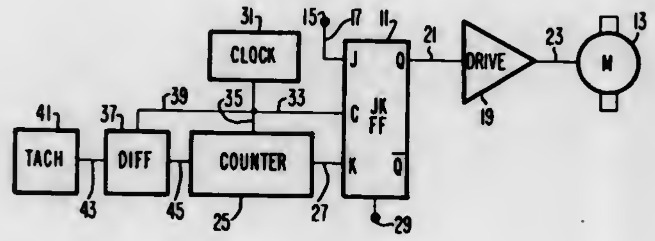
Truman T. Schmalzriedt, Westland, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Aug. 30, 1973, Ser. No. 393,015

Int. Cl. H02p *3/06*

U.S. Cl. 318—369 **13 Claims**

A method and apparatus for digitally controlling the braking energy to a motor so as to eliminate under-shoot or overshoot. A digital differentiator is used to generate a narrow-width pulse for every rise and fall of a motor tachometer pulse output. The period of these pulses is proportional to the motor velocity and the pulses are used to continuously reset a digital counter. When braking is required, a control flip-flop is "set" causing braking energy to be sent to the motor by way of a low dissipation digital driver. The duration of application of this braking energy is controlled by the digital counter which is clocked at a rate such that at normal operating speeds for the motor, the counter is reset to begin a new count long before a predetermined count is reached. Once the control flip-flop has been "set" and the braking energy is being supplied to the motor, the reset pulses from the digital differentiator will be generated less frequently, the counter will be reset less often, and the clock count between successive resets will become greater. Eventually, when the speed of the motor has been substantially reduced and is approaching zero, the counter will be able to reach the predetermined count before being reset and a signal representative of the attainment of this predetermined count is used to "reset" the control flip-flop thereby turning off the supply of braking energy to the motor.



3,833,847

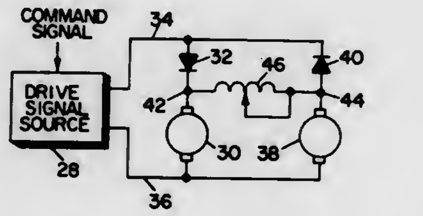
ANTI-BACKLASH SERVOMOTOR DRIVE SYSTEM

Leroy U. C. Kelling, Waynesboro, Va., assignor to General Electric Company, Lynn, Mass.

Continuation of Ser. No. 159,750, July 6, 1971. This application July 3, 1973, Ser. No. 378,931

Int. Cl. H02p *1/54*

U.S. Cl. 318—630 **4 Claims**



A two servomotor drive system wherein the servomotors generate (1) opposing torques at or near standstill to take up backlash in a rack and pinion drive, and (2) additive torques at other velocities. Two servomotor circuits, each comprising a servomotor connected in series with a diode, are connected across the output terminals of a servomotor drive signal source. The diodes conduct in opposite directions. The servomotor-diode junctions in the two circuits are connected by a saturating reactor. At and near standstill, the drive signal source generates alternating current pulses which cause opposing torques to be produced by the two servomotors. At higher velocities, the drive signal is a pulsating DC signal which is applied to one of the servomotors directly and to the other of the servomotors through the saturated reactor to cause the motors to produce additive torques.

3,833,848

D.C.-FED REGULATED DIRECT-CURRENT SUPPLY

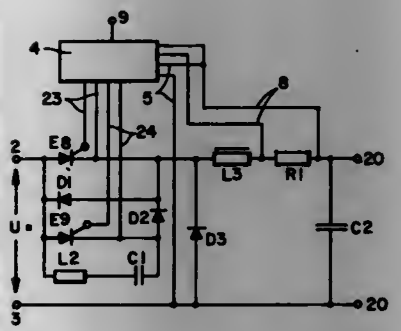
Tom Kastrup Petersen, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Continuation of Ser. No. 792,622, Jan. 21, 1969, abandoned. This application Jan. 27, 1972, Ser. No. 221,452

Claims priority, application Germany, Jan. 23, 1968, 1638008

Int. Cl. H02m *1/08*

U.S. Cl. 321—19 **5 Claims**



The invention relates to a D.C.-fed regulated direct current voltage supply for feeding an inverted converter connected to a three phase motor. The voltage supply has current sensing means to which is connected voltage regulating means. The voltage regulating means is responsive to a maximum predetermined current value to reduce the voltage to prevent the current from exceeding the predetermined value. The voltage regulating means includes an SCR or equivalent which is opened and closed by impulses. The open and/or closed periods are of varying duration to prevent the current from exceeding the predetermined value.

3,833,849

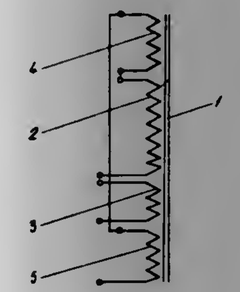
TRANSFORMERS WITH ADDITIONAL COMPENSATING REACTOR WINDINGS FOR ELECTRIC ARC WELDING

Stefan I. Grosu, Bucharest, Romania, assignor to Institutul De Cercetare Si Proiectare Pentru Industria Electrotehhica, Bucharest, Romania

Continuation of Ser. No. 245,829, April 20, 1972, abandoned. This application July 26, 1973, Ser. No. 382,830

Int. Cl. B23k *9/10*

U.S. Cl. 323—44 R **2 Claims**



Transformer for electric arc welding which allows the stepwise control of the welding current by means of an inductance coil connected in the primary or secondary circuit, formed by coils placed for each phase, on the magnetic core of the respective phase, on which there are also mounted the primary and secondary windings. These coils are connected in groups by two pieces. Of the two coils of a group, one is magnetically strongly-coupled with the primary winding and the other, with the secondary winding, which leads to the increase of the reactor efficiency. The transformers can be monophase or polyphase, especially three-phase. The three-phase transformers may be employed for the supply of alternating-current welding, three-phase arc welding, or of direct curent arc welding through rectifiers.

3,833,850

SYSTEM FOR TRANSFORMING A PHYSICAL PARAMETER INTO AN ELECTRICAL SIGNAL

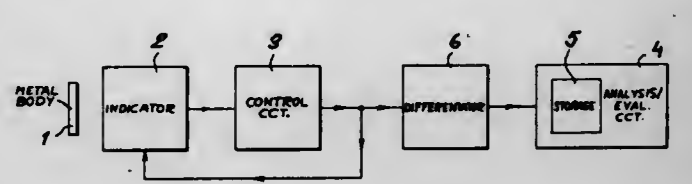
Gunther Weber, 2209 Sushorn, Sushorn, Germany

Filed Aug. 29, 1973, Ser. No. 392,460

Claims priority, application Germany, Aug. 29, 1972, 2242490

Int. Cl. G01r *33/00*

U.S. Cl. 324—41 **5 Claims**



A system for converting a physical parameter, e.g. the proximity of a metal body to a proximity-responsive indicator, into an electrical signal (evaluation or plotting signal) comprises the aforementioned indicator whose output is supplied to a feedback control circuit and the control circuit has a regulated-value signal which is supplied to an evaluation circuit. The evaluation circuit includes a storage device or memory (e.g. a capacitor establishing the threshold of the evaluation circuit) to which the reference signal is supplied from the indicator and control circuit so that subsequent deviations from the reference value will produce an output independent of the nature and size of the body.

3,833,851

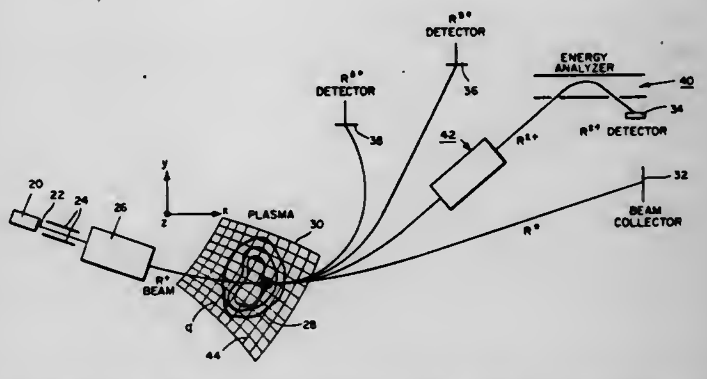
SYSTEMS FOR MEASURING THE PROPERTIES OF PLASMA WITH AN ION PROBE

Forrest C. Jobes, Jr., and Robert L. Hickok, Jr., both of Trenton, N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Oct. 15, 1971, Ser. No. 189,568

Int. Cl. G01n *27/00*

U.S. Cl. 324—71 EB **5 Claims**



An ion source generates a heavy-ion beam of uniform ion velocity which is utilized to probe plasmas. The beam is scanned through a plane by deflection plates and the angle of scansion for the beam is magnified by a linear field distribution lens. The ionizing collisions between the scanned beam and the plasma results in a step charge change for the ions. Detectors are provided which are responsive to the ions undergoing a step change in charge to measure electron density of the plasma, space potential of the plasma, and the momentum added by the plasma current.

3,833,852

INSPECTION HEAD MOUNTING APPARATUS

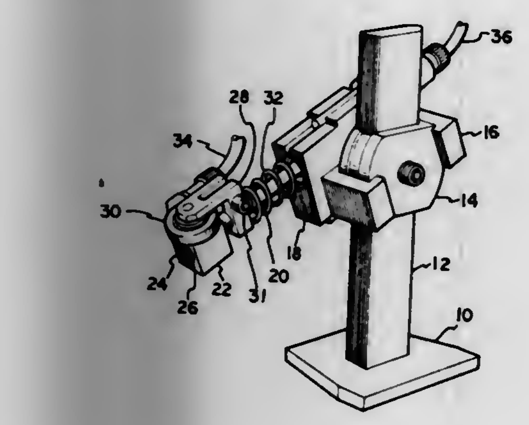
Walter K. Schoch, Maumee, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Aug. 16, 1973, Ser. No. 388,815

Int. Cl. G01n *27/00*

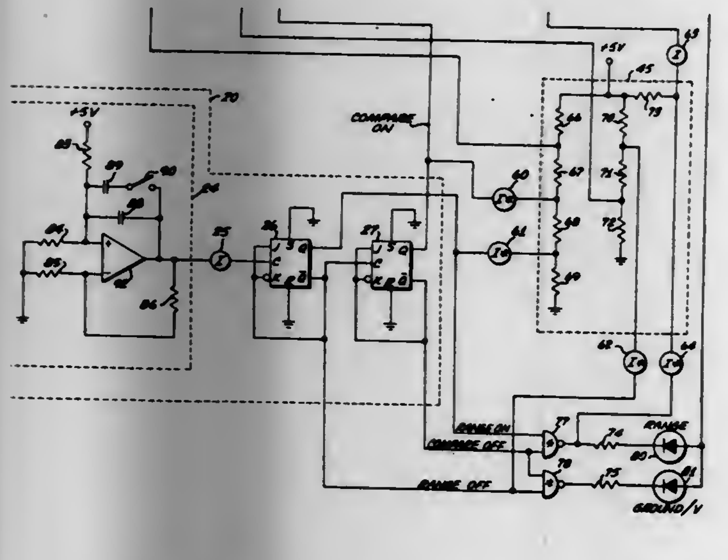
U.S. Cl. 324—71 R **9 Claims**

Apparatus to allow mounting of an inspection head such that its front face is parallel to and a fixed distance from an article to be inspected. In one type of device for measuring the thickness of dielectric articles, such as glass containers, an RF field is passed through the article and a voltage is sensed as a measure of thickness. The RF antenna and voltage probe are coaxial and coplanar in an inspection head. They both must be kept a fixed distance from the article to ensure accurate measurement. To accomplish this, the head is mounted on a tube passing through a head carrier. A swivel mechanism connects the head carrier to a main support. A stand-off roller is mounted adjacent the head and extending slightly beyond the head. To inspect an inclined surface, the swivel mechanism is activated to bring the face of the head carrying the antenna and probe into a parallel relationship with the inclined surface. The stand-off roller moves with the head and is therefore brought into a full contact position with the inclined surface. Thus, the antenna and probe are parallel to the surface being inspected and are maintained a fixed distance away from this surface.

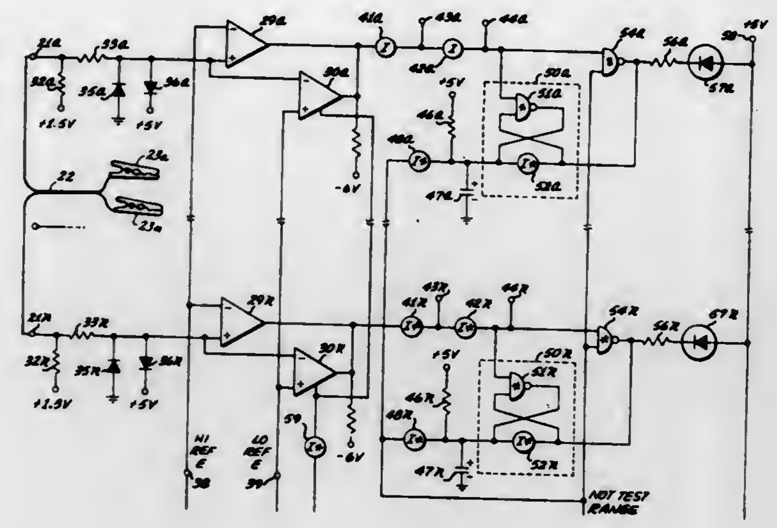


3,833,853
METHOD AND APPARATUS FOR TESTING PRINTED WIRING BOARDS HAVING INTEGRATED CIRCUITS

Richard E. Milford, Oklahoma City, Okla., assignor to Honeywell Information Systems Inc., Waltham, Mass.
Filed Apr. 13, 1973, Ser. No. 351,078
Int. Cl. G01r *31/00*
U.S. Cl. 324—73 R **11 Claims**

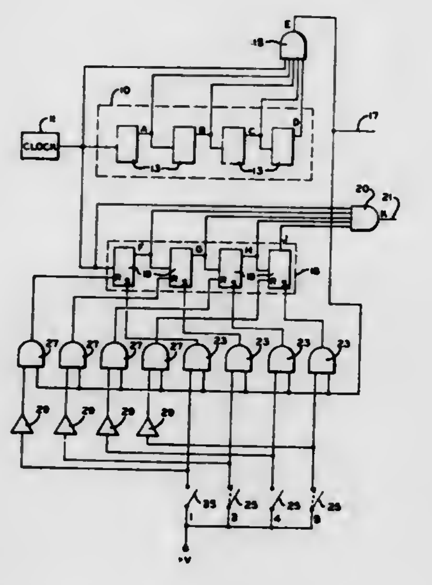


A plurality of voltage comparators are each connected to a corresponding pin of an integrated circuit on a wiring board. Each of the comparators is also connected to a sequencer which sequentially provides reference voltages to the comparators to check for shorts to ground, shorts to high voltage and incorrect signal levels at each of the pins of the integrated circuit. This apparatus may be used to test wiring boards having a wide variety of types of integrated circuits mounted thereon.



3,833,854
DIGITAL PHASE SHIFTER

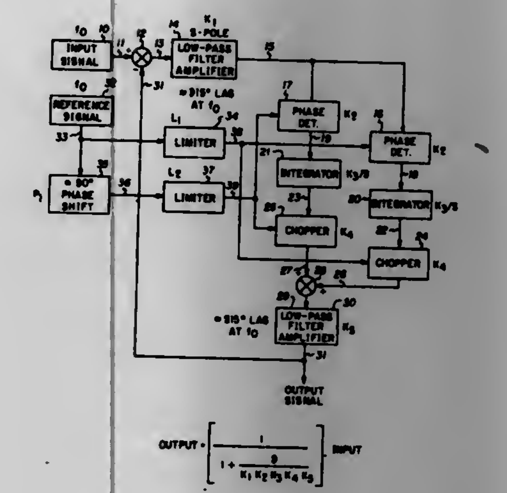
Robert W. Schonover, Endicott, N.Y., assignor to The Singer Company, Binghamton, N.Y.
Division of Ser. No. 164,688, July 21, 1971. This application Dec. 14, 1972, Ser. No. 315,050
Int. Cl. H03k *3/64*
U.S. Cl. 328—155 **6 Claims**



A digital phase shifter wherein pulses on one pulse train are advanced or delayed with respect to pulses on another pulse train in response to a digital command indicating the desired advance or delay. Two counters having a common clock input provide the pulse trains with the counter providing the one pulse train having means by which it may be preset by the command on occurrence of a pulse on the other pulse train. The phase shifter of this invention is particularly applicable for supplying sync commands in a system comprising a television camera and a matrix of displays on which the image generated by the camera may be selectively positioned is also shown.

3,833,855
COHERENT FILTER

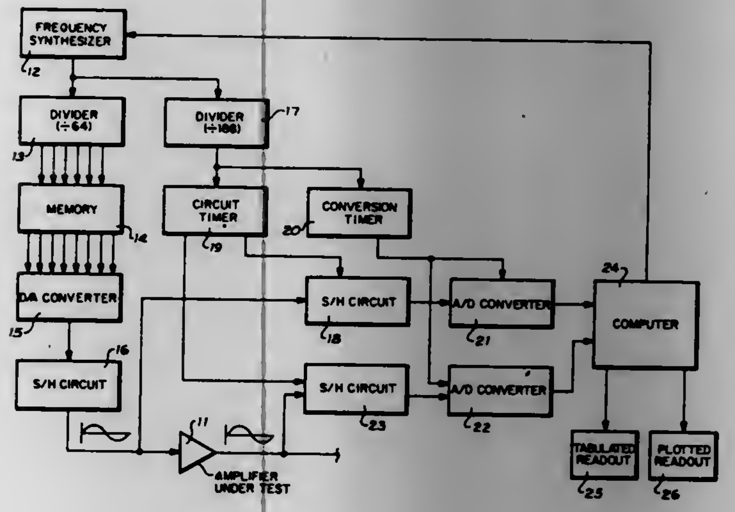
Michael W. Lundgreen, Esterville, Iowa, assignor to Collins Radio Company, Dallas, Tex.
Filed Sept. 28, 1973, Ser. No. 401,779
Int. Cl. H03b *1/04*
U.S. Cl. 328—167 **6 Claims**



A high Q bandpass filter employing coherent techniques to synthesize the fundamental component of an input signal under control of a driving signal with frequency like that of the input signal. Enacting maintenance of amplitude and phase characteristics is realized by a feedback loop wherein the output is subtracted from the input signal.

3,833,856
APPARATUS FOR TESTING AN AMPLIFIER

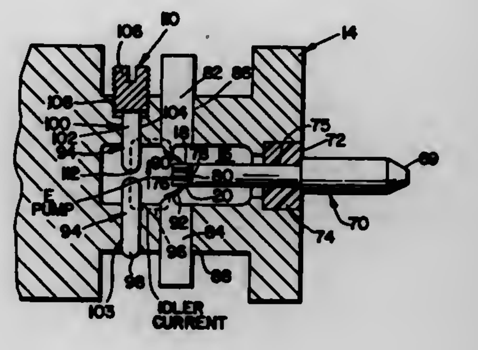
Eugene R. Roeschlein, Indianapolis, Ind., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Nov. 15, 1973, Ser. No. 416,331
Int. Cl. G01r *25/00*
U.S. Cl. 330—2 **5 Claims**



A testing device for measuring phase shift and amplitude changes in an amplifier. A frequency synthesizer provides a sine wave through first and second channels with the amplifier being connected in the first channel. The outputs from the first and second channels are applied to a computer for analysis. The computer is programmed to calculate the phase angles for the waveforms. The difference in these phase angles is the phase shift of the amplifier under test, and this difference is presented in a readout device.

3,833,857
MILLIMETER WAVE PUMPED PARAMETRIC AMPLIFIER

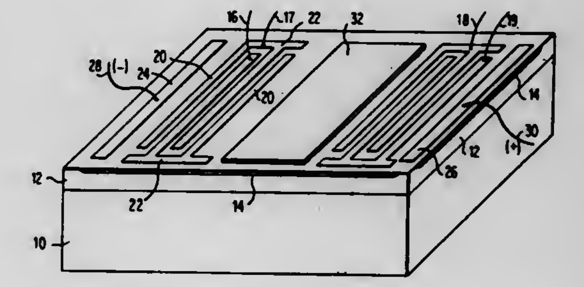
James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Lawrence E. Dickens, Baltimore, Md.
Filed Oct. 2, 1973, Ser. No. 402,865
Int. Cl. H03f *7/04*
U.S. Cl. 330—4.9 **5 Claims**



A millimeter wave parametric amplifier structure and varactor diode mounting structure therefor includes a housing within which is a pump frequency waveguiding channel and an intersecting signal frequency transmission line. The transmission line has a center conductor portion which protrudes into the pump channel. A portion of the housing forms the outer conductor of the transmission line. A pair of uncased varactor diode chips within the channel are stacked and connected in series across the wave guiding channel and are connected in parallel with respect to the inner and outer conductors of the signal transmission line. An adjustable stub means protrudes into the waveguiding channel adjacent the stacked varactor diode chips and defines a capacitive gap across the channel for series resonating the diode chips at an idler frequency. The stub means is located close to the stacked diode chips to provide a short return path for idler current generated by the diodes. The diodes, the stub means and the protruding portion of the center conductor are carried by a thin conducting wafer removably retained by the housing.

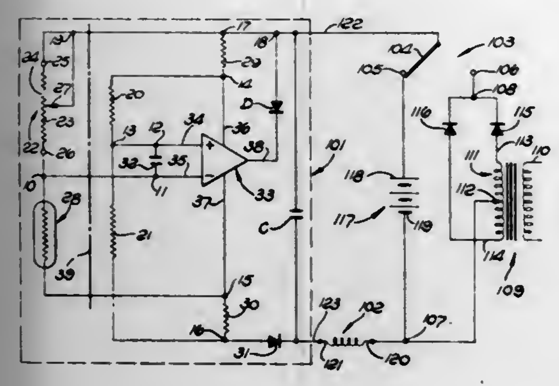
3,833,858
HIGH GAIN SOLID-STATE DISTRIBUTED INTERACTION MICROWAVE AMPLIFIER

O. P. Gandhi, and L. S. Metz, both of Salt Lake City, Utah, assignors to University of Utah, Salt Lake City, Utah
Filed June 15, 1973, Ser. No. 370,370
Int. Cl. H03f *3/04*
U.S. Cl. 330—5 **11 Claims**



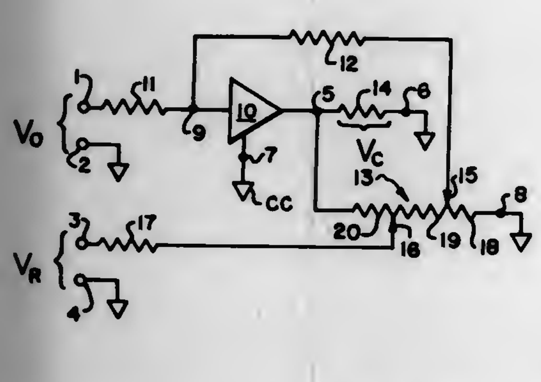
Traveling-wave amplification of microwave energy having frequencies up to 500 GHz is provided by a semiconductor (GaAs, GaP, InAs, InP) which has a thin epitaxial layer capable of exhibiting the property of negative differential conductivity. A thin resistive layer is applied on the skin of the epitaxial layer to smooth out the dc electric field profile and allow use of longer layers with a selective control of band pass and gain properties of the amplifier.

3,833,859
TEMPERATURE CONTROL SYSTEM AND THERMOSTAT THEREFOR
Elmer A. Carlson, Agoura, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Mar. 23, 1973, Ser. No. 344,070
Int. Cl. H03f *1/40*
U.S. Cl. 330—69 **3 Claims**



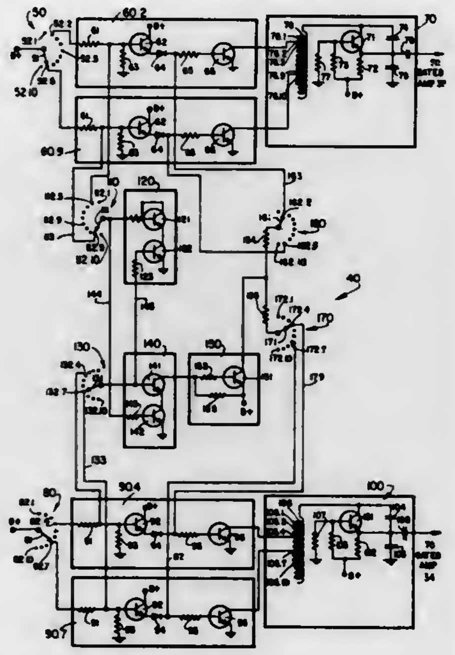
A two wire thermostat utilizing at least four resistors and a differential amplifier. The amplifier output is connected to one lead of the two wire line. One of the resistors is variable. Another is a thermistor. A first auxiliary resistor which may be employed in one power lead of the amplifier performs two functions. It provides positive feedback for a more stable regenerative snap on and off. It also makes the amplifier gain more nearly constant over an applied voltage swing of from about zero to 12 or zero to 24 volts. The applied voltage may be obtained from any source of D.C. or A.C. potential. If the source is A.C., the voltage may be a half wave or full wave rectified sine wave. A second auxiliary resistor may be employed in the other power lead of the amplifier to provide additional positive feedback to the inverting input of the amplifier. This provides a cleaner opening of the circuit when the voltage across the thermostat is low. A diode in one lead of the two wire line can perform three functions. It can provide rectification. It can also provide reverse voltage protection. Further, it can provide heat anticipation. A capacitor connected between the amplifier inputs provides some memory during off periods of a half wave A.C. cycle.

3,833,860
AMPLIFIER SYSTEM HAVING PSEUDO SUMMING JUNCTION
John Somerville Snyder, Webster, N.Y., assignor to Sybron Corporation, Rochester, N.Y.
Filed Apr. 20, 1972, Ser. No. 245,850
Int. Cl. H03f *1/36*
U.S. Cl. 330—108 **7 Claims**



A summing amplifier system having a pseudo summing junction in a feedback network for biasing the output of the system by a DC voltage while simultaneously applying a second voltage to a conventional summing junction of the system. As a process variable controller, the system provides proportional control, the said second voltage representing deviation of the process variable, and manual reset, the said DC voltage representing a manual reset voltage.

3,833,861
SIGNAL SUBSTITUTION SYSTEM
Keith H. Wycoff, P.O. Box 308, Lexington, Nebr. 68850
Continuation of Ser. No. 75,417, Sept. 25, 1970, abandoned. This application Apr. 12, 1972, Ser. No. 243,150
Int. Cl. H03j *5/08*
U.S. Cl. 331—48 **38 Claims**



A first selector is to be set up to cause the control tone produced by a variable frequency oscillator to have a first selected frequency. A second selector is set up to cause the control tone to have a second selected frequency. A third selector set at a third selected frequency determines which of the first or second selectors is operable to control the oscillator. The second selector is operative to cause the control tone to have the second selected frequency when the first and third selectors are set in corresponding conditions, and the first selector is operative to cause the control tone to have the first selected frequency when the first and third selectors are set in noncorresponding conditions.

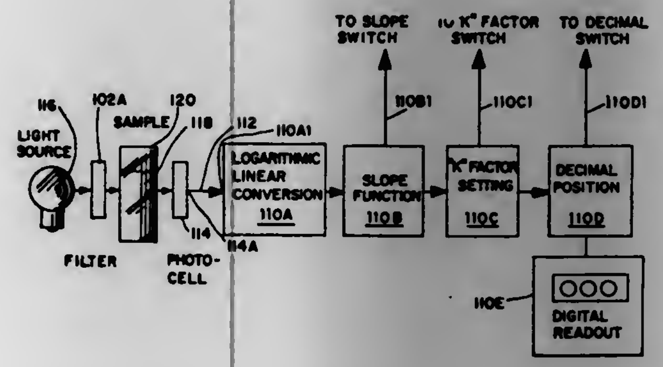
3,833,862
LASER DEVICES AND COMPOSITIONS
Kenneth A. Wickersheim, and Robert A. Buchanan, both of Palo Alto, Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.
Filed May 22, 1970, Ser. No. 39,805
Int. Cl. C09k *1/14;* **H01s** *3/16*
U.S. Cl. 331—94.5 F **6 Claims**

This invention relates to laser devices utilizing single crystals of an oxysulfide material as the active medium. More particularly, the host material is an oxysulfide of lanthanum, yttrium, gadolinium or lutetium and the activator ion is neodymium.

3,833,863
STYRYL AND ARYLBUTADIENYL DYE LASERS
Frank G. Webster, and William C. McColgin, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Dec. 27, 1971, Ser. No. 212,654
Int. Cl. H01s *3/00*
U.S. Cl. 331—94.5 **7 Claims**

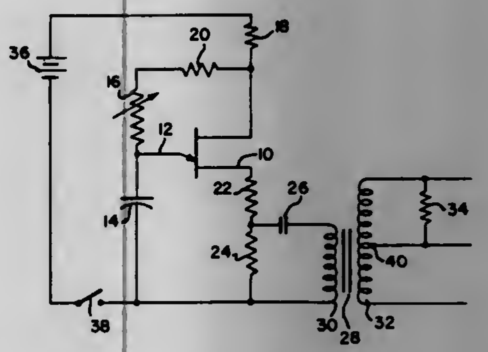
Styryl and arylbutadienyl dyes are useful as laser dyes. These dyes are used in solution with a non-interfering solvent to form lasing media useful in dye lasers. Such lasers generally include a reservoir for containing the laser dye solution and a pumping energy source operably associated therewith for producing stimulated emission of the laser dye solution.

3,833,864
DIGITAL DIRECT READING COLORIMETER
Raymond W. Kiess, and Peter H. Stewart, both of 8768 S.W. 131st St., Miami, Fla. 33156
Continuation-in-part of Ser. Nos. 113,881, Feb. 9, 1971, Pat. No. 3,676,007, and Ser. No. 224,457, Feb. 8, 1972, Pat. No. 3,676;007, said Ser. No. 224,457, is a continuation-in-part of Ser. No. 113,881, , which is a continuation-in-part of Ser. No. 692,525, Dec. 21, 1967, Pat. No. 3,561,878. This application Nov. 30, 1972, Ser. No. 310,771
Int. Cl. G01j *3/50, 3/48*
U.S. Cl. 356—184 **12 Claims**



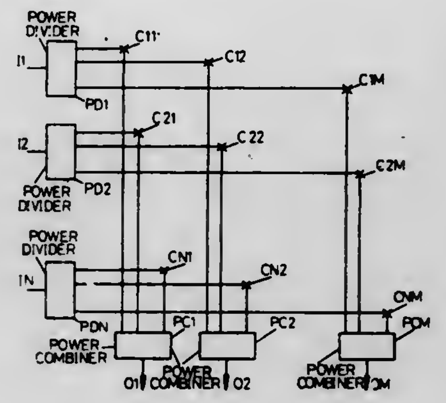
A combined blood constituent and prothrombin time analyzer is provided in which a plurality of removable and replaceable circuit modules are utilized to program the analyzer for appropriate light wavelength, reagent blank offset, scale factos and calibration parameters and which is self referencing to predetermined standards such that the results derived are all normalized for readout on a common digital readout device. The entire analyzer is contained in a compact console which includes controlled incubated storage for blood test samples together with insertion cavities for both constituent concentration and prothrombin time analysis. The results of each analysis are so normalized by the blood analyzer that a common digital counter can be used to convert these results to a numerical readout presentable on a common readout device and said results are substantially instantaneously displayed subsequent to initiation of any given test in the analyzer.

3,833,865
HEART SIMULATOR
Euple I. Palmer, Rt. 3, Box 51, Huntsville, Ala. 35806
Filed Aug. 27, 1973, Ser. No. 391,712
Int. Cl. H03b *5/12*
U.S. Cl. 331—117 R **4 Claims**



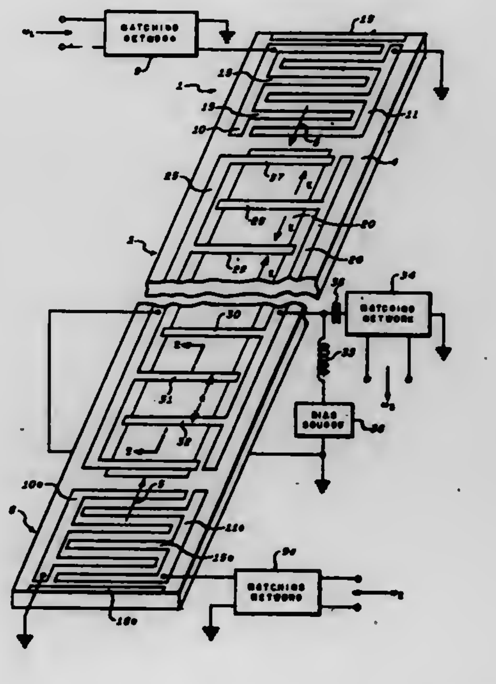
An electronic circuit which generates an electric waveform which is similar to that produced by the human heart. The circuit simulates the heart pulse rate over a range of approximately 40-200 pulse beats per second. A unijunction transistor oscillator generates pulses at a rate determined by the setting of a potentiometer and the pulses are shaped to simulate a heart beat by a transformer - RC circuit coupled to the oscillator output.

3,833,866
MICROWAVE SWITCHING MATRIX
Paul Boutelant, Sceaux, France, assignor to International Standard Electric Corporation, New York, N.Y.
Filed July 20, 1973, Ser. No. 381,290
Claims priority, application France, Aug. 7, 1972, 72.28414
Int. Cl. H01p *1/10;* **H04q** *1/18*
U.S. Cl. 333—7 D **16 Claims**



An $m \times n$ microwave switching matrix is disclosed including orthogonally related microwave transmission lines which may be interconnected by an appropriate number of microwave type switching diodes, such as PIN diodes. According to several disclosed embodiments a different power divider is coupled to each matrix input, each of said power dividers having n outputs, and a different power combiner is coupled to each matrix output, each of said power combiners having m inputs. The outputs of any given power divider are connected to one input of each power combiner by n crosspoints including PIN diodes. Arrangements are also disclosed to equalize path lengths and impedances of the disclosed matrices.

3,833,867
ACOUSTIC SURFACE WAVE CONVOLVER WITH BIDIRECTIONAL AMPLIFICATION
Leland P. Solie, Acton, Mass., assignor to Sperry Rand Corporation, New York, N.Y.
Filed Oct. 23, 1973, Ser. No. 408,694
Int. Cl. H03h *9/26;* **H01v** *7/00;* **H03f** *13/00*
U.S. Cl. 333—30 R **10 Claims**



Apparatus for the convolution of two input signals introduced at opposite ends of an acoustic surface wave propagation medium provides amplification of the two oppositely propagating signals and their integration in an intermediate semiconductor film cooperating with a contiguously overlying electrode pattern serving both as the signal output transducer and for coupling unidirectional electrical bias fields for amplifying the convolved output.

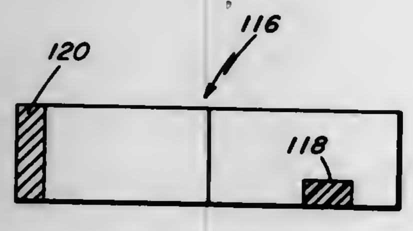
3,833,868
DUAL BALANCED RECIPROCAL WAVEGUIDE PHASE SHIFTER

Alfred E. Booth, Marlboro, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Mar. 1, 1973, Ser. No. 337,255

Int. Cl. H01p *1/18*

U.S. Cl. 333—98 R **1 Claim**



A phase shifter for balanced dual waveguide systems is disclosed for high power broad frequency range applications. An increment in electrical length is provided which is reciprocal for any dual balanced network including TR and ATR electron discharge devices or nonreciprocal differential ferrite phase shifters utilized as isolators or circulators. A dual waveguide structure is provided in one section with dielectric loading means to reduce the guide wavelength and increase the phase length while the abutting waveguide section is provided with means for reduction of the waveguide width to increase guide wavelength and decrease phase length. The first means comprises a member of a dielectric material such as aluminum oxide and the second means comprises a conductive plate member. The desired performance characteristics with the addition of the balanced reciprocal phase shifter means are attained over, illustratively, a relatively broad frequency band of approximately 40 percent. Balanced systems including short slot hybrid and magic T hybrids, as well as directional couplers together with nonreciprocal differential phase shifters or dual gas switching tubes are readily provided with any desired degree of additional reciprocal phase shift. In an illustrative embodiment the incremental reciprocal phase shift means is provided within a differential ferrite phase shifter without disturbing the overall mechanical symmetry of the system packaging.

3,833,869
ELECTROMECHANICAL RELAY

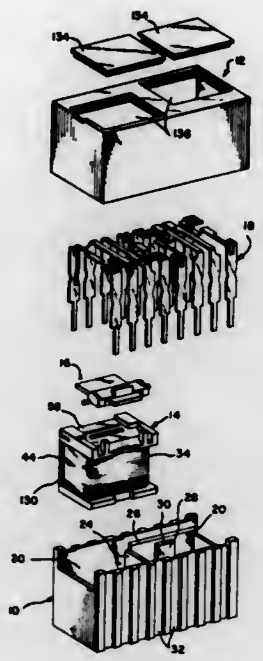
James William Cassarly, Lewisberry; Norwood Claude Graeff, Harrisburg; Dean Roosevelt Hooper, Jr., Middletown; William Vito Pauza, Palmyra; Wilmer Lee Sheesley, and Frank Christian Youngfleish, both of Harrisburg, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 9, 1973, Ser. No. 414,464

Int. Cl. H01h *50/54*

U.S. Cl. 335—106 **2 Claims**

This invention relates to a electromechanical relay having one or more double pole double throw switching subassemblies in a "dual-in-line" package. More specifically, the relay in its simplest form contains a motor subassembly driving a overlying armature which in turn moves a double leaf switch arm from one contact to another. The double leaf switch arm, pins, contacts, armature dampener arms and coil connections are stamped and formed from a single coplanar sheet of conductive material in the orientation of that of their positions in the assembled relay.



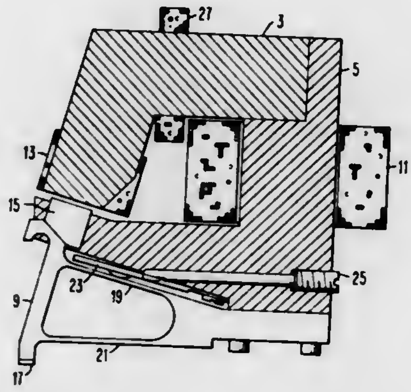
3,833,870
PRINT HAMMER FIRING CIRCUIT

Leonard J. Wallace, Vestal, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 15, 1973, Ser. No. 406,722

Int. Cl. H01f *7/18*

U.S. Cl. 335—268 **6 Claims**



A circuit for firing print hammers of the type in which a plurality of hammers are provided in a magnetic core structure having a common yoke portion and a plurality of individual yoke portions. A common holding coil provides holding flux for holding the hammers in the normal or retracted position. An individual bucking coil associated with each hammer provides an impulse of bucking flux for overcoming the holding flux and causing the hammer to fire under spring tension, whereafter the holding flux restores the hammer to its retracted position. A proportional coil or winding, linked to the common portin of the magnet yoke, is connected so that the sum of the hammer firing currents in the bucking coils flows through the proportional coil or winding. This flux cancels out the effects of flux induced by the bucking flux in adjacent individual magnetic yokes, and thereby reduces hammer flight time variations.

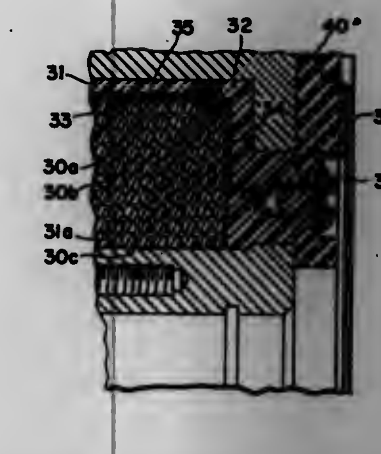
3,833,871
COIL CONNECTIONS FOR AN ELECTROMAGNETIC DRIVE

Ferdinand W. Fisher, and Clifton D. Sweet, Jr., both of Harrodsburg, Ky., assignors to Eaton Corporation, Cleveland, Ohio

Filed Nov. 19, 1973, Ser. No. 417,457

Int. Cl. H01f *5/04*

U.S. Cl. 335—282 **6 Claims**



An electromagnetic drive has a uniquely mounted electr coil located within an annular recessed member of the electromagnetic drive to electrically ground the coil to the recessed member along the inner periphery of the coil. A power lead is ultrasonically welded to an insulated outer lead wire of the electric coil so as to have the power lead angularly contact the conductive portion of the lead wire. Energization of the coil by a current passing from the lead wire to the grounded coil produces an electromagnetic field which controls the application of torque between a driving member and a driven member of the electromagnetic drive. The method of mounting the electric coil includes a step wherein the coil is interference pressed onto the annular recessed member in a manner which removes the electrical insulation from the radially inner windings of the coil to electrically ground the coil to the recessed member.

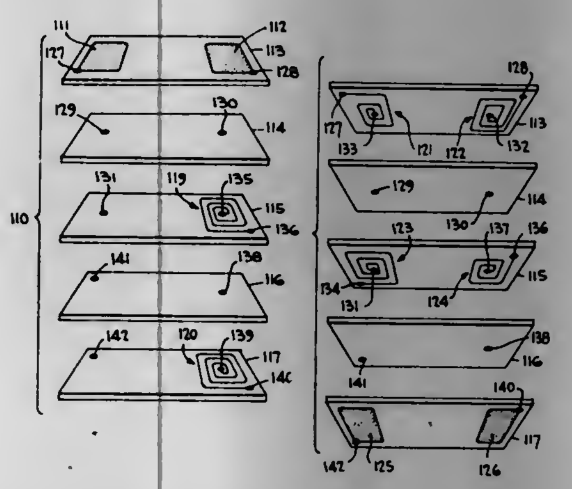
3,833,872
MICROMINIATURE MONOLITHIC FERROCERAMIC TRANSFORMER

Ira R. Marcus, 5004 Jasmine Dr., Rockville, Md. 20053, and William L. Muckelroy, P.O. Box 9685, Washington, D.C. 20016

Filed June 13, 1972, Ser. No. 262,406

Int. Cl. H01f *17/04*

U.S. Cl. 336—83 **11 Claims**



A monolithic microminiature transformer element comprising at least two separate contiguous windings of conductive metal film, each having an interconnecting magnetically permeable core of refractory material, immersed in a rectangular block of stratified refractory material. The element is a contiguous mass of ceramic material, especially alumina, primary and secondary transformer windings formed by printing or photoetching loops on a rectangular piece of ceramic sheet. A method for making this transformer element wherein paths of conductive material are deposited onto thin unsintered magnetically permeable ceramic sheet with holes for interconnection therein to form windings of said transformer and wherein said holes are aligned and said sheets are laminated such that upon sintering said metal forms a contiguous conductive path and provides a primary or secondary winding for said transformer, and wherein said path is immersed in a contiguous block of ceramic.

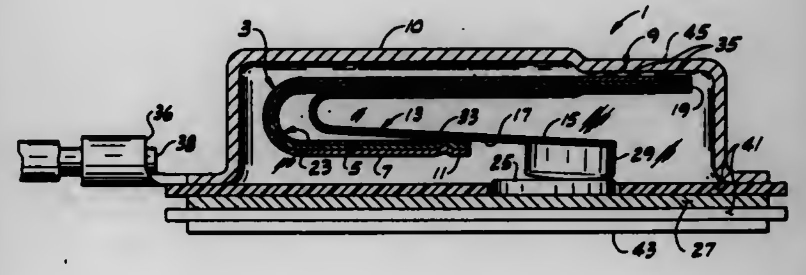
3,833,873
THERMAL PROTECTOR

Walter H. Moksu, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 14, 1973, Ser. No. 425,034

Int. Cl. H01h *61/06*

U.S. Cl. 337—85 **15 Claims**



A thermal protector comprising two generally U-shaped strips of bimetal nested one within the other. The first bimetal strip has the layer with the lower coefficient of thermal expansion on the inner surface thereof and has a fixed end and a free end. The second strip of bimetal is nested within the first strip and has the layer with the higher coefficient of thermal expansion on the inner surface thereof with one end secured to a first electrical terminal. The second strip has a thermal force somewhat less than that of the first strip. The free end of the second strip extends outwardly beyond the free end of the first strip and is in physical contact therewith but electrically insulated therefrom. A first electrical contact is secured to a second electrical terminal. A second electrical contact is carried on the free end of the second bimetal strip and projects from the lower expansion layer thereof and is movable toward and away from engagement with said first electrical contact. The nested U-shaped strips are positioned relative to the first contact so that the second contact is in engagement therewith at temperatures below a preselected level. Upon current flow through the second strip exceeding a level that will heat the strips above the preselected temperature level, the first strip will flex to cause initial separation of the contacts and the resulting termination of current flow through the second strip will cause it to cool and flex rapidly to increase the contact separation thereby to effect rapid contact separation under overtemperature conditions of the thermal protector.

3,833,874
LIQUID LEVEL INDICATING SYSTEM

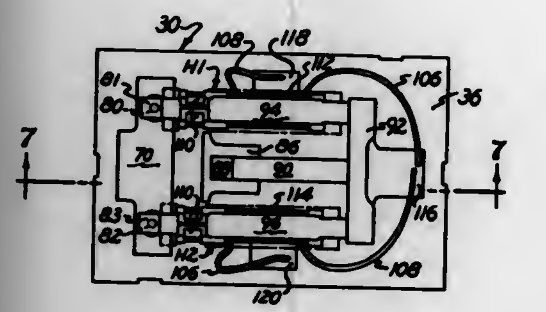
Leo Marcoux, Rehoboth, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 159,894, July 6, 1971, Pat. No. 3,760,352. This application Apr. 2, 1973, Ser. No. 347,118

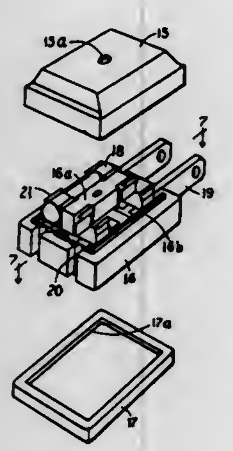
Int. Cl. H01h *71/22*

U.S. Cl. 337—100 **2 Claims**

One or more liquid level sensors in the form of positive temperature coefficient (PTC) of resistivity elements suspended in probes are mounted in a fluid reservoir. The elements, electrically connected in a circuit, are either in a low or high resistance mode. When the elements are in a low resistance mode sufficient current passes through respective heaters to cause respective heat responsive, normally closed, switches connected to a liquid level indicator, to open. Initially upon energization of the system, the PTC elements are in the low resistance mode and the indicator is actuated until the switches receive sufficient heat to cause them to open. The PTC elements remain in the low resistance mode as long as the liquid level remains above the elements permitting heat generated in the elements to be dissipated; however, if the liquid level recedes sufficiently to expose the elements their temperature will rise until an anomaly point is reached beyond which resistance rapidly increases shutting off current to the heaters, permitting reclosing of the switches and reactuation of the indicator. The invention is particularly suited for use with a master cylinder of a vehicle as an indicator of an insufficient quantity of brake fluid in the braking system.

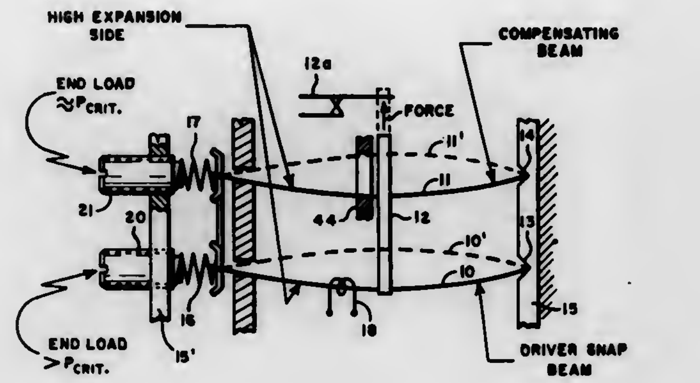


3,833,875
FUSE RECEPTACLE
Alexander Holoka, 417 N. Clark St., Chicago, Ill. 60610
Filed Dec. 7, 1972, Ser. No. 313,125
Int. Cl. H01h *85/02*
U.S. Cl. 337—269 **9 Claims**



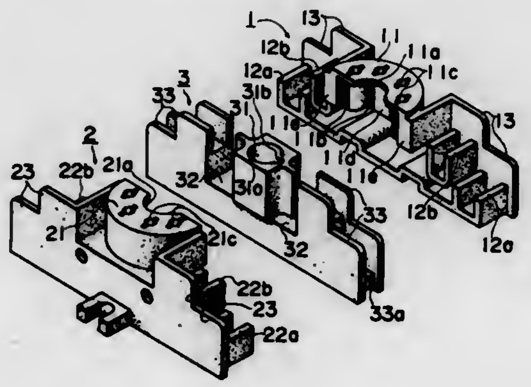
A fuse receptacle, an electrical fuse holder device in the form of a small plastic case which can be safely handled and with a removable cover to provide access to the fuses, also with a pair of standard external metal plug contacts on one end of the case, called front end, and a pair of internal metal receptacle contacts enclosed in the other end and which same contacts are so positioned in the main body of the plastic case that a pair of standard plug contacts similar to same on the front end can be inserted through access slots in the case into contact with the internal receptacle contacts. The external and internal conductors on each side can be eletrically connected inside the case by a fuse placed in fuse clips attached to the top of each of the conductor parts.

3,833,876
TEMPERATURE COMPENSATED SNAP-BEAM ACTUATOR
William W. Bassett, Wayzata, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Nov. 21, 1973, Ser. No. 417,862
Int. Cl. H01h *37/10*
U.S. Cl. 337—370 **17 Claims**



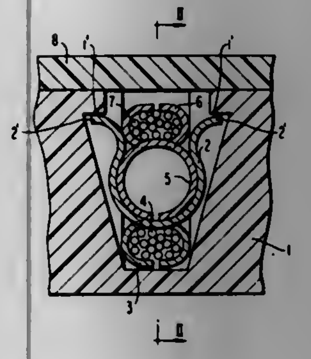
A snap acting thermal actuator apparatus and more particularly a temperature compensated snap beam actuator, one embodiment disclosing a snap beam thermal sequencer. The thermal electric snap beam actuator apparatus is operable to either of two retained positions dependent on the temperature of the thermal snap beam element. The bimetal snap beam element is ambient temperature compensated by another bimetal beam. The end loading of the compensator beam is less than that of the snap beam, the compensator beam end loading preferably being barely equal to the buckling force of the beam, at which point the compensator beam presents a constant force at all displacement positions within the operating range and thus does not load down the snap beam. The compensated snap beam is also disclosed in multiple in a sequencer switch arrangement. The plurality of snap beams are heated together and by biasing the snap beams with end loads differing from each other they will be caused to operate at different operating points, such as in sequential action.

3,833,877
SOCKETS
Teizo Fujita, and Masao Kikuchi, both of Osaka, Japan, assignors to Izumi Denki Company Limited, Osaka, Japan
Filed Dec. 29, 1972, Ser. No. 319,263
Claims priority, application Japan, Mar. 10, 1972, 47-25119
Int. Cl. H01r *13/64, 33/76*
U.S. Cl. 339—186 M **3 Claims**



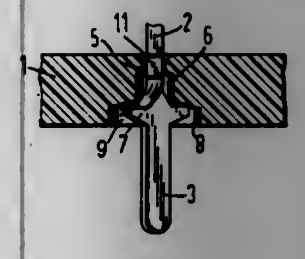
A socket having a circular bed, which consists of two separable sections put together into a unitary body with a separator interposed therebetween, each of said sections having electrical connecting parts fitted therein before it is put together with the other section.

3,833,878
DEVICE FOR ELECTRICALLY CONNECTING THE ENDS OF ELECTRICAL CONDUCTORS
Norbert Kinast, Stuttgart, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany
Filed May 3, 1972, Ser. No. 249,774
Claims priority, application Germany, May 4, 1971, 2121841
Int. Cl. H01r *13/50*
U.S. Cl. 339—208 **10 Claims**



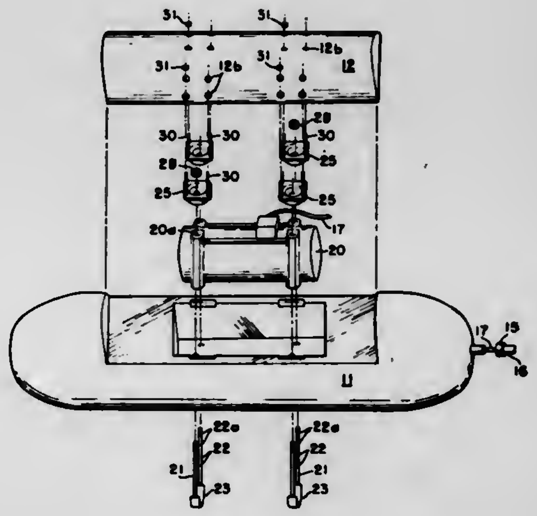
A device for making an electrical connection between the ends of electrical conductors by means of contact elements which can be embedded in at least one insulating member; one contact element consists of a preferably longitudinally slotted sleeve whereas the second contact element, into which the sleeve-like first contact element is adapted to snap in perpendicularly to its longitudinal direction, consists of an expanding spring which is shaped in the manner of a lyre and which in its turn is snapped into the insulating member in a barb-like manner.

3,833,879
CONTACT SOCKET FOR ELECTRICAL DEVICES, SUCH AS RELAYS
Martin Aidn, and Gerhard Furtwa-Ngler, both of Munich, Germany, assignors to Siemens AG, Berlin & Munich, Germany
Filed Apr. 12, 1973, Ser. No. 350,317
Claims priority, application Germany, Apr. 17, 1972, 2218501
Int. Cl. H01r *9/08*
U.S. Cl. 339—220 R **5 Claims**



A contact socket for electrical devices including a base member made from insulating material and having an opening in the form of an elongated window opening to one side of the base member and leading to an enlarged diameter chamber opening to the opposite side of the base member. The chamber terminates into a reduced diameter neck portion leading along a portion of the window for receiving a narrowed neck of a contact member. The contact member has a widened portion longer than the elongated window and has a shoulder engaging the top of the base member, a narrower portion fitting in the elongated window and a connecting portion leading from the narrower portion. A pair of wings extend radially from the connecting portion beneath the narrower portion. The enlarged diameter chamber has oppositely inclined top surfaces converging to an apex. When the contact member is inserted in the socket through the window with the shoulder abutting the top of the base, the wings will lie along the apex of the chamber and, as twisted, will engage the inclined surfaces of the top wall of the chamber and be cammed thereby to tighten the contact member in the window and bring the shoulder in firm engagement with the top of the base. An insulating compound can be inserted into the chamber to seal the window and the solder side of the contact member.

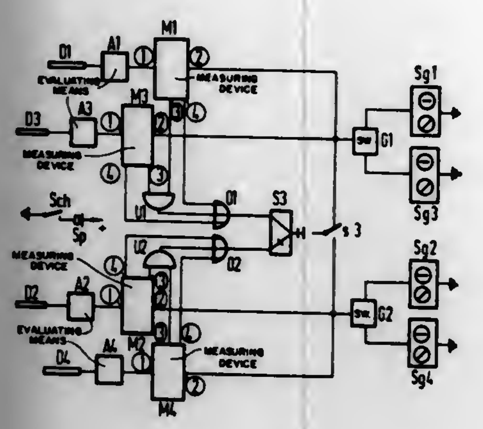
3,833,880
VERY LOW FREQUENCY SONAR PROJECTOR
Frank R. Abbott, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Feb. 26, 1973, Ser. No. 335,640
Int. Cl. H04b *13/00*
U.S. Cl. 340—8 R **5 Claims**



A low-cost projector of acoustic energy is fabricated from an elongate block of wood provided with a cavity. A cover, also made of wood, is fitted over the cavity and a motor-driven rotary electric vibrator is secured to the elongate block via a plurality of bolts. The wooden cover is coupled to the vibrator by several resilient vibration isolation mounts and the block and cover are encased in a resilient sleeve clamped at opposite ends. Thusly constructed and additionally provided with a coaxial duct through which the towing and power cables reach, a low-cost, high-energy projector of acoustic energy is provided which is capable of being operated at very low frequencies due to the selectivity of vibrator driving speeds and of the stiffness of the resilient vibration mounts.

3,833,881
STREET TRAFFIC SIGNAL SYSTEM
Peter Drebinger, and Gerd Pfeffer, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany
Filed May 26, 1972, Ser. No. 257,257
Claims priority, application Germany, Sept. 30, 1971, 2148889
Int. Cl. G08g *1/08*
U.S. Cl. 340—31 A **17 Claims**

A street traffic signalling system having signal units disposed at the respective sides of an intersection and controllable in response to traffic detectors also disposed at the sides of such intersection, a measuring device being provided for each traffic flow monitored by a traffic detector, with each measuring device being adapted to evaluate and store criteria representative of the occupied or unoccupied condition of the associated detector, and to effect a signal change when predetermined occupied-unoccupied conditions exist representing an optimum period duration, or when the occupied periods reach a magnitude representing traffic congestion. The respective measuring devices may be so coupled that related traffic flows



are controlled in dependence upon optimum conditions at all flows so related, or when congestion is indicated with respect to any one such flow.

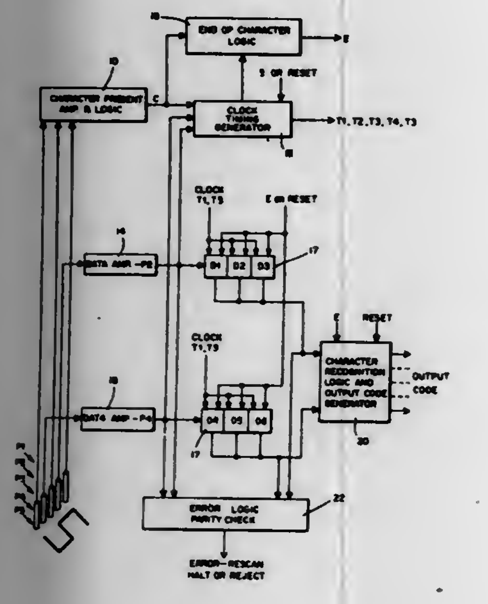
3,833,882
CHARACTER READING SYSTEM

John W. Busby, Newtown, Pa., assignor to Busby Venture Corporation, Newton, Pa.

Filed Apr. 28, 1972, Ser. No. 248,566

Int. Cl. G06k *9/10*

U.S. Cl. 340—146.3 J **7 Claims**



A stylized character reading system in which timing is effectuated by "self-clocking" on the characters themselves thereby eliminating the need for precise horizontal placement of the characters as required by systems in which separate clocking tracks or edge of document detectors are used and in which clock pulses are related to paper movement. In a preferred embodiment three sensors are used as character present sensors which read horizontal line portions of the characters and are used solely to detect the presence of a character. Two data sensors are used to detect vertical marks in the characters and send pulses to the input data register for character identification. The system further comprises a reader which includes the sensors, a self-clocking timing generator, end-of-character logic, even parity checker and a six-bit character code storage register with code recognition logic which may be coupled with code conversion logic to generate any appropriate machine language code.

3,833,883
THRESHOLD FORMING CIRCUIT

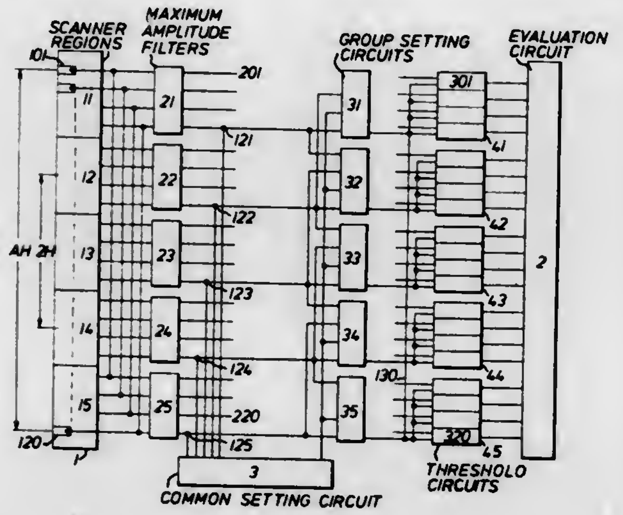
Gerhard Haupt, and Wilfried Kochert, both of Konstanz, Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt, Germany

Filed Mar. 23, 1973, Ser. No. 344,150

Claims priority, application Germany, Mar. 25, 1972, 2214658

Int. Cl. G06k *9/00*

U.S. Cl. 340—146.3 AG **8 Claims**



A threshold forming circuit for use in a character recognition system includes a plurality of scanners and associated signal processing channels, arranged in scanning groups. Threshold values are produced for use in evaluating the signals in each of the processing channels. The threshold values are generated by a signal processing circuit in dependence upon the scanning signals. The signal processing circuit includes a plurality of processing units, where there is one such unit associated with each scanning group. Each unit includes a maximum amplitude filter which is connected to each of the signal processing channels of the respective group and generates an output signal dependent upon the highest scanning signal in the group. A group threshold setting circuit is connected within each of the units to the maximum amplitude filter and produces a threshold value which is dependent upon the signal from its associated maximum amplitude filter and the signals generated by the filters of the other scanning groups. This threshold value is then utilized in a threshold circuit for assisting in the evaluation of the signals on the processing channels.

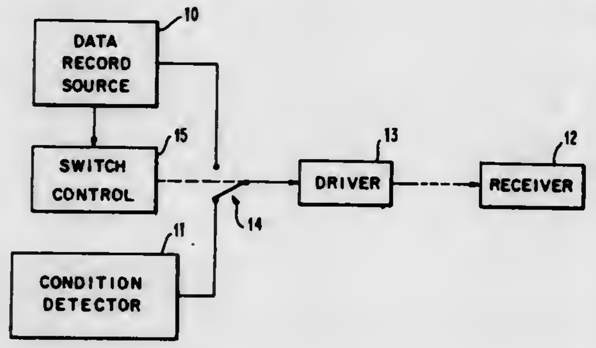
3,833,884
BADGE OR CREDIT CARD READING SYSTEM WITH INTEGRAL STATUS MONITORING

Samuel E. Bigbie, Boynton Beach, and Roger C. Hull, Boca Raton, both of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 25, 1973, Ser. No. 373,591

Int. Cl. H04q *5/00*

U.S. Cl. 340—147 LP **6 Claims**



A high priority source of discrete data records shares a common transmission line with a source of low priority random data. Logic circuitry maintains a normal connection between the low priority data source and the communication line until receipt of an indication that the higher priority data record is about to appear. The logic circuitry disconnects the low priority data source, connects the higher priority source to the common line and allows the high priority connection to be maintained until either an end of record signal is received or a period of time has passed of sufficient length so that the maximum data record must have been transmitted.

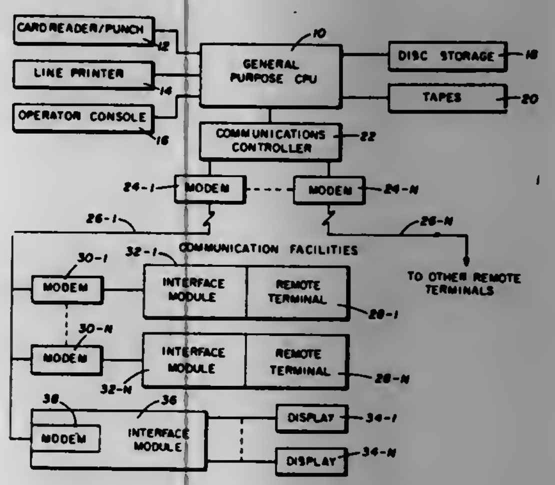
3,833,885
AUTOMATIC BANKING SYSTEM

Fred J. Gentile, and Jack Chu-Wang Chang, both of Dallas, Tex., assignors to Docutel Corporation, Dallas, Tex.

Filed May 24, 1973, Ser. No. 363,665

Int. Cl. H04q *5/00*

U.S. Cl. 340—152 R **24 Claims**



A central processing unit coupled to one or more remote automatic dispensing terminal banking machines provides fully automatic stations for completing banking functions in response to a coded credit card presented to any one of the remote dispensing stations. After the credit card presented to one of the remote terminals has been initially checked to determine if the card has the proper format, coded information thereon is evaluated to check the users identity prior to authorizing them to complete a selected banking transaction. When each of several standard checks of the credit card code have been completed, a user is instructed to enter a transaction selection, comprising one of four banking functions, along with the amount of the banking transaction. At this point the remote terminal assembles an authorization request message and, upon receipt of a poll command from the central processing unit, transmits this inquiry message to a central computer. The central computer interrogates account files as appropriate and replies by transmitting an authorization reply message to the remote terminal. An authorization code included in this message by the central computer instructs the remote terminal how to complete the selected transaction. Following completion of the selected transaction, the remote terminal assembles a completion status message, and upon receipt of a poll command from the central processing unit, transmits this completion message to the central computer. Communications between the central processing unit and each of the remote terminals is thus completed only upon a poll command from the central computer.

3,833,886
REMOTE CONTROL WITH SELECTIVE EVALUATION OF IMPULSE PATTERNS

Eduard Baumann, Uster, Switzerland, assignor to Zellweger Ltd., Uster, Switzerland

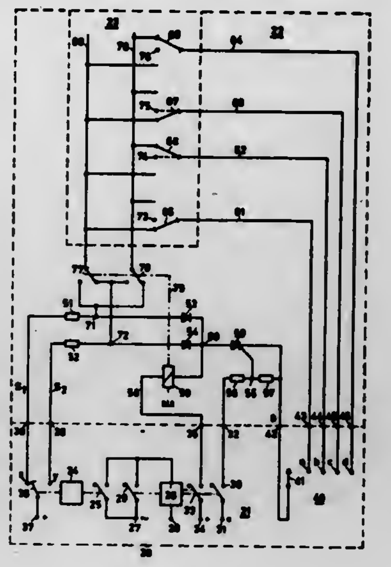
Filed Mar. 24, 1972, Ser. No. 237,835

Claims priority, application Switzerland, Mar. 29, 1971, 4608/71

Int. Cl. H04q *9/00*

U.S. Cl. 340—167 R **1 Claim**

A receiver programmed to respond to either an individual command impulse pattern or to an individual command and a collective command impulse pattern. This is accomplished by opening two links in the command key so that the receiver is responsive both to the individual command and a collective command. In this state, both received commands would match the impulse pattern associated with the receiver. When these two links are closed, the receiver is only responsive to the individual commands.



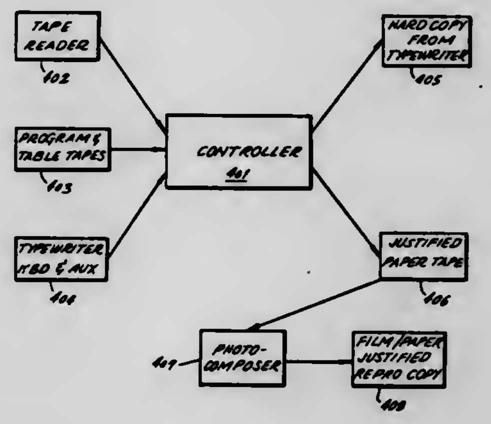
3,833,887
PROGRAMMABLE CONTROLLER

Robert Shevlin, Manhasset, N.Y., assignor to Varisystems Corporation, Plainview, N.Y.

Division of Ser. No. 235,202, March 16, 1972. This application Oct. 30, 1972, Ser. No. 302,295

Int. Cl. G06f *9/00, 3/00*

U.S. Cl. 340—172.5 **3 Claims**



A programmable controller for use in controlling a wide variety of external data and production devices and having an extremely flexible stored program capability enabling the device to function as a small-scale computer adapted for use as either a systems controller or as a "stand alone" minicomputer.

3,833,888
GENERAL PURPOSE DIGITAL PROCESSOR FOR TERMINAL DEVICES

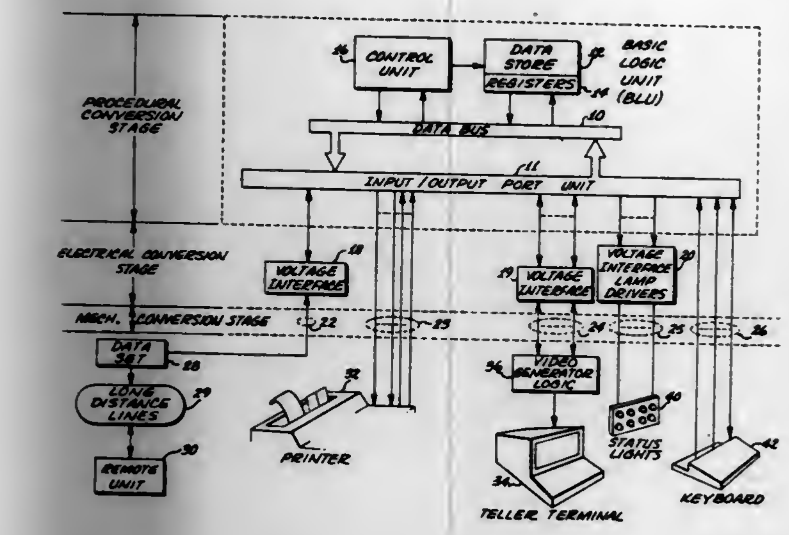
John P. Stafford; Allen B. J. Cuccio, both of Oklahoma City, Okla., and Arthur Johnson, Syracuse, N.Y., assignors to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Feb. 5, 1973, Ser. No. 329,513

Int. Cl. G06f *9/18*

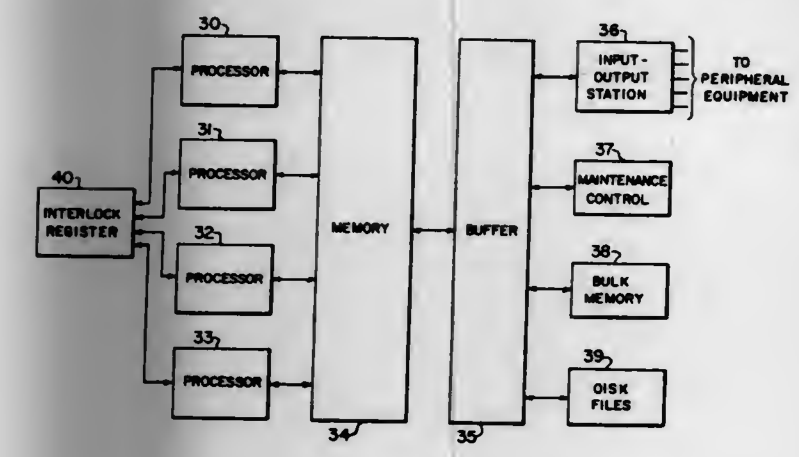
U.S. Cl. 340—172.5 **9 Claims**

A digital processor includes: a main read only memory store providing instruction and constant data signals; a random access memory store for storing variable data signals; an input/output port unit communicating with the terminal devices; an interrupt address generator controlling the interrupt priority for the terminal devices; an arithmetic and logical unit; an instruction decoding and execution unit controlled according to instructions in a fast access read only memory store address controlled by the instruction signals in the main read only memory store for controlling the operations of the digital processor; and a group of working and general registers for buffer storage of digital signals. Interconnections between the units of the processor are through a single bidirectional data bus. Process steps control the operation of the processor according to an instruction format.



3,833,889
MULTI-MODE DATA PROCESSING SYSTEM

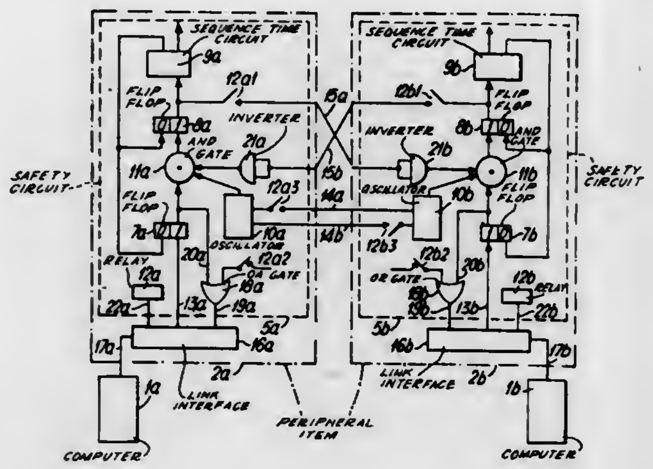
Seymour R. Cray, Chippewa Falls, Wis., assignor to Control Data Corporation, Minneapolis, Minn.
Filed Mar. 8, 1973, Ser. No. 339,237
Int. Cl. G06f *9/20, 15/16*
U.S. Cl. 340—172.5 73 Claims



A computer system according to the present disclosure includes a plurality of individual processors and an interlock register connected to the processors for process control independent of memory. One aspect of the disclosure resides in a "universal" register technique and apparatus wherein the main registers of each processor are selectively operated in a plurality of modes. Another aspect of the disclosure resides in an addressing technique and apparatus wherein a reference address of an object program is selectively added to addresses of programs inside and outside of the field length of the object program to obtain the absolute address of the program. Absolute addresses of resident programs, however, are handled by not adding the reference address to the resident program address.

3,833,890
SAFETY DEVICE

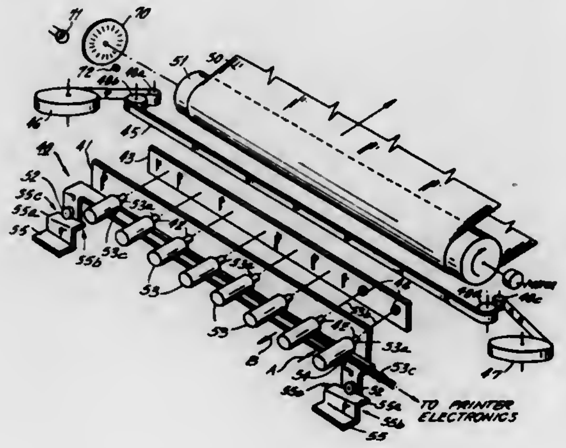
Christian Yves Tournier, Paris, and Jean Marie C. S. Buzy-Debat, Ville D'Avray, both of France, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Mar. 14, 1973, Ser. No. 341,183
Claims priority, application France, Mar. 17, 1972, 72.09415
Int. Cl. G06f *11/06;* **G05b** *9/02*
U.S. Cl. 340—172.5 6 Claims



A safety arrangement that avoids double access from paired duplicated circuits to commonly controlled equipment. The safety arrangement includes two safety circuits each associated with one of the duplicated circuits. Each of the safety circuits comprising a seizure bistable circuit whose output is connected to a priority arrangement. The output of the priority arrangement is connected to an operation bistable circuit. The priority arrangement is driven by one of two synchronized oscillators one in each safety circuit associated with duplicated circuit, the two oscillators operating in phase opposition.

3,833,891
HIGH SPEED MATRIX PRINTER

Robert Howard, Roslyn, N.Y., and Prentice I. Robinson, Hudson, N.H., assignors to Centronics Data Computer Corp., Hudson, N.H.
Continuation of Ser. No. 204,024, Dec. 2, 1971, abandoned.
This application Mar. 26, 1973, Ser. No. 345,000
Int. Cl. B41j *1/16;* **G06k** *15/10*
U.S. Cl. 340—172.5 12 Claims

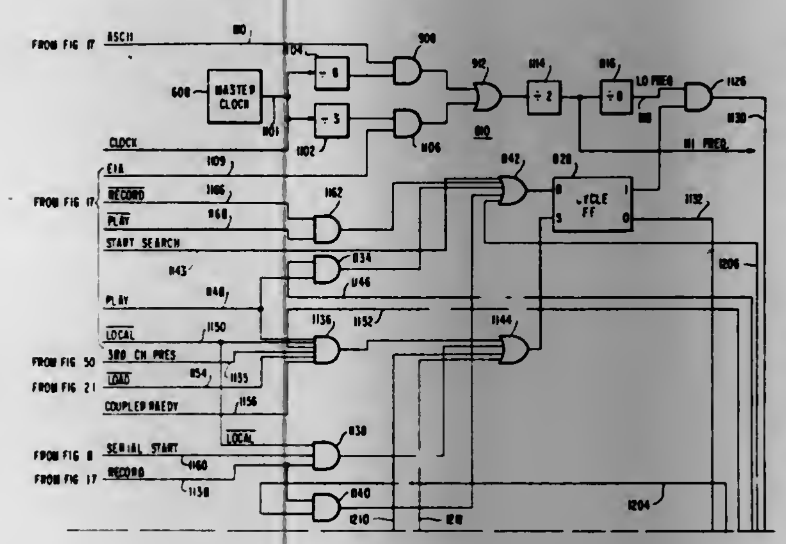


An elongated paper document is moved at a substantially constant speed. A plurality of reciprocally mounted solenoid operated print wires are mounted at spaced intervals upon a movable assembly arranged to move along a line transverse to the direction of movement of the paper document. The print wires are selectively operated to impact an inked ribbon against the paper document for printing and/or plotting. The moving assembly fully compensates for the movement of the document to assure that all dots printed along a single row will form a straight line. While only selected ones of the print wires need be operated at any given instant, those selected for operation are all driven against the inked ribbon simultaneously to provide high speed printing and/or plotting of the dot matrix type.

Alternatively, paper movement may be periodic as opposed to continuous.

3,833,892
MAGNETIC TAPE DATA SYSTEM

Joseph P. Marsalka, Columbus, and Charles F. Spademan, Worthington, both of Ohio, assignors to MI2, Inc., Columbus, Ohio
Division of Ser. No. 123,187, March 11, 1971, Pat. No. 3,774,156. This application Sept. 10, 1973, Ser. No. 395,545
Int. Cl. G06f *1/04*
U.S. Cl. 340—172.5 6 Claims



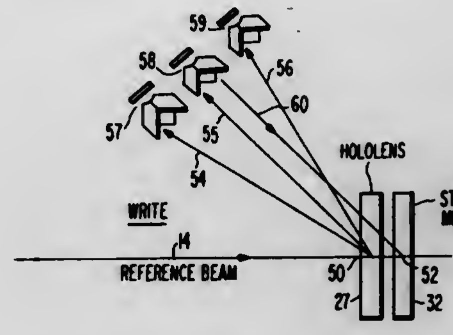
There is disclosed a data handling system including input-output means, intermediate memory means and principal memory means, together with data transfer and processing control logic. Input and output parallel to serial and serial to parallel and code conversion capability are provided. Input-output temporary storage capability is provided by a shift register. The intermediate memory is a random access memory or the like having a storage capacity substantially exceeding that of the input-output shift register. The principal memory is a magnetic tape system, preferably employing a magnetic tape cassette as a memory medium. The system is useable in various ways, for example as a data terminal capable of local keyboard and/or remotely controlled data storage and transmission. Data input and output may be in parallel or serial form and a variety of data rates and data code word may be acoommodated without system modification.

Broadly stated, for operation in the record mode, the system accumulates a block of data provided by a data source (for example a line of print) in the intermediate memory through the input-output means, and thereafter transfers the entire data block to the principal memory at a high speed. For playback, an entire block of data is transferred at high speed from the principal memory into the intermediate memory and is thereafter provided through the input-output means to suitable data utilization devices at a data rate compatible with such devices.

Among the features provided by the system are error checking and correction on a character-by-character and data block basis, data block identification (search) based on selectable identifying code characteristics and compatibility with a variety of keyboard controlled devices or other data input and output devices, and automatic and manual data gathering and processing machinery.

3,833,893
HOLOGRAPHIC MEMORY INCLUDING CORNER REFLECTORS

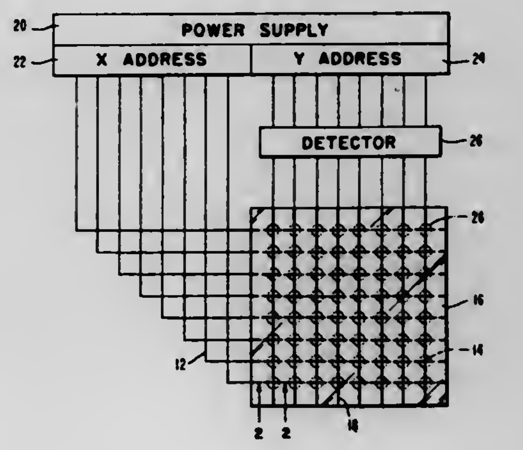
Jan Aleksander Rajchman, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Oct. 24, 1972, Ser. No. 299,771
Int. Cl. G11c *13/04;* **G11b** *7/00*
U.S. Cl. 340—173 LM 10 Claims



An electrically and optically accessible memory is disclosed in which binary information is stored in a holographic storage medium with a relatively high packing density by an organization in which lenses are eliminated and corner reflectors are used. A laser beam is directed to an illumination hologram to illuminate an array of controllable corner reflectors each of which reflects to represent a "1" and does not reflect to represent a "O". The reflected light returns as an object beam through the illumination hologram to the storage medium, where it interferes with laser light transmitted through the illumination hologram as a reference beam to form a hologram in the storage medium. The stored information is read out by directing the laser beam through the illumination hologram to the storage medium as a reference beam to cause the stored hologram to be read out through the illumination hologram to photosensors associated with the corner reflectors.

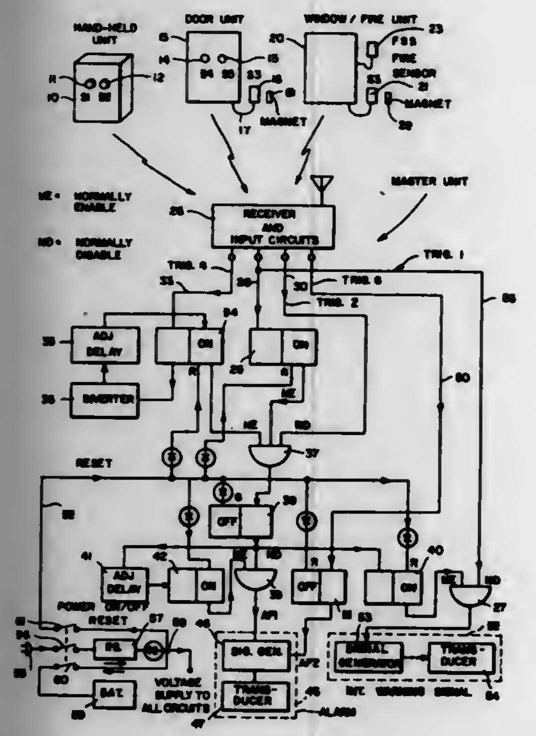
3,833,894
ORGANIC MEMORY DEVICE

Arieh Aviram, Yorktown Heights, and Philip E. Seiden, Briarcliff Manor, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation-in-part of Ser. No. 258,639, June 1, 1972, abandoned. This application June 20, 1973, Ser. No. 371,788
Int. Cl. G11c *13/00*
U.S. Cl. 340—173 R 18 Claims



The organic memory device described herein comprises an organic compound having a molecular structure which includes a mixed valence double well of an organic or organometallic redox couple separated by a σ, i.e., a non-conjugated bridge, the two components of the redox couple being the respective end groups of the structure. The remainder of the molecule is chosen to effect electro-neutrality. The total molecular structure is such that in a film of the compound laid down on a substrate surface, the molecules assume dispositions such that their long axes are substantially perpendicular to the plane of the surface. Examples of the redox couple are: ferrocene, ferrocenium ; hydroquinone, quinone, tropylidine, tropylium ; and dihydropyridine, pyridinium . This type of molecular structure exhibits a potential energy versus distance plot, wherein the term "distance" signifies the length of the molecule, i.e., from end group to end group of the redox couple, which defines first and second minimum potentials or wells separated by a maximum potential, the distance between the wells substantially corresponding to the length of the molecule. In operation, upon the application of a potential across a film of the compound, electrons are caused to tunnel from one minimum to the other to thereby define a given state.

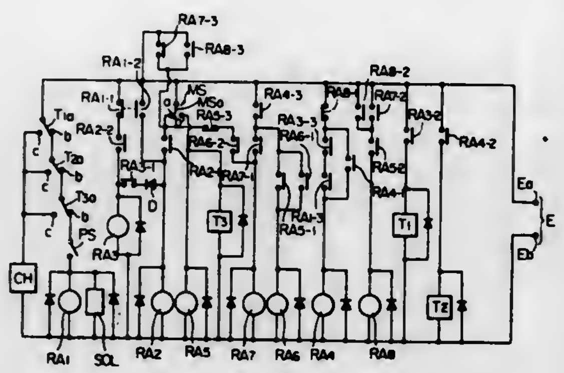
3,833,895
INTRUSION ALARM WITH INDICATION OF PRIOR ACTIVATION
Dennis E. Fecteau, 9308 Hamilton Dr., Fairfax, Va. 22030
Filed Dec. 29, 1972, Ser. No. 319,679
Int. Cl. G08c *17/00*
U.S. Cl. 340—224 **5 Claims**



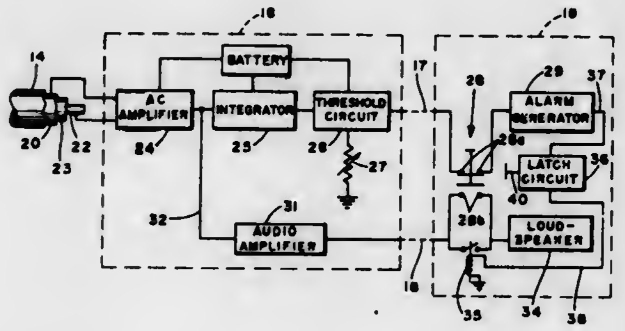
An alarm system including a sensing device for determining the status of a door and for transmitting a wireless signal to a receiver unit when the door is opened. The door unit can also be operated to initiate a delay mode by which the occupant can leave without activating an alarm. A portable unit can be carried by the occupant and used to either activate the alarm to summon help or to interrogate the system from without the protected space to determine its integrity during his absence. Window and fire sensing units can also be provided. The receiver is provided with means for distinguishing between the different signals transmitted by the hand-held and other units and also includes logic circuits responsive to trigger signals generated by receipt of various transmitted signals to perform different functions including sounding the alarm, sounding a different signal indicative of continued integrity, resetting, initiating delay modes to permit entrance and exit.

3,833,896
DEVICE FOR DETECTING A TRANSPORT MISHAP OF A COPY PAPER IN A REPRODUCING APPARATUS
Motoyuki Suzuki, Tokyo, Japan, assignor to Ricoh Co. Ltd., Tokyo, Japan
Filed Dec. 26, 1972, Ser. No. 318,356
Claims priority, application Japan, Dec. 28, 1971, 46-373
Int. Cl. G08b *21/00*
U.S. Cl. 340—259 **5 Claims**

In a reproducing apparatus, a delay timer operates an alarm after the lapse of a predetermined period during which a copy paper fails to pass a point in its travel path through the machine. This timer is placed in the operating condition by a signal which is generated when the transfer drum begins to rotate. When the copy paper has been transported normally within a particular time, the operation mode is released. However, when the copy paper is not discharged owing to the occurrence of a paper jam after a predetermined time has elapsed, the timer is caused to operate an alarm to indicate the occurrence of the paper jam. For apparatus wherein the reproduction cycle is shorter than the transportation time and a series of copies are to be made, three delay timers with a system of associated relays are presented to detect a paper jam at any point in the cycle.

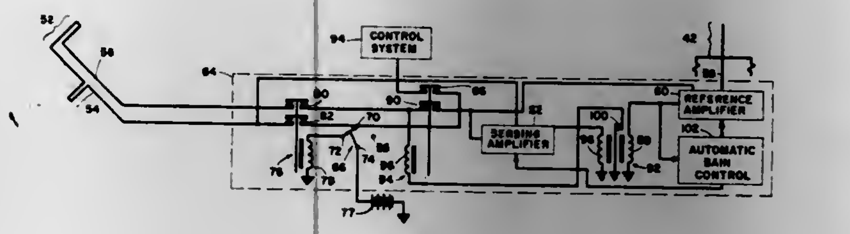


3,833,897
INTRUSION DETECTION SYSTEM AND METHOD USING AN ELECTRET CABLE
Robert F. Bell, Saratoga; James R. Dinger, Cupertino; Marvin D. Laymon, Milpitas, and Vytautas V. Pazemenas, Sunnyvale, all of Calif., assignors to GTE Sylvania Incorporated, Mountain View, Calif.
Filed Mar. 13, 1973, Ser. No. 340,849
Int. Cl. G08b *13/02*
U.S. Cl. 340—261 **8 Claims**



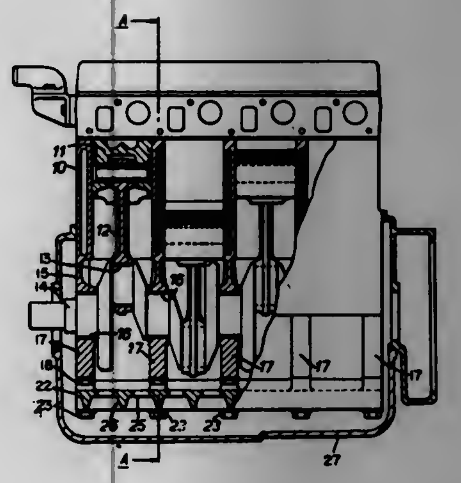
An intrusion detection system comprises a fence mounted coaxial electret cable connected to remote signal processing apparatus which includes both automatic alarm circuits and a loudspeaker, the latter producing sounds generated by audio frequency signals propagating on the cable. The automatic alarm circuit responds to cable signals that meet predetermined criteria for bandpass, amplitude and duration to indicate a suspected intrusion; the loudspeaker reproduces sounds caused by the condition which produces the alarm and permits the operator to aurally determine the nature of the condition for verifying in real time its valid or spurious character. The signals on the cable may be manually or automatically switched to the loudspeaker or may be continuously connected to it as required or desired.

3,833,898
PROXIMITY DIFFERENTIAL CONTROL
Alvin H. Wilkinson, Talala, Okla., assignor to Auto Crane Company, Tulsa, Okla.
Continuation-in-part of Ser. No. 240,359, April 3, 1972, abandoned. This application Nov. 2, 1973, Ser. No. 412,163
Int. Cl. G08b *21/00*
U.S. Cl. 340—267 C **8 Claims**



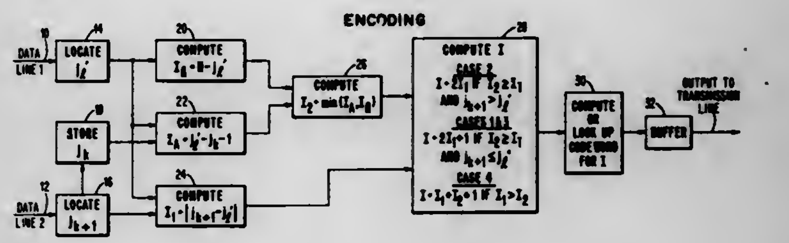
A proximity differential control for use with construction equipment and sepcifically cranes operating in the near proximity to an energized electrical power line comprises a reference antenna positioned at substantially the closest desired distance of operation from an electrical power line, at least one substantially identical sensing antenna positioned on the movable equipment, substantially identical receiving and amplifying means for each of the said antennas, and control means for comparing the relative strength of electrical fields around each of the antennas, and for shutting down the movable equipment when one of the sensing antennas moves into an area having a greater electrical field strength than that of the reference antenna.

3,833,899
DEVICE FOR ACTUATING AN ALARM IN THE CASE OF BREAKING IN
Jean Charles Joseph Blosse, Sannois, France, assignor to Bloscop, Sannois, France
Filed May 19, 1972, Ser. No. 255,030
Claims priority, application France, May 19, 1971, 71.18129
Int. Cl. G08b *13/08*
U.S. Cl. 340—274 **2 Claims**



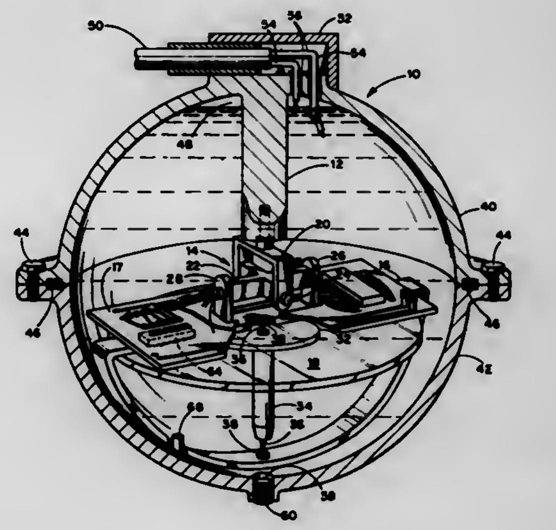
Device for actuating an alarm in the event of a breaking into a premises by opening a door or the like. The device comprises a lock for locking the door, a detecting mechanism for detecting the opening of the door and connected through an arming mechanism to an alarm signal generator. The arming mechanism comprises a switch which is actuated directly by the bolt of the lock for either allowing or precluding actuation of the alarm. The switch is of the type having a pushbutton and is successively closed and opened and vice versa by successive depressions of the pushbutton effected by the bolt.

3,833,900
IMAGE COMPACTION SYSTEM
Lalit R. Bahl, Yorktown Hgts., N.Y.; Daniel I. Barnea, Tel Aviv, Israel, and Hisashi Kobayashi, Mohegan Lake, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 18, 1972, Ser. No. 281,895
Int. Cl. H04l *3/00*
U.S. Cl. 340—347 DD **6 Claims**



A data compaction system wherein segmented binary data that has redundancy between segments is compacted by means of differential run-length encoding. For compaction of document digitized data, the segments represent lines on the document. Black image points on the document which are represented by a "1" are coded relative to the position of a 1 appearing in the line above the one being coded. The differential distance between binary 1 bit positions on successive lines are coded in accordance with a compaction code. Codewords having a small number of bits are used for small differentials.

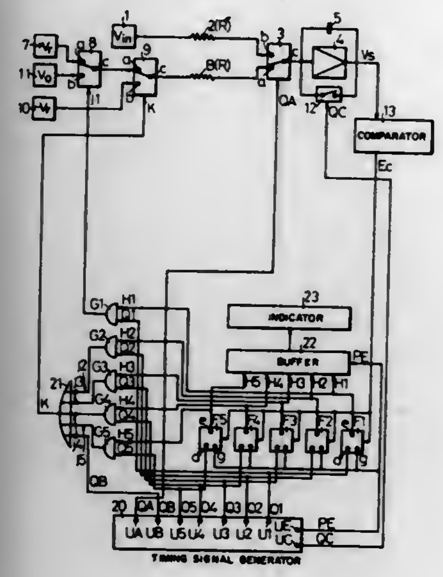
3,833,901
MAGNETIC COMPASS HAVING REMOTE DIGITAL READOUT
John T. Fowler, Winthrop, Mass., assignor to Arthur D. Little Inc., Cambridge, Mass.
Filed Aug. 28, 1972, Ser. No. 284,362
Int. Cl. G08c *9/04*; **H03k** *13/02*
U.S. Cl. 340—347 P **12 Claims**



A magnetic compass having a code disk disposed for rotation in accordance with compass position and which is electro-optically sensed to provide electrical output indications of compass position. A Gray-coded disk is employed having a selected code sequence to provide unambiguous transitions throughout the compass circle, and associated logic circuitry is provided to process the detected Gray code information for production of serial digital output pulses for transmission to remote receiving locations and display of compass heading.

3,833,902
INTEGRATING A-D CONVERSION SYSTEM

Tetutaro Eto, No. 841, 2-chome, Soshigaya, Tokyo, Japan
Continuation of Ser. No. 84,365, Oct. 27, 1970, abandoned.
This application Oct. 5, 1972, Ser. No. 295,186
Claims priority, application Japan, Oct. 30, 1969, 44-86639
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 NT **3 Claims**

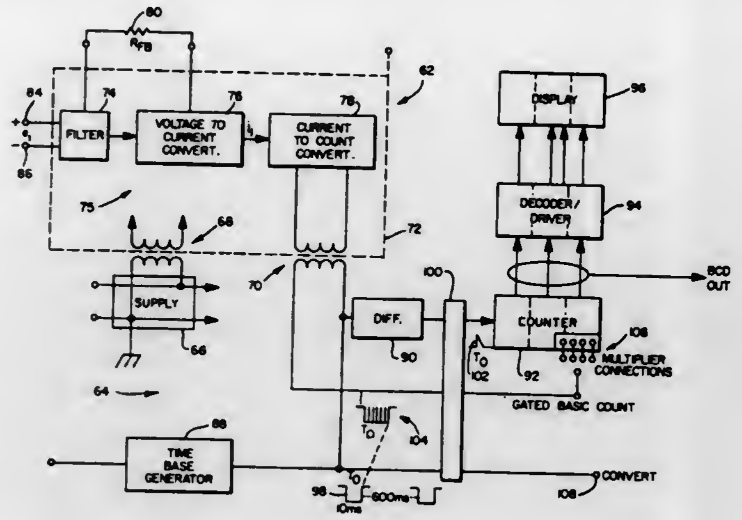


An integrating A-D conversion system which is adapted to provide an analog input voltage in the form of a binary number and comprises the steps of (1) positively integrating a positive analog input voltage for a period of time 2T, (2) subtracting from the resulting voltage in (1) a negative voltage produced by integrating a negative reference voltage $-V_r$ for a period of time T, (3) adding the resulting voltage in (2) with a negative (or positive) voltage produced by integrating the voltage $-V_r$ (or $+V_r$) for a period of time T/2 according as the resulting voltage in (2) is positive (or negative), (4) adding the resulting voltage in (3) with a negative (or positive) voltage produced by integrating the voltage $-V_r$ (or $+V_r$) for a period of time T/4 according as the resulting voltage in (3) is positive (or negative), (5) adding the resulting voltage in (4) with a negative (or positive) voltage produced by integrating the voltage $-V_r$ (or $+V_r$) for a period of time T/8 according as the resulting voltage in (4) is positive (or negative), (6) adding the resulting voltage in (5) with a negative (or positive) voltage produced by integrating the voltage $-V_r$ (or $+V_r$) for a period of time T/16 according as the resulting voltage in (5) is positive (or negative), ... and so on, and obtaining a digital output, representing a binary number whose digits are determined by whether the corresponding resulting voltages in (2), (3), ... are positive or negative respectively.

3,833,903
COMPENSATED VOLTAGE-CONTROLLED OSCILLATOR PARTICULARLY FOR ANALOG TO DIGITAL CONVERTERS

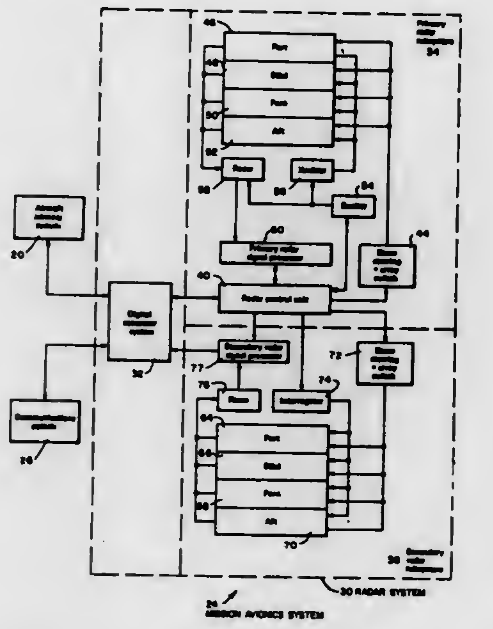
Bernard M. Gordon, Magnolia; Leopold Neumann, Lexington, and Ivan H. Kirsch, Hyde Park, all of Mass., assignors to Gordon Engineering Company, Wakefield, Mass.
Filed Jan. 2, 1973, Ser. No. 320,639
Int. Cl. H03k *13/20*
U.S. Cl. 340—347 AD **21 Claims**

A voltage-controlled oscillator of general applicability comprises a charge switching circuit for generating a signal of precise frequency. Selected components provide temperature compensation for stable operation. An analog to digital converter comprises a floating analog section and a grounded digital section, the analog section including a voltage-controlled oscillator of the aforementioned type and the digital section including a time base generator and a programmable counter. In the voltage-controlled oscillator, an analog input signal is translated to a proportional current and a pulsed signal having a functionally related frequency is generated. The pulsed signal is coupled to the grounded digital section through a coupling transformer, which also couples a timing signal generated by the time base generator for synchronizing the floating analog section and the grounded digital section. The coupled pulse signal is added to the timing signal and applied to the counter which is gated to respond to only those pulses occuring within a selected time interval. Tracking components in the voltage-controlled oscillator and time base generator operate to compensate for a frequency change of the pulsed signal due to the effects of temperature by a counteracting change of the selected time interval to which the counter is responsive. Selective programming of the counter provides digital form signals in arbitrary engineering units.



3,833,904
AIRBORNE SWITCHED ARRAY RADAR SYSTEM

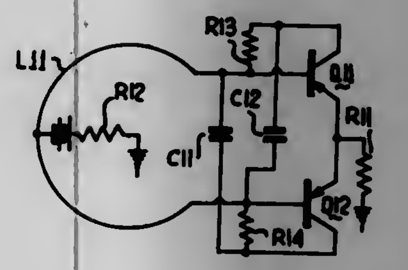
Richard A. Gebhardt, Orange; Willis M. Priester, Garden Grove; Donald A. Muchlinski, La Habra; Donald L. King, La Mirada; Donald P. Parke, Anaheim; Gerald M. Goldberg, Placentia; Stuart P. Scheidler, Anaheim, and Richard Sidlo, Placentia, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed Feb. 5, 1973, Ser. No. 329,764
Int. Cl. G01s *9/02*
U.S. Cl. 343—5 DP **15 Claims**



An airborne radar system is disclosed utilizing multiple fixed antenna arrays mounted within the periphery of the aircraft to avoid aerodynamic modifications and optimumly placed to achieve 360° surveillance coverage. The arrays preferably include a fore mounted array, an aft mounted array, a port mounted array and a starboard mounted array for respectively firing beams in different azimuth sectors relative to the aircraft. Each array is comprised of dipole elements having phase shifters coupled thereto for steering a beam within the corresponding sector. The radar system may include both primary and secondary radar subsystems with the dipole elements of primary and secondary radar antennas being physically interleaved in the aforementioned antenna arrays. The primary radar antennas time share an exciter, transmitter, receiver and signal processor through switching devices. The secondary radar antennas (typically an IFF/SIF system) similarly time share transmitting and receiving equipment. Time allocation between antennas of each subsystem and between operational modes such as "search" or "track" is based on various factors such as mission objectives, current target characteristics and radar purpose. Time allocation is preferably determined by an "on line" stored program digital computer which generates a radar control command to define the parameters for each beam to be fired. Typically, the control command specifies (1) array (2) beam elevation (3) beam azimuth (4) total number of fill and data pulses (5) number of fill pulses (6) frequency and (7) pulse repetition rate or frequency. For each radar subsystem, this control command is interpreted by a radar control unit which responds by controlling various system elements including the exciter, transmitter, switches, phase shifters and duplexers to cause the defined beam to be fired. Each control command also preferably specifies parameters utilized to interpret the return beam including (8) ground doppler offset (9) threshold (10) range start time and (11) range end time. This latter information is employed by the radar control unit to enable primarily the receiver and signal processor to generate a beam return report which is then communicated by the radar control unit to the digital computer. The beam return report typically includes a header portion specifying the (1) clutter level and (2) jam level for each different frequency. The report also includes a subreport for each return beam which specifies (3) range (4) amplitude (5) doppler filter number and (6) ratio of signal to clutter plus noise. The digital computer then utilizes the beam return report to determine subsequent control commands.

3,833,905
PROXIMITY FUZE

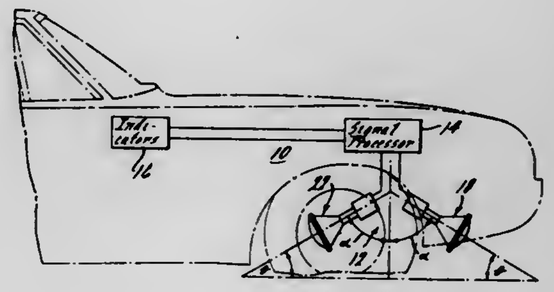
Maurice Apstein, Bethesda, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Dec. 17, 1971, Ser. No. 210,262
Int. Cl. F42c *13/04;* **G01s** *9/02*
U.S. Cl. 343—7 PF **8 Claims**



A proximity fuze employs a push-pull oscillator to generate an r–f signal, to be transmitted and to detect the doppler shift in the received r–f signal. In one embodiment the push-pull oscillator includes plural pairs of matched transistors and inductive feedback from a loop antenna. The transistors are connected to operate in series in respect to the r–f carrier and in parallel in respect to the doppler component of the received signal. As a result, the r–f carrier is cancelled out, oscillator loading is eliminated and the doppler signal appears at twice the voltage over that obtained with a single detector.

3,833,906
DOPPLER RADAR FOR LAND VEHICLES

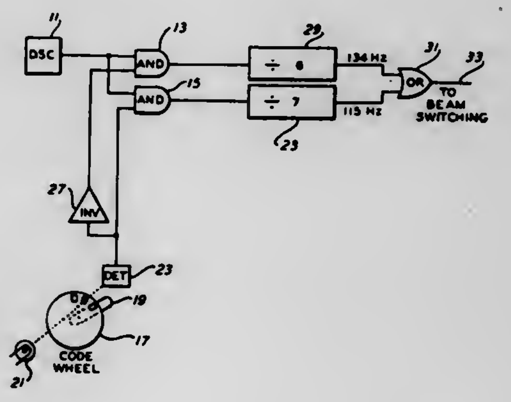
Carroll F. Augustine, Farmington, Mich., assignor to Midwest Microwave, Inc., Ann Arbor, Mich.
Filed Feb. 14, 1972, Ser. No. 226,107
Int. Cl. G01s *9/44*
U.S. Cl. 343—9 **12 Claims**



A doppler radar system for automobiles and the like which is especially adapted for measuring speed of the vehicle. Preferably, two radar antennas are utilized, one of which is forwardly and downwardly directed and the other of which is rearwardly and downwardly directed. The doppler signals from each of the antennas are summed to provide a velocity signal which is compensated for changes in the pitch of the vehicle. Each of the antennas includes a horn and a dielectric lens for the horn for focusing the transmitted energy at the traveling surface.

3,833,907
LANDING AND APPROACH SYSTEM SCAN-RATE STATION IDENTIFICATION

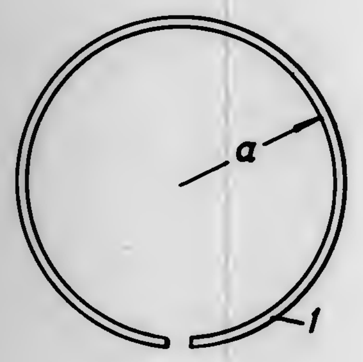
Leonard O. Vladimir, Chappaqua, N.Y., assignor to The Singer Company, Little Falls, N.J.
Filed Jan. 2, 1973, Ser. No. 320,016
Int. Cl. G01s *1/16*
U.S. Cl. 343—108 M **9 Claims**



A method of and apparatus for providing Morse Code identification of a microwave landing system transmitting station in which the glide slope and localizer beams are switched at a first frequency to transmit a dot or dash and at a second frequency to transmit a space and the first frequency then decoded, using a band pass filter in the airborne receiver, and used to key an audio oscillator to provide the pilot with an audio output.

3,833,908
BACK-FIRE LOOP ANTENNA

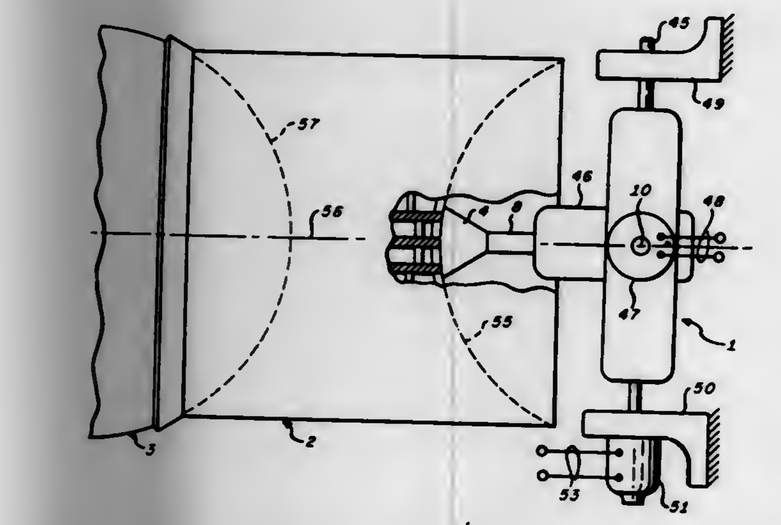
Shiu-Chang Loh, 12 Cooper Road, Jardine's Look-out, Hong Kong
Continuation-in-part of Ser. No. 138,700, April 29, 1971, abandoned. This application July 25, 1973, Ser. No. 382,388
Int. Cl. H01q *19/10*
U.S. Cl. 343—741 **7 Claims**



A back-fire loop antenna having a loop of one or more turns situated between a pair of reflectors parallel with the plane of the loop, one reflector being larger than the other, there being means for supporting the loop and the reflectors in the required positions.

3,833,909
COMPACT WIDE-ANGLE SCANNING ANTENNA SYSTEM

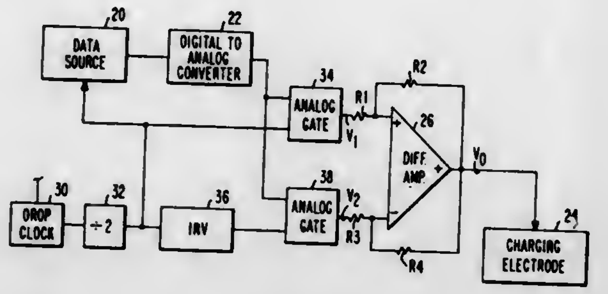
Arthur H. Schaufelberger, Crystal Beach, Fla., assignor to Sperry Rand Corporation, New York, N.Y.
Filed May 7, 1973, Ser. No. 358,242
Int. Cl. H01q *19/06*
U.S. Cl. 343—754 **9 Claims**



A compact, rapidly scannable, high frequency directional antenna system provides wide-angle space scanning in one or more dirctions by employing a moving feed for commutating energy flow through a wave guide array illuminating or receiving high frequency energy from a cylindrical or spherical energy collimator.

3,833,910
INK DROP PRINTER CHARGE COMPENSATION

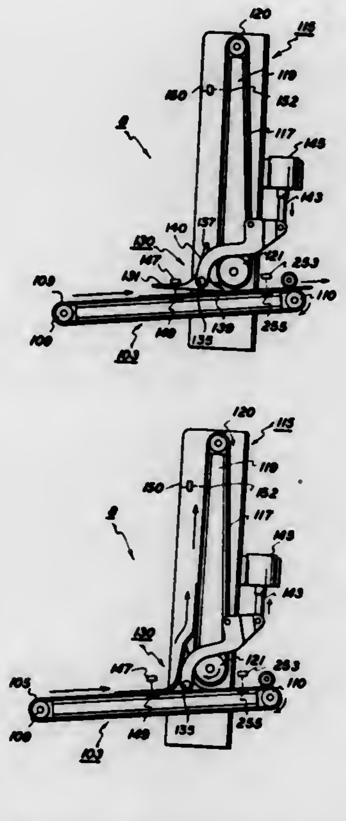
Winston H. Chen, Vestal, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 18, 1973, Ser. No. 370,884
Int. Cl. G01d *18/00*
U.S. Cl. 346—1 **9 Claims**



Every other drop in an ink jet printer is charged for use in printing, and intervening drops are charged negatively with a charge proportional to the charge on the preceding drop.

3,833,911
REPRODUCTION SYSTEM AND METHOD WITH SIMPLEX AND DUPLEX MODES OF OPERATION

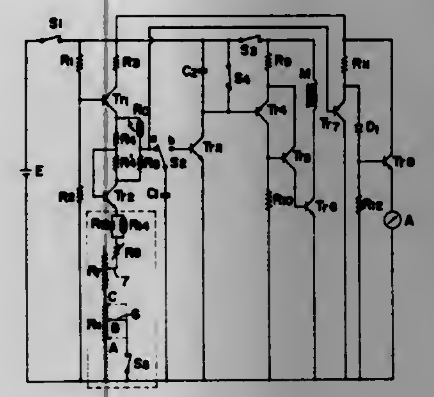
John R. Caldwell, Rochester, and Denis J. Stemmle, Williamson, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed Dec. 29, 1972, Ser. No. 319,833
Int. Cl. B65h *29/58;* **G03g** *15/00*
U.S. Cl. 346—74 ES **9 Claims**



This invention is for a reproduction system and method capable of producing collated copy sets for both simplex and duplex modes of operation. For simplex operation copies from the processor are inverted by an inverting apparatus which includes a horizontal vacuum transport which positively positions a sheet onto a vertical vacuum transport upon activation of deflector fingers. The vertical transport reverses in response to signals to deliver the sheets onto the horizontal transport with trailing edge becoming leading edge. The horizontal transport delivers copies to an array of tray members which are moved past a sheet discharge zone in timed relation to receive the copy sheets and collate them. For duplex operating inverting is omitted with the sheets moving from horizontal transport directly to the trays.

3,833,912
EXPOSURE CONTROL SYSTEM FOR A SINGLE LENS REFLEX CAMERA

Toshio Kobori, and Masaru Ohba, both of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka-fu, Japan
Filed Oct. 9, 1973, Ser. No. 404,464
Claims priority, application Japan, Oct. 17, 1972, 47-119305[U]
Int. Cl. G03b *7/08*
U.S. Cl. 354—24 **10 Claims**

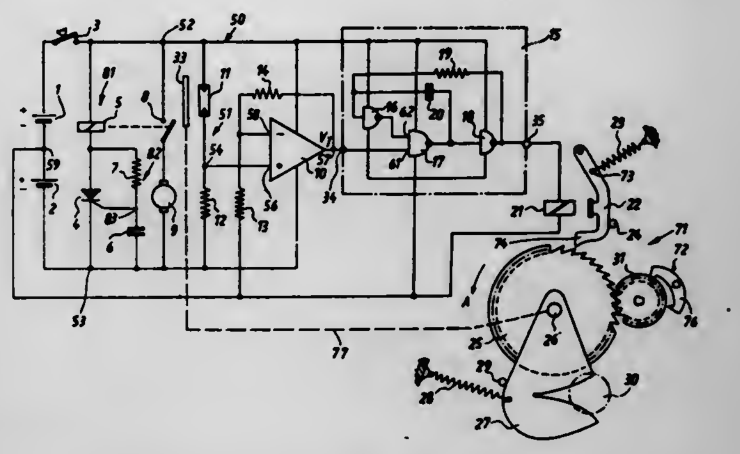


An exposure control system in a single lens reflex camera has a variable resistor adjusted depending upon the film sensitivity value and a variable resistor adjusted with the set value of the diaphragm aperture, the resistors being connected in series with a light measuring circuit including a photoelectric element which receives the light traversing the photographing lens and producing a light measuring output voltage corresponding to a logarithmic value of the light incident on the photoelectric element, so as to produce a control voltage for exposure control depending upon the film sensitivity value, the diaphragm aperture value which is adjusted at the time of exposure and the brightness of a photographic object. A switch is connected between one terminal of the diaphragm aperture variable resistor and the sliding contact terminal moveable in association with a movement of the diaphragm adjusting ring of the camera, the switch being closed for producing a control voltage from the stop down exposure measuring outputs and opened for producing a control voltage from the full aperture exposure measuring output, thus controlling the shutter exposure time under stopped down and fully open diaphragm aperture viewing.

3,833,913
CLOSED-LOOP DIAPHRAGM ADJUSTMENT MECHANISM FOR A CAMERA

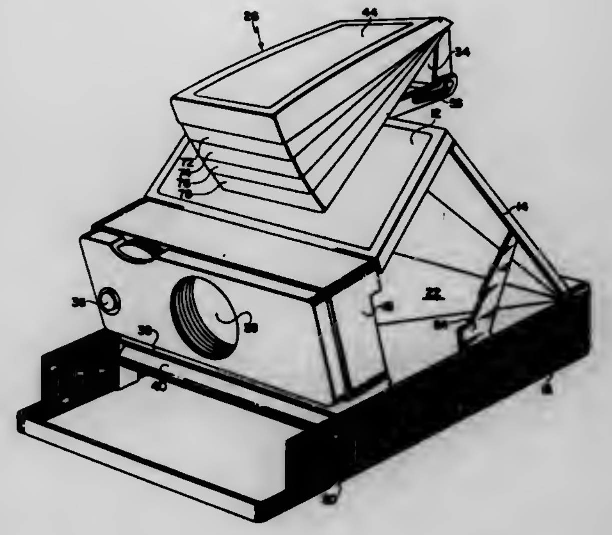
Richard Wick; Alfred Winkler, both of Muenchen, and Eduard Wagensonner, Aschheim, all of Germany, assignors to Agfa-Gevaert Ag, Munich, Germany
Filed Aug. 29, 1973, Ser. No. 392,463
Claims priority, application Germany, Aug. 31, 1972, 2242925
Int. Cl. G03b *7/08, 9/06*
U.S. Cl. 354—42 **10 Claims**

An arrangement is described for automatically adjusting the shutter opening in a camera in accordance with the quantity of light incident on a photosensitive detector of the camera. A pulse generator is triggered when the excitation voltage developed by the detector and applied to the pulse generator input exceeds the latter's threshold. An electromagnet energized by the triggered pulse generator incrementally advances a spring-loaded diaphragm via a modified panel and ratchet mechanism in a first direction at the pulse rate, thereby progressively decreasing the shutter opening. A light blocking member in the detector moves in synchronism with the diaphragm to progressively decrease the excitation voltage for the pulse generator as the shutter opening decreases. When such decreasing voltage falls below the pulse generator threshold, the electromagnet is disabled. The diaphragm thereupon retracts at a rate slower than the pulse rate until the corresponding movement of the light blocking member again permits the excitation voltage to exceed the pulse generator threshold, thereby establishing a stable size for the shutter opening.



3,833,914
FOLDING CAMERA

Joseph H. Allen, Needham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Oct. 19, 1972, Ser. No. 298,872
Int. Cl. G03b *19/12*
U.S. Cl. 354—188 **12 Claims**

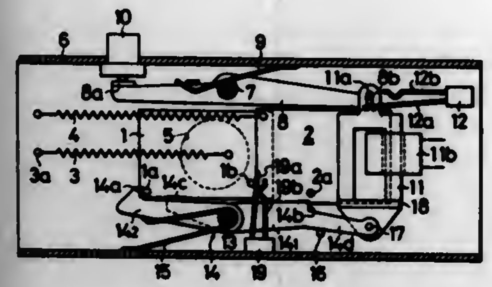


An improved, compact, folding, single lens reflex camera of the self-developing type. The camera is provided with an improved viewing device light shield or shade which is formed by a plurality of U-shaped blades. The blades have integrally formed interlocking tabs and notches which facilitate movement of the blades between collapsed and deployed positions in response to moving a viewing device cover between folded and extended positions.

3,833,915
ELECTRONIC SHUTTER APPARATUS FOR CAMERA

Harumi Tanaka, Kobe, and Akira Yoshizaki, Osaka, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Oct. 12, 1973, Ser. No. 405,990
Claims priority, application Japan, Oct. 28, 1972, 47-108240
Int. Cl. G03b *9/16, 9/40, 9/62*
U.S. Cl. 354—258 **10 Claims**

An apparatus including a release member operable by shutter release action to shift an electromagnet and a shutter opening and closing initiating member supporting an attraction piece at its one end. While the shutter is in its cocked state, the release member holds the electromagnet pressed against the attraction piece. Energization of the electromagnet causes the shutter opening and closing initiating member to operate with the release member to initiate shutter opening action and, when the electromagnet is deenergized, the shutter opening and closing initiating member permits the shutter to close. The apparatus further includes means for detecting energization or unenergization of the electromagnet and visually indicating in the finder field that the camera is not ready for taking a photograph when the electromagnet is unenergized. At the almost final stage of travel of a shutter blind, the means further brakes the blind to prevent the blind from bouncing when the blind stops.



3,833,916

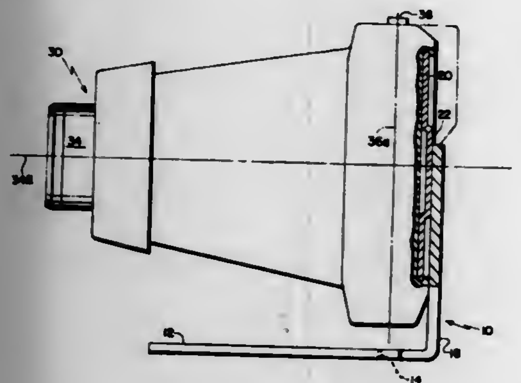
PHOTOGRAPHIC CAMERA SUPPORT

Jan Van Der Meer, Enschede, Netherlands, assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 31, 1973, Ser. No. 328,497The portion of the term of this patent subsequent to Jan. 9, 1990, has been disclaimed.

Int. Cl. G03b *17/56*

U.S. Cl. 354—293 **14 Claims**



A simple, relatively inexpensive attachment for use with a photographic camera which does not have provision for tripod attachment, preferably a camera which has a configuration such that the optical axis of the camera lens is in a non-parallel orientation with respect to the supporting base of the camera. The attachment permits a realignment of the optical axis of the camera lens to a horizontal position whereby it may be conveniently positioned on a flat surface and/or coupled with a conventional tripod. The attachment comprises a flat rectangular plate portion which can be inserted into channels on the back of the camera. Disclosed is an embodiment where a portion of the attachment is hinged for portability.

3,833,917

DENTAL FILM STRIPPER

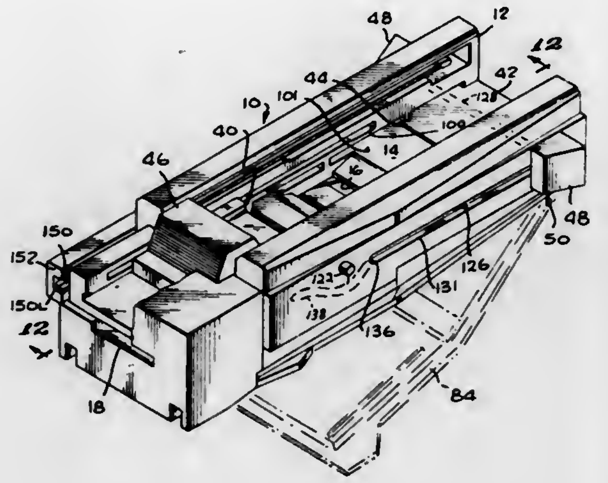
Gunter Schmidt, Marina Del Rey, Calif., assignor to Productron, Inc., Los Angeles, Calif.

Division of Ser. No. 850,477, Aug. 15, 1969. This application Mar. 14, 1973, Ser. No. 341,094

Int. Cl. G03d *3/00*

U.S. Cl. 354—310 **4 Claims**

A stripping device for use with a dental film package that includes a film chip contained within an outer protective covering, to strip the package in daylight and enable insertion of the chip into a film processing machine. The device includes a light-tight housing with a member that engages a tab on the outer covering of the film package, so that the package can be manually pulled along the outside of the housing to peel off the covering from one end of the package while moving that end over a slot in the housing. A slide within the housing then can be moved to draw the contents of the film package out of the covering and through the slot into the housing, so the film chip can fall through an exit and into the developing machine.



3,833,918

PHOTOGRAPHIC PROCESSING APPARATUS

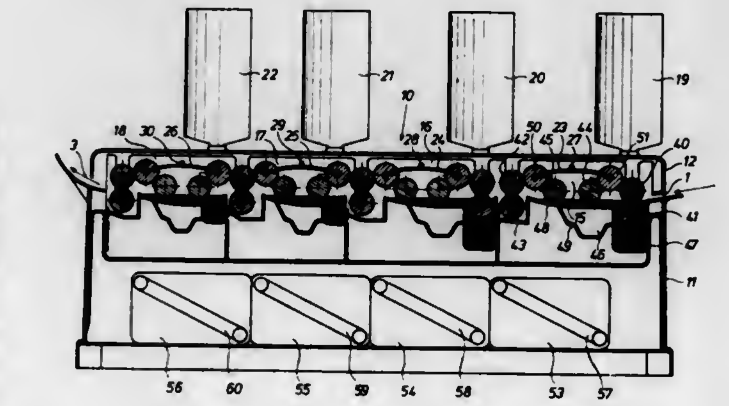
Emile Frans Stievenart, Hoboken, and Herman Fernand Verbruggen, Berchem, both of Belgium, assignors to AGFA-Gevaert, Mortsel, Belgium

Filed Feb. 20, 1973, Ser. No. 333,649

Claims priority, application Great Britain, Feb. 21, 1972, 7997/72

Int. Cl. G03d *3/12*

U.S. Cl. 354—321 **13 Claims**



A processing apparatus which comprises a pair of inlet rollers, a pair of outlet rollers, a guide plate forming the bottom of the processing tray and at least one non-driven roller, situated above the bottom and partly or wholly immersed in the processing solution. The peripheral speed of the pair of outlet rollers slightly exceeds that of the pair of inlet rollers, so that a sheet of photographic material is lifted from the bottom when its leading edge reaches the nip of the pair of outlet rollers. Optionally a suplementary roller may be provided, which is frictionally driven by the upper one of the pair of inlet or outlet rollers and which imparts its rotation to the immersed rollers.

3,833,919

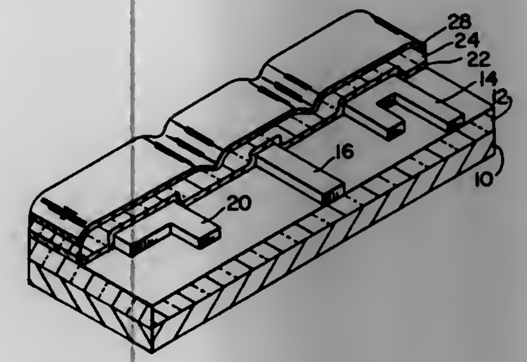
MULTILEVEL CONDUCTOR STRUCTURE AND METHOD

Charles T. Naber, Centerville, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed Oct. 12, 1972, Ser. No. 296,920

Int. Cl. H01l *23/48, 29/46, 29/54, 29/62*

U.S. Cl. 357—71 **7 Claims**



The present invention relates to a multilevel conductor structure and to a method of insulating an upper level of conductors from a lower level of conductors on a silicon substrate of an integrated circuit. An undoped silicon oxide insulator layer and a doped silicon oxide insulator layer are successively placed on the lower level of conductors and the structure is heated to a temperature which is sufficient to cause the doped oxide insulator layer to soften and to flow above the lower conductors to produce tapered steps over the edges of the lower level of conductors. An upper level of conductor is then formed on the tapered doped silicon oxide insulator layer. The undoped silicon oxide insulator layer formed between the doped silicon oxide insulator layer and the lower level of conductors prevents doping atoms of the doped silicon oxide insulator layer from penetrating into source or drain regions of the silicon substrate which are usually in the vicinity of the lower level of conductors to change their conductivity.

3,833,920

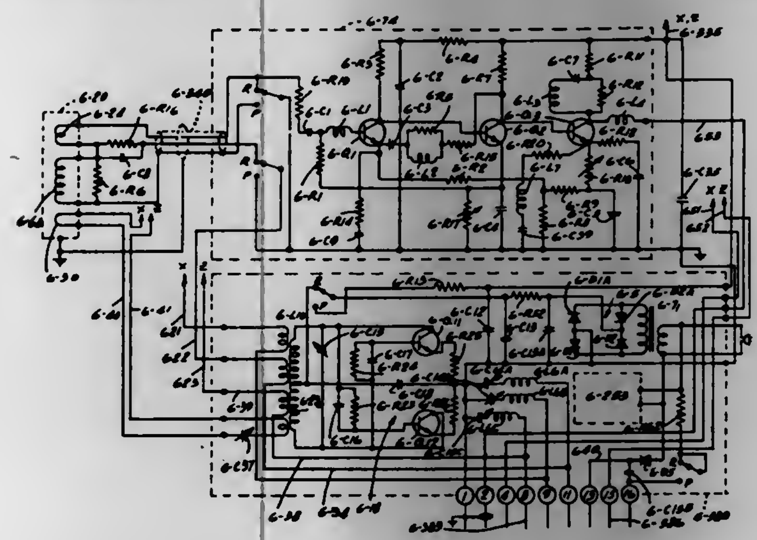
VIDEO TRANSDUCING ELECTRIC CIRCUITS

Marvin Camras, Glencoe, Ill., assignor to IIT Research Institute, Chicago, Ill.

Continuation of Ser. No. 182,202, Sept. 20, 1971, which is a division of Ser. No. 34,504, May 4, 1970, Pat. No. 3,705,954, which is a division of Ser. No. 649,256, June 27, 1967, Pat. No. 3,596,008, which is a continuation-in-part of Ser. No. 528,934, Feb. 21, 1966, abandoned. This application Apr. 19, 1973, Ser. No. 352,593

Int. Cl. G11b *5/44;* **H04n** *5/78*

U.S. Cl. 360—33 **1 Claim**



Monochrome and color television recording and playback circuitry for coupling of a video magnetic transducer head with a standard broadcast television receiver, the circuitry including a coupling capacitor and means for supplying electric charge to one terminal of the capaictor, a record-playback switch connected between the other terminal of the capacitor and one terminal of the head winding, and a resistor for maintaining the other terminal of the capacitor substantially at ground potential while the switch is in playback position to prevent surges of current through the head winding during switching.

3,833,921

MAGNETIC RECORDING AND/OR REPRODUCING APPARATUS WITH CASSETTE LOCKING TO PREVENT ACCIDENTAL REMOVAL

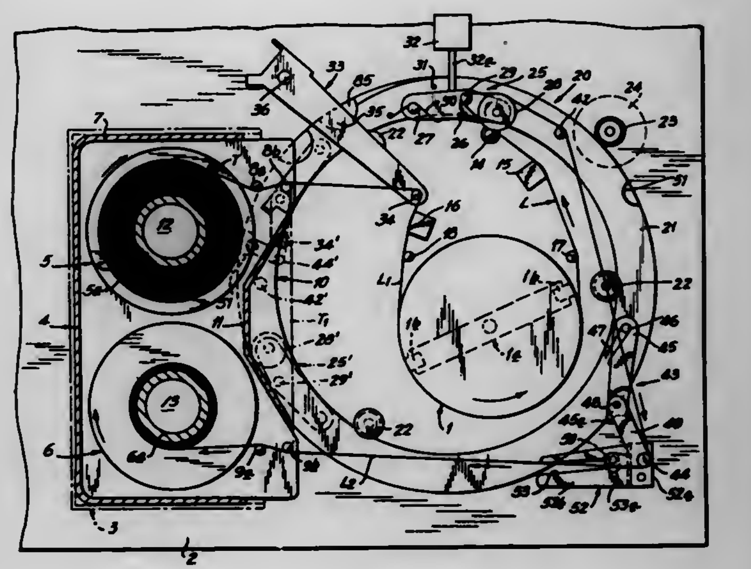
Nobutoshi Kihara, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Sept. 20, 1973, Ser. No. 399,049

Claims priority, application Japan, Sept. 21, 1972, 47-109960

Int. Cl. G11b *15/66, 23/04*

U.S. Cl. 360—85 **20 Claims**



In a magnetic recording and/or reproducing apparatus having a tape guide drum, at least one rotary magnetic head moved in a circular path coinciding with the circumfernitial surface of the drum for scanning a magnetic tape wrapped about at least a portion of that surface, a tape supply, such as, a cassette containing reels on which a magnetic tape is wound, a capstan spaced from the guide drum, and a holder for receiving and positioning the cassette at a location spaced from the guide drum; a tape loading and unloading device is provided which comprises a support ring rotatable around the drum between inactive and operative positions in an arcuate path that extends adjacent the capstan and the holder, a tape engaging assembly including a pinch roller mounted on the support ring and being movable with the latter in the aforementioned arcuate path for engaging the tape contained in the cassette positioned by the holder with the support ring in its inactive position and for withdrawing a progressively extended loop of tape from the cassette and wrapping one side of the extended tape loop about at least a portion of the guide drum circumference in response to movement of the support ring from the inactive to the operative position at which the pinch roller is located within the tape loop adjacent the capstan with the tape of the loop therebetween, and a tape shifting assembly controllable by a cam surface on the support ring for engaging the tape in the cassette with the support ring in its inactive position and for shifting the tape between the guide drum and cassette in the direction increasing the extent of the guide drum circumference about which the tape is wrapped in response to the movement of the support ring to its operative position. The cam surface on the support ring further controls a cassette locking assembly which prevents removal of a cassette from the holder when the support ring is displaced from its inactive position.

ERRATUM

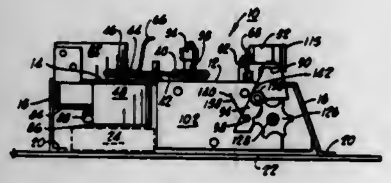
For Class 360—92 see:
Patent No. 3,833,224

3,833,922

DRIVE MEANS FOR EFFECTING PIVOTAL VERTICAL MOVEMENT OF A TRANSDUCER HEAD INTO OPERATIVE POSITION

Lawrence R. DeBell, Bethany, and David D. Price, Jr., Oklahoma City, both of Okla., assignors to The Economy Company; David D. Price, Jr. and Ford C. Price, all of Oklahoma City, Okla., part interest to each

Filed Mar. 12, 1973, Ser. No. 340,178
Int. Cl. G11b *21/02, 21/22*
U.S. Cl. 360—105 **13 Claims**



An apparatus for use in combination with record transducing apparatus of the type which moves a record medium past a fixed position for operative contact with a record or reproducing transducer, and which consists of a control bar carrying a transducer head and capstan idler thereon which is pivotable about a horizontal axis to move the transducer and idler into engagement or out of engagement with the record medium; the pivotal control bar movement is effected by means of a rotationally driven mechanical linkage, including a star wheel in engagement with the control bar, a gear train assembly and an electric motor which supplies the rotational drive.

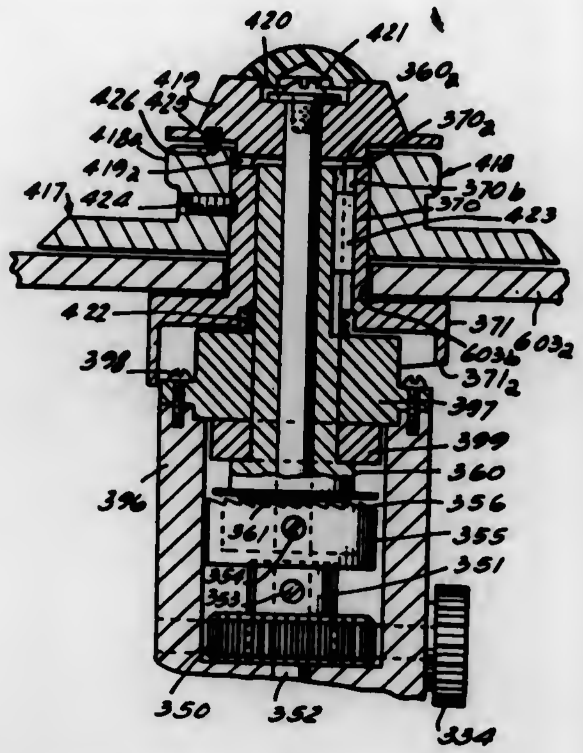
3,833,923

CHANNEL INDEXING SYSTEM WITH MANUAL OR AUTOMATIC OPERATION AND WITH MANUAL FINE ADJUSTMENT

Marvin Camras, Glencoe, and Stanley A. Galus, Chicago, both of Ill., assignors to IIT Research Institute, Chicago, Ill.

Filed Aug. 21, 1972, Ser. No. 282,274
Int. Cl. G11b *21/08, 21/10*
U.S. Cl. 360—106 **1 Claim**

In the illustrated embodiments a rotary head indexing cam has a power drive train releasably coupled therewith for automatic head indexing with a manual channel selector driven by the power drive train during automatic indexing while being manually operable to select a given channel independently of the drive train. A fine channel adjustment control is operable to shift the indexing cam axially for fine adjustment of head position relative to a selected channel. A latch retaining the capstan drive in operating position is mechanically released as the head completes scanning of a succession of chennels on the record tape. Capstan pressure rollers on hinged arms are swung through an open end of an endless loop cartridge to engage the record tape with the capstan, a predetermined bias being applied to the pressure rollers to press the same toward the capstan in the operating position.

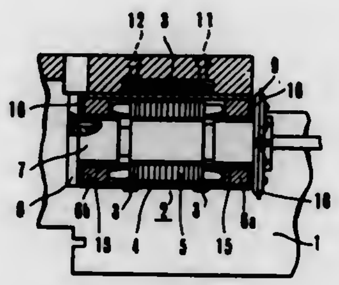


3,833,924

ROTARY HEAD APPARATUS WITH DYNAMIC AIR BEARINGS HAVING CERAMIC COATINGS

Koichi Okabe, Tokyo, Japan, assignor to Shiba Electric Co., Ltd., Tokyo, Japan

Filed Oct. 27, 1972, Ser. No. 301,264
Claims priority, application Japan, Oct. 30, 1971, 46-101025
Int. Cl. G11b *5/52, 21/04;* **F16c** *33/20*
U.S. Cl. 360—107 **3 Claims**



In apparatus for driving a head drum of a broadcasting video tape recorder comprising an electric motor including a stator and a rotor, a head drum mounted on the rotor, and radial and thrust bearings between the stationary and rotary members of the apparatus, ceramic coatings having a thickness of 10 to 100 microns are applied to the radial and thrust bearing surfaces, the bearings are operated as dynamic air pressure bearings, and a load of less than 0.15 Kg/cm² is applied on the radial bearing.

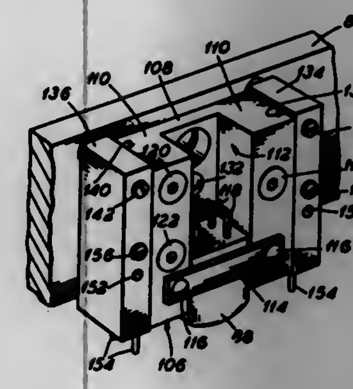
3,833,925

CASSETTE TAPE TRANSPORT WITH UNIVERSALLY ADJUSTABLE HEAD

John P. Jenkins, Towanda, Ill., assignor to International Tapetronics Corporation, Bloomington, Ill.

Division of Ser. No. 237,762, March 24, 1972, Pat. No. 3,800,323. This application Apr. 10, 1973, Ser. No. 349,677
Int. Cl. G11b *21/24, 15/60, 15/18*
U.S. Cl. 360—109 **15 Claims**

A swing arm supports a sound transducer head and a pinch roller for pivotable movement between three positions as follows; a recording and reproducing position in which both the head and pinch roller engage the tape, and tape speed is regulated by a capstan; a scanning position in which only the head engages the tape to enable monitoring it at speeds independent of the capstan; and an inactive position in which the head and pinch roller are both out of engagement with the tape. The swing arm is spring-biased toward the inactive position and is movable to either of the other positions by solenoids. A simplified adjustment, using only three adjusting screws, provides optimum zener, azimuth, and transversely centered relationships between the head and tape. A cassette is mounted in an upright, fully visible and accessible operating position. Deflectible retaining members automatically engage the cassette and hold it in operating position.

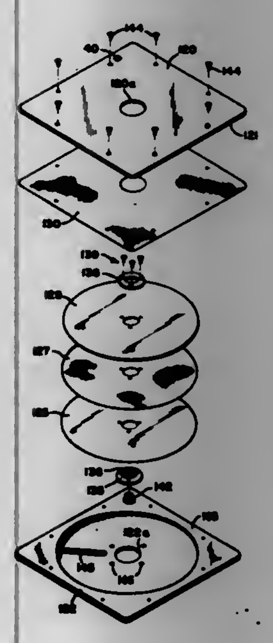


3,833,926

MAGNETIC DISC RECORDER AND CASSETTE WITH COMPLIANT RECORDING DISC HAVING FLEXIBLE SUPPORT MEANS

Robert P. Hall, Auburn, Calif., assignor to Arvin Industries, Inc, Columbus, Ind.

Continuation-in-part of Ser. No. 266,582, June 27, 1972, abandoned. This application Nov. 10, 1972, Ser. No. 305,335
Int. Cl. G11b *5/82*
U.S. Cl. 360—135 **11 Claims**



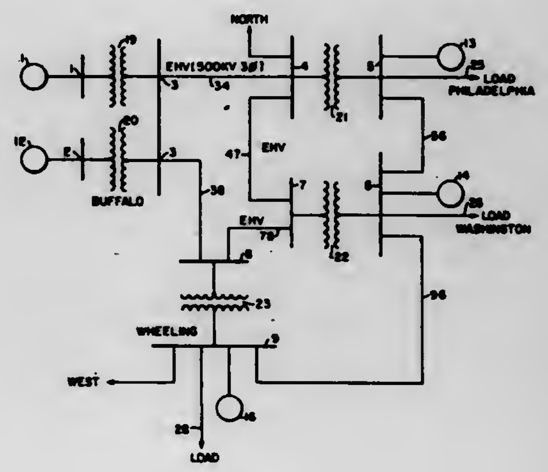
A novel magnetic disc recording cassette is provided as a thin polygonal cassette housing containing a disc of flexible magnetic recording media. A drive hub attached to the media is exposed through the cassette and cooperates with a complementary drive hub in a deck which receives the cassette in slot-loading fashion into a carriage which in turn positions the cassette for driving of the recording disc. The cassette and disc may be single or double sided, and includes access opening for a magnetic transducer to follow different circular tracks, or a helical track. The thin magnetic disc is provided with backing in the cassette to assure compliant interface of the transducer with the magnetic recording disc. The backing may be a backing sheet, discs of backing material, or felt surfaced shims adjacent the region of interface with the transducer. Passages are provided for air flow in response to rotation of the recording disc to provide a continuing smooth and minimum friction rotation of the disc within the cassette. The cassette is supported either on the base of the carriage or by a separately adjustable three point suspension system.

3,833,927

SYSTEM AND METHOD FOR MONITORING TRANSIENT STABILITY IN A HYBRID LOADFLOW COMPUTER ARRANGEMENT WITH TRANSIENT STABILITY ANALYSIS CAPABILITY

Norman R. Carlson, Export; Paul H. Haley, Pittsburgh, both of Pa., and Mark K. Enns, Ann Arbor, Mich., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 19, 1972, Ser. No. 254,859
Int. Cl. G06j *1/00;* **G06f** *15/06, 15/56*
U.S. Cl. 444—1 **4 Claims**



A hybrid loadflow computer arrangement includes an analog network simulator and a digital computer which interchange signals through analog input and output circuitry during transient analysis. The analog simulator includes modular bus, generator, load, tie line and line DC circuits representative of electric power system buses, generators, loads, tie lines and lines. The analog simulator provides generator swing angles and generator rotational velocities to the digital computer. The computer monitors the generator swing angles and rotational velocities to determine and indicate whether they are within predetermined tolerances.

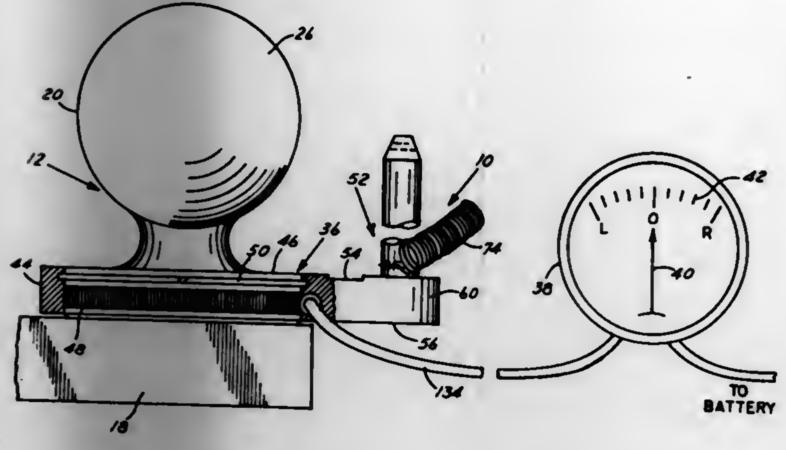
3,833,928

VEHICLE-TRAILER ANGULAR POSITION SENSOR AND INDICATOR

Stephen E. Gavit, 4832 W. Gill Pl., Denver, Colo. 80219, and William E. Stenson, 5332 Arbutus, Arvada, both of Colo. 80002

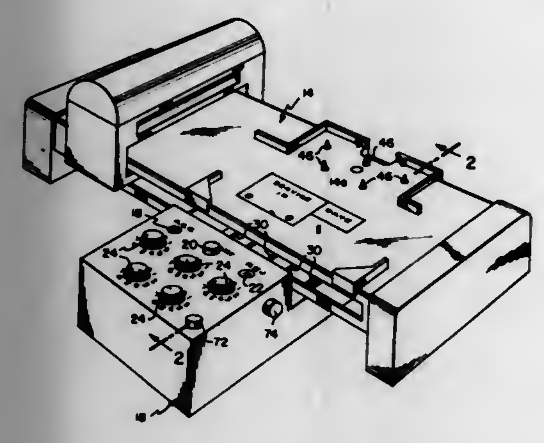
Filed Jan. 8, 1973, Ser. No. 321,858
Int. Cl. B60q *1/00*
U.S. Cl. 340—52 R **12 Claims**

A device for sensing and indicating the relative angular relationship between a tow vehicle and a trailer universally connected to the tow vehicle by a ball hitch assembly includes a sensor adapted to be mounted directly beneath the ball portion of the hitch assembly to function electro-mechanically in varying a potential output from the sensor dependent upon the relative angular relationship between the trailer and the tow vehicle whereby such angular relationship is displayed on an electrically responsive visual indicator mounted preferably on the control panel of the tow vehicle.



3,833,929
POSITIVE IDENTIFICATION CREDIT OR ID CARD AND APPARATUS

Joseph F. Kirley, 27 Fairfield Ave., Norwalk, Conn. 06854
Filed Oct. 17, 1972, Ser. No. 298,403
Int. Cl. H04q *1/00*
U.S. Cl. 340—149 A **13 Claims**

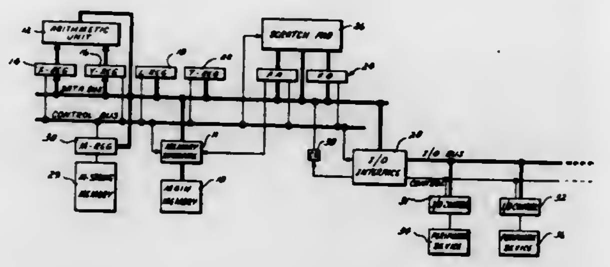


A credit card positive identification arrangement having a machine incorporated with a standard type credit card charge slip information imprinting device and providing a visual read out of the acceptability or non-acceptability of the credit or ID card to be validated. The device utilizes a combination of a plurality of rotatable secret bridging wiper contacts to change the electrical circuit in the card from an open circuit to a closed circuit and thereby signal an acceptable card. An electronic positive identification arrangement is also contemplated in which an electronic control circuit, being activated by the proper secret digital combination, will operate a servo motor to rotate the respective indicators to their proper settings. Another type of positive identification arrangement is shown utilizing magnet attraction between a disc magnet and a printed circuit in the card to set the proper combination and thereby close the electrical circuit in the card.

3,833,930
INPUT/OUTPUT SYSTEM FOR A MICROPROGRAM DIGITAL COMPUTER

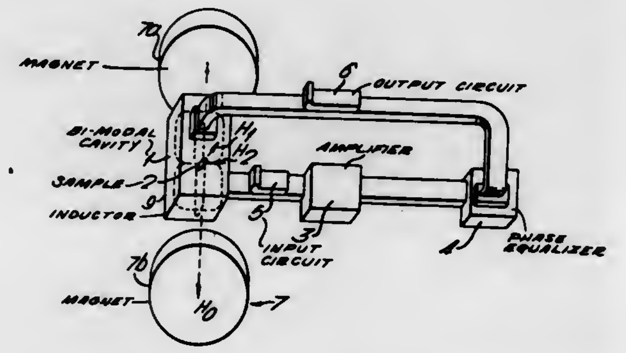
John Arthur Macker, Goleta, Calif., assignor to Burroughs Corporation, Detroit, Mich.
Filed Jan. 12, 1973, Ser. No. 323,107
Int. Cl. G06k *17/00;* **G06f** *13/08*
U.S. Cl. 340—172.5 **4 Claims**

An input/output sub-system for a digital data processing system having a microprogrammed processor and main memory in which the processor functions as a multiplexor for transferring data between a plurality of peripheral devices and the memory. The I/O controls for the peripheral devices share a common bus to the processor. The controls are slaved to the processor and operate to send or receive information over the common bus only in response to commands from the processor. However, any I/O control unit can signal the processor that it needs service. Each command addressed to one of the I/O control units is followed by status information returned on the bus to the processor by the I/O control. In addition, the status of an I/O control can be tested on special command from the processor. Each I/O control is buffered for storage of a block of data. A reference address pointing to the location of the Input/Output Descriptor in memory being executed by the processor is transferred to the control and stored in the buffer. It is returned to the processor after a Service Request by the control is acknowledged by the processor.



3,833,931
MULTICHANNEL SPIN RESONANCE FREQUENCY MEMORY DEVICE

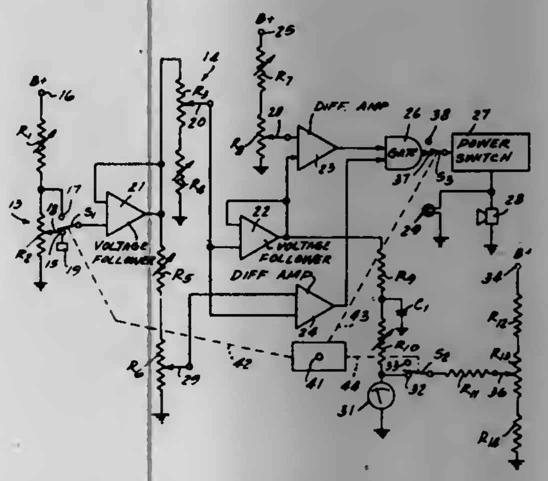
Maurizio Bonori; Cafiero Franconi, and Paolo Galuppi, all of Venezia, Italy, assignors to Consiglio Nazionale Delle Richerche, Rome, Italy
Filed Sept. 21, 1972, Ser. No. 290,871
Claims priority, application Italy, Sept. 22, 1971, 53019/71
Int. Cl. G11c *11/16;* **H03f** *9/00;* **G11c** *11/20*
U.S. Cl. 340—173 NI **14 Claims**



Frequency memory device composed substantially of a multiple frequency spin induction damped oscillator, the said oscillator being composed of a magnetic spin resonance inductor, joined by means to create a static magnetic field, in respect of which the said spin inductor is properly oriented, at least one spin specimen inserted in the said inductor, and which for that magnetic field has a complete magnetic response spectrum with a total number N>1 of distinct resonance lines. The inductor is joined by means capable of allowing it to oscillate, such as a loop which includes a positive feedback circuit capable of prolonging the damped oscillations on the excited frequencies beyond the duration of the excitation, by acting as a temporary frequency memory, the circuit being connected between the output and the input of the inductor. The positive feedback circuit comprises an amplifier, capable of supplying the loop, of which it is the closing element, a gain of less than unity. The positive feedback loop includes, in addition, a phase corrector and calibrator of all the N frequencies which propagate in the circuit, in such a way as to allow oscillation of the inductor on all or part of the N frequencies, whenever an external oscillatory signal, having a defined frequency spectrum is inserted at any point of the loops.

3,833,932
BOOM LENGTH OPERATING RADIUS INDICATOR AND WARNING DEVICE

Martin W. Hamilton, Arlington Heights, Ill., assignor to Eaton Corporation, Cleveland, Ohio
Filed Oct. 12, 1972, Ser. No. 297,062
Int. Cl. G08b *21/00;* **B66c** *15/00*
U.S. Cl. 340—267 C **2 Claims**

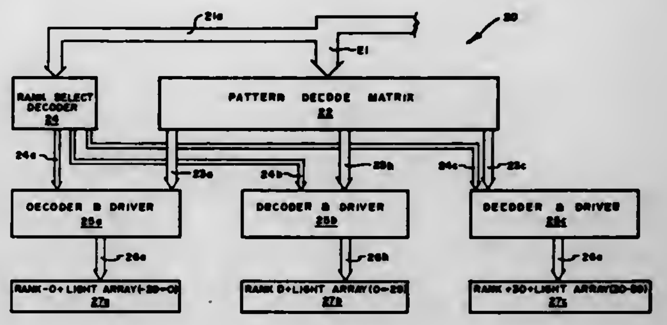


A system for use with cranes which have booms that may be varied in length and angular relationship which continuously displays the operating radius and provides for a display of the boom length by pressing a button and which provides alarms to the operator for both radius and length of boom.

3,833,933
ANALOG METER DISPLAY AND APPARATUS FOR SIGNAL GENERATION THEREFOR

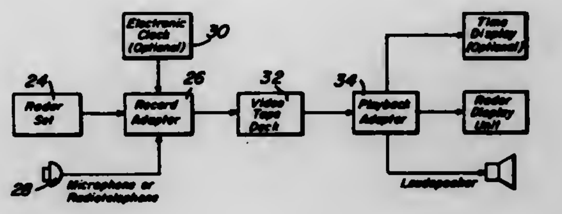
Wayne Wilson, Bountiful, Utah, assignor to Beehive Medical Electronics, Inc., Salt Lake City, Utah
Filed Aug. 28, 1972, Ser. No. 284,124
Int. Cl. G09f *9/34*
U.S. Cl. 340—324 R **6 Claims**

An array of lights arranged as a display to reflect an electronic signal generating occurrence. Binary information, in a form such as the phase angle of an electronic signal, is fed into shift registers, a number of decoder matrixes, or to similar digital to position converter apparatus. The incoming signal is converted to energize a number of lights in the array of lights such that the position and arrangement of the energized lights reflects the input signal. A satisfactory arrangement of an array of lights has been found to be two parallel rows of adjacent lights, with lights of one row staggered between the lights of the other row. An incoming electrical signal is reflected by energization of three adjoining lights, two in one row and one in the other, to produce a triangular pointer, with the single energized light pointing to a value indicative of the incoming electrical signal.



3,833,934
RADAR DATA RECORDING AND REPLAY SYSTEM

Michael A. Roark, Leland, Miss., assignor to BKR, Inc., Greenville, Miss.
Filed May 9, 1972, Ser. No. 251,717
Int. Cl. G01s *7/30, 9/02*
U.S. Cl. 343—5 PC **19 Claims**



A radar data recording and playback system comprising a recording adapter circuit for processing output signals from a radar apparatus for recording such on separate channels of a video tape recording apparatus, and a playback adapter circuit for processing the recorded radar data signals into proper form for operation of a radar visual display device. The adapters may also include means for processing heading signals and auxiliary inputs, such as audio signals, for recording such on a separate channel or track of the recording apparatus.

ERRATUM

For Class 444—1 see:
Patent No. 3,833,927

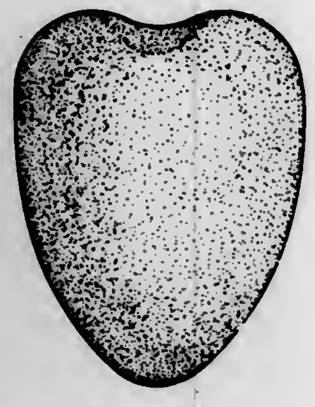
DESIGNS

SEPTEMBER 3, 1974

232,601
MOLDED POULTRY PRODUCT

Norman I. Rich, 3501 15th St. Court, and Martin D. Rich, 2920 24th St., both of Rock Island, Ill. 61201
Filed Mar. 22, 1971, Ser. No. 127,084
Term of patent 14 years
Int. Cl. D1—*04*

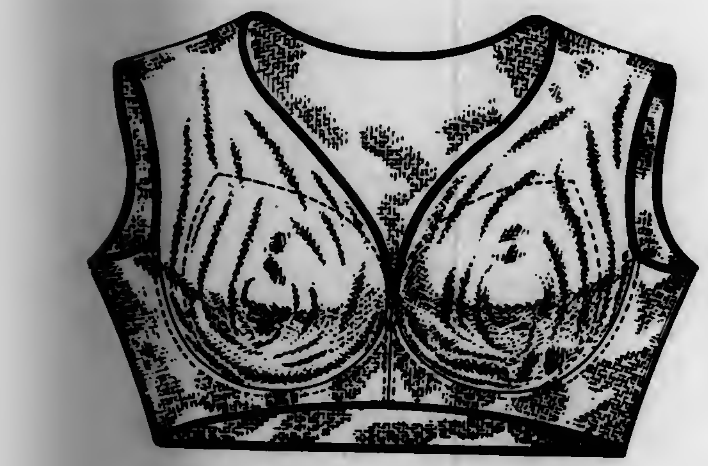
U.S. Cl. D1—26



232,602
BRASSIERE VEST

Irwin Greenblatt, Blauvelt, N.Y., and Nicholas A. Marino, Chicago, Ill., assignors to Sears, Roebuck and Co., Chicago, Ill.
Filed Feb. 2, 1973, Ser. No. 329,045
Term of patent 14 years
Int. Cl. D2—*01*

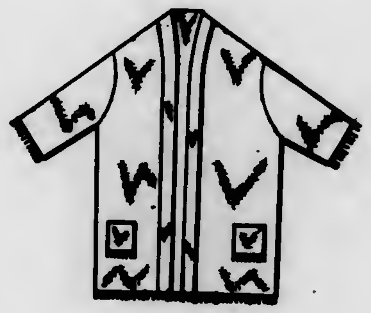
U.S. Cl. D2—24



232,603
JACKET

Fidelis M. Morgan, Chula Vista, Calif. (Bancroft Palms Mobile Park 26, 3221 Bancroft Drive, Spring Valley, Calif. 92077)
Filed Apr. 4, 1973, Ser. No. 348,295
Term of patent 14 years
Int. Cl. D2—*02*

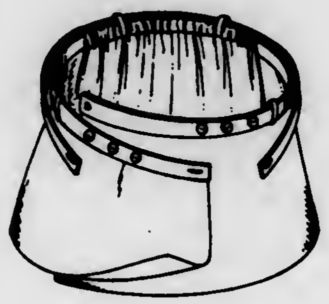
U.S. Cl. D2—187



232,604
SKIRT

Gloria C. Kadison, P.O. Box 626, Thousand Oaks, Calif. 91360
Filed Oct. 19, 1972, Ser. No. 298,849
Term of patent 14 years
Int. Cl. D2—*02*

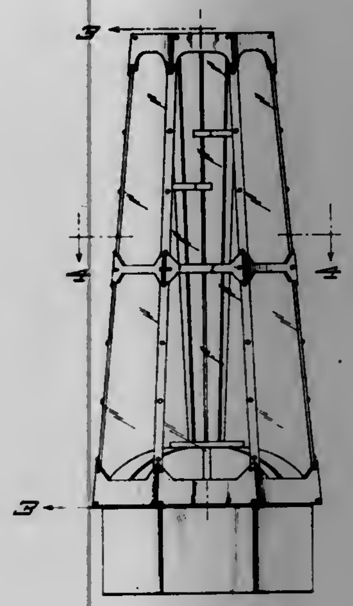
U.S. Cl. D2—223



232,605
DISPLAY CABINET

Cecil W. Spicer, 1408 California St. NE., Minneapolis, Minn. 55413
Filed Aug. 9, 1972, Ser. No. 278,964
Term of patent 14 years
Int. Cl. D6—*04*

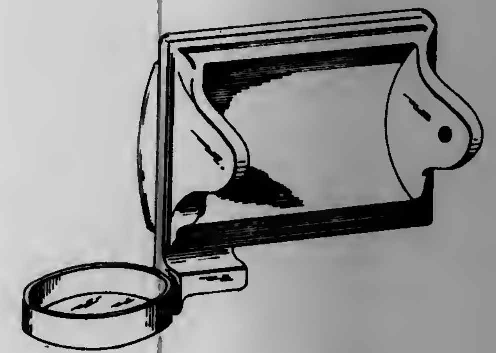
U.S. Cl. D6—25



232,606
COMBINED TOILET-TISSUE HOLDER AND CONTAINER SUPPORT

Philip Boone, 15 Fenwick Road, Winchester, Mass. 01890
Filed May 4, 1972, Ser. No. 250,479
Term of patent 14 years
Int. Cl. D6—*06*

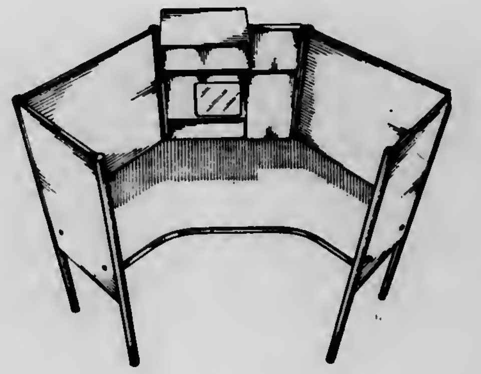
U.S. Cl. D6—91



232,607
EDUCATIONAL MODULE

Edward J. Kramer, Rte. 1, Box 846, Clinton, Wash. 98236, and Joseph L. Hendrix, Ferguson, Mo.; said Hendrix assignor to said Kramer
Filed Sept. 11, 1972, Ser. No. 287,727
Term of patent 14 years
Int. Cl. D6—*03*

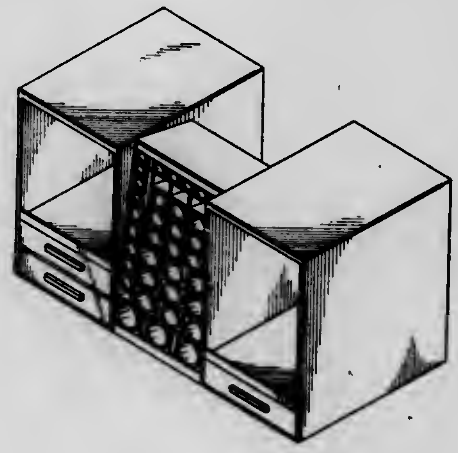
U.S. Cl. D6—157



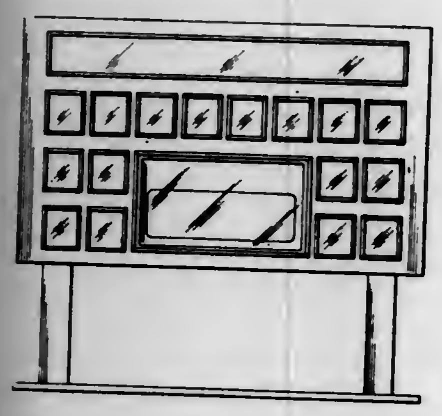
232,608
COSMETIC VANITY

Viola Darrow, Cleveland, Ohio (P.O. Box 64, Gibsonton, Fla. 33534)
Filed Dec. 11, 1972, Ser. No. 313,648
Term of patent 14 years
Int. Cl. D6—*04*

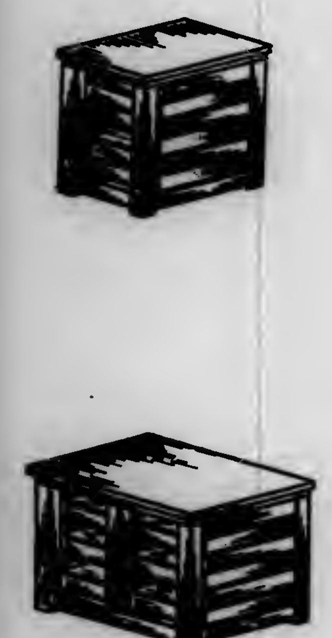
U.S. Cl. D6—160



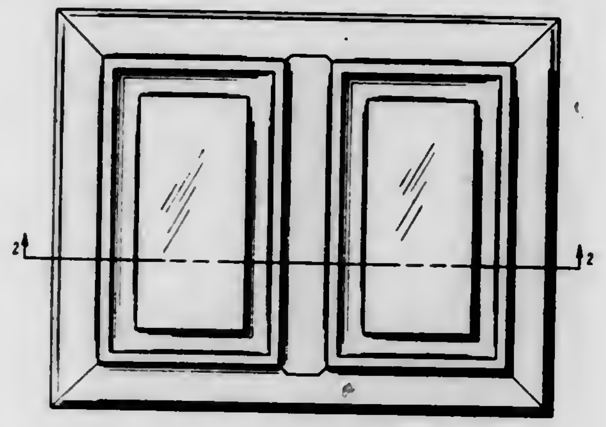
232,609
SHOWCASE FOR TRANSPARENCIES OR SIMILAR ARTICLES
Samuel A. Bishop, 527 Madison Ave.,
New York, N.Y. 10022
Filed Oct. 10, 1972, Ser. No. 295,994
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—171



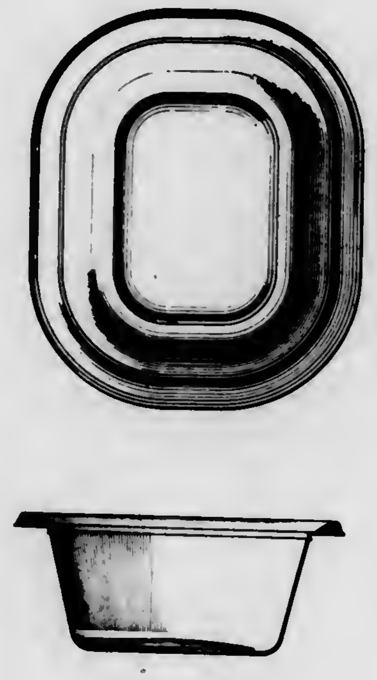
232,610
CABINET FOR DRAWERS OR THE LIKE
Kenneth H. Petersen, 821 Index Court NE.,
Renton, Wash. 98055
Filed Nov. 24, 1971, Ser. No. 202,059
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—186



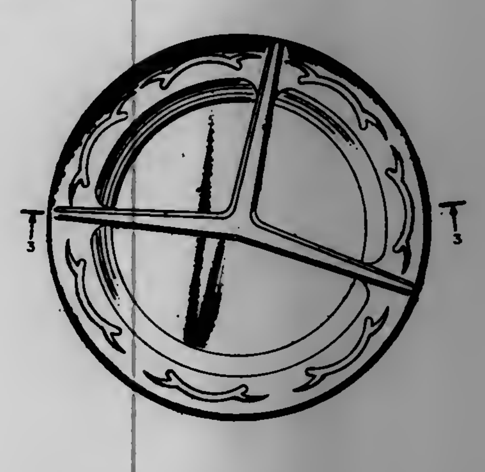
232,611
CABINET DOOR
Warren A. Dillen, Louisville, Ky., assignor to
H. J. Scheirich Company
Filed Sept. 6, 1972, Ser. No. 286,664
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—192



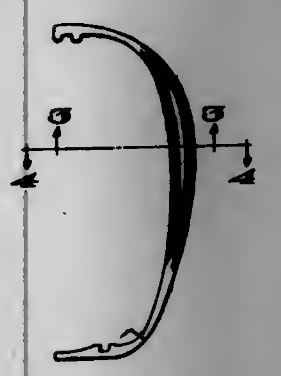
232,612
NESTABLE BOWL
Hubert E. Christian and David W. Lee, Phoenix, Ariz.,
assignors to Dart Industries Inc., Los Angeles, Calif.
Filed May 21, 1973, Ser. No. 362,354
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—1



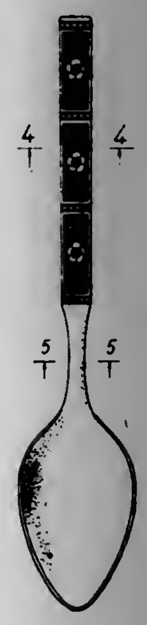
232,613
COMPARTMENTED PLATE
George A. Cheladze, Long Beach, Calif., assignor to
Carthage Cup Company, Carthage, Tex.
Filed May 4, 1970, Ser. No. 22,804
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—27



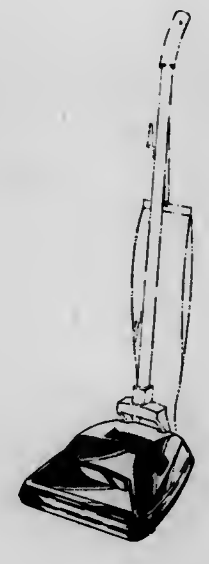
232,614
DETACHABLE HANDLE FOR A BEVERAGE CAN OR THE LIKE
Russell M. Brown, 56 Holliston Road,
Medway, Mass. 02052
Filed July 17, 1972, Ser. No. 272,302
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—70



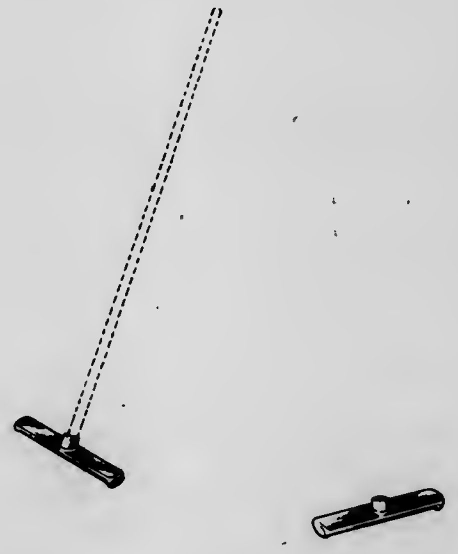
232,615
SPOON OR SIMILAR ARTICLE
Colin B. Richmond II, Oneida, N.Y., assignor to
General Mills, Inc.
Filed Oct. 16, 1972, Ser. No. 298,145
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D7—137



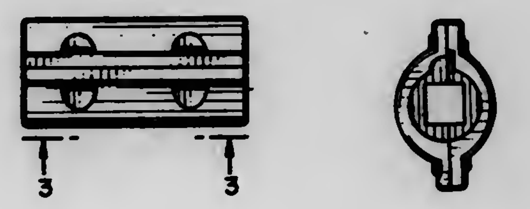
232,616
VACUUM CLEANER CASING
Richard A. Wareham, North Canton, Ohio, assignor to
The Hoover Company, North Canton, Ohio
Filed July 6, 1973, Ser. No. 377,048
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D7—170



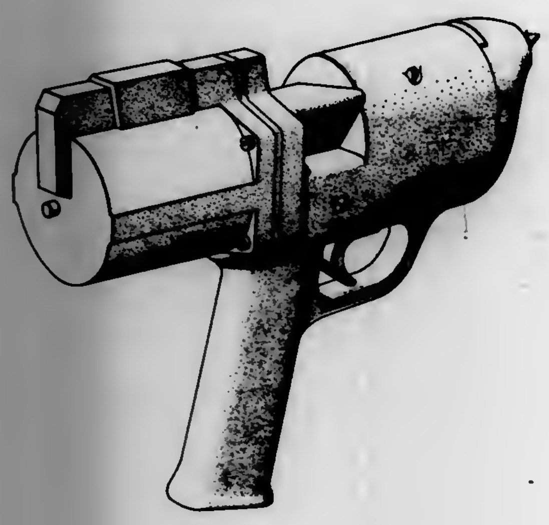
232,617
HEAD FOR MAGNETIC BROOM OR THE LIKE
Albert W. Albrecht, Jr., 380 Mary Lane,
Crystal Lake, Ill. 60014
Filed June 9, 1972, Ser. No. 261,569
Term of patent 14 years
Int. Cl. D4—*01*
U.S. Cl. D7—180



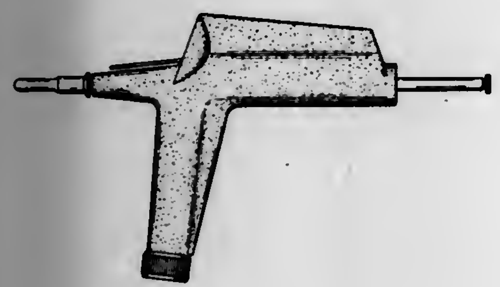
232,618
BATTERY TERMINAL CLEANER AND SHAPER
Carl W. Newell, 955 Avonoak Terrace,
Glendale, Calif. 91206
Filed Oct. 20, 1972, Ser. No. 299,363
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D7—185



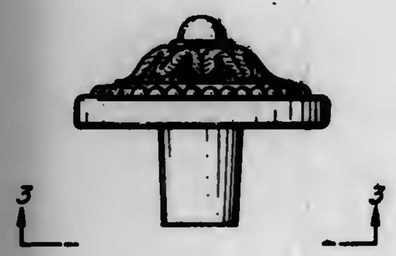
232,619
ADHESIVE GUN
Gerald W. Crum, Elyria, Ohio, assignor to Nordson Corporation, Amherst, Ohio
Filed Mar. 23, 1973, Ser. No. 344,093
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—30



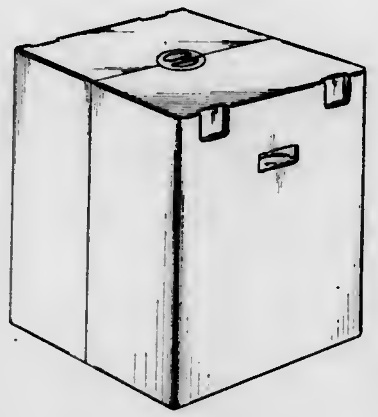
232,620
POWERED WIRE DRILL
Carl L. Foltz, Holiday, Fla., assignor to Concept, Inc., St. Petersburg, Fla.
Filed Apr. 17, 1972, Ser. No. 245,026
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D8—68



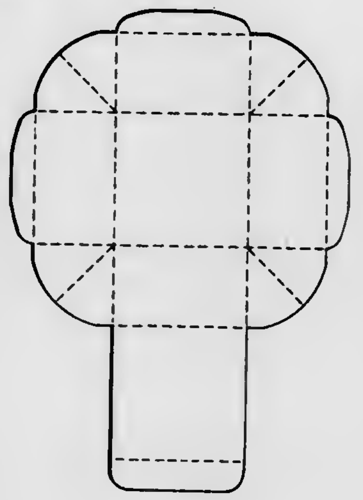
232,621
KNOB
David P. Zagaroli, Hickory, N.C., assignor to Ajax Hardware Corporation, City of Industry, Calif.
Filed Mar. 14, 1973, Ser. No. 341,145
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—144



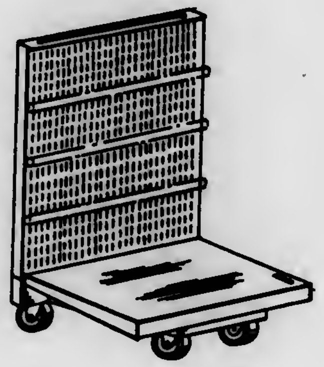
232,622
INSULATING CONTAINER
G. John Heelan, Olympia, Wash., assignor to Olympia Brewing Company, Olympia, Wash.
Filed June 8, 1972, Ser. No. 261,147
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—187



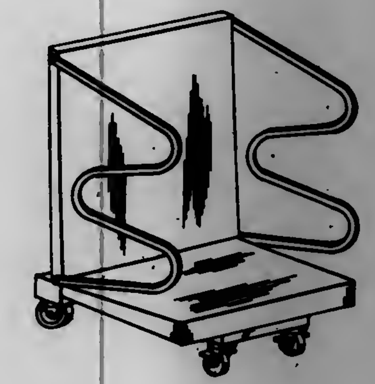
232,623
CARTON BLANK
Edwin C. McLaren, Minneapolis, and William M. Tolaas, St. Paul, Minn., assignors to Hoerner Waldorf Corporation, St. Paul, Minn.
Filed Feb. 10, 1972, Ser. No. 225,376
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D9—245



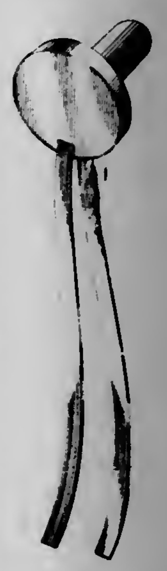
232,624
STORAGE CART
Frank L. Shiflet, Waynesboro, Va., assignor to Hopeman Brothers, Inc., New York, N.Y.
Filed Feb. 20, 1973, Ser. No. 334,041
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—25



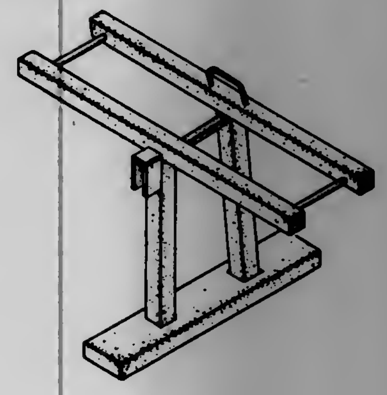
232,625
STORAGE CART
Frank L. Shiflet, Waynesboro, Va., assignor to Hopeman Brothers, Inc., New York, N.Y.
Filed Mar. 16, 1973, Ser. No. 342,075
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—25



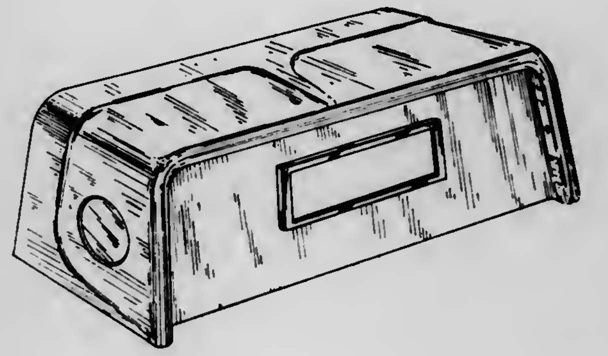
232,626
PITOT TUBE COVER
Harry S. Smallwood, 4125 Timberline Drive, San Jose, Calif. 95121
Filed Dec. 1, 1972, Ser. No. 311,295
Term of patent 7 years
Int. Cl. D12—*99*
U.S. Cl. D12—81



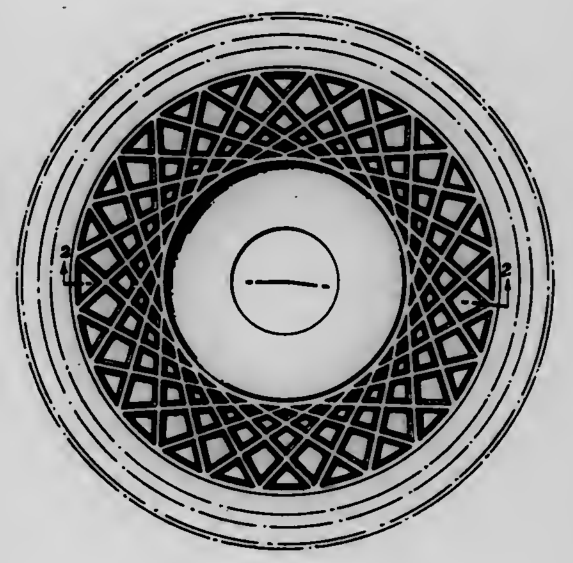
232,627
BICYCLE RACK
Gerald F. Rossi, 9908 Brunswick, San Ramon, Calif. 94583
Filed July 16, 1973, Ser. No. 379,782
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D12—115



232,628
ONE MAN CAMPER BODY
Jim L. Douglas, Lakewood, Gary J. Hart, Denver, and Norman J. Germaine, Littleton, Colo., assignors to Super Sport Sleepers, Inc., Denver, Colo.
Filed Oct. 18, 1971, Ser. No. 190,432
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—156

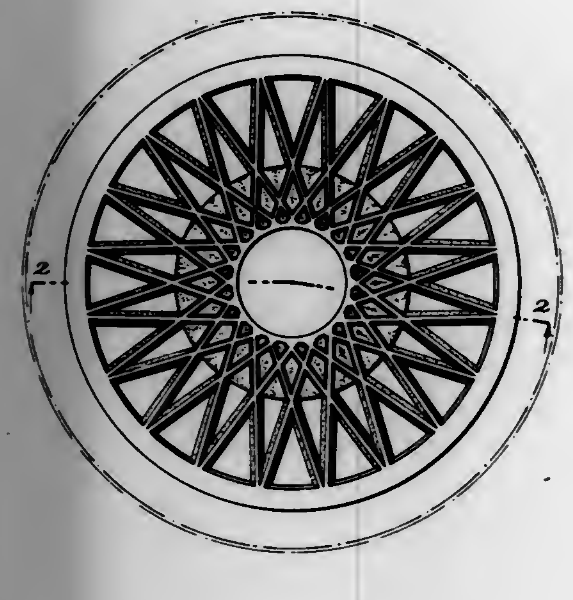


232,629
WHEEL CENTER
John Siroonian, Fresno, and Delmer D. Scott, Los Angeles, Calif., assignors to Western Wheel Company, Fresno, Calif.
Filed May 7, 1973, Ser. No. 357,547
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—208



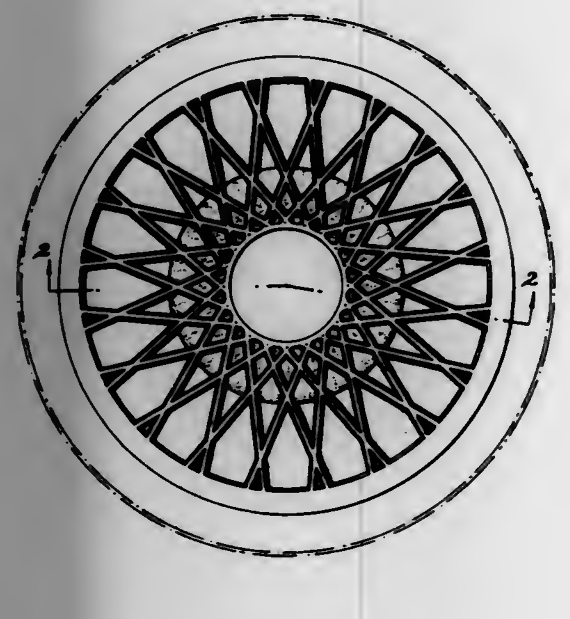
232,630
WHEEL CENTER

John Siroonian, Fresno, and Delmer D. Scott, Los Angeles, Calif., assignors to Western Wheel Company, Fresno, Calif.
Filed June 4, 1973, Ser. No. 362,189
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—205



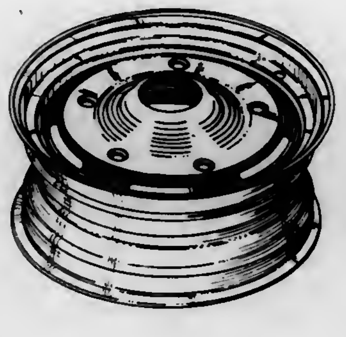
232,631
WHEEL CENTER

John Siroonian, 2640 W. Bullard St., Fresno, Calif. 93705, and Delmer D. Scott, Los Angeles, Calif. (5020 Gloria Ave., Encino, Calif. 91316)
Filed June 11, 1973, Ser. No. 368,638
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—205



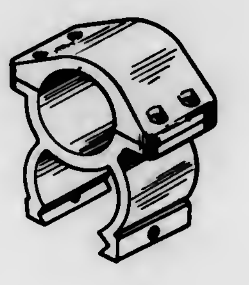
232,632
WHEEL

Raymond C. Brown, Van Nuys, Calif., assignor to Superior Industries, Inc., Van Nuys, Calif.
Filed July 12, 1973, Ser. No. 378,778
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—209



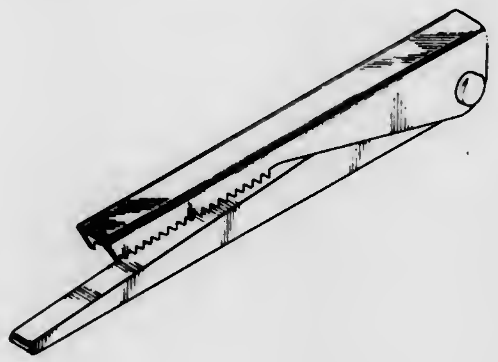
232,633
MOUNT FOR TELESCOPIC SIGHT

Gerald T. Weast, Hazel Park, Mich., assignor to Clear View Manufacturing Company, Hazel Park, Mich.
Filed Nov. 24, 1972, Ser. No. 309,334
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—7



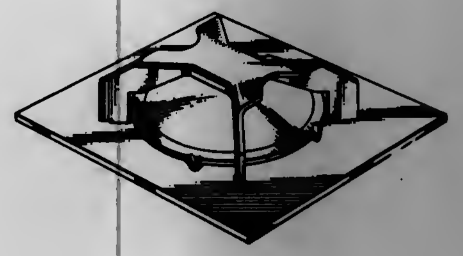
232,634
FISH GRIPPER

George F. May, 121 S. Briscoe St., Dallas, Tex. 75211, and Clifford T. Calfee, 2710 National Drive, Garland, Tex. 75041
Filed Oct. 24, 1972, Ser. No. 299,790
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—31



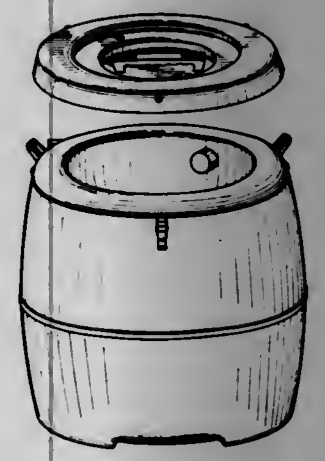
232,635
CHECK VALVE FOR A FRACTIONATING TRAY

Elio Mauri, Milan, Italy, assignor to Koch Engineering Company, Inc., Wichita, Kans.
Filed Sept. 7, 1973, Ser. No. 394,991
Term of patent 14 years
Int. Cl. D23—*01;* D24—*99*
U.S. Cl. D23—22



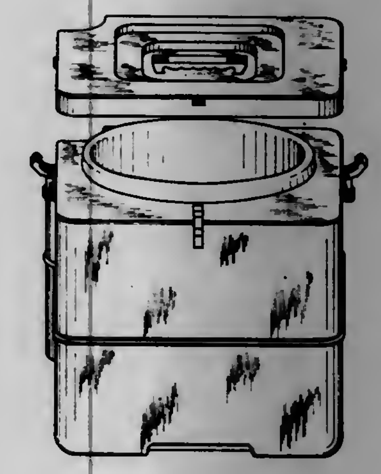
232,636
PORTABLE TOILET

Howard G. Goldsmith, Cranston, R.I., assignor to Todd Enterprises, Inc., Providence, R.I.
Filed Nov. 16, 1972, Ser. No. 307,112
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—48



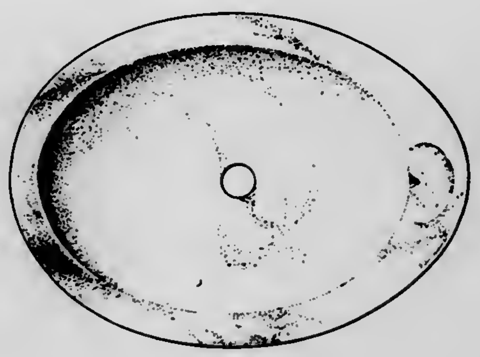
232,637
PORTABLE TOILET

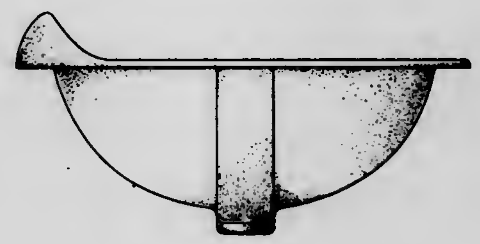
Howard G. Goldsmith, Cranston, R.I., assignor to Todd Enterprises, Inc., Providence, R.I.
Filed May 21, 1973, Ser. No. 362,186
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—48



232,638
LAVATORY

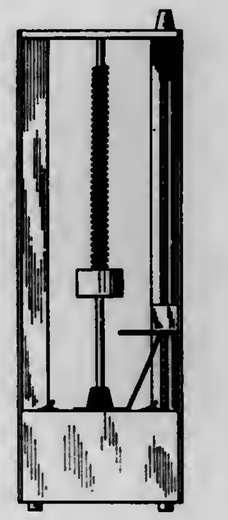
John W. Mather, 2635 Washington Mill Road, Bellbrook, Ohio 45305
Filed Mar. 20, 1973, Ser. No. 342,989
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—58





232,639
TEACHING AID FOR DEMONSTRATING DRIVEN HARMONIC MOTION

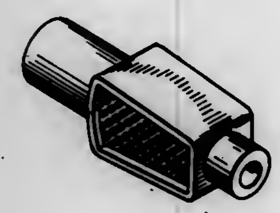
Roger D. Stephenson, Overland Park, Kans., assignor to Physics Apparatus Research, Inc., Overland Park, Kans.
Filed June 16, 1972, Ser. No. 263,441
Term of patent 14 years
Int. Cl. D19—*07*
U.S. Cl. D25—1 R



232,640

IGNITION WIRE BOOT FOR SPARK PLUGS

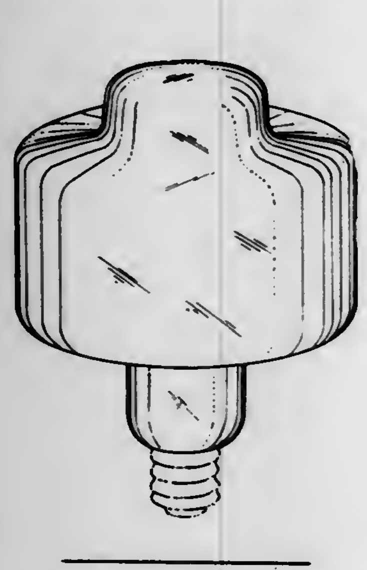
Richard P. Dugger, South Bend, Ind., assignor to Ristance Wire, Inc., Bremen, Ind.
Filed June 1, 1972, Ser. No. 258,940
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—1 A



232,641

BULB FOR ELECTRIC LAMP

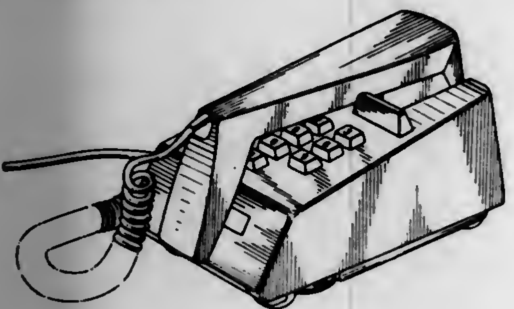
Richard Katz, Roslyn Heights, N.Y., Jean Lamuniere, Linganore, Md., and Norman Baird, Morris Plains, N.J., assignors to Duro-Test Corporation, North Bergen, N.J.
Filed Feb. 5, 1973, Ser. No. 329,625
Term of patent 14 years
Int. Cl. D26—*04*
U.S. Cl. D26—8



232,642

TELEPHONE SUBSCRIBERS INSTRUMENT

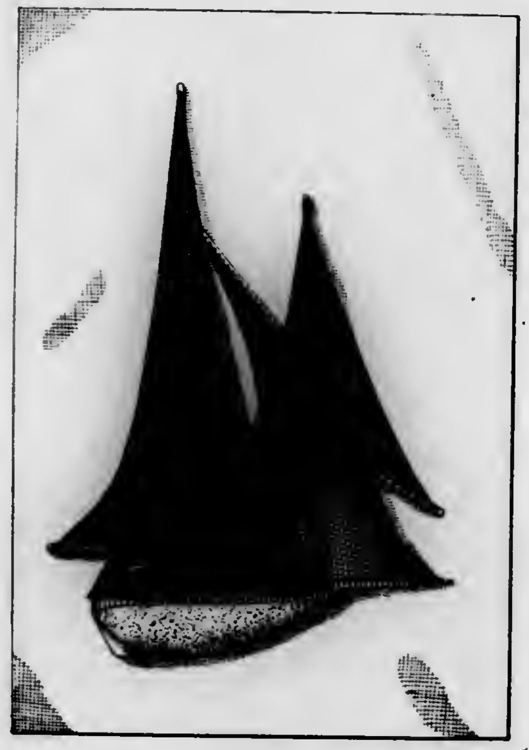
Anthony Crisp Beadle, Cockfosters, Ralph William Parrish, London, and John Graham Brown, Dartford, England, assignors to International Standard Electric Corporation, New York, N.Y.
Filed June 5, 1973, Ser. No. 367,308
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A



232,643

SHIP MODEL WALL PLAQUE

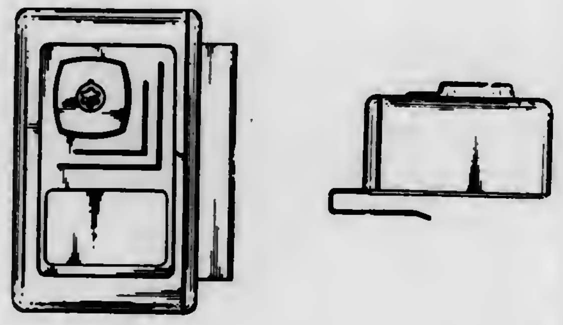
Francis R. Nartowicz, 204 Fort Worth St., Hampton, Va. 23369
Filed Oct. 13, 1972, Ser. No. 297,314
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D29—23 A



232,644

AUTOMOTIVE VEHICLE KEY SAFE

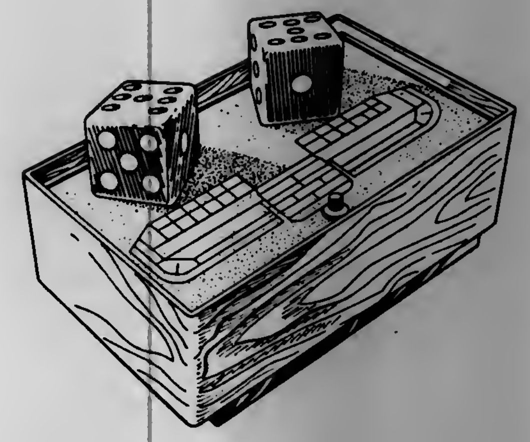
Iral D. Barrett, P.O. Box 3167, Salem, Oreg. 97302
Filed Jan. 8, 1973, Ser. No. 322,087
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D31—22



232,645

ELECTRONIC DICE GAME TABLE

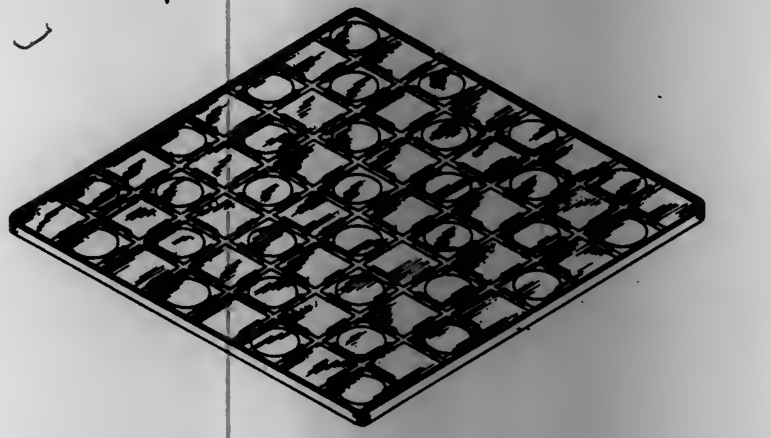
David Galoob, 1153 Mission St., San Francisco, Calif. 94103
Filed Feb. 22, 1972, Ser. No. 228,435
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 J



232,646

CHECKERBOARD

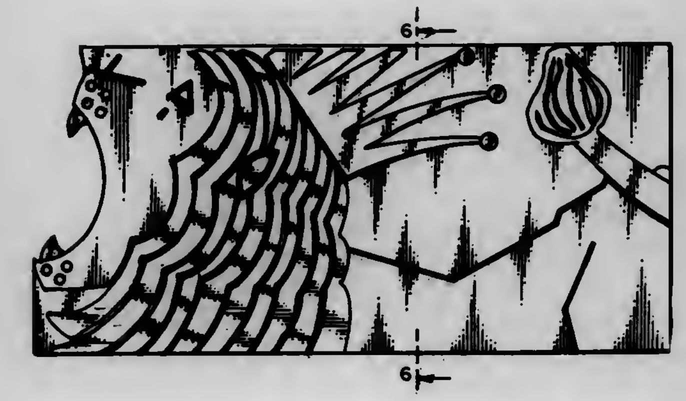
Albert Stubbmann, Franklin Lakes, N.J., assignor to Kohner Bros., Inc., East Paterson, N.J.
Filed June 4, 1973, Ser. No. 366,886
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 SS



232,647

SQUEEZABLE SOUND-PRODUCING BABY TOY

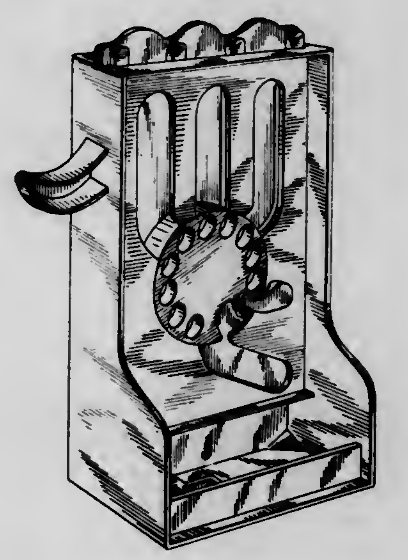
Emil Pomerantz, 43—21 52nd St., Woodside, N.Y. 11377
Filed Jan. 26, 1972, Ser. No. 221,123
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 C



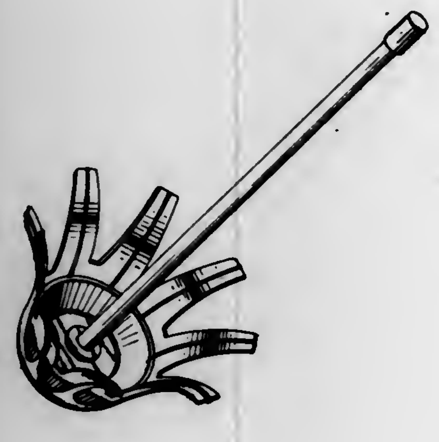
232,648

TOY TELEPHONE BOX

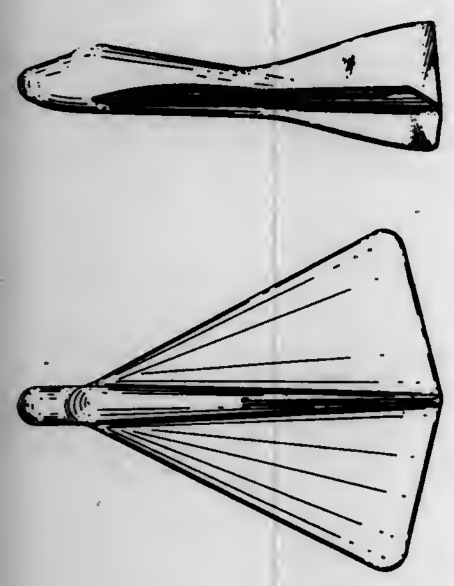
Robert Brass, 1 Fillow St., Westport, Conn. 06880
Filed June 22, 1972, Ser. No. 265,209
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 A



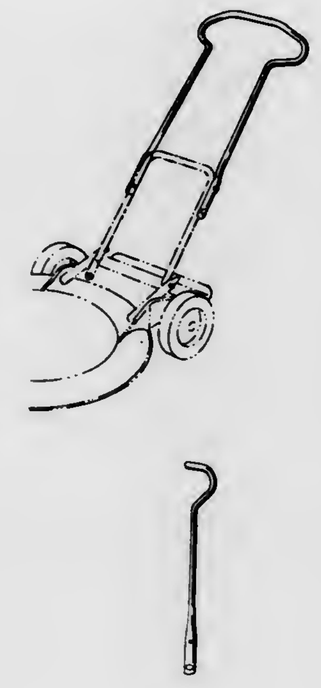
232,649
PROJECTILE FOR A GAME
Phillip H. Carlson and Lawrence E. Erickson, Minneapolis, Minn., assignors to International Telephone and Telegraph Corporation, New York, N.Y.
Filed July 10, 1972, Ser. No. 270,501
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 PP



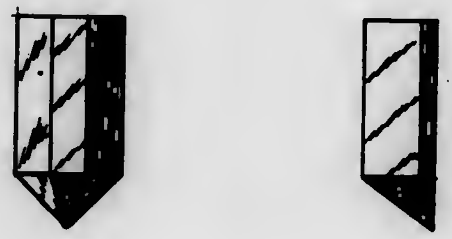
232,650
TOY GLIDER
David A. Martin, Bend, Oreg., assignor to North Pacific Products Co., Bend, Oreg.
Filed July 2, 1973, Ser. No. 375,621
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 HH



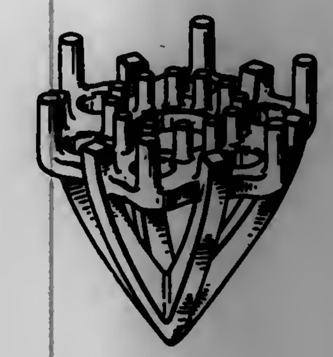
232,651
UPPER HANDLE MEMBER FOR LAWN MOWERS AND THE LIKE
Mario F. Fernandez and Bruce John Rubin, St. Paul, and Richard A. Thorud, Minneapolis, Minn., assignors to The Toro Company, Minneapolis, Minn.
Filed Aug. 10, 1972, Ser. No. 279,379
Term of patent 14 years
Int. Cl. D15—*99, 03*
U.S. Cl. D40—1 A



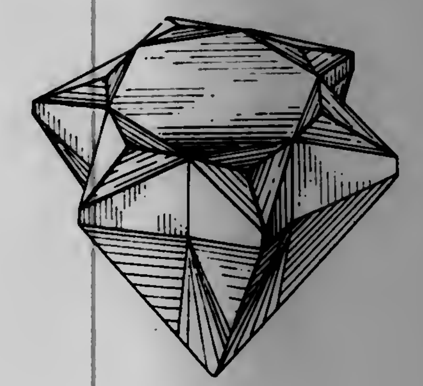
232,652
GEM
Otto Hoffer, Providence, R.I., assignor to E. H. Ashley & Co., Inc., Providence, R.I.
Filed Apr. 10, 1972, Ser. No. 242,901
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—1 A



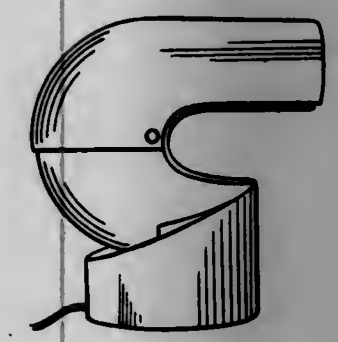
232,653
MOUNT FOR PRECIOUS STONES
Adolf Herman Hess, 7411–1B Yonge St., Apt. 508, Thornhill, Ontario, Canada
Filed Sept. 21, 1972, Ser. No. 290,855
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—1 B



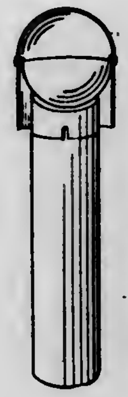
232,654
JEWELRY STONE
Gilbert Golay, Moudon, Switzerland, assignor to Tousdiamants S.A., Vaud, Switzerland
Filed Jan. 5, 1973, Ser. No. 321,143
Claims priority, application Switzerland July 10, 1972
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—1 A



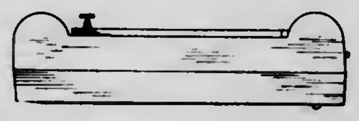
232,655
TABLE LAMP
Gae Aulenti, Via dell'Annunciata 7, Milan, Italy
Filed Sept. 22, 1972, Ser. No. 291,413
Claims priority, application Italy Mar. 23, 1972
Term of patent 7 years
Int. Cl. D26—*05*
U.S. Cl. D48—20 R



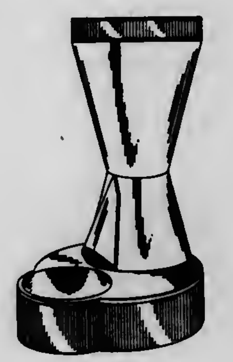
232,656
LAMP
Gae Aulenti, Via dell'Annunciata 7, Milan, Italy
Filed Sept. 22, 1972, Ser. No. 291,415
Claims priority, application Italy Mar. 23, 1972
Term of patent 7 years
Int. Cl. D26—*05*
U.S. Cl. D48—20 A



232,657
LETTER-BOMB DETECTOR
Herbert S. Kulik and Jacob Schachter, both of 100 Ricefield Lane, Hauppauge, N.Y. 11787
Filed Mar. 30, 1973, Ser. No. 346,414
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D52—1 R

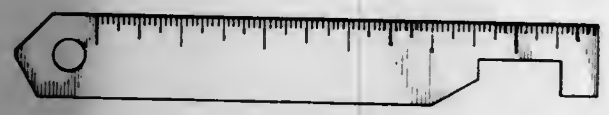


232,658
DRY PET FOOD AGITATOR/DISPENSER
Arthur L. Fassauer, P.O. Box 615, Canyon, Tex. 79015
Filed July 27, 1972, Ser. No. 275,862
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D52—2 B



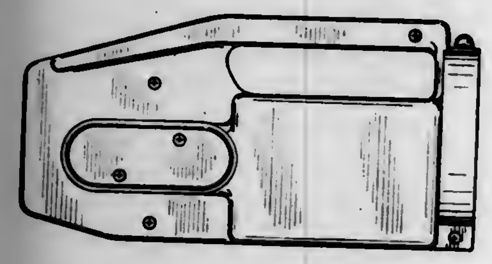
232,659
SCALE

Peter M. Cameron, 9 Rosewood Lane,
Owings Mills, Md. 21117
Filed Jan. 26, 1972, Ser. No. 221,136
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—6 A



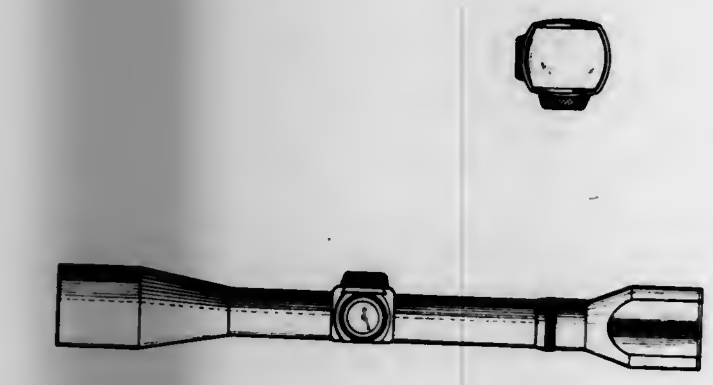
232,660
WHEEL ALIGNMENT HEAD

John D. McKenney, South Laguna, Calif., assignor to
Royal Industries, Inc., Osseo, Minn.
Filed Sept. 20, 1972, Ser. No. 290,472
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D52—6 E



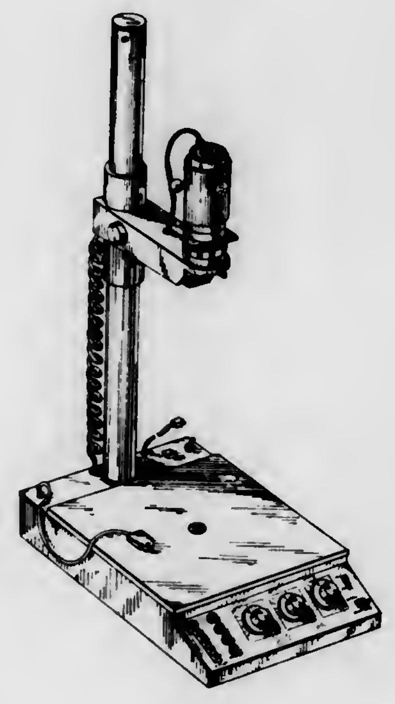
232,661
WIDE ANGLE TELESCOPIC SIGHT

John F. Thompson and Donald R. Payton, El Paso, Tex., assignors to W. R. Weaver Company
Continuation-in-part of abandoned design application Ser. No. 255,933, May 22, 1972. This application July 12, 1973, Ser. No. 378,737
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1 E



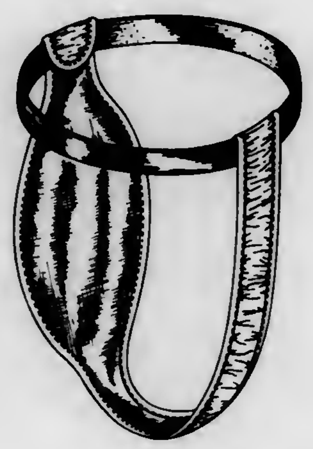
232,662
PHOTOGRAPHIC ENLARGER

Arthur J. Sable, Tall Timbers, Raymond E. Cheney, Niwot, and Kenneth R. Crowe, Boulder, Colo., assignors to Sable Photo Works, Inc., Tall Timbers, Colo.
Filed July 3, 1972, Ser. No. 268,917
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1 Q



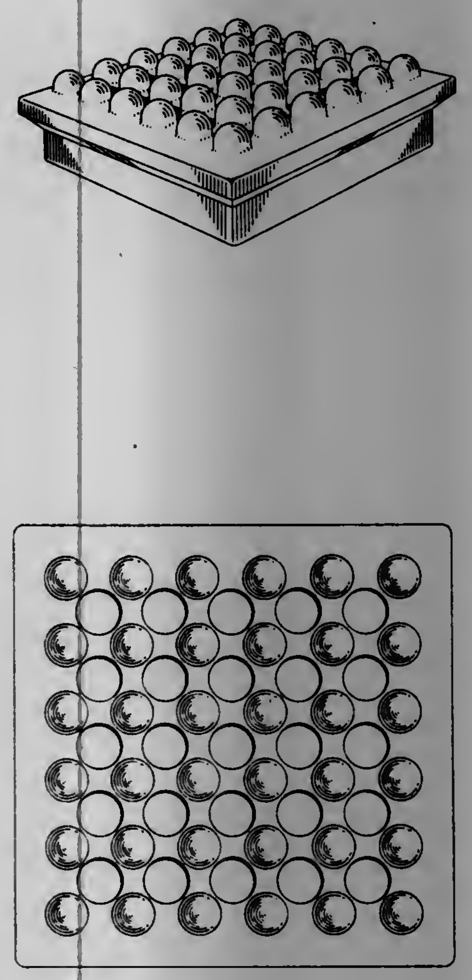
232,663
CATAMENIAL SHIELD

Ronald Gordon Altrows, 320 Harris St.,
Ville St. Laurent, Quebec, Canada
Filed July 23, 1973, Ser. No. 381,920
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D83—1 J



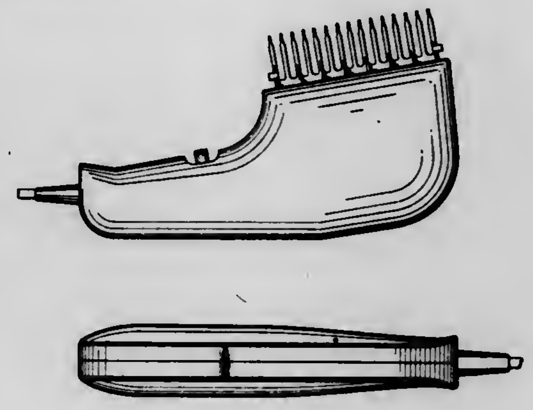
232,664
ASHTRAY

Ettore Sottsass, Jr., Milan, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Turin, Italy
Filed Apr. 27, 1973, Ser. No. 355,244
Claims priority, application Italy Nov. 2, 1972
Term of patent 14 years
Int. Cl. D27—*03*
U.S. Cl. D85—2 H



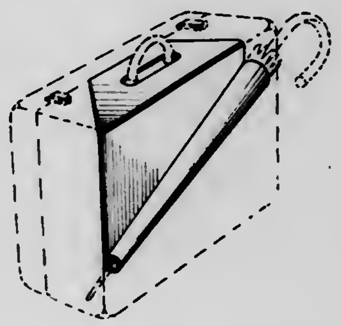
232,665
COMB

Jürgen Greubel, Kronberg, Taunus, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed Jan. 31, 1973, Ser. No. 328,339
Claims priority, application Germany Oct. 24, 1972
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—8



232,666
HOLDER FOR UMBRELLAS

Brower C. Spransy, 4516 Rynex Drive, Alexandria, Va. 22312, and George B. Spransy, 18 Dog Wood Acre, Chapel Hill, N.C. 27514
Filed Oct. 12, 1972, Ser. No. 297,044
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D87—1 R



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 3D DAY OF SEPTEMBER, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. J. M. Research Corporation: *See—*
  Malavazos, Arthur J.; and Urdal, Jan, 3,833,169.
Aaron, Albert Glenn, to Passpoint Corporation. Conveyor for wheeled vehicles. 3,832,953, Cl. 104-162.000.
Abbott, Frank R., to United States of America, Navy. Very low frequency sonar projector. 3,833,880, Cl. 340-8.00r.
Abbott Laboratories: *See—*
  Liston, Mac D., 3,833,304.
Abe, Jinnosuke; Watanabe, Tetsuo; Take, Teruo; Fujimoto, Kentaro; Fujii, Tadashiro; Hotta, Yasue; Kobari, Sadami; Ishimura, Fumihiro; Kitahora, Nobuya; and Fukushima, Mituru, to Toyo Jozo Kabushiki Kaisha. Production of ampicillin. 3,833,558, Cl. 260-239.10.
Abe, Shigeharu: *See—*
  Monma, Yoshinobu; Abe, Shigeharu; Miwa, Ryuichi; and Mitsushima, Eiji, 3,833,429.
Abita, Joseph L.; and Noyes, Carlton F., to United States of America, Navy. Mechanical masking apparatus for producing a pattern on a curved surface. 3,833,298, Cl. 355-125.000.
Abolins, Visvaldis; and Reinhard, Donald L., to General Electric Company. Composition of a polyphenylene ether and an acrylic resin in combination with a diene rubber-containing resin. 3,833,688, Cl. 260-876.00r.
Abrahams, Michael A.; Blacksburg, Alvin Brent; and Rand, Sidney, to Breath-E-Z Corporation. Portable demucosant. 3,833,001, Cl. 128-277.000.
Acosta, Adrian J. Stowable tiedown attachments for pickup truck bodies. 3,833,241, Cl. 280-179.00a.
Acton, Edward M.; Yamamoto, Kazuko; and Stone, Herbert, to Stanford Research Institute. Sweeteners based on syn oximes of 4-(methoxysubstituted)-1-cyclohexene-1-carboxaldehydes. 3,833,654, Cl. 260-566.00a.
Adachi, Kouhei: *See—*
  Tominaga, Hiroshi; Takamatsu, Masanobu; and Adachi, Kouhei, 3,832,877.
Adams, Frederick John, to Cam Gears Limited. Integral power steering gear. 3,832,936, Cl. 91-375.00a.
Adams, Gerald E.; Borton, Robert O.; Dabrowski, Alfred J., Jr.; Falkenau, Vernon A.; and Flood, James H., to Uniroyal, Inc. Fluidized bed coating apparatus. 3,832,974, Cl. 118-408.000.
Addressograph-Multigraph Corporation: *See—*
  Zawiski, Robert F.; Crider, Albert A.; and Ernohazy, Stephen, 3,833,214.
Adelsberg, Lee M.; Carson, Michael C.; Forker, Ray B., Jr.; and Rittler, Hermann L., to Corning Glass Works. Preform core bodies. 3,833,385, Cl. 106-38.900.
Adomaithis, Domas, to Continental Can Company, Inc. Process for closing tubular parisons and blow molding hollow containers therefrom. 3,833,700, Cl. 264-96.000.
Aerojet-General Corporation: *See—*
  Glad, Thomas J.; and Schmidt, Willfred G., 3,833,041.
Aeroquip Corporation: *See—*
  Ritchie, Rex E.; and Welker, John B., 3,832,831.
Aerovac Corporation: *See—*
  Creskoff, Jacob J., 3,833,251.
Aerpat A.G.: *See—*
  Charman, Bernard William, 3,832,880.
Agatsuma, Takashi: *See—*
  Kikuchi, Akira; and Agatsuma, Takashi, 3,833,434.
Agence Nationale de Valorisation de la Recherche (Anvar): *See—*
  Aubert, Jean-Paul; Longin, Robert; and Millet, Jacqueline, 3,833,474.
Agence Nationale de Valorisation la Recherche (Anvar): *See—*
  Trombe, Felix; and Michel, Jacques, 3,832,992.
Agency of Industrial Science and Technology: *See—*
  Yatabe, Teruo; and Matsumoto, Shuntetsu, 3,833,759.
AGFA-Gevaert: *See—*
  Stievenart, Emile Frans; and Verbruggen, Herman Fernand, 3,833,918.
Agfa-Gevaert AG: *See—*
  Wick, Richard; Winkler, Alfred; and Wagensonner, Eduard, 3,833,913.
Agfa-Gevaert N.V.: *See—*
  Hazenbosch, Edwin Hendrik; and Poot, Albert Lucien, 3,833,373.
Aguet, Emile, to Sulzer Brothers Ltd. Combined gas and steam powerplant with supplementary steam mixing. 3,832,845, Cl. 60-39.18b.
Aidn, Martin; and Furtwa-Ngler, Gerhard, to Siemens AG. Contact socket for electrical devices, such as relays. 3,833,879, Cl. 339-220.00r.
Airola, Ellis J.: *See—*
  Grisik, John J.; and Airola, Ellis J., 3,833,414.
Aisin Seiki Kabushiki Kaisha: *See—*
  Suzuki, Akira, 3,833,081.
A.J. Industries, Inc.: *See—*
  Davis, Robert W.; and Ward, James C., 3,833,236.
Ajinomoto Co., Inc.: *See—*
  Akamatsu, Akira; Togo, Kazushi; and Iwatsuki, Makoto, 3,833,684.
  Ariyoshi, Yasuo; Yamatani, Tetsuo; Uchiyama, Noboru; Yasuda, Naohiko; Toi, Koji; and Sato, Naotake, 3,833,553.
  Ariyoshi, Yasuo; and Toi, Koji, 3,833,554.
  Kubota, Koji; Onoda, Takiko; Kamijo, Hirotaka; Yoshinaga, Fumihiro; and Okumura, Shinji, 3,833,473.
Akamatsu, Akira; Togo, Kazushi; and Iwatsuki, Makoto, to Ajinomoto Co., Inc. Stable, homogeneous solutions of polyalkyl glutamates containing dissolved elastomers. 3,833,684, Cl. 260-857.0un.
Akashi, Goro; Fujiyama, Masaski; and Yamada, Yasuyuki, to Fuji Photo Film Co., Ltd. Magnetic recording medium. 3,833,412, Cl. 117-240.000.
Akin, Cavit, to Standard Oil Company. Water-soluble whippable protein material and process for producing same. 3,833,552, Cl. 260-112.00r.
Aktiebolaget Bofors: *See—*
  Bakke, Jan Magnus, 3,833,667.
Aktiebolaget Svenska Flaktfabriken: *See—*
  McCarty, Eugene F., 3,833,466.
Aktiengesellschaft Gebrueder Loepfe: *See—*
  Domig, Rene, 3,833,026.
Akzona Incorporated: *See—*
  Eskridge, Brewster B.; Fink, Roger H.; and Lyon, Boyce M., 3,832,759.
Albers, Kenneth H.; Blood, Alden E.; and Snapp, Thomas C., Jr., to Eastman Kodak Company. Water-soluble alkyd resins and a process for their preparation. 3,833,529, Cl. 260-29.20n.
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  Pike, Marshall; and Routledge, Alan Watson, 3,833,628.
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Alduk, Frank P. Pallet loading apparatus. 3,833,132, Cl. 214-6.00g.
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  Elkins, William; Connell, Eugene W.; and Alesna, Robert E., 3,832,735.
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  Nilsson, Rutger Einar Viktor, 3,832,970.
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Allen, Robert E.; and Calhoun, Clyde D., to General Electric Company. Apparatus for alloy microstructure control. 3,833,207, Cl. 266-2.00r.
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  Segal, Leon, 3,833,453.
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Ambrose, Jere B., to Northern Fibre Products Company. Reinforced foam plastic seat bun and method of molding same. 3,833,454, Cl. 161-159.000.

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Ammann, Heinz, to Sulzer Brothers Ltd. Tubing for a combustion chamber. 3,832,979, Cl. 122-6.00a.

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Andersson, Bror Adolf. Ski-holding device with mountings for clamp straps. 3,833,160, Cl. 224-42.10f.

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Angle, Milton A.; Blair, Gerald E.; and Maier, Clarence C., to Eastman Kodak Company. Method for molding glass lenses. 3,833,347, Cl. 65-32.000.

Annapolis Yacht Yard, Inc.: *See—*

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Anton, Joe. Air surface gauge stand. 3,833,195, Cl. 248-125.000.

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Apache Corporation: *See—*

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Apstein, Maurice; and United States of America, Army. Proximity fuze. 3,833,905, Cl. 343-7.0pf.

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Armand, Harold A., to Texas Instruments, Incorporated. Deflection angle measuring apparatus and method. 3,833,808, Cl. 250-236.000.

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Atoji, Nobuhisa; and Aoi, Takahisa, to Matsushita Electric Industrial Co., Ltd. Electrostatic acoustic transducer. 3,833,770, Cl. 179-111.00e.

Atsumi, Toshio; Kobayashi, Kenji; Takebayashi, Yoshiaki; and Yamamoto, Hisao, to Sumitomo Chemical Company, Limited. 2-Aroylalkyl benzomorphans. 3,833,595, Cl. 260-293.540.

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Augustine, Carroll F., to Midwest Microwave, Inc. Doppler radar for land vehicles. 3,833,906, Cl. 343-9.000.

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Babcock, John C.; and Campbell, J. Alan, to Unjohn Company, The. Crystalline 25-hydroxy-cholecalciferol hydrate and structurally related compounds. 3,833,622, Cl. 260-397.200.

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Back, Carl F., to Sanderson-Cyclone Drill Company, The. Drilling machine with driving tool for casing or pipe. 3,833,072, Cl. 175-85.000.

Backwell, James, 20% to Lee, Raymond, Organization, Inc. Foldable step stool. 3,833,089, Cl. 182-91.000.

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Balasic, George, to Carol Stamping and Manufacturing Inc. Paper roll holder. 3,833,180, Cl. 242-55.200.

Balaz, Joseph K.; Kelly, Richard A.; and Schulze, Wolfgang, to Flinn & Dreffein Engineering Company. Modular insulation of fibrous material. 3,832,815, Cl. 52-227.000.

Balint, Gabriella, nee Berczi; Csonka, Lajos; Galambos, Gyorgy; Gomory, Pal; Kelen, Tibor; Nagy, Ferenc; Szerencz, Janos; and Tudos, Ferenc, to Intercooperation Kereskedelemfejlesztesi Rt. Aluminum salts of esters as stabilizing agents for chlorinated viny polymers. 3,833,631, Cl. 260-448.00r.

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Baumann, Eduard, to Zellweger Ltd. Remote control with selective evaluation of impulse patterns. 3,833,886, Cl. 340-167.00r.

Baumann, Frederick William; and Rayner, Albert, to General Electric Company. Lubricating means for a dynamoelectric machine end shield housing. 3,833,276, Cl. 308-187.000.

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Beil, Ralph G., to Schlumberger Technology Corporation. Neutron logging of formation porosity and chlorinity. 3,833,809, Cl. 250-270.000.

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- Benz, August. Device for holding operating tools at elevated heights. 3,833,193, Cl. 248-2.000.
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  - Hughes, Charles R., 3,833,694.
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- Bick, Maurice; and Lochet, Jean A., to Auric Corporation. Gold electroplating baths and process. 3,833,488, Cl. 204-46.00g.
- Bidard, Rene, to Compagnie Electro-Mecanique. Liquid solutions expanded along a curvilinear surface. 3,833,480, Cl. 203-88.000.
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- Bigbie, Samuel E.; and Hull, Roger C., to International Business Machines Corporation. Badge or credit card reading system with integral status monitoring. 3,833,884, Cl. 340-147.01p.
- Bimond, Jean-Pier: *See—*
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- Bobel, David J.; and Lotter, Robert F., to Skil Corporation. Safety slide switch. 3,833,784, Cl. 200-157.000.
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- Boorman, Earl D., Jr., to General Electric Company. Ice tunnel mounting. 3,832,863, Cl. 62-298.000.
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Clark, William E. Pre-gapped breaker point assemblies. 3,833,777, Cl. 200-31.000.
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Deserno, Ulrich; and Haussuehl, Siegfried, to Siemens Aktiengesellschaft. Non-linear optical component. 3,833,286, Cl. 350-160.00r.
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Dunbar, Antoinette, to Esso Research and Engineering Company. Wax and asphalt (Bitumen) packs. 3,832,825, Cl. 53-25.000.
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Edde, Robert C. Non-pollution carburetion system for engines. 3,832,985, Cl. 123-141.000.
Edenhofer, Albrecht; and Spiegelberg, Hans, to Hoffmann-La Roche Inc. Process for the preparation of aromatic ethers and intermediates useful therefor. 3,833,576, Cl. 260-244.00r.
Edenhofer, Albrecht; and Spiegelberg, Hans, to Hoffmann-La Roche Inc. Amino-dibenzo (a,d) cyclohepta (1,4) dien-5-one compounds. 3,833,655, Cl. 260-570.900.
EDP-ECC Corporation: *See—*
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Edwards, Daniel W. Handlebar safety shield. 3,832,912, Cl. 74-551.800.
Edwards, George Wheeler; and Edwards, Arrie Wood. Alfalfa extract process. 3,833,738, Cl. 426-52.000.
Edwards, Hugh J. W., to Cable Covers Limited. Method of forming prestressed concrete. 3,833,706, Cl. 264-228.000.
Efanov, Valery Pavlovich; Komyak, Nikolai Ivanovich; Ljuttsau, Vsevolod Grigorievich; and Rabodzei, Nikolai Vasilievich. Method of X-ray diffraction topography of monocrystals and apparatus for effecting same. 3,833,810, Cl. 250-273.000.
Egan, Clark J.; and White, Robert J., to Chevron Research Company. Hydrocoversion process. 3,833,499, Cl. 208-111.000.
Eggert, Frank, to Schlegel Manufacturing Company, the. Panel mounting. 3,832,820, Cl. 52-753.00t.
Eglington, John Christopher, to Dowty Hydraulic Units Limited. Positive-displacement liquid-pressure machines and pressure-balanced journal/thrust bushes therefor. 3,833,319, Cl. 418-132.000.
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Eklor, Anders A.; and Binks, Ronald, to Globas Systems Design Corporation. Voiced controlled gain switched loud-speaking telephone system. 3,833,766, Cl. 179-1.0hf.
Elban, Wayne L.; and Larsen, James V., to United States of America, Navy. Graphite fiber treatment. 3,833,402, Cl. 117-46.0ca.
Elders, Gerald W. Self-sharpening bit and mounting therefor. 3,833,264, Cl. 299-86.000.
Elders, Gerald W. Rotatable sleeve for self-sharpening bit. 3,833,265, Cl. 299-86.000.
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Ellzey, Samuel E., Jr.; and Connick, William J., Jr., to United States of America, Agriculture. Novel process for the preparation of tris (hydroxymethyl) phosphine and tris (hydroxymethyl) phosphine oxide. 3,833,661, Cl. 260-606.50p.
Elscint Limited: *See—*
Shoshani, Avraham; Laor, Dan; Benzeev, Dan; Inbar, Dan; and Sabbah, Benjamin Prosper, 3,833,795.
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Emoto, Takeo; and Kurihara, Satoshi, to Fuji Photo Film Co., Ltd. Process for preparing granular color developing agent. 3,833,377, Cl. 96-66.200.

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Emura, Tokumatsu; Kawabata, Shigeo; and Shimoma, Takashi, to Nippon Kokan Kabushiki Kaisha. Apparatus for detecting the condition of an opaque band-shaped material travelling on a delivery system. 3,833,816, Cl. 250-561.000.

Encinias, Petro Antonio. Fishing pole holder. 3,832,794, Cl. 43-15.000.

Enders, Edgar; Grewe, Ferdinand; and Frohberger, Paul-Ernst, to Bayer Aktiengesellschaft. Dialkylaminophenylhydrazones. 3,833,607, Cl. 260-326.5fl.

Endo, Kunio: *See—*
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Engelstatter, Heinz; and Mahlich, Gotthard Christoph, to Braun Aktiengesellschaft. Method and arrangement for initiating a flash in an electronic flash unit having automatic exposure control. 3,833,834, Cl. 315-241.00p.

Engle, Thomas H., to General Signal Corporation. Hydraulic power brake system. 3,833,095, Cl. 188-71.900.

Enns, Mark K.: *See—*
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Ercoli, Raffaele; Silvestri, Giuseppe; Gambino, Salvatore; Guainazzi, Mauro; and Filardo, Giuseppe. Process for the preparation of squaric acid by reductive cyclotetramerization of carbon monoxide. 3,833,489, Cl. 204-59.0qm.

Erickson, Raymond C.: *See—*
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Eriksoo, Edgar; Fex, Hans Jacob; Hogberg, Knut Bertil; Mollberg, Henri Rene; Rohte, Oskar Adolf; and Otto, Paul Hans; deceased (by Kneip, Ruth), to Atkiebolaget Lee Halsingborg. Phenothiazines. 3,833,567, Cl. 260-243.00a.

Ernohazy, Stephen: *See—*
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Eskew, Roderick K.: *See—*
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Eskridge, Brewster B.; Fink, Roger H.; and Lyon, Boyce M., to Akzona Incorporated. Process and apparatus for texturizing yarn. 3,832,759, Cl. 28-1.300.

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Ethyl Corporation: *See—*
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Malec, Robert E., 3,833,496.

Eto, Tetutaro. Integrating A-D conversion system. 3,833,902, Cl. 340-347.0nt.

Eukushima, Osamu; Sato, Masamichi; and Matsumoto, Seiji, said Fukushima and said Matsumoto assors. by mesne assigts. to Rank Xerox, Ltd. Electro-photographic apparatus. 3,832,975, Cl. 118-637.000.

Evans, David H.; and Greenwald, Richard B., to Polaroid Corporation. Synthesis of 2-methoxytropones. 3,833,657, Cl. 260-586.00m.

Evans, Roy; and Saltonstall, Peter, to Hardaker, John T., Limited. Gripper type looms. 3,833,024, Cl. 139-2.000.

Even, George; deceased (by de la Querantonnais, Maitre Jacques Mahot; Legal representative), to Constructions Navales et Industrielles de la-Mediterranee C.N.I.M. Trailor carriage with collapsible wheels. 3,832,932, Cl. 89-40.00j.

Ever-Roll Manufacturing Corp., The: *See—*
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Everson, Charles W.: *See—*
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Factory Mutual Research Corporation: *See—*
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Faffart, Georges Andre, to La Telemecanique Electrique. Bellows-type time delay device for retarded switch. 3,833,778, Cl. 200-33.00r.

Fajer, Jack: *See—*
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Faletti, Franco: *See—*
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Farfaglia, Silvio T., to Phillips Petroleum Company. Positive displacement liquid dispensing mechanism. 3,833,155, Cl. 222-275.000.

Farge, Daniel; and Messer, Mayer Naoum, to Rhone-Poulenc S.A. Phenothiazine derivatives. 3,833,573, Cl. 260-243.00a.

Farkas, Istvan: *See—*
Giflo, Henrik; Enekes, Sandor; Zambo, Pal; Sziklavari, Janos; Farkas, Istvan; Ivan, Geza; Molnar, Jozsef; Vamosi, Jozsef; and Valko, Janos, 3,833,360.

Farkas, Lorant: *See—*
Feuer, Laszlo; Nogradi, Mihaly; Gottsegen, Agnes; Vermes, Borbala; Streliszky, Janos; Wolfner, Andras; Farkas, Lorant; Antus, Sandor; and Toth, Maria Kovacs, 3,833,730.

Farlane, Cyril Stephen: *See—*
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Farmhand (U.K.) Ltd.: *See—*
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Farr, Glyn Phillip Reginald, to Girling Limited. Pedal-operated hydraulic control valve assembly. 3,833,272, Cl. 303-52.000.

Fath, Joseph, to Tenneco Chemicals, Inc. Corrosion inhibiting gel for electrical connectors. 3,833,513, Cl. 252-389.00r.

Fechheimer, Paul R. Filling machine for containers. 3,833,031, Cl. 141-84.000.

Fecteau, Dennis E. Intrusion alarm with indication of prior activation. 3,833,895, Cl. 340-224.000.

Fein, Michael E.; and Schermerhorn, Jerry D., to Owens-Illinois, Inc. Electronic conditioning of gas discharge panels by inversion interval extension. 3,833,832, Cl. 315-169.00r.

Feith, Franz. Device for loosening wheel nuts or lugs of automobile wheels. 3,832,917, Cl. 81-53.00r.

Feleflex Limited: *See—*
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Fell, Ferol S.: *See—*
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Ferranti Limited: *See—*
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Ferrari, Leonard A., to Bell & Howell Company. Video information recording and display. 3,833,758, Cl. 178-6.800.

Ferse, Armin; and Koch, Wolfgang, to VEB Chemiewerk Nunchritz. Process for preparing perfluorinated mono- and dicarboxylic acids. 3,833,626, Cl. 260-408.000.

Fetner, Robert H.; and Alderman, John C., Jr., to Georgia Tech Research Institute. Method and apparatus for chromosome dignitizing. 3,833,796, Cl. 235-151.300.

Feuer, Laszlo; Nogradi, Mihaly; Gottsegen, Agnes; Vermes, Borbala; Streliszky, Janos; Wolfner, Andras; Farkas, Lorant; Antus, Sandor; and Toth, Maria Kovacs, to Chinoin Gyogyszer- Es Vegyeszeti Termekek Gyara Rt. Animal feed containing 7-isopropoxyisoflavoe. 3,833,730, Cl. 424-283.000.

Fex, Hans Jacob: *See—*
Eriksoo, Edgar; Fex, Hans Jacob; Hogberg, Knut Bertil; Mollberg, Henri Rene; Rohte, Oskar Adolf; and Otto, Paul Hans, 3,833,567.

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Filardo, Giuseppe: *See—*
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Fisco Products Limited: *See—*
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Fish, Herbert I. Impact tools and handles therefor. 3,833,037, Cl. 145-29.00r.

Fisher, Ferdinand W.; and Sweet, Clifton D., Jr., to Eaton Corporation. Coil connections for an electromagnetic drive. 3,833,871, Cl. 335-282.000.

Fisher, Robert E.: *See—*
Moore, Carlisle M.; and Fisher, Robert E., 3,832,937.

Fitch, James B., to Nash Engineering Company. Liquid ring pump of the duplex type. 3,833,315, Cl. 417-68.000.

Flagge, Bruce, to United States of America National Aeronautics and Space Administration. Measuring probe position recorder. 3,832,781, Cl. 33-23.00r.

Fleagle, Joseph E., to Wagner Electric Corporation. Wheel slip control system for automotive vehicles and the like. 3,833,268, Cl. 303-21.0be.

Fleischer, Henry. Sand blasting of metal surfaces at an angle of less than 45. 3,833,416, Cl. 134-7.000.

Fleming, Robert W.: *See—*
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Flinchbaugh, Henry K., to Flinchbaugh/Murray Corporation. Transport mechanism for stairway elevator. 3,833,092, Cl. 187-12.000.

Flinchbaugh/Murray Corporation: *See—*
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Flusfeder, Joseph: *See—*
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Fogg, Sidney George, to BP Chemicals International Limited. Copolymer of chloroprene and dichlorobutadiene. 3,833,549, Cl. 260-80.700.

Fonken, Gunther S.; Herr, Milton E.; and Murray, Herbert C., to Upjohn Company, The. Oxygenated azabicycloalkanes. 3,833,562, Cl. 260-239.0ba.

Food Technology, Inc.: *See—*
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Ford Motor Company: *See—*
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Foster, Karl; and Shilling, Jack W., to Westinghouse Electric Corporation. Process for continuously annealed silicon steel using tension-producing glass. 3,833,431, Cl. 148-113.000.

Fournier, Pierre: *See—*
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Fowler, Donald W.; and O'Connor, Sean J., to United Aircraft Corporation. Load stability system. 3,833,189, Cl. 244-77.00r.

Fowler, John T., to Little, Arthur D., Inc. Magnetic compass mounting. 3,832,787, Cl. 33-358.000.

Fowler, John T., to Little, Arthur D., Inc. Magnetic compass having remote digital readout. 3,833,901, Cl. 340-347.00p.

Fowler, Ronald J., to United States of America, Navy, mesne. Krypton source. 3,833,815, Cl. 250-496.000.

Frake, Allen B. End plate for concrete forms. 3,833,199, Cl. 249-33.000.

Franconi, Cafiero: *See—*
Bonori, Maurizio; Franconi, Cafiero; and Galuppi, Paolo, 3,833,931.

Frank, Charles Roger, to Imperial Chemical Industries Limited. Heat exchange. 3,833,051, Cl. 165-1.000.

Fredriksson, Carl Otto, to Nordnero AB. Methods and means for distillation of liquids. 3,833,479, Cl. 202-235.000.

Freeman, Gerald C.: *See—*
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Frehn, Gunter: *See—*
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Frenkel, Richard E.; and Schwartz, Allan E. Game racket. 3,833,218, Cl. 273-73.00j.

Freter, Kurt: *See—*
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Frick, Eric Lionel; and Burchill, Roy Terry, to National Research Development Corporation. Control of fungi. 3,833,736, Cl. 424-343.000.

Fridman, Lev Petrovich: *See—*
Kashuba, Vladimir Pavlovich; Mikhailov, Nikolai Pavlovich; Fridman, Lev Petrovich; and Rattenberg, Vadim Nikolaevich, 3,833,050.

Fridrich, Elmer G., to General Electric Company. Wide angle optical system for uniform planar illumination. 3,833,802, Cl. 240-41.300.

Fried, John H.: *See—*
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Fried. Krupp, Gesellschaft mit beschrankter Haftung: *See—*
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Gerdes, Werner; and Koster, Otto, 3,833,130.

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Friedrich, Egger, to Gebrueder Buehler AG. Rack structure with mobile frames having tiltable buckets. 3,833,133, Cl. 214-16.40c.

Friedrich, Rainer: *See—*
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Fries, Walter; Hachmann, Klaus; Jung, Dieter; Neuhausen, Peter; and Walter, Dieter, to Henkel & Cie G.m.b.H. Bleaching assistants and the preparation thereof. 3,833,506, Cl. 252-99.000.

Frisch, Kurt C.: *See—*
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Frohberger, Paul-Ernst: *See—*
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Fryer, George L., Jr.; and Gibson, Herman B., Jr., to EDP-ECC Corporation. Programmable trainer. 3,832,790, Cl. 35-8.00r.

Fuji Photo Film Co., Ltd.: *See—*
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Emoto, Takeo; and Kurihara, Satoshi, 3,833,377.
Hayashi, Katsumi; Ohi, Reiichi; and Shishido, Tadao, 3,833,372.
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Hiwano, Kunio; Fukagawa, Masaki; Honjo, Satoru; Iwasa, Masakazu; and Matsumoto, Seiji, 3,833,365.
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Fuji Photo Optical Co., Ltd.: *See—*
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Fuji Shashin Film Kabushiki Kaisha: *See—*
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Fujii, Tadashiro: *See—*
Abe, Jinnosuke; Watanabe, Tetsuo; Take, Teruo; Fujimoto, Kentaro; Fujii, Tadashiro; Hotta, Yasue; Kobari, Sadami; Ishimura, Fumihiro; Kitahora, Nobuya; and Fukushima, Mituru, 3,833,558.

Fujikawa, Tetsuzo; Kawano, Masahisa; and Yamamoto, Masaru, to Kawasaki Jyukogyo Kabushiki Kaisha. Combined hydraulic speed-change, cooling, and lubricating system in rotary engine. 3,832,980, Cl. 123-8.010.

Fujimoto, Kentaro: *See—*
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  - Ramsay, Melvin Murray; and McLennan, Anthony Ian, 3,833,763.
  - Tournier, Christian Yves; and Buzy-Debat, Jean Marie C. S., 3,833,890.
- International Synthetic Rubber Company Limited, The: *See—*
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- International Telephone and Telegraph Corporation: *See—*
  - Austin, Robert R.; and Vincent, Arthur Leonard, 3,833,508.
  - Carlson, Elmer A., 3,833,859.
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- International Tepetronics Corporation: *See—*
  - Jenkins, John P., 3,833,925.
- Iorio, Amedeo, to SYN Cordion Musical Instruments Corp. Reed accordion with programmable electronic organ sound. 3,833,750, Cl. 84-1.010.
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- Isdith, Francisco J., to Lee, Raymond, Organization, Inc., The. Rolling balancer. 3,833,215, Cl. 272-60.00r.
- Ishikawa, Masayuki: *See—*
  - Inoue, Michiro; Ishikawa, Masayuki; Tsuchiya, Takashi; and Shimamoto, Takio, 3,833,579.
- Ishimura, Fumihiro: *See—*
  - Abe, Jinnosuke; Watanabe, Tetsuo; Take, Teruo; Fujimoto, Kentaro; Fujii, Tadashiro; Hotta, Yasue; Kobari, Sadami; Ishimura, Fumihiro; Kitahora, Nobuya; and Fukushima, Mituru, 3,833,558.
- Isotopes, Incorporated: *See—*
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- Ito, Ken: *See—*
  - Kaneko, Tutomu; Turumi, Takashi; Emori, Shuichi; and Ito, Ken, 3,833,438.
- Itoh, Shinobu. Electric power supplying and receiving device. 3,833,820, Cl. 307-146.000.
- Ivan, Geza: *See—*
  - Giflo, Henrik; Enekes, Sandor; Zambo, Pal; Sziklavari, Janos; Farkas, Istvan; Ivan, Geza; Molnar, Jozsef; Vamosi, Jozsef; and Valko, Janos, 3,833,360.
- Iwasa, Masakazu: *See—*
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- Jablonsky, Erich, to Zahnradfabrik Friedrichshafen AG. Auxiliary power steering device for vehicles with pressure accumulators. 3,832,933, Cl. 91-374.000.
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- Jackson, Michael Vivian, to Farmhand (U.K.) Ltd. Tipper vehicles. 3,833,263, Cl. 298-5.000.
- Jacobi, John A.; and Sedlar, Anthony E., to Wickes Corporation, The. Orbital crankshaft lathe mechanism and methods of machining. 3,832,919, Cl. 82-1.00c.
- Jacobs, Joh., & Co.: *See—*
  - Schmidt, Ernst, 3,833,740.
- Jacobs, Peggy S. Artificial eyelashes. 3,833,007, Cl. 132-53.000.
- Jacobus, Dan, to Buckbee-Mears Company. Matrix for forming mesh. 3,833,482, Cl. 204-11.000.
- Jahn, Martin D., to Chicago Metallic Corporation. Concealed grid suspended ceiling structure with simplified installation. 3,832,816, Cl. 52-496.000.
- Jahnke, Earl Milton, to Joslyn Manufacturing and Supply Company. Method and apparatus for installing anchors. 3,832,860, Cl. 61-53.580.
- Jahnke, Earl Milton; and Petres, Stephen Anthony, to Joslyn Manufacturing and Supply Company. Method and apparatus for installing anchors. 3,832,861, Cl. 61-53.580.
- Jakob, Horst, to Societe Financiere Francaise de Licences et Brevets. Process for the manufacture of a row of linking components for a slide fastener. 3,833,707, Cl. 264-285.000.
- James, Pierre Lucien Jules, to U.S. Philips Corporation. Device for examining a patient in particular by means of X-rays. 3,833,813, Cl. 250-446.000.
- Jamison, Mickey B.: *See—*
  - McMinn, Robert W.; and Jamison, Mickey B., 3,833,056.
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- Jaquiss, Donald B. G., to General Electric Company. Oxidatively stable polycarbonate composition. 3,833,537, Cl. 260-45.80a.
- Jarvinen, Uro Tapio; and Salminen, Olli Olavi. Headlight wiper. 3,832,750, Cl. 15-250.160.
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- Jeffreys, Roy A.; and Mellows, Susan M., to Eastman Kodak Company. Novel merocyanine dyes. 3,833,566, Cl. 260-240.100.
- Jenkins, John P., to International Tepetronics Corporation. Cassette tape transport with universally adjustable head. 3,833,925, Cl. 360-109.000.
- Jenkner, Herbert, to Chemische Fabrik Kalk GmbH. Process for bromomethylating aromatic hydrocarbons. 3,833,666, Cl. 260-612.00r.
- Jered Products, Inc.: *See—*
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- Jobes, Forrest C., Jr.; and Hickok, Robert L., Jr., to Mobil Oil Corporation. Systems for measuring the properties of plasma with an ion probe. 3,833,851, Cl. 374-71.0eb.
- Johnson, J. Arthur: *See—*
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- Johnson, Jack, to Hunt & Moscrop Limited. Textile fabric or paper shrinking machines. 3,832,758, Cl. 26-18.600.
- Johnson, John G., to GTE Automatic Electric Laboratories, Incorporated. Telephone system trouble recorder. 3,833,773, Cl. 179-175.20r.
- Johnson, Leighton Clifford, to Miles Laboratories, Inc. Automatic coverslipper apparatus. 3,833,449, Cl. 156-556.000.
- Johnson, S. C., & Son, Inc.: *See—*
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- Johnson, Theodore K.; and Sataloff, Joseph, to Marion Health and Safety, Inc. Method of making an aural hearing protecting device. 3,833,701, Cl. 264-129.000.
- Johnson, Vern Harry; and Harms, Robert George. All-craft level. 3,832,782, Cl. 33-88.000.
- Johnson, Wendell C.; Gomez, Nicolas G.; and Foret, Claude H., to Xerox Corporation. Apparatus for assembling a plated wire memory plane. 3,832,766, Cl. 29-203.0mm.
- Johnston, Roy C.; and Sullivan, Lawrence B., to Texas Instruments Incorporated. Method of producing a matched parameter acceleration cancelling hydrophone. 3,832,762, Cl. 29-25.350.
- Johnston, William W. Environmental module. 3,832,810, Cl. 52-67.000.
- Jones, Graham P.; and Mahn, Frederick R., to Drew Chemical Corporation. Determination of water content of liquid mixtures. 3,833,340, Cl. 23-230.0hc.
- Jones, Harry M.; Grinstead, Dale T.; and Fickes, Jack O., to Timken Company, The. Bearing assembly with vent means in the bearing thereof. 3,833,277, Cl. 308-180.000.
- Jones, James V.: *See—*
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- Joos, Pierre Emmanuel, to Continental Linoleum Uion Bertiebs AG. Structured sysnthetic web material and method for the production thereof. 3,833,703, Cl. 264-167.000.
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  - Jahnke, Earl Milton, 3,832,860.
  - Jahnke, Earl Milton; and Petres, Stephen Anthony, 3,832,861.
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- Just, George E.; and Simonovitch, Chaim, said Simonovitch assor. to said Just, George E. Intermediates for producing prostaglandins. 3,833,656, Cl. 260-586.00r.
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- Kahler, Charles; and Kimes, Lucas James, to Boeing Company, The. Thrust control apparatus for pod mounted engine. 3,833,187, Cl. 244-12.00d.
- Kai, Fumio: *See—*
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- Kaiser Industries, Inc.: *See—*
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- Kakei, Jun; and Yamaguchi, Hirotsugu, to Nissan Motor Company. Defroster. 3,832,939, Cl. 98-2.090.
- Kalle Aktiengesellschaft: *See—*
  - Beissel, Dieter; Dinter, Peter; and Andra, Klaus, 3,832,973.
- Kalnberz, Viktor Konstnatinovich. Endoprosthesis for the penis and a method of endoprosthetic repair. 3,832,996, Cl. 128-79.000.
- Kalz, Dietmar; and Wolfrum, Gerhard, to Bayer Aktiengesellschaft. Perinone dyestuffs. 3,833,583, Cl. 260-256.40q.
- Kamakura, Masahi: *See—*
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- Kaminow, Ivan Paul; and Weber, Heinz Paul, to Bell Telephone Laboratories, Incorporated. Coupling arrangements for dielectric and metal-clad optical waveguides. 3,833,284, Cl. 350-96.0wg.
- Kamiya, Takeshi: *See—*
  - Kashiwa, Yoshikazu; Takagi, Kunio; Kezuka, Seiju; Kuroda, Rikio; Hirayama, Toshiharu; Kamiya, Takeshi; and Ono, Masayuki, 3,833,440.
- Kammlott, Guenther Wilhelm; and Sinclair, William Robert, to Bell Telephone Laboratories, Incorporated. Pattern delineation method and product so produced. 3,833,396, Cl. 117-8.500.
- Kamp, Heinz: *See—*
  - Derich, Josef; Kamp, Heinz; and Frehn, Gunter, 3,832,868.
- Kandathil, Thomas V.; and Johnson, S. C., & Son, Inc. Fabric-stiffening composition and process. 3,833,393, Cl. 106-212.000.
- Kane, Jacqueline C., to Stauffer Chemical Company. Method of manufacturing synthetic cryolite. 3,833,713, Cl. 423-465.000.
- Kaneko, Toshiaki: *See—*
  - Tatsuke, Shogo; Yanagisawa, Osamu; and Kaneko, Toshiaki, 3,833,345.
- Kaneko, Tutomu; Turumi, Takashi; Emori, Shuichi; and Ito, Ken, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for the manufacture of a non-woven web of continuous filaments through the wet stretch spinning method. 3,833,438, Cl. 156-167.000.
- Kanesaki, Akio: *See—*
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- Kanjanavanit, Rachot. Method and apparatus for spread-foot piles. 3,832,859, Cl. 61-53.600.
- Kanner, Bernard: *See—*
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- Kapilow, Marvin. Disposable ball point pen with eraser. 3,833,307, Cl. 401-195.000.
- Kapitan, John R. Data mailing set. 3,833,167, Cl. 229-69.000.

Kappl, Gerhard; and Dehlink, Alous F., to Reichart, C., Optische Werke AG. Microscope transmitting light illumination system using the kokler system. 3,833,282, Cl. 350-87.000.

Karadavidoff, Isaac; and Morear, Michele, to Fuveau S.A. Substituted 1-carboxamidine-pyrazoles and their acid addition salts. 3,833,605, Cl. 260-310.00r.

Karbstein, Bernhard; and Scheppers, Gerd, to Chemische Werke Huls Aktiengesellschaft. Process for the partial deacylation of poly(N-acyl-alkylenimines). 3,833,521, Cl. 260-2.0en.

Kashiwa, Yoshikazu; Takagi, Kunio; Kezuka, Seiju; Kuroda, Rikio; Hirayama, Toshiharu; Kamiya, Takeshi; and Ono, Masayuki, to Nisseki Plastic Chemical Co., Ltd., The and Kabushiki Kaisha Tomoku. Method of making hollow planar board of synthetic resin materil. 3,833,440, Cl. 156-244.000.

Kashuba, Vladimir Pavlovich; Mikhailov, Nikolai Pavlovich; Fridman, Lev Petrovich; and Rattenberg, Vadim Nikolaevich. Installation for the continuous casting of non-ferrous metals in a protective gas atmosphere. 3,833,050, Cl. 164-281.000.

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Kato, Fumio: *See—*
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Kato, Tadashi; Fujita, Michitaka; Kamakura, Masahi; Mizuta, Yutaka; Koyanagi, Hiroki; and Mizoguchi, Takuo, to Sumitomo Metal Industries, Limited. Process and device for cooling hot-rolled wire rods. 3,832,788, Cl. 34-13.000.

Katz, Daniel; and Syben, Peter H., to United States of America, Army. Ammunition round with non-rigid attachment of projectile to cartridge case. 3,832,951, Cl. 102-38.000.

Katz, Morris H.; and Durst, Jack R., to Pillsbury Company, The. Bakery products containing heat stable food fillings. 3,833,741, Cl. 426-94.000.

Kaufmann, Edward A. Locking bicycle securing device. 3,832,871, Cl. 70-227.000.

Kawabata, Shigeo: *See—*
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Keegan, James J.: *See—*
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Keim, Gerald I., to Hercules Incorporated. Reaction products of eiphalohydrin and polymers of diallylamine and salts therof and their use in paper. 3,833,531, Cl. 260-29.6cm.

Kelen, Tibor: *See—*
Balint, Gabriella, nee Berczi; Csonka, Lajos; Galambos, Gyorgy; Gomory, Pal; Kelen, Tibor; Nagy, Ferenc; Szerencz, Janos; and Tudos, Ferenc, 3,833,631.

Kelling, Leroy U. C., to General Electric Company. Anti-backlash servomotor drive system. 3,833,847, Cl. 318-630.000.

Kelly, Richard A.: *See—*
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Kelly, Richard B.: *See—*
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Kemper, James M., to Monogram Industries, Inc. Variable volume pump. 3,833,316, Cl. 417-307.000.

Kennard, Ronald Lester: *See—*
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Kennedy, Carl D. Production of macrocyclic compounds. 3,833,491, Cl. 204-158.00s.

Kerber, Hans: *See—*
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Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung: *See—*
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Kerns, Gary Paul; and McElroy, Raymond L., to Standard Hydraulics, Service of Charleston, Inc. Seal apparatus for oil driven gear motor. 3,833,226, Cl. 277-3.000.

Kerst, Al F., to Monsanto Company. Ethane diphosphonic acid esters. 3,833,690, Cl. 260-932.000.

Kessler, Kenneth Quentin: *See—*
Menzel, Alvin Lewis; Hiseler, Stanley Robert; Kessler, Kenneth Quentin; and Nelson, Edward George, 3,833,034.

Kessler, Lawrence P., to Eastman Kodak Company. Automatic searching film reader. 3,833,294, Cl. 353-27.000.

Keys, Melvin H.; and Semersky, Frank E., to Owens-Illinois, Inc. Polysaccharide cyclic carbamate containing compounds. 3,833,555, Cl. 260-209.00r.

Kezuka, Seiju: *See—*
Kashiwa, Yoshikazu; Takagi, Kunio; Kezuka, Seiju; Kuroda, Rikio; Hirayama, Toshiharu; Kamiya, Takeshi; and Ono, Masayuki, 3,833,440.

Khalil, Seyed. Microscopic symbols gauging system for type bar alignment. 3,833,106, Cl. 197-1.00r.

Kidde, Walter, & Company, Inc.: *See—*
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Kiehs, Karl: *See—*
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Kiernan, Henry E., to Hydro-Stack Mfg. Corp. Hydraulic actuator. 3,832,851, Cl. 60-563.000.

Kiess, Raymond W.; and Stewart, Peter H. Digital direct reading colorimeter. 3,833,864, Cl. 331-94.500.

Kihara, Nobutoshi, to Sony Corporation. Magnetic recording and/or reproducing apparatus with cassette locking to prevent accidental removal. 3,833,921, Cl. 360-85.000.

Kikuchi, Akira; and Agatsuma, Takashi, to Hitachi, Ltd. Method of forming multi-layer interconnections. 3,833,434, Cl. 156-8.000.

Kikuchi, Masao: *See—*
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Kimes, Lucas James: *See—*
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Kinast, Norbert, to Daimler-Benz Aktiengesellschaft. Device for electrically connecting the ends of electrical conductors. 3,833,878, Cl. 339-208.000.

Kinetics International Corporation: *See—*
Hurst, Gerald L., 3,832,950.

King, Donald L.: *See—*
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Kirby, Raymond L., Jr., to Monarch Marking Systems, Inc. Printing apparatus. 3,832,943, Cl. 101-103.000.

Kirk, Donald, Jr.; and Paolini, Michael J., to Computer Television Inc. Electronic bilateral communication system for commecial and supplementary video and digital signaling. 3,833,757, Cl. 178-5.600.

Kirley, Joseph F. Positive identification credit or ID card and apparatus. 3,833,929, Cl. 340-149.00a.

Kirsch Company: *See—*
Hoare, John J., 3,833,038.

Kirsch, Ivan H.: *See—*
Gordon, Bernard M.; Neumann, Leopold; and Kirsch, Ivan H., 3,833,903.

Kiser, Fred, to Timesavers, Inc. Abrasive belt-type lumber planing machine. 3,832,808, Cl. 51-138.000.

Kiser, Fred W.; and Stinn, Allan J., to Timesavers, Inc. Wide belt sanding machine with improved work feeding means. 3,832,807, Cl. 51-138.000.

Kitahora, Nobuya: *See—*
Abe, Jinnosuke; Watanabe, Tetsuo; Take, Teruo; Fujimoto, Kentaro; Fujii, Tadashiro; Hotta, Yasue; Kobari, Sadami; Ishimura, Fumihiro; Kitahora, Nobuya; and Fukushima, Mituru, 3,833,558.

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Kliemann, Colonel R., to Kleen Test Products, Inc. Mid-stream urine collector. 3,832,738, Cl. 4-110.000.

Kline, Donald D.: *See—*
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Kling, Alfred; and Specht, Viktor, to Benckiser-Knapsack GmbH. Agent for the treatment of cellulosic fiber materials and process. 3,833,517, Cl. 252-545.000.

Klinger, Dieter, to Mayer & Cie Maschinenfabrik. Apparatus for removing inserts from an electrically insulating strip. 3,832,765, Cl. 29-203.00b.

Klint, Russell D.: *See—*
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Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
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Klopper, Friedrich; and Bullmann, Rolf, to Continental Gummi-Werke Aktiengesellschaft. Device for expanding raw pneumatic tires built up in flat form. 3,833,324, Cl. 425-52.000.

Klose, Werner: *See—*
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Kneuer, Rudolf, to Linde Aktiengesellschaft. Electromagnetic valve. 3,833,015, Cl. 137-334.000.

Knobloch, James O., to Standard Oil Company. Preparation of tetrachloroterephthaloyl chloride from chlorination of terephthaloyl chloride or terephtalic acid in a solution of chlorosulfnic acid. 3,833,652, Cl. 260-544.00m.

Knox, Walter R.; Taylor, Keith M.; and Tullman, Gerald M., to Monsanto Company. Ammoxidation of saturated hydrocarbons. 3,833,638, Cl. 260-465.300.

Knunyants, Ivan Ljudvigovich: *See—*
Livshits, Boris Ruvimovich; Dymshits, Tamara Khaimovna; Vinogradova, Sveltlana Vasilievna; and Knunyants, Ivan Ljudvigovich, 3,833,545.

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Kobayashi, Hisashi: *See—*
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Kobayashi, Kenji: *See—*
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Kobayashi, Teruo: *See—*
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Kobori, Toshio; and Ohba, Masaru, to Minolta Camera Kabushiki Kaisha. Exposure control system for a single lens reflex camera. 3,833,912, Cl. 354-24.000.

Koch, Wolfgang: *See—*
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Kochanowski, John E.: *See—*
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Kochert, Wilfried: *See—*
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Kodaira, Nobuhisa; and Kusunose, Mikio. Automatic temperature regulating device for use with apparatuses for heat treatment of synthetic yarn. 3,833,792, Cl. 219-388.000.

Koerner, Siefried; Schbiella, Erwin; Zirnstein, Peter; and Weise, Joachim. Sheet printing and stamping machine. 3,832,944, Cl. 101-232.000.

Kogure, Motoo; Muroi, Yasuji; and Ohta, Hideyasu, to Konishiroku Photo Industry Co., Ltd. Process for subbing photographic polyester films. 3,833,403, Cl. 117-47.00a.

Kohner Bros. Inc.: *See—*
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Koike, Hirotami; Sakurai, Shigekata; and Ueno, Katsuyoshi, to Nihon Denshi Kabushiki Kaisha. Scanning electron milcroscope with improved means for focusing. 3,833,811, Cl. 250-306.000.

Kolb, Karl Heinz: *See—*
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Kogure, Motoo; Muroi, Yasuji; and Ohta, Hideyasu, 3,833,403.
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Murakami, Shinichi; and Hiraishi, Hisashi, 3,833,359.

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Kusaka, Toshihisa, 3,833,361.

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Tariel, Henri; and Guyon, Roger, 3,833,523.

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Cappelletti, Richard R., 3,832,997.

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Lang, Armin, to Zahnradfabrik Friedrichshafen AG. Servo steering device, especially for automobiles. 3,832,849, Cl. 60-386.000.

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Parfitt, Maurice; and Langley, Keith William, 3,833,271.

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Langlois, Roland E.; and Roberson, Cletis L., to Owens-Corning Fiberglas Corporation. Fibrous product and apparatus for and method of producing it. 3,832,840, Cl. 57-140.00j.

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Hanotier-Bridoux, Monique G.S.; and Hanotier, Jacques D.V., 3,833,599.

Laor, Dan: *See—*

- Shoshani, Avraham; Laor, Dan; Benzeev, Dan; Inbar, Dan; and Sabbah, Benjamin Prosper, 3,833,795.
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- Larsen, Glen D., to Southern Railway Company. Open top railway freight car having bulb angle element along top edge of sidewalls. 3,833,135, Cl. 214-64.200.
- Larsen, James V.: *See—*
  - Elban, Wayne L.; and Larsen, James V., 3,833,402.
- Lassmann, Gustav; and Rieger, Peter, to Schwarzer Company. Method for the production of microtome slices and device for the implementation of the method. 3,832,923, Cl. 83-16.000.
- Laurent, Henry; Wiechert, Rudolf; Prezewowsky, Klaus; Hofmeister, Helmut; Gerhards, Erich; Mengel, Klaus; and Kolb, Karl Heinz, to Schering Aktiengesellschaft. Novel pregnanoic acid derivatives. 3,833,563, Cl. 260-239.550.
- Lavallee, Lionel. Diamond drills. 3,833,077, Cl. 175-325.000.
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  - Grolman, Bernard; and Lavallee, Robert G., 3,832,890.
- Lawrence, Elinor W. Lawn cleaning tool. 3,833,250, Cl. 294-50.600.
- Laymon, Marvin D.: *See—*
  - Bell, Robert F.; Dinger, James R.; Laymon, Marvin D.; and Pazemenas, Vytautas V., 3,833,897.
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- Lazarus, Stanley David; and Dementi, Brian Armstead, to Allied Chemical Corporation. Manufacture of thermally stabilized polyehtylene terephthalate. 3,833,542, Cl. 260-45.75c.
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  - Nobel, Fred I.; and Yoen, Lazaro C., 3,833,486.
- Leary, Edward F.; and Krillic, Hobart M., to Nalco Chemical Company. Method for improving the adherence of metalworking coolants to metal surfaces. 3,833,502, Cl. 252-49.500.
- Leaseburge, Gerald G.; and Morgret, Gordon L., to Koppers Company, Inc. Apparatus for accurate die-cutting. 3,832,926, Cl. 83-311.000.
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- Lee, Raymond, Organization, Inc.: *See—*
  - Backwell, James, 3,833,089.
- Lee, Raymond, Organization, Inc., The: *See—*
  - Honas, Norbert W., 3,833,148.
  - Iozzio, Phyllis, 3,833,149.
  - Isdith, Francisco J., 3,833,215.
  - Sackrison, Carl T., 3,833,168.
- Lee, Raymond, Organization, The: *See—*
  - Bartel, Roger P., 3,833,782.
- Lee-Norse Company: *See—*
  - Banerjee, Bani; Black, Sigmund; and Gangal, Mukund, 3,832,930.
- Leeson, James L., to Woodward Govenor Company. Speed governor with fuel rate control. 3,832,846, Cl. 60-39.28r.
- Leifheit International Gunter Leifheit KG: *See—*
  - Schoen, Wolfgang; Friedrich, Rainer; and Liebscher, Johannes, 3,833,127.
- Leinkram, Charles S.; Oaks, William D.; Eisele, John A.; and Faraday, Bruce J., to United States of America, Navy. Solar cell array. 3,833,425, Cl. 136-89.000.
- Leitz, Ernst, G.m.b.H.: *See—*
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  - Stankewitz, Hans-Werner, 3,833,283.
- Leitz, Wilfried, to Van Leer Verpackungen GmbH. Container. 3,833,141, Cl. 215-344.000.
- Lemelson, Jerome H. Container forming and filling apparatus. 3,832,827, Cl. 53-111.00r.
- Lemmon, Norman Frederick, to Deere & Company. Tractor front end construction. 3,833,080, Cl. 180-79.20r.
- Lenin Kohaszati Muvek: *See—*
  - Giflo, Henrik; Enekes, Sandor; Zambo, Pal; Sziklavari, Janos; Farkas, Istvan; Ivan, Geza; Molnar, Jozsef; Vamosi, Jozsef; and Valko, Janos, 3,833,360.
- Leonard, Ronald J., to Baxter Laboratories, Inc. Self-valving fluid reservoir and bubble trap. 3,833,013, Cl. 137-171.000.
- Leone, Louis A. Television timer to regulate television viewing time. 3,833,779, Cl. 200-33.00r.
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  - Class, Jean, 3,833,446.
- Levy, Edward F.: *See—*
  - Crotty, James M.; Geary, Daniel C.; Levy, Edward F.; Lopiekes, Dolores V.; Raymond, Robert L.; and Siegal, Bernard, 3,833,720.
- Lew, Hyok Sang. Dual action hinge for folding doors. 3,832,756, Cl. 16-163.000.
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- Lewis, Hector E., to Surgical Appliance Industries, Inc. Disposable measuring and fitting device for surgical garments. 3,832,780, Cl. 33-2.00r.
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  - Haupt, Gerhard; and Kochert, Wilfried, 3,833,883.
  - Louis, Gerhard; and Bohm Harald, 3,833,424.
  - Pohl, Franz Arthur; and Bohm, Harald, 3,833,423.
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- Lietz, Ernst, G.m.b.H.: *See—*
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- Linarducci, Josep S.: *See—*
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- Lindstrom, Roald E.: *See—*
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- Linz, Arthur: *See—*
  - Naiman, Charles S.; Chicklis, E. P.; and Linz, Arthur, 3,833,805.
- Linza Ltd.: *See—*
  - Wicht, Paul; and Volken, Kurt, 3,833,530.
- Lipe-Rollway Corporation: *See—*
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- Lippeck, Franz: *See—*
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- Lippeck, Irmgard: *See—*
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- Liston, Mac D., to Abbott Laboratories. Spectrophotometer using plural filters. 3,833,304, Cl. 356-184.000.
- Little, Arthur D., Inc.: *See—*
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  - Fowler, John T., 3,833,901.
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  - Papanastassiou, Zinon B.; Atkinson, Edward R.; and McRitchie, Donna D., 3,833,592.
- Livingston, William L., to Factory Mutual Research Corporation. System and method for extinguishing fire. 3,833,062, Cl. 169-15.000.
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  - Wickersheim, Kenneth A.; and Buchaman, Robert A., 3,833,862.
- Lodder, Adolf E., to Dominion Bridge Company Limited. Underfloor power supply system for a vehicle. 3,833,775, Cl. 191-12.00r.
- Loeffler, Otto Ernest, to NL Industries, Inc. Preparation of antimony glycoloxide. 3,833,630, Cl. 260-446.000.
- Loev, Bernard: *See—*
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- Lofton, Melvyn Forrest. Device for making yarn pompons and flowers. 3,833,157, Cl. 223-46.000.
- Logan, Ralph Andre; Schwartz, Bertram; Tracy, Joseph Charles, Jr.; and Wiegmann, William, to Bell Telephone Laboratories, Incorporated. Dielectric optical waveguides and technique for fabricating same. 3,833,435, Cl. 156-11.000.
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  - Ambrogi, Vittori; Logemann, Willy; Parenti, Marcantonio; and Tommasini, Raffaele, 3,833,578.
- Logue, George E. Combined load cover and windshield protector for dump truck. 3,833,255, Cl. 296-137.00b.
- Loh, Shiu-Chang. Back-fire loop antenna. 3,833,908, Cl. 343-741.000.
- Longenecker, Levi S. Suspended roof and end wall construction for reverberatory furnace. 3,832,959, Cl. 110-99.00r.

- Longin, Robert: *See—*
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- Loschilin, Evgeny Dmitrievich; Borodin, Valerian Alexeevich; Zabotin, Alexandr Alexandrovich; Onikov, Eduard Arshakovich; and Galperin, Alexandr Lvovich. Beat-up mechanism for looms. 3,833,025, Cl. 139-12.000.
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- Louis, Gerhard; and Bohm Harald, to Licentia Patent-Verwaltungs-G.m.b.H. Gas fuel cell battery having bipolar graphite foam electrodes. 3,833,424, Cl. 136-86.00r.
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- Luchi, Vinicio. Circular knitting machine and articles knitted thereby. 3,832,867, Cl. 66-9.00r.
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  - Ejk, Adam J.; and Ringwood, Robert C., Jr., 3,833,519.
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- MacKenzie, Donald R.; Fajer, Jack; and Smol, Robert, to United States of America, Atomic Energy Commission. Vapor phase substitution fluorination of aromatics with xenon difluoride. 3,833,581, Cl. 260-250.00r.
- MacKenzie, Gerald L.: *See—*
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- Mueller, Floyd F.; and Aulik, Clarence J., to American Hospital Supply Corporation. Clamping mechanism for adjusting stirrup on a medical examination table. 3,833,211, Cl. 269-328.000.
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  - Holliday, Charles Harry; Macewan, William Ritchie; Mullin, John Brian; and Webb, Alan Edward Valender, 3,833,342.
- Multifold International, Inc.: *See—*
  - Stapp, Willis J.; Crowe, Norman P.; and Molitor, Edwin A., 3,832,938.
- Mulvaney, William P.: *See—*
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- Munn, Alfred John, to Kidde, Walter, & Company, Inc. Method and apparatus for generating gaseous mixtures for inflatable devices. 3,833,029, Cl. 141-4.000.
- Munz, Frank G.; and Naidel, Robert W., to Union Carbide Corporation. Shell and tube heat exchanger. 3,833,055, Cl. 165-82.000.

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Murray, Charles Robertson, to Canadian Industries Limited. Valve bag. 3,833,166, Cl. 229-62.500.

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Nagy, Ferenc: *See—*
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Sakazume, Yugoro; Oshima, Akio; Jin, Kunio; Nakano, Masashi; and Uchida, Takashi, 3,833,379.

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Naskar, Sasanka Sekhar; and Renckhoff, Gustav, to Dynamit Nobel Aktiengesellschaft. Process for the production of light-colored, color-stable fatty acids. 3,833,629, Cl. 260-419.000.

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Nelson, Edward George: *See—*
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Nelson, Terry N.: *See—*
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Neumann, Leopold: *See—*
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New Zealand Inventions Development Authority: *See—*
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Newcombe, Jack; and Dotson, Anderson O., Jr., to Cities Service Company. Bromination of unsaturated hydrocarbons in mixed solvents. 3,833,675, Cl. 260-648.00r.

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Nickel, Hubertus: *See—*
Gyarmati, Erno; and Nickel, Hubertus, 3,833,470.

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Nielsen, H., & Son Maskinfabrik A/S: *See—*
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Nilsson, Bjorn Olle. Means for producing a controllable scattering of light. 3,833,288, Cl. 350-188.000.

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Ninumiya, Michikazu: *See—*
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Nippon Kokan Kabushiki Kaisha: *See—*
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NL Industries, Inc.: *See—*
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Nobel, Fred I.; and Yoen, Lazaro C., to Lea-Ronal, Inc. Cyanide-free electroplating. 3,833,486, Cl. 204-44.000.

Nogradi, Mihaly: *See—*
Feuer, Laszlo; Nogradi, Mihaly; Gottsegen, Agnes; Vermes, Borbala; Streliszky, Janos; Wolfner, Andras; Farkas, Lorant; Antus, Sandor; and Toth, Maria Kovacs, 3,833,730.

Noll, Burton A., to Corning Glass Works. Vacuum chuck. 3,833,230, Cl. 279-3.000.

Noonan, John M.; Sutton, Richard C.; and McConkey, Robert C., to Eastman Kodak Company.. Photopolymerizable compositions and elements and uses thereof. 3,833,384, Cl. 96-115.00p.

Norbalt Rubber Corporation: *See—*
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Nordnero AB: *See—*
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Norman, Sivert, to Allmanna Svenska Elektriska Aktiebolaget. Mechanical brake for tap changers. 3,833,096, Cl. 188-85.000.

North American Philips Corporation: *See—*
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Northern Fibre Products Company: *See—*
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Behling, Rolf-Dieter; Oelsner, Manfred Wolfgang; and Zenke, Erich Gunther, 3,833,528.

Ogata, Nobuo. Rubber screen for a vibrating sieve. 3,833,120, Cl. 209-399.000.

Ogino, Tadao: *See—*
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Okabe, Koichi, to Shiba Electric Co., Ltd. Rotary head apparatus with dynamic air bearings having ceramic coatings. 3,833,924, Cl. 360-107.000.

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Ono, Iwao. Flush hosiery hanger. 3,833,159, Cl. 223-85.000.

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Oronzio de Nora Impianti Elettrochimici S.p.A.: *See—*
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Osier, James. Collapsible container. 3,833,113, Cl. 206-4.000.

Osojnak, Boris M. One piece sealing ring. 3,833,114, Cl. 206-53.000.

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Ouchi, Shunji; and Shibuya, Chisei, to Deutsche Gold-und Silber-Scheideanstalt vormals Roessler, mesne. Process for the preparation of Dl-methionine. 3,833,651, Cl. 260-534.00s.

Ovako Oy: *See—*
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Palma, James R. Apparatus for aiding severed nerves to join. 3,833,002, Cl. 128-334.00r.

Palmer, Euple I. Heart simulation 331/117.00r. 3,833,865, Cl. .

Palmer, Leonard; and Flusfeder, Joseph. Machine for manufacturing disc records. 3,833,328, Cl. 425-308.000.

Paolini, Michael J.: *See—*
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Papa, Anthony Joseph; and Proops, William Robert, to Union Carbide Corporation. Halo-aryl amide-ester polyols. 3,833,641, Cl. 260-471.00r.

Papa, Anthony Joseph; and Proops, William Robert, to Union Carbide Corporation. Cycloaliphatic polyols. 3,833,665, Cl. 260-611.00r.

Papanastassiou, Zinon B.; Atkinson, Edward R.; and McRitchie, Donna D., to Little, Arthur D., Inc. Tropanyl a,a-diphenyl-a-fluoroacetate esters. 3,833,592, Cl. 260-292.000.

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Parks-Cramer Company: *See—*
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Pedi, Mario J. Slicer having automatic materials feed. 3,832,929, Cl. 83-714.000.
Pelin, Charles. Dashboard-mounted automatic route information desplay device. 3,832,909, Cl. 74-12.000.
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  Peterson, Lawrence W.; Gallo, Thomas J.; Peterson, Kenneth L.; and Garofalo, Donald L., 3,833,326.
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  Brugerolle, Jean-Renaud; and Petit, Pierre, 3,833,477.
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  McManus, James M., 3,833,591.
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  Farfaglia, Silvio T., 3,833,155.
  Gall, James W., 3,833,061.
  Gardner, Lloyd E.; and Mahan, John E., 3,833,679.
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  Pitzer, Hans-Joachim; and Pietsch, Wolfgang B., 3,833,327.
Pike, John E., to Upjohn Company, The. Prostaglandin E[1D, F[1D, and A[1D analogs. 3,833,640, Cl. 260-468.00d.
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  Pedersen, Dennis C.; and Sautier, Philip M., 3,833,739.
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Powell, Charles W. Simulated stained glass in concrete art assembly. 3,833,450, Cl. 161-5.000.
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Ramsey, John C. Balanced Flow extrusion head. 3,833,325, Cl. 425-113.000.
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Robson, John, to Australian Atomic Energy Commission. Process for the production of technetium-99m from neutron irradiated molybdenum trioxide. 3,833,469, Cl. 176-16.000.

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Rolfe, Ormond E., to Owens-Illinois, Inc. Method of decolorizing paper mill effluent liquid. 3,833,464, Cl. 162-29.000.

Rolles, Rolf, to Aluminum Company of America. Precoating of aluminum can sheet. 3,832,962, Cl. 113-120.00a.

Rooney, Clarence Stanley; and Gleason, Clarence Henry, to Merck Sharp & Dohme (I.A.) Corporation. Indole-3-methanesulfonamides. 3,833,608, Cl. 260-326.12r.

Rose, Clark B.; Kelly, Richard B.; and Ravitts, Richard B., to Richards of Rockford, Inc. Apparatus and process for spraying liquids. 3,833,173, Cl. 239-11.000.

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Ross, Gerald F., to Sperry Rand Corporation. Apparatus and method for measuring the level of a contained liquid. 3,832,900, Cl. 73-290.00r.

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- Stout, Roger D., to Paramount Southern Co. Hosiery bander. 3,832,829, Cl. 53-198.00r.
- Strandh, Holger, to Saab-Scania Aktiebolag. Joystick-type control with strain sensors. 3,832,895, Cl. 73-133.00r.
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- Talan, Maryan. Device for fastening objects to walls or other supports. 3,832,931, Cl. 85-83.000.
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  - Turbak, Albin F.; O'Brien, Merrill N.; and Goodenow, William H., 3,833,022.
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Allegheny Ludlum Steel Corp.: *See—*
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Briggs & Stratton Corp.: *See—*
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Cutlers Machine Co., Inc.: *See—*
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Goron, John, by Midland-Ross Corp. Injection molding nozzle with flow-control mechanism. Re. 28,144, 9-3-74, Cl. 425—191.
Harbaugh, Samuel S., J. J. Kasecky, and J. B. Murtland, Jr., to Allegheny Ludlum Steel Corp. Rolling mill control system. Re. 28,149, 9-3-74, Cl. 72—8.
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Hoffman, Eldon P., to Tektronix, Inc. Electrical terminal housing having hinge and adjacent lock projection. Re. 28,147, 9-3-74, Cl. 339—59.
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Murtland, Jomes B., Jr.: *See—*
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Sarka, Albert J., to Harris-Intertype Corp. Cutting and scoring dies. Re. 28,143, 9-3-74, Cl. 93—58.
Tektronix, Inc.: *See—*
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Ball, Geo. J., Inc.: *See—*
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Carrier, Leonard E., W. H. Jessel, Jr., and W. E. Duffett; said Jessel and said Duffett assignors to said Carrier. Chrysanthemum plant. 3,604, 9-3-74, Cl. 74.
Duffett, William E.: *See—*
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Jessel, Walter H., Jr., and Duffett. 3,605.
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Frampton's Nurseries Ltd.: *See—*
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Jessel, Walter H., Jr.: *See—*
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Jessel, Walter H., Jr., and W. E. Duffett, to Yoder Brothers, Inc. Chrysanthemum plant. 3,605, 9-3-74, Cl. 77.
Lee, Sing Ling. Carysanthemum plant. 3,608, 9-3-74, Cl. 78.
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Shoesmith, Leonard H., to Pan-American Plant Co. Chrysanthemum (red bonanza). 3,609, 9-3-74, Cl. 82.
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Aulenti, Gae. Table lamp. 232,655, 9-3-74, Cl. D48—20.
Aulenti, Gae. Lamp. 232,656, 9-3-74, Cl. D48—20.
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Bishop, Samuel A. Showcase for transparencies or similar articles. 232,609, 9-3-74, Cl. D6—171.
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Brown, Russell M. Detachable handle for a beverage can or the like. 232,614, 9-3-74, Cl. D7—70.
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Darrow, Viola (Nmi). Cosmetic vanity. 232,608, 9-3-74, Cl. 6—160.
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Dillen, Warren A., to H. J. Scheirich Co. Cabinet door. 232,611, 9-3-74, Cl. D6—192.
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Foltz, Carl L., to Concept, Inc. Powered kirschner wire drill. 232,620, 9-3-74, Cl. D8—68.
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Goldsmith, Howard G., to Todd Enterprises, Inc. Portable toilet. 232,637, 9-3-74, Cl. D23—48.
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Greubel, Jurgen, to Braun Aktiengesellschaft. Comb. 232,665, 9-3-74, Cl. D86—8.
Hart, Gary J.: *See—*
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    Rich, Norman I, and M. D. 232,601.
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Shiflet, Frank L., to Hopeman Brothers, Inc. Storage cart. 232,625, 9-3-74, Cl. D12—25.
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Stubbmann, Albert, to Kohner Bros., Inc. Checkerboard. 232,646, 9-3-74, Cl. D34—5.
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    Siroonian, John, and Scott. 232,630.
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	3,833,370
27R	3,833,371
29R	3,833,372
35	3,833,373
36	3,833,374
36.2	3,833,375
55	3,833,376
66.2	3,833,377
66.3	3,833,378
66.4	3,833,379
74	3,833,380
76C	3,833,381
	3,833,382
84R	3,833,383
115P	3,833,384
CLASS 98	
2.09	3,832,939
110	3,832,940
CLASS 100	
137	3,832,941
CLASS 101	
93C	3,832,942
	3,832,946
103	3,832,943
232	3,832,944
327	3,832,947
401.1	3,832,948
CLASS 102	
1R	3,832,949
24R	3,832,950
38	3,832,951
CLASS 104	
7B	3,832,952
154	3,832,945
162	3,832,953
CLASS 105	
199C	3,832,954
CLASS 106	
38.9	3,833,385
41	3,833,386
49	3,833,387
52	3,833,388
55	3,833,389
58	3,833,390
	3,833,391
193	3,833,392
212	3,833,393
293	3,833,394
CLASS 108	
51	3,832,955
55	3,832,956
64	3,832,957
CLASS 109	
1R	3,832,958
CLASS 110	
99R	3,832,959
CLASS 112	
219R	3,832,960
220	3,832,961
CLASS 113	
1B	3,832,964
120A	3,832,962
121C	3,832,963
CLASS 114	
.5T	3,833,035
16R	3,832,965
74R	3,832,966
144R	3,832,967
CLASS 116	
28R	3,832,968
114R	3,832,969
117R	3,832,970
124.1	3,832,971
CLASS 117	
1	3,833,395
8.5	3,833,396
33.5L	3,833,398
	3,833,399
33.5T	3,833,397
36.2	3,833,400
38	3,833,401
46CA	3,833,402
47A	3,833,403
63	3,833,404
76F	3,833,405
97	3,833,406
212	3,833,407
217	3,833,408
218	3,833,409
227	3,833,410
232	3,833,411
240	3,833,412
CLASS 118	
2	3,832,972
50	3,832,973
408	3,832,974
637	3,832,975
CLASS 119	
27	3,832,976
52R	3,832,977
CLASS 122	
6A	3,832,978
	3,832,979
CLASS 123	
8.01	3,832,980
32EA	3,832,981
41.15	3,832,982
75B	3,832,983
122AB	3,832,984
141	3,832,985
148E	3,832,987
148R	3,832,986
CLASS 126	
21R	3,832,988
25R	3,832,989
41R	3,832,990
91A	3,832,991
270	3,832,992
CLASS 127	
29	3,833,413
CLASS 128	
2R	3,832,993
2.06A	3,832,994
24.1	3,832,995
79	3,832,996
85	3,832,997
214E	3,832,998
275	3,832,999
276	3,833,000
277	3,833,001
334R	3,833,002
347	3,833,003
349B	3,833,004
419P	3,833,005
CLASS 130	
27HF	3,833,006
CLASS 132	
53	3,833,007
85	3,833,008
91	3,833,009
CLASS 134	
3	3,833,414
6	3,833,415
7	3,833,416
22C	3,833,417
24	3,833,010
42	3,833,418
	3,833,419
CLASS 135	
5AT	3,833,011
15PQ	3,833,012
CLASS 136	
6LF	3,833,421
6R	3,833,420
20	3,833,422
86D	3,833,423
86R	3,833,424
89	3,833,425
	3,833,426
111	3,833,427
202	3,833,428
CLASS 137	
171	3,833,013
251	3,833,014
334	3,833,015
340	3,833,016
625.47	3,833,018
625.62	3,833,017
CLASS 138	
45	3,833,019
94	3,833,020
118.1	3,833,021
	3,833,022
148	3,833,023
CLASS 139	
2	3,833,024
12	3,833,025
71	3,833,027
122R	3,833,028
370	3,833,026
CLASS 141	
4	3,833,029
26	3,833,030
84	3,833,031
232	3,833,032
CLASS 144	
3D	3,833,034
3R	3,833,033
144A	3,833,036
CLASS 145	
29R	3,833,037
46	3,833,038
CLASS 148	
1.5	3,833,429
31.5	3,833,430
113	3,833,431
CLASS 149	
19.3	3,833,432
CLASS 152	
241	3,833,039
330	3,833,040
347	3,833,041
353	3,833,042
357A	3,833,043

CLASS 156	
3	3,833,433
8	3,833,434
11	3,833,435
13	3,833,436
55	3,833,443
130	3,833,437
167	3,833,438
219	3,833,439
234	3,833,441
244	3,833,440
331	3,833,442
400	3,833,444
401	3,833,445
499	3,833,446
505	3,833,447
541	3,833,448
556	3,833,449
CLASS 159	
8	3,833,044
CLASS 160	
133	3,833,045
327	3,833,046
CLASS 161	
5	3,833,450
45	3,833,451
112	3,833,452
151	3,833,453
159	3,833,454
164	3,833,455
167	3,833,456
170	3,833,457
216	3,833,458
CLASS 162	
5	3,833,460
19	3,833,461
29	3,833,462
	3,833,463
	3,833,464
129	3,833,465
142	3,833,466
155	3,833,459
181D	3,833,467
264	3,833,468
CLASS 164	
66	3,833,047
131	3,833,049
155	3,833,048
281	3,833,050
CLASS 165	
1	3,833,051
20	3,833,052
60	3,833,053
67	3,833,054
82	3,833,055
107	3,833,056
123	3,833,057
161	3,833,058
CLASS 166	
57	3,833,059
68	3,833,060
294	3,833,061
CLASS 169	
15	3,833,062
28	3,833,063
52	3,833,064
CLASS 171	
28	3,833,065
CLASS 172	
131	3,833,066
566	3,833,067
CLASS 173	
120	3,833,069
164	3,833,070
169	3,833,068
CLASS 174	
52S	3,833,753
65SS	3,833,754
117F	3,833,755
CLASS 175	
20	3,833,075
38	3,833,076
57	3,833,071
85	3,833,072
87	3,833,074
173	3,833,073
325	3,833,077
CLASS 176	
16	3,833,469
68	3,833,470
78	3,833,471
CLASS 178	
5.4R	3,833,756
5.6	3,833,757
6.8	3,833,758
	3,833,759
	3,833,760
7.1	3,833,761
	3,833,762
7.2	3,833,763
7.5D	3,833,764
79	3,833,765
CLASS 179	
1HF	3,833,766
15.55R	3,833,767
42	3,833,768
100.3V	3,833,769
111E	3,833,770
115.5PV	3,833,771
170NC	3,833,772
175.2R	3,833,773
CLASS 180	
42	3,833,078
44F	3,833,079
79.2R	3,833,080
79.2	3,833,081
99	3,833,082
	3,833,083
104	3,833,084
113	Re 28,142
CLASS 181	
32R	3,833,085
33A	3,833,086
120	3,833,087
CLASS 182	
48	3,833,088
91	3,833,089
92	3,833,090
CLASS 187	
8.49	3,833,091
12	3,833,092
CLASS 188	
1A	3,833,094
1C	3,833,093
71.9	3,833,095
85	3,833,096
181A	3,833,097
CLASS 190	
11	3,833,098
CLASS 191	
12R	3,833,774
	3,833,775
57	3,833,776
CLASS 192	
13R	3,833,099
85	3,833,100
105CF	3,833,101
111A	3,833,102
	3,833,103
CLASS 194	
1B	3,833,104
CLASS 195	
3	3,833,472
29	3,833,473
65	3,833,474
80R	3,833,475
96	3,833,476
109	3,833,477
CLASS 197	
1R	3,833,105
	3,833,106
18	3,833,107
151	3,833,108
175	3,833,109
CLASS 198	
34	3,833,110
255	3,833,111
283	3,833,112
CLASS 200	
31A	3,833,777
33R	3,833,778
	3,833,779
50AA	3,833,780
61.58B	3,833,781
86.5	3,833,782
153L	3,833,783
157	3,833,784
CLASS 202	
151	3,833,478
235	3,833,479
CLASS 203	
88	3,833,480
CLASS 204	
3	3,833,481
11	3,833,482
29	3,833,484
38E	3,833,483
43R	3,833,485
44	3,833,486
46G	3,833,487
	3,833,488
59QM	3,833,489
78	3,833,490
158S	3,833,491
176	3,833,492
180R	3,833,493
181	3,833,494
195F	3,833,495
279	3,833,497
CLASS 206	
4	3,833,113
53	3,833,114
306	3,833,115
431	3,833,116
CLASS 208	
111	3,833,499
307	3,833,498
CLASS 209	
3	3,833,117
28	3,833,118
99	3,833,119
399	3,833,120
CLASS 210	
91	3,833,121
207	3,833,122
241	3,833,123
460	3,833,124
477	3,833,125
531	3,833,126
CLASS 211	
86	3,833,127
131	3,833,128
CLASS 212	
14	3,833,129
39R	3,833,130
CLASS 213	
158	3,833,131
CLASS 214	
6G	3,833,132
16.4C	3,833,133
17D	3,833,134
	3,833,137
64.2	3,833,135
131A	3,833,136
334	3,833,138
518	3,833,139
658	3,833,140
CLASS 215	
344	3,833,141
351	3,833,142
CLASS 219	
69G	3,833,785
121L	3,833,786
121P	3,833,787
124	3,833,788
216	3,833,789
	3,833,790
381	3,833,791
388	3,833,792
464	3,833,793
502	3,833,794
CLASS 220	
64	3,833,145
267	3,833,144
345	3,833,143
CLASS 221	
66	3,833,146
202	3,833,147
250	3,833,148
CLASS 222	
70	3,833,149
109	3,833,150
193	3,833,151
	3,833,152
	3,833,153
212	3,833,154
275	3,833,155
383	3,833,156
CLASS 223	
46	3,833,157
68	3,833,158
85	3,833,159
CLASS 224	
42.1F	3,833,160
CLASS 226	
92	3,833,161
184	3,833,162
CLASS 228	
1	3,833,163
CLASS 229	
37R	3,833,164
	3,833,165
62.5	3,833,166
69	3,833,167
CLASS 232	
39	3,833,168
CLASS 234	
110	3,833,169
CLASS 235	
61.7R	3,833,795
151.3	3,833,796
	3,833,797
153AE	3,833,798
CLASS 236	
9R	3,833,170
102	3,833,171
CLASS 238	
10R	3,833,172
CLASS 239	
11	3,833,173
15	3,833,174
160	3,833,175
201	3,833,177
542	3,833,176
CLASS 240	
6.41	3,833,799
7.5	3,833,800
11.4R	3,833,801
41.3	3,833,802
44.2	3,833,803
125	3,833,804
CLASS 241	
3	3,833,178
CLASS 242	
46.4	3,833,179
55.2	3,833,180
68.3	3,833,181
118.1	3,833,182
127	3,833,183
158R	3,833,184
199	3,833,185
201	3,833,186
CLASS 244	
12D	3,833,187
17.19	3,833,188
77K	3,833,189
83A	3,833,190
122A	3,833,191
139	3,833,192
CLASS 248	
2	3,833,193
54CS	3,833,194
125	3,833,195
206R	3,833,196
441	3,833,197
476	3,833,198
CLASS 249	
33	3,833,199
CLASS 250	
199	3,833,805
201	3,833,806
234	3,833,807
236	3,833,808
270	3,833,809
273	3,833,810
306	3,833,811
330	3,833,812
446	3,833,813
492	3,833,814
496	3,833,815
561	3,833,816
CLASS 251	
35	3,833,200
CLASS 252	
18	3,833,500
33.4	3,833,501
33.6	3,833,496
49.5	3,833,502
63.7	3,833,503
70	3,833,504
78	3,833,505
99	3,833,506
171	3,833,507
189	3,833,508
300	3,833,511
301.1R	3,833,509
301.2W	3,833,510
356	3,833,512
389R	3,833,513
422	3,833,514
429B	3,833,515
441	3,833,516
545	3,833,517
CLASS 256	
35	3,833,201
CLASS 259	
4	3,833,202
29	3,833,203
191	3,833,204
CLASS 260	
2EN	3,833,521
2A	3,833,522
2.5AC	3,833,525
2.5AP	3,833,526
2.5L	3,833,524
2.5R	3,833,523
9	3,833,527
17R	3,833,518
23XA	3,833,519
	3,833,520
28.5AS	3,833,528
29.2M	3,833,533
29.2N	3,833,529
29.6CM	3,833,531
29.6S	3,833,530
29.7SQ	3,833,532
37N	3,833,534
40P	3,833,536
40R	3,833,535
42.53	3,833,541
45.75C	3,833,542
45.75K	3,833,543
45.8A	3,833,537
45.8N	3,833,636
45.9R	3,833,538
	3,833,539
	3,833,540
47CB	3,833,544
	3,833,545
47CP	3,833,546
78R	3,833,547
	3,833,548
80.7	3,833,549
80.75	3,833,550
88.2	3,833,551
112R	3,833,552
112.5	3,833,553
	3,833,554
209R	3,833,555
210AB	3,833,556
239BA	3,833,562
239B	3,833,559
239E	3,833,557
239.1	3,833,558
	3,833,561
239.3A	3,833,560
239.55D	3,833,563
240R	3,833,564
240.1	3,833,566
243A	3,833,567
	3,833,573
243C	3,833,568
	3,833,570
	3,833,572
243R	3,833,569
	3,833,574
	3,833,575
244R	3,833,576
244	3,833,577
247.2A	3,833,580
250P	3,833,579
250R	3,833,578
	3,833,581
251R	3,833,586
256.4F	3,833,582
	3,833,588
256.4Q	3,833,583
	3,833,584
	3,833,587
268N	3,833,589
270R	3,833,590
270	3,833,565
285.5	3,833,585
288R	3,833,591
292	3,833,592
293.54	3,833,595
293.6	3,833,594
293.61	3,833,596
293.77	3,833,593
293.85	3,833,600
295F	3,833,598
295Q	3,833,597
295R	3,833,599
302R	3,833,601
308B	3,833,602
309	3,833,603
	3,833,604
310C	3,833,606
310R	3,833,605
326.12R	3,833,608
326.26	3,833,609
326.5FL	3,833,607
327TH	3,833,610
333	3,833,611
340.9	3,833,612
343	3,833,613
343.2R	3,833,614
	3,833,615
345.3	3,833,616
	3,833,617
346.3	3,833,618
346.8	3,833,619
397.1	3,833,620
397.2	3,833,622
397.4	3,833,621
402.5	3,833,623
404.5	3,833,624
408	3,833,625
	3,833,626
410.6	3,833,627
412	3,833,628
419	3,833,629
446	3,833,630
448R	3,833,631
448.2B	3,833,632
	3,833,633
449R	3,833,634
455R	3,833,635
465K	3,833,637
465.3	3,833,638
465.9	3,833,639
468D	3,833,640
471R	3,833,641
473R	3,833,642
475PN	3,833,643
488R	3,833,644
502.4R	3,833,645
515P	3,833,646
	3,833,647
520	3,833,648
530N	3,833,649
531C	3,833,650
534S	3,833,651
544M	3,833,652
563P	3,833,653
566A	3,833,654
570.9	3,833,655
586M	3,833,657
586R	3,833,656
[illegible]	3,833,726
591	3,833,658
[illegible]	[illegible]
599	[illegible]
606.5P	[illegible]
	3,833,662
610B	3,833,663
610R	3,833,664
611R	3,833,665
612R	3,833,666
613D	3,833,668
615B	3,833,669
618C	3,833,667
618D	3,833,670
619A	3,833,672
619D	3,833,671
621R	3,833,673
648R	3,833,675
649DP	3,833,674
653.7	3,833,676
668R	3,833,677
683.15B	3,833,678
683.68	3,833,679
735	3,833,680
824R	3,833,681
836	3,833,682
	3,833,683
857UN	3,833,684
860	3,833,685
876R	3,833,686
	3,833,687
	3,833,688
897B	3,833,689
932	3,833,690
951	3,833,691
CLASS 261	
133	3,833,205
CLASS 264	
24	3,833,692
40	3,833,693
47	3,833,695
51	3,833,694
	3,833,696
60	3,833,697
91	3,833,698
94	3,833,699
96	3,833,700
129	3,833,701
161	3,833,702
167	3,833,703
171	3,833,704
178F	3,833,705
228	3,833,706
285	3,833,707
344	3,833,708
CLASS 266	
1R	3,833,206
2R	3,833,207
3R	3,833,208
34L	3,833,209
CLASS 269	
276	3,833,210
328	3,833,211
CLASS 270	
31	Re.28,148
58	3,833,212
CLASS 271	
254	3,833,213
270	3,833,214
CLASS 272	
60R	3,833,215
73	3,833,216
CLASS 273	
26B	3,833,217
73J	3,833,218
75	3,833,219
94R	3,833,220
134C	3,833,221
156	3,833,222
194R	3,833,223
CLASS 274	
9A	3,833,225
CLASS 277	
3	3,833,226
176	3,833,227
205	3,833,228
CLASS 279	
1J	3,833,229
3	3,833,230
116	3,833,231
123	3,833,232

CLASS 280	
12.14	3,833,233
16	3,833,234
94	3,833,235
104.5B	3,833,236
125	3,833,237
150SB	3,833,238
	3,833,239
166	3,833,240
179A	3,833,241
281	3,833,242
477	3,833,243
CLASS 281	
21R	3,833,244
CLASS 285	
226	3,833,245
247	3,833,246
414	3,833,247
CLASS 293	
86	3,833,248
CLASS 294	
1R	3,833,249
50.6	3,833,250
64R	3,833,251
110A	3,833,252
CLASS 296	
23MC	3,833,253
137B	3,833,255
137R	3,833,254
CLASS 297	
44	3,833,256
252	3,833,258
284	3,833,257
452	3,833,259
	3,833,260
CLASS 298	
1A	3,833,261
2	3,833,262
5	3,833,263
CLASS 299	
86	3,833,264
	3,833,265
CLASS 301	
37AT	3,833,266
CLASS 302	
64	3,833,267
CLASS 303	
21BE	3,833,268
	3,833,270
21A	3,833,271
21F	3,833,269
52	3,833,272
CLASS 307	
66	3,833,817
141	3,833,818
141.8	3,833,819
146	3,833,820
150	3,833,821
225C	3,833,822
235	3,833,823
291	3,833,824
CLASS 308	
36.1	3,833,273
143	3,833,274
156	3,833,275
180	3,833,277
187	3,833,276
190	3,833,278
CLASS 310	
9.5	3,833,825
52	3,833,826
CLASS 312	
257SK	3,833,279
319	3,833,280
CLASS 313	
111	3,833,828
360	3,833,829
369	3,833,830
486	3,833,827
CLASS 315	
169TV	3,833,831
	3,833,833
169R	3,833,832
241P	3,833,834
CLASS 317	
40R	3,833,835
100	3,833,836
	3,833,837
101CC	3,833,838
118	3,833,839
122	3,833,840
234R	3,833,842
262A	3,833,844
CLASS 318	
11	3,833,843
139	3,833,841
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CLASS 321	
8R	Re.28,145
19	3,833,848
CLASS 323	
44R	3,833,849
CLASS 324	
41	3,833,850
71EB	3,833,851
71R	3,833,852
73R	3,833,853
CLASS 328	
155	3,833,854
167	3,833,855
CLASS 330	
2	3,833,856
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CLASS 331	
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117R	3,833,865
CLASS 333	
7D	3,833,866
30R	3,833,867
98R	3,833,868
CLASS 335	
106	3,833,869
268	3,833,870
282	3,833,871
CLASS 336	
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CLASS 337	
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CLASS 339	
59M	Re.28,147
186M	3,833,877
208	3,833,878
220R	3,833,879
CLASS 340	
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31A	3,833,881
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173LM	3,833,893
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224	3,833,895
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324R	3,833,933
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347NT	3,833,902
347P	3,833,901
CLASS 343	
5DP	3,833,904
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CLASS 346	
1	3,833,910
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CLASS 350	
3.5	3,833,281
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103	3,833,285
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160R	3,833,286
188	3,833,288
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286	3,833,291
CLASS 352	
77	3,833,292
CLASS 353	
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85	3,833,297
CLASS 354	
24	3,833,912
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188	3,833,914
258	3,833,915
293	3,833,916
310	3,833,917
321	3,833,918
CLASS 355	
17	3,833,293
32	3,833,295
51	3,833,296
125	3,833,298
CLASS 356	
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109	3,833,301
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169	3,833,303
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201	3,833,305
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CLASS 357	
71	3,833,919
CLASS 360	
33	3,833,920
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CLASS 401	
195	3,833,307
CLASS 402	
56	3,833,308
CLASS 403	
122	3,833,309
CLASS 404	
75	3,833,310
CLASS 408	
22	3,833,311
42	3,833,312
112	3,833,313
CLASS 416	
164	3,833,314
CLASS 417	
68	3,833,315
307	3,833,316
CLASS 418	
77	3,833,317
100	3,833,318
132	3,833,319
178	3,833,320
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CLASS 423	
157	3,833,709
244	3,833,711
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465	3,833,713
567	3,833,714
573	3,833,710
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574	3,833,716
604	3,833,717
629	3,833,718
659	3,833,719
CLASS 424	
47	3,833,720
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104	3,833,722
118	3,833,723
129	3,833,724
243	3,833,725
248	3,833,727
269	3,833,728
273	3,833,729
274	3,833,571
283	3,833,730
304	3,833,731
308	3,833,732
324	3,833,733
330	3,833,734
343	3,833,735
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CLASS 425	
28B	3,833,322
47	3,833,323
52	3,833,324
113	3,833,325
174.4	3,833,326
191	Re.28,144
203	3,833,327
246	3,833,329
247	3,833,330
253	3,833,331
308	3,833,328
387B	3,833,332
406	3,833,333
449	3,833,334
CLASS 426	
18	3,833,737
52	3,833,738
72	3,833,739
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195	3,833,743
212	3,833,744
217	3,833,745
277	3,833,746
289	3,833,747
447	3,833,748
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CLASS 431	
202	3,833,335
	3,833,336
284	3,833,337
328	3,833,338
CLASS 444	
1	3,833,927

Classification of Designs

D1—	26	232,601
D2—	24	232,602
	187	232,603
	223	232,604
D6—	25	232,605
	91	232,606
	157	232,607
	160	232,608
	171	232,609
	186	232,610
	192	232,611
D7—	1	232,612
	27	232,613
	70	232,614
	137	232,615
	170	232,616
	180	232,617
	185	232,618
D8—	30	232,619
	68	232,620
	144	232,621
D9—	187	232,622
	245	232,623
D12—	7	232,633
	25	232,624
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	31	232,634
	81	232,626
	115	232,627
	156	232,628
	205	232,629
		232,630
		232,631
	209	232,632
D23—	22	232,635
	48	232,636
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	58	232,638
D25—	1R	232,639
D26—	A	232,640
	8	232,641
	14A	232,642
D29—	23	232,643
D31—	22	232,644
D34—	5SS	232,646
	J	232,645
	15HH	232,650
	PP	232,649
	A	232,648
	C	232,647
D40—	1A	232,651
D45—		232,652
		232,654
	B	232,653
D48—	20A	232,656
	R	232,655
D52—	1	232,657
	2B	232,658
	6A	232,659
	E	232,660
D57—	1	232,661
D61—	Q	232,662
D83—	J	232,663
D85—	2H	232,664
D86—	8	232,665
D87—	1R	232,666

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P. —	54	3,606
P. —	69	3,610
P. —	74	3,604
P. —	77	3,605
P. —	78	3,608
P. —	81	3,607
P. —	82	3,609

Defensive Publications Applications

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	45.7R	T926,009
	475R	T926,013
	655	T926,002
	858	T926,001
	860	T926,008
	861	T926,005
307—	205	T926,003
340—	172.5	T926,012
401—	132	T926,011
444—	1	T926,007
		T926,014

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PATENTS

1 : 3,832,928
3,833,119
3,833,235
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2 : 3,833,555
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DEFENSIVE PUBLICATIONS APPLICATIONS

[Notice of Dec. 16, 1969, 869 O.G. 6877]

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U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, *Secretary*

PATENT OFFICE
C. Marshall Dann, *Commissioner*

A UNITED STATES
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COMMERCE
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OFFICIAL GAZETTE

of the UNITED STATES PATENT OFFICE

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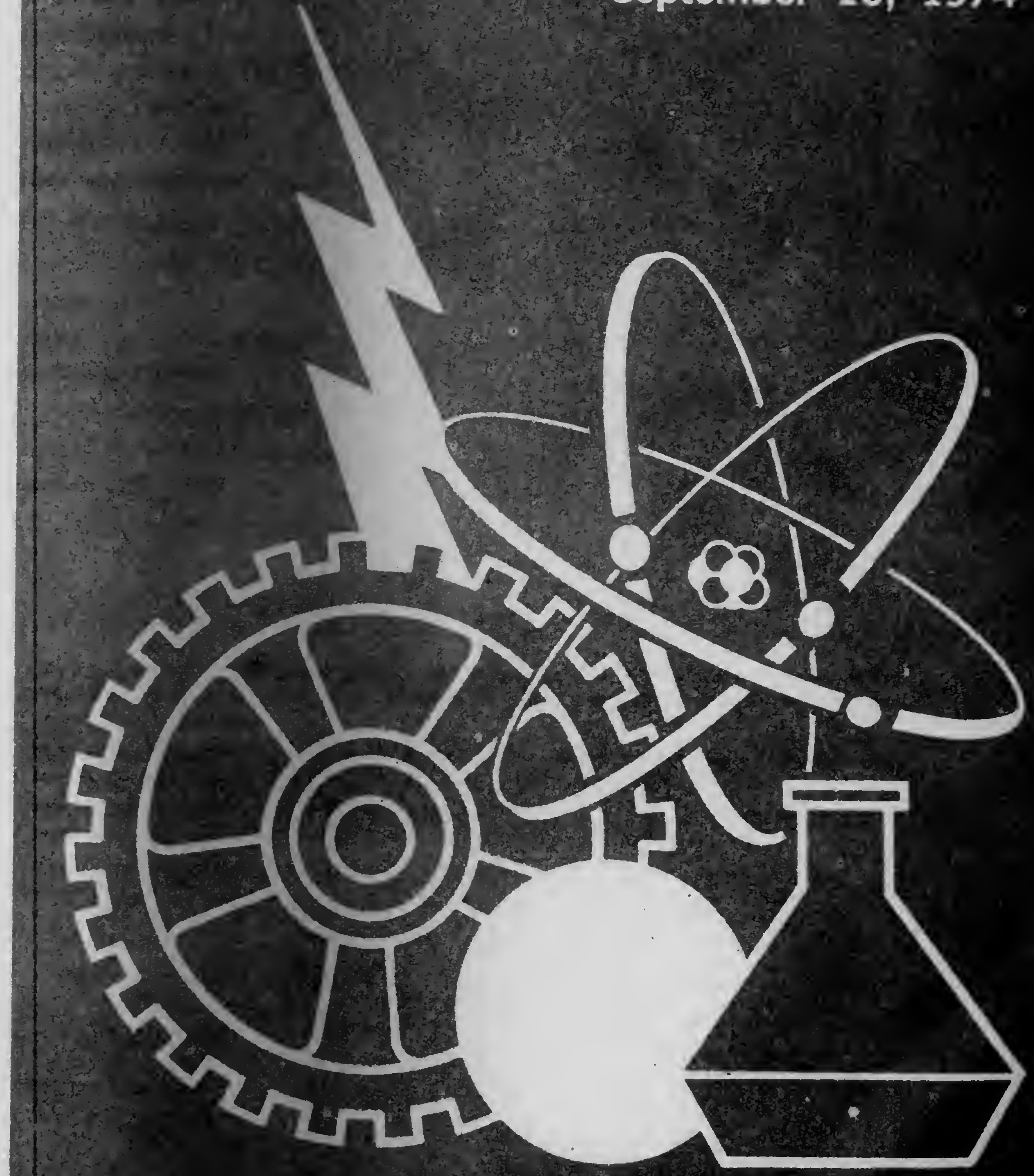

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

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PATENT OFFICE NOTICES

Calculation of Issue Fees

Effective October 1, 1974, the Patent Office in calculating the balance of issue fee due, after payment of the Base Issue Fee specified by the Notice of Allowance, shall charge at the rate of $10 a page, as provided in 35 USC 41, for each printed page of specification (including claims) for which payment has not theretofore been received. As the Base Issue Fee includes a $10 charge for one printed page of specification, a balance of fee will be due for each patent which consists of more than one printed page. A "page" consists of one side of a printed sheet containing any amount of specification (including claims). A notification of the Balance of Issue Fee Due will be mailed in each such case along with the original patent grant.

The notice of February 4, 1970 published in the OFFICIAL GAZETTE [872 O.G. 1] and reproduced in the current "Consolidated Listing of Recent Official Gazette Notices . . ." [Item 53] is rescinded as of close of business September 30, 1974.

WILLIAM I. MERKIN,
Aug. 1, 1974. *Assistant Commissioner for Administration.*

Removal From Register

Pursuant to the provisions of Rule 347 of the Rules of Practice of the United States Patent Office in Patent Cases, a letter was directed on June 14, 1974, to the last post office address furnished to the Committee on Enrollment by each of the persons whose name and address appear on the following list. With respect to some of the letters, no reply was received within the period of thirty days therein set. Other Letters were returned by the Post Office with notations to the effect that the addressee was deceased, unknown, or had moved and left no forwarding address. Accordingly, the names of the following persons are being removed from the Registers of Patent Attorneys and Patent Agents.

LUTRELLE F. PARKER,
Aug. 2, 1974. *Chairman, Committee on Enrollment.*

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Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,770,894, R. O. Gettelman, SNOW REMOVER OF THE ROTARY TYPE, **filed** Nov. 18, 1969, D.C., E.D. Wis. (Milwaukee), Doc. 69–C–543, *Wisconsin Marine Company* v. *Lawn 'N' Sport Power Mower Sales & Service Inc.* Decision and order, plaintiff owner of patent, claims 1, 5 and 8 are valid, defendant's motion to dismiss the action as to claims 5 and 8 denied. Judgment entered for the plaintiffs on the issues of validity and infringement. Defendant's counterclaim dismissed, Mar. 11, 1974.

2,818,602, R. W. Bernstein, ABRASIVE GRINDING WHEEL, **filed** Nov. 30, 1971, D.C., N.D. Ohio (Cleveland), Doc. C71–1179, *Merit Abrasive Products, Inc.* v. *Bison Corporation.* Stipulation and order of dismissal pursuant to Rule 41(a)(1)(ii) directing that the complaint and the counterclaim are dismissed, Apr. 3, 1974.

2,859,949, J. J. Willard, FORWARD DISCHARGING TRANSIT CONCRETE MIXER, **filed** Apr. 8, 1974, D.C. Ind. (Indianapolis), Doc. IP 74–198–C, *R. W. Sims, trustee et al.* v. *MacWay Manufacturing, Inc. and Atlas Red-D Mix, Inc.*

2,920,977, B. F. Adams, CELLULAR SURFACE COVERING HAVING AN EMBOSSED APPEARANCE, **filed** Apr. 9, 1974. D.C. Pa. (Philadelphia), Doc. 74–919, *Armstrong Cork Company* v. *Congoleum Industries, Inc.*

2,959,555, Martin and Abel, COPPER AND IRON CONTAINING SCALE REMOVAL FROM FERROUS METAL, **filed** Apr. 2, 1974, D.C., N.D. Okla. (Tulsa), Doc. 71–C–346, *Halliburton Company* v. *The Dow Chemical Company.* Plaintiff has judgment against the defendant and is not liable to the defendant on its cross-claim, Apr. 2, 1974.

3,023,419, M. Z. Strahle, LEOTARDS AND COSTUMES, **filed** Mar. 29, 1974, D.C., W.D. Tex. (San Antonio), Doc. SA 74–CA–67, *Marie Zurbaran Strahle* v. *Spartan-Atlantic Family Discount Center.*

3,032,345, J. H. Emelson, TARGET GAME, **filed** Mar. 22, 1974, D.C. Minn. (Minneapolis), Doc. 4–74–153, *Ideation, Inc.* v. *Cadaco, Inc.*

3,039,773, Teeguarden and Teeguarden, BALLS, **filed** Nov. 8, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71–2659–ALS, *Harry W. Teeguarden and Lillian Teeguarden* v. *A. G. Spalding & Bros., Inc.* Filed final judgment and order thereon dismissing complaint on the merits with prejudice. The claim of defendant for attorney's fees is dismissed with prejudice, entered Mar. 29, 1974.

3,127,293, A. J. Trenteseaux, METHOD OF PRODUCING UNWOVEN CLOTHS AND VELVETS AND APPARATUS USED THEREFOR, **filed** Apr. 5, 1974, D.C., N.D. Ga. (Rome), Doc. C 74–54–R, *Deering Milliken, Inc.* v. *Kemos, Inc.*

3,170,275, Rohdin and Rohdin, MEANS FOR HEAT SEALING LIDS ON BLISTERS, **filed** Apr. 5, 1974, D.C., S.D.N.Y., Doc. 74–C–1557 (LFM), *Diematic Manufacturing Corp.* v. *Packaging Industries, Inc.*

3,237,729, R. A. Proctor, INERTIA OPERATED MECHANISM, **filed** Mar. 29, 1974, D.C., E.D. Mich. (Detroit), Doc. 4–71364, *Britax (London) Limited* v. *General Safety Corporation.*

3,283,988, J. S. Hardigg, SHOCK ISOLATOR ELEMENT FOR CUSHIONED CONTAINER UNIT AND METHOD OF MAKING THE SAME, **filed** Mar. 15, 1974, Court of Claims (District of Columbia), Doc. 136–72, *James S. Hardigg* v. *The United States.* Order—judgment entered for plaintiff and against the United States, Mar. 22, 1974.

3,315,339, D. W. Young, TOOL FOR MOUNTING OR DEMOUNTING AUTOMOTIVE VALVE ASSEMBLIES, **filed** Aug. 18, 1972, D.C., N.D. Ohio (Cleveland), Doc. C72–871, *David M. Young* v. *Joseph J. Sosnoski et al.* Order, plaintiff's complaint and cross-complaints and/or counter-claims shall be dismissed with prejudice, plaintiff's cause of action is dismissed, Apr. 10, 1974.

3,316,294, Feighner and Kapur, DETERGENT ALKYLATE AND THE SULFONATE DERIVATIVE, **filed** July 6, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c1631, *Continental Oil Co.* v. *Union Carbide Corp.* Complaint and all counterclaims shall be dismissed with prejudice, Jan. 2, 1974.

3,325,018, L. A. Wright, ARTICULATING GAME, **filed** Dec. 7, 1970, D.C., W.D. Wash. (Seattle), Doc. 9371, *Star Iron & Steel Co. and International Terminal Co.* v. *Fruehauf Corporation.* Stipulation, dismissal filed Mar. 28, 1974.

3,417,753, M. Mattler, DISPOSABLE CATHETER AND METHOD FOR FORMING SAME, **filed** Aug. 11, 1972, D.C., E.D. Mich. (Detroit), Doc. 38743, *E-Z-EM Co.* v. *Multi-Med Industries, Inc. and Martin Mattler.* Order of dismissal—ordered action be dismissed without prejudice to the right of the plaintiff and cross plaintiff upon good cause shown, within sixty days, to move to vacate this order if settlement is not consummated, Mar. 29, 1974.

3,427,521, R. K. Lanman, DIE FINISHING MACHINE, **filed** Oct. 3, 1969, D.C., S.D. Calif. (San Diego), Doc. 69–289–K, *Armorlite Lens Co., Inc.* v. *Charles Douglas Campbell et al.* Stipulation for dismissal with prejudice, as to plaintiff, defendants and counterclaimants, Apr. 2, 1974.

3,570,748, Coyle and Marsella, COMPOSITE FILM AND METHOD, **filed** Nov. 29, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c3003, *Standard Packaging Corporation* v. *Curwood, Inc.* Defendant's motion for summary judgment on counterclaim granted in part and denied in part. Patent at issue held invalid. Defendant granted costs on counterclaim, action dismissed, Apr. 10, 1974.

3,613,044, W. G. Rarick, POWER SUPPLY CORD HATCH, **filed** Oct. 26, 1972, D.C., N.D. Ind. (South Bend), Doc. 72–S–217, *Lyall Electric, Inc.* v. *Glenn Morre and John Morre, doing business as Handyhome Products Co.* Consent judgment, in view of settlement agreement, no accounting is ordered and no damages are awarded to plaintiff, finds for plaintiff, against defendant, Mar. 20, 1974. **Same, filed** Sept. 24, 1973, D.C., N.D. Ind. (South Bend), Doc. 73–S–191, *Lyall Electric, Inc.* v. *Bender Wholesale Distributors, Inc.* Consent judgment, no accounting is ordered and no damages are awarded to plaintiff, finds for plaintiff and against defendant, Mar. 20, 1974.

3,720,872, Russell and Gracie, POWER TRANSMISSION FAULT INDICATOR WITH AUTOMATIC RESET MEANS, **filed** Mar. 29, 1974, D.C.N.J. (Trenton), Doc. C–74–447, *Burndy Corporation et al.* v. *Edison Control Corp. et al.*

Re. 27,111, R. E. Wilson, PITCH-BONDED REFRACTORY COMPOSITION, **filed** Feb. 15, 1974, D.C., W.D. Pa. (Pittsburgh), Doc. 74–157, *Basic Incorporated* v. *H. K. Porter Company, Incorporated.*

3,639,922, Samuels and Samuels, CUSHIONED TOILET SEAT, **filed** Dec. 6, 1973, D.C., E.D. Pa. (Philadelphia), Doc. C.A. 73–2770, *Ginsey Industries, Inc.* v. *Stanley J. Samuels and Samuel Samuels.*

3,678,942, Abbott and Chen, METHOD OF MAKING PRECUT AND PRESET WIG AND PRECUT AND PRESET WIG, **filed** Feb. 28, 1974, D.C., C.D. Calif. (Los Angeles) Doc. 74–541–WMB, *Brentwood Industries, Inc. and Harry Camp Co.* v. *Clairol Inc., Abbott Tresses and Godfrey Chen.*

3,691,727, F. Doerschein, MULTIPLE SHEET DISPENSING APPARATUS, **filed** June 12, 1973, D.C., N.D. Ohio (Cleveland), Doc. C–73–596, *Heat Sealing Equip. Mfg. Co.* v. *Franklin Electric Co., Inc. et al.* **Same, Filed** June 12, 1973, D.C., N.D. Ohio (Cleveland), Doc. C–73–597, *Heat Sealing Equipment Manufacturing Co.* v. *Cleveland-Detroit Corp. and Clamco Corp.* Consent judgment—plaintiff owner of patent, defendants hereby enjoined from further infringement, Count II of amended complaint dismissed with prejudice, Jan. 8, 1974.

3,692,354, R. P. Tuerk, TRUCK STAKE ARRANGEMENT, **filed** Mar. 1, 1974, D.C., M.D.N.C. (Greensboro), Doc. C–74–68–WS, *Robert P. Tuerk* v. *Charles Jarrell.*

3,694,993, J. L. East, AUTOMATIC BOTTLE PACKING METHOD AND APPARATUS, **filed** Mar. 8, 1974, D.C. Va. (Lynchburg), Doc. 74–17, *Simplimatic Engineering Company* v. *Alliance Industrial Corporation.*

3,702,701, Vaughn and Hargrave, METAL TENNIS RACKET WITH PLASTIC THROAT PIECE AND MOLDED PLASTIC HANDLE, **filed** Mar. 12, 1974, D.C.N.J. (Trenton), Doc. C–74–351, *Maark Corporation* v. *Herman's World of Sporting Goods, etc.*

3,716,871, A. G. Borse, DISPOSABLE URINAL, **filed** Aug. 14, 1973, D.C. Mich. (Kalamazoo), Doc. K107–73CA 4, *Borse Plastic Products Corporation* v. *A & G Plastic Products, Inc.*

3,721,584, A. R. Diem, SILICON COATED SUBSTRATES AND OBJECTS FABRICATED THEREFROM, **filed** Mar. 20, 1974, D.C. Utah (Salt Lake City), Doc. C–74–94, *Trans-Sil Products, Inc.* v. *Martek, Inc.*

3,722,817, A. B. Fletcher, SPRAYER, **filed** Apr. 13, 1973, D.C., W.D. Okla. (Oklahoma City), Doc. 73–255–C, *F and F Manufacturing, Inc.* v. *Dixon Distributors, Inc.* Plaintiff's complaint and defendant's counterclaim dismissed without prejudice, Nov. 13, 1973.

3,727,321, Waters and Liedtke, PORTABLE HAIR DRYER, **filed** May 10, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c1203, *Sunbeam Corporation* v. *Gillette Company.*

3,729,763, R. M. Coley, WHEEL WASHING APPARATUS, **filed** Mar. 11, 1974, D.C., M.D.N.C. (Greensboro), Doc. C–74–74–G, *Vend-A-Matic, Inc.* v. *MacCleens Inc.*

3,755,824, A. J. Sperling, METHOD FOR AVOIDING THE APPEARANCE OF BALDNESS, **filed** Jan. 3, 1974, D.C., E.D.N.Y. (Brooklyn), Doc. 74C13, *Plus Hair Centers International, Inc.* v. *Executive Hair-Weave Center, Inc.*

3,756,008, G. F. Smith, SELF-COILING WIRE CABLE AND METHOD OF FORMING SAME, **filed** Nov. 1, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–2554–RJK, *Helistrand, Inc.* v. *Investment Molding Corp., doing business as C & C Cycle Accessories.*

3,756,939, S. Hurwitt, TARGET MOUNTING DEVICE FOR SEQUENTIAL SPUTTERING, **filed** Mar. 15, 1974, D.C. Del. (Wilmington), Doc. 74–50, *Materials Research Corporation* v. *Perkin-Elmer Ultek Inc.*

3,766,374, S. Fairchild, DECORATIVE STRUCTURE, **filed** Feb. 1, 1974, D.C., C.D. Calif. (Los Angeles), Doc. CV–74–271 AAH, *Poly-Optics, Inc.* v. *International Fiber Optics, S.M.I.L.E. Corporation and Richard Stivers.*

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National Technical Information Service

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Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each.

Requests for licensing information should be directed to the address cited below for each agency.

Douglas J. Campion,
Patent Program Coordinator,
National Technical Information Service.

U.S. Atomic Energy Commission
Assistant General Counsel for Patents,
Washington, D.C. 20545

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DEPARTMENT OF THE AIR FORCE

AF/JACP, Washington, D.C. 20314

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U.S. DEPARTMENT OF AGRICULTURE

Chief, Research Agreements and Patent Mgmt. Branch,
Federal Building, General Services Division,
Agricultural Research Service, Hyattsville, Md. 20782

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Patent application 337,789. Physiochemically Designed Fat Compositions From Tallow and Process for Making. Filed Mar. 5, 1973. PC $4/MF $1.45.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Assistant General Counsel for Patent Matters, NASA—
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Patent 3,789,654. Method for Determining Thermo-Physical Properties of Specimens. Patented Feb. 5, 1974. Not available NTIS.

Patent 3,790,037. Metering Gun for Dispensing Precisely Measured Charges of Fluid. Patented Feb. 5, 1974. Not available NTIS.

Patent 3,790,347. Apparatus for Remote Handling of Materials. Patented Feb. 5, 1974, Not available NTIS.

Patent 3,790,650. Method for Compression Molding of Thermosetting Plastics Utilizing a Temperature Gradient Across the Plastic To Cure the Article. Patented Feb. 5, 1974. Not available NTIS.

Patent 3,795,448. Doppler Shift System. Patented Mar. 5, 1974. Not available NTIS.

Errata

All reference to Patent No. 3,815,544 to Alvin A. Rood, Edwin F. Hogstrom and William C. Stumphauzer for Apparatus for Striping Inside Seams of Cans, appearing in the OFFICIAL GAZETTE of June 11, 1974, should be deleted as the aforementioned patent is a duplication of Patent No. 3,702,107.

All reference to Patent No. 3,829,416 to Michael J. Green of Orange, N.J. and Satish C. Bisarya of Moradabad, India for Process for the Manufacture of 3-Keto-6-Azido-4,6-Bis-Dehydro-Steroids and Intermediates Useful Therein appearing in the OFFICIAL GAZETTE of August 13, 1974, should be deleted since the patent was not granted.

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF AUGUST 17, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	10-9-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—R. F. BURNETT, Acting Director Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	7-12-73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	11-16-73
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	9-18-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	8-27-73
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—W. L. CARSON, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	1-9-74
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	3-1-73
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-2-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—N. ANSHER, Director Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	7-2-73
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—L. FORMAN, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-13-73
DESIGNS, GROUP 290—C. D. QUARFORTH, Director Industrial Arts; Household, Personal and Fine Arts.	3-16-73
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	9-10-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	10-29-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. PULFREY, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-2-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—B. R. GAY, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	11-9-73
GENERAL CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—M. M. NEWMAN, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	12-3-73

Expiration of patents: The patents within the range of numbers indicated below expire during September 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,804,620 to 2,807,803, inclusive
Plant Patents	Numbers 1,638 to 1,645, inclusive

REISSUES

SEPTEMBER 10, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

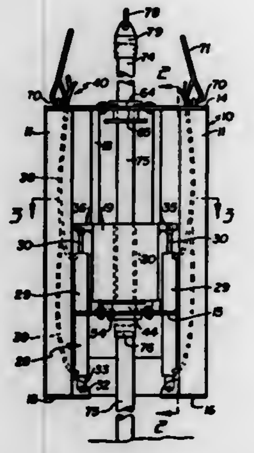
28,151
TUBE DRIVING APPARATUS

Paul M. Cook, 835 W. 7th Ave., Vancouver, British Columbia, Canada

Original No. 3,474,870, dated Oct. 28, 1969, Ser. No. 691,464, Dec. 18, 1967. Application for reissue Oct. 26, 1971, Ser. No. 192,269

Int. Cl. B25d *9/04, 11/04, 13/00*

U.S. Cl. 173—91 14 Claims



An apparatus having a frame in which a tubular ram is mounted to be reciprocated into driving engagement with a laterally projecting part of a driven member extending coaxially through the ram.

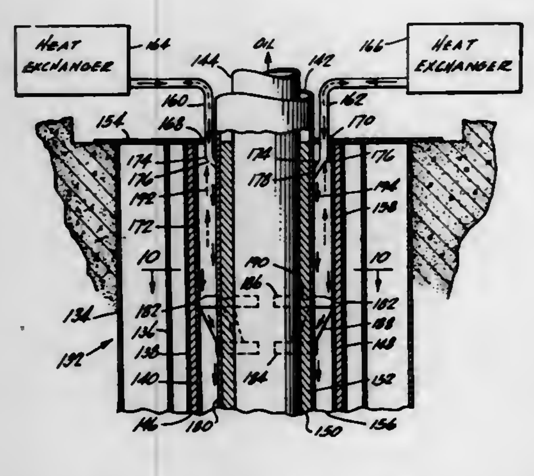
28,152
OIL WELL PERMAFROST STABILIZATION SYSTEM

Elmer D. Waters, Richland, Wash., assignor to McDonnell Douglas Corporation

Original No. 3,749,163, dated July 31, 1973, Ser. No. 72,715, Sept. 16, 1970. Application for reissue Dec. 20, 1973, Ser. No. 426,809

Int. Cl. E21b *43/00, 43/24*

U.S. Cl. 166—57 25 Claims



Oil well casing construction for installation in permafrost to convey hot oil and simultaneously provide for permafrost stabilization. The oil well permafrost stabilization system normally includes an insulated heat gathering surface member or shield positioned around an upper predetermined length of production casing carrying hot oil through permafrost, passively actuated heat transfer tubes closed at their lower ends and thermally coupled to the heat gathering shield along its length, and a heat exchanger connected to the upper ends of the heat transfer tubes for rejecting the heat transferred thereto whereby heat from the hot oil carried by the production casing is prevented from melting the adjacent permafrost.

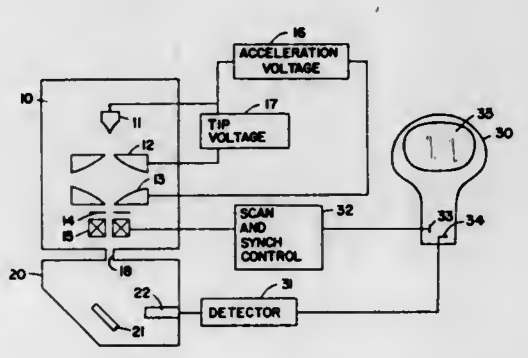
28,153
FIELD EMISSION SCANNING MICROSCOPE DISPLAY

Vincent J. Coates, Los Altos, and Leonard M. Welter, Saratoga, Calif., assignors to American Optical Corporation, Framingham, Mass.

Original No. 3,767,926, dated Oct. 23, 1973, Ser. No. 251,125, May 8, 1972. Application for reissue Oct. 24, 1973, Ser. No. 409,124

Int. Cl. H01j *37/26*

U.S. Cl. 250—311 7 Claims



A field emission scanning microscope display system wherein a field emission gun generates a beam of charged particles which impinge upon a specimen to be investigated. A detector of the scintillation type produces an image signal relative to the impingement of the beam on the specimen. The image signal is appropriately amplified and conducted to a signal grid of a television type viewing monitor. A control unit synchronously deflects the microscope beam and the electron beam of the viewing tube in a predetermined pattern. The pattern is selected to have preferably a four-to-one interlacing and the interlacing sequence is selected so as to render the image formed on the viewing tube substantially stationary in a normal viewing mode.

28,154
WALL OR DUCT MOUNTED HUMIDISTAT

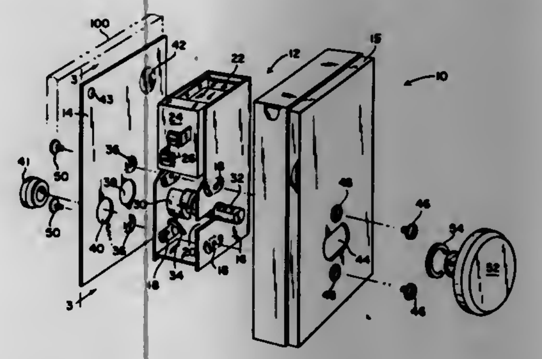
Walter R. Stiles, Milford, Mich., assignor to Skuttle Manufacturing Company, Milford, Mich.

Original No. 3,523,217, dated Aug. 4, 1970, Ser. No. 735,854, June 10, 1968. Application for reissue Aug. 25, 1972, Ser. No. 283,860, which is a reissue continuation of abandoned application Ser. No. 123,799, Mar. 12, 1971

Int. Cl. H02b *1/10*

U.S. Cl. 317—120 8 Claims

A humidity control device including a substantially flat base plate and a humidity sensing assembly which may be removably mounted in either forward or reverse positions on the base plate to adapt the control device for use either as a wall mounted or duct mounted humidistat. The base plate has an opening through which and adjusting shaft on the humidity sensing assembly may pass when the device is assembled in an air duct mounting position. In addition, the plate has a plurality of readily removable knock-out plugs with one or another of the plugs being located on the plate to be respectively positioned adjacent electrical terminals on the sensing assembly when it is in either a forward or reverse position. A number of bosses extend from the plate and function to space the sensing assembly therefrom when the parts are assembled as a duct humidistat.



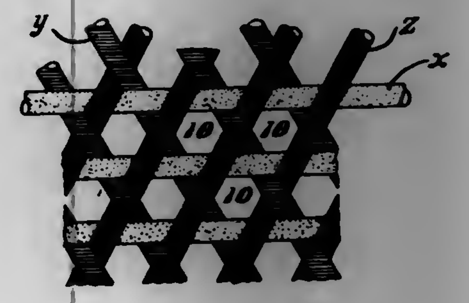
28,155
TRIAXIAL FABRIC

Norris F. Dow, Radnor, Pa., assignor to Doweave, Inc.

Original No. 3,446,251, dated May 27, 1969, Ser. No. 725,585, Apr. 23, 1968, which is a continuation-in-part of abandoned application Ser. No. 515,028, Dec. 20, 1965. Application for reissue June 18, 1973, Ser. No. 370,946

Int. Cl. D03d *13/00*

U.S. Cl. 139—383 R 23 Claims



Fabrics of this invention comprise three angularly displaced sets of parallel courses of yarn, interwoven to prevent slippage of at least one yarn course set along any other yarn course set. The interweaving may be such as to prevent slippage of all three yarn course sets. Each yarn course may comprise one or more individual strands of yarn. Fabrics woven in this manner are substantially isotropic, i.e. their strength and resistance to stretching or shearing forces in a plane of the fabric is relatively constant regardless of the direction of force application.

28,156
PHOTOCONDUCTIVE TARGET WITH N-TYPE LAYER OF CADMIUM SELENIDE INCLUDING CADMIUM CHLORIDE AND CUPROUS CHLORIDE

Yuji Kiuchi and Kazuo Shimizu, Yokohama, and Okio Yoshida, Kawasaki, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

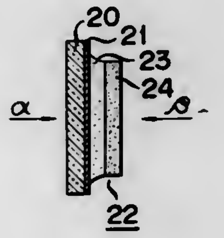
Original No. 3,571,646, dated Mar. 23, 1971, Ser. No. 744,743, July 15, 1968. Application for reissue Mar. 21, 1973, Ser. No. 343,489

Claims priority, application Japan, July 17, 1967, 42/45,640

Int. Cl. H01j *31/28, 39/06, 39/18*

U.S. Cl. 313—94 3 Claims

This photoconductive target comprises a photoconductive member consisting of two layers: a first layer 0.5 micron minimum thick formed on a transparent electrode and a second layer 0.6 micron maximum thick superposed on the first layer so as to be disposed on the side electron gun. The first layer is solely or mainly made of cadmium selenide, and the second layer is formed from a high resistance semiconductor material.



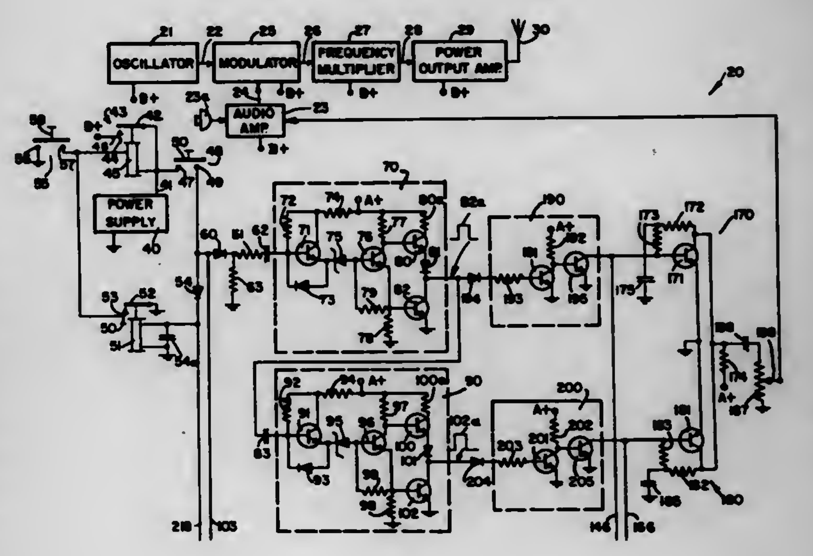
28,157
TRANSMITTER WITH MEANS FOR GENERATING THE CARRIER WAVE BEFORE GENERATING THE MODULATION COMPONENTS

Keith H. Wycoff, P.O. Box 308, Lexington, Nebr. 68850

Original No. 3,619,784, dated Nov. 9, 1971, Ser. No. 16,037, Mar. 3, 1970. Application for reissue Jan. 31, 1972, Ser. No. 222,390

Int. Cl. H04b *1/02*

U.S. Cl. 325—155 19 Claims



There is disclosed an electronic switching device having a transmitter-energized position for coupling a source of operating voltage to a carrier-wave-generating circuit, a further switch coupled to the electronic switch having one position causing the electronic switch to be placed in its transmitter-energized position, a control circuit which provides energizing signals when the further switch is placed in its first position and then in its second position, which energizing signals cause a circuit to generate information for modulation on the carrier wave, a holding circuit which, in the presence of the energizing signals, maintains the energizing switch closed despite placement of the further switch in its second portion.

PLANT PATENTS

GRANTED SEPTEMBER 10, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,611

VIOLET PLANT

Arnold W. Fischer, Isernhagen, Germany, assignor to Geo. J. Ball, Inc., West Chicago, Ill.
Filed May 3, 1973, Ser. No. 356,926
Int. Cl. A01h *5/00*

U.S. Cl. Plt.—69 **1 Claim**

A new variety of African violet plant distinguished by the unique deep violet color of its blossoms which bloom profusely and form clusters of large long-lasting flowers; and by its vigorous growth, early flowering habit, and its tolerance for environmental changes.

3,612

AFRICAN VIOLET

Arnold W. Fischer, Isernhagen, Germany, assignor to Geo. J. Ball, Inc., West Chicago, Ill.
Filed May 3, 1973, Ser. No. 357,075
Int. Cl. A01h *5/00*

U.S. Cl. Plt.—69 **1 Claim**

A new variety of African violet plant having a very light blue flower coloring, the new plant being of the compact potted plant type in which the flowers are borne upright, converging toward the center to form a dense canopy of long lasting blooms which are borne in clusters on each peduncle.

3,613

AFRICAN VIOLET

Arnold W. Fischer, Isernhagen, Germany, assignor to Geo. J. Ball, Inc., West Chicago, Ill.
Filed May 3, 1973, Ser. No. 357,076
Int. Cl. A01h *5/00*

U.S. Cl. Plt.—69 **1 Claim**

A new variety of African violet plant distinguished by the unique purple-pink coloring of its blossoms which tend to cluster at the center of the plant to present an attractive and showy appearance, the bright flower colors contrasting with a surrounding display of abundant foliage, and the flowers appearing high above the foliage on sturdy upright stems.

3,614

AFRICAN VIOLET

Arnold W. Fischer, Isernhagen, Germany, assignor to Geo. J. Ball, Inc., West Chicago, Ill.
Filed May 3, 1973, Ser. No. 357,077
Int. Cl. A01h *5/00*

U.S. Cl. Plt.—69 **1 Claim**

A distinct and new variety of African violet plant distinguished by its large upstanding flowers of intense blue color, with petals having wavy and frilled margins, which form a distinctive cluster at the center of the plant rising above a generally horizontal and rotate spread of large leaves having relatively long petioles.

3,615

ROSE PLANT

J. Benjamin Williams, Silver Spring, Md., assignor to The Conard-Pyle Company, West Grove, Pa.
Filed May 7, 1973, Ser. No. 358,105
Int. Cl. A01h *5/00*

U.S. Cl. Plt.—6 **1 Claim**

1. A new and distinct variety of rose plant of the climber class, substantially as herein shown and described, characterized particularly as to novelty by its vigorous habit of growth, its good hardiness, its abundant and attractive foliage, its very good remontance, its habit of producing a cluster bloom on each new shoot, the very good form and size of its blooms, the strong and appealing fragrance of its blooms, and the general color tonality of the flowers corresponding to Carmine, lightly overcast with Oxblood Red, and the long-lasting and unfading qualities of the flower color.

3,616

CHRYSANTHEMUM PLANT

Barrie John Machin, Chichester, England, assignor to Frampton's Nurseries Limited, Sussex, England
Filed May 29, 1973, Ser. No. 364,489
Int. Cl. A01h *5/00*

U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey (spray type) substantially as herein shown and described.

PATENTS

GRANTED SEPTEMBER 10, 1974

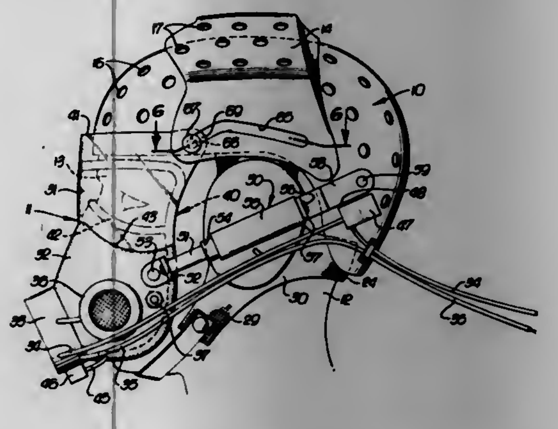
GENERAL AND MECHANICAL

3,833,935

INTEGRATED HELMET AND MASK STRUCTURE

William K. Ansite, Glendale, and John J. Mitchell, Jr., Arcadia, both of Calif., assignors to Sierra Engineering Company, Sierra Madre, Calif.
Filed May 22, 1972, Ser. No. 255,838
Int. Cl. A62b *7/00*

U.S. Cl. 2—6 **9 Claims**



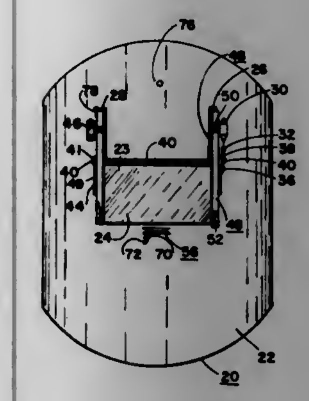
For flying personnel there is provided a hard shell helmet suitably padded and held out of close contact with the head. An integrated visor assembly has an articulated attachment to the helmet movable between an operative position over the wearer's face and a lifted position extending over the top of the helmet removed from the face. Compound leverage elements making up the attachment determine a path of movement for the visor assembly such that it travels an irregular path allowing it to first lift clear of contact with the face and then travel upwardly to its lifted position. An inflatable seal extends around the perimeter of the visor assembly, the seal being inflated with air from the oxygen supply for the breathing mask when in operation over the face of the wearer and being collapsed when deflated providing additional clearance for ease of removal from the face and for storage in its lifted position.

3,833,936

WELDER'S MASK

Roberto C. LoGuidice, 12525 N.W. 21 Pl., Miami, Fla. 33167
Filed Jan. 5, 1973, Ser. No. 321,433
Int. Cl. A61f *9/06*

U.S. Cl. 2—8 **4 Claims**



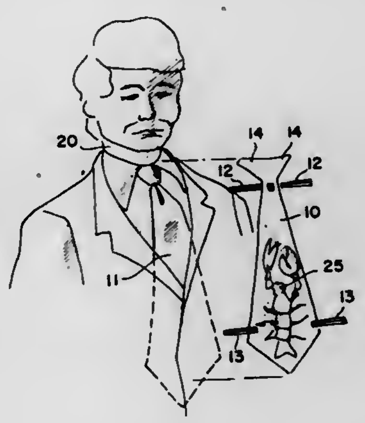
An optically protective viewing glass is slidably mounted in slides vertically fixed at the sides of a viewing slot in a face shield. The viewing glass is driven between opposite work performing and work viewing positions by a motor and synchronized side gear trains to prevent jamming of the glass in the slides. The motor is mounted on the face shield and energized from a power source, similarly mounted, through circuit means having two parallel branches, one branch for energizing the motor to drive the viewing glass to one of its opposite positions, and the other branch to the other of its opposite positions. Limiting switches, respectively connected in the parallel branches and mounted on the face shield at the respective opposite positions of the viewing glass, are operable by the viewing glass reaching either of said positions to open the limit switch in the parallel branch energized to drive said glass to the position just reached and simultaneously to close the limit switch in the other parallel branch. An energizing switch is mounted on the face shield and connected in both branch circuits to alternately close the circuit of one of said parallel branches and open the other as it is mouth-operated by a welder. The limiting and energizing switches are coordinated to alternately drive the viewing glass to opposite positions each time the energizing switch is operated.

3,833,937

NAPKIN FOR TIES

Kendrick Taylor, San Jose, Calif., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Mar. 16, 1973, Ser. No. 342,036
Int. Cl. A41d *27/12*

U.S. Cl. 2—46 **1 Claim**



An attachable protective napkin for a man's tie which may be readily fastened so as to protect the tie when being worn while eating from the splatter of food or other liquids. The device is a shaped section of laminated absorbent and waterproof paper or plastic sheeting. One end of the tie napkin is triangular shaped, so as to tuck about the tie and under the collar of the wearer, with the napkin shaped to the general outline of a man's tie and of slightly larger dimension and fitted with flexible semi-rigid tie members that bend about the protected tie so as to retain the napkin in position.

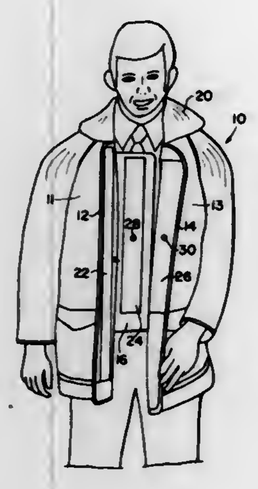
3,833,938

TURNOUT COAT

John David Shweid, San Francisco, Calif., assignor to John Morris Company, Inc., San Francisco, Calif.
Filed Aug. 10, 1973, Ser. No. 387,576
Int. Cl. A44b *19/32*

U.S. Cl. 2—96 **8 Claims**

An efficient and effective means for connecting and sealing the front trunk and collar portions of a turnout coat is disclosed. One side of the coat front fits between two parallel flaps which form the other side of the coat front. Strips of engageable fastening material are provided on the confronting surfaces of the overlapping portions of the coat front so that the coat can easily be closed and opened, even in emergency situations. A wide tab is provided which interconnects the frontal halves of the collar to maintain the collar in the raised position. The collar has vertically extended side portions which cover the ears of the wearer and a depressed rear portion to conform the collar to the underside of a helmet. When the turnout coat is worn with tranditional protective equipment, the combination of the front flaps, tab and raised collar fully protect the wearer from exposure. An improved sleeve design is also disclosed to allow freedom of movement for the wearer even when the turnout coat is fully closed.



3,833,939

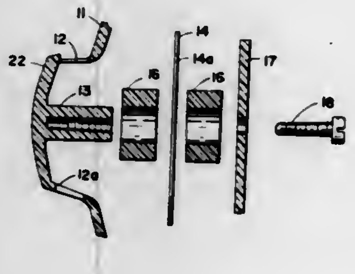
HEARING PROTECTOR HEADSET

Harry Dostourian, Worcester, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Nov. 3, 1972, Ser. No. 303,452

Int. Cl. H04r *1/10*

U.S. Cl. 2—209 **9 Claims**



An improved circum-aural headset in which a headband is movably attached to an ear enclosure housing. The ear enclosure is adapted to be in substantially air-tight resilient contact with the region of the head about the ear. A shaft is attached to and projects axially of the ear enclosure housing and one end of the headband having an elongated over-sized complementary slot is engaged to the shaft. A pair of resilient members are each mounted on the shaft on either side of the headband. The enclosure housing is provided with adequate access to the shaft for engaging the headband and the resilient members to the shaft. A threaded member is provided for securing the headband and the resilient members to the shaft and for applying a predetermined compressive force to the resilient members. The combined action of the over-sized headband slot and the resiliently applied force permits limited universal motion between the headband and the ear enclosure housing.

3,833,940

BILE DUCT ENDOPROTHESIS

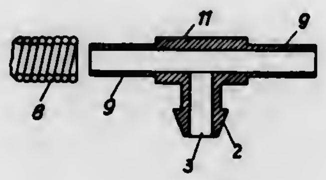
Walter Hartenbach, Schwalbacher Str., 62 Wiesbaden, Germany

Filed Oct. 16, 1972, Ser. No. 297,746

Claims priority, application Germany, Nov. 17, 1971, 2156994

Int. Cl. A61f *1/24;* **A61m** *27/00*

U.S. Cl. 3—1 **8 Claims**



A bile duct endoprothesis having a metal or plastic cannula for introduction into the bile duct and having rounded or beveled ends to aid in insertion and a radially extending portion which serves as a means for attaching a drain hose to the cannula and also as a means for insuring against longitudinal displacement of the cannula after it has been positioned within the bile duct. The cannula has two discrete end sections which are detachable joined to a push on frictional type connector that enables easier implantation of the cannula within a bile duct.

3,833,941

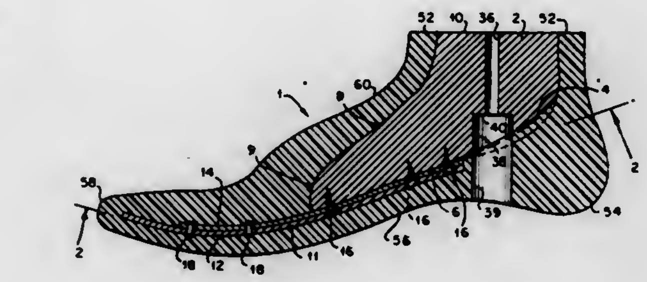
MOLDED SACH FOOT

Eugene Wagner, Wagner's Orthopedic Supply Company, 375 W. 4th South St., Salt Lake City, Utah 84110

Filed Feb. 28, 1973, Ser. No. 336,507

Int. Cl. A61f *1/08*

U.S. Cl. 3—7 **15 Claims**



An artificial foot having a wooden keel in the ankle portion which has a diminished heel portion, a flat arch portion, a curved instep portion, a rounded lower front end portion and a flat top; a molded soft resilient foam coating on said keel which has heel and toe portions; and a reinforcing member comprising a highly resilient synthetic resin (preferably nylon) strip secured at its rear end to said flat arch portion and its front end extending into said toe portion to give it predetermined flexibility. Coatings on exposed broad surfaces of said strip bond it to said foam coating.

A method of making such artificial feet, particularly with keel portions of predetermined variable density and toe portions of predetermined flexibility, by fashioning the keel with its heel portion properly diminished for the predetermined heel density, preparing the reinforcing strip to provide the predetermined toe flexibility by choice of composition gauge, length and number of highly resilient synthetic resin (preferably at least one nylon) strips, securing it properly to the keel and molding the soft synthetic resin foam on and bonding it to said keel and reinforcing member.

3,833,942

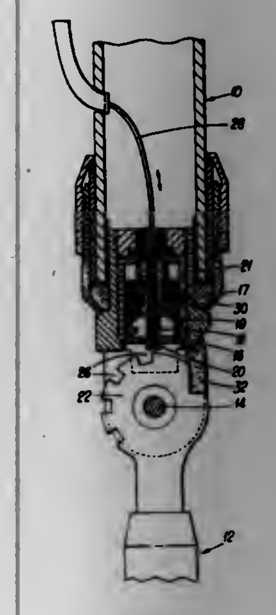
PIVOTED ARTIFICIAL LIMB WITH SPRING LOADED JOINT LOCK

Dennis William Collins, Kingston-upon-Thames, England, assignor to Hugh Steeper (Roehampton) Limited, London, England

Filed Jan. 19, 1973, Ser. No. 325,155

Int. Cl. A61f *1/06, 1/04, 1/08*

U.S. Cl. 3—12.3 **8 Claims**



An artificial arm or leg comprising a pair of rigid tubular limb members which are pivotally connected together at adjacent ends so that the pivotal connection corresponds to an elbow-joint or a knee-joint, in which one of the limb members is provided at or near the pivotal connection with a spring-loaded movable locking member adapted to engage and hold fast a toothed segment or wheel provided on and rigid with the other limb member, the locking member having an operating cord which, on being pulled once, releases the locking member so that it engages the toothed segment or wheel, and which, on being pulled a second time, moves the locking member clear of the toothed segment or wheel so that the two limb members can pivot relatively to each other.

3,833,943

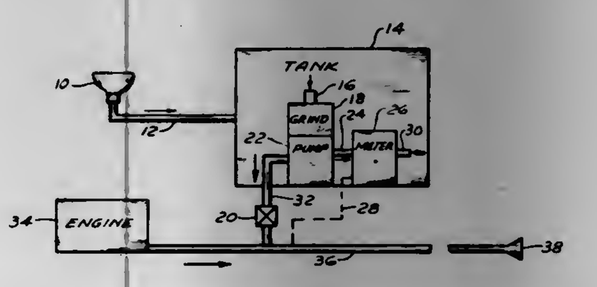
DISPOSAL SYSTEM UTILIZED WITH A HEAT SOURCE

Paul A. Sturtevant, 3880 W. Riverside Dr., Fort Myers, Fla. 33901

Filed July 10, 1972, Ser. No. 270,076

Int. Cl. E03d *11/02, 11/00;* **B60r** *16/04*

U.S. Cl. 4—10 **9 Claims**



An effluent disposal system for use in conjunction with a high temperature heat source in which waste material is mascerated and meterably discharged into the source of heat as a function of heat source operating conditions such as pressure or temperature, thus insuring the most efficient waste disposal throughout the complete heat source operating range.

3,833,944

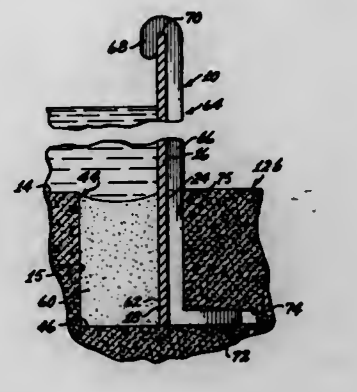
FLUID CONTAINING STRUCTURE

Adam D. Goettl, and Bruce A. Goettl, both of Phoenix, Ariz., assignors to Amoy Research and Development Co., Phoenix, Ariz.

Filed May 24, 1973, Ser. No. 363,345

Int. Cl. E04h *3/16;* **E04g** *11/04;* **E02d** *27/01*

U.S. Cl. 4—172 **3 Claims**



A fluid containing structure including a horizontally disposed base member with means formed therein for positionally engaging the lower end of an upstanding endless wall. Seal and support means provided at the juncture of the lower end of the wall with the base member seals that juncture and structurally supports the wall.

3,833,945

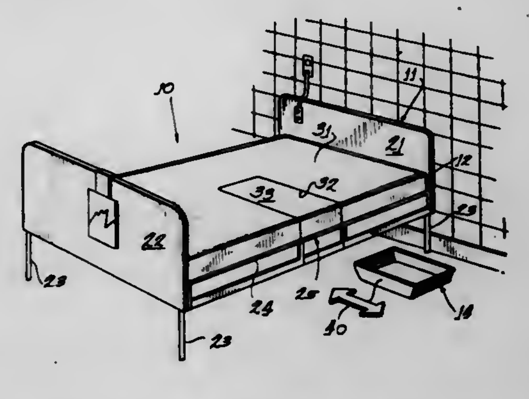
HOSPITAL BED WITH REMOVABLE BED PAN

Nahum Moody, Rt. 1, Dalbo, Minn. 55017

Filed Dec. 3, 1973, Ser. No. 421,063

Int. Cl. A61g *7/02*

U.S. Cl. 5—90 **3 Claims**



A hospital bed having a central edge section of the bed frame and mattress supported thereon adapted to be swingably pivoted to a position beneath the bed frame with a tray then adapted to be similarly pivoted from a storage position to a position replacing the portion of the bed frame which has been pivoted out of the way, the tray adapted to receive a conventional bedpan thereon with the top of the bedpan disposed slightly beneath the top surface of the surrounding mattress for use by a patient in the bed without having to any way lift or shift the patient on the mattress thus avoiding any pain to the patient and any labor for the nurses and other hospital attendants.

3,833,946

VEHICLE CAR BED FOR INFANTS

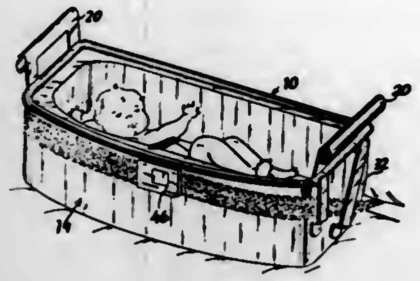
Heinrich F. Von Wimmersperg, 15929 Grand River Ave., Detroit, Mich. 48227

Filed Oct. 12, 1972, Ser. No. 296,898

Int. Cl. A47d *7/04*

U.S. Cl. 5—94 **16 Claims**

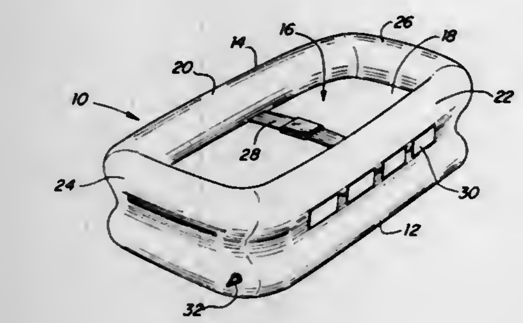
A vehicle car bed for infants adapted to be secured on a vehicle seat by a conventional seat belt. The bed is designed to be positioned so that it extends crosswise of the vehicle and is provided at each end with links or brackets for connection with the seat belt and secured to the bed such that the pull exerted on the bed by the seat belt in the event of sudden deceleration of the vehicle extends along a line spaced above



the center of gravity of the bed with the infant therein so that the bed, or at least the bottom and front wall thereof, tilt upwardly and forwardly and absorb the impact of the infant's body over a relatively large area.

3,833,947
INFLATABLE CRIB

Robert N. Sorensen, 3 Prospect Rd., Billerica, Mass. 01820
Filed Nov. 13, 1972, Ser. No. 305,651
Int. Cl. A47d *7/04*; **A47c** *27/08*
U.S. Cl. 5—94 **15 Claims**

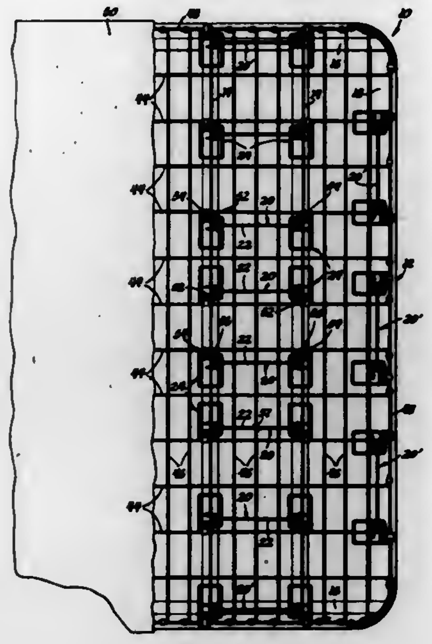


An inflatable crib comprising a base portion generally defining a mattress area; an inflatable wall portion attached to the base portion, and having an inner impervious member connected to and rising from the base portion at the periphery of the mattress area, and an outer impervious member spaced from the inner member when the crib is inflated; and an overhanging shoulder member attached to the wall portion and extending outwardly from the mattress area beyond the inner member for exerting a force on the wall portion downwardly and beyond the mattress area upon deflation of the wall portion.

3,833,948
BOX SPRING ASSEMBLY

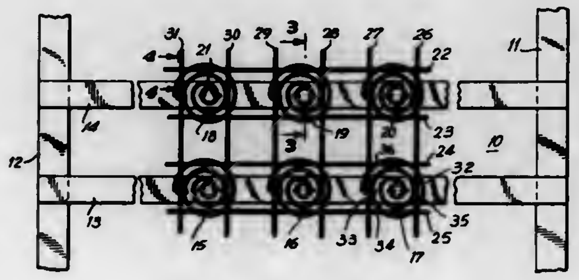
Zygmunt M. Surletta, Detroit; Chester E. Klicki, Warren, and Robert A. Nowack, Troy, all of Mich., assignors to Lear Siegler, Inc., Detroit, Mich.
Filed Mar. 1, 1973, Ser. No. 337,036
Int. Cl. A47c *23/02*
U.S. Cl. 5—247 **18 Claims**

A box spring assembly including a wooden frame with a plurality of spring members arranged on the frame to define a load-supporting area having side and marginal edges. Each of the spring members is defined by an integral wire having a straight section with a fishmouth section at each end thereof. The spring members may be of various configurations but the spring members are isolated from one another and a grid is disposed over and interconnects the spring members. The grid is defined by a first plurality of parallel wires and a second plurality of parallel wires extending transversely and crossing the first plurality of wires. The wires of the grid are clipped to the various spring members. The grid also includes a border wire defining the periphery of the load-supporting area and a plurality of auxiliary spring members are disposed about the periphery of the load-supporting area for supporting the border wire.



3,833,949
INTERLACED WIRE LOCKING APPARATUS FOR COILED BOX SPRING CONSTRUCTION

James Piliero, 30-83 37th St., Astoria, N.Y. 11103
Filed June 22, 1973, Ser. No. 372,601
Int. Cl. A47c *23/02*
U.S. Cl. 5—259 B **7 Claims**

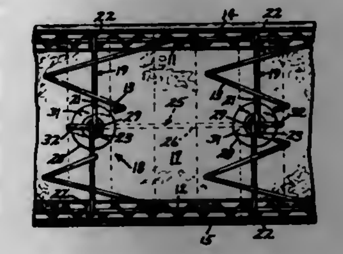


An interlaced wire grid having mutually interlocking crimped wire segments are each wire intersection is disclosed for frictional engagement with the upper coil turns of coil springs. The grid forms a plurality of individual wire-bound perimeters each having a pair of parallel grid wire sections at equal distances from a supporting framework slat upon which the coil springs are secured, and adjacent parallel sections for completing the locking perimeter forming the frictional engaging surfaces. During assembly parallel wires of the grid may be deformed to admit the top coil and thereafter restored into locking engagement wire-to-wire as well as coil-to-wire perimeter to restrain coil spring movement.

3,833,950
HANDLE CONSTRUCTION FOR MATTRESSES AND THE LIKE

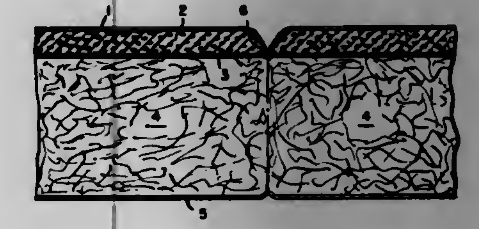
James S. Pappathatos, Burnsville, Minn., assignor to Bechik Products, Inc., St. Paul, Minn.
Filed Jan. 22, 1973, Ser. No. 325,845
Int. Cl. A47c *27/00*; **A47b** *95/02*
U.S. Cl. 5—345 B **6 Claims**

A mattress construction having peripheral frame members held spaced apart by resilient means, a top wall, a bottom wall, and opposite side and end walls connecting the top and bottom walls, a plurality of handles in which each includes spaced resilient anchor members. The anchor members are connected to and extend between the peripheral frame members and are formed to flex toward an opposite side wall to provide auxiliary support for the peripheral frame members. Spaced grommets are mounted in the side wall of the mattress adjacent each of the anchor members. A hand member has a grip portion rigidly connecting spaced leg portions, the leg portions extending through the grommets to the interior of the mattress and being connected to the anchor members whereby lifting forces on the handle members are transferred to the peripheral frame members.



3,833,951
CIGARETTE BURN RESISTANT MATTRESSES HAVING ALUMINIZED POLYURETHANE FOAM LAYER

Melvin D. Hurwitz, Southampton, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.
Filed Apr. 2, 1973, Ser. No. 347,036
Int. Cl. B44d *5/00, 1/36*; **C09k** *3/28*; **A47c** *27/22*
U.S. Cl. 5—345 R **9 Claims**

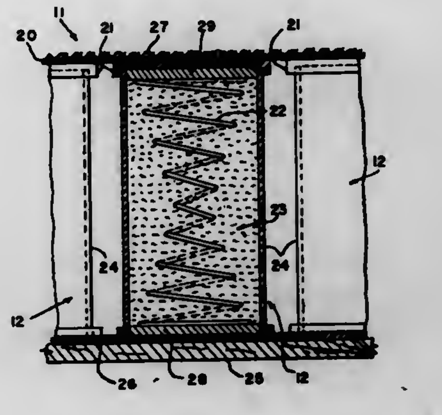


This invention is concerned with flameproofed mattresses, pillows and sleeping bags, pads, cushions for chair or sofas, and so on. The flameproofed materials of the present invention may be formed of (1) a close-woven fabric attached to (2) a thick layer (e.g., 0.1–1 inch) of resilient self-extinguishing polyurethane cushioning foam having (3) a metallized heat-conductive layer, such as of aluminum, which dissipates heat rapidly, thereupon, the metallized foam being secured to (4) filling or padding with (5) a backing fabric secured thereto. The parts are suitably locally secured together by tying means such as stitching, tufting, dielectric welding or the like. The object is to protect the main body of highly combustible filler material in cushions, pillows, mattresses, sofas, upholstered chairs, and the like from fire in case of the dropping of a match, cigarette, or the like on the cover fabric or ticking by someone, such as a careless smoker. Even though the foam is self-extinguishing relative to a lighted cigarette, when not compressed, when it is compressed by tying as by stitching, the heat may be conducted therethrough and ignite the filling or stuffing, if no metal layer is present.

3,833,952
NONLINEAR ENERGY ABSORPTION SYSTEM

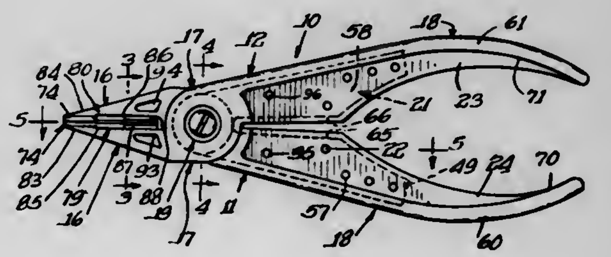
Bruce L. Rosenberg, Atlantic City, N.J., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Jan. 18, 1973, Ser. No. 324,614
Int. Cl. A47c *27/04, 27/22*
U.S. Cl. 5—353 **7 Claims**

A military aircraft ejection seat providing normal cushion comfort under ordinary conditions of use and effectively absorbing the inertial energy of the pilot when the seat ejects and undergoes a square wave acceleration. The seat comprises a plurality of cylindrical shaped cushion-like rate nonlinear support elements between a metal seat pan and the buttocks of a pilot. The cushion-like supports are arranged in a hexagonal pattern and are provided with a helical spring that cushions the pilot in ordinary flight conditions and a flow-dilatant suspension that substantially resists compression only during high rates of compression.



3,833,953
DIELECTRIC TOOL

Julian V. Fisher, Carpentersville, and Daniel C. Heck, Deerfield, both of Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.
Filed Dec. 21, 1973, Ser. No. 427,236
Int. Cl. B25b *7/02, 7/06, 7/22*
U.S. Cl. 7—5.5 **17 Claims**

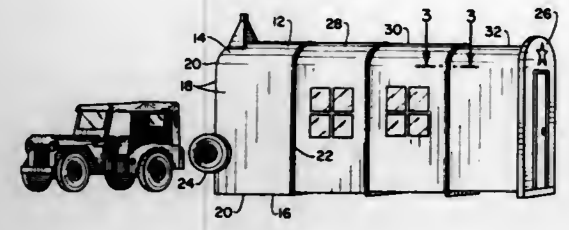


A tool for use with electric wires and the like is disclosed. The tool comprises two intersecting arms and pivot means. Each arm includes a core member having a three-part work edge at one end and a triangular handle portion at the other end. Dielectric material covers substantially the entire core member of each arm, and forms a T-shaped arm handle with the core member being buried in the T base. The nose is tapered in two planes to permit use in restricted work areas.

3,833,954
FLOATABLE, TELESCOPING, TRANSPORTABLE SHELTER

Raymond S. Daughenbaugh, Ojai; Lewis B. Simon, Oxnard, and Frank R. Braun, Camarillo, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Nov. 1, 1973, Ser. No. 411,931
Int. Cl. B63c *13/00*; **B60p** *3/34*
U.S. Cl. 9—1 R **5 Claims**

A floatable, telescoping, transportable shelter comprises an end section containing a plurality of telescoping middle sections which are pulled therefrom to form the shelter. A bulkhead provides a cover for the end section and a closure member for the last telescoped middle section. Seals for rendering the shelter water-tight are also provided. Wheels are attached to a side of the end section so that the shelter must be



tipped over on its bottom in order to slide out the telescoping middle section, thereby providing easily removable wheels and imparting maximum stability to the shelter.

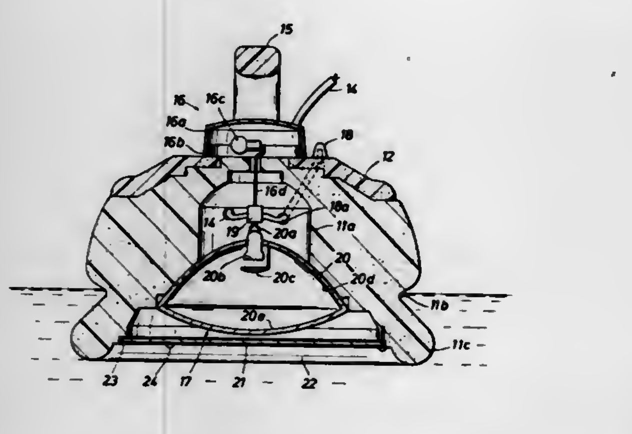
3,833,955
MULTIPURPOSE LIGHT ASSEMBLY

Clarence E. Hulbert, Jr., 212 Mattson, West Columbia, Tex. 77486

Continuation-in-part of Ser. No. 136,799, April 21, 1971, Pat. No. 3,754,135. This application May 13, 1971, Ser. No. 142,914

Int. Cl. B63b *45/00*

U.S. Cl. 9—8.3 E **9 Claims**



A buoyant body of foamed polyurethane equipped with an illuminating light which is directed downwardly into the water when the body is floating on the water's surface. A smaller signal light at the top of the body serves as a warning light. The assembly may be held by a handle formed along its upper end. The light emitting face of the assembly is sealed with a recessed, light transmitting face plate to provide a treated, directional light beam of white light set in a thin annular field of blue light to provide improved illumination in highly reflective environments. Power is preferably supplied from a remote source through a flexible electrical line and a three-way switch is included on the assembly to energize the illuminating light and/or the signal light. The buoyant body has a low center of gravity and is equipped with an annular recess along its outer surface which cooperates with the inset area over the face plate to increase floatation stability when the body is in an upright position.

3,833,956
WATER SKATE

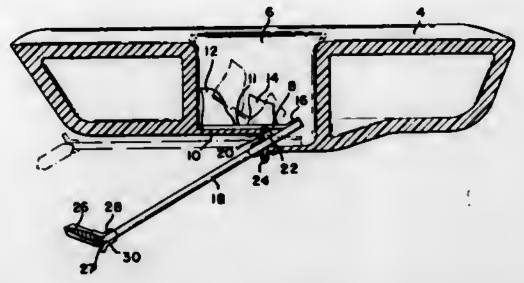
John F. Meehan, 16102 Penninsula Rd., Stanwood, Wash. 98202

Filed June 29, 1972, Ser. No. 267,453

Int. Cl. A63 *15/04*

U.S. Cl. 9—310 D **8 Claims**

A water skate for each foot including a buoyant hull structure. Each hull has a vertically pivotable foot support mounted within a well in the hull. Movement of the foot support actuates a lever arm which is fixedly secured to the foot support and extends rearwardly beneath the hull and terminates in a horizontally disposed blade. The blade reciprocates through



the water as it is moved by the pivotal movement of the foot support and reacts with the water to provide forward movement of the hull on both the upward and downward motion.

3,833,957
BOOT OF THE TYPE COMPRISING A BOOTLEG LINED WITH EXPANDED MATERIAL

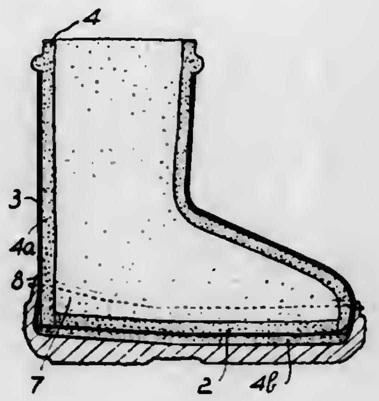
Francesco Vello, Venegazzu, Volpago Del Montello, Italy

Filed Mar. 5, 1973, Ser. No. 338,012

Claims priority, application Italy, Mar. 10, 1972, 41538/72

Int. Cl. A43d *9/00*

U.S. Cl. 12—142 E **2 Claims**



An after-ski boot of the type comprising a bootleg and a lining of expanded thermoinsulating material. The boot comprises a hull type sole, of a material unalterable at low temperatures, comprising a base and a flange adapted to be joined to an upper. Integral with the sole, there are provided a part projecting from the base, with a non-slip surface which extends on to the heel and to the toe.

3,833,958
SHOE LAST AND METHOD FOR INSOLE ATTACHMENT MEANS

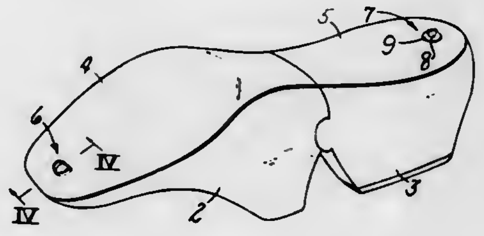
John W. Randall, Leicester, England, assignor to USM Corporation, Boston, Mass.

Filed Oct. 19, 1973, Ser. No. 408,085

Claims priority, application Great Britain, Nov. 9, 1972, 51736/72

Int. Cl. A43d *3/00, 9/00*

U.S. Cl. 12—142 R **7 Claims**



A shoe last having an insole securing member with cutting edges projecting from the forepart of the last bottom, extending lengthwise of the last and being spaced widthwise to cut into an insole to hold the insole on the last bottom. A method for temporarily securing an insole on a last bottom in which the insole material is compressed between the cutting edges for frictionally holding the insole.

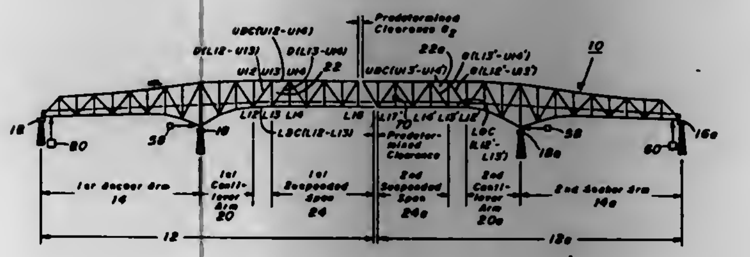
3,833,959
METHOD OF ERECTING A CANTILEVER TRUSS BRIDGE; BRIDGE; PANEL FOR A BRIDGE; AND DUMMY CHORDS FOR PANEL

William K. McGrath, St. Clair Twp., Allegheny County, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Nov. 21, 1972, Ser. No. 308,366

Int. Cl. E01d *19/00*

U.S. Cl. 14—14 **22 Claims**



An improved method of erecting a cantilever truss bridge; an improved bridge; an improved panel for a bridge; and improved dummy chords for a panel are disclosed.

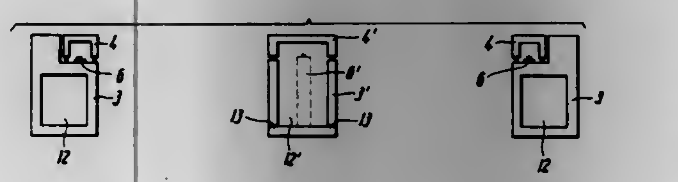
3,833,960
PROCESS FOR THE CONSTRUCTION OF UNDERPASSES AND AN ABUTMENT FOR USE THEREIN

Walter Herth, 2106 Bendestorf 339, and Theodor Musfeldt, 22 Besenbek, Post Elmshorn, both of Germany

Filed Aug. 23, 1972, Ser. No. 282,916

Int. Cl. E01d *19/02*

U.S. Cl. 14—77 **10 Claims**



A procedure for the installation of underpasses beneath existing road structures such as railroad structures is disclosed. The process permits the installation of suitable abutments and central pillars if necessary beneath existing road structures with a minimum delay in the traffic flow over the road structure. Abutments are first positioned beneath the road structure with the areas adjacent the top of the abutments being provided with fillers in the form of coverings covering that area of the abutments which is subsequently to receive superstructures for supporting the road structure. The fillers are provided to enable the building of additional superstructure supports on the said areas after the abutments have been placed in position. The fillers are of generally inverted U-shaped configuration thus providing working area beneath the fillers to enable the formation of the superstructure support. Additionally the disclosure provides prefabricated abutments or pillars for use during construction of wide underpasses beneath existing road structures which consist of a structural body having a more or less rectangular cross-section and having longitudinal hollow cavities, with an upper portion of the abutments being provided with notches or recesses to receive a portion of the superstructure, with those notches or recesses being covered by fillers during insertion of the abutments into the road bed with the fillers being removed during positioning of a bridge supporting superstructure.

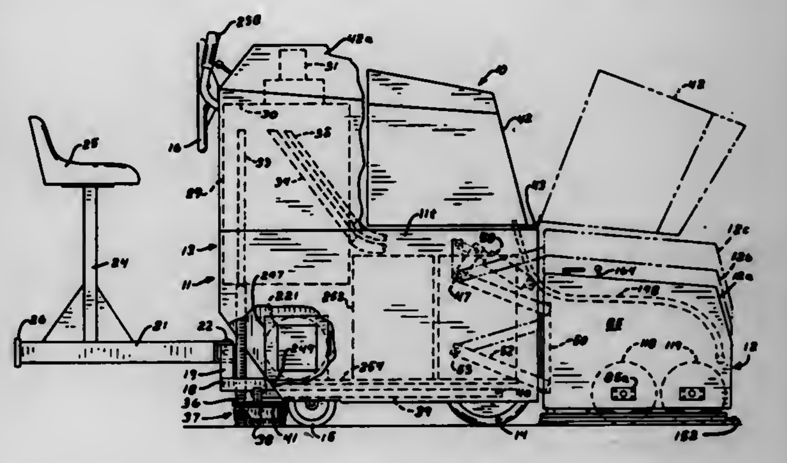
3,833,961
SURFACE MAINTENANCE MACHINE

Lloyd D. Fortman, and Joseph G. Kasper, both of Golden Valley, Minn., assignors to Tennant Company, Minneapolis, Minn.

Filed Sept. 25, 1972, Ser. No. 292,182

Int. Cl. A47l *11/00*

U.S. Cl. 15—50 C **28 Claims**



A surface maintenance machine having a scrubber head unit, a power drive unit that includes a dirty solution tank, a cleaning solution tank, a removable operator's seat whereby the machine may be used as an operator ride-on unit or a walk-behind unit, and a parallel linkage system for moving the scrubber unit between the elevations: (1) A horizontal cleaning position, (2) A horizontal transport position, and (3) An elevated turning position, and in the third position permitting the scrubber head unit being rotated about 90° to a generally vertical position, and lock mechanism to releasably retain the scrubber head unit in either of positions (2) and (3), or the vertical condition, and a propelling steerable front wheel having a brake resiliently retained in a braking condition and a rear squeegee assembly at the rear of the power unit. The scrubber head unit in a horizontal condition is of a substantially greater width than the maximum width of the power unit and about the same width as the rear squeegee assembly which is easily removable, while the height of the scrubber unit in a horizontal position is substantially less than the maximum width of the power unit. The scrubber head unit includes a pair of easily removable, power driven rotatable brushes, a squeegee assembly, and a combination baffle-trough that may be selectively mounted to collect liquid and debris raised by the brushes, or to permit the raised liquid to be recirculated to the surface being cleaned.

3,833,962
NOZZLE FOR VACUUM CLEANER

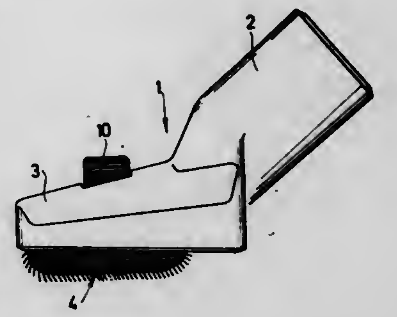
Kurt Krusche, Frankfurt/Main, Germany, assignor to ALL-STAR Verbrauchsgueter GmbH & Co. KG, Frankfurt/Main, Germany

Filed Apr. 17, 1972, Ser. No. 244,806

Claims priority, application Germany, May 12, 1971, 2123436

Int. Cl. A47l *9/06*

U.S. Cl. 15—400 **9 Claims**



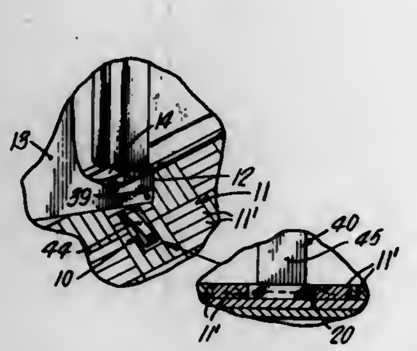
A nozzle for a vacuum cleaner having a hollow nozzle body having means for connecting the vacuum pipe of a vacuum cleaner to the nozzle body, the nozzle body having a vacuum pick-up opening in a side thereof which is turned away from the connecting means, the part of the opening in the side of the nozzle body being closed by an insert the outer area of which is covered by a brush cover. The insert may either be installed as a part removable from the nozzle body or as a permanent part thereof. In certain of the disclosed embodiments the bristles of the brush cover are tilted with respect to the main extent of the brush cover. The bristles may all be pointed in the same direction, as for example, in the pull direction of the vacuum nozzle. In another illustrative embodiment, a part of the bristles may be tilted in the pull direction and a part may be tilted in the push direction, so that the nozzle picks up lint, dirt and the like in both directions of its travel. The nozzle of the invention may also be pivotally connected with the vacuum pipe of a vacuum cleaner, and may include a pivotally mounted skirt which defines the vacuum area in communication with the vacuum port of the nozzle in all possible positions of tilting of the nozzle about its pivotal connection.

3,833,963

LOCKABLE SAFETY DOOR STOP

S. J. Douglas Waters, 3250 Forest Hill, Montreal, Quebec, Canada

Filed Mar. 6, 1973, Ser. No. 338,450
Int. Cl. E05f *5/02*
U.S. Cl. 16—82 **9 Claims**



A door stop comprising a floor plate and a stop member which is releasably securable to the floor plate. The floor plate has a flat upper surface with stop retaining means therein. The stop member has a raised barrier surface and a lower surface. Projection means are provided in the lower surface of the stop member for engagement with the retaining means in the floor plate. A locking mechanism is provided in the stop member to secure the stop member to the floor plate in immovable position when the stop projection means is in engagement with the floor plate retaining means.

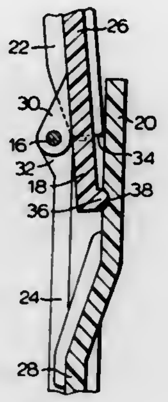
3,833,964

SELF-LOCKING HINGE

R. Earle Harcourt, Nassau, Bahamas, assignor to Suitcase Shower Ltd., Alberta, Canada

Filed Sept. 20, 1971, Ser. No. 181,962
Int. Cl. A47b *91/06*
U.S. Cl. 16—145 **8 Claims**

A self-supporting self-locking hinge unit is described comprising two or more elongated plastic hinge elements all pivotally joined in end-to-end relation to be hingeable between a side-by-side closed position and a substantially in-line open position. Each adjacent pair of elements are provided with integral projecting tongues which are interengageable with an over-centre action to releasably lock said adjacent elements in their said open position. A plurality of multi-element such hinge units are associated with flexible sheet material and interconnected at the outermost elements of each unit to provide self-supporting screen structure; such structure being exemplified herein by a collapsible portable shower unit.

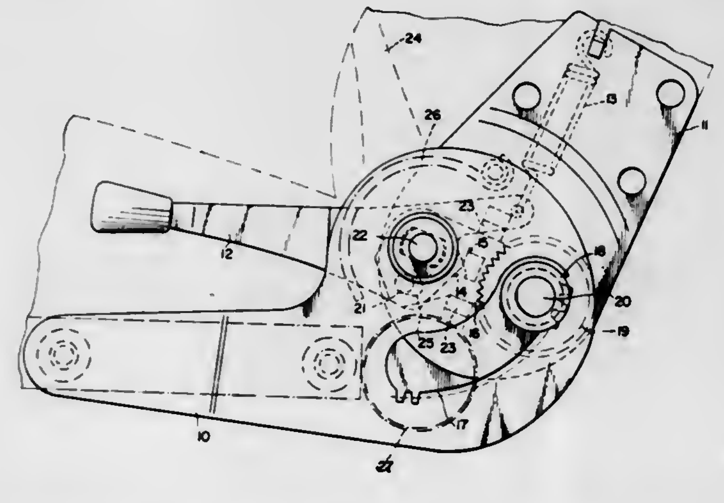


3,833,965

ADJUSTABLE SEAT INCLINATION FITTING

Peter Hess, Coburg, Germany, assignor to Metallwerke Max Brose & Co., Coburg, Germany

Filed Nov. 6, 1972, Ser. No. 303,695
Claims priority, application Germany, Apr. 1, 1972, 7212432[U]
Int. Cl. E05d *11/10;* **B60m** *1/02*
U.S. Cl. 16—146 **10 Claims**



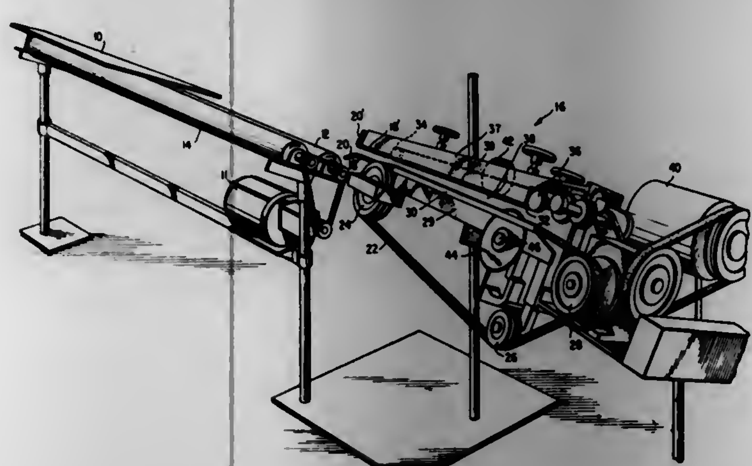
The back rest and seat fitting members of an automotive seat are pivotally interconnected by means of a cross shaft for adjusting the inclination of the back rest; one of the fitting members is provided with a toothed segment concentric with respect to the pivotal shaft and the other of the fitting members is provided with a rotatably mounted gear wheel in meshing engagement with the toothed segment for driving a larger gear wheel that may be selectively locked against rotation by means of a detent positively cammed into locking engagement by movement of an actuating lever into a first position, with movement of the actuating lever pivotally about the pivotal axis to a second position causing withdrawal of the detent by means of a pin and slot connection between the lever and detent. The detent is guided for radial reciprocation, with respect to the pivotal axis, on the fitting member carrying the gear wheels, and the detent member further has a slot elongated in the direction of reciprocation and surrounding the pivotal shaft. Springs may be provided to bias the actuating lever into its locking position and further for biasing the back rest pivotally to its upright position. One of the gear wheels, preferably the smaller gear wheel in tooth engagement with the gear's toothed segment is integrally formed in one piece with a stub shaft splined entirely to its outer terminal end with a single spline root diameter, a first intermediate outer spline diameter portion receiving an internally splined annular bearing member, and an outermost shaft portion having an outer spline diameter less than said intermediate shaft portion outer spline diameter for receiving with a force fit the larger of the two toothed wheels that selectively meshes with the detent.

3,833,966

METHOD AND APPARATUS FOR KILLING POULTRY

Grover S. Harben, Jr., Gainesville, Ga., assignor to Gainesville Machine Company, Inc., Gainesville, Ga.

Continuation of Ser. No. 22,616, March 25, 1970, abandoned. This application May 17, 1972, Ser. No. 253,947
Int. Cl. A22b *21/00*
U.S. Cl. 17—1 E **10 Claims**



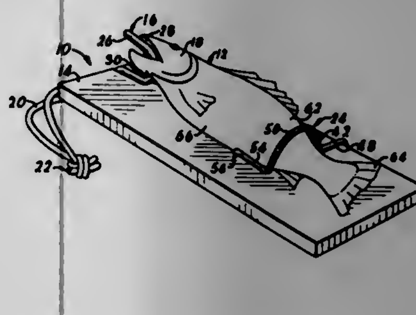
A chicken or other fowl is killed by first stunning with an electrical shock, then by cutting the jugular vein in successive steps rapidly performed. The apparatus includes a wire brush electrode disposed in the path of a chicken conveyor, a spinning circular blade and a head-supporting movable belt for turning the head of the stunned chicken toward the blade.

3,833,967

FISH CLEANING BOARD

Lester C. Kieser, 1038 S. Shore Dr., Kansas City, Mo. 64151

Filed May 29, 1973, Ser. No. 364,702
Int. Cl. A22b *5/14*
U.S. Cl. 17—70 **9 Claims**



A device for use in cleaning fish has a backup board against which the body of the fish is placed, a hook at one end of the board for holding the head of the fish, and a dual-purpose tool removably clamped on the board adjacent the opposite end thereof for confining the body of the fish during scaling or skinning thereof and, alternatively, for holding one side of the body raised from inside the body cavity during filleting. The tool may be moved along the board as necessary in order to accommodate fish of various sizes, and the tool may be removed from one side edge of the board and replaced upon the opposite side edge of the board with ease during the filleting.

3,833,968

METALLIC CARD CLOTHING

Tohru Arai, and Masayoshi Mizutani, both of Nagoya, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya-shi, Japan

Filed Mar. 6, 1972, Ser. No. 231,949
Claims priority, application Japan, Mar. 9, 1971, 46-12895
Int. Cl. D01g *15/84;* **B32b** *15/04, 15/18*
U.S. Cl. 19—114 **2 Claims**

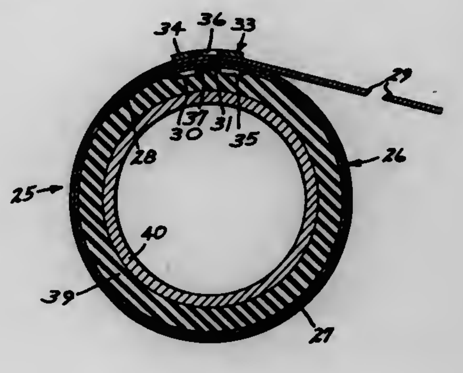
When combing yarn, and particularly synthetic yarn, the metallic card clothing wire has a short life. To extent the life of the card clothing wire, a hard layer selected from a group consisting of vanadium carbide, chromium carbide, tungsten carbide, molybdenum carbide, niobium carbide, tantalum carbide, titanium carbide, zirconium carbide, hafnium carbide and iron boride is difused onto the steel. This hard layer has a smooth working surface and a uniform thickness in the range of from about 8 to 20 microns.

3,833,969

CIRCULAR HOSE CLAMP

Elmont E. Hollingsworth, Winona, Minn., and Llewellyn O. Storlie, Decorah, Iowa, assignors to Deco Products Company, Winona, Mich.

Filed Aug. 29, 1973, Ser. No. 392,492
Int. Cl. B65d *63/06*
U.S. Cl. 24—23 W **12 Claims**



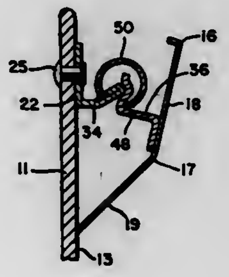
An elongated strap is secured in a spiral form by a band. The band engages a shoulder formed at a first portion of the strap and a second end portion of the strap extends tangentially from the spiral at the band. Aligned apertures are formed in the band in alignment with one aperture formed in the strap adjacent the shoulder. This exposes, in the apertures, strap material from the other strap convolutions which is deformable to secure the clamp in a clamped condition.

3,833,970

CLIPBOARD AND NOVEL HINGE CONNECTIONS

Troy F. Smith, Jr., San Jose, Calif., assignor to The Mead Corporation, Dayton, Ohio

Filed May 24, 1971, Ser. No. 146,493
Int. Cl. B42f *1/00;* **A44b** *21/00*
U.S. Cl. 24—67.5 **15 Claims**



A clipboard includes at least one hinge connection having first and second coupling members. The first member has an end portion bent over flush against itself to form an outwardly facing rounded bearing surface and an inwardly facing butt-end, and the second member has an inwardly facing dimple formed in a portion thereof and defining an oppositely facing projection. The dimple receives the rounded bearing surface, which is retained within the dimple by a split-tube having a first edge retained by the butt-end and a second edge retained by the projection.

3,833,971
CABLE CLAMPS

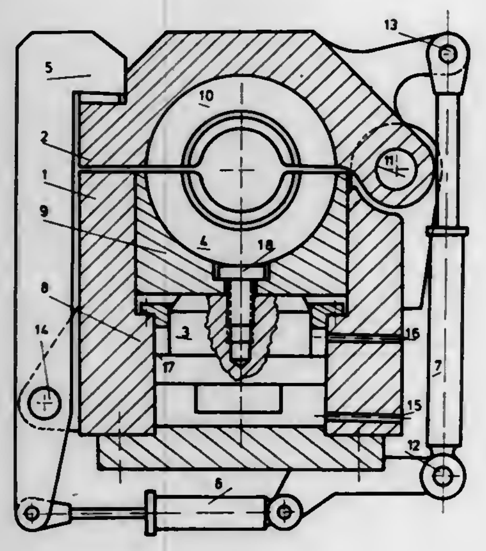
Rudolf Grasman; Walter Hell, and Wilhelm Mullner, all of Vienna, Austria, assignors to Waagner-Biro A.G., Vienna, Austria

Filed Sept. 15, 1972, Ser. No. 289,319

Claims priority, application Austria, Sept. 17, 1971, 8119/71

Int. Cl. F16g *11/00;* **A44h** *21/00*

U.S. Cl. 24—132 WL **6 Claims**



A cable clamp adapted for use in cable-stretching installations. The cable clamp includes stationary and swingable clamp assemblies where the swingable assembly is connected to the stationary assembly for swinging movement with respect thereto between clamping and unclamping positions. The stationary assembly is formed as a power cylinder for a piston guided for movement toward the swingable assembly and urging a lining which directly engages the cable toward a corresponding lining carried by the swingable assembly.

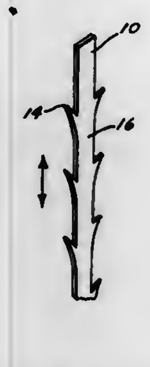
3,833,972
SELF-ADHERING FASTENING FILAMENT

George C. Brumlik, 154 Upper Mountain Ave., Montclair, N.J. 07042

Continuation of Ser. No. 856,964, Sept. 11, 1969, abandoned. This application Aug. 14, 1972, Ser. No. 280,105

Int. Cl. A44b *11/25, 17/00*

U.S. Cl. 24—204 **16 Claims**



A self-adhering fastening device for releasably adhering an opposing article utilizes an elongated filament having a plurality of integral, generally lateral projections defining fastening elements. The filament is initially formed as an elongated body, which may be in the form of a ribbon, having plurality of slits cut along the longitudinal sides of the body, which slits are subsequently opened up to form spaced fastening elements along the length of the body. The slits may be opened by stretching or twisting the body or by applying heat or chemical treatment to the slitted body.

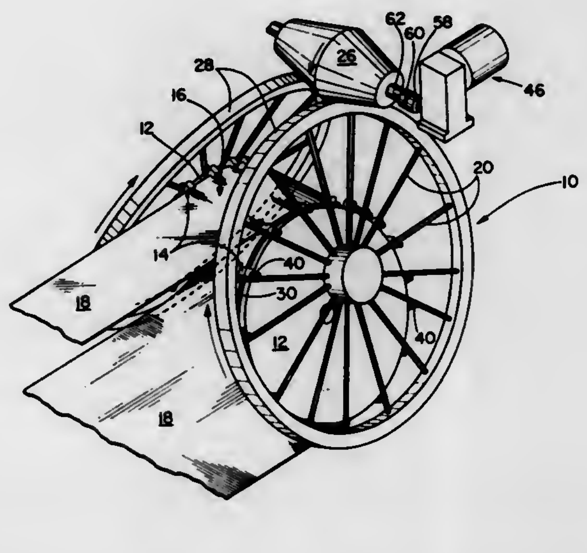
3,833,973
SIMULTANEOUS CONTINUOUS BIAXIAL WEB STRETCHER

Eckhard C. A. Schwarz, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed June 16, 1972, Ser. No. 263,417

Int. Cl. D06c *3/00*

U.S. Cl. 26—59 **4 Claims**



Apparatus for achieving simultaneous, continuous, biaxial orientation of webs including means for feeding the web to clamps positioned about a pair of oppositely canted sheaves, moving the clamped web around the circumference of the sheaves, and removing the biaxially stretched web from the sheaves at a location of wider separation than the feed zone. In one embodiment the clamps are driven by rods rotating parallel to the plane of the sheaves, but about a center which is displaced from that of the sheaves to obtain nearly balanced stretch profiles. Completely balanced stretch is achieved by using slightly s-shaped rods. The clamps accelerate with the web on one semicircle and decelerate on the opposite semicircle. Acceleration provides longitudinal stretching, while the divergence of the sheave circumferences provides lateral stretching.

3,833,974
CORE TRANSFER APPARATUS

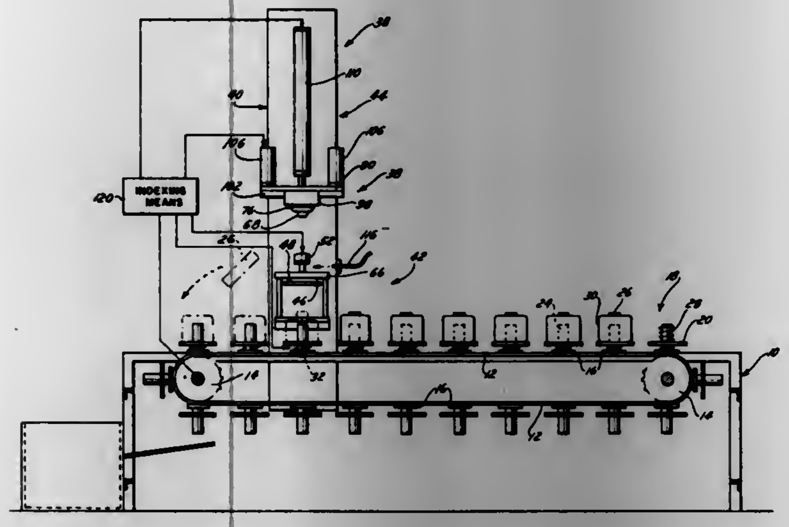
Herbert A. Girard, 1025 Woodland Dr., Gastonia, N.C. 28052

Continuation-in-part of Ser. No. 105,920, Jan. 12, 1971, Pat. No. 3,681,007. This application July 31, 1972, Ser. No. 276,318

Int. Cl. D01h *9/00;* **D02g** *1/20*

U.S. Cl. 28—1 R **9 Claims**

An apparatus for replacing the transfer core of a core supported package with a replacement core includes a frame supported endless conveyor with a core replacement station. A series of spaced yarn package supports are carried by the conveyor. An indexing means is provided for placing the supports containing the yarn packages at the core replacement station. At this station a puller assembly is provided to grip the transfer core and extract it from the yarn package. Package retention mechanism is also provided which is adapted to cooperate with the puller assembly for preventing axial movement of the package during removal of the transfer core.



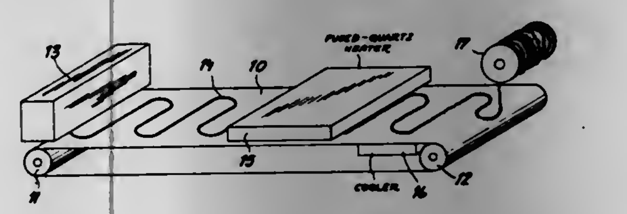
3,833,975
METHOD OF BULKING AND HEAT-SETTING YARN

Hugo N. Cahnman, Kew Gardens, N.Y.; Frank Sterne, Wyckoff, N.J., and Douglas M. Canfield, White Plains, N.Y., assignors to Hugo Cahnman Associates, Inc., Kew Gardens, N.Y.

Filed Nov. 13, 1972, Ser. No. 306,159

Int. Cl. D02g *1/00*

U.S. Cl. 28—72.1 **3 Claims**



A method of and an apparatus for the bulking (texturizing) and heat-setting of synthetic-resin yarn which utilizes the unique properties of a special fused-quartz radiant heater whose surface is generated by a line parallel to the movement of the filament past the heater. The filament may simply be passed between two or more spacedly juxtaposed heaters of this type, can be conveyed on a moving surface past the heater or may pass through an annular heater whose surface generatrices are parallel to the yarn.

3,833,976
PROCESS FOR TEXTURING YARN BY GEAR CRIMPING

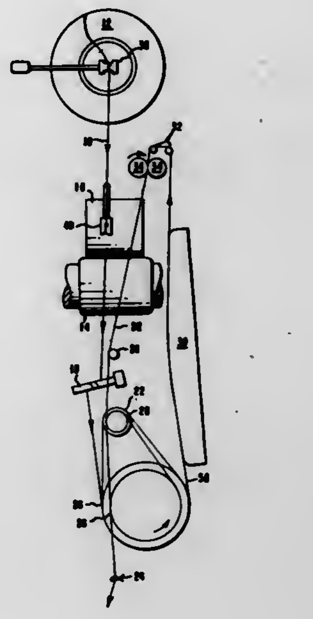
Stanley Robert Cochran, Martinsville, Va., and Melvin Harry Johnson, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 20, 1972, Ser. No. 316,744

Int. Cl. D02g *1/14*

U.S. Cl. 28—72.15 **5 Claims**

A continuous process for imparting crimp to synthetic yarn includes the steps of drawing the yarn, heating the drawn yarn, then passing the yarn through the nip of a pair of crimper gears. An essential feature of the process is operation of the crimper gears to avoid further drawing of the yarn in the nip of or upstream of the gears.



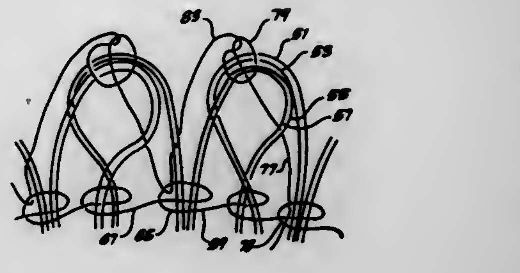
3,833,977
METHOD FOR MAKING THREE-DIMENSIONAL STITCHERY ORNAMENTS

Alice Stewart, 32761 Seven Seas Dr., Laguna Niguel, Calif. 02677

Division of Ser. No. 209,058, Dec. 17, 1971, Pat. No. 3,781,954. This application July 30, 1973, Ser. No. 383,973

Int. Cl. D06m *17/00*

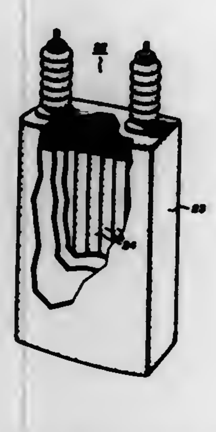
U.S. Cl. 28—77 **4 Claims**



Three-dimensional stitchery creations are formed according to predetermined stitchery methods on apparatus comprising a base member having dimensions of height, width and length according to the three-dimensions of the stitchery creations formed thereon. The base member has a plurality of surfaces over which are distributed a multiplicity of projections about which stitchery materials may be looped and woven on a given surface and from one surface to another according to the predetermined stitchery methods forming the three-dimensional stitchery creation.

3,833,978
STABILIZED ESTER IMPREGNANT

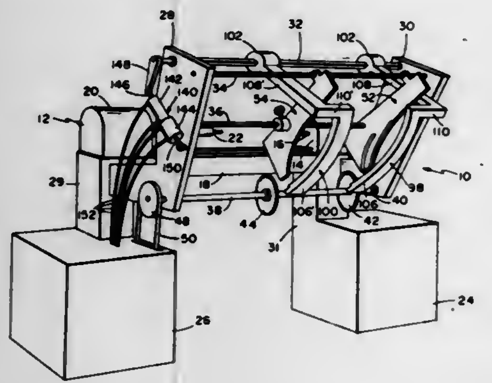
John W. Eustance, South Glens Falls, N.Y., assignor to General Electric Company, Hudson Falls, N.Y.
Continuation-in-part of Ser. No. 281,204, Aug. 16, 1972, Pat. No. 3,754,173. This application June 12, 1973, Ser. No. 369,203
Int. Cl. H01g *13/00*
U.S. Cl. 29—25.42 **6 Claims**



A high temperature and extended time method of impregnating electrical capacitors with an epoxy stabilized dielectric liquid aromatic ester.

3,833,979
FEED AND TRIM APPARATUS

Robert W. Seavey, 79 Aberdeen Rd., Weston, Mass. 02193
Filed Aug. 27, 1973, Ser. No. 391,583
Int. Cl. B26d *9/00*
U.S. Cl. 29—27 C **21 Claims**

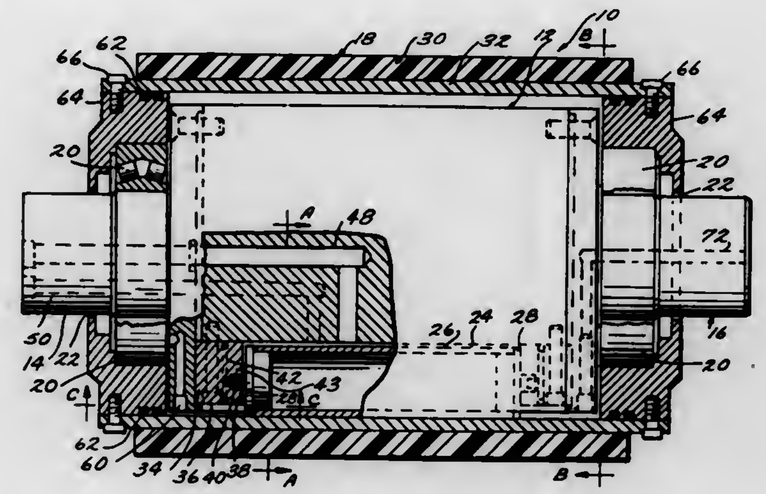


Apparatus for advancing successive longitudinally-extending workpieces from the outlet of a storage hopper into position for engagement by a lathe spindle, the apparatus including a movable feed arm having a recess for engaging an intermediate portion of one of the workpieces, a driver for moving the feed arm in a plane generally perpendicular to the longitudinal axis of a workpiece engaged thereby between a first position wherein the recess is adjacent the hopper outlet and a second position wherein the recess is aligned with the lathe spindle, and a saw blade intermediate the hopper outlet and lathe spindle along the path of movement of the feed arm, the blade being in a plane parallel to the plane of movement of the feed arm and being arranged for cutting an end portion from a workpiece engaged by the feed arm during movement of the feed arm from the first position to the second position.

3,833,980
ROLL FOR APPLYING PRESSURE

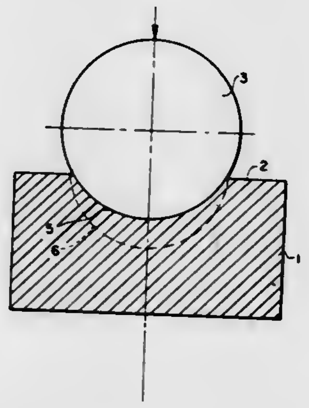
Stephen B. Gaghan, Franklin Lakes, N.J., assignor to Van Vlaanderen Machine Company, Inc., Patterson, N.J.
Filed Apr. 27, 1973, Ser. No. 355,305
Int. Cl. B21b *13/02*
U.S. Cl. 29—116 AD **8 Claims**

A roll for applying pressure comprising two shafts, a stationary inner structure mounted between the shafts, a slot extending substantially throughout the length of the inner structure, a rotatable outer cylinder surrounding the inner structure, means mounted on each shaft to rotatably support the outer cylinder, an inner roller disposed within the slot defined in the inner structure, said slot being substantially parallel to the axis of rotation of the outer cylinder, means for sealing the inner roller in the slot to form a chamber adapted to contain a pressurizing fluid, a fluid passage means for supplying fluid through one of the shafts into the chamber, said chamber and inner structure being adapted by the force of the fluid to urge the inner roller against an inner surface of the rotatable outer cylinder, and means for applying a force to the roll whereby the outer cylinder is urged toward the opposing surface.



3,833,981
PROCESS FOR MAKING A SPHERICAL SEGMENT FOR A SUPPORTING MEMBER OF A SPIRAL GROOVE BEARING

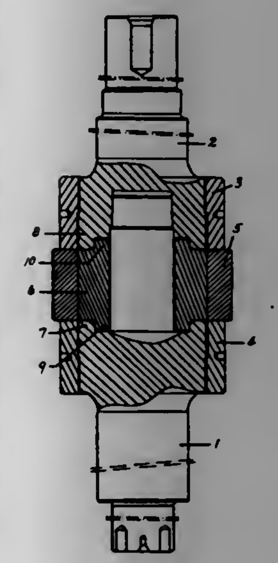
Wolfgang Hepp, Immenstaad; Klaus Pimiskern, Friedrichshafen, and Werner Herbert, Markdorf, all of Germany, assignors to Dornier System GmbH, Friedrichshafen, Germany
Filed June 25, 1973, Ser. No. 373,135
Claims priority, application Germany, Aug. 11, 1972, 2239638
Int. Cl. B21d *53/12;* **B23p** *11/00*
U.S. Cl. 29—148.4 R **3 Claims**



This invention relates to a process for making a spherical cap or segment for a bearing supporting member of a spiral groove bearing having a spherical shaft end, which comprises pre-stamping a planar end face of a solid body of a hardenable alloy by means of a substantially spherical tool having a greater radius than the spherical cap or segment to be made, to approximately half the depth and nearly the diameter of the segment to be made, and producing the desired exact concave stamping of the spherical cap or segment by a second tool means calibrated to the desired final dimensions of the spherical segment.

3,833,982
METHOD OF MOUNTING RINGS OF HARD SINTERED METAL ON A ROLLING CYLINDER

Jean Paulin, St-Martin D'Heres, France, assignor to Ugine Carbone, Grenoble, France
Filed May 3, 1973, Ser. No. 356,845
Claims priority, application France, May 4, 1972, 72.15809
Int. Cl. B21h *1/14;* **B23p** *11/02*
U.S. Cl. 29—148.4 D **7 Claims**



In a device for hot rolling metal wires and strip, a rolling cylinder embodying a supporting ring and a working ring mounted on the cylinder with the supporting ring having a coefficient of expansion approximating that of the working ring and a clearance between its inner periphery and its support with the working ring fitted onto the supporting ring with a clearance of not more than a few hundredths of a millimeter and means engaging the axial portions of the working ring to prevent axial displacement whereby the forces generated under operating conditions operate to apply compressive forces to the working ring.

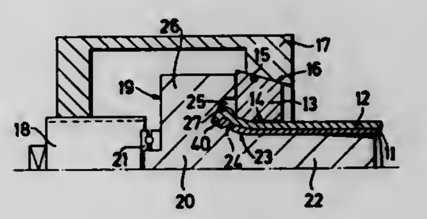
3,833,983
METHOD OF MAKING ALUMINIUM BEARING ALLOY STRIP

William Albert Baker, New York, N.Y.; John Arthur Wheatley, Adderbury West, England; Peter John Read, South Newington, England; Keith Graham Latimer, Greatworth, England, and Terence David Warren Reynolds, Daventry, England, assignors to Alcan Research and Development Limited, Montreal, Quebec, Canada
Filed June 14, 1973, Ser. No. 369,804
Claims priority, application Great Britain, June 21, 1972, 29172/72
Int. Cl. B21d *53/10*
U.S. Cl. 29—149.5 S **8 Claims**

An aluminium-lead bearing alloy, optionally containing tin, silicon, copper and cadmium, is produced in strip form by spraying droplets of the molten metal onto a substrate under conditions such that they strike the substrate in a highly undercooled condition and are chilled to solidification at the substrate at the rate of at least 103°C/second so as to precipitate the lead in the form of a fine dispersion of separate particles. The deposit of solidified droplets is then subjected to compaction. A surface layer of commercial purity aluminium or other suitable aluminium alloy may be applied to one or both surfaces of the aluminium-lead alloy strip to facilitate the production of a composite bearing alloy- steel strip by a roll-bonding procedure.

3,833,984
PROCESS AND ARRANGEMENT FOR DOUBLE FLANGING OF PIPES

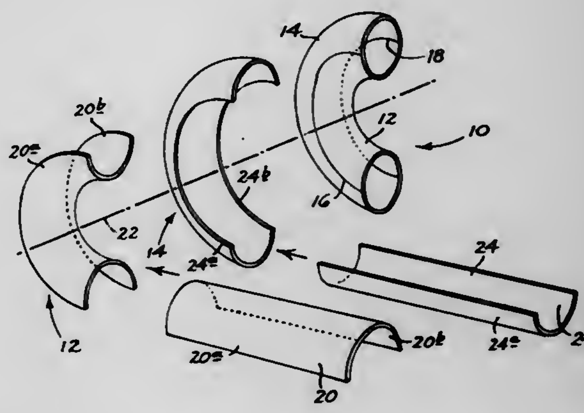
Klaus Dietzel, Kapellen, Germany, assignor to Zako Rohrverbindungen GmbH & Co. KG, Dusseldorf, Germany
Filed June 27, 1972, Ser. No. 266,572
Claims priority, application Germany, June 29, 1971, 2132190
Int. Cl. B21k *29/00;* **B23p** *11/02*
U.S. Cl. 29—157 R **7 Claims**



A process and arrangement for double flanging of pipes for making fluid-tight pipe joints. The pipe has a plastic interior coating and is coaxially mounted on an inner tubular pipe joint member having a collar and a conical bearing surface which is at least partially roughened.

3,833,985
METHOD FOR MAKING CURVED TUBES

John L. Curry, 3117 N.W. Willamette Blvd., Portland, Oreg. 97217
Filed Nov. 13, 1972, Ser. No. 305,970
Int. Cl. B21d *53/00, 11/02*
U.S. Cl. 29—157 A **4 Claims**

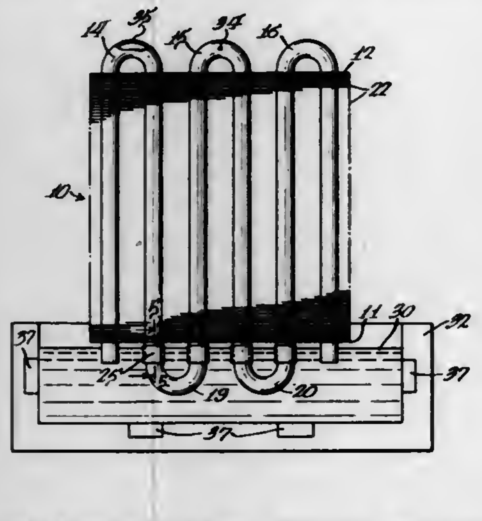


A method of forming a curved tube. The method includes a first step of deforming a pair of sheets to form a pair of elongated semicylinders, each having opposed cheek regions extending longitudinally along its opposite sides. The semicylinders then are drawn around dies to bend them into curves in which their axes of curvature are normal to the cheek regions; with the cheek regions of one of the elements directed radially outwardly from the axis of curvature and the cheek regions of the other element directed radially inwardly toward the axis of curvature. The two elements then are joined to each other, as by welding, along edges bounding their cheek regions.

3,833,986
METHOD OF MAKING HEAT EXCHANGER

Michael A. DeCicco, South Bend, Ind., assignor to Sundstrand Heat Transfer, Inc., Dowagiac, Mich.
Filed June 4, 1973, Ser. No. 366,372
Int. Cl. B21d *53/00;* **B21k** *29/00;* **B23p** *15/26*
U.S. Cl. 29—157.3 A **11 Claims**

A method of making fluid-tight telescopic joints in serpentine aluminum tubing for heat exchangers with a plurality of relatively long U-shaped aluminum tubing sections for supporting aluminum fins stacked in spaced relation thereon and a plurality of short U-shaped aluminum tubing sections each having opposite ends adapted to telescopically fit in the ends of the long sections of tubing to connect adjacent ends of the long sections, including the steps of providing an aperture in at least one of the long tubing sections for venting the tubing during soldering, assembling the short tubing sections with the ends thereof telescopically positioned in the ends of the long tubing sections and spaced therefrom to permit the flow of solder into the telescopic joints, dipping the assembly in the fluid solder to immerse the short tubing sections and the lower ends of the upper tubing sections to a depth just below the upper ends of the lower tubing sections to flow solder into the telescopic joints while venting the tubing through the aperture in the long tubing section, introducing ultrasonic vibrations into the solder while the assembly is dipped, and closing the aperture in the long tubing section by brazing.



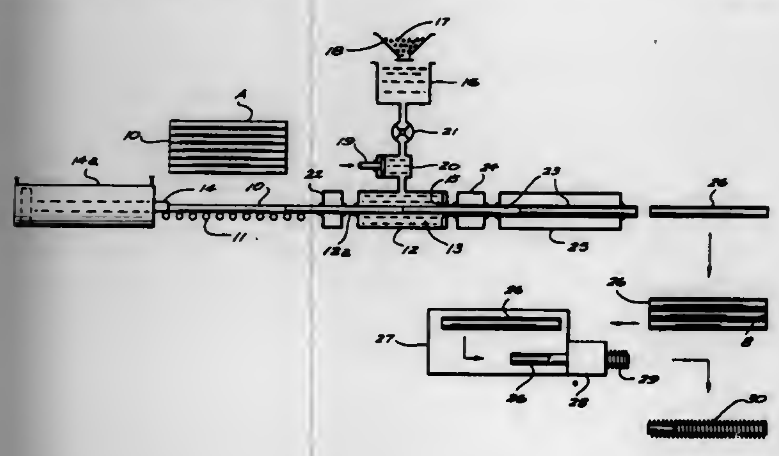
3,833,987
FINNED TUBES FOR USE IN HEAT EXCHANGERS

Tom E. Owen, Houston, Tex., assignor to Hudson Products Corporation, Houston, Tex.

Continuation of Ser. No. 114,229, Feb. 10, 1971, abandoned. This application Jan. 24, 1973, Ser. No. 326,543

Int. Cl. B21d *53/02*; **B23p** *15/26*

U.S. Cl. 29—157.3 A **5 Claims**



A method of manufacturing a finned tube in which fin stock is first formed as a sheath on a liner tube and the sheath is then extruded to form the fins hereon.

3,833,988
METHOD OF MAKING SPOOL VALVES

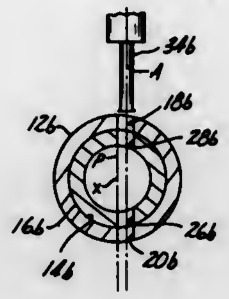
John D. Tobias, 233 E. Bloomfield, Royal Oak, Mich. 48073

Continuation-in-part of Ser. Nos. 282,964, Aug. 23, 1972, abandoned. Continuation-in-part of Ser. No. 230,845, March 1, 1972, abandoned. Division of Ser. No. 97, 140, Dec. 11, 1970, Pat. No. 3,700,004. This application Oct. 24, 1972, Ser. No. 300,166

Int. Cl. B23p *13/00*

U.S. Cl. 29—157.1 R **17 Claims**

A method of making a spool valve includes forming perforations in the core and sleeve members of the valve in a single machine operation. The perforations are formed offset from and parallel to a plane which includes the axis of the core and sleeve members. The perforations may take a wide variety of shapes including round, rectangular or peripheral channels.



The valve becomes functional by rotating or longitudinally adjusting the relative positions of the core and sleeve members to selectively align or block the perforations of the core member with respect to the sleeve member.

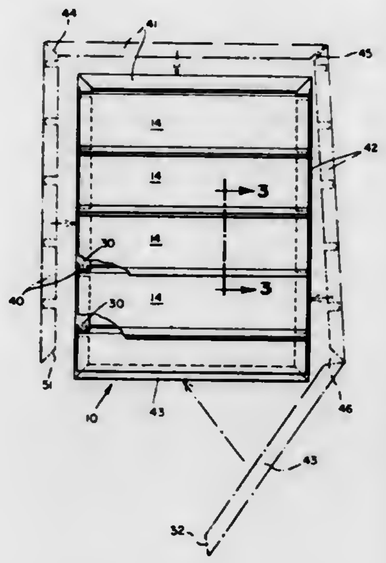
3,833,989
METHOD OF FABRICATING AND ASSEMBLING A DAMPER

Francis J. McCabe, P.O. Box 181, Buckingham, Pa. 18912

Filed Apr. 26, 1973, Ser. No. 354,680

Int. Cl. B21d *53/00*

U.S. Cl. 29—157 R **5 Claims**



A damper is assembled from a formed frame material having a flange provided with hook-shaped hinge portions formed from the flange and arranged so that when the frame material is folded into the shape of a frame, the hinge portions will be on oppositely positioned sides; and a plurality of blades having complementally configured hook-shaped portions for engagement therewith, by inserting one end of each blade into one complementally configured hook-shaped portion on the flange at one side of the damper frame prior to folding, and then folding the damper frame material about the blades so that the hook-shaped portions on the other side of the damper frame engage the other ends of the blades.

3,833,990
METHOD OF MAKING A PRECIOUS METAL POSTAGE STAMP

Madeleine Boccard, 25 rue de l'Arquebruse CH-1204, Geneve, Switzerland

Continuation-in-part of Ser. No. 246,524, April 24, 1972, abandoned. This application Jan. 15, 1974, Ser. No. 433,522

Int. Cl. B23p *17/00*

U.S. Cl. 29—412 **3 Claims**

A method of making precious metal postage stamps which can be very finely worked in intricate designs without creating any cracks or holes in the metal. The method includes the steps of laminating a precious metal sheet in a plurality of different rolling-mills, manually beating the laminated sheet with a hammer, this beating being carried out such that one or more hammers are moved along a trapezoidal path during the beating operation, coating one side of the sheet with an adhesive agent and forming a relief design in the sheet.

3,833,991
APPARATUS FOR FASTENING THE CASING OF A SEMICONDUCTOR COMPONENT TO A MOUNTING PLATE

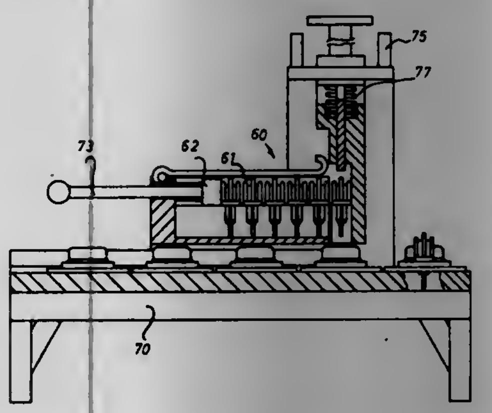
Klaus Friedrich Hehl, Norderstedt, Germany, assignor to ITW-ATECO GmbH, Norderstedt, Germany

Filed Feb. 16, 1973, Ser. No. 333,200

Claims priority, application Germany, Feb. 18, 1972, 7206020

Int. Cl. H05k *13/04*

U.S. Cl. 29—203 B **2 Claims**



An apparatus for fastening the casings of semiconductor components to mounting plates. The apparatus includes a fitting table on which mounting plates and casings are held fixedly against one another in the position of attachment and further includes a fastening station and means for conducting said mounting plates to the fastening station. A magazine is provided at the fastening station for holding fastening devices consisting of resilient bows and insulating pieces with further means being provided for pushing the fastening devices over the casings to anchor them to the mounting plates.

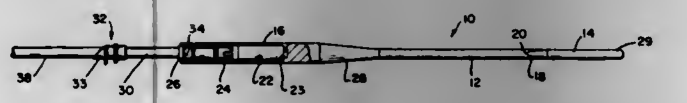
3,833,992
ASSEMBLY TOOL FOR REPLACEMENT OF WIRE SEAL, ELECTRICAL CONTACT

Norbert L. Moulin, Placentia, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed June 1, 1973, Ser. No. 365,893

Int. Cl. H05k *13/00*

U.S. Cl. 29—203 H **7 Claims**



The tool enables replacement of a defective individual seal at the wire end of an electrical contact without the need to remove and/or shorten the cable from the contact. The tool comprises a shaft having at one end a tubular portion into which the contact is inserted. The other end of the tool is tapered to permit the replacement seal to be slipped onto the tool. Intermediate its ends, the tool is provided with a portion of increasing taper from the seal receiving end to the tubular end. Thus, the seal may be slipped over the seal receiving end and slid along the shank of the tool and expanded onto the tubular end. When the contact with its attached cable is placed within the tubular end, the seal may be slipped from the tubular end and onto the contact and cable.

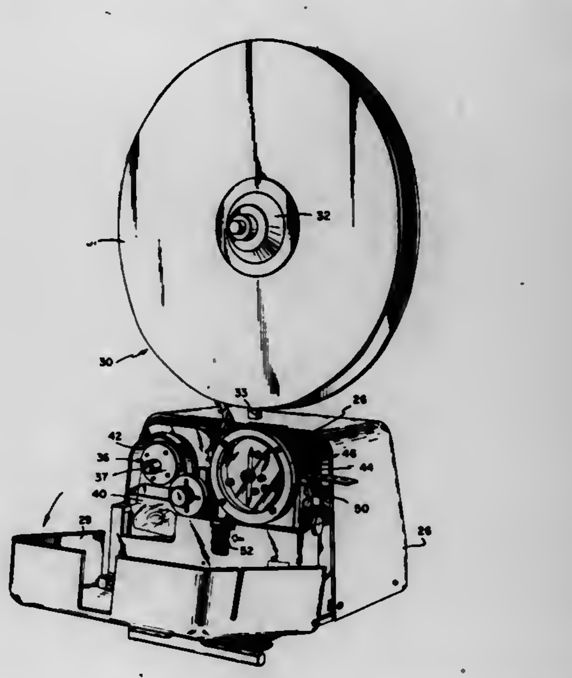
3,833,993
CRIMPING APPARATUS

Ward Joseph Kremkau, Mechanicsburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed May 12, 1972, Ser. No. 252,792

Int. Cl. B23p *19/04*; **H01r** *43/04*

U.S. Cl. 29—203 D **4 Claims**



The present invention discloses a crimping apparatus useful for crimping terminal contacts onto electrical wires and more particularly to improved indentors having an adjusting member whereby each indentor can be adjusted to insure equal depth penetration, and further disclosed is an improved funnel and funnel cam wherein the funnel is spring driven against a cam having a blocking portion, a funnel opening portion and a ramp portion operable to return the funnel to a closed position.

3,833,994
DEVICE FOR MAKING DIGIT WINDING LOOPS IN MEMORY STORAGE MATRICES

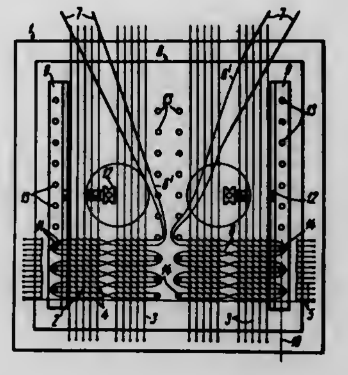
Jury Alexandrovich Burkin, Tsvetnoi proezd 29, kv. 24, and Jury Emelyanovich Seleznev, Vesenny proezd, 4-a, Kv. 16, both of Vovosibirsk, U.S.S.R.

Filed June 20, 1973, Ser. No. 371,699

Claims priority, application U.S.S.R., Dec. 7, 1972, 1856391

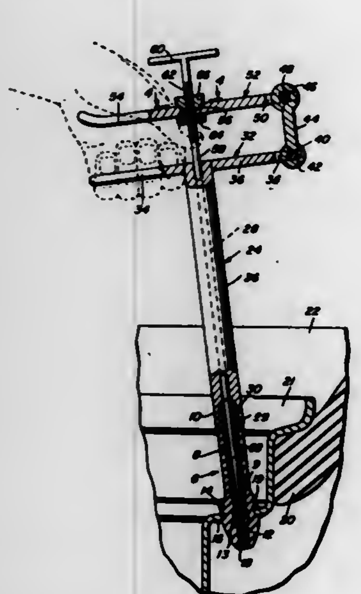
Int. Cl. H05k *13/04*

U.S. Cl. 29—203 MM **1 Claim**



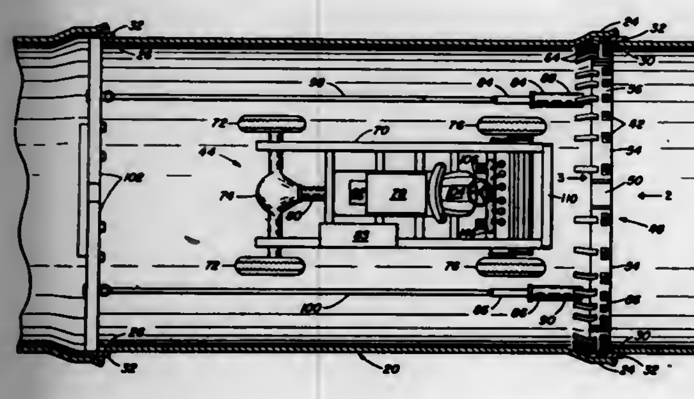
A device for making digit winding loops in memory storage matrices comprises a memory plane frame having cores threaded with coordinate wires lying in both directions, needles at the leading ends of the wire for wiring a digit winding, and a surface plate temporarily fastened to the frame and having also attached thereto at least one movable strip disposed along the row of oppositely lying loops, the surface plate and the movable strips having openings arranged so as to correspond to the position of the digit winding loops in the matrix; the device is also provided with clamps fixing the movable strips in place, and detachable connectors the number of which is equal to that of the loops in the matrix.

3,833,995
VALVE STEM AND VALVE STEM TOOL
Seth E. Rutledge, P.O. 141, Lakeland, Fla. 33802
Filed Mar. 29, 1973, Ser. No. 345,829
Int. Cl. B23p *19/04*
U.S. Cl. 29—221.5 **7 Claims**



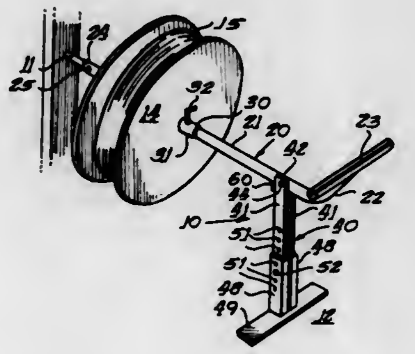
A hand tool capable of handling and forcibly inserting and anchoring a rubber valve stem in an opening provided therefor in a tubeless tire rim. This tool is unique in that it, unlike prior art tools, accomplishes the insertion and mounting step from the exterior of the rim and, in so doing, obviates the necessity of laboriously freeing and disenaging the bead of the mounted tire from the rim. Novel end thrust means provides a projectible and retractable leading end engageable with the usual self-contained fitting. The end thrust means forcibly stretches and reduces the cross-sectional dimension of the valve stem for passage through the rim opening. Conversely, when retracted the valve stem returns to normal. The outstanding rim abutting flanges are lodged in place in a manner to seat and anchor the valve stem.

3,833,996
METHOD AND A MACHINE FOR ALIGNING AND JOINING PIPES
Don P. Hubbard, 410 Vista Arroys Dr., Encinitas, Calif. 92024; Richard N. Levake, 960 Nobley, Cardiff-By-The-Sea, Calif. 92007, and James A. Steiger, 1911 Raymond Ln., Oceanside, Calif. 92054
Filed July 14, 1972, Ser. No. 271,802
Int. Cl. B23p *19/04*
U.S. Cl. 29—237 **10 Claims**



The invention is directed principally to a process of joining pipes of large diameter, for example, pipes used in conveying water from dams to reservoirs, and to a machine for carrying out the process. Such pipes each have a bell at one end and the other end is of smaller diameter than the bell end and referred to in the trade as the "spigot end." The spigot end is provided with a shoulder. The machine can be disposed within the pipe that is laid and it includes mechanism that is extendible into the spigot end of the pipe to be laid, the mechanism including rollers that are brought into abutting relationship with the shoulder at the spigot end of the pipe to be laid. The machine, through the shoulders, draws the spigot end of the pipe to be laid into sealing relationship with the bell of the pipe that was laid.

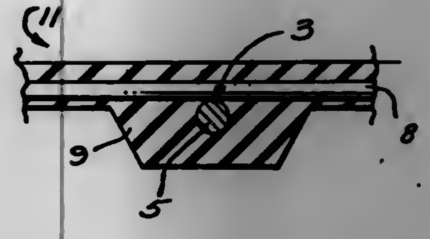
3,833,997
SPOOL MOUNTING TOOL
Sheldon L. Kaddatz, and Bonnie E. Kaddatz, both of R.R. No. 4, Box 426, Forest's Edge, Burlington, Wis. 53105
Filed Aug. 20, 1973, Ser. No. 390,102
Int. Cl. B23p *19/04*
U.S. Cl. 29—267 **6 Claims**



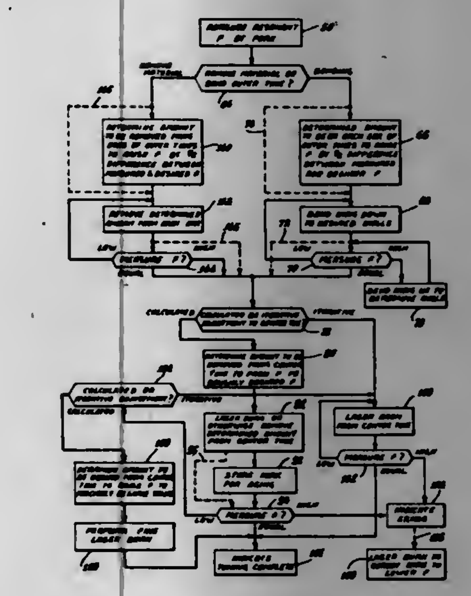
A spool mounting tool for the lifting and mounting of a spool having cable, rope, wire and the like wrapped thereabout in a manner to mount the spool on a horizontal supporting unwinding shaft, the tool consisting of a lifting rod lever having an elongated body portion with generally opposed first and second ends, the second end being associated with a second end portion of the body portion that is bent out of the axis of the body portion to form a concave angle therewith, a handle attached to the rod's second end and extending to opposite sides of the rod, a hollow sleeve member adjustably slideably received on the rod body portion adapted to engage a spool placed on the rod intermediate the sleeve and the front rod end at which time the sleeve is secured to the rod by a locking device on the sleeve in a manner to temporarily retain the spool in the selected position on the rod, and a supporting and stabilizing member having one end pivotally connected to the rod intermediate the body portion and second end portion thereof and adapted to swing vertically relative to the rod.between an inoperative position laying on a ground surface and an operative supporting and stabilizing position resting on the ground substantially perpendicular to the axis of the rod body portion such that a spool placed on the rod may be lifted and engaged onto an unwinding shaft by the tool which controls both the initial tilting, lifting and swinging movement of the spool in the application of the spool to the unwinding shaft.

3,833,998
METHOD OF FORMING A SPLICE IN A TOOTHED POWER TRANSMISSION BELT
Edward G. Tomlinson, Abington Twp., Montgomery County, Pa., assignor to Uniroyal, Inc., New York, N.Y.
Division of Ser. No. 250,393, May 4, 1972, Pat. No. 3,744,095. This application May 14, 1973, Ser. No. 360,243
Int. Cl. B22d *19/10;* **B23p** *7/00*
U.S. Cl. 29—401 **5 Claims**

A splice for toothed power transmission belts having connecting pins for holding the abutting ends of the belt together. The connecting pins each pass through a tooth of the belt in the splice region. The pin is placed in adjacent proximity to the tension cords in the belt so that these reinforcement cords will acquire the load transmitted to the pin. As a result, a stronger and more durable splice is achieved. The above splice may also be used for repairing damaged or worn belts by inserting a new piece of belt having a splice at each end.



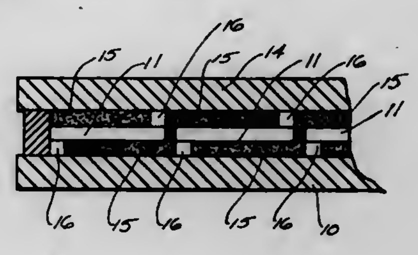
3,833,999
METHOD OF ADJUSTING FREQUENCY OF VIBRATOR STRUCTURE
Irvin Budych, Lake Geneva; LaVerne Lawrence Frey, Delavan, both of Wis., and William Edward Reefman, Santa Barbara, Calif., assignors to Bunker Ramo Corporation, Oak Brook, Ill.
Division of Ser. No. 220,357, Jan. 24, 1972, Pat. No. 3,759,133. This application May 24, 1973, Ser. No. 363,324
Int. Cl. B23q *17/00*
U.S. Cl. 29—407 **13 Claims**



A method and apparatus for tuning and adjusting the frequency of a vibrator structure such as a tuning fork of the type formed from a single strip of low molecular loss material. Tuning is effected by bending one or more of the tines of the fork or preferably by bending an ear formed for this purpose on a tine. In the alternative, the frequency may be controlled by selectively removing material from an ear.

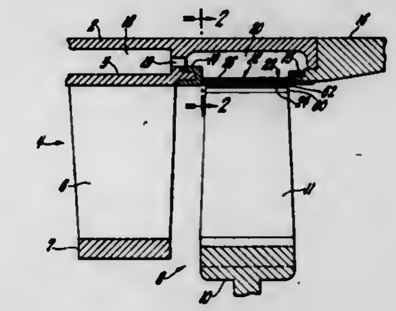
In order to maintain the balance of the structure it is desirable that tuning be performed on both tines of a fork: A preferred method for performing the tuning involves forming the structure in a manner such that its frequency is always lower than required. This frequency is then measured and half the difference in frequency is corrected by bending ears formed on an outer tine. Material is then removed from an inner tine by, for example, burning the material off with a laser, to raise the frequency to the desired value.

3,834,000
METHOD OF MANUFACTURING A MULTI-WEBBED EXPANDED STEEL PANEL
George D. Miller, Middletown, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio
Filed Oct. 20, 1972, Ser. No. 299,281
Int. Cl. B23p *17/00*
U.S. Cl. 29—411 **10 Claims**



This application discloses a method of making a multi-webbed steel panel. It discloses the preparation of a starting sandwich comprising top and bottom plates and a plurality of web bars therebetween. The web bars are coated on both sides with a weld-stop material except for stripes along opposite edges on opposite sides thereof. The assembled sandwich is fixed in position by means of edge bars and end bars, all of which are welded to the top and bottom plates to completely enclose the sandwich and to prevent shifting during rolling. This sandwich is then hot rolled in a series of passes to produce a reduction of at least 25:1 and even up to 75:1 to produce a long length of strip which is then sheared to length and the panel opened up by conventional means. Details of the stop-weld material and the manner of applying it are disclosed as well as rolling considerations involved.

3,834,001
METHOD OF MAKING A POROUS LAMINATED SEAL ELEMENT
Charles D. Carroll, Greensburg, and George B. Meginnis, Indianapolis, both of Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Nov. 17, 1972, Ser. No. 307,446
Int. Cl. B23p *17/00*
U.S. Cl. 29—414 **4 Claims**



A porous seal element usable as a blade tip seal in a turbomachine or as an element of a labyrinth seal is made up of a large number of strips disposed edgewise to the sealing face of the element and extending in the direction of relative movement of the seal elements. The strips have grooves extending across the strip for discharge of a cooling fluid such as air. The presence of the grooves provides a low density structure at the seal face of the seal element which may be abraded if there is rubbing contact and provides for metering of coolant at the rear face of the seal element. The seal element is fabricated by etching sheets so each sheet defines a number of parallel strips joined by weak ties and with the grooves extending across the strips; stacking the sheets and bonding them together; and then separating the bonded structure at the weak ties so that each stack of strips defines a seal element.

3,834,002

METHOD OF MANUFACTURING A COMPOSITE METAL SHEATHED WELDING ELECTRODE

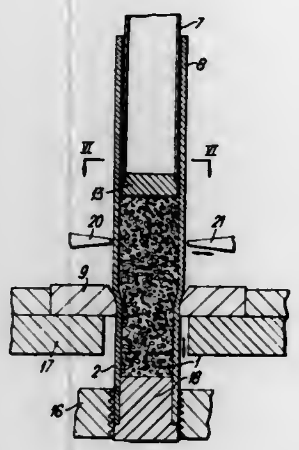
Anthony Chamberlen Sissons, Frodsham near Warrington, and Malcolm Anthony Cairns, Gateshead, both of England, assignors to Pyrotenox Limited, Hebburn-on-Tyne, Durham, England

Filed Sept. 8, 1972, Ser. No. 287,438

Claims priority, application Great Britain, Sept. 10, 1971, 42380/71

Int. Cl. B22f *3/24*

U.S. Cl. 29—420.5 **13 Claims**



A composite metal sheathed welding electrode is manufactured as a continuous operation by drawing a preformed metallic tube containing a particulate material consisting of or comprising a deoxidizing agent vertically downward through a drawing die. The die is of such a form that the tube is reduced in diameter during its passage through the die and powder or granules are fed into a part of the tube in advance of the die at a rate to maintain the said part substantially full of powder or granules. The height of the column of particles above the die is at least sufficient to avoid "push-back" of particles. The overall diameter of the filled tube is then further reduced to compact further the particulate core. The preformed tube may be of a composite form comprising inner and outer parts, the outer part being of a different metallic material from that of the inner part.

3,834,003

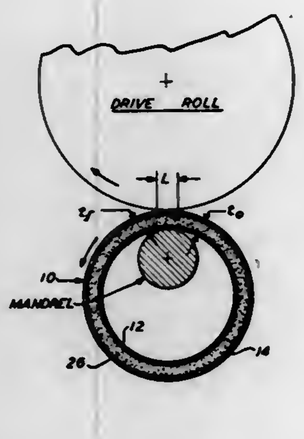
METHOD OF PARTICLE RING-ROLLING FOR MAKING METAL RINGS

Harbhajan S. Nayar, Plainfield, N.J., assignor to Airco, Inc., Montvale, N.J.

Continuation-in-part of Ser. No. 303,160, Oct. 30, 1972, abandoned. This application June 27, 1973, Ser. No. 374,184

Int. Cl. B22f *3/24*

U.S. Cl. 29—420.5 **31 Claims**



The annular space in a donut type metal can is filled with metal particles, the can sealed to constitute an annular workpiece, and the piece hot ring-rolled for expansion to an integrated metal ring of comparatively large diameter.

3,834,004

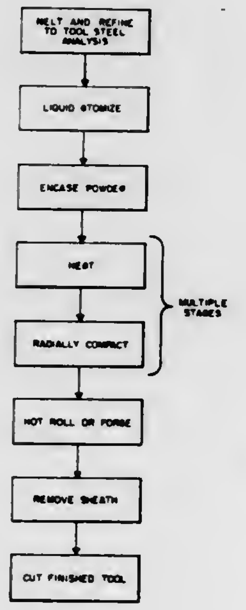
METHOD OF PRODUCING TOOL STEEL BILLETS FROM WATER ATOMIZED METAL POWDER

Maurice Donald Ayers, Greenwich, Conn., assignor to Metal Innovations, Inc., Stamford, Conn.

Filed Mar. 1, 1973, Ser. No. 337,139

Int. Cl. B22f *3/24*

U.S. Cl. 29—420.5 **13 Claims**



A method of producing tool steels in billet form, based upon the initial production of atomized tool steel powder which is consolidated to billet form and then hot worked and subsequently processed in a more or less conventional manner to achieve cutting tool material.

The process of the invention involves first preparing a body of molten steel, refined to appropriate tool steel analysis, and then subjecting the molten tool steel to liquid atomization substantially in accordance with the teachings of my prior U.S. Pat. No. 3,646,176. From this liquid atomization there is achieved small, highly irregular steel particles of adequately low oxide content, which have exceptional properties for the purpose of the process of the invention. The atomized metal particles are then encased in an elongated tubular sheath formed of a mild steel tubing, and the ends of the tubing are closed off as by welding caps in place. The encased metal particles at this stage have an apparent density of around 45 percent.

After encasement, the metal particles are consolidated in two or more stages, involving heating of the metal particles and subsequent radial compaction. In the first stage, the metal is heated to a temperature in the range of 1,700° to 2,250° and then compacted, preferably by rotary swaging. In the second stage, the metal particles are heated to a somewhat higher temperature, 1,800° to 2,300°, and the heated particles are again subjected to radial compaction, ideally in a rotary swaging machine. After compacting in a second stage, the confined metal powder has been consolidated to an apparent density of at least 80 percent, and ideally to a density of 85 percent or higher. At this stage, the billets are in suitable form for hot working to size. In the course of this process, the metal is consolidated further substantially to 100 percent density.

After a billet has been hot worked to final size, the original encasing sheath is removed, typically by grinding, to expose the core of extremely high quality tool steel. This exposed core may be handled in a conventional manner to derive the ultimate cutting tools therefrom.

3,834,005

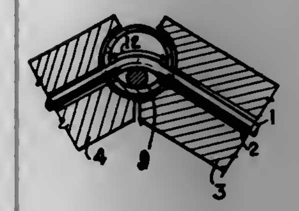
METHOD OF THREADING A CABLE THROUGH PANEL AND TUBE SECTIONS TO MAKE A FOLDING STRUCTURE

Delp W. Johnson, 240 Oakview Dr., San Carlos, Calif. 94070

Filed Nov. 20, 1972, Ser. No. 308,020

Int. Cl. B23p *19/04*

U.S. Cl. 29—433 **11 Claims**



A method of constructing a structure whose surface can be approximated by a series of folded intersecting planes; in which a series of panels and tubes are arranged in an alternating sequence in a coplaner relationship; and which series of panels and tubes is fastened together by cables threaded continuously through the panels and holes in the tubes, and securing the ends of the cables to make taut and hold the edges of the panels tight against the tubes. The holes in the tubes are of a size and configuration to permit the panels to rotate freely around the tube and in so doing to increase the tension in the cables. The object of the invention is to provide a method of construction for folding structures wherein the folding action of panels serves to increase the tension in cables holding the structure together.

3,834,006

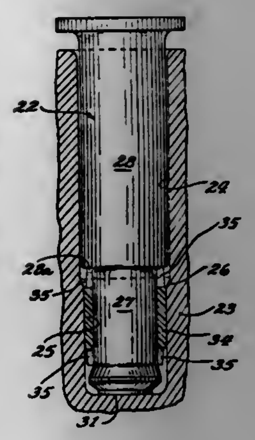
METHOD OF ASSEMBLING SUPPORTING PINS WITHIN A CASTER WHEEL PIVOT BOSS BORE

Frederick C. Greene, St. Joseph, Mich., assignor to Shepherd Products U.S. Inc., St. Joseph, Mich.

Division of Ser. No. 131,339, April 5, 1971, Pat. No. 3,755,852. This application Apr. 11, 1973, Ser. No. 349,950

Int. Cl. B23p *19/00*

U.S. Cl. 29—436 **3 Claims**



A tilted axle caster pivot fastening. The pivot is formed with an end enlargement without the necessity for machining operations and is received within a plastic sleeve which is frictionally engaged with the inner end portion of the pivot boss bore in the caster body.

3,834,007

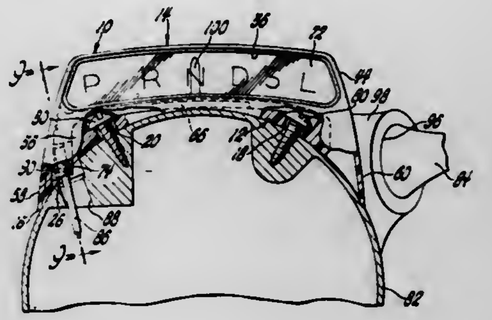
METHOD OF ASSEMBLY AND JOINING SHIFT INDICATOR COMPONENTS

Theodore Lambiris, Walled Lake, Mich., assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 194,128, Nov. 1, 1971, Pat. No. 3,762,361. This application Apr. 27, 1973, Ser. No. 355,151

Int. Cl. B23p *11/02*

U.S. Cl. 29—453 **4 Claims**



The shift indicator assembly shown discloses a steering column-mounted one-piece molded polypropylene indicator housing including two generally arcuate shaped members connected by a flexible hinge joint. One member includes a window frame portion having a slot and three side grooves to accommodate the insertion therein of a tapered lens. The other narrower member has two counterbored openings in which are mounted a pair of screws. Confinement of the screw heads, as well as the lens, occurs after the narrower member is mounted on the steering column, the screws threadedly secured to the steering column, and the wider member folded onto the other member, there being tabs and a rib formed on the latter member to "snap" into openings and past a ridge, respectively, formed on the outer member. An opening is formed on an end portion of the lens to accommodate a fiber optic light tube. A series of steps or ridges, also formed on the end portion of the lens, serves to direct the light from the end of the tube across the lens, whereupon the tapered shape of the lens causes the light to be observed through the window at a substantially constant intensity. The manually rotatable shift bowl shroud and integral pointer are located directly behind the housing, on the side away from the operator, selectively indicating through the window the various P-R-N-D-S and L indicia formed on the lens.

3,834,008

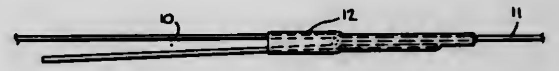
METHOD OF JOINING TWO WIRE CORDS

Jerry L. Witt; Charles F. Freeman, Sr., both of Winnsboro, and Joseph E. Douglas, Ridgeway, all of S.C., assignors to Uniroyal, Inc., New York, N.Y.

Filed Jan. 29, 1973, Ser. No. 327,261

Int. Cl. B23p *11/02*

U.S. Cl. 29—447 **3 Claims**



The method of joining two wire cords, particularly two wire tire cords, comprises bending a first wire cord near the end thereof. The end length of the first wire cord is disposed within a heat-shrinkable tubing and a second wire cord is bent near the end thereof. The bent regions of the cords are interlocked and the tubing is disposed over the interlocked regions of the cords. Heat is then applied to the tubing to shrink the tubing tightly to join the cords.

3,834,009

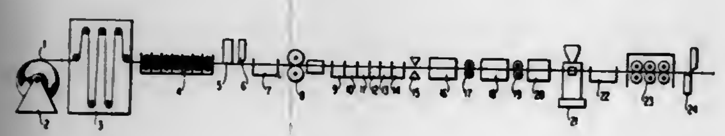
METHOD OF CONTINUOUSLY PRODUCING A SYNTHETIC RESIN COATED PIPE

Kosuke Iida, Yohkaichi; Nobuo Kanada, and Takeji Kurita, both of Mitsu-machi, all of Japan, assignors to Takiron Co., Ltd., Osaka, Japan

Division of Ser. No. 217,495, Jan. 13, 1972,. This application May 14, 1973, Ser. No. 359,945

Int. Cl. B23k *31/02*

U.S. Cl. 29—477 **5 Claims**



A synthetic resin-coated pipe suitable for supporting plants or agricultural houses is composed of an elongated rigid pipe and a synthetic resin coating tightly coated thereon having annular projections disposed at regular intervals. Said synthetic resin-coated pipe is produced by making a hollow pipe from a band steel, subjecting the pipe to chemical treatment, coating the surface of the pipe with an adhesive, and after drying the adhesive, forming thereon a synthetic resin coating having annular projections at regular intervals by means of an extruder whose cross head die includes therein a projection forming member movable reciprocably in the axial direction in the space between the die body and the top of its mandrel.

3,834,010

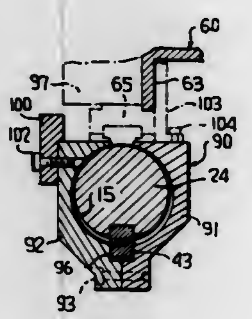
METHOD FOR FORMING WELDED SEAM CAN BODIES

Robert W. Wolfe, 49 W. 92nd St., Oak Lawn, Ill. 60453, and Richard E. Carlson, 8726 S. Albany, Evergreen Park, Ill. 60642

Filed Sept. 19, 1972, Ser. No. 290,325

Int. Cl. B23k *31/02*

U.S. Cl. 29—477.7 **12 Claims**



This disclosure relates to apparatus for forming can bodies one-at-a-time with a welded seam. The apparatus eliminates the prior need for preliminary tack welding and relies upon a simple set of guides for bringing the edges to be welded into the necessary overlapped relation then progressively decreasing the overlap while welding whereby a cylindrical can body may be welded notwithstanding the tendency of can bodies to assume a tapered configuration when welded without prior restraint.

3,834,011

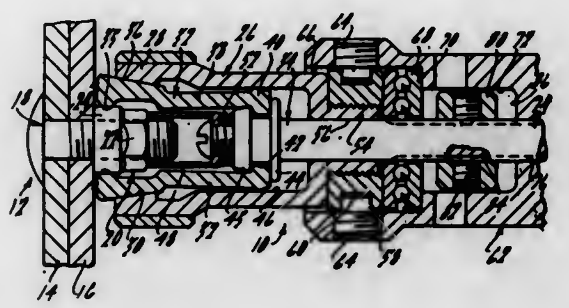
METHOD OF SETTING A THREADED FASTENER

William E. Pinkerton, Dearborn Heights, Mich., assignor to Huck Manufacturing Company, Detroit, Mich.

Continuation of Ser. No. 112,746, Feb. 4, 1971, abandoned. This application Apr. 27, 1973, Ser. No. 355,174

Int. Cl. B21d *39/00*; B23p *11/00*

U.S. Cl. 29—517 **6 Claims**



A tool for driving and setting fasteners generally of the type shown in the United States Patent to Orloff et al. U.S. Pat. No. 3,421,562 issued Jan. 14, 1969.

3,834,012

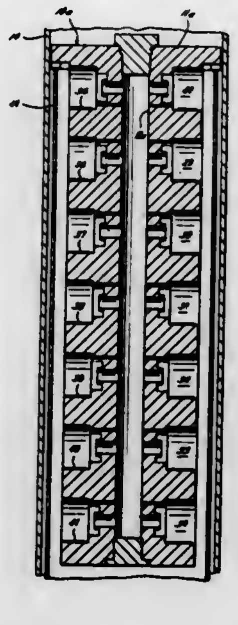
METHOD OF JOINING TELESCOPED PIPE SECTIONS

Ivo C. Pogonowski, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Division of Ser. No. 247,584, April 26, 1972. This application Sept. 28, 1973, Ser. No. 401,777

Int. Cl. B21d *39/04*

U.S. Cl. 29—523 **10 Claims**



At least two methods for swaging one vertical smaller tubular member internally of a larger tubular member are disclosed. One device for practicing the method comprises a cylindrical swage block for loosely fitting in the large tubular member and resting on the upper edge of the inner smaller tubular member. A plurality (preferably six) pistons and cylinders are suspended from the swage block a precise distance below the upper edge and actuatable radially from the longitudinal axis of the smaller tubular member for deforming the upper edge portion thereof against the larger tubular member for providing more working space internally of the tubular members. A modification comprises a plurality as seven axially spaced apart, parallel layers of swaging pistons and cylinders suspended from the swage block.

Other new devices utilizing the multiple piston and cylinder swage are a cold working pipe swage for cold-work connecting two telescopic pipe ends together, and a cold working pipe forming swage for making a new pile with anchor knobs for increased load carrying capacity and pull-out resistance.

3,834,013

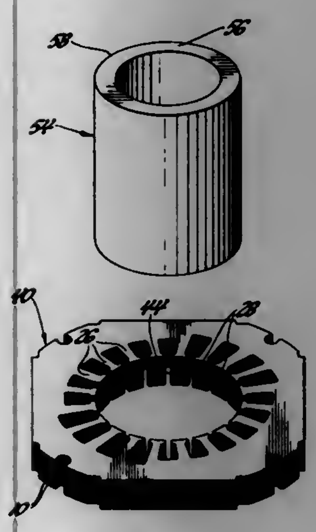
METHOD FOR FORMING FINISHED BORE SIZES IN LAMINATED STATOR CORES OF DYNAMOELECTRIC MACHINES

De Witt F. Gerstle, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 18, 1971, Ser. No. 116,404

Int. Cl. H02k *15/00*

U.S. Cl. 29—596 **4 Claims**



In a preferred method for forming finished bore sizes in laminated stator cores, a heat expandable cylindrical fixture is mounted in an out-of-round bore initially formed in a stack of stator laminations. The fixture and the stack of stator laminations are heated to an elevated temperature so that the fixture is thermally expanded against the sides of the bore. Radial force developed by the heated fixture deforms the bore sides into conformity with the expanded circumference of the fixture. When the stack of stator laminations is cooled to ambient temperatures, a desired stator bore size is provided therein having a finished circular configuration formed to closely controlled dimensional tolerances.

3,834,014

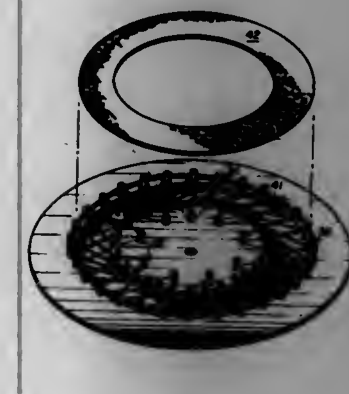
METHOD OF MAKING LAMINATED WIRE WOUND/ARMATURES

Robert Page Burr, and Raymond J. Keogh, both of Huntington, N.Y., assignors to Photocircuits Corporation, Glen Cove, N.Y.

Division of Ser. No. 831,556, June 9, 1969, Pat. No. 3,599,325. This application May 8, 1972, Ser. No. 122,166

Int. Cl. H02k *15/02*

U.S. Cl. 29—598 **3 Claims**



A method of making self-supporting wire wound disc armatures by laminating the radial conductor portion of the armature and by coupling the winding to the commutator and hub by means of a laminate layer. The sequence of operations is arranged so that commutator connections can conveniently be made by hot staking and the commutator can be formed from a thin sheet metal blank.

3,834,015

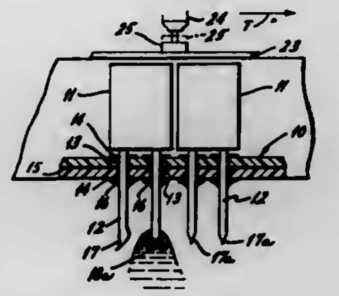
METHOD OF FORMING ELECTRICAL CONNECTIONS

Simon Di Renzo, Philadelphia, Pa., assignor to Philco-Ford Corporation, Blue Bell, Pa.

Filed Jan. 29, 1973, Ser. No. 327,647

Int. Cl. H01r *43/00*

U.S. Cl. 29—628 **12 Claims**



A method of manufacturing printed circuit boards of the type having a plurality of contact pins projecting from one side thereof and adapted for use as wire-wrap terminals connecting board-carried wiring to external circuits. The method includes the steps of immersing the pins and adjacent board regions in molten solder to connect the pins to the circuits carried by the board, followed by immersing the end regions of the pins in molten solder while vibrating the boards to remove excess solder from the end portions of the pins.

3,834,016

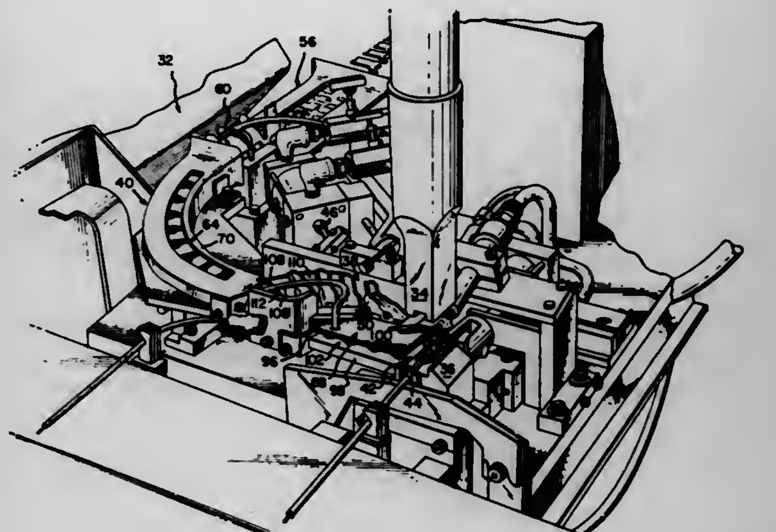
METHOD AND APPARATUS FOR DISPOSING UNASSEMBLED INSULATING HOUSINGS IN A PREDETERMINED POSITION FOR FACILITATING PLACEMENT OF ARTICLES SUCH AS ELECTRICAL CONNECTING DEVICES WITHIN SAID HOUSINGS

Phillip Eugene Loomis, Harrisburg, and Joe Pierce Morgan, Camp Hill, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed June 7, 1973, Ser. No. 367,908

Int. Cl. H01r *9/16*; H01b *17/26*

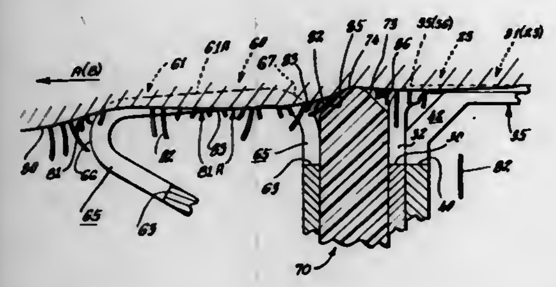
U.S. Cl. 29—630 A **9 Claims**



In an automatic lead making machine which, in succession, cuts an individual insulated electrical conductor lead wire to a desired length, strips the insulation from both ends of the conductor wire, applies an electrical terminal to one of the electrically-bared ends of the conductor wire, such as a receptacle-type of terminal, and applies an insulating housing to the terminated end of the conductor wire, a guide track defines a predetermined path along which a continuous succession of unassembled insulating housings are advanced in order to bring a leading housing of the housing succession to an end of the path which is located adjacent to a wire positioning mechanism of the automatic machine which is operative to position the terminated end of an individual conductor wire between a pair of pivotally, hingedly connected housing parts of the leading housing and adjacent to an assembly station of the automatic machine which is operative to assemble the leading housing to the terminated end of the individual conductor wire. The track is comprised by static camming surfaces which, as the housing succession is advanced along the path of the track, first of all, progressively pivotally move the housing parts of each housing relative to each other from an initial open position where the housing parts are disposed approximately 180 degrees from each other to a substantially closed position where the housing parts are disposed in a substantially flush relationship to each other, secondly, progressively maintain the housing parts of each housing in the substantially closed position, and, thirdly, progressively pivotally move the housing parts of each housing relative to each other from the substantially closed position to a partially open position where the housing parts of each housing of a leading group of housings are disposed at an approximately 90 degree angular relationship to each other whereby sufficient clearance is provided between the housing parts of the leading housing, now positioned at the end of the path defined by the track, for facilitating accurate placement of the terminated end of one of the conductor wires within the leading housing by moving the wire end along any of a variety of different approach paths to the leading housing.

3,834,017
DRY SHAVER WITH HAIR GUIDING AND SKIN STRETCHING MEANS

Robert J. Tolmie, Fairfield, Conn., assignor to Sperry Rand Corporation, New York, N.Y.
Filed Sept. 5, 1972, Ser. No. 286,343
Int. Cl. B26b *19/42*
U.S. Cl. 30—34.2 **2 Claims**

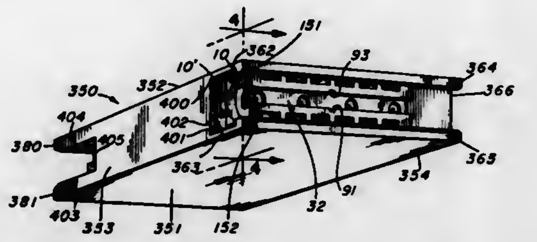


An improvement in hair guiding and skin stretching means mounted on a shaver having a cutter which contacts the user's skin as the shaver is moved in a hair shearing path across the user's skin. The improvement includes a first member, for combing hair and stretching skin, in combination with a second member, for lifting hair and stretching skin. The first and second members are connected alongside of the cutter to contact the skin ahead of the cutter as the shaver is advanced in the hair shearing path of movement across the user's skin, the first member stretching the skin and combing the long hair in advance of the second member, and the second member further stretching the skin and lifting the short hairs from the surface of the skin in advance of the cutter.

3,834,018
DISPENSING SYSTEM FOR RAZOR BLADE CARTRIDGES

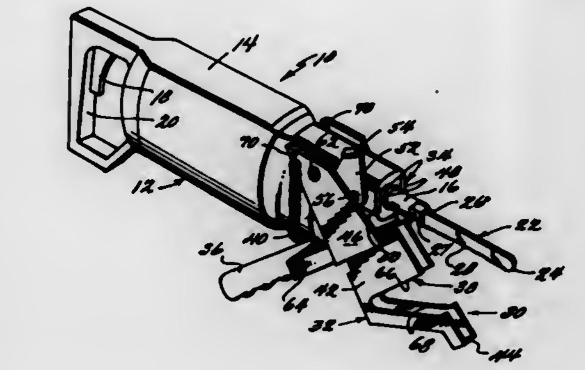
Jan Dawidowicz, Fairfield, and Frank A. Ferraro, Trumbull, both of Conn., assignors to Warner-Lambert Company, Morris Plains, N.J.
Continuation-in-part of Ser. No. 258,682, June 1, 1972, Pat. No. 3,771,223, which is a continuation-in-part of Ser. No. 236,723, March 21, 1972, Pat. No. 3,785,051. This application Sept. 21, 1973, Ser. No. 399,786
Int. Cl. B26b *21/24;* **A45d** *27/24*
U.S. Cl. 30—40.2 **10 Claims**

The specific disclosure provides a dispensing system for razor blade cartridges comprising a dispenser, a plurality of cartridges in the dispenser, and a holder having a plurality of transverse supporting surfaces on top of a frame member for sliding engagement with surfaces extending transversely of each cartridge. The dispenser has a used cartridge storage end comprising a transverse opening between a used cartridge entrance port in one side wall and a holder exit port in the other side wall. A used cartridge is positioned in the used cartridge storage end through the used cartridge entrance port by means of the holder. The frame member of the holder is moved through the transverse opening to abut a side of the used cartridge against wall surfaces forming the holder exit port. Continued movement of the holder disengages the transverse supporting surfaces of the holder from the used cartridge, and such holder surfaces are removed from the storage end through the holder exit port.



3,834,019
APPARATUS FOR CUTTING EXHAUST SYSTEM TUBES

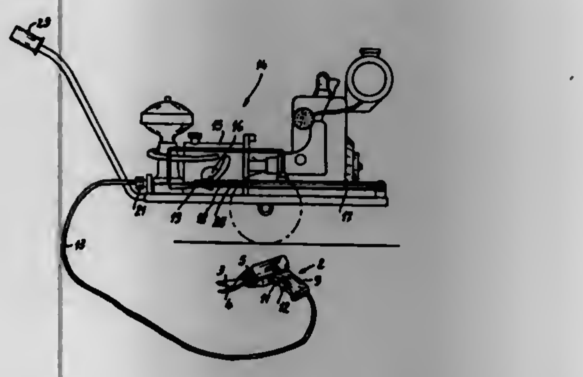
Paul Smeltzer, Naperville, and David A. Daneck, Chicago Heights, both of Ill., assignors to Maremont Corporation, Chicago, Ill.
Filed Nov. 22, 1972, Ser. No. 308,785
Int. Cl. B26d *7/02*
U.S. Cl. 30—92 **12 Claims**



Apparatus is disclosed for cutting through exhaust system components, such as tubes of various sizes and the like, which includes a power operated portable tool of the type including a housing having a blade receiving member mounted therein for continuous reciprocating movement during the power operation of the tool, an elongated cutting blade of the sabre saw type, and an attachment including a tube engaging structure pivotally mounted on the housing on the tool for movement with respect thereto between a tube receiving position and a cutting cycle completion position, a handle for enabling the operator to effect manual movement of the structure into the tube receiving position, the structure providing a tube receiving recess therein open in a direction toward the cutting teeth and free end of the blade when the structure is moved into the tube receiving position thereof so as to position the structure in operative relation with a tube and a spring connected with the structure for effecting a resiliently biased movement thereof from the tube receiving position into the cutting cycle completion position upon the manual release of the handle with a tube disposed in operative relation between the recess and the cutting blade so that the operative movement of the blade will transversely cut the tube during the aforesaid resiliently biased movement of the structure without engagement of the handle permitting the operator to support portions of the exhaust system which are cut during the operation.

3,834,020
SHEARS

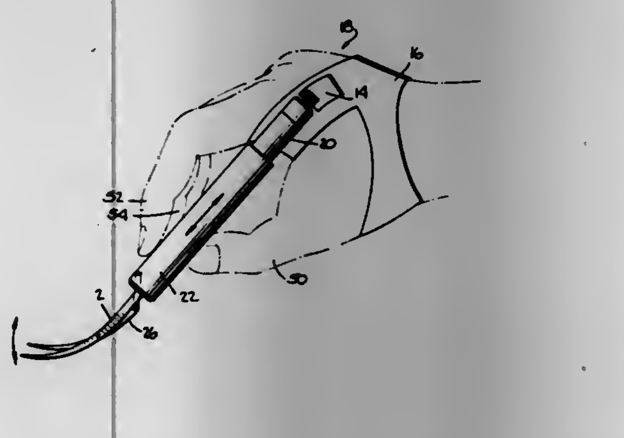
Roger Caire, Villeurbanne, France, assignor to Societe D'Exploitation D'Outillage ET Usinage De Precision Georges Froquet sigle S.E.O.U.P., Vaulx-en-Velin, Rhone, France
Filed Nov. 17, 1972, Ser. No. 307,559
Claims priority, application Nov. 19, 1971, France, 7142180
Int. Cl. B26b *15/00*
U.S. Cl. 30—228 **4 Claims**



A pair of shears, scissors or the like comprise a pair of series-connected switches in its handle for controlling the energization of a solenoid valve disposed between a hydraulic servomotor and a pump supplying high-pressure fluid thereto; the pump is operated by an electric motor mounted on a carriage and the movable arm of the shears is connected via a cable protected by a sheath to the piston rod of the cylinder. The energizing circuit for the solenoid includes a wire extending along the cable sheath.

3,834,021
PRECISION INSTRUMENT SYSTEM

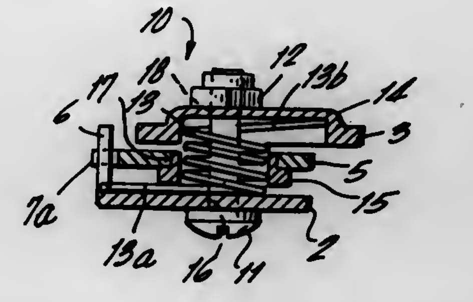
Robert W. White, 87-89 Columbia St., New York, N.Y. 1002, and W. Bradford De Long, 139 14th Ave., San Francisco, Calif. 94118
Filed Jan. 24, 1973, Ser. No. 326,500
Int. Cl. B26b *13/16, 13/26*
U.S. Cl. 30—232 **26 Claims**



A tool system for cutting, clamping, positioning, stretching and other tool functions precisely, and particularly in deep or narrow cavities, which may be operated by one hand, and particularly by a set of intrinsic hand muscles which permit sensitive and accurate tool control without fatigue, which is especially useful in microsurgical work and miniature electronic assembly, and in which a support may be carried by the hand or its digits to receive interchangeable tools that lie between and are controlled by at least two digits of the hand.

3,834,022
LOW-PROFILE FLOATING BLADE SCISSORS OR SHEARS

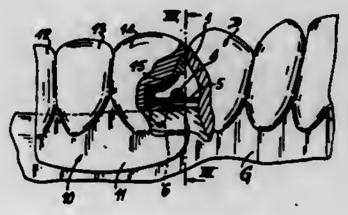
John Students, Roselle Park, N.J., assignor to J. Wiss & Sons, Newark, N.J.
Filed July 12, 1973, Ser. No. 378,522
Int. Cl. B26b *13/00*
U.S. Cl. 30—261 **8 Claims**



Scissors or shears having a first blade which is integral or rigidly connected to a handle, a second blade, a separate second handle, and low profile, extremely compact means for connecting the second blade to the second handle and for maintaining the first and second blades in proper cutting relationship, comprising a torsion spring mounted in a biasing bushing made of a material of a low coefficient of friction, the torsion spring being operable to impart a "dive action" to the second blade when the blades are moved to the cutting position.

3,834,023
DEVICE FOR FIXING A DENTAL PROSTHESIS

Gabriel Ernest Rene Lapeyre, Rue Cesar Campinchi, Bastia, France
Filed Feb. 26, 1973, Ser. No. 335,825
Claims priority, application France, Feb. 28, 1972, 72.6714
Int. Cl. A61c *13/22*
U.S. Cl. 32—5 **4 Claims**

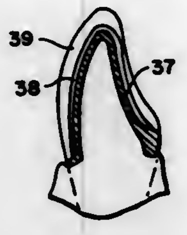


The device is included into the lower portion of each false tooth placed at extremity of the prosthesis. The device is constituted by an alveole included into the prosthesis and insidely comprising a cavity holding a transverse spindle on which is hinged a resilient element having a protruding end forming a ring.

3,834,024
METHOD OF MAKING DENTAL RESTORATIONS AND PRODUCT THEREOF

Jacob Kochavi, c/o Star Dental Laboratorie, 718 El Camino, San Mateo, Calif.
Filed July 20, 1972, Ser. No. 273,498
Int. Cl. A61c *13/00*
U.S. Cl. 32—8 **3 Claims**

A restoration is made using an alloy of approximately 80 percent Ni – 20 percent Cr employing conventional casting techniques heretofore used with precious metals. After the casting has been cleaned it is heated under vacuum commencing at 1,400°-1,500°F. and increasing gradually to approximately 1,950°F. The vacuum is released and the casting cooled -- a grayish blue colored compound forming on the surface. Porosities and casting defects may be conveniently repaired using ceramic gold paste. The metal may be soldered, to other metal members, whether of the same alloy or gold or any other conventional metal. Porcelain is then applied, again using conventional techniques. The product is characterized by the very good bond of porcelain to metal, extreme dimensional accuracy and relatively low cost of metal.



3,834,025
TOOL FOR TAKING IMPRESSIONS OF TOOTHLESS JAWS

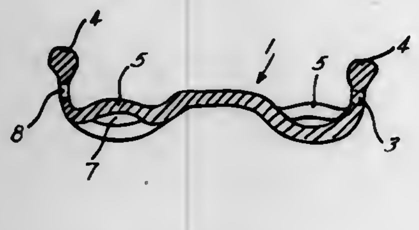
Horst Schunemann, 2953 Westrhauderfehn, Untenende 56, Germany

Filed Apr. 9, 1973, Ser. No. 349,310

Claims priority, application Germany, Apr. 17, 1972, 2218480

Int. Cl. A61c *9/00*

U.S. Cl. 32—17 **4 Claims**



A spoon-like tool or dental tray adapted to receive material for taking an impression of a toothless upper jaw and to be inserted into the mouth of a patient is provided with raised portions in the surface contacting the jaw, and with apertures through which some of the impression material may be extruded. In this, the raised portions in the contacting surface engaging the jaw surface disposed within the alveolar ridge and acting as distance holders prevent flattening of some portions of the relatively soft alveolar ridge, socalled "tuber maxilaris" when the impression material is pressed thereagainst with the aid of the spoon-like tool, while the material extruded through the apertures acts as an anchorage preventing adhering of the impression material to the jaw and dislodgement from the spoon-like tool upon removal out of the patient's mouth. The terminology "spool-like tool" as used herein is used synonymously with the terminology "dental tray."

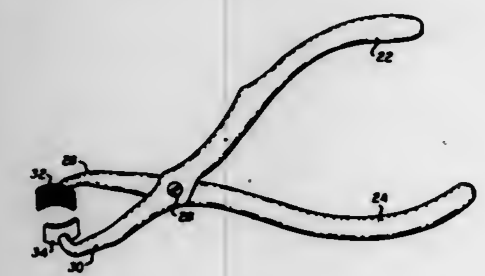
3,834,026
CROWN REMOVER

Michael B. Klein, 104 Oregon Ave., Bronxville, N.Y. 10708

Filed Mar. 26, 1973, Ser. No. 344,801

Int. Cl. A61c *3/16*

U.S. Cl. 32—43 **10 Claims**



An improvement in a dental crown removing pliers having a pair of opposed arm members pivotally connected to define on one side of the pivot a pair of opposed jaws which improvement resides in a resilient deformable gripping surface on the surface of said jaws generally contoured to coincide with a side surface of a crown, said resilient deformable gripping surface adapted to hold at least one jaw of said pliers against the surface of a crown; a method of removing a crown by gripping the same in the jaws of a dental crown removing pliers which has on a surface of at least one jaw a resilient deformable gripping surface.

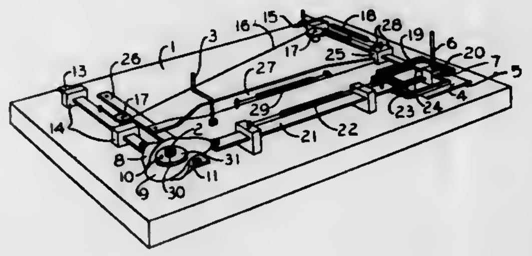
3,834,027
DEVICE FOR TESTING CAM DESIGNS

Donald J. Amelon, Rt. 3, Jackson, Mo.

Filed Oct. 5, 1972, Ser. No. 295,229

Int. Cl. B43l *11/00*

U.S. Cl. 33—27 K **2 Claims**



The disclosure relates to a device for testing two cam designs simultaneously, one cam designed for movement of a follower in the x axis and one designed for movement of a follower in the y axis. A spindle is provided for mounting sheet metal plate cams in the contour of the cam designs; associated mechanisms control the movement of a pen to write or draw a one line figure on a stiff card. The figure drawn may be compared directly to the one line figure which was the intended pattern of pen movement from which the two cams were designed.

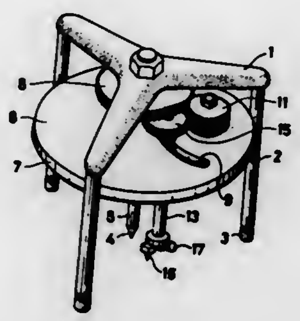
3,834,028
APPARATUS TO DRAW AN OVAL

Jujiro Okada, No. 69, Chodo-1-Chrome, Higashi-Osaka and Isamu Satoo, No. 11/17, Fukae-Minami-2-Chome, Higashinari-ku, Osaka, both of Japan

Filed Sept. 18, 1973, Ser. No. 398,451

Int. Cl. B43l *11/04*

U.S. Cl. 33—30 G **1 Claim**



An apparatus to draw an oval is disclosed. The device is characterized by mounting on a stand a rotary plate which turns horizontally and which is provided with a pointer to show its center. A rotary rod is coupled to the rotary plate for movement in the same direction as the latter at a rate of twice the rotation of the plate and positioned beneath the plate such that the rotary rod can move freely in the vertical direction to the center of the rotary plate. A drawing tool holder is positioned at the bottom of the rotary rod such that the degree of eccentricity of said holder from the center of the rotary rod can be adjusted freely.

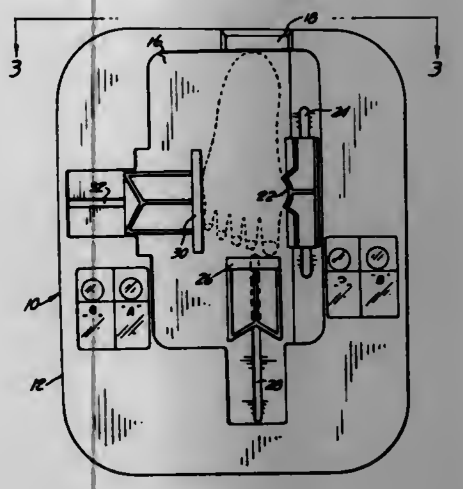
3,834,029
DIGITAL FOOT MEASURING INSTRUMENT

Ariel Stiebel, Bloomfield Hills, Mich., assignor to Radex Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 133,825, April 14, 1971, Pat. No. 3,757,418. This application Feb. 16, 1973, Ser. No. 333,073

Int. Cl. A43d *1/02*

U.S. Cl. 33—3 C **14 Claims**



An instrument for measuring a human foot and providing a visual display of an appropriate shoe size fitting such foot. The instrument comprises a housing with a cover on which the foot is placed with its heel in engagement with a stationary abutment. A first longitudinally movable abutment is manually engaged with the ball of the foot, a second longitudinally movable abutment is manually engaged with the foremost projecting toe of the foot and a third laterally movable abutment is manually engaged with the side of the foot. A pair of shoe size charts are each fastened to the periphery of one of a pair of drum members. One of the drum members, mounted in the instrument housing below the cover, is longitudinally movable as a result of the displacement of the toe end engaging abutment and the other is longitudinally movable as a result of the displacement of the ball engagement abutment. Both drum members are rotatable in unison as a result of the lateral movement of the foot side engaging abutment. The charts bear shoe size indicia of increasing length size along their longitudinal axis and of the same shoe length size but of increasing width along their lateral axes, except that the longitudinal axis scale of the chart on the drum member longitudinally displaced by the ball engaging abutment is contracted relative to the longitudinal axis scale of the chart on the other drum member. The appropriate shoe size is read by viewing and sighting through a pair of windows disposed through the instrument cover for reading a single shoe size from each of the charts. The larger shoe size display corresponds to an appropriate shoe size for the foot. At least a third chart bearing drum member, corresponding for example to foot arch length sizes, may be provided, such that the other foot of the person may also be measured and sized, if so desired.

3,834,030
CLOSET TO PIN MEASURER

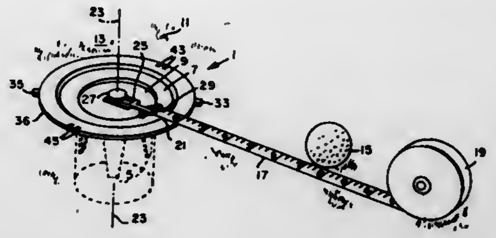
Casper H. Hanson, 44 Pasatiemp Dr., Santa Cruz, Calif. 95061

Filed June 21, 1973, Ser. No. 372,211

Int. Cl. G01b *3/10*

U.S. Cl. 33—138 **4 Claims**

The invention is a measuring device for determining how close to the pin that an individual golfer has driven off of the tee in hole-in-one competition on a par three hole. The measuring device includes a post which fits snugly within the golf hole, a shelf attached atop the post perpendicularly to the axis of the post, the shelf extending out over the grass so that use of the device will not damage the grass, a lid adapted to fit atop the shelf to protect the reel tape from dampness and a reel tape attached to a point in the shelf in line with the axis of the post.



3,834,031
APPARATUS FOR MEASURING THE THICKNESS OF PAPER SHEET STACKS OR THE LIKE

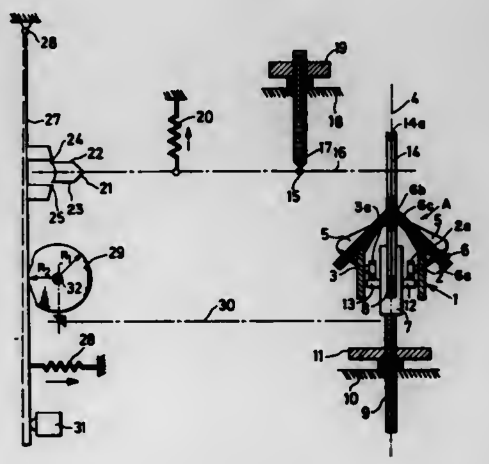
Hans Muller, Zofingen, Switzerland, assignor to Grapha Maschinenfabrik Hans Muller AG, Zofingen, Switzerland

Filed May 11, 1972, Ser. No. 252,417

Claims priority, application Switzerland, May 21, 1971, 7450/71

Int. Cl. G01b *5/06;* **B07c** *1/10, 5/04*

U.S. Cl. 33—174 R **14 Claims**



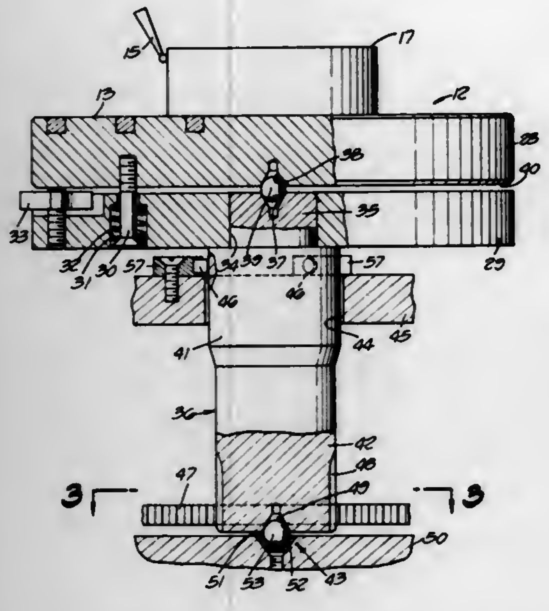
Apparatus for measuring the thickness of V-shaped stacks of paper sheets which are transported at equal intervals along the upper stretch of an endless chain has two scanning wheels one of which is located below and the other of which is located above the path for the stacks. The upper scanning wheel is lifted by successive stacks so that its position during engagement with a stack is indicative of the thickness of the thus engaged stack. The upper scanning wheel controls the position of a plate which can be received between two blades of a lever. The lever is pivotable by a cam which is driven in synchronism with the chain so that it allows the lever to assume a predetermined angular position when the scanning wheels engage a stack and when the thus engaged stack is of satisfactory thickness. Otherwise, the plate extends into the path of movement of one of the blades and prevents the lever from assuming its predetermined position. When the lever is free to assume its predetermined position, it actuates a switch or another suitable control device serving to regulate the operation of a processing machine for satisfactory stacks which have advanced beyond the scanning wheels. At least one of the scanning wheels, a balance beam for the plate and/or at least one of the blades on the lever is adjustable to allow for changes in setup of the measuring apparatus and/or to select the range of satisfactory thicknesses of tested stacks.

3,834,032

APPARATUS FOR MEASURING ROUNDNESS, CONCENTRICITY, FLATNESS AND AXIS SQUARENESS

Kauno E. Sihvonen, Arcadia, Calif., assignor to Gould, Inc., Cleveland, Ohio

Filed June 21, 1972, Ser. No. 264,719
Int. Cl. G01b *5/20, 5/22*
U.S. Cl. 33—174 TD **9 Claims**



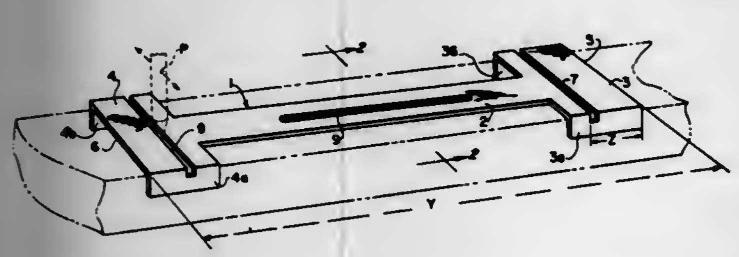
A work surface is supported at the upper end of a vertical spindle. The lower spindle end includes a conical opening within which a ball is received with portions thereof extending outwardly from the spindle end surface. A mounting base has a further conical opening provided with a low frictional seat into which the ball is also received. The upper spindle marginal end portion has a precisely formed circumferential surface such that the axis of this circumferential surface coincides with the axis through the ball center to a high degree of accuracy. Low friction pads are arranged in contacting relation to the spindle upper end circumferential surface. Tangential drive is applied to both sides of the spindle simultaneously.

3,834,033

FRAMING TEMPLATE

Richard L. Pinkard, 316 Ferndale Dr., Collinsville, Va. 24078

Filed Apr. 6, 1973, Ser. No. 348,694
Int. Cl. G01b *3/30*
U.S. Cl. 33—174 G **7 Claims**



A simple one-piece item of sheet metal or plastic, constructed to facilitate the emplacement and proper spacing and collocation of studs, joists, rafters and like elements in the construction of a building.

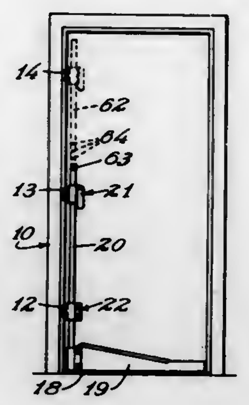
3,834,034

METHOD AND APPARATUS FOR CUTTING DOORS

John E. Berquist, P.O. Box 4632, Santa Barbara, Calif. 93101

Filed Aug. 10, 1972, Ser. No. 279,476
Int. Cl. G01b *3/14;* **E04f** *21/00*
U.S. Cl. 33—194 **9 Claims**

An apparatus for use in marking doors for cutting is provided, usually used for shortening previously hung doors to swing freely over newly applied carpeting and the like. The door is removed, and an upright is suspended from the fixed hinge portions on the door frame, and adjusted until a horizontal template at the bottom of the standard swings freely over the carpeting. The standard is placed on the door and the door marked along the template to indicate where the door is to be cut.

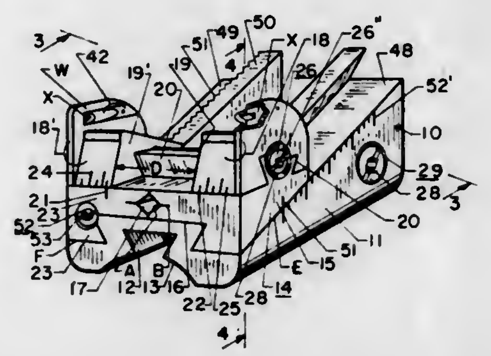


3,834,035

GUN SIGHT STRUCTURE IN FIREARMS

Alvin S. Merrill, Riverton, Utah, assignor to Moroni Corporation, Salt Lake City, Utah

Filed May 8, 1972, Ser. No. 250,983
Int. Cl. F41g *1/08, 1/16, 1/32*
U.S. Cl. 33—251 **3 Claims**



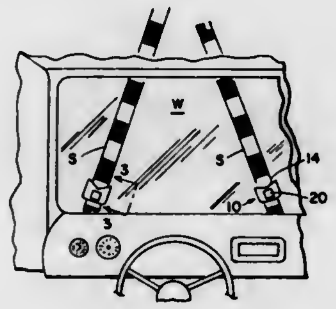
Gun sight structure for firearms having sight-gap and sight-elevation adjustments, with miscellaneous, accommodating, adjustment, and sight pattern structures. The sight includes an inclined ramp feature wherein the sight may be raised and lowered in an appropriate manner. Threaded means accommodate sight-centering as to sight-gap and equal distance of sight opening. Adjustment means is also provided.

3,834,036

LANE STRIPE STEERING GUIDE

Francis M. Scarritt, Sr., 1338 Pork St. North, St. Petersburg, Fla. 33710

Filed Nov. 13, 1972, Ser. No. 305,988
Int. Cl. G01c *21/04*
U.S. Cl. 33—264 **3 Claims**



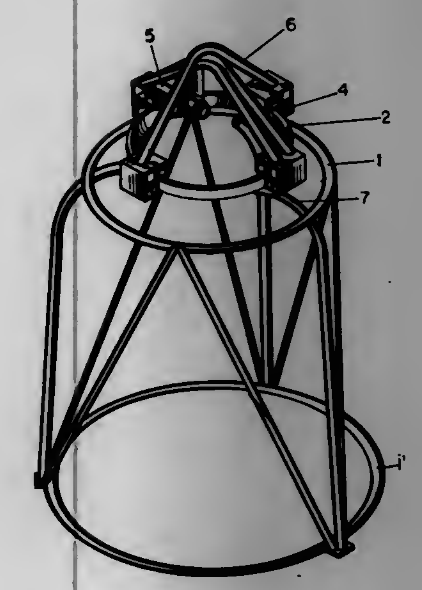
The invention provides visual guide means for use on vehicles, namely, sighting members in the line of view between the driver and painted lane stripes by which a driver can with assurance maintain the vehicle properly within a lane. Such sighting members are similar to open top target sights but of much larger dimension and provided with attachment means to be secured to forwardly extending portions of a vehicle, such as hood or fenders, or to the windshield, depending on type of vehicle. The sighting members are fixed in position so that a driver can sight across them from his normal driving position to view lane stripes at a point ahead of the vehicle so that at normal road speeds he has sufficient time to control steering to maintain the vehicle safely between stripes, or between a stripe and the edge of a road.

3,834,037

DEVICE FOR MONITORING EARTHMOVING

Paul C. Daly, 3055 N. First Ave., Tucson, Ariz. 85719

Filed Sept. 8, 1972, Ser. No. 287,476
Int. Cl. G01c *15/12*
U.S. Cl. 33—292 **1 Claim**



An engineer's telescope is mounted on a carriage which rolls on a circular track. The track is supported by adjusting nuts on studs fastened to the top of a stand which rests on the ground. The operator sits inside the stand. The track may be leveled or tilted, and the operator can position the telescope radially 360°. By means of a wireless transmitter the operator can actuate a receiver mounted on a land leveling or grading machine to adjust the grading blades.

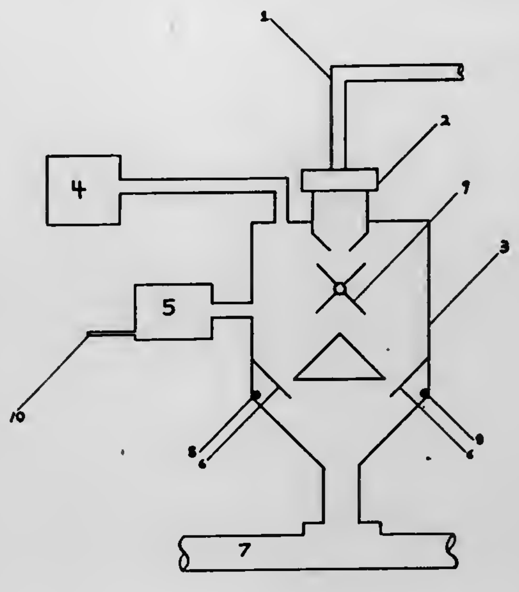
3,834,038

METHOD FOR DRYING MOLDABLE RESINS

Robert J. Janda, Sterling, Va., assignor to Gammaflux, Inc., Reston, Va.

Filed Sept. 14, 1972, Ser. No. 288,941
Int. Cl. F26b *3/32*
U.S. Cl. 34—1 **8 Claims**

A method of drying plastic resins through the use of microwave energy in a partial vacuum is disclosed. The method is particularly useful for drying plastic resins which are to be molded by an injection molding process. Further, a particular embodiment of apparatus which provides the microwave-partial vacuum drying is disclosed herein.

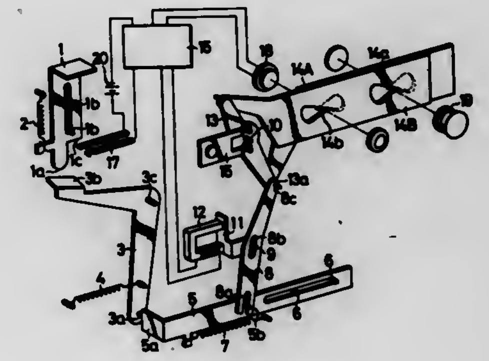


3,834,039

AUTOMATIC DIAPHRAGM SETTING DEVICE FOR CAMERA

Hideo Takeuchi, Kozakai, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed July 26, 1973, Ser. No. 383,028
Claims priority, application Japan, Aug. 12, 1972, 47-94996
Int. Cl. G03b *9/00, 9/62*
U.S. Cl. 354—42 **3 Claims**



A camera automatic aperture setting device includes an electromagnet adapted to be excited by a release operation and to be deexcited when the resistance values of the light receptive element and of a resistor included in a controlling electric ciruit are balanced, an attraction member attracted and held by excitement of the electromagnet, a diaphragm adjusting member adapted to be operated after the electric circuit has been closed by release operation and to operate a diaphragm opening member, and a member that imparts friction torque to the operation of the diaphragm opening member. The adjusting member rotates around a first pivot held in fixed position by the attraction member and operates the diaphragm opening member while the magnet is excited, and rotates around a second pivot that connects the diaphragm opening member to the diaphragm adjusting member when the magnet is deexcited, and determines a diaphragm aperture upon the deexcitement of the magnet.

3,834,040

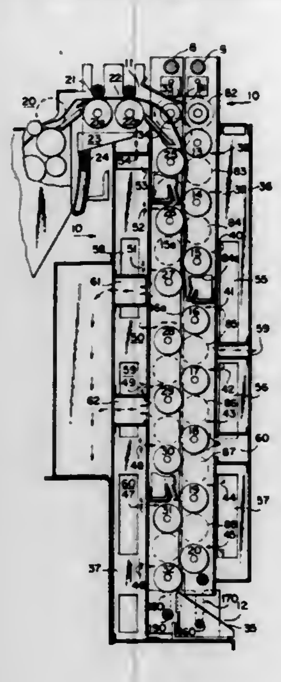
DRYER FOR PHOTOGRAPHIC FILM

Harold D. Russell, Clinton, N.Y., and James G. Lin, Springfield, Va., assignors to LogEtronics Inc., Springfield, Va.

Filed Apr. 19, 1973, Ser. No. 352,847

Int. Cl. F26b *13/00*

U.S. Cl. 34—160 **7 Claims**



A dryer for photosensitive material using both convection and conduction is disclosed having a bank of rollers aligned in coplanar axes on each side of the material path. The rollers are roughened to provide a plurality of surfaces for removing surface moisture from the material being dried. A plenum is arranged on each side of said material path to define a plurality of slots that direct heated and pressurized air against the rollers in a tangential plane to heat and dry the leading circumference of each of the rollers just before it contacts the material. The dryer also contains a plurality of floating finger guides immediately adjacent said rollers for removing any material being transported which may attempt to adhere to the rollers.

3,834,041

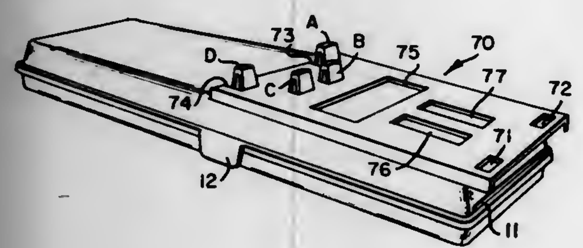
HAND HELD TEACHING MACHINE

Richard B. Ball, Palo Alto; Tuygan Gurler, Oakland; Carl J. Clement, Palo Alto, and David A. Horine, Los Altos, all of Calif., assignors to Enrich, Palo Alto, Calif., by said Ball & Gurler

Filed Jan. 15, 1971, Ser. No. 106,750

Int. Cl. G09b *3/06, 17/04*

U.S. Cl. 35—9 A **4 Claims**



A hand held manually operable teaching machine is disclosed herein comprising a replaceable cartridge containing a web, typically an endless or Z-folded web and a plurality of manually operated web-advancing means. The web is used for displaying frames of material to which a response is intended. Each frame of material on the web is provided with a web advancing hole at a predetermined location on a line transverse to the web in association with an appropriate one of several possible responses displayed with the material. The advancement of a pre-determined one of the web-advancing means will engage the hole associated with a correct response and advance the web for presenting another frame of material, thus indicating a correct response had been made by the operator. In an alternative mode, an increase in the number of frames of material for an equivalent length of webbing may be obtained with a mask attached to the machine which provides for split frame operation. The same mask may be reversed on the machine for tachistoscope operation to improve recognition and reading speed.

3,834,042

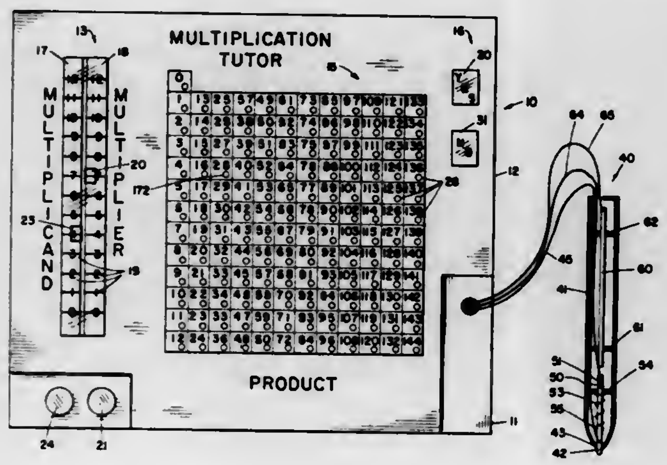
COMPUTATION DEVICE

James L. Henry, 3010 S. 74 East Ave., Tulsa, Okla. 74129

Filed Sept. 7, 1973, Ser. No. 395,222

Int. Cl. G09b *7/10*

U.S. Cl. 35—9 C **9 Claims**



Apparatus for indicating correct and incorrect solutions to an equation of two independent variables includes a printed circuit board on which electrically conducting strips are formed in a family of curves representing solutions to a desired equation, such as $xy = Z$. The family of curves is arranged in a manner whereby the distance along one edge of the board represents the value of one of the independent variables, and the distance along another edge of the board represents the value of the other of the independent variables, the intersection of lines parallel to the edges of the board intersecting over the curve representing the solution to the equation of the two variables. The board is mounted between upper and lower frames, the lower frame carrying an electrical contactor which is movable in the two directions of the independent variables to contact the electrically conducting solution curve and impart an electric potential to it. Each of the solution curves is connected to an electrically conducting possible solution member, displayed on the top panel. A test probe is connected to a relay switch to energize the relay when the test probe is brought into contact with the proper solution member to which the voltage is conducted from the solution curve. The test probe contains a switch, operable by pressure on the probe to energize a selected one of two solution indicating lamps, the incorrect lamp being ordinarily selected and the correct answer lamp being selected by positive potential detected by the probe which the relay energizes.

3,834,043

ART INSTRUCTING APPARATUS

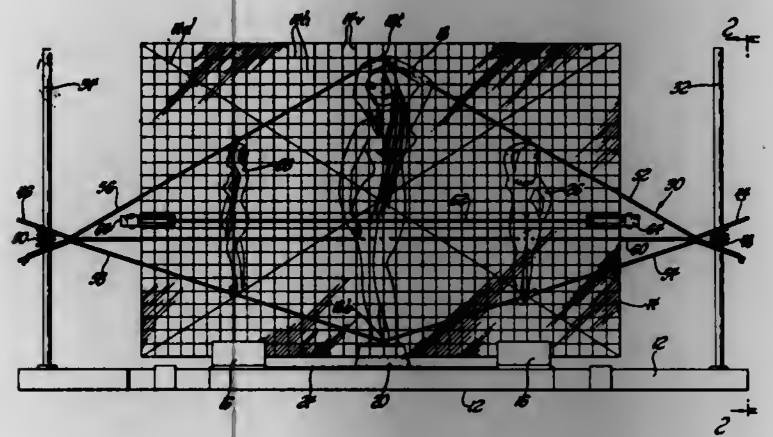
C. Elwood Summers, 8325 Riverland Dr., Sterling Heights, Mich. 48078

Filed Aug. 3, 1973, Ser. No. 385,506

Int. Cl. G09b *11/00*

U.S. Cl. 35—26 **18 Claims**

This art instructing apparatus allows the art student to compose his own three dimensional scene for reproduction in two dimensional form. The apparatus affords particular assistance to the student in the handling of perspective views. The rate at which the three dimensional scene recedes from the foreground to vanishing points in the background is graphically defined by four elastic cords attached to a pair of spring clips carried by two vertical rods at the rear of the apparatus and to a figure model, which serves as a foreground art object. An elastic cord extends from each spring clip to the top of the foreground figure model, and an elastic cord extends from each spring clip to the bottom of the foreground figure model. The spring clips can be vertically positioned on the rods to set the vertical position of the horizon relative to the foreground figure model. The horizontal separation of the vertical rods is also adjustable to adjust the rate at which the perspective lines, defined by the four elastic cords, approach the vanishing points. Additional figure models are provided for attachment to the elastic cords such that a three dimensional scene, including both foreground and background figures, can be composed. A transparent grid is provided at the front of the apparatus to assist the student in reproducing the proportions of the various models. The foreground figure model stands on a magnetic base or pedestal which can be selectively positioned on the base of the apparatus to provide the art student maximum flexibility in composing the three dimensional scenes he wishes to reproduce. This art instructing apparatus is designed for easy disassembly so it can be conveniently and compactly transported.



3,834,044

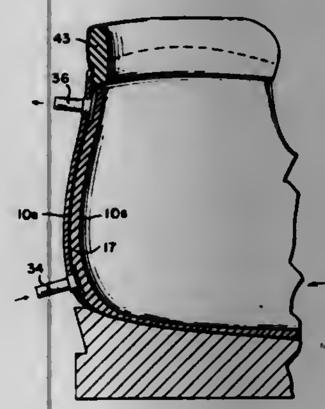
METHOD OF FOAMING SKI BOOTS

Robert R. McAusland, Seattle, and John M. Powell, Federal Way, both of Wash., assignors to Anderson & Thompson Ski Co., Inc., Seattle, Wash.

Filed Mar. 16, 1970, Ser. No. 19,914

Int. Cl. A43b *00/00*

U.S. Cl. 36—2.5 AL **7 Claims**



A double-wall liner of flexible material is put on the foot of the wearer or a mandrel corresponding to the foot of the wearer, the outer wall of the liner having therein an injection opening for an uncured foaming material and one or more vent openings. The mandrel or wearer's foot, with the liner thereon, is then inserted into a ski boot having one or more openings corresponding to the openings in the outer wall of the liner. The liner is keyed in position in the boot. The boot is then laced or buckled. An uncured resinous material and a catalyst therefor are mixed together and immediately injected into the liner through the injection opening. The foaming gas generated by reaction of the catalyst and resin foams the resin to produce an elastomeric foam which expands to fill the area between the walls of the liner and causes the outer wall of the liner to conform substantially to the inner surface of the boot and the inner wall of the liner to conform substantially to the mandrel or foot of the wearer. The foamed material is allowed to cure adequately in the liner before removal of the foot or mandrel from the liner. Stitching is provided along the instep of the liner to prevent the elastomeric foam from entering that portion of the liner, allowing that portion of the liner to expand laterally, and allowing the foaming gas to vent through the stitching into the atmosphere.

3,834,045

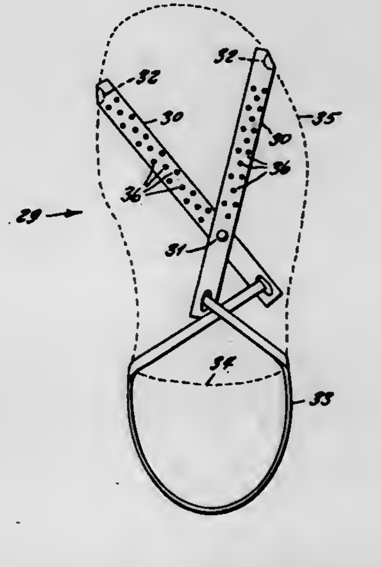
SNOW AND ICE ANTI-SKID DEVICES FOR SHOES

Clarence J. Crigger, and Ralph S. Arbogast, both of P.O. Box 574, Rittman, Ohio 44270

Filed Nov. 15, 1973, Ser. No. 415,934

Int. Cl. A43b *3/10*

U.S. Cl. 36—7.6 **1 Claim**



A novel cleat securable to the underside of a shoe in order that a person wearing the same can walk on slippery surfaces without slipping; the cleat in one form of the invention consisting of a pair of metal bars connected pivotally together at their centers, one end of the bars being bent to clamp around a shoe sole, and the other end being connected to an elastic band extending around the shoe heel, the underside of the bars having projections for frictionally engaging a walking surface; and the invention in another design consisting of a rotatable roller having a row of projections that are rotatable between a utility and retracted position.

3,834,046

SHOE SOLE STRUCTURE

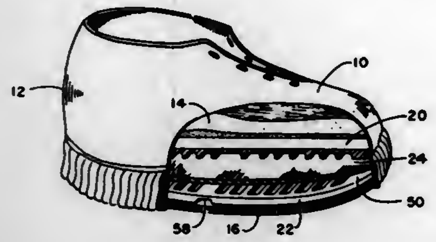
Donald M. Fowler, Rt. 5, Box 844, Golden, Colo. 80401

Filed Apr. 9, 1973, Ser. No. 348,901

Int. Cl. A43b *13/18*

U.S. Cl. 36—28 **16 Claims**

A cushioning structure for footwear is interposed between the insole of the shoe and the ground-engaging sole and includes upper and lower sheets having a plurality of complementary and aligned protrusions and openings therebetween, the sheets being separated by an elastic diaphragm which will yieldingly resist the movement of the protrusions into the openings when the sole is compressed against the upper part of the shoe.

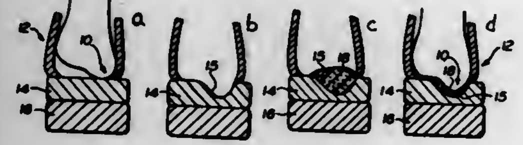


3,834,047
SHOE CONSTRUCTION TO PROVIDE BUILT-IN SHOCK ABSORBER AND REDUCE EXCESSIVE HEEL WEAR

Abraham Wiltse Schenker, 303 66th St., New York, N.Y. 10023

Filed Sept. 21, 1973, Ser. No. 399,649
Int. Cl. A43b *31/32*

U.S. Cl. 36—37 **9 Claims**



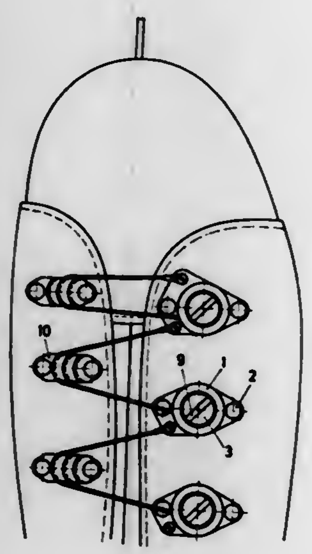
An improved shoe construction is disclosed wherein the top surface of the inner sole has a local excavation in its postero-lateral aspect to accommodate the calcaneal projection. The local excavation can be filled with a resilient material such as rubber which can be flush with the top surface of the inner sole over the excavated area or project thereabove.

3,834,048
SHOE FASTENING

Wilhelm Maurer, Wehntalerstrasse 536 CH-8000, Zurich, Switzerland

Filed Aug. 31, 1973, Ser. No. 393,420
Claims priority, application Switzerland, Oct. 9, 1972, 14732/72
Int. Cl. A43b *11/00;* **A43c** *11/00*

U.S. Cl. 36—50 **6 Claims**



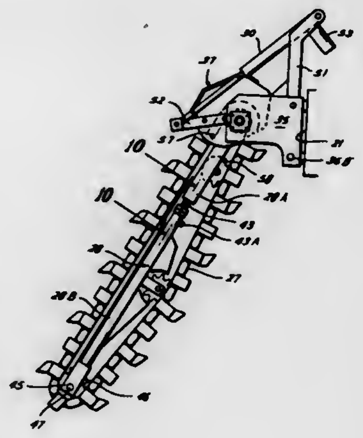
A shoe fastening for a ski boot or the like comprises a housing, a body mounted for unidirectional rotation in the housing and a serration coupling between the housing and the unidirectionally rotatable body for holding the body against rotation in the opposite direction while permitting the unidirectional rotation thereof. A shoe lace has one end affixed to the rotatable body and the other end affixed to the housing, the lace being looped about a counter-support arranged to receive the shoe lace from the rotatable body.

3,834,049
TRENCHING ATTACHMENT FOR A TRACTOR OR THE LIKE

Sam Bond, P.O. Box 40117, Houston, Tex. 77040

Filed Dec. 7, 1972, Ser. No. 312,851
Int. Cl. E02f *5/06, 3/08*

U.S. Cl. 37—86 **8 Claims**



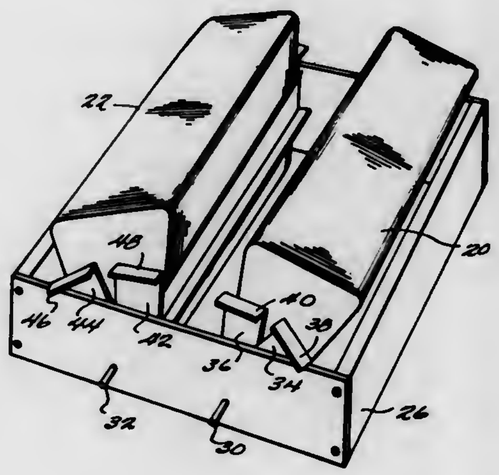
A trenching attachment comprising a boom to be mounted on the rear end of a tractor, an endless chain having digging elements thereon carried by the boom, an actuator for moving the boom between transport and digging positions, and a belt for connecting a drive shaft for the chain to a power take-off shaft on the tractor.

3,834,050
PIVOT FILE WITH MULTIPLE ROWS OF FILE CARDS

Richard P. Scholfield, Peekskill, N.Y., assignor to Wheeldex Manufacturing Co. Inc., Peekskill, N.Y.

Filed Jan. 16, 1973, Ser. No. 324,143
Int. Cl. G09f *11/06*

U.S. Cl. 40—67 **3 Claims**



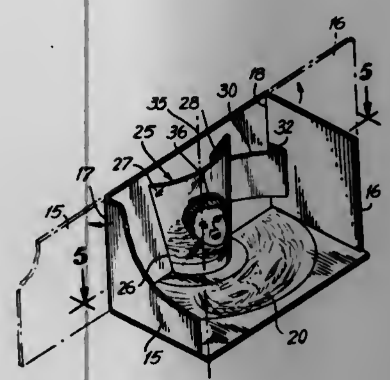
A multiple row file with a number of rows of flat file cards pivotably mounted in a tray with each row bounded by pivotably mounted guide members.

3,834,051
ANAMORPHIC GREETING CARDS AND OTHER STRUCTURAL GRAPHIC PIECES

Clarence A. Barnes, Jr., New York, N.Y., and Carl T. Chadsey, Jr., Greenwich, Conn., assignors to Reflectomorphics Inc., New York, N.Y.

Filed Nov. 12, 1973, Ser. No. 414,850
Int. Cl. G09f *1/00*

U.S. Cl. 40—124.1 **12 Claims**



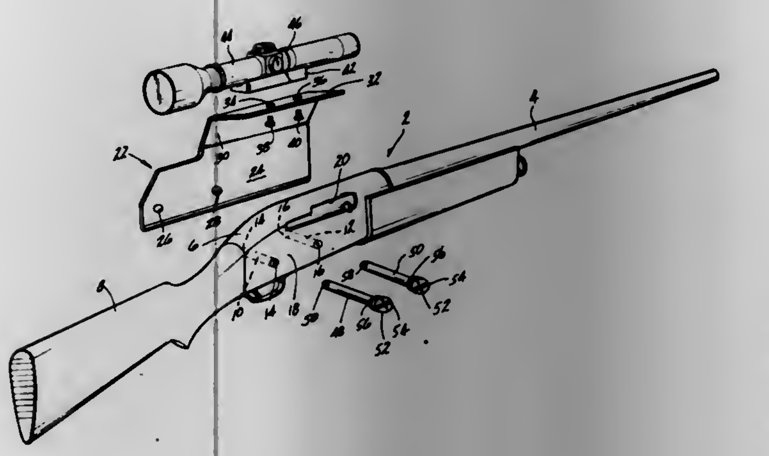
A distorted or anamorphic image is placed on one panel of a foldable display card assembly and viewed as a normal image on curved collapsible mirror reflector supported by the other panels comprising the said card.

3,834,052
MOUNT FOR GUNSIGHT

William F. Steck, III, El Paso, Tex., assignor to W. R. Weaver, Company, El Paso, Tex.

Filed Sept. 21, 1973, Ser. No. 399,678
Int. Cl. F41g *1/38*

U.S. Cl. 42—1 S **6 Claims**



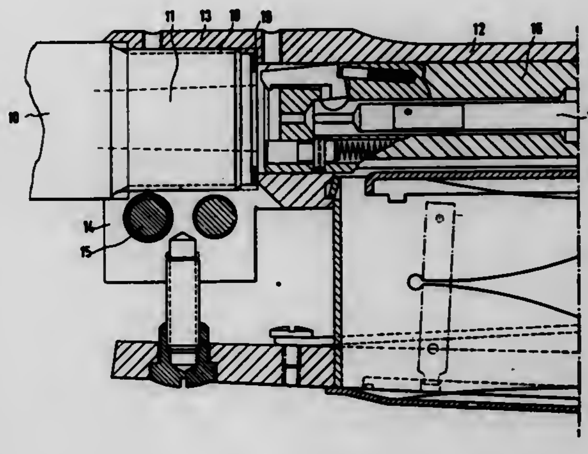
A mount for securing a gunsight above the top of the receiver of a firearm, which mount is secured to the receiver by at least one pin which passes laterally through the receiver side walls upon which pin at least a portion of the action of the firearm is also mounted within the receiver. The mount includes a first portion adjacent the sidewall of the receiver which first portion receives the pin, and a second portion overlying the top wall of the receiver, on which second portion the gunsight is mounted.

3,834,053
METHODS AND APPARATUS FOR DETACHABLY ASSEMBLING THE BARREL OF A FIREARM

Heinz Bielfeldt, deceased, late of Eckernforde, Germany; by Gerlinde Bielfeldt; by Karsten Bielfeldt, both of Eckernforde, and by Christiane Diehl, Kiel, all of Germany (heirs), assignors to J. P. Sauer & Sohn GmbH, Eckernforde, Germany

Filed Apr. 26, 1973, Ser. No. 354,773
Claims priority, application Germany, July 21, 1972, 2236001
Int. Cl. F41c *21/00*

U.S. Cl. 42—75 B **9 Claims**



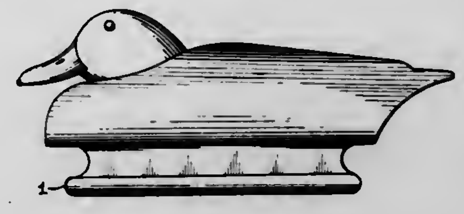
A firearm includes a slit receiver socket for detachably receiving a barrel, and a spacer element disposed between the rear of the barrel and the end of the socket to define the rear-most position of the barrel. The spacer element may include a plurality of discs which are adhered together. Discs may be added to or removed from the spacer element to adjust the size thereof.

3,834,054
DECOY ANCHOR STORAGE

George W. Gentry, 6034 N. 32nd Ave., Phoenix, Ariz. 85017, and Robert W. Jepson, 3109 N. 64th Dr., Phoenix, Ariz. 85033

Filed Apr. 23, 1973, Ser. No. 353,383
Int. Cl. A01m *31/06*

U.S. Cl. 43—3 **2 Claims**



An anchor with provision for attachment to an elongated and bulbous keel of a duck decoy consisting of a weight with wire or strip appendages which have a configuration corresponding to the outer configuration of the decoy keel. The appendages are resilient or are resiliently biased to grip the keel when the weight is applied to the keel in an upward motion.

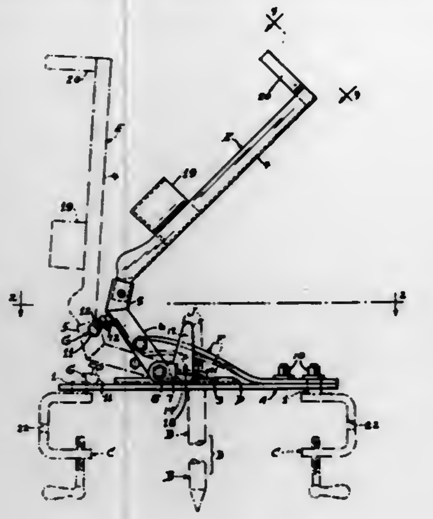
3,834,055
FISHING POLE HOLDER AND CATCHING DEVICE

Umberto Dal Bianco, 1051 65th St., Oakland, Calif. 94621

Filed Aug. 28, 1973, Ser. No. 392,258
Int. Cl. A01k *97/10*

U.S. Cl. 43—15 **4 Claims**

A fishing pole holder and catching device which may be removably clamped to a supporting member in a boat or the device has a spike that may be driven into the ground for supporting the device. The device has an arm for holding a fishing rod and the arm is swingably secured to a base. Novel adjustable means holds the arm and fish pole in an operative and inclined position preparatory to catching a fish. This adjustable means includes a spring biased pawl and a ratchet for holding the arm and fishing rod in the operative position into which they have been swung. A leaf spring swings the arm and fish pole into a vertical position when the spring biased pawl is automatically freed from the ratchet when there is a pull on the fish line and pole due to a fish being caught by the fish hook.

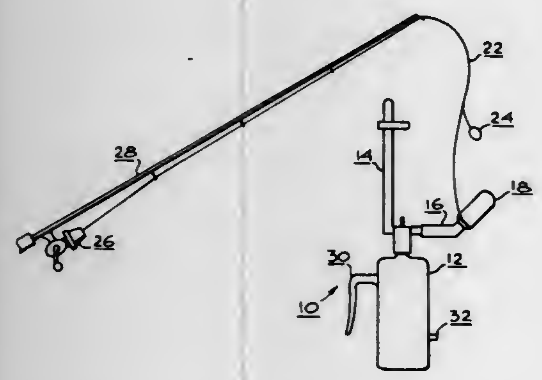


3,834,056

POWERED LINE CASTING ARRANGEMENT

Ernest A. Filippi, 18776 Kenya St., Northridge, Calif. 91324 and Matthew S. Smith, 4400 Sarah St. No. 29, Burbank, Calif. 91505

Filed Mar. 23, 1972, Ser. No. 237,372
Int. Cl. A01k *91/02*
U.S. Cl. 43—19 **39 Claims**



A powered line casting arrangement utilizing a pressurized fluid to launch a projectile to which the line to be cast is attached.

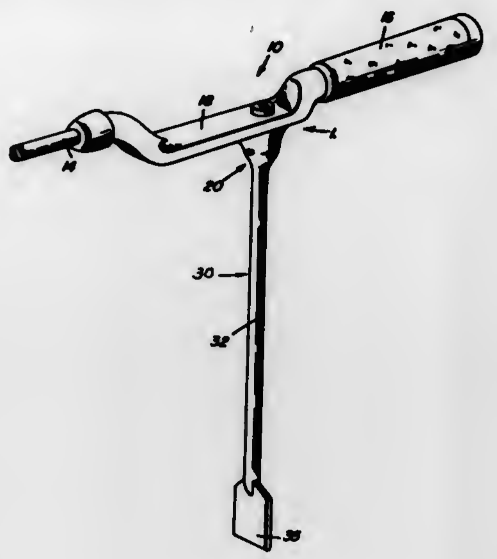
3,834,057

FISHING ROD HOLDER

Edward F. Jansa, 2402 S. 5th St., Omaha, Nebr. 68108

Filed Mar. 13, 1973, Ser. No. 340,897
Int. Cl. A01k *97/10*
U.S. Cl. 43—21.2 **13 Claims**

A fishing rod holder having a standard and an insert mountable on a fishing rod for selectively engaging the standard. The insert is preferably in the shape of a hyperboloid of one sheet having parallel bases of different areas, and is secured on a reel mounting portion of the handle of a fishing rod by a bolt passing through an opening provided in the handle portion and engaging a threaded hole in the insert. A socket is provided on the standard for matingly receiving the insert, the base of smallest area first; the insert and socket may be advantageously provided with longitudinally extending splines and grooves, respectively, for preventing sway while permitting a rod to be rigidly held extending in any desired direction.

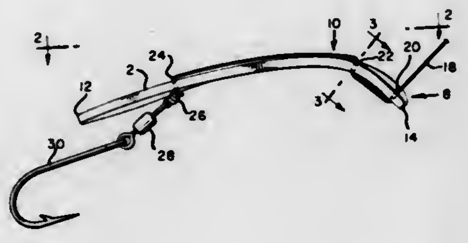


3,834,058

FISHING LURE

Jack R. Gaunt, 1150 Tattersall Dr., Victoria, British Columbia, Canada

Filed May 3, 1973, Ser. No. 356,780
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.32 **3 Claims**



A fishing lure having a relatively flat elongated main body portion, tapered from a broad leading end to a substantially pointed trailing end. The body of the lure includes a scooped nose and a slight twist along its longitudinal axis. The lure is secured to a fishing line by means of a plurality of holes through which the leader is woven from a location on top of the lure adjacent the nose, forward of the scoop, downwardly and rearwardly, the leader then passes upwardly, remains on top of the lure to a position forward of the tail whereat it again passes through the body and terminates in a fish hook. The attachment, or hole through which the leader passes at the nose of the lure is placed slightly on one side of a line dividing the distance between the sides of the lure.

3,834,059

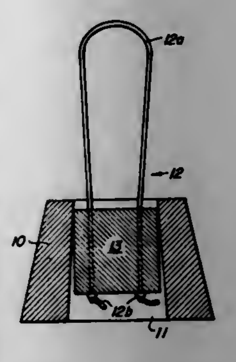
RELEASABLE SINKER USING WATER-SOLUBLE MATERIAL AND RESILIENT ATTACHING MEANS

Vern C. Overstreet, Hollywood, Calif., assignor to Marguerite M. Haynes, Los Angeles, Calif.

Filed Nov. 9, 1972, Ser. No. 303,821
Int. Cl. A01k *95/00*
U.S. Cl. 43—43.12 **5 Claims**

A sinker for fishing lines comprises a weight and water-soluble means for attaching the weight to a fishing line, so that, when the sinker is placed in water, the water-soluble means

dissolves and releases the weight. A preferred embodiment includes a weight cast to shape from Portland cement, and a releasible attachment loop tightly wedged into a passage through the weight by means of a water-soluble wedge, e.g., a wedge-shaped lump of sugar.

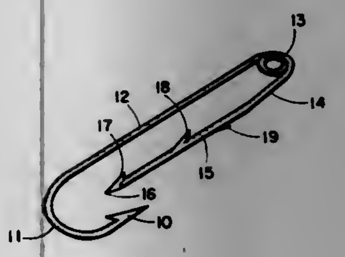


3,834,060

FISH HOOK

Leonard Wagenknecht, P.O. Box 282, Sterling, Ill. 61081

Filed Feb. 21, 1973, Ser. No. 334,477
Int. Cl. A01k *83/06*
U.S. Cl. 43—44.8 **8 Claims**

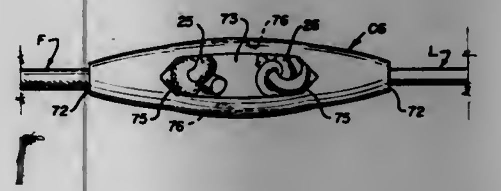


A fish hook member composed of a single wire strand including a hook end and a loop end and an elongated shank extending between the hook of the hook end and loop. A second shank extends from the loop alongside but spaced from the aforementioned shank and terminating in a barbed end generally at the mouth of the hook between the elongated shank and hook.

3,834,061

LEADER CONNECTOR

Gerald B. Klein, 13451 Stuart Ct., Broomfield, Colo. 80020
Continuation-in-part of Ser. No. 128,015, March 25, 1971, Pat. No. 3,717,907. This application Aug. 3, 1972, Ser. No. 277,756The portion of the term of this patent subsequent to Feb. 27, 1990, has been disclaimed.
Int. Cl. F16g *11/00, 11/02*
U.S. Cl. 43—44.9 **5 Claims**



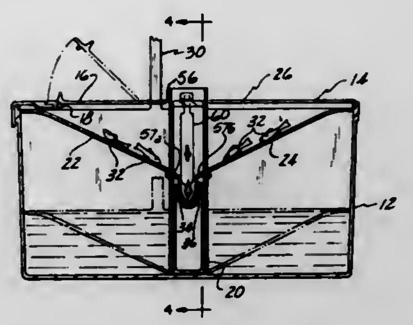
A connector or a link for joining a leader to a fly line is formed as a small cigar or like shaped member. A passageway opening at each end receives the end of the line and the end of the leader. A transverse hole at the center intersects the passageways from the ends to provide opposing side openings. The end of the line and the end of the leader are threaded through their passageways to project from the side openings. They are then knotted and the knots are pulled back into the side opening to complete the connection.

3,834,062

MINNOW BUCKET WITH MOVABLE MEANS FOR GRASPING AND HOLDING BAIT

Walter H. Nalepka, 33648 Michele St., Livonia, Mich. 48150

Filed July 21, 1972, Ser. No. 274,105
Int. Cl. A01k *97/04*
U.S. Cl. 43—56 **9 Claims**



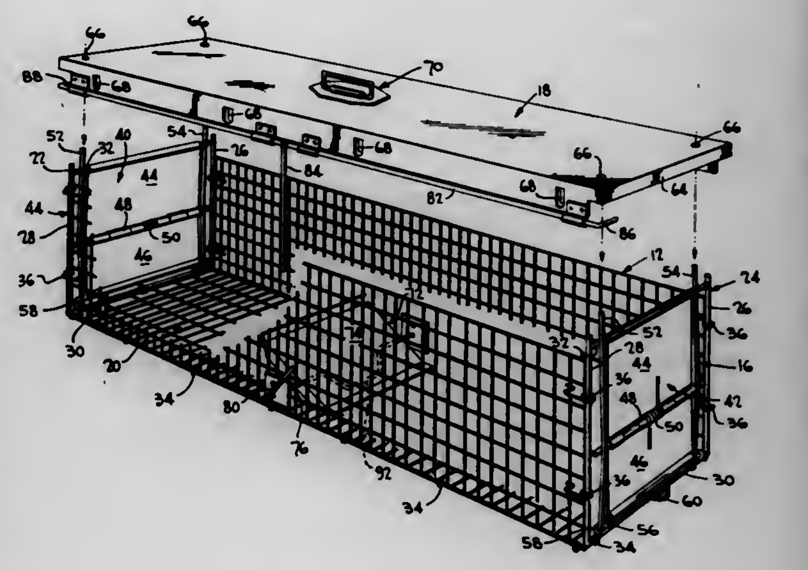
A minnow bucket having a perforated wall for moving the minnows in the bucket toward a pair of cooperating jaws. The jaws receive a few of the minnows, which are then passed through an opening in the top of the bucket to a position in which the user can pass a hook through an individual minnow.

3,834,063

LIVE ANIMAL TRAP

Anthony J. Souza, Lancaster, and Harlan W. Martin, New Holland, both of Pa., assignors to Woodstream Corporation, Lititz, Pa.

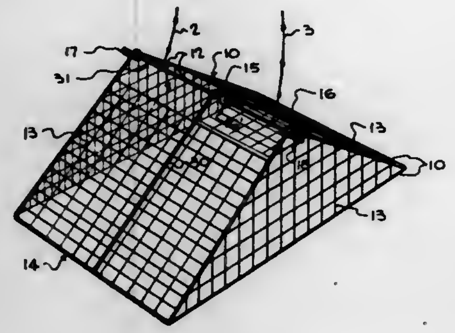
Filed May 9, 1972, Ser. No. 251,790
Int. Cl. A01m *23/02*
U.S. Cl. 43—61 **12 Claims**



A novel live animal trap is disclosed of the type comprising a box-like cage having opposed substantially parallel pairs of sides, a separate removable top and a floor, with a passage for entrance and egress preferably in each end of the cage. A foldable door is disposed in each passage, the door being movable between a folded or collapsed configuration to open the passage and an unfolded configuration to close the associated passage with the door normally being biased or urged into the unfolded configuration. A triggering device is disposed within the cage and is connected to linkage means, disposed exteriorly of the cage, the linkage means being operatively coupled to each door. When the triggering device is in a "cocked" or set position, the linkage means can selectively retain each door in a folded configuration to keep the associated passage open. When the triggering device is tripped such as by an animal entering into the cage, each retained door is released through the linkage means whereby the door quickly unfolds and snaps shut so as to trap the animal. The novel trap of the instant invention is constructed in a "knock-down" manner whereby the cage, as a whole, can be collapsed upon removal of the top to facilitate transportation thereof.

3,834,064
QUICKLY-COLLAPSIBLE SHELL FISH TRAP

Richard T. Lane, P.O. Box 5, Des Allemands, La. 70030
Filed Jan. 29, 1973, Ser. No. 327,494
Int. Cl. A01k *69/08*
U.S. Cl. 43—100 **8 Claims**

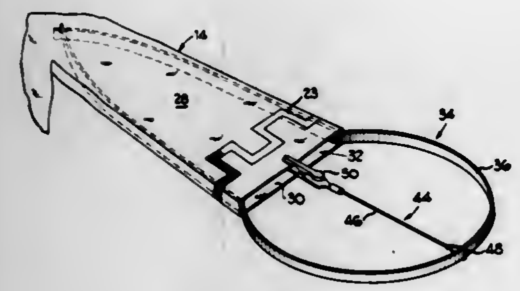


A triangularly configured, quickly-collapsible shell fish trap using rigid, peripherally located support rods forming rectangular perimeters for attaching netting mesh thereto, the support rods being formed with loops or hinges at the apex of the triangle for rotation about an axis-rod located laterally at the apex. One of the support rods is provided with a resilient finger latch or trigger formed by a reverse loop which engages an oppositely disposed support rod, thereby providing an easily disengageable means to permit the trap to be placed quickly in use. In one embodiment an open, non-mesh area acts as the entrance for the shell fish.

A modification of the basic trap uses one or two float operated doors which are opened when a shell fish approaches the entrance due to the weight of the shell fish (e.g., a crab) causing the float actuated doors to separate to form an entrance into the trap. After the shell fish enters the trap, the float operated doors close again. This modification also utilizes the resilient trigger means to facilitate erection and collapse of the trap.

3,834,065
FABRIC DECORATING KIT

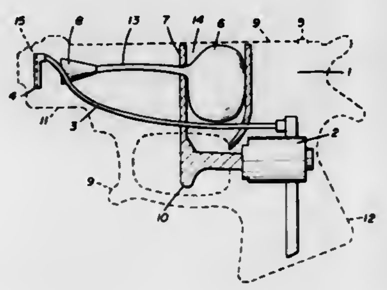
Marvin I. Glass; Bette M. Kaelin, and Allison W. Katzman, all of Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Feb. 16, 1973, Ser. No. 333,182
Int. Cl. A63h *33/00*
U.S. Cl. 46—1 R **5 Claims**



A clothing kit for dolls which includes articles of doll clothing made of fabric, the fabric having a preprinted design thereon so that the clothes can be colored within or along the design according to taste. The articles of clothing have snap-on decorative trim and accessories. Also included in the kit is a fabric stretcher which generally includes a flexible band which forms a generally circular loop. The loop is self-biased toward a circular configuration and has a diameter greater than the greatest distance between interior opposing surfaces of a partially closed article of clothing. When the band is resiliently forced into an article of doll clothing, the fabric is stretched outwardly around the band holding the fabric such that opposite sides of the fabric are spaced from each other. When the fabric is so held around the band, the fabric may be colored by an ink felt pen or other appropriate marking member without the liquid color running from one sheet of the fabric to an opposite sheet across the interior of the clothing.

3,834,066
BUBBLE GUN WITH SIMULTANEOUSLY OPERATED AIR BULB AND SOLUTION PUMP

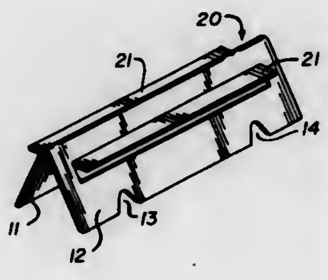
Armando Luis Vargas, 12630 Emelita St., North Hollywood, Calif. 91607
Filed Nov. 20, 1972, Ser. No. 291,410
Int. Cl. A63h *33/28*
U.S. Cl. 46—8 **1 Claim**



A bubble-making toy gun for producing a single bubble for each individual trigger actuation and including a single trigger mechanism provided with a compression device, that depresses and deflates a normally expanded rubber air storage bulb, thus forcing air forwardly through an air tube toward an ejection bubble-making ring at the forward end of the gun, while a pump, also operated by the single trigger mechanism, pumps a quantity of soapy solution, carried within a reservoir in the handle of the gun, forwardly to the bubble-making ring where it forms and ejects a single bubble from the forward end of the gun.

3,834,067
V-SHAPE BLOCKS HAVING FLANGES AND NOTCHES FOR STACKING

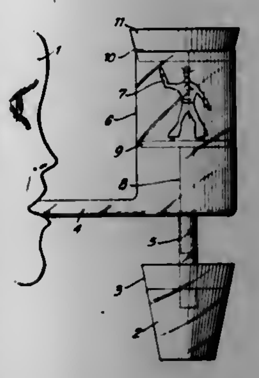
Roman A. Koleczek, 16531 S. Ridgeland, Tinley Park, Ill. 91607
Filed May 15, 1970, Ser. No. 37,593
Int. Cl. A63h *33/08*
U.S. Cl. 46—25 **11 Claims**



Toy building blocks which are, generally, V-shaped in cross-section and have locking notches in the lower sidewall edges thereof for permitting them to be stacked atop one another. Some blocks may include flanges projecting from the sidewalls adapted to support the lower edges of others. Still other blocks may be angular or curved instead of straight. The locking notches may have means adapted to receive and secure wheels to the blocks.

3,834,068
TOY STRAW WITH AN INTERNAL MOVING FIGURE

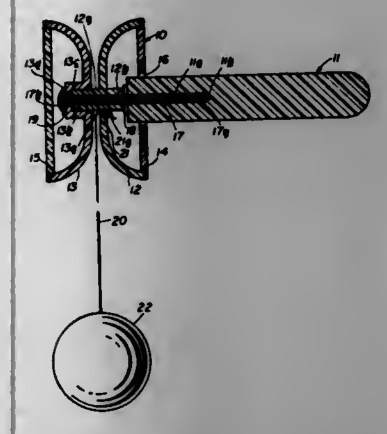
Norman A. Fabricant, 307 Martense St., Brooklyn, N.Y. 11226
Filed Mar. 31, 1971, Ser. No. 129,845
Int. Cl. A63h *29/16*
U.S. Cl. 46—44 **9 Claims**



A toy in the form of a drinking straw. The straw has a transparent chamber near its midpoint and is shaped so the chamber is clearly visible to the user. Within the chamber is a movable object which pops up and falls with the flow of fluid through the the straw. The object may be a familiar cartoon character, a humorous subject, etc. Part of the chamber may be opaque so the object remains hidden until it suddenly appears. The object may also be caused to spin. The toy may be opened for cleaning, and may be used with separate disposable straws.

3,834,069
HAND MANIPULATED TOY

Paul L. Brown, 982 Lakeview Way, Redwood City, Calif. 94062
Filed Jan. 21, 1972, Ser. No. 219,776
Int. Cl. A65h *1/32*
U.S. Cl. 46—51 **9 Claims**

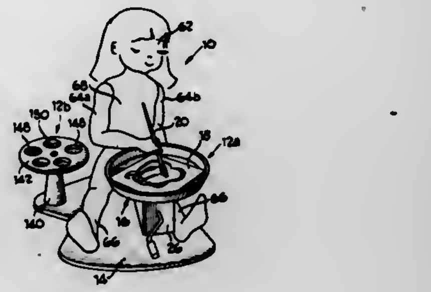


A reel arranged on a handle for relative rotation with respect to one another and to the shaft of which a cord is fastened at its one end to effect controlled centrifugal action of an object fastened to the other end of the cord upon manipulation of the handle.

3,834,070
DOLL CARRYING A MARKING MEANS AND ACCESSORY WITH MOVABLE MARKING SURFACE

Jeffrey D. Breslow, Highland Park, and Eugene Jaworski, Park Ridge, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Jan. 26, 1973, Ser. No. 326,874
Int. Cl. A63h *13/04*
U.S. Cl. 46—116 **7 Claims**

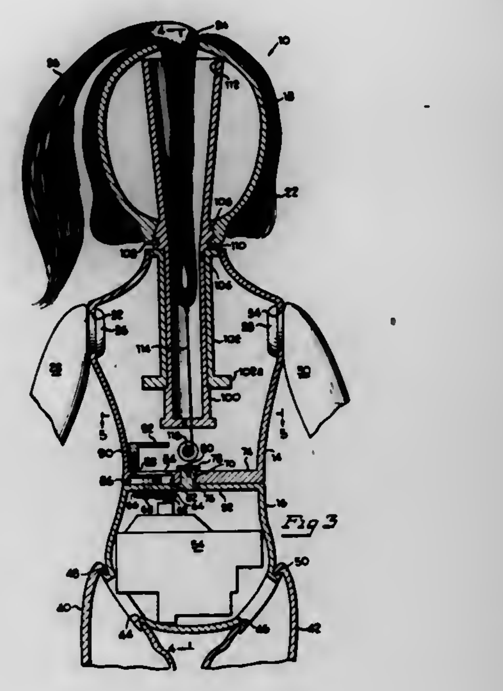
A combination doll and accessory set wherein the doll has a movable body portion and a movable arm connected to the body portion and adapted to hold a paint brush or the like. The accessory set includes a platen on which paper or the like may be positioned to receive paint from the paint brush. The platen is mounted on a base structure in front of the doll, and a manually actuatable mechanism within the base structure is operatively connected to a mechanism on the doll whereby



the mechanism within the platen base structure can be operated by a user, as by a crank. Rotation of the crank rotates the platen and simultaneously moves the doll's body portion and arm back and forth to carry the paint brush therewith alternately between the platen and a paint container positioned alongside the doll but spaced from the platen.

3,834,071
DOLL WITH COORDINATED HEAD AND TORSO MOVEMENT

Rouben T. Terzian, and Marvin I. Glass, both of Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Feb. 22, 1972, Ser. No. 227,892
Int. Cl. A63h *3/20*
U.S. Cl. 46—120 **5 Claims**



A doll which includes a lower torso portion, an upper torso portion which is rotatable about a vertical axis relative to the lower torso portion when the doll is in an erect disposition, and a head which is rotatable about a vertical axis relative to the upper torso portion. The doll is provided with a motor in the lower torso portion connected to the upper torso portion and the head for driving the upper torso portion and head through a to-and-fro twisting motion with the head movement being slightly behind the body movement.

3,834,072

SHAPE-RETAINING SUBSTRATE FOR A PLANT AND METHOD OF MAKING THE SAME

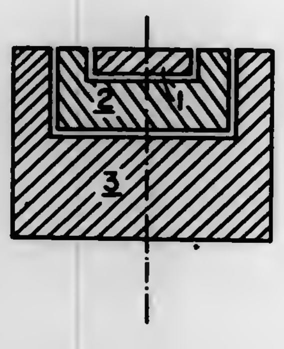
David Rack, Schwarzgrabenweg 17, A-5020 Salzburg, Austria

Continuation-in-part of Ser. No. 41,355, May 28, 1970, abandoned. This application Sept. 17, 1973, Ser. No. 398,067

Claims priority, application Austria, June 6, 1969, 5353/69; Nov. 20, 1969, 10854/69; Nov. 20, 1969, 10855/69; Mar. 5, 1970, 2085/70

Int. Cl. A01g *9/10*

U.S. Cl. 47—37 **7 Claims**



A shape-retaining substrate for a plant comprises a mixture of 30 to 60 parts of dried peatmoss, 50 to 20 parts of foam flakes, a plant nutrient, and 15 to 20 parts of a polyurethane binder free of foaming agent which bonds the peatmoss, the foam flakes and the nutrient. The substrate is made by reacting the polyurethane constituents in situ with the peatmoss, foam flakes and nutrient mixture.

3,834,073

PHENYL NITRONE DERIVATIVES USEFUL AS SEED PROTECTANTS

Kenneth P. Dorschner, and James A. Albright, both of Jacksonville, Fla., assignors to SCM Corporation, Cleveland, Ohio

Division of Ser. No. 139,833, May 3, 1971, Pat. No. 3,767,818. This application Mar. 30, 1973, Ser. No. 346,682

Int. Cl. A01n *9/20*

U.S. Cl. 47—57.6 **7 Claims**

Anti-microbial compositions comprising an inert carrier and a defined class of di-aryl nitrones are described. The compositions are advantageous in that they have high fungicidal activity against a substantially broad spectrum of plant pathogenic fungi, while at the same time the compositions are essentially non-phytotoxic to selected crops and ornamental plants in the fungicidally active amounts employed.

Also described are processes for controlling plant pathogens in soil by soil treatment or by treatment of the crop plant seeds.

3,834,074

SEEDLING GROWER AND METHOD OF PLANTING SEEDLING CULTIVATED IN THE SEEDLING GROWER

Atsushi Shirouzu, Sapporo, Japan, assignor to Kabushiki Kaisha Circle Tekkojo, Takikawa Hokkaido, Japan

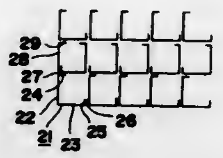
Division of Ser. No. 109,360, Jan. 25, 1971, Pat. No. 3,757,468. This application May 8, 1973, Ser. No. 358,323

Claims priority, application Japan, Feb. 2, 1970, 45-8578; Feb. 24, 1970, 45-15700; July 8, 1970, 45-59193; July 8, 1970, 45-59195; July 21, 1970, 45-63717

Int. Cl. A01g *9/02*

U.S. Cl. 47—34.13 **2 Claims**

A seedling grower and a method of planting seedling cultivated in the seedling grower are disclosed. Said seedling grower is characterized by comprising a plurality of cells arranged in lattice form and formed by adhesively bonding together wall members made of a material such as paper, being collapsible when not in use and being able to be stretched into a spread lattice form from the collapsed state. Each of said cells is adapted to contain earth and cultivate a seedling therein.



3,834,075

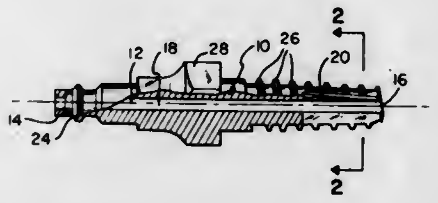
TREE TRUNK PRESSURE FEEDING DEVICE

Alvin E. Nix, Ashland, and Edward F. Maley, Wayland, both of Mass., assignors to Tre-X Injector Systems Company, Ashland, Mass.

Filed Feb. 12, 1973, Ser. No. 331,678

Int. Cl. A01g *29/00*

U.S. Cl. 47—57.5 **11 Claims**



A device for pressure feeding of liquid chemicals into tree trunks comprises a pipe length with a threaded and tapered end for insertion into the tree trunk. Long peripheral slits are provided in the threaded and tapered end as the primary exit for liquid passing through the pipe to carry beneficial chemicals into the tree trunk and to prevent reaction forces of pressure feeding from ejecting the device from the trunk.

3,834,076

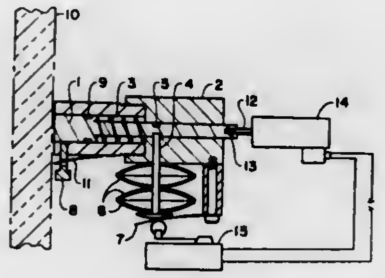
REFRIGERATOR/FREEZER SAFETY DEVICE

Richard E. Vallee, 619 S. Bourbon St., Blanchester, Ohio 45107, and Gerald E. Vallee, 30 Burkhart Ln., Gallipolis, Ohio 45631

Filed Jan. 24, 1973, Ser. No. 326,386

Int. Cl. E05f *15/20*

U.S. Cl. 49—2 **5 Claims**



A device is described for opening the door of an enclosure, more particularly the magnetically held door of a refrigerator, freezer, or the like, which device is responsive to the temperature within the enclosure to open and hold the door thereof, to allow heat dissipation therefrom and air circulation therein, when the temperature within such enclosure exceeds a certain temperature.

3,834,077

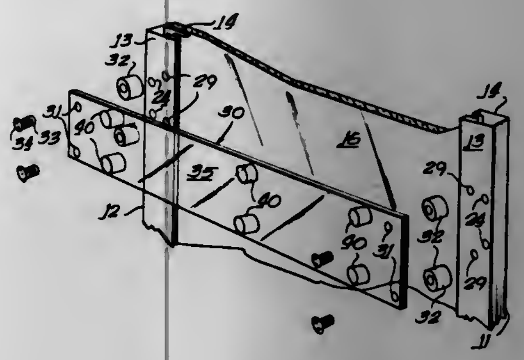
PANIC BAR SAFETY PLATE

Virginia M. Meyer, 701 Smith Ave., Lake Bluff, Ill. 60044

Filed May 11, 1973, Ser. No. 359,492

Int. Cl. E06b *7/28*

U.S. Cl. 49—50 **8 Claims**



A panic bar safety plate device adapted for mounting behind a panic bar secured on a door having parallel stiles and a pane, such as glass, supported therebetween, the stiles having an inner wall surface with the panic bar being mounted thereon and extending therebetween, the safety place consisting of an elongated rectangular plate-like member of a sufficient length to extend over the inner wall surface of each of the stiles behind the panic bar with the end portions of the plate secured to the stiles by bolts, screws, or the like, and resilient bumper means projecting normal from the plate in a direction toward the pane adapted for engaging the pane in a resilient manner upon excessive impact force being applied to the plate in a direction toward the pane so as to cushion the impact and transfer the major portion of the impact force to the stiles with only a small portion being resiliently transferred to the pane in a manner protecting against the possibility of breaking or damaging the pane.

3,834,078

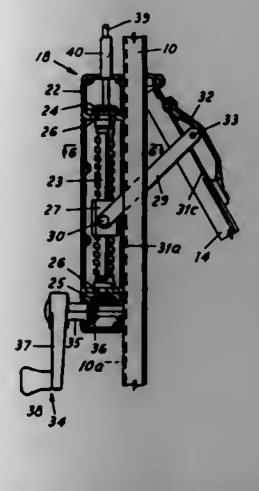
WINDOW ASSEMBLY

Gregory Beaumont, Chermside, Australia, assignor to Meyers Taylor Pty., Ltd., Virginia, Queensland, Australia

Filed Nov. 28, 1972, Ser. No. 309,990

Int. Cl. E05f *17/00*

U.S. Cl. 49—85 **5 Claims**



A control assembly for a window assembly having a fixed window frame and an outwardly swinging casement window. The assembly includes a link which is pivoted at one end to a traveller nut carried by a jack screw and pivoted at its other end to the casement window at a point outwardly of the plane of the casement window. Vertical registering slots for the link are formed in the fixed window frame, the casement window and a mounting box which houses the jack screw and traveller nut.

3,834,079

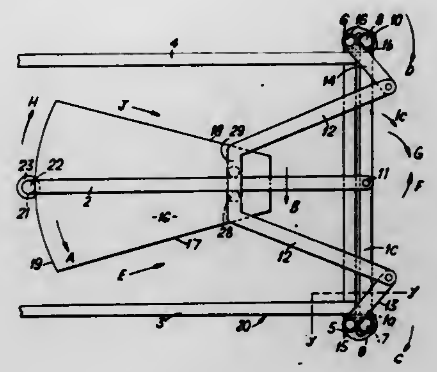
GATES AND OPERATING MECHANISM THEREFOR

Peter Gilbert Rutland Funnell, 23 Pownale St., Masterton, New Zealand

Filed June 11, 1973, Ser. No. 368,881

Int. Cl. E05d *15/50*

U.S. Cl. 49—193 **8 Claims**



This invention relates to a gate with a two-way opening action about opposed sides.

Opposed hooks for releasably holding side members of the gate in supports at the gate opening are fixed to shafts which are rotatable by an operating lever via a linkage. Movement of the lever in one direction releases one hook and further engages the opposed hook about its associated side member for opening the gate about this side member and vice versa.

In one embodiment the movement of the lever is confined by co-operation with the edges of a shaped cam.

3,834,080

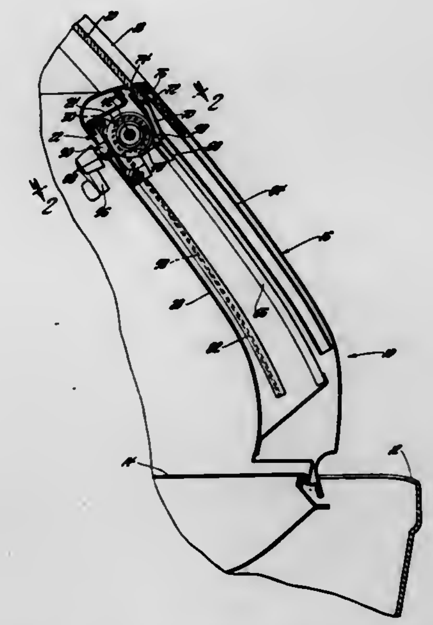
WINDOW REGULATOR FOR A STATION WAGON TAILGATE WINDOW

Leonard A. Lystad, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 2, 1973, Ser. No. 356,302

Int. Cl. E05f *11/38*

U.S. Cl. 49—348 **3 Claims**



A regulator for controlling movement of a station wagon tailgate window between lower and upper positions and utilizing an elongated helical spring encircling an elongated rod of the regulator drive train to counterbalance the window. The rod and spring extend laterally of the vehicle and the ends of the rod are respectively fixed to a pair of control members rotatably supported by a pair of associated housings for movement about a common axis. A pair of drive tapes are passed over the respective control members in driving engagement therewith and define inverted U-shaped configurations in cooperation with guides receiving the ends of the tapes.

Laterally spaced lower portions of the window are attached to respective ends of the tapes so that the window is raised and lowered as the control members are rotated by a manually operable one way spring clutch. The elongated helical spring has one of its ends fixed to one of the control members and its other end fixed to the housing associated with the other control member so as to provide the counterbalancing for the window during its movement between the lower and upper positions.

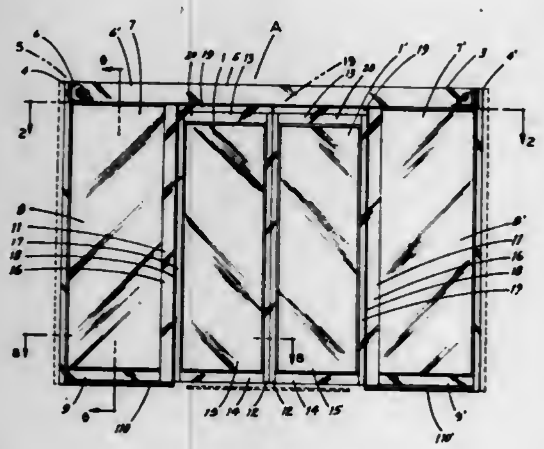
3,834,081
AUTOMATIC SLIDING DOOR SYSTEM

John C. Catlett, Elm Grove, Wis., assignor to Gyro Tech Incorporated, Greendale, Wis.

Filed Mar. 30, 1973, Ser. No. 346,476

Int. Cl. E05f ***11/54***

U.S. Cl. 49—360 **11 Claims**



An automatic sliding door system comprising a door frame having a header constituting a housing, a door carrier provided in said housing and projecting downwardly through an elongated opening therein, a door suspended from said door carrier, a prime mover in said housing, a first gear train connecting said prime mover to an operating sprocket, an idler sprocket, belt members extending about said sprockets and connected to said door carrier for effecting traverse of said housing by said door carrier for sliding the door to and from open position. A spring stressed during door opening operation and a second gear train connecting said spring and said operating sprocket for causing the door carrier to restore the door to closed condition. Circuit controlling components are provided for causing two-speed door-opening and door-closing.

3,834,082
ABRASIVE BLASTING SYSTEM WITH PERSONNEL PROTECTIVE FEATURES

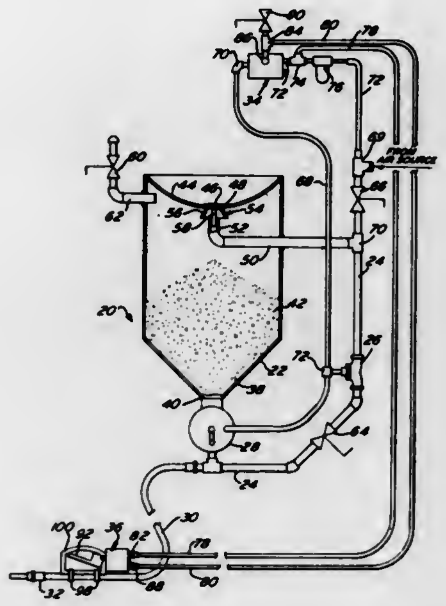
Michael Grudzinski, Philadelphia, Pa., assignor to Empire Abrasive Equipment Corporation, Philadelphia, Pa.

Filed Dec. 14, 1972, Ser. No. 315,248

Int. Cl. B24c ***3/00***

U.S. Cl. 51—12 **11 Claims**

An abrasive blasting system comprising a tank for holding an abrasive material therein and a high pressure air-line for carrying abrasive from the tank to an article to be abraded. In one embodiment, a fluid controlled valve is provided connected between the tank and the air-line at a point in the line and a second fluid controlled valve is connected in the air-line upstream of the first valve. Both valves are controlled by a pilot valve disposed adjacent to tank. The pilot valve is operative when pressurized to open both controlled valves. A remote control valve is provided adjacent the downstream end of the air-line and includes a first port connected via a first control air-line to the air-line and a second port connected via a second control air-line to the pilot valve. Means are provided to connect the first and second ports together to thereby pressurize the pilot valve. The pilot valve includes means for venting the second control air-line to the atmosphere. In another embodiment, a manually operable valve is provided for providing abrasive into the air-line and a diaphragm valve is provided in the air-line upstream of the manually operable valve. The diaphragm valve includes an inlet port, an outlet port, the inlet port being upstream of the outlet port, a control outlet port connected to the inlet port and to a first control air-line, a control inlet port connected to a diaphragm chamber and to a second control air-line and a venting port connected to said chamber. The diaphragm valve is operative when pressurized via the connection of the first and second ports in a remote control valve connected to said control lines to connect the inlet and outlet ports in the diaphragm valve together. A second diaphragm valve is provided to vent the tank when said first mentioned diaphragm valve is depressurized.



3,834,083
MACHINE FOR GRINDING AN EDGE CONTOUR ON A SEMICONDUCTOR WAFER

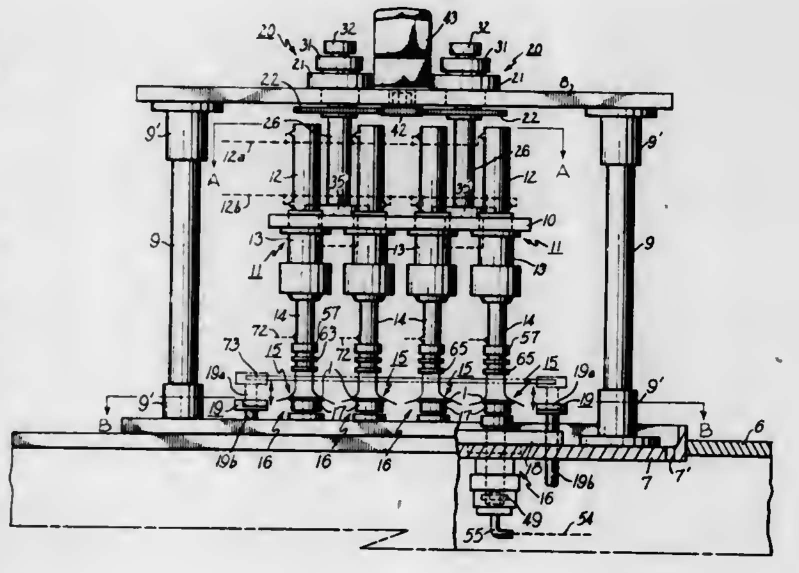
Kinji Hoshi, and Kazuhiro Sugita, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 21, 1971, Ser. No. 210,569

Claims priority, application Japan, Dec. 21, 1970, 45-115467

Int. Cl. B24b ***9/06***

U.S. Cl. 51—57 **13 Claims**



A grinding machine for producing a rounded chamfer on the edge of a workpiece such as a semiconductor wafer. The workpiece is attached to a revolving chuck and a grinding head having oblique resilient grinding members is located opposite the chuck. The grinding members lie along generators of a cone and extend beyond the edges of the workpiece and press against the edge. Semiconductor wafers are ground in this machine by pressing their edges against the resilient grinding devices while rotating the wafer and moving the grinding devices in a lateral circular path concentric with the axis of rotation of the wafer.

3,834,084
SERVO COPYING MACHINING APPARATUS

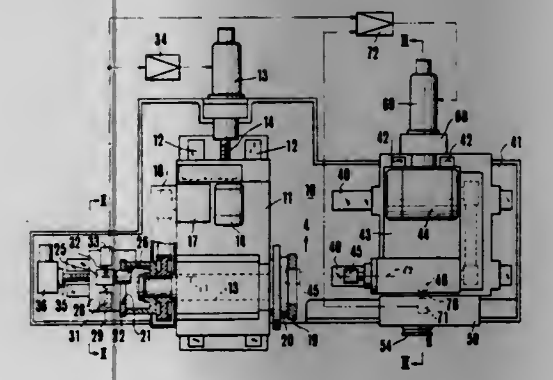
Kazuhiro Sakane, Kariya, and Wataru Iida, Aichi-ken, both of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan

Filed June 19, 1973, Ser. No. 371,523

Claims priority, application Japan, June 27, 1972, 47-64821

Int. Cl. B24b ***7/00, 9/00***

U.S. Cl. 51—101 R **5 Claims**



A servo copying machining apparatus comprises a main spindle rotatably journalled on a headstock capable of a copying motion. The spindle carries work mounting means and a template having a not truly circular curved surface. A stylus on the bed is urged against the curved surface and is associated with a displacement detector which detects the displacement of the stylus. A first servo motor responds to the detector output to initiate a copying motion of the headstock. A tool carriage carrying a tool is movable in a direction parallel to the direction of the movement of the headstock and is driven by a second servo motor. A second displacement detector senses the displacement of the tool carriage that results from a correcting copying motion of the tool carriage under the control of the second servo motor, which is controlled in accordance with the deviation between the outputs from the first and second displacement detectors.

3,834,085
METHOD AND APPARATUS FOR FORMING A CABOCHON

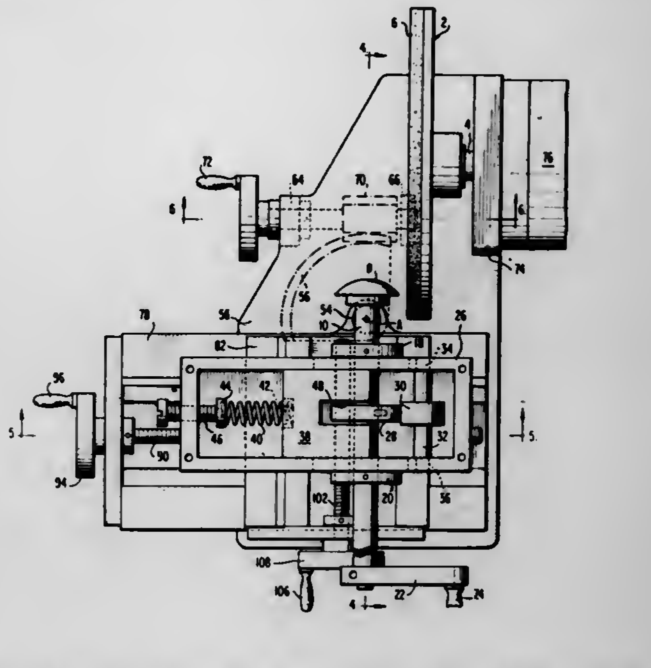
John T. Moeller, 2858 State Rd. 590, Clearwater, Fla. 33515

Filed July 2, 1973, Ser. No. 376,100

Int. Cl. B24b ***7/00, 9/16, 19/00***

U.S. Cl. 51—127 **11 Claims**

A cabochon is formed by rotating a gemstone workpiece about a rotational axis while contacting it with an abrasive surface, moving the workpiece and the rotational axis in a radial path in response to its rotational movement to change the lateral position of the rotational axis in response to the angular displacement of the workpiece during its rotation, and swinging the rotational axis with respect to the abrasive surface, the swing axis lying normal both to the rotational axis and to the radial movement of the rotational axis.



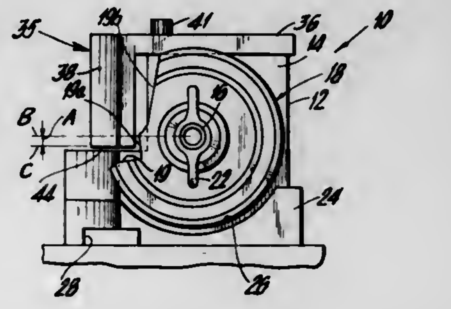
3,834,086
FORM TOOL FIXTURE

Rugero W. Aiudi, 32 George St., St. Bristol, Conn. 06010

Filed Jan. 8, 1973, Ser. No. 322,015

Int. Cl. B24b ***3/00***

U.S. Cl. 51—218 A **4 Claims**



A form tool fixture to hold a cylindrical cutting form tool in order to grind its cutting edge consists of a body member, a screw threaded member protruding from a front face of the body member upon which the form tool is mounted, a wing nut to hold the form tool and a swingably mounted stop member positioned to correctly align the form tool and then to swing out of the way of the grinding head. The fixture also has flat side surfaces formed at angles to grind front clearance angles on the form tool.

3,834,087
WORKPIECE RETAINER ASSEMBLY FOR DISC GRINDERS

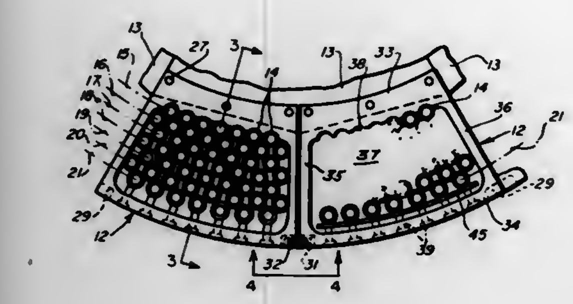
Elman R. Dunn, Roscoe, Ill., assignor to Litton Industries, Inc., Beverly Hills, Calif.

Filed Aug. 22, 1972, Ser. No. 282,761

Int. Cl. B24b ***7/04***

U.S. Cl. 51—237 T **3 Claims**

An annular array of workpiece retaining frame assemblies are mounted on a rotary work carrier for advancing a multiplicity of workpieces, such as coiled compression springs, between one or more pairs of abrasive discs. The work carrier comprises a series of equal segments each of which supports a pair of arcuate workpiece retaining frame assemblies. Each assembly comprises a frame which lockingly embraces a number of work retaining elements or bushings in rows concentric to the carrier axis thereby to carry a maximum number of workpieces, of given diameter within a given annular area. Locking is accomplished by a series of spaced clamping screws in an arcuate peripheral frame wall which serve to force the total complement of bushings into tangential interlocking contact with each other and toward a rigid arcuate inner frame wall provided with locating depressions. The peripheral frame wall and the walls connecting the arcuate walls are made capable of flexure and the clamping screw force applied is such that the peripheral outer wall bows and the radial side walls of each frame are drawn toward each other when the clamping screws are tightened, and contribute to the clamping action or locking up of the workpiece retaining elements.



3,834,088

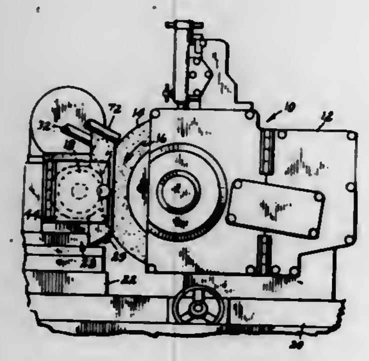
WEDGE FLOW COOLANT NOZZLE FOR GRINDING MACHINE

Charles Bernard Matson, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Apr. 9, 1973, Ser. No. 348,988

Int. Cl. B24b *55/02*

U.S. Cl. 51—267 **4 Claims**



A coolant distributing apparatus for a grinding machine has a first casing above the workpiece adjacent the periphery of the grinding wheel for receiving coolant under pressure and directing it into the grinding wheel to be released at the operating zone, and a second casing designed to receive and contain the workpiece, the second casing forming a work chamber thereabout for maintaining the coolant around the outer periphery of the workpiece.

3,834,089

MONOWHEEL PLASTIC LENS EDGER

Cecil Barnett, London, England, assignor to Raphael's Limited, London, England

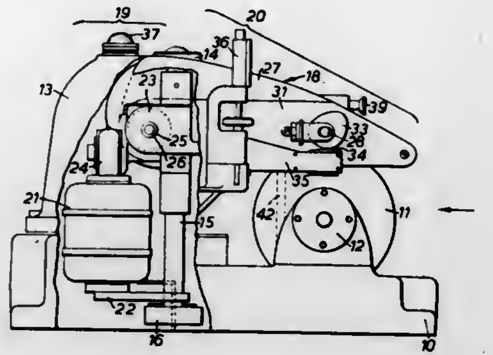
Filed Feb. 12, 1973, Ser. No. 332,006

Claims priority, application Great Britain, Feb. 14, 1972, 68013/72

Int. Cl. B24b *1/00, 9/14*

U.S. Cl. 51—284 **3 Claims**

An edging process performed on a lens made of transparent plastics material, comprising shaping the lens to the desired peripheral profile and also forming a V-section edge formation thereon by the use of a grooved milling or grinding wheel, in a single operation, the relative positions of the lens and the wheel being determined by an adjustable stop with which a surface of the lens is held in contact.



3,834,090

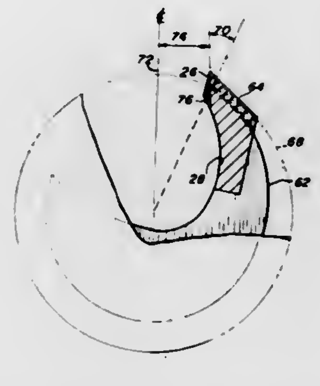
ROUTER BIT AND METHOD OF GRINDING SAID BIT

Ernest Wasser, 167 N. Leswing Ave., Saddle Brook, N.J. 07662

Division of Ser. No. 355,290, April 27, 1973, Pat. No. 3,803,950, which is a continuation-in-part of Ser. No. 128,741, March 29, 1971, abandoned. This application Feb. 13, 1974, Ser. No. 442,121

Int. Cl. B24b *1/00*; B21k *21/00*

U.S. Cl. 51—288 **2 Claims**



A router bit for use with a power driven spindle is adapted for the cutting of plastic, wood and certain soft metals. This router bit is formed with straight flutes in which the cutting edge portions are inserts of hardened material such as tungsten carbide. Each insert is formed and mounted in the body to provide a short flat face extending inwardly from the outer cutting edge to an arcuate concave relief formed in the face of the insert. This short flat face portion of the cutting edge is ground to provide a selected angle of fifteen to thirty-five degrees to a theoretical radial line drawn from the axis of the router bit to the cutting edge of the insert. Initial and resharpening of these edges requires only a very little grinding on the face to sharpen and reshape this edge.

3,834,091

HINGED GUTTER COVER

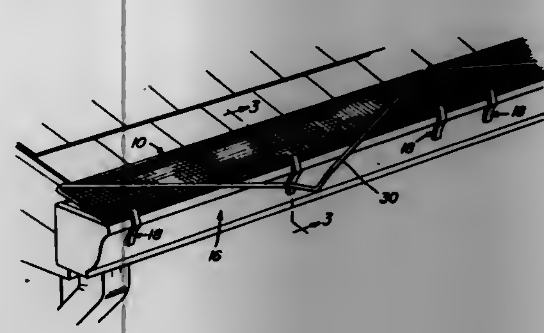
John Dugan, Box 515104 Irvine St., Kankakee, Ill. 60910

Filed June 14, 1973, Ser. No. 369,933

Int. Cl. E04d *13/00*

U.S. Cl. 52—12 **1 Claim**

An elongated gutter overlying mesh cover hingedly mounted on the outer edge of the gutter by clip means. The cover includes an outwardly projecting handle portion selectively engaged by the double-hooked end of a tool for first raising and dumping the cover and then positively repositioning the cover.



3,834,092

PANEL ASSEMBLY

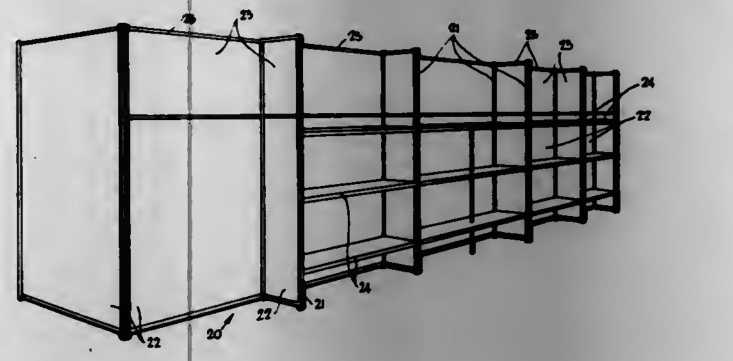
Hubert James Whisson, 89 King William Rd., Hyde Park, Australia (5061)

Filed Apr. 26, 1973, Ser. No. 354,511

Claims priority, application Australia, Apr. 26, 1972, 8747/72

Int. Cl. E04b *1/40, 2/82*

U.S. Cl. 52—36 **10 Claims**



A panel assembly comprising a plurality of posts, a plurality of panels, and interconnecting means releasably securing the panels to the posts, the posts each having a cross-sectional shape wherein each of the outer surfaces includes outstanding flanges with inturned lips which form narrow mouth channels, and the interconnecting means comprise retention clips contained within respective narrow mouth channels and having tongues which engage against the inner surfaces of the inturned lips so that loading applied to the clips is transferred to the lips. The panels are provided with complementary buttons having grooves which engage the tongues, and the edges of the panels abut the outer surfaces of the flanges. The invention avoids the need for special machining of the edges for attachment to the posts, and avoids the need for the use of attachment screws, the posts and panels being arranged in a simple snap together configuration.

3,834,093

PANEL JOINTURE SYSTEM

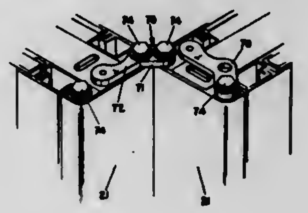
William H. Tacke, Wyoming; Robert B. Ormiston, Grandville, and Robert H. McKay, Grand Rapids, all of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.

Division of Ser. No. 234,492, March 14, 1972, Pat. No. 3,802,146. This application July 9, 1973, Ser. No. 377, 272

Int. Cl. E04b *2/82*

U.S. Cl. 52—71 **8 Claims**

A partition system including a frame to which different types of covering panels can be readily hooked into place. Vertical wiring channels are provided at the end elements of the frame and covers are provided which simultaneously cover the wiring channels and mask the edges of the panel. Brackets for supporting superstructure can be secured to the end elements of the frame in channels which are defined by an end trim piece on one side and by a wall of the wiring channel on the other side. Adjacent partitions can be secured together angularly by means of a single link at the top and a single link at the bottom thereof. They can be secured in alignment by a pair of adjacent links at the top and at the bottom. Vertically spaced platforms can be mounted on feet at the bottom of the partitions to define spaced wiring channels. Telescoping end caps are provided for covering the ends of the wiring channels and the top portion of each end cap can be telescoped downwardly to allow access to the connecting links at the bottom of the partition. The wiring channels can be covered on either side by a molding which is releasably securable to the bottom of the partitions. In the case of wiring which must pass from one partition to another where the partitions are to be disposed at an angle, a telescoping corner cap is provided. Finally, special connector brackets are provided for connecting partitions of different heights to one another at various angles.



3,834,094

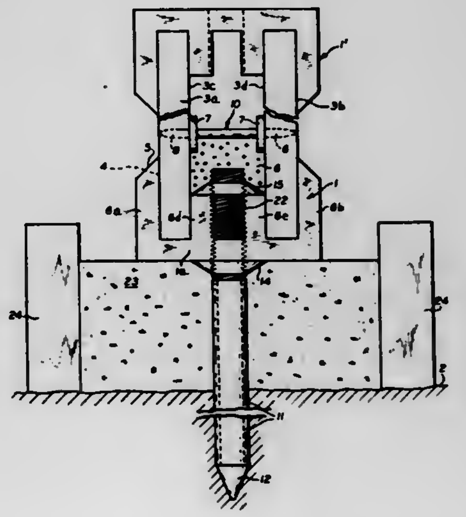
TRACK SYSTEM WALL ASSEMBLY FOR HOUSES OR THE LIKE

Bernard J. Ferguson, 60-10 Roosevelt Ave., Woodside, N.Y. 11377

Filed Sept. 12, 1973, Ser. No. 396,424

Int. Cl. E04d *15/00*; E04h *12/00*

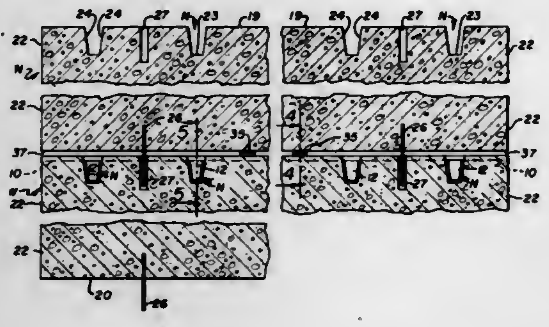
U.S. Cl. 52—122 **7 Claims**



A track system wall assembly for a house, comprises a base track having a base and wall portions defining interior and exterior channels spaced from each other. A plurality of bottom openings are formed in the base intermediate to the channels. A plurality of pipe stakes insertable into soil and into the bottom openings are threaded at an upper end extending from above and below the openings. A lower holding washer is disposed on the upper end of the pipe stakes and supports thereon the base track, and an upper holding washer is disposed on the upper end of the pipe stakes and abuts wall portions of the base track. An exterior panel and an interior house panel are complementarily disposed in the exterior and interior channels, respectively, spaced apart from each other. A cap track forms outer and inner channels, in which the upper portions of the panels are disposed. Spacers maintain uniform spacing of the panels from each other, and vertical corner posts insertable into the soil complementarily engage the lateral ends of the panels.

3,834,095
BUILDING CONSTRUCTION AND METHOD

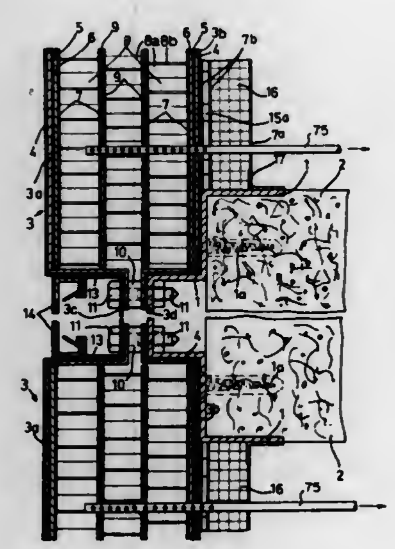
Stuart A. Ohlson, 1600 York St., Denver, Colo. 80206
Continuation of Ser. No. 97,148, Dec. 11, 1970, abandoned, which is a continuation-in-part of Ser. No. 763,783, Sept. 30, 1968, abandoned. This application July 9, 1973, Ser. No. 377,789
Int. Cl. E04b *2/06, 5/02, 1/04*
U.S. Cl. 52—122 **18 Claims**



A multiple story building construction and method involving placing reinforcement on top of precast floor panels on opposite sides of a lower precast wall panel supporting the floor panels and a precast wall panel spaced above, then pouring a concrete topping on the reinforcement and through the space between the wall panels and up against the lower end of the wall panel above, to provide a monolithic floor of reinforced concrete extending longitudinally and laterally of the building. The space between superimposed wall panels is adjusted by shims, also used to level the wall panel above, while the reinforcement may extend through the space between the wall panels or may be welded to opposite sides of a channel embedded in the lower edge of the upper wall panel. At the outside walls, the floor reinforcing may be welded to extending reinforcing rods of the outside wall panels, or may be welded to angles embedded in the lower edge of the panels, with upright reinforcing in the wall panels welded to the angles, as well as to the channels referred to above.

3,834,096
INSULATING WALL UNIT

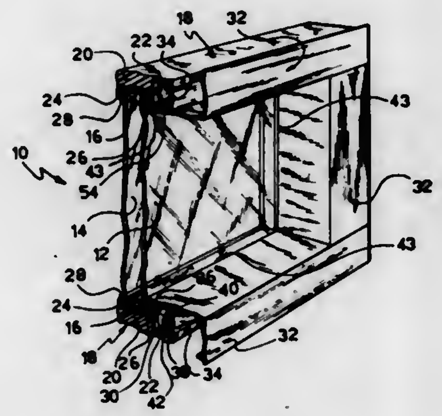
Otto Alfred Becker, Robert-Koch-Strasse 59, 66 Saarbruecken, Germany
Continuation-in-part of Ser. Nos. 826,958, May 22, 1969, Pat. No. 3,646,721, and Ser. No. 37,068, May 13, 1970. This application Mar. 6, 1972, Ser. No. 231,815
Int. Cl. E04b *1/74*
U.S. Cl. 52—172 **11 Claims**



A wall unit comprising panels lying at opposite faces of said unit, a seal arranged between the margins of said panels, and an insulation occupying the cavity between said panels, wherein the improvement comprises at least one insulating group extending parallel to said panels and comprising two foils capable of reflecting thermal radiation and chambers lying between said foils, the walls of which consist of insulating material. The cavity between said panels may be evacuated or it may be filled with dry air or a dry gas.

3,834,097
DOUBLE GLAZED WINDOW ASSEMBLY

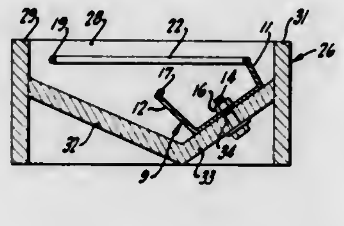
Denis L. Smits, St. Hilaire, Quebec, Canada, assignor to Superseal Corporation, St. Hyacinthe, Quebec, Canada
Filed Jan. 2, 1973, Ser. No. 320,285
Claims priority, application Canada, Dec. 19, 1972, 159,387
Int. Cl. E06b *7/12, 1/18*
U.S. Cl. 52—172 **4 Claims**



The sealed double glazed window assembly consists of a pair of glass sheets, a spacing unit disposed between the inner marginal edges of the glass sheets and extending completely around the periphery thereof, a protection border element formed of vinyl plastics including a pair of leg portions completely surrounding the outer marginal edges of the glass sheets and extending completely around the periphery thereof. The protection border further includes an integral flange defining with one of the leg portions a channel in which is mounted a series of metallic moulding strips. The combination of the metallic strips and the vinyl plastics border makes it possible to obtain a single assembly which can be quickly installed.

3,834,098
STAIR TREAD AND METHOD OF PRODUCING THE SAME

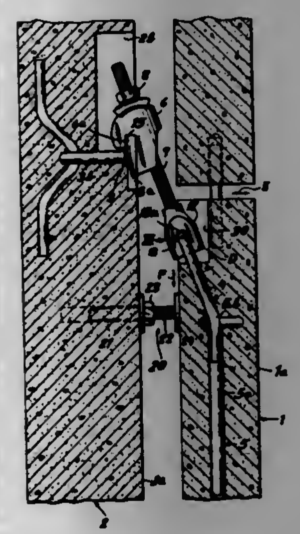
Paul C. Wutzke, 9312 Mazatlan, Elk Grove, Calif. 95624
Filed Jan. 4, 1973, Ser. No. 320,925
Int. Cl. E04f *11/00*
U.S. Cl. 52—189 **2 Claims**



A stair tread has a clip with a central web and a pair of edge flanges provided with a central reinforcing rod secured to one of the flanges and a rim reinforcing frame secured to the other of the flanges. The central web has an opening therein through which a bolt extends into a nut on the inside of the clip. The clip and rod and frame as well as a bolted nut are placed into a mold and the reinforcements are embedded in concrete. Prior to the final hardening of the concrete the bolt is removed leaving the nut and the reinforcements embedded. Removal is preferably accomplished by inverting the mold. There can be openings through the concrete of the tread adjacent a portion of the rim reinforcing frame to receive uprights for supporting stair rails.

3,834,099
DEVICE FOR MOUNTING WALL PLATES

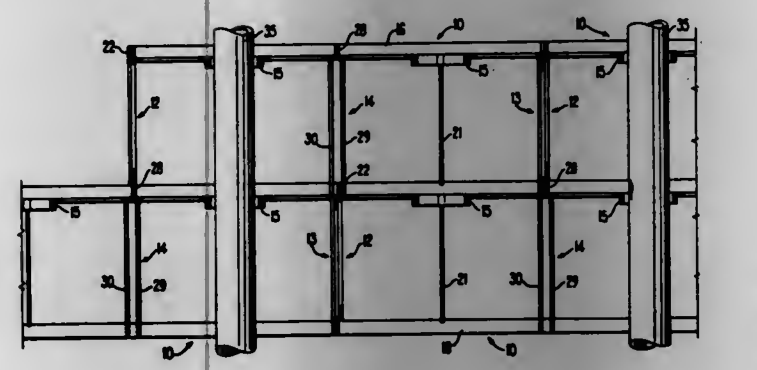
Ernst Haeussler, Grashofstr. 43, 43 Essen-Bredeney, Germany
Continuation-in-part of Ser. No. 192,474, Oct. 26, 1971, Pat. No. 3,760,542. This application Dec. 18, 1972, Ser. No. 315,893The portion of the term of this patent subsequent to Sept. 25, 1990, has been disclaimed.
Int. Cl. E04b *2/88, 5/57*
U.S. Cl. 52—235 **11 Claims**



An assembly for mounting a plate upon a support structure, comprising a first anchor member formed on said support structure; a second anchor member formed on said plate; and adjustable suspension means interconnecting said anchor members, said adjustable suspension means including a bolt connected with one of said anchor members and deflectible relative thereto; a hook-forming element of U-shaped adjustable receiving said bolt and having a pair of shanks formed with hooks engaging the other of said members, and a nut threaded onto said bolt and bearing upon said element.

3,834,100
BUILDING BLOCK

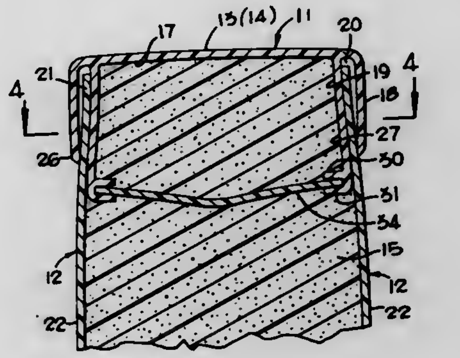
Arthur Stephen Healey, Brisbane, Australia, assignor to Harvard Industrial Development Pty., Ltd., Woodbridge, Brisbane, Queensland, Australia
Filed Jan. 5, 1972, Ser. No. 215,491
Claims priority, application Australia, May 3, 1971, 4787/71
Int. Cl. E04c *1/10, 2/20*
U.S. Cl. 52—309 **6 Claims**



A building block of hollow box-like form, shaped at its ends and at top and bottom for interfitment with adjacent similar blocks of a course, and with similar blocks of succeeding courses, has its sides interconnected by a cross-member with an enlarged middle portion having an opening formed therethrough from top to bottom, the cross-member being such that in a wall of the blocks, the openings through cross-members of blocks of the courses are vertically aligned and are adapted to receive a vertical reinforcing member.

3,834,101
INSULATED DOOR CONSTRUCTION

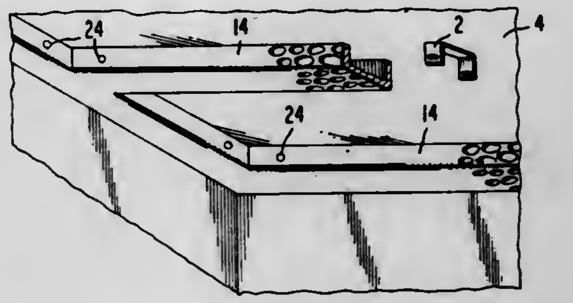
Charles M. G. Wilder, Westfield, and Sanford L. Cook, Edison, both of N.J., assignors to Mesker Industries, Inc., St. Louis, Mo.
Filed Aug. 25, 1972, Ser. No. 283,847
Int. Cl. E04c *2/38*
U.S. Cl. 52—309 **6 Claims**



This insulated door construction includes extruded plastic framing members and sheet plastic side panels, which are connected without the use of fasteners. The framing members are U-shaped and include spaced inner and outer legs which are sprung apart to clamp the side panels in place. The door includes an expanded foam plastic core which cooperates with the framing members to resist separation of the framing members and the side panels. In one species the inner legs of the framing members are held apart by foam-embedded transverse spacer members. In another species, particularly adapted to suit hingedly mounted doors, a continuous interior member cooperates to hold the framing members in place and provide reinforcing for the hinge mounting.

3,834,102
BEAM HANGER CONSTRUCTION

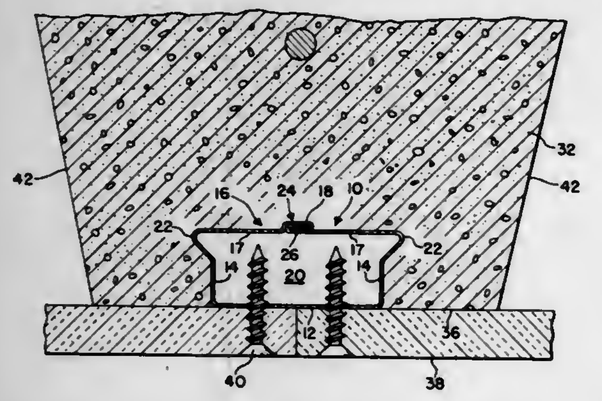
Larry D. Adams, 1302 Village of Pennbrook, Levittown, Pa. 19058
Filed Dec. 20, 1972, Ser. No. 316,871
Int. Cl. E04f *19/02*
U.S. Cl. 52—311 **2 Claims**



A beam and hanger assembly is provided for securing wooden, or wood simulating beams to an existing ceiling construction. For this purpose, a generally U-shaped mounting bracket is secured in an inverted position to the lower surface of a ceiling and has downwardly extending side flanges provided with aligned openings therein. The beam of the assembly is in the form of a channel member having upwardly extending sides positioned on the outer sides of the downwardly extending flanges of the mounting bracket and a dowel or similar fastening means extends through aligned openings in the sides of the beam and the openings in the flanges of the bracket to secure the beam in place. The beam may be formed so as to be bowed upwardly between the ends thereof so as to assure firm contact of the beam with the ceiling and positive engagement of the holding member with the bracket.

3,834,103
CONCRETE INSERT

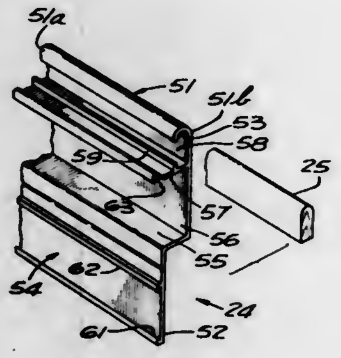
Friedrich K. Knohl, Roselle, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Continuation of Ser. No. 62,463, Aug. 10, 1970, abandoned. This application Nov. 28, 1972, Ser. No. 310,038
Int. Cl. E04b *2/20, 2/48*
U.S. Cl. 52—372 **2 Claims**



An insert for precast concrete or the like which provides an exposed surface relative to one face of the concrete for attachment of a fastening element through the exposed surface and offering substantially no resistance to the fastening element as it is attached thereto. The insert includes a sealing seam which also imparts structural rigidity to the insert.

3,834,104
ROOF LOCK MEMBER

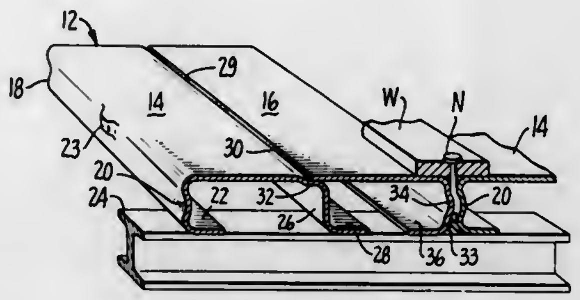
R. S. Dunn, Los Angeles, Calif., and William J. Rife, Phoenix, Ariz., assignors to Neet Products, Incorporated, City of Industry, Calif.
Division of Ser. No. 148,470, June 1, 1971, Pat. No. 3,729,884. This application Oct. 13, 1972, Ser. No. 297,268
Int. Cl. E04c *3/07*
U.S. Cl. 52—376 **1 Claim**



A method of roof construction in which a flexible roof cover sheet is placed over the upper surface of a roof frame and is attached to that upper surface at points spaced inwardly from its outer edge, an elongated roof lock member is positioned adjacent the outer edge of the roof frame, the cover sheet is extended out over the upper surface of the roof lock member, the cover sheet is attached to the upper surface of the roof lock member at various points spaced along the length of the member, the outer longitudinal edge of the member is rotated downwardly so as to stretch the cover sheet in a lateral direction, and then the roof lock member is rigidly fastened in its rotated position so as to maintain the lateral tension in the cover sheet.

3,834,105
NAILABLE STEEL FLOOR PLANKING FOR FREIGHT VEHICLES

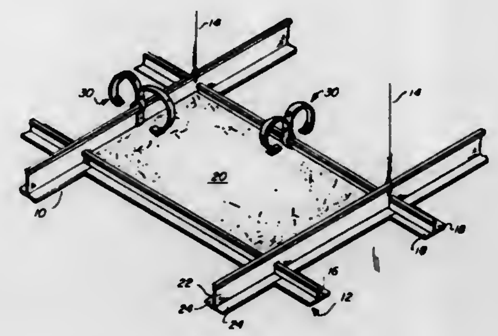
Joseph E. Powers, Napa, Calif., assignor to Kaiser Steel Corporation, Oakland, Calif.
Filed Dec. 15, 1972, Ser. No. 315,333
Int. Cl. E04b *5/10*
U.S. Cl. 52—377 **4 Claims**



A steel floor plank having supporting webs at opposite edges of the top plate thereof and one or more supporting webs medially of the plate. The plank is composed of two or more sections which are welded together and the medial web is integral with one of the plate sections. A method for making such floor plank including forming a blank for the plank, slitting the blank into two or more parts, and then reforming the parts into a complete plank.

3,834,106
HOLDING CLIP FOR PANEL BOARD IN CEILING GRIDS

George Astedt, Minneapolis, and Roger Benasutti, Shoreview, both of Minn., assignors to Conwed Corporation, St. Paul, Minn.
Continuation of Ser. No. 112,928, Feb. 5, 1971, abandoned. This application Oct. 3, 1973, Ser. No. 402,893
Int. Cl. E04b *1/40, 5/52*
U.S. Cl. 52—489 **3 Claims**

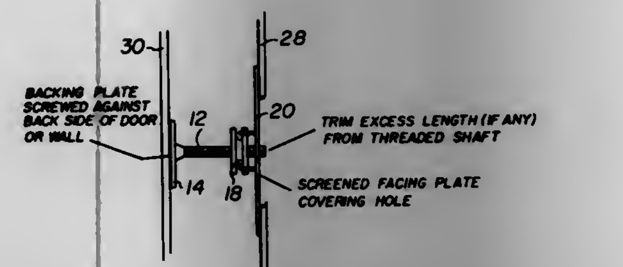


A holding clip of spring steel is provided for ceiling suspension systems in which the clip is secured to the runners of the grid and resiliently bears against the back of the panels. Any upward pressure, such as from, brooms, basketballs in gymnasiums, and the like, is absorbed by the spring action of the clip which prevents the board from being dislodged from the grid.

3,834,107
DEVICE TO REPAIR DAMAGED DOORS AND WALLS

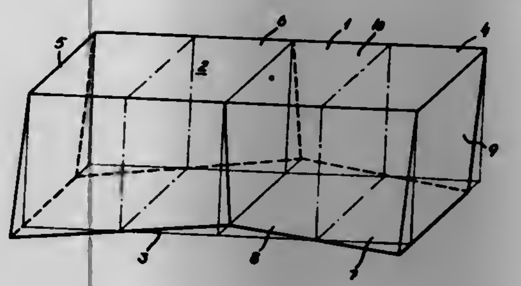
Clifford R. Standing, 8821 Sunnybrook Ln., Fair Oaks, Calif. 95628
Filed July 19, 1973, Ser. No. 380,598
Int. Cl. E04g *23/02*
U.S. Cl. 52—514 **4 Claims**

A device for repairing a damaged double walled structure such as a hollow-core door comprises a threaded shaft, a backing plate integrally fixed to the shaft and in an operative use position resting against the interior of a rear wall of the double walled structure, a block member threadly mounted on the shaft, a screened facing plate in an operative use position resting against the interior of a front wall of the double walled structure, the shaft being movably mounted to the desired adjusted position within the length of an elongated slot of the screened plate and a pair of rails on the screened plate and a grooved railireceiving block member movably mounted thereon. The various adjustable features of the shaft, screened plate and block member provide a means of easy insertion through the damaged wall portion and a means of securely fastening the device in a selective position within the double walled structure to provide a permanent and rigidly fixed backing panel for a filling material such as a plaster.


30
28
BACKING PLATE SCREWED AGAINST BACK SIDE OF DOOR OR WALL
12
20
TRIM EXCESS LENGTH (IF ANY) FROM THREADED SHAFT
14
18
SCREENED FACING PLATE COVERING HOLE

3,834,108
BUILDING ELEMENT

Hans Thorkil Ludvigsen, Fgellebro Rudne Fume, Funen, Denmark
Continuation of Ser. No. 112,907, Feb. 5, 1971, abandoned. This application Dec. 27, 1972, Ser. No. 319,016
Int. Cl. E04c *1/30, 2/04*
U.S. Cl. 52—593 **2 Claims**

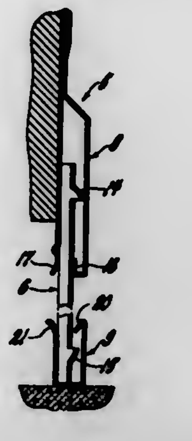


Building element for walls, pavings and the like structures comprising two parallel side faces forming parts of the surfaces of the structure, ends fitting into each other and the remaining two sides fitting into the sides of adjacent elements placed in half-brick order, the sides fitting into adjacent elements consisting of an inclining central section and adjoining end sections inclining oppositely from the lateral plane and being of a shape allowing any point of a side edge of one of the parallel side surfaces to be joined with a side edge on the other through a straight lined generatrix, which element is interlocking perpendicularly to the plane of the structure and in longitudinal direction of the elements in a way which allow setting without breaking the interlocking due to a wedge effect.

3,834,109
METHOD OF SKIRTING A MOBILE HOME

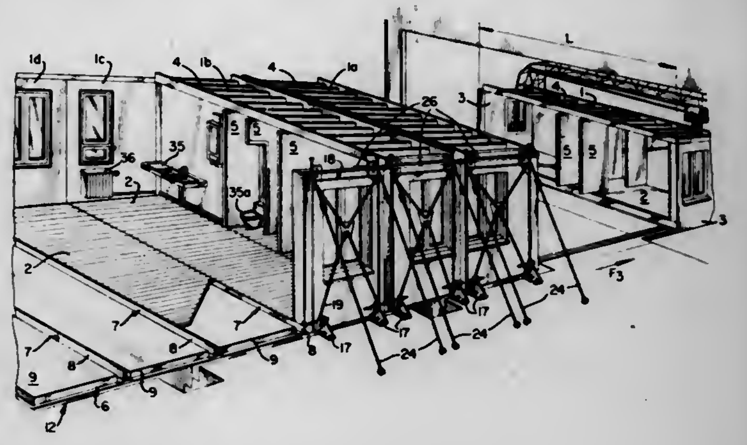
Marco J. Iacona, Utica, Mich. 48087
Continuation of Ser. No. 89,780, Nov. 16, 1970, abandoned, which is a continuation-in-part of Ser. No. 774,845, Nov. 12, 1968, Pat. No. 3,511,998. This application Mar. 7, 1972, Ser. No. 232,544
Int. Cl. E04b *1/[illegible]0*; **E04g** *21/00, 23/00*
U.S. Cl. 52—742 **6 Claims**

Method of skirting a mobile home comprising applying to a side of said mobile home means forming a track and individually inserting in said track a plurality of panels in edge overlapping relationship to each other so as to permit relative vertical movement between adjacent panels, said panels being vertically slidable in said track when they are moved vertically on account of weather changes.



3,834,110
METHOD FOR THE MANUFACTURE OF PREFABRICATED HOUSING UNITS

Michel Vercelletto, 97 rue Ledru-Rollin, 72 Mamers (Sarthe), France
Filed June 8, 1972, Ser. No. 260,962
Claims priority, application France, June 17, 1971, 71.22028
Int. Cl. E04g *21/14*
U.S. Cl. 52—745 **5 Claims**

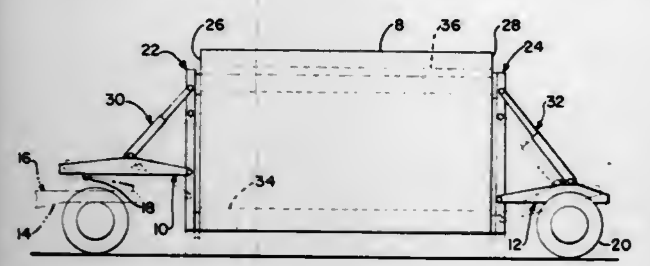


This method relates to the construction of buildings or structures from units forming cells fabricated and equipped in the factory and assembled on the erection site. According to this method, a plurality of cells designed to form a construction unit, house or building storey, are manufactured in the factory side by side and exactly in the respective position occupied by the cells once the building is completed after setting up and assembling. These cells are however made as units which are independent from each other and which are detachable.

3,834,111
METHOD FOR TRANSPORTING BUILDING MODULES

Douglas B. Acker, San Francisco, and Trevis L. Berry, Gilroy, both of Calif., assignors to Reliance Trailer Manufacturing, Inc., San Francisco, Calif.
Division of Ser. No. 187,357, Oct. 7, 1971, Pat. No. 3,795,336. This application Nov. 30, 1973, Ser. No. 420,725
Int. Cl. B60p *3/40*
U.S. Cl. 52—747 **1 Claim**

A building module transporter for connection to a towing vehicle comprising a building module and module carriers attached to end walls of the module and resting on carrier supports. The carriers are firmly secured to the module at vertically spaced points to suspend the module between them and to permit the raising and lowering of the suspended module by pivoting the carriers about horizontal axes with respect to the supports. Means is provided for moving the module with respect to the carriers in a lateral direction to facilitate the precision alignment of the module with a foundation at the building site. The spaced connection points between the module and the carriers tension a lower portion of the suspended building and place an upper portion thereof in compression.



3,834,112

STRUCTURAL CLIP

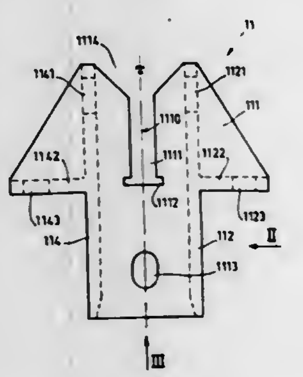
Jean-Francois Cara, Les Orchides, Asnieres, France, assignor to Industrialisation Rationnelle Du Batiment IRBA GP, Maxeville, France

Filed June 20, 1973, Ser. No. 371,741

Claims priority, application France, June 22, 1972, 72.22486

Int. Cl. F16b *1/00, 5/00*

U.S. Cl. 52—760 **6 Claims**



A clip for fastening elements of a casing to be fastened on a support for subsequent incorporation into a pre-fabricated panel comprising a case carrying a bottom pin and a top pin perpendicular thereto and pivoting in ovalized holes in a direction perpendicular to the two pins, two arms pivoted on the bottom pin and having an upper hole through which the upper pin passes, and having a hooked member at the bottom and an offset head at the top, and a lever pivoted on the top pin and carrying a cam cooperating with a fixed support fastened to the case.

3,834,113

METHOD FOR FORMING TOASTER PACKAGES HAVING POUR SPOUTS

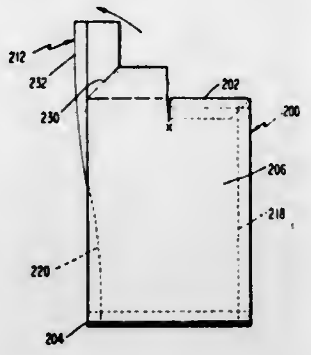
James H. Howe, and Joseph Markus, both of Long Island, N.Y., assignors to Nabisco, Inc., New York, N.Y.

Division of Ser. No. 813,911, May 7, 1969, Pat. No. 3,663,239. This application Apr. 30, 1971, Ser. No. 139,283

Int. Cl. B65b *43/02*

U.S. Cl. 53—14 **1 Claim**

Packages having pour spouts for storing food and heating the food in a toaster including a top seal having the pour spout incorporated therein in order to permit formation of the pour spout after the packages are vented by tearing through the top seal to enable food to be poured from the packages. A method of forming the packages including folding a sheet of material upon itself to form a top margin, a bottom margin and a longitudinal seam, sealing the longitudinal seam, forming a bottom seal with the bottom margin, filling the package through the top margin with food, and forming a top seal with the pour spout by folding the top margin upon itself twice.



3,834,114

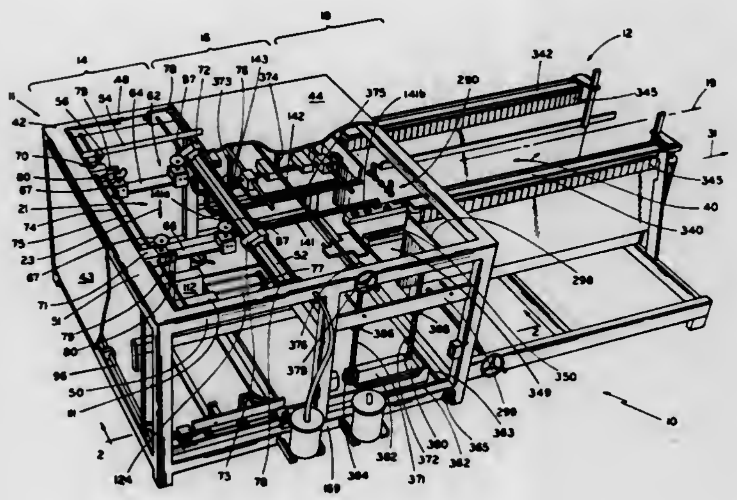
PACKAGING MACHINE AND METHOD

Richard H. Johnson, Arlington Heights, Ill., assignor to Stone Container Corporation, Chicago, Ill.

Filed Aug. 29, 1972, Ser. No. 284,649

Int. Cl. B65b *11/18, 49/00*

U.S. Cl. 53—32 **57 Claims**



A packaging machine operable to fold a paperboard blank into a carton about one or more articles to be packaged therein. The machine includes a blank folding station, a flap folding station, a package completion station, a first pusher mechanism for pushing a partially formed carton from the blank folding station to the flap folding station and a second pusher mechanism articulated with the first pusher mechanism and operable to move a partially formed package from the flap folding station to the package completion station at the same time a next succeeding partially formed carton is being moved by the first pusher mechanism from the blank folding station to the flap folding station. The stations are arranged in line with the direction of movement of the first and second pusher mechanism.

The method includes the steps of folding a carton blank with a product thereon at a blank folding station to erect end wall panels and partial side wall panels, then folding a top wall panel of the carton downwardly over the product while moving the partially formed carton to a flap folding station, then folding side flaps extending from the top wall panel against the partial side wall panels at the flap folding station, and folding an end flap hingedly connected to the top wall panel against one end wall at the package completion station to seal the carton into a complete package. The steps are performed sequentially along an in-line path of movement.

3,834,115

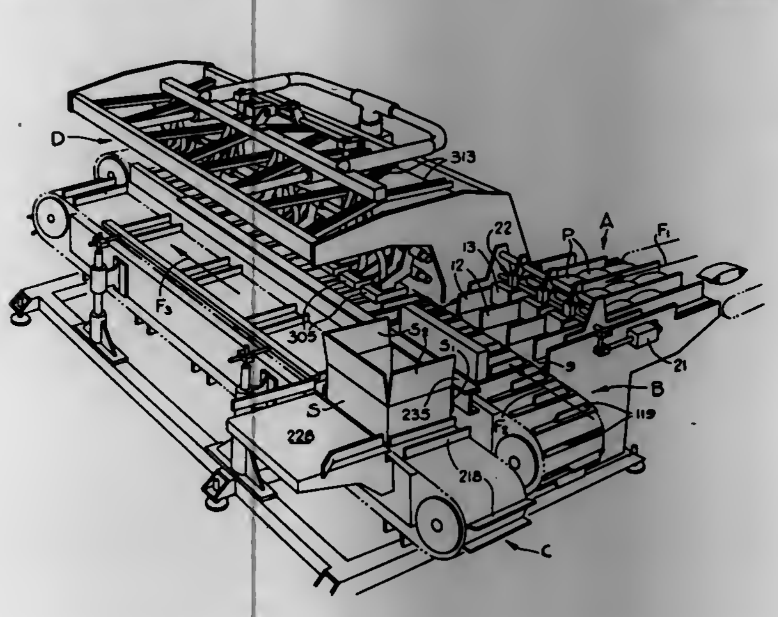
BAG PACKING APPARATUS

Robert B. Johnson, Santa Clara, and Louis F. Robert, Belmont, both of Calif., assignors to Fibreboard Corporation, San Francisco, Calif.

Filed Nov. 29, 1972, Ser. No. 310,336

Int. Cl. B65b *57/02, 57/10, 5/10*

U.S. Cl. 53—55 **24 Claims**



An apparatus sequentially comprises an article infeed station for conveying a plurality of sealed bags in tandem, an article conveying station for receiving and moving the bags transversely relative to the infeed station, a carton conveying station for simultaneously moving shipping cartons parallel to the article conveying station and a packing station for depositing layers of the bags in the cartons. The infeed station comprises a plurality of parallel chutes and an underlying conveyor which sequentially deposits a bag from each chute onto a conveyor of the article conveying station. The latter conveyor moves the bags into the packing station whereat each bag is picked up by a vacuum head and deposited into a carton which is moved thereunder by a conveyor of the carton conveying station.

3,834,116

CONTROL DEVICE FOR A COIN-WRAPPING MECHANISM

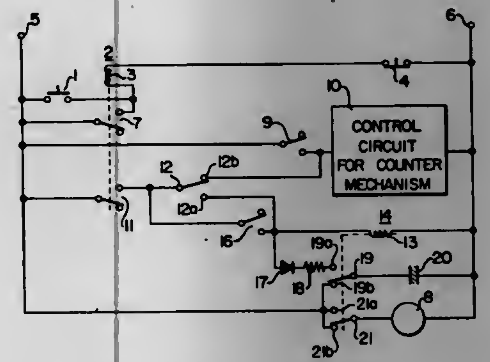
Komei Inoue, and Kazuto Asami, both of Himeji, Japan, assignors to Glory Kogyo Kabushiki Kaisha, Hyogo-ken, Japan

Continuation-in-part of Ser. No. 156,239, June 24, 1971. This application June 15, 1973, Ser. No. 370,466

Claims priority, application Japan, June 24, 1970, 45-54501

Int. Cl. B65b *57/20*

U.S. Cl. 53—59 R **1 Claim**



A control device for controlling a coin-wrapping mechanism in which an a.c. motor is provided with means for regulating the operational period of the coin-wrapping mechanism, with a capacitor being charged during the operation of the a.c. motor through a rectifier, and a control circuit which interrupts the a.c. voltage and supplies a d.c. voltage established across the charged capacitor to the a.c. motor at an instant when the above mentioned operational period of the coin-wrapping mechanism terminates.

3,834,117

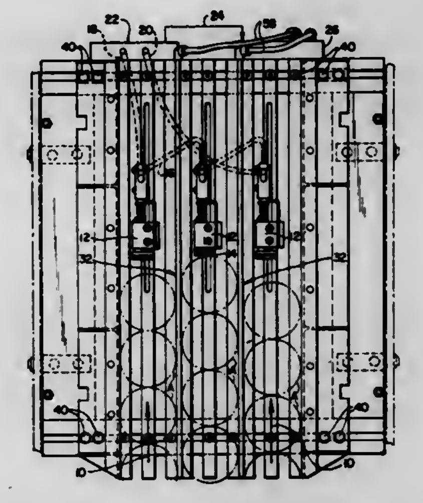
LANE DEFINING APPARATUS FOR HANDLING ARTICLES IN COLUMNS

Eugene G. Gift, Glastonbury, Conn., assignor to Emhart Corporation, Bloomfield, Conn.

Filed Mar. 2, 1973, Ser. No. 337,763

Int. Cl. B65b *35/58*

U.S. Cl. 53—61 **6 Claims**



Several longitudinally extending wall means define lanes therebetween for receiving articles in orderly columns. Certain of said wall means are expandable to trap the articles in the lanes, either for purposes of braking the columns so that they are not further advanced, as by line pressure or by an underlying conveyor, or for other purposes. For example, the novel expandable wall structure permits the articles to be gripped so that they can be bodily transported either to another station in the machine, or for inversion to be drop packed upside down in an upwardly-open packing case.

3,834,118

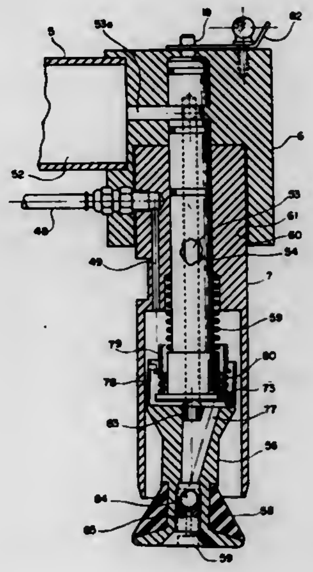
DRIPLESS VACUUM NOZZLE

Thomas E. Waldrop, Greer, and Robert S. Hawkins, Spartanburg, both of S.C., assignors to W. R. Grace & Co., Duncan, S.C.

Filed Sept. 4, 1973, Ser. No. 394,374

Int. Cl. B65b *31/04*

U.S. Cl. 53—79 **8 Claims**



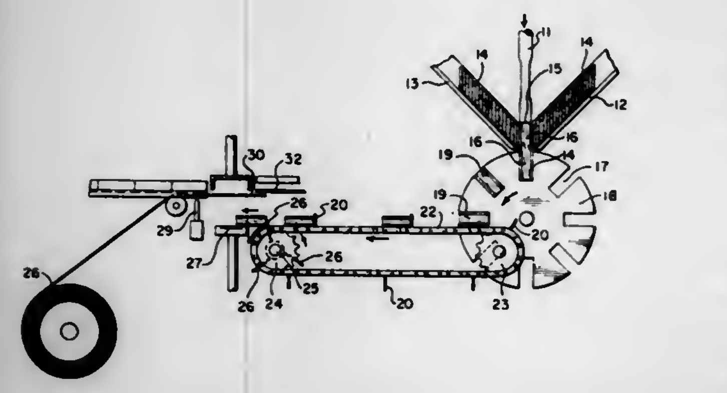
This invention is a dripless vacuum nozzle for use in an apparatus for vacuum packaging articles in flexible pouches or bags. The neck of a filled bag is placed around the barrel of the nozzle, and downward movement of the barrel clamps the bag neck between the barrel and a plunger located in and below the opening to the barrel. The bag remains in this clamped position as it is evacuated completely afterwhich it is sealed and severed from the clamp. A pivotally operated ball valve, drip collection cup, and ball check valve prevent any moisture from dripping into the package while it is being evacuated.

3,834,119
ICE CREAM SANDWICH WRAPPING MACHINE

John Armitt, Kearny; Paul Guerrero, Elizabeth, and Robert J. Peterson, Jackson, all of N.J., assignors to The Quaker Oats Company, Chicago, Ill.

Filed Sept. 27, 1972, Ser. No. 292,658
Int. Cl. B65b *11/54, 49/08*

U.S. Cl. 53—230 **1 Claim**



An ice cream sandwich wrapping machine is disclosed of the type that takes ice cream sandwiches from a conveyor and places them on a platform whereon a wrapper is first tucked under the rear portion of the sandwich, then tucked under the end portions of the sandwich, and thereafter moved off the platform so that the wrapper is tucked under the front portion of the sandwich. This invention specifically discloses a means for moving the ice cream sandwiches from the conveyor to the platform with such means comprising a rotating shaft having three tines equally spaced thereon with the tines being curved away from the direction of operational motion of the shaft.

The disclosure further includes the improvement wherein the end tuckers comprise plates on either side of the ice cream sandwich with the plates having holes therein and means for moving tucking fingers through the openings to tuck the wrapper underneath the ends of the ice cream sandwiches.

3,834,120
FOOD TRAY COVERING MACHINE

Paul L. De Faccio, and Harold H. West, both of Seattle, Wash., assignors to Harbor Island Machine Works, Inc., Seattle, Wash.

Filed Dec. 6, 1972, Ser. No. 312,642
Int. Cl. B65b *7/28, 41/16, 41/18*

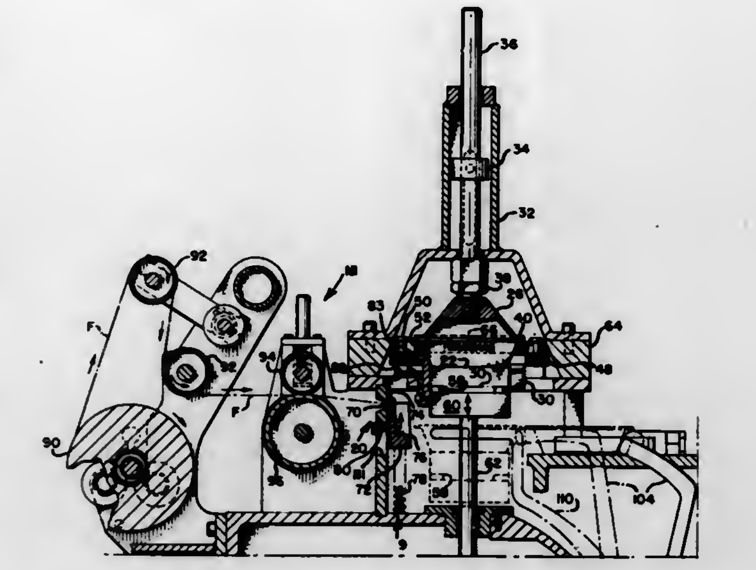
U.S. Cl. 53—298 **13 Claims**

Thin sheets of aluminum foil are cut to size and placed over the open top of a food receptacle. The receptacle is supported by an upwardly movable member which moves the receptacle past the foil sheet supports carrying it into an engagement with an anvil. Further upward movement raises the anvil. Further inward and upward simultaneous movement of the folding means presses the foil sheet around and against the underside of the receptacle rim to firmly secure the sheet to the receptacle.

Cutting means for separating a piece of foil from a roll are actuated by the upwardly moving member.

The foil is pushed to the sheet supports by rollers in two intermittent motions to reduce acceleration forces.

The overall apparatus has an infeed conveyor, an infeed pusher moves the receptacle laterally off the infeed conveyor into a covering station, outfeed apparatus is aligned longitudinally with the covering station, and an outfeed pusher moves the receptacle out of the covering station onto the outfeed apparatus.

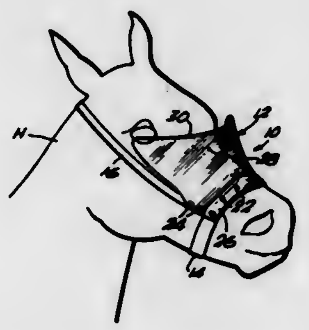


3,834,121
EYESHIELD FOR HORSES

James G. Mahoney, 439 E. 60th St., Hialeah, Fla. 33013

Filed June 21, 1973, Ser. No. 372,172
Int. Cl. B68c *5/00*

U.S. Cl. 54—80 **1 Claim**



A transparent eyeshield, particularly for race horses, fixed relative to the head and nose bands and formed from a piece of clear plastic or any other suitable transparent material. The eyeshield is sized and shaped to be placed relative to the horse's face between the muzzle and cheek areas and is contoured to slope upwardly and outwardly relative to the horse's face. In its preferred form, the upper edge of the eyeshield normally terminates in a horizontal place substantially at or slightly above the bottom portion of the periphery of the eyes of a horse to provide a maximum degree of protection for the eyes while permitting the horse to retain a clear view of a substantial portion of the surrounding territory in spite of mud and dirt thrown onto the eyeshield by other horses.

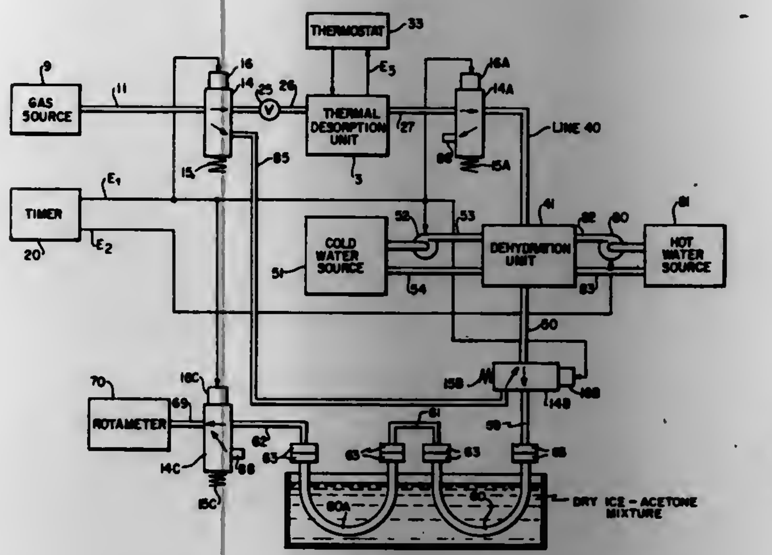
3,834,122
METHOD AND APPARATUS FOR SEPARATING HYDROCARBONS

Jean B. Allison; Kadry K. Bissada, and Christine M. Peterson, all of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed Nov. 2, 1972, Ser. No. 302,716
Int. Cl. B01d *53/04*

U.S. Cl. 55—33 **9 Claims**

Means and method which provides for thermal desorption of gas, including light hydrocarbons, from an earthen sample. Carrier gas mingles with the desorbed gas to carry it to a dehydrating unit. After dehydration, the gas mixture is provided to a hydrocarbon trap which substantially separates the light hydrocarbons from the gas mixture. The hydrocarbon trap is then removed for analysis of the trapped light hydrocarbons.

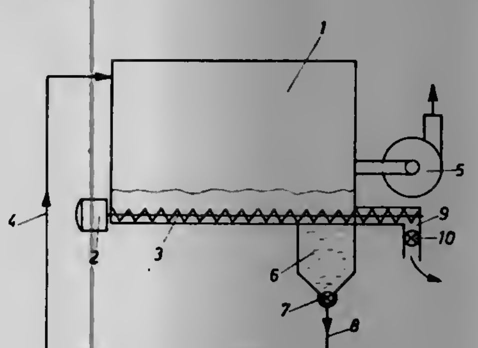


3,834,123
DUST AND LIKE FILTERS METHOD

Adolf Margraf, 4961 Wendthagen am Haberkamp 196, Germany

Filed Mar. 1, 1972, Ser. No. 230,721
Claims priority, application Germany, Mar. 18, 1971, 2113062; Nov. 25, 1971, 2158461
Int. Cl. B01d *46/04*

U.S. Cl. 55—96 **2 Claims**



This invention relates to filtering flue gases and other gases containing dust and similar dirty constituents of fine-particle size, utilizing a pocket filter, and wherein certain of the dust constituents are agglomerated. In accordance with the invention, a quantity of filtered dust is continuously circulated ahead of the filter and added to the gas to be cleaned. An accumulating amount of the dust is removed from the filter, which corresponds to the amount of fine dust contained in the dust-laden gas to be cleaned per unit of time. Preferably, the filtered dust that is re-circulated represents a multiple of the dust accumulating per unit of time and this multiple may be of the order of 2 to 100 times that amount.

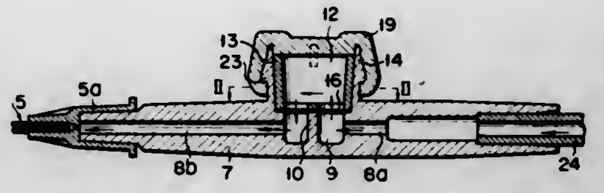
3,834,124
GAS TRAP DEVICE FOR AN INTRAVENOUS INJECTION

Hiroshi Ichikawa, Fujinomiya, Japan, assignor to Jintan Terumo Co., Ltd., Tokyo, Japan

Filed Nov. 28, 1972, Ser. No. 309,976
Claims priority, application Japan, Dec. 1, 1971, 46-112227
Int. Cl. B01d *19/00*

U.S. Cl. 55—159 **10 Claims**

A gas trap device for an intravenous injection comprises longitudinal extending passageways, an inverted, U-shaped passageway provided between and communicated with the longitudinal extending passageways, and a trap chamber provided at the top portion of the inverted, U-shaped passageway so as to prevent a gaseous material contained in a transfusion liquid from entering the body.

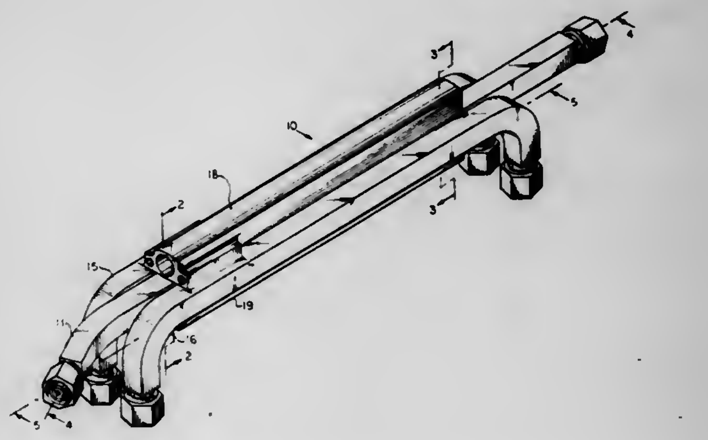


3,834,125
HIGHLY EFFICIENT LONG LIFE GAS TRAP

Albert P. Richter, Jr., Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Dec. 18, 1972, Ser. No. 315,949
Int. Cl. B01d *53/04;* **F25b** *29/00*

U.S. Cl. 55—208 **4 Claims**



A gas trap is disclosed comprising an elongated chamber formed in an integral housing, coolant means formed integrally with two opposite sides of the chamber for trapping the particular gas, such as hydrocarbon, in a filter, as a carbon molecular sieve, and heating means formed integral with the other two opposite sides of the elongated chamber for releasing the particular gas from the sieve for being flushed out to a gas analyzer whereby the integral housing accordingly has a longer life because of the high resistance to cracking due to continuously alternating between thermal expansion and contraction.

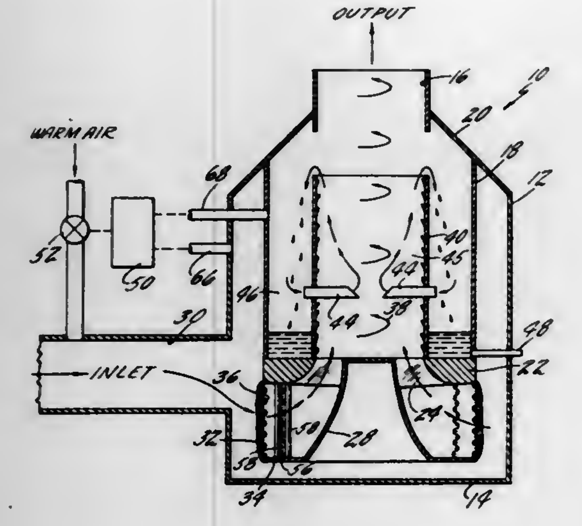
3,834,126
WATER SEPARATOR

Philip J. DiMinno, Jr., Stafford Springs, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Jan. 26, 1973, Ser. No. 327,032
Int. Cl. B01d *49/00*

U.S. Cl. 55—210 **7 Claims**

A screen mounted in close proximity to but spaced downstream from a coalescer of a water separator serves to prevent ice from egressing into the airstream of an air conditioning system for an aircraft and improve the efficiency of the water separator.



3,834,127
APPARATUS FOR THE SCRUBBING OF GASES

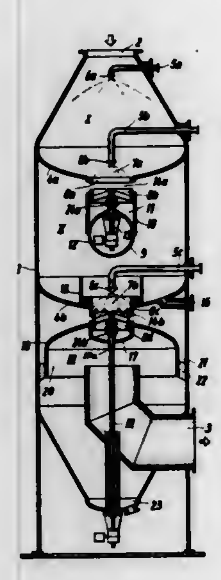
Wenzel Von Jordan, Wixhausen; Albert Kleinhenz, Oberhochstadt; Jean Wiemer, Mainz, and Horst Hemmerling, Frankfurt am Main, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed May 11, 1973, Ser. No. 359,531

Claims priority, application Germany, May 19, 1972, 2224519

Int. Cl. B01d *47/06*

U.S. Cl. 55—226 **9 Claims**



A single-stage or plural-stage scrubber having a cylindrical or polyhedral housing is provided with a bottom partitioning the housing into upper and lower portions and provided with an outlet of a cross-section less than that of the partitioned housing through which the gas emerges. Below this bottom is provided an upward open tub and a ring is provided between the outlet and the tube to define a laterally open clearance which is adjustable by vertical displacement of the ring. Preferably two such rings are used in telescoping relationship and one of the rings is vertically displaceable, the ring defining a variable lateral cross-section designed for linear pressure characteristics with axial displacement of one of the rings.

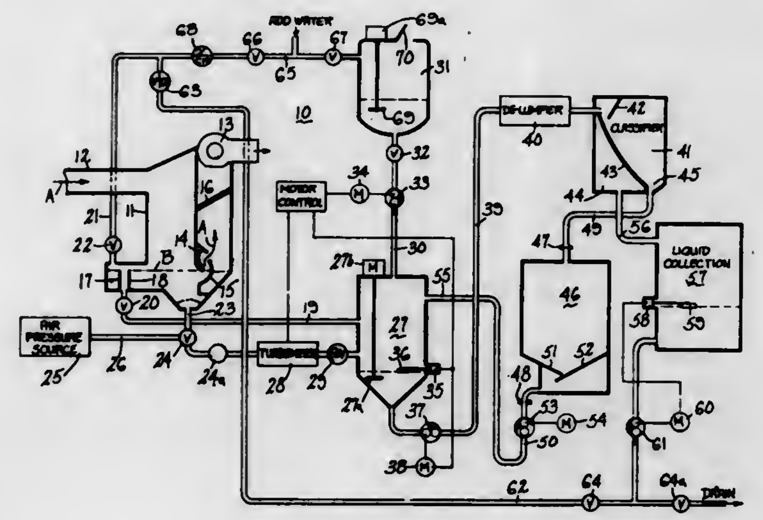
3,834,128
LIQUID CLARIFYING APPARATUS FOR REMOVING PARTICLES FROM A GAS STREAM

Gregory E. Gardiner, Cromwell, Conn., assignor to Environmental Maintenance Corp., Orange, Conn.

Filed Dec. 4, 1972, Ser. No. 311,864

Int. Cl. B01d *47/02*

U.S. Cl. 55—228 **3 Claims**



Apparatus for treating a scrubbing liquid to remove coagulants and suspended particulate matter before reuse or discharge of liquid where the suspended particles are caused to flocculate onto the coagulants.

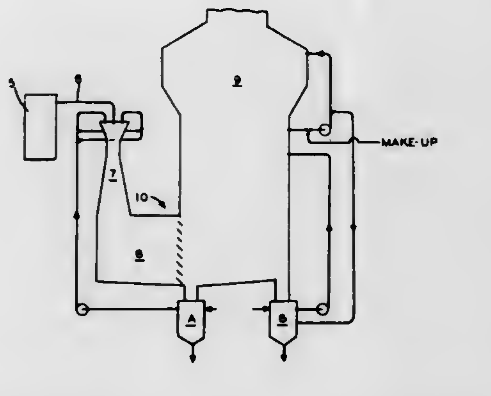
3,834,129
ABSORPTION OPTIMIZATION APPARATUS

Edward P. Darlinger, 693 Robinson Ave., Barberton, Ohio 44203; William Downs, 3945 S. Mahoning Ave., and Jack F. Stewart, 88 Overlook Dr., both of Alliance, Ohio 44601

Filed Sept. 13, 1972, Ser. No. 288,842

Int. Cl. B01d *47/06*

U.S. Cl. 55—242 **7 Claims**



A wet scrubbing module for removal of particulate matter and gaseous sulphur oxides from flue gases where the liquid effluents from particulate removal and gaseous sulphur oxide absorbtion is separated to minimize intermixing of the wet scrubbing materials.

3,834,130
HYDROCARBON TRAP

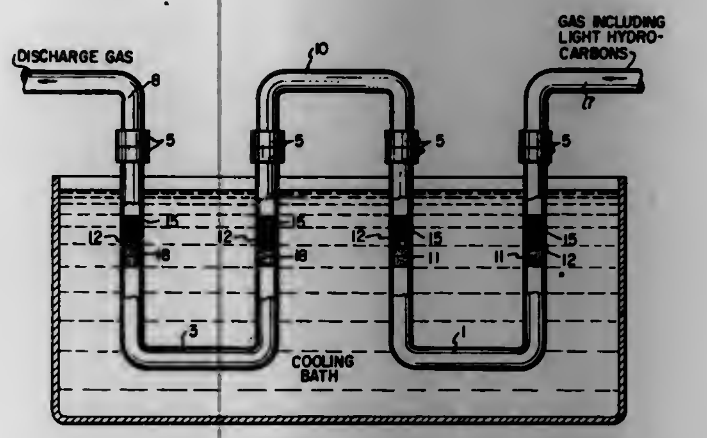
Kadry K. Bissada, and Jean B. Allison, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed Nov. 1, 1972, Ser. No. 302,715

Int. Cl. B01d *53/04*

U.S. Cl. 55—316 **5 Claims**

Apparatus includes U-tubes having quick disconnect self-sealing connectors in which one U-tube is packed with activated alumina which is held in place by glass wool and wire gauze. Another U-tube includes activated charcoal held in place by glass wool and wire gauze. When the U-tubes are immersed in a cooling bath, they trap light hydrocarbons from a gas passing through them. The U-tube with the activated alumina traps light hydrocarbons above methane in molecular weight while the U-tube with the activated charcoal traps any methane that has passed through the activated alumina U-tube.



3,834,131
ROLLER WEB FILTER FOR PURIFICATION OF GAS

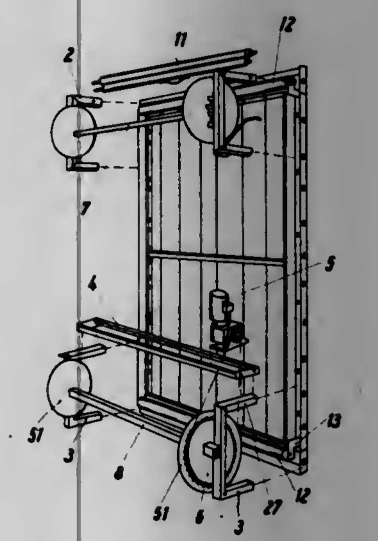
Gerhard Max Neumann, Berlin, Germany, assignor to Delbag Luftfilter Gesellschaft Mit Beschrankter Haftung, Berlin, Germany

Claims priority, application Germany, Sept. 14, 1971, 354206

Filed Sept. 13, 1972, Ser. No. 288,867

Int. Cl. B01d *46/22*

U.S. Cl. 55—354 **10 Claims**



A roller web filter for filtering gases particularly air in an air conditioning plant, wherein reeling up and unreeling rollers are provided for the filter web and supporting grids situated at either side of the filter web and between the rolls. The roller web filter comprises a fitting frame consisting of angle sections in the form of a double U-rail, forming a separate installation unit and receiving the sealing sections situated at either side of the filter web, the supporting grids and the deflecting rollers for the filter web. The reeling and unreeling rolls, driving assembly for the filter web and the carrying element for the sheathing cowl may be bolted or screwed to the frame.

3,834,132
APPARATUS FOR CLEANING EXHAUST AIR FROM A WORKSHOP

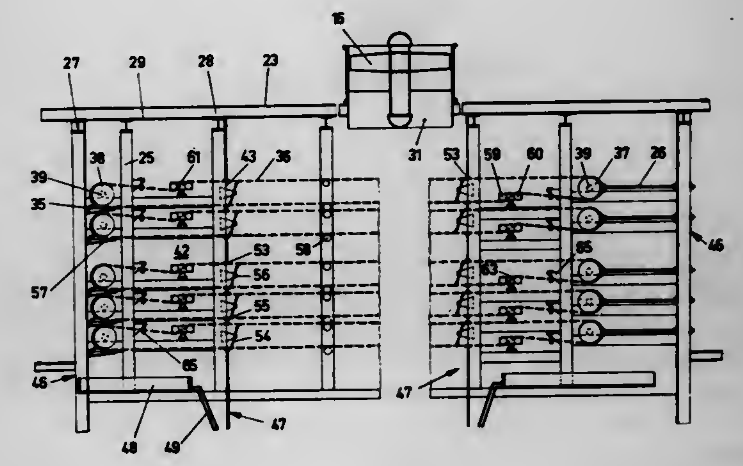
Erwin Moser, and Helmut Benda, both of Rheinfelden, Germany, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed June 26, 1972, Ser. No. 266,482

Claims priority, application Switzerland, June 30, 1971, 9650/71

Int. Cl. B01d *47/06*

U.S. Cl. 55—223 **16 Claims**



Apparatus for cleaning exhaust air from a workshop, including a vertically-extending duct which is rectangular in horizontal cross section, a sheet of filter material in a horizontal plane covering the cross section of the duct, means for moving the filter material in the direction of the length of the cross section, and means for cleaning the filter material.

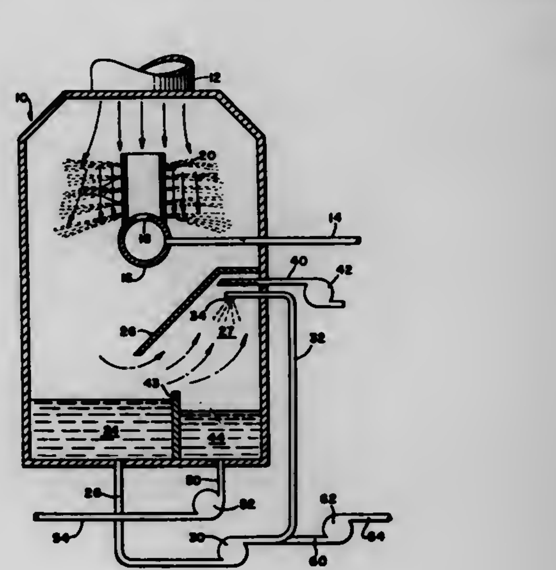
3,834,133
DIRECT CONTACT CONDENSER HAVING AN AIR REMOVAL SYSTEM

William J. Bow, Morristown, N.J., assignor to Foster Wheeler Corporation, Livingston, N.J.

Filed Dec. 22, 1972, Ser. No. 317,862

Int. Cl. B01d *57/00*

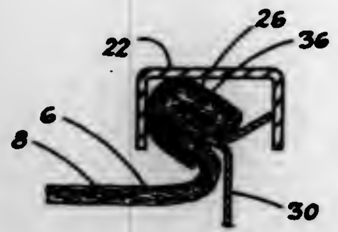
U.S. Cl. 55—257 **7 Claims**



A direct contact condenser in which a plurality of streams of water are discharged in a housing in a heat exchange relationship with steam passing therethrough to condense a portion of the steam. The condensed steam is reheated by redirecting the noncondensed steam in a heat exchange relation therewith, to remove air and other non-condensible gases from the condensed steam.

3,834,134
FLUID TIGHT SEAL FOR FLUID TREATING FILTER

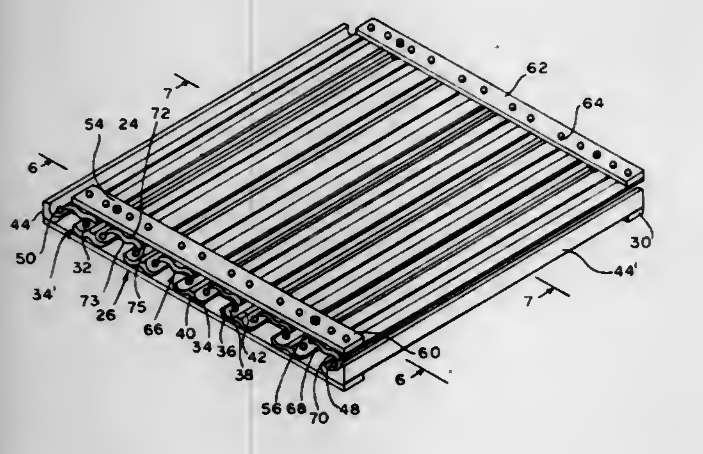
Robert L. McAllister, Louisville, Ky., assignor to America Air Filter Company, Inc., Jefferson County, Ky.
Filed Nov. 15, 1972, Ser. No. 306,930
Int. Cl. B01d *39/00*
U.S. Cl. 55—378 **4 Claims**



A fluid treating filter of the extended surface area type including a frame having at least one flow-through aperture therein and a filter bag of the extended surface area type having a mouth therein for receiving fluid to be filtered therethrough, the mouth having a strip of heat shrinkable material disposed along and coextensive with its perimeter and attached thereto, the strip of heat shrinkable material being adapted for mating with the flow-through aperture frame upon subjecting the shrinkable material to heat treating conditions sufficient to shrink the material to form a fluid tight seal with the frame.

3,834,135
GREASE FILTER

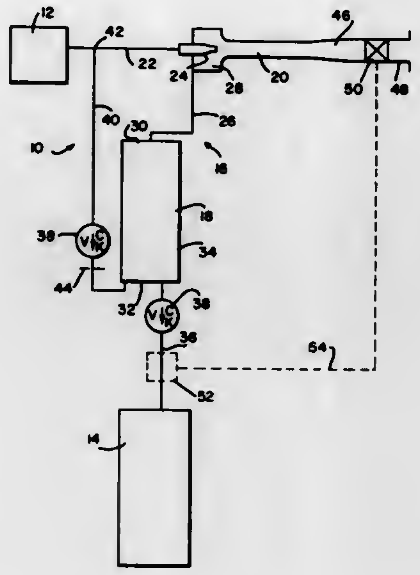
Anthony Jordan, 262 Great River Rd., Great River, N.Y.
Filed Oct. 2, 1973, Ser. No. 402,792
Int. Cl. B01d *45/08*
U.S. Cl. 55—444 **8 Claims**



A grease filter unit comprises upper and lower baffle plate assemblies held in adjustable opposing spaced position by bolts carrying compressed springs. Each assembly includes a plurality of straight baffle plates held in fixed laterally or transversely spaced positions by flat end bars. Each plate has a pair of transversely curved laterally spaced flanges integral with a central bridge portion constituting a partition to define two spaced parallel channels. Bridge portions of one assembly are formed with longitudinal grooves while bridge portions of the other assembly are formed with apices, to define sinuous channels for collecting grease separated centrifugally from grease laden air passing through the unit. Ends of the grooves and channels are open to drain the grease from the baffle plates.

3,834,136
GAS DRYING APPARATUS AND METHOD

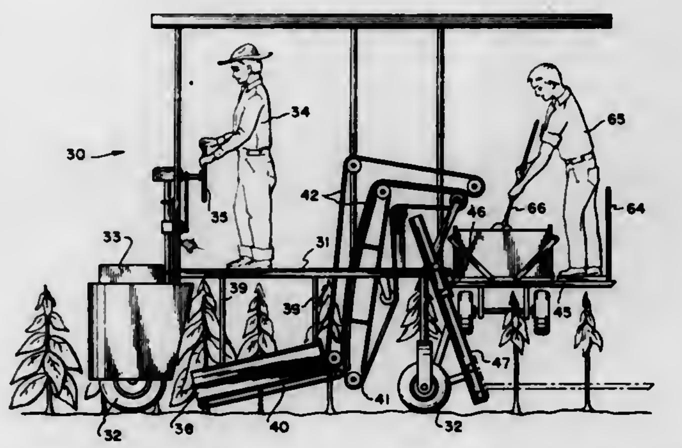
Jules L. Dussourd, Princeton, and Ronald L. Haugen, Pennington, both of N.J., assignors to Ingersall Rand Company, Woodcliff Lake, N.J.
Filed Apr. 10, 1973, Ser. No. 349,655
Int. Cl. B01d *53/04*
U.S. Cl. 55—33 **10 Claims**



The subject apparatus was devised for compressed gas drying systems which typically use vacuum-producing devices for evacuating a gas drying desiccant chamber. The invention comprises the use of an ejector for evacuating the gas drying desiccant chamber, in a first mode of operation, and the use of the ejector as a simple fluid conductor or connector, for directing compressed gas to the desiccant chamber, in a second mode of operation. A fluid-signal control valve opens and closes the ejector outlet, to effect the first and second modes of operation. The method comprises closing off an ejector diffusor to cause cycling or shunting of the gas directed thereinto to the vacuum port of the ejector.

3,834,137
METHOD AND APPARATUS FOR HARVESTING AND TREATING TOBACCO

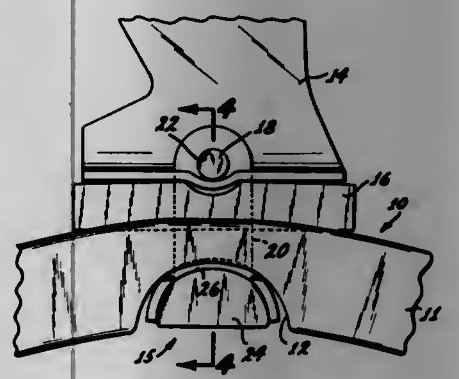
William R. Long, Tarboro, N.C., assignor to Long Mfg. N. C., Inc., Tarboro, N.C.
Filed Mar. 2, 1973, Ser. No. 337,622
Int. Cl. A01d *91/04*
U.S. Cl. 56—27.5 **3 Claims**



Method and apparatus for selectively priming and removing tobacco leaves from a stalk without damage and automatically transferring such leaves onto a relatively large tobacco rack in a random haphazard manner, after which a plurality of frames, each of which includes multiple tines, are attached to the rack so that the tines pierce the tobacco leaves to hold such leaves in position. Thereafter the rack is rotated to an upright position to form a substantially uninterrupted column of tobacco leaves which is placed in a curing barn so that air under controlled conditions of temperature, humidity and pressure is caused to flow through the columns of tobacco leaves for curing the same.

3,834,138
FASTENER

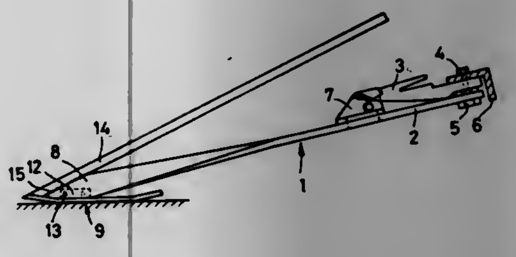
Duane M. Gibson, Milwaukie, Oreg., assignor to Omark Industries, Inc., Portland, Oreg.
Filed Oct. 4, 1972, Ser. No. 296,063
Int. Cl. A01d *55/24*
U.S. Cl. 56—290 **2 Claims**



A fastener for fastening working elements to a flexible carrier belt including a stem with an insertable end portion adapted to fit through aligned slots in a washer and the carrier belt which end is fastened under tension to the working element. The belt, at the location of the slot, is undercut to form a cog like notch and the washer is bowed to fit the notch. The trailing end of the stem is flared so as to mate with the bowed washer which prevents the stem from being pulled through the carrier belt.

3,834,139
DEVICE FOR SUPPORTING THE CUTTING MECHANISM ON A HARVESTING MACHINE

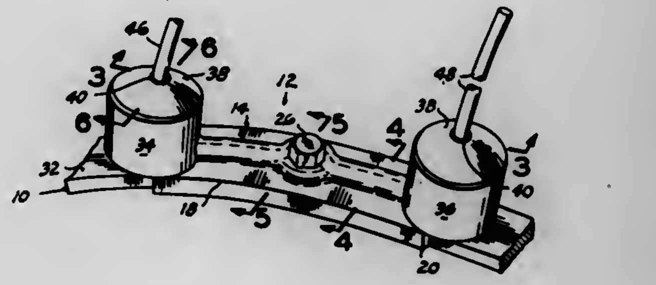
Gustav Schumacher, II, and Gunter Schumacher, both of Haus No. 51, 5231 Eichelhardt, Germany
Filed Feb. 20, 1973, Ser. No. 334,086
Claims priority, application Germany, Feb. 21, 1972, 2207959
Int. Cl. A01d *55/13*
U.S. Cl. 56—313 **9 Claims**



A harvester which has a cutting mechanism and an elongated springy support arm which in an operative position extends forwardly and downwardly from the cutting mechanism with this support arm having an upper rear end region and a lower front end region. The springy support arm carries a shoe which extends rearwardly from its lower front end region beneath the support arm to glide along the ground. The elongated springy support arm is operatively connected with the cutting mechanism for bending around a horizontal axis which extends across the support arm at its upper rear end region while remaining rigid forwardly of the upper rear end region in response to vertical forces which act to deflect the support arm at its lower front end region. In this way the shoe is tilted when encountering these vertical forces to a lesser extent than if bending occurred at the lower front end region of the support arm or at a location therealong closer to the lower front end region than the upper rear end region.

3,834,140
HAY RAKE TOOTH AND MOUNTING BASE

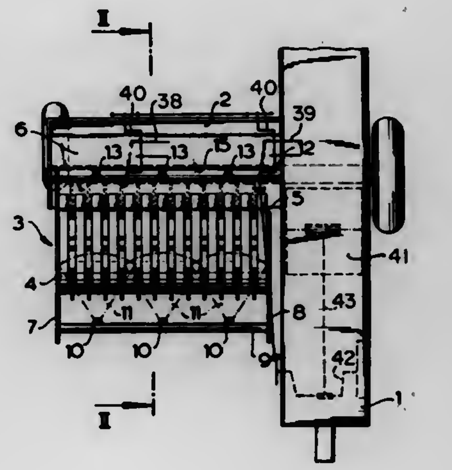
Willie Delfino, Rt. No. 7 Box 148, Bakersfield, Calif. 93307
Filed Aug. 20, 1973, Ser. No. 390,135
Int. Cl. A01d *77/00*
U.S. Cl. 56—400 **5 Claims**



A dual tooth for a side delivery hay rake is secured to the rim of the hay rake wheel by a bolt passing through a reuseable recessed base and the rim of the rake wheel. The respective ends of the base is provided with outstanding resilient members respectively surrounding the teeth at their end portions adjacent the rake wheel rim to cushion stress applied to the teeth.

3,834,141
PICK-UP BALER, SPRAYER AND COMPACTOR COMBINATION

Karl Friedrich Bracht, Hotzum; Herbert A. Strube, and Hans Otto Sacht, both of Wolfenbuttel, all of Germany, assignors to Gebrueder Welger, Wolfenbuettel, Germany
Filed Jan. 17, 1973, Ser. No. 324,398
Claims priority, application Germany, Jan. 18, 1972, 2202114
Int. Cl. A01d *39/00*
U.S. Cl. 56—341 **15 Claims**



A pick-up baler for agricultural crops including means to pick up the crop and to direct the flow of the material from a pick-up device as a sheet over an intermediate conveyor into a bale chamber for spraying the picked-up swath with a liquid preserving agent, subsequently to which the swath is compressed.

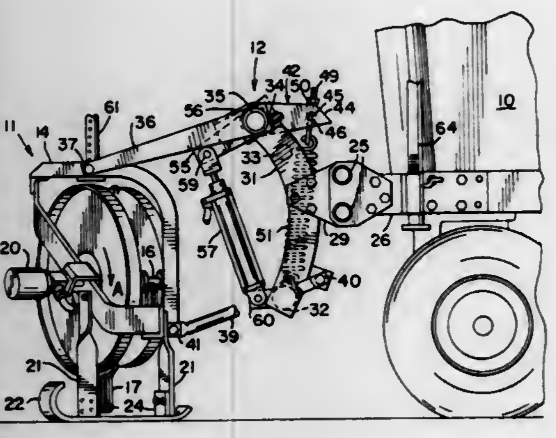
3,834,142
SIDE DELIVERY RAKE

Edward J. Johnston, Grange Park; Frank J. Macha, Jr., Lockport, both of Ill.; William H. Knapp, and Peter J. Peacock, both of Memphis, Tenn., assignors to International Harvester Company, Chicago, Ill.

Filed June 8, 1973, Ser. No. 368,144

Int. Cl. A01d *77/06*

U.S. Cl. 56—377 **26 Claims**



A side delivery rake is provided with mounting apparatus for attaching it to the front of a tractor. The mounting apparatus comprises connecting linkage and hydraulic lift linkage with an interconnection, preferably a rotary lost motion connection, between the connecting linkage and the hydraulic lift linkage to permit floatation of the rake independent of the lift linkage during operation.

3,834,143
SPINDLE UNIT FOR TEXTILE MACHINE

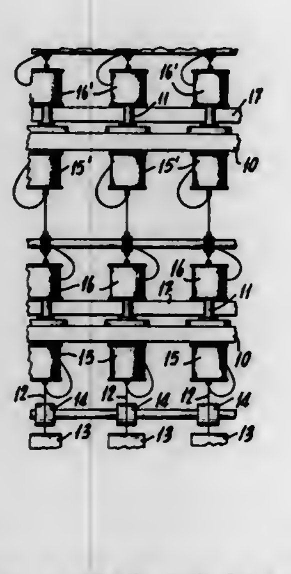
Carlo Menegatto, Viale Sicilia 108/10, Monza, Italy (20052)

Filed Oct. 25, 1973, Ser. No. 409,664

Claims priority, application Italy, Dec. 1, 1972, 32411/72

Int. Cl. D02g *3/36, 3/38*

U.S. Cl. 57—16 **7 Claims**



In a textile machine, a spindle unit for carrying yarn spools for covering a continuous core caused to pass through said unit, comprising a first spindle facing in one direction, and a second spindle coaxial with and facing in opposite direction to the first spindle. The two spindles in each unit are made fast with each other to rotate in one same direction to enable the spiral winding on said core for a first covering yarn and then a second covering yarn in the same direction and between the coils of the previously wound yarn.

3,834,144
APPARATUS FOR RE-POSITIONING THE SPINDLE ROTOR AND FOR ACTUATING PNEUMATIC THREADING MECHANISMS OF A TEXTILE YARN PROCESSING MACHINE

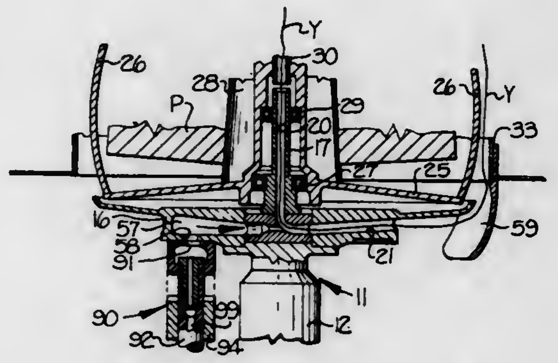
Gustav Franzen, Krefeld, Germany, assignor to Palitex Project Company GmbH, Krefeld, Germany

Filed Oct. 18, 1973, Ser. No. 407,504

Claims priority, application Germany, Apr. 21, 1973, 2320392

Int. Cl. D01h *7/86, 1/10*

U.S. Cl. 57—34 R **18 Claims**



In a textile yarn processing machine, such as a twister, spinning frame or the like, having a plurality of spindle assemblies and each spindle assembly including a driven rotating rotor mechanism; the improvement of selectively operable devices for re-positioning the spindle rotor mechanism to a predetermined threading position for threading up of the spindle assembly. The re-positioning devices include a nozzle for directing a jet of compressed air eccentrically and obliquely against the underside of the rotor mechanism for rotating the rotor mechanism to re-position the rotor mechanism. The spindle assembly further desirably includes air operated devices for threading the yarn through the spindle assembly and the re-positioning devices further preferably include devices for actuating the threading devices upon completion of the operation of the re-positioning devices.

3,834,145
OPEN-END SPINNING OF TEXTILE YARNS

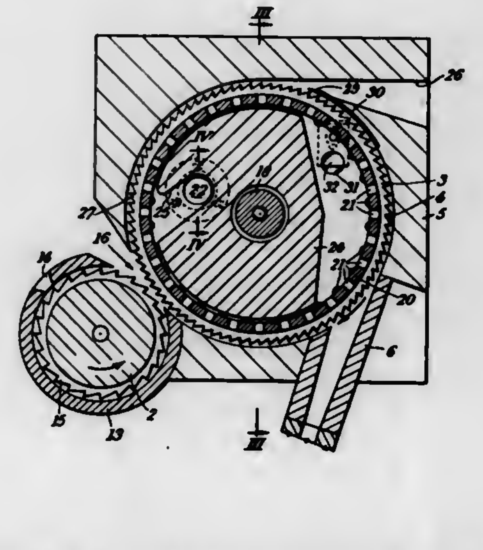
Bruce Ellingham, Nelson, and Andrew Alexander Chisholm, Clitheroe, both of England, assignors to Platt International Limited, Oldham, Lancashire, England

Filed Aug. 10, 1972, Ser. No. 279,335

Claims priority, application Great Britain, Aug. 11, 1971, 37753/71

Int. Cl. D01h *11/00, 1/12*

U.S. Cl. 57—56 **13 Claims**



An apparatus for the open-end spinning of textile yarns includes improved means for extracting impurities (removing trash) from the fibrous material before it is fed to the spinning zone. The apparatus comprises conveying means for conveying fibrous material from feed means to the spinning means along a conveying path in which the fibres are subjected to an opening action, the conveying means including a rotating roller having an apertured peripheral wall on the outer surface of which the opened fibres or the fibres being opened are conveyed and suction means for applying suction internally of the roller to remove impurities from the fibres and withdraw the impurities through apertures in the peripheral wall.

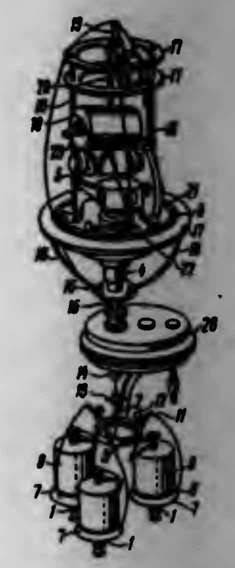
3,834,146
DEVICE FOR TWISTING NATURAL AND SYNTHETIC FIBRE YARNS INTO A SINGLE THREAD

Andrei Maximilianovich Nessler, ulitsa Bela Kuna, 19, korpus 1, kv. 8; Frants Ivanovich Raag, ulitsa Stakhanovtsev, 10, korpus 4, kv. 10; Maria Pavlovna Savelieva, ulitsa Torzhkovskaya, 2, korpus 3, kv. 30; Agrippina Gavrilovna Vikhrova, ulitsa Khalturina, 8, kv. 34, and Leonid Sergeevich Dmitriev, Poljustrovsky prospekt, 29, kv. 38, all of Leningrad, U.S.S.R.

Continuation of Ser. No. 28,744, April 15, 1970, abandoned. This application Aug. 2, 1972, Ser. No. 277,151

Int. Cl. D01h *1/10, 13/30*

U.S. Cl. 57—58.54 **2 Claims**



A device for twisting natural and synthetic fibre yarns together into a single thread, comprising a double-twist receiving spindle made vertical with a horizontal winding drum; a cabling bath with an impregnating fluid mounted under said receiving spindle; and double-twist delivery spindles mounted under the bath so that the axes of rotation of their disks are disposed in different planes passing through the axis of rotation of the receiving spindle's disk, and each of these axes is equally spaced from said axis of rotation.

3,834,147
STRAND TWISTING ARRANGEMENT FOR AN OPEN-ENDED YARN SPINNING SYSTEM

Zdenek Havranek; Miroslav Jiskra, both of Usti nad Orlici; Miroslav Kubovy, Dolni Dobrouc; Josef Stary, Usti nad Orlici, and Vera Vierikova, Dlouha Trebova, all of Czechoslovakia, assignors to Vyzkumny ustav bavlnarsky, Usti nad Orlici, Czechoslovakia

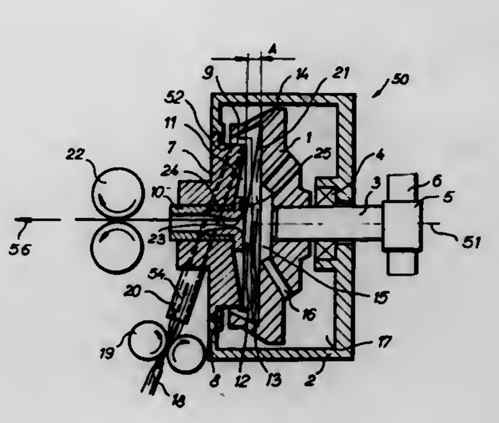
Filed Oct. 15, 1973, Ser. No. 406,633

Claims priority, application Czechoslovakia, Oct. 16, 1972, 6956-72

Int. Cl. D01h *7/00, 1/12*

U.S. Cl. 57—58.89 **8 Claims**

A funnel-shaped strand twisting head in an open-ended yarn spinning system has a working region that includes circumferentially alternating roughened and smooth portions. The head is disposed between a pair of strand advancing rolls and a rotating spinning chamber from which the strands are payed out. During each revolution of the spinning chamber in a forward direction, the advancing strands alternately contact the rough and smooth portions of the head. As a result, a reverse twist is superimposed on the normally forward-twisted strands to strengthen the strands in the region between the head and the spinning chamber and to maintain the twist point in the chamber at a fixed location.



3,834,148
RINGLESS SPINNING APPARATUS

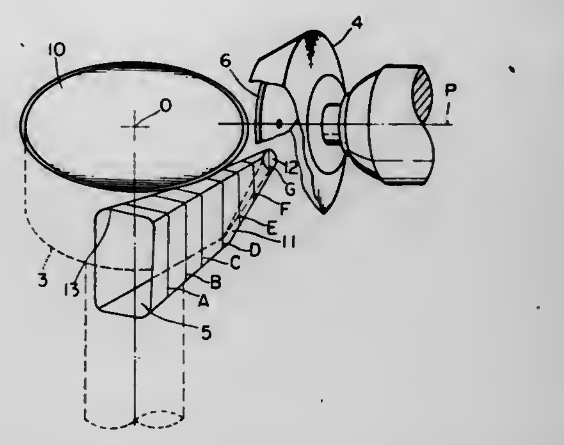
Waichi Sakurai; Takeshi Igarashi, and Osamu Yuasa, all of Fukui, Japan, assignors to Daiwa Boseki Kabushiki Kaisha, Osaka and Kabushiki Kaisha Toyoda Jodoshokki Seisakusho, Kariya City, Aichi-ken, both of, Japan

Filed Mar. 22, 1973, Ser. No. 344,035

Claims priority, application Japan, Mar. 27, 1972, 47-30433; Mar. 27, 1972, 47-30434

Int. Cl. D01h *1/12*

U.S. Cl. 57—58.95 **5 Claims**

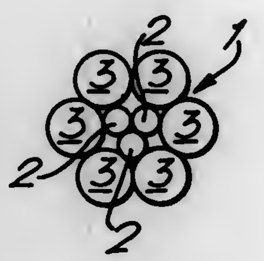


In a ringless spinning apparatus of the type comprising a feed roller rotatable about its vertical axis for feeding fibrous materials, an opening roller rotatable about its vertical axis and provided with a plurality of saw tooth wires wound circumferentially around the peripheral surface thereof for opening the fibrous materials fed by said feed roller, channel means arranged adjacent the peripheral surface for taking off the opened fibrous materials from the opening roller and transferring them by the action of a jet of air passing therein, and a rotary spinning chamber for collecting and spinning the opened fibrous materials transferred thereinto from the channel means, the latter converges toward the spinning chamber by tapering at least one of the upper and lower walls thereof, while the sectional area of the channel means is progressively reduced toward the spinning chamber at the downstream side of the opening roller.

3,834,149

IMPROVEMENTS IN WIRE ROPES, STRANDS AND WIRE ROPES PRODUCED THEREFROM

Alexander Nisbet, Kilcreggan, Scotland, assignor to Dawson & Usher Limited, Sunderland, England
Filed Nov. 28, 1972, Ser. No. 310,145
Claims priority, application Great Britain, Mar. 11, 1971, 55552/71
Int. Cl. D07b ***1/06***
U.S. Cl. 57—145 **11 Claims**

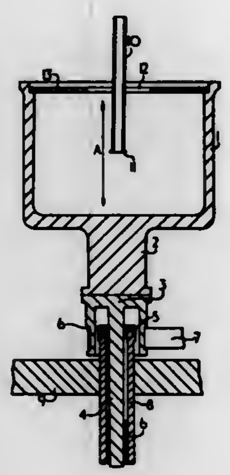


The invention relates to the construction of wire rope strands and ropes produced therefrom in which each strand is constructed in known manner from steel wires but includes at least one control element in the form of a metallic zinc or aluminium element which may be in the form of a wire or wires or a foil wrapping or coating to prevent or reduce oxidation of the steel wires, the control element being conductively in contact with the steel wires and being surrounded by steel wires to protect it against abrasion.

3,834,150

METHOD FOR FORMING TWISTED FILAMENTARY MATERIAL

Roger James Ottewell, Birmingham, and Peter Lothar Ernst Moring, Walmley, both of England, assignors to Dunlop Limited, London, England
Filed Jan. 30, 1973, Ser. No. 327,936
Claims priority, application Great Britain, Feb. 1, 1972, 4539/72; Sept. 16, 1972, 43062/72
Int. Cl. D01h ***1/08, 9/06***
U.S. Cl. 57—156 **8 Claims**

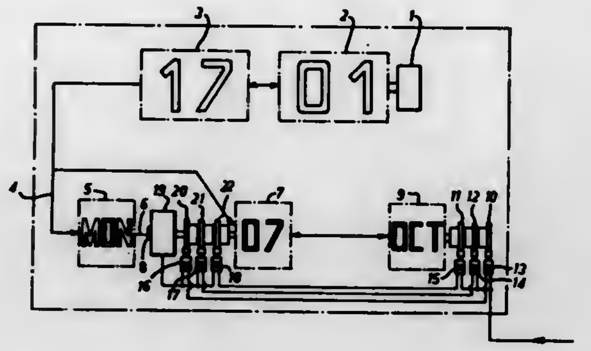


An apparatus and method of forming a twisted yarn and a doubled cord in which yarn twisting is carried out by feeding a yarn by means of a feed device into a rotating hollow member, temporarily storing the yarn and subsequently reversing the direction of the feed device to remove the yarn and give it further twist. Two or more yarns may then be folded together to form a cord and this is preferably carried out whilst passing the twisted yarns into a further rotating member, of which the following is a Specification.

3,834,151

TIMEPIECE WITH AUTOMATIC CALENDAR

Pierre Bodet, 49340, Trementines, France
Filed Apr. 3, 1973, Ser. No. 347,436
Claims priority, application France, Apr. 6, 1972, 72.12122; Nov. 8, 1972, 72.39465
Int. Cl. G04d ***19/24*****; G09d** ***3/08***
U.S. Cl. 58—4 A **9 Claims**

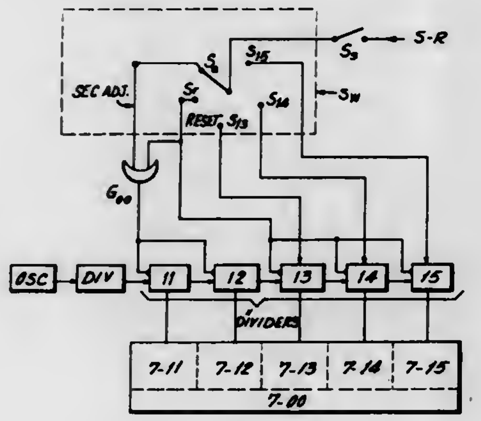


A timepiece has an automatic calendar with a correcting means that takes account of the months having less than 31 days, and leap years. The correcting means, and preferably also the timepiece itself, is electrically actuated, as by a battery carried by the timepiece. The month indicator of the calendar drives slowly rotating cams that close first electrical contacts on February 28, February 29, and the last day of each month having 30 days. The day of the month indicator is driven by mechanism that also turns relatively rapidly rotating cams once a day that close second electrical contacts at midnight. There are three pairs of first and second contacts in series with each other and with an electric motor or electromagnetic device; and the cams of the second contacts ensure that each pair of contacts will be closed the correcting means thus actuated, for an interval or a number of pulses sufficient to advance the day of the month indicator to skip one, two or three days at the end of each month having less than 31 days.

3,834,152

TIME CORRECTION DEVICE FOR ELECTRONIC TIMEPIECES

Izuhiko Nishimura, and Akio Shimoi, both of Suwa, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed Sept. 7, 1972, Ser. No. 287,201
Claims priority, application Japan, Sept. 8, 1971, 46-69575; Sept. 10, 1971, 46-70116
Int. Cl. G04c ***3/00*****; G04b** ***19/30***
U.S. Cl. 58—23 R **15 Claims**

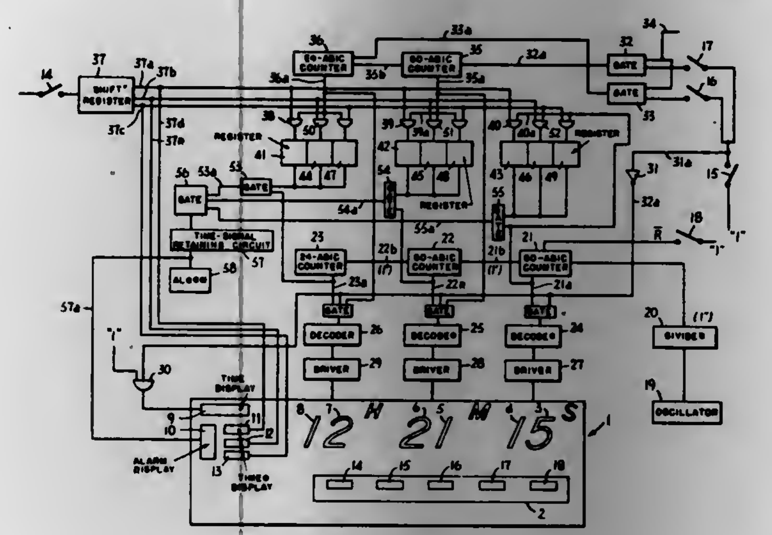


In an electronic timepiece having a plurality of display elements, a primary manually operable switch member is provided for selecting at least one of the display elements for independent setting or correction and a second manually operated switch element is provided for setting or correcting said selected one or more display elements.

3,834,153

ELECTRONIC TIMEPIECE WITH A MULTI-TIMER

Kazuhiro Yoda, and Takashi Kato, both of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan
Filed Oct. 18, 1972, Ser. No. 298,490
Claims priority, application Japan, Oct. 19, 1971, 46-82649
Int. Cl. G04c ***21/00***
U.S. Cl. 58—38 **7 Claims**

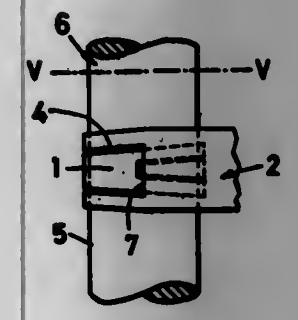


An electronic timepiece constructed as a wristwatch with a multiplicity of timer devices for setting therein different time settings either by actuation of setting switches or by reading in the time settings from a program in the form of a punched tape. The settings are introduced into the watch's electronic circuit without affecting its outputs indicating elapsed time. The time settings are stored and the wearer of the watch is warned by a bell or a light, visually or audibly when the actual time corresponds with the time setting memorized in registers forming the memories of the electronic circuit. The time set and the elapsed or actual time can be displayed on a display panel of the timepiece.

3,834,154

DEVICE FOR FASTENING THE INNER END OF A MAINSPRING TO THE BARREL ARBOR OF A CLOCKWORK

Urs Giger, Solothurn, Switzerland, assignor to ETA A. G. Erbauches-Fabrik, Grenchen (Soleure), Switzerland
Filed Jan. 15, 1974, Ser. No. 433,479
Claims priority, application Switzerland, Feb. 9, 1973, 1905/73
Int. Cl. G04b ***1/18***
U.S. Cl. 58—87 **5 Claims**

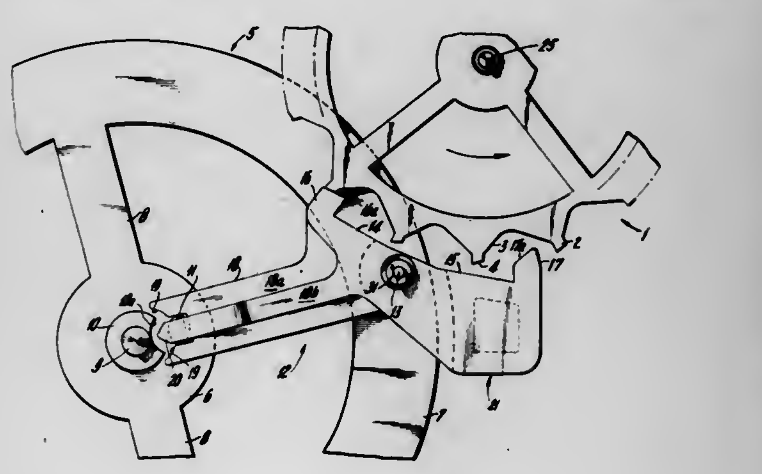


Means for fastening the inner end of a mainspring to the barrel arbor of watch movements, clock movements, etc., in which the end of the mainspring is wound in at least two turns on the smooth cylindrical surface of the barrel arbor. In order that the two turns be in contact with the arbor, the mainspring is cut in the shape of an isosceles triangle at its end and has a triangular opening having two sides parallel to the edges of the blade of the mainspring and a base. The proportions selected permit the winding of the tip of the mainspring on the arbor. As a variant, the mainspring could also be cut with a tongue having oblique parallel edges.

3,834,155

OFFSET PALLET LEVER FOR WATCH ESCAPEMENT

Paul Wuthrich, Watertown, Conn., assignor to Timex Corporation, Waterbury, Conn.
Filed Feb. 19, 1974, Ser. No. 443,281
Int. Cl. G04b ***15/08***
U.S. Cl. 58—121 R **7 Claims**

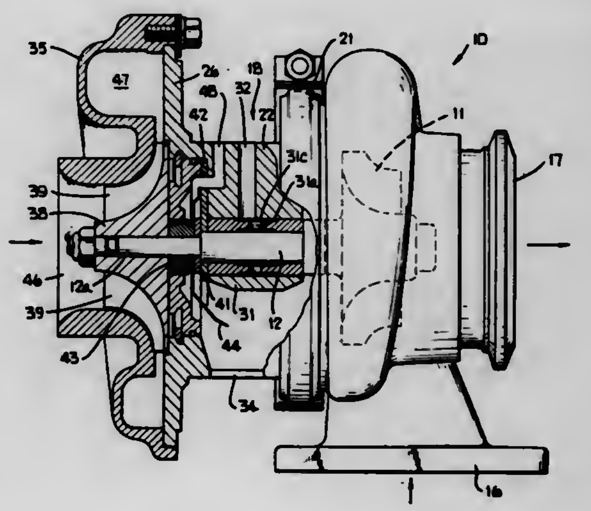


An improved escapement mechanism for a horological device, especially a watch, with an improved pallet lever construction for coupling a conventional escape wheel and balance wheel. The pallet lever is constructed so that it can be pivotably mounted on an axis that lies within the outer diameter of the balance wheel by means of an offset portion passing around the balance wheel. The pallet lever is preferably an integral plastic member.

3,834,156

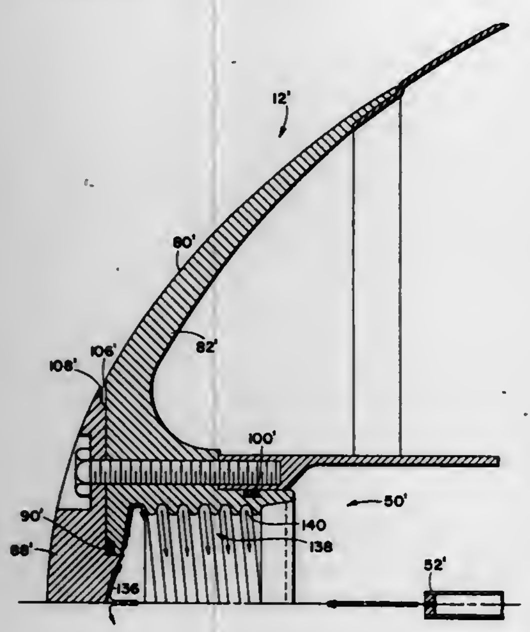
ENGINE TURBOCHARGING SYSTEM WITH VENTED COMPRESSOR BEARING

John Frederick Cutler; Robert Andrew Edwards, both of Indianapolis, and Charles Richard Sarle, Noblesville, all of Ind., assignors to Wallace-Murray Corporation, New York, N.Y.
Filed Jan. 10, 1973, Ser. No. 322,375
Int. Cl. F02b ***37/04***
U.S. Cl. 60—597 **6 Claims**



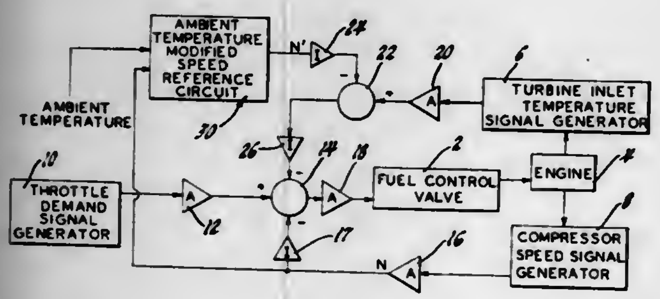
Disclosed is a combination of a spark ignition internal combustion engine and an exhaust gas driven turbocharger whose compressor component delivers charge air to the air induction system of the engine downstream of the engine carburetor and air cleaner. A tube provides communication between the crankcase of the engine and the impeller shaft bearing housing of the turbocharger compressor component to thereby permit entry of crankcase gases into the bearing housing thereby eliminating the ingestion of bearing lubricating oil along the impeller shaft and through the impeller shaft bearing into the compressor discharge passage when a vacuum condition exits in the compressor component as for example under engine idle condition.

3,834,157
SPINNER DE-ICING FOR GAS TURBINE ENGINES
Ambros S. Hoffmann, West Haven, Conn., assignor to Avco Corp., Stratford, Conn.
Filed Feb. 5, 1973, Ser. No. 329,719
Int. Cl. F02c *7/06*
U.S. Cl. 60—39.09 D **22 Claims**



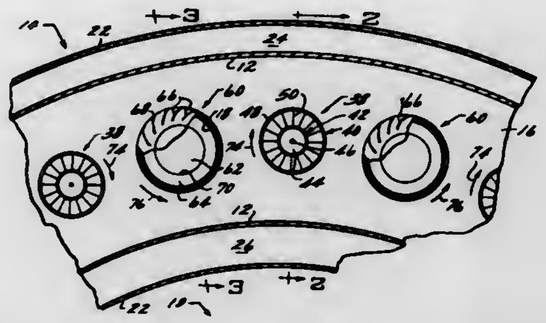
The inlet spinner of a gas turbine engine is de-iced by directing a stream of heated lubricant from the lubrication system of a gas turbine engine against a generally concave heat transfer surface formed on the interior of the inlet spinner. The heat transfer surface is formed to maximize the transfer of heat from the lubricating fluid to those portions of the exterior surface of the spinner that tend to accumulate ice. The heat transfer surface also provides a pumping action which produces a continuous flow of lubricant across it.

3,834,158
VOLTAGE GENERATING CIRCUIT FOR A GAS TURBINE FUEL CONTROL SYSTEM
Richard C. Oppmann, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed Mar. 21, 1973, Ser. No. 343,295
Int. Cl. F02c *9/04*
U.S. Cl. 60—39.28 R **4 Claims**


AMBIENT TEMPERATURE MODIFIED SPEED REFERENCE CIRCUIT
AMBIENT TEMPERATURE
TURBINE INLET TEMPERATURE SIGNAL GENERATOR
THROTTLE DEMAND SIGNAL GENERATOR
FUEL CONTROL VALVE
ENGINE
COMPRESSOR SPEED SIGNAL GENERATOR
N'
N
A
24
22
20
6
30
26
14
18
2
10
12
17
16
8

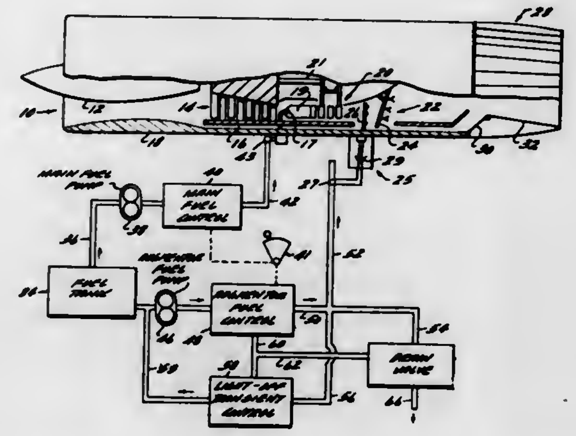
In a fuel control system for a gas turbine engine, a fuel flow limiting signal is obtained from the difference between a voltage proportional to turbine inlet temperature and a voltage produced by an ambient temperature modified speed reference circuit. In the latter circuit, a first differential comparator passes the greater of a voltage proportional to compressor speed and a first reference voltage. A second differential comparator passes to the circuit output the lowest of the output of the first differential comparator, a second reference voltage and a third reference voltage which varies with ambient air temperature.

3,834,159
COMBUSTION APPARATUS
John William Vdoviak, Marblehead, Mass., assignor to General Electric Company, Lynn, Mass.
Filed Aug. 3, 1973, Ser. No. 385,420
Int. Cl. F02c *3/00, 7/22*
U.S. Cl. 60—39.65 **8 Claims**



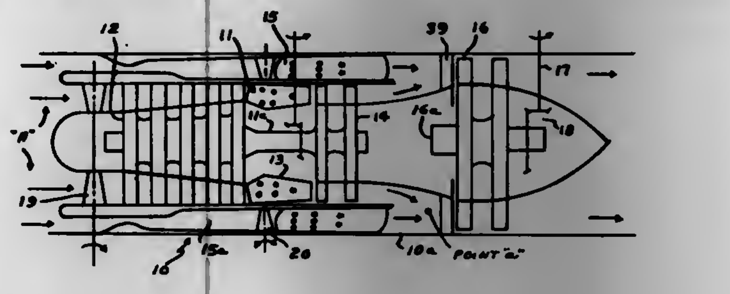
A combustion apparatus is provided for a gas turbine engine wherein a plurality of fuel carbureting air swirlers are alternately spaced between a plurality of stabilizing air swirlers in order that fuel may be readily dispersed and atomized for efficient combustion within the chamber without precipitating excessive exhaust smoke and without jeopardizing flameholding stability within the combustion chamber.

3,834,160
LIGHT-OFF TRANSIENT CONTROL FOR AN AUGMENTED GAS TURBINE ENGINE
John Theodore Moehring, Cincinnati, Ohio, and Thomas Norman Totten, Sr., Burnthills, N.J., assignors to General Electric Company, Lynn, Mass.
Filed Mar. 26, 1973, Ser. No. 344,871
Int. Cl. F02k *3/10*
U.S. Cl. 60—243 **8 Claims**



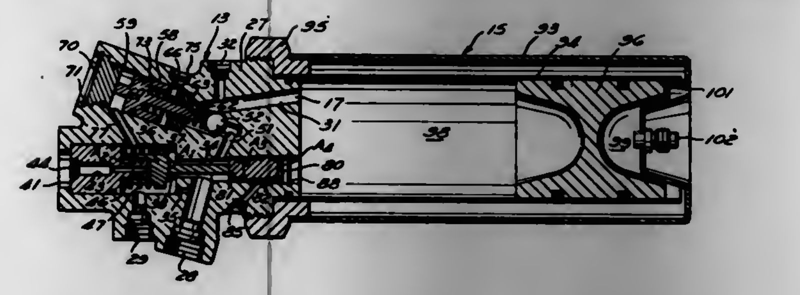
A light-off transient control is provided for an augmented gas turbine engine and indirectly controls the rate of fuel flow to a plurality of augmentor fuel injectors. This is accomplished by bypassing a portion of the fuel flow metered from an augmentor fuel control for a limited time during ignition of augmentation in order to achieve a smooth and uniform thrust increase when the engine power control lever is advanced into the augmentor region of operation. The light-off transient control provides for quick filling of the feedlines and manifolds leading to the augmentor fuel injectors and also permits non-augmented operation with the manifolds drained in order to prevent the fuel injectors from coking.

3,834,161
DUAL MODE AUXILIARY POWER UNIT
Richard E. Quigley, Jr., Kettering, and Buryl L. McFadden, Jr., Dayton, both of Ohio, assignors to The United States of America as represented by the Air Force, Washington, D.C.
Filed June 1, 1973, Ser. No. 365,908
Int. Cl. F02k *3/12*
U.S. Cl. 60—244 **10 Claims**



An aircraft on-board auxiliary power unit including a gas turbine-core and ram combustor uninterruptedly producing relatively low and high velocity hot gases to drive a free, power turbine positioned downstream thereof and interconnected with, and driving an auxiliary equipment-operating shaft to thereby provide a turboramjet aircraft with all flight vehicle power requirements throughout its entire operating regime, including ground standby.

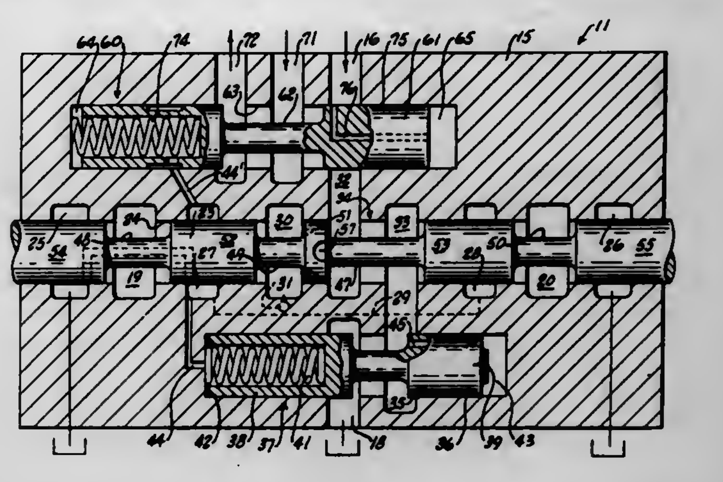
3,834,162
CONTROL VALVE FOR MOTOR VEHICLE FLUID POWER CIRCUIT
Frederick D. Keady, Arlington, Mass., assignor to The Weatherhead Company, Cleveland, Ohio
Filed Apr. 23, 1973, Ser. No. 353,248
Int. Cl. G05d *11/00*
U.S. Cl. 60—418 **14 Claims**



A motor vehicle fluid power circuit is disclosed which includes a constant displacement pump driven by the engine of the vehicle, a control valve, an open center steering valve, a brake booster accumulator, and a closed center brake booster. The entire output of the pump flows through the control valve under all conditions, and the control valve selectively directs the pump output to the steering valve to assist in steering the vehicle or to the brake booster accumulator (which is hydraulically connected to the brake booster) to assist in braking.

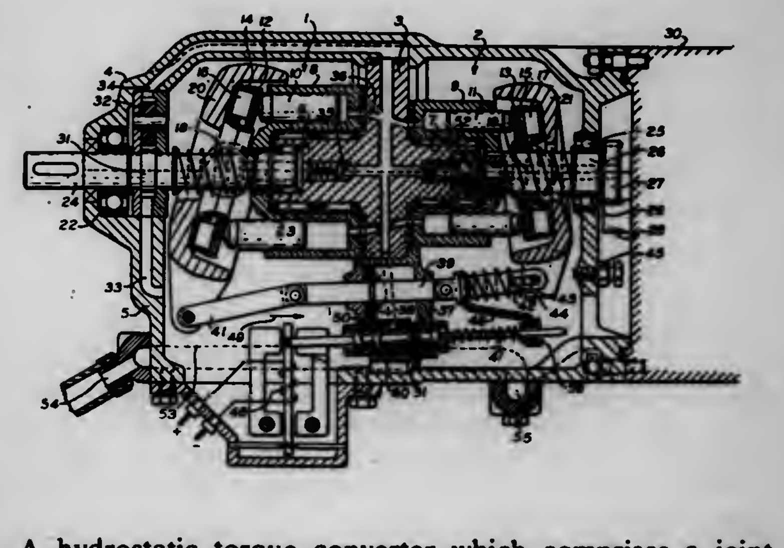
3,834,163
CONTROL VALVE FOR HYDRAULICALLY OPERATED IMPLEMENTS
Raud A. Wilke, Brookfield, Wis., assignor to Koehring Company, Milwaukee, Wis.
Filed Nov. 29, 1972, Ser. No. 310,375
Int. Cl. F15b *11/16*
U.S. Cl. 60—422 **6 Claims**

An implement having separate pumps to supply pressure fluid to the inlet ports of a pair of hydraulic control valves, one of which governs the operation of steering control mechanism. A pair of pressure compensating valves, responsive to the pressure differential between the inlet and motor ports of the steering control valve, cooperate to maintain flow of pressure fluid to a selected motor port of the latter at a substantially



constant rate. One of said compensating valves is operable to communicate the inlet port of the steering control valve with the fluid supply duct for the other control valve.

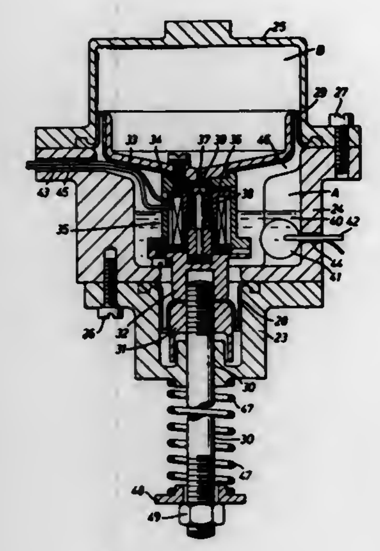
3,834,164
HYDROSTATIC TORQUE CONVERTER
Kaspar Ritter, Kirchheim Teck, Germany, assignor to KOPAT Gesellschaft, fur Konstruktion Entwicklung und Patent Ver wertung M.b.H. & Co., K.G., Boll, Kreis Goppingen, Germany
Filed Jan. 24, 1973, Ser. No. 326,443
Claims priority, application Germany, Jan. 26, 1972, 2203478; Dec. 30, 1972, 2264319
Int. Cl. F16h *39/46*
U.S. Cl. 60—492 **8 Claims**



A hydrostatic torque converter which comprises a joint housing, an axial piston-pump to constitute a pump part and an axial piston-motor to constitute a motor part with variable feeding- and absorption-volume, respectively, within the joint housing, in particular for the use as a drive controlled in accordance with the output requirement for the drive of a generator operating with a comparatively high number of revolutions variable at a ratio of about 1:5 by means of an internal combustion engine with an essentially lower number of revolutions variable in turn at a ratio of about 1:6. The volume ratio of the pump part and the motor part of the converter amounts to about more than 1:1. The pump part and the motor part have swinging bodies rotatably mounted in the housing. A servo setting cylinder, a piston reciprocating therein, and a rod mechanism are coupled together. The swinging bodies are controlled by the servo cylinder with the piston by means of said mechanism such, that the output speed of the converter corresponds with the desired generator driving output which is maintained by variation of the feeding quantity of the axial piston-pump and for the absorption quantity of the axial piston-motor independent from the input speed of the converter.

3,834,165
THERMAL ACTUATOR

Heino Arff, Henstedt-Ulzburg, Germany, assignor to Danfass A/S, Nordborg, Denmark
Filed Sept. 18, 1972, Ser. No. 290,092
Claims priority, application Germany, Sept. 22, 1971, 2147292
Int. Cl. F03g *7/06*
U.S. Cl. 60—531 **8 Claims**



The invention relates to a thermal actuator which comprises adjacent expansible equalizing and working chambers separated by a movable wall to which is connected an actuating member for operating a valve or the like. Spring means bias the wall in one direction and an expansible fluid in the working chamber biases the wall in the other direction in response to the operation of heating means in the working chamber. A fluid passage between the equalizing and working chambers which is controlled by an electromagnetically operated valve permits a rapid return of the separating wall to its initial position which in turn permits the rapid return of the actuating member to its initial position.

3,834,166
THERMALLY STABLE LUBRICANTS FOR EXTERNAL COMBUSTION ENGINES

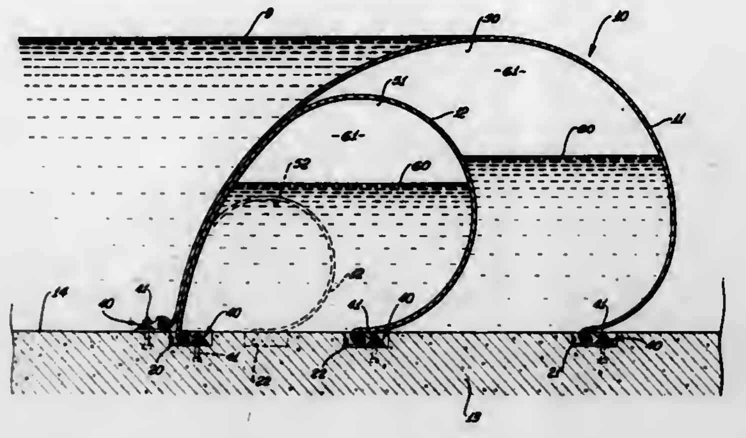
Robert A. Cupper, Ridgefield, Conn., and George S. Somekh, New Rochelle, N.Y., assignors to Union Carbide Corporation, New York, N.Y.
Filed Apr. 13, 1973, Ser. No. 350,800
Int. Cl. F01k *25/00*
U.S. Cl. 60—651 **8 Claims**

Alkylated aromatic hydrocarbons have been found to serve as lubricants, exhibiting excellent thermal stability, for Rankine Cycle Engines especially when using aqueous nitrogen-containing hydrocarbon motive fluids.

3,834,167
COLLAPSIBLE DAM AND DAMMING METHOD

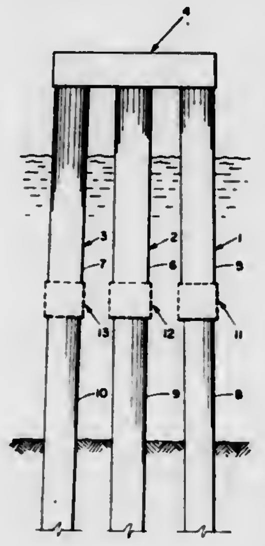
Loring E. Tabor, Los Angeles, Calif., assignor to N. M. Imbertson & Associates, Inc., Burbank, Calif.
Filed Dec. 6, 1972, Ser. No. 312,653
Int. Cl. E02b *7/04*
U.S. Cl. 61—30 **4 Claims**

An inflatable envelope type collapsible dam is made up of a plurality of inflatable envelopes one inside the other. The dam is mounted across a watercourse with the upstream edges of each of the envelopes anchored at substantially the same location. The dam may be constructed to a selected height by appropriately setting the pressures in each of the envelopes and each inner envelope operates to support a predetermined portion of the water pressure against their outer envelope or envelopes.



3,834,168
SLIP-JOINTED PILE AND DOLPHIN CONSTRUCTION

Myle J. Holley, Jr., 1364 Mass Ave., Lexington, Mass. 02173
Filed Mar. 13, 1973, Ser. No. 340,867
Int. Cl. E02d *5/22;* **E02b** *17/00*
U.S. Cl. 61—46 **14 Claims**



A marine pile formed by upper and lower lengths of pipe interconnected by a slip-coupling which permits a predetermined amount of axial displacement between these lengths of pipe. This construction has particular application to cluster dolphins of the type wherein the tops of the individual piles are rigidly interconnected.

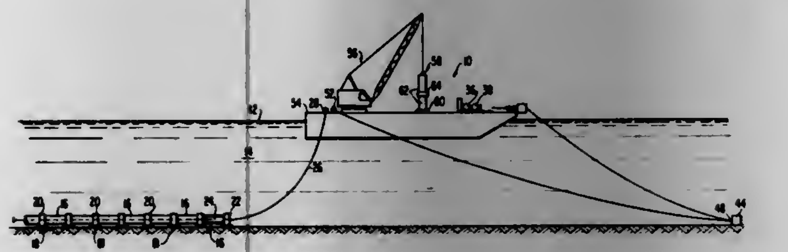
3,834,169
METHOD AND APPARATUS FOR LAYING LARGE DIAMETER PIPELINE SEGMENTS OFFSHORE

Phillip Andrew Abbott, Houston, Tex., assignor to Brown & Root, Inc., Houston, Tex.
Filed July 11, 1973, Ser. No. 378,042
Int. Cl. F16l *1/00;* **B23p** *19/04;* **B23q** *3/14*
U.S. Cl. 61—72.3 **21 Claims**

A method and apparatus for laying a pipeline upon the bed of a body of water.

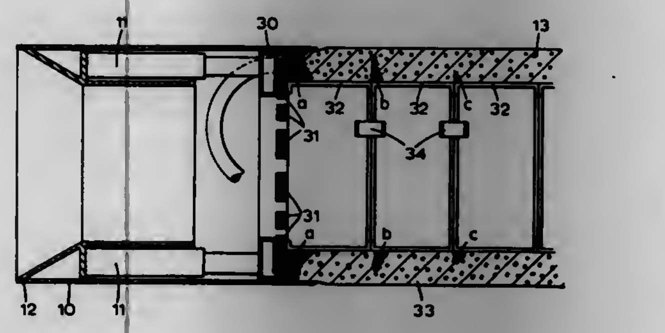
The apparatus includes a generally cylindrical male member operable to be positioned within the interior of one of a submerged pipeline segment and at least one pipeline segment to be laid. Operating in conjunction with the male member is a female member which is designed to be positioned within the interior of the other of the submerged pipeline segment and at least one pipeline segment to be laid. Expandable circumferential friction collars are mounted upon the male and female members to releasably secure the members within the interior of the pipeline segments. A flexible cable is securely connected to one of the male and female members operably connected within the pipeline segment to be laid and extends through the other of the male and female members operably positioned within the interior of the submerged pipeline segment for aligning the male and female members within the body of water. Following alignment, the flexible cable may serve to pull the male and female members into stabbing engagement and one end of the pipeline segment to be laid into abutting contact with the free end of the submerged pipeline segment.

The method includes the steps of positioning one member of a male and female member guide assembly within the free end of a submerged pipeline segment and positioning the other member of the male and female member guide assembly within at least one pipeline segment to be laid. The guide member positioned within at least one pipeline segment to be laid is fitted at one end with at least a first cable and at the other end with at least a second cable. The guide members and the at least one pipeline segment to be laid are lowered into body of water and the cables are tensioned to align the male and female member guide assembly within the body of water. Following alignment the male and female members of the guide assembly are interocnnected and stabbed into full engagement to position the pipeline segment to be laid in abutting contact with the free end of the submerged pipeline segment. The one member of the male and female member guide assembly which is connected to the free end of the submerged pipeline segment is then axially drawn to the free end of the thus laid at least one pipeline segment. The other member of the male and female member guide assembly is then disconnected and raised to the surface to be positioned within another at least one pipeline segment to be laid.



3,834,170
PROCESS OF, AND A PLANT FOR, CONSTRUCTING TUNNELS

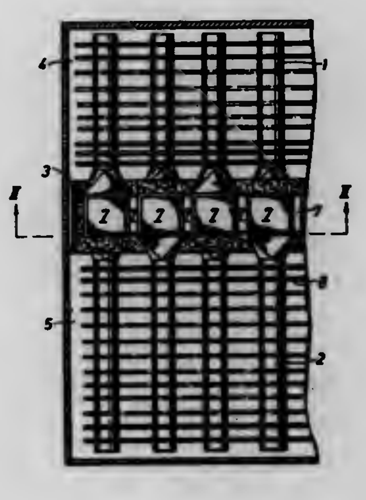
Armin Lobbe, Oberaden, and Wolf-Rudiger Von Schenck Zu Schweinsberg, Borstel Bei Winson/Luhe, both of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Wethmar near Lunen, Westfalia, Germany
Filed Sept. 26, 1972, Ser. No. 292,470
Claims priority, application Spain, Sept. 27, 1971, 395457; Nov. 12, 1971, 396949
Int. Cl. E01g *5/08, 5/16*
U.S. Cl. 61—84 **15 Claims**



A plant for use in tunnel constructions and having a drive shield with a cutting head for driving into a working face to advance the tunnel. A plurality of rams which act upon an abutment member are used to drive the shield forwards. The abutment member transmits the forces from the rams to a mass of fluid concrete introduced under pressure and supported on support means such as a tubular shell or series of rings spaced inwardly from the tunnel wall. The concrete when hardened forms a continuous lining for the tunnel wall. Water is removed from the fluid concrete with the aid of filters provided on the abutment member or the support means.

3,834,171
ARRANGEMENT IN HEAT EXCHANGERS

Allan Hilbert Johansson, Enkoping, Sweden, assignor to AB Bahco Ventilation, Enkoping, Sweden
Filed Mar. 14, 1973, Ser. No. 341,282
Int. Cl. F28d *15/00*
U.S. Cl. 62—3 **8 Claims**

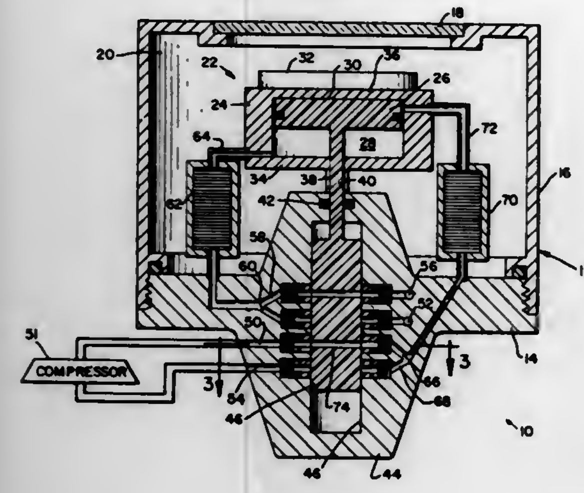


This disclosure related to apparatus for transferring heat between two media located on opposite sides of a partition wall constructed of heat insulating material. A plurality of heat delivering heat pipes extend in spaced relation into one side of the wall and terminate in end portions having at least three equally extensive peripheral planar surfaces defining an equilateral transverse cross-section. A plurality of heat absorbing heat pipes extend in space relation into the other side of the wall and terminate in end portions of the same configuration as the end portions of the heat delivering heat pipes. The heat pipes are grouped and arranged with their respective end portions disposed in spaced overlapping relation and at least one of the end portions has at least three of its planar surfaces in spaced overlapping relation with the respective planar surfaces of at least three oppositely extending heat pipes. Thermoelectric means, having a cold end and a hot end when energized, are disposed between the spaced overlapping planar surfaces and in heat conducting connection therewith whereby heat may be transferred from the heat delivering heat pipes to the heat absorbing heat pipes. The end portions of the heat pipes have transverse cross-sections defining an equilateral triangle, a square, or a regular polygon.

3,834,172
DOUBLE-ACTING EXPANDER ENGINE AND CRYOSTAT

Axel G. Dehne, 6551 W. 83rd St., Los Angeles, Calif. 90045
Division of Ser. No. 310,301, Nov. 29, 1972, Pat. No. 3,788,088. This application Nov. 1, 1973, Ser. No. 411,968
Int. Cl. F25b *9/00*
U.S. Cl. 62—6 **8 Claims**

Double-acting expander engine minimizes shuttle losses by having a cylinder at low temperature along its entire length, minimizes pumping losses by requiring only a thin piston, and minimizes conduction losses by providing a thin piston rod.



Refrigeration capacity is approximately doubled by the double-acting configuration.

3,834,173
ROTARY KILNS

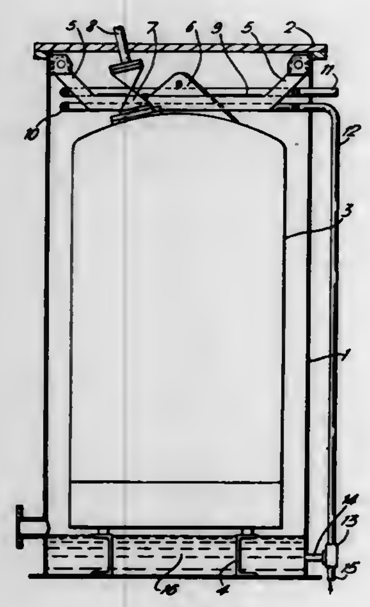
George Marshall Gillies, St. Annes, and James Edgar Littlechild, Lytham, both of England, assignors to United Kingdom Atomic Energy Authority, London, England

Division of Ser. No. 132,649, April 9, 1970. This application June 1, 1972, Ser. No. 258,803

Claims priority, application Great Britain, Apr. 23, 1970, 19664/70; May 11, 1970, 22749/70

Int. Cl. B60h *1/00*

U.S. Cl. 62—46 **4 Claims**



Apparatus for the conversion of a solid material to a gaseous phase by sublimation in which the rate of vaporisation of the solid material is controlled in accordance with the pressure of the gas formed by the conversion. The apparatus finds particular application in the continuous, automatically controlled sublimation of uranium hexafluoride prior to its conversion to uranium dioxide in a gas phase reaction with steam and hydrogen.

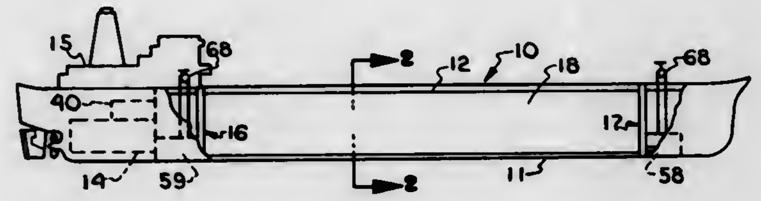
3,834,174
CRYOGENIC TRANSPORTATION METHOD AND APPARATUS THEREFOR

William P. Strumbos, 85 Middleville Rd., Northport, N.Y. 11768

Continuation of Ser. No. 829,207, June 2, 1969, abandoned. This application Feb. 2, 1972, Ser. No. 222,814

Int. Cl. F17c *3/10*

U.S. Cl. 62—47 **16 Claims**



A marine transportation system in which natural gas, oil, and other suitable liquid and liquid and dry bulk cargoes are solidified by freezing so as to permit such cargoes to be shipped by sea safely and efficiently in light-weight, inexpensive carriers. The invention further relates to a sea-going carrier suitable for use in the method wherein the frozen cargo itself provides the necessary structural strength to accommodate the static and dynamic loads imposed on the carrier during the transportation of such bulk materials. A method and means are also provided for freezing large masses of matter efficiently so as to make the transportation method of this invention commercially advantageous. Advantage is also taken of the change of density of substances due to a change of their temperature to regulate the refrigerating means utilized to thereby control the resulting buoyancy of those substances during their transportation by sea.

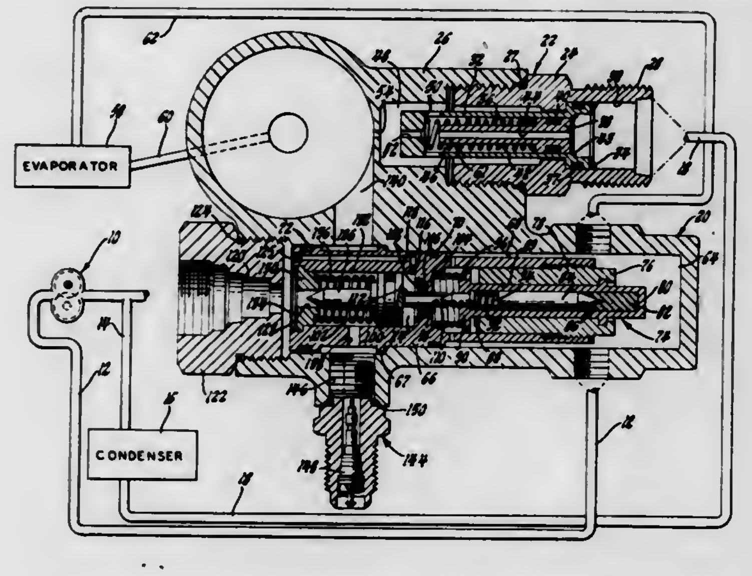
3,834,175
SERVO TEMPERATURE CONTROL VALVE FOR REFRIGERATION SYSTEM

Dana C. Jones, Orlando; Cleo E. Cook, Melrose, both of Fla., and Alfred K. Murray, Dover, N.J., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 31, 1973, Ser. No. 393,424

Int. Cl. F25b *41/00*

U.S. Cl. 62—196 **3 Claims**



A vapor compression type air conditioning system including a defrost control servo valve between the compressor and the evaporator and in bypass relationship to a condenser and expansion valve which directs a metered quantity of warm refrigerant directly to the evaporator to maintain an evaporator temperature above 32° F. A thermostatic element responsive to evaporator refrigerant temperature moves a pilot needle valve which controls the pressure in a variable volume control chamber formed on one end of a piston. A main needle valve extending from the other end of the piston is moved with the piston in response to pressure changes in the control chamber to a location corresponding to the position of the pilot needle valve. The main needle valve coacts with a bypass opening to regulate the quantity of warm refrigerant introduced to the evaporator.

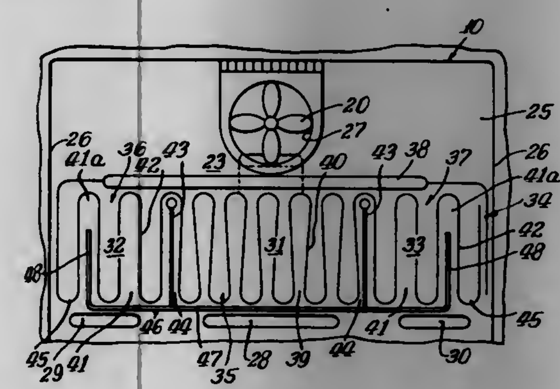
3,834,176
REFRIGERATOR EVAPORATOR CONSTRUCTION

Clarence C. Clarke, Evansville, Ind., assignor to Whirpool Corporation, Benton Harbor, Mich.

Filed Oct. 9, 1973, Ser. No. 404,190

Int. Cl. F25d *21/06*

U.S. Cl. 62—276 **17 Claims**



A refrigerator evaporator construction arranged to provide extended operation between defrosting requirements. The evaporator is defined by different portions having different width passes and the air flow from different portions of the refrigerator is correlated with the width of the passes to provide minimum blocking of the passes by frost buildup. The evaporator defines vertically extending passes and a defrost heater is provided extending upwardly into selected passes providing for facilitated installation and removal. The evaporator enclosure is arranged to define means for bypassing air around a lower end portion of the evaporator in the event of blockage thereof by frost buildup.

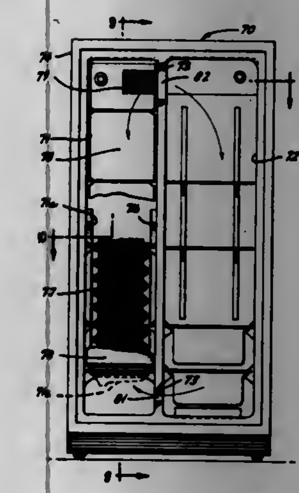
3,834,177
REFRIGERATOR CABINET STRUCTURE AND ITS MANUFACTURE

John A. Scarlett, Richmond, Ind., assignor to Philco-Ford Corporation, Blue Bell, Pa.

Filed Dec. 7, 1972, Ser. No. 311,722

Int. Cl. F25d *21/14*

U.S. Cl. 62—288 **2 Claims**



In the manufacture of refrigerator cabinets of the dual compartment type, using vacuum forming techniques to mold an integrally formed double cavity liner, desired communicating fluid passages are formed between compartments, through confronting liner walls of adjacent compartment sections. While the liners are still in a pliable state, small sections of confronting liner walls at locations where passages are desired; are moved, with relation to one another, toward and into abutting engagement. The liners are then allowed to cool, followed by piercing the engaged liner wall sections to form the desired communicating passages.

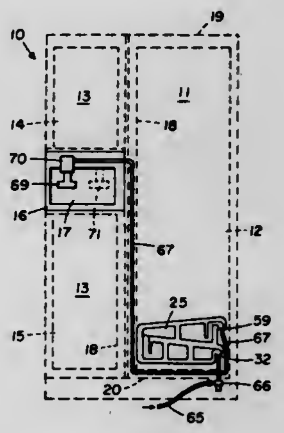
3,834,178
CONTAINER FOR SUPPLYING CHILLED WATER FROM A REFRIGERATOR OR THE LIKE

John J. Pink, Cedar Rapids, Iowa, assignor to Amana Refrigeration, Inc., Amana, Iowa

Filed Oct. 1, 1973, Ser. No. 402,126

Int. Cl. F25d *23/12*

U.S. Cl. 62—338 **8 Claims**



An unpressurized container for dispensing chilled water from a freezer-refrigerator or the like is connected into a water supply line through a valve upstream of the container. The container itself consists of a pair of elongated tanks disposed one above the other and constructed so as to impede mixing of warm water entering the lower tank with chilled water in both tanks as the chilled water is drawn off through an outlet from the upper tank.

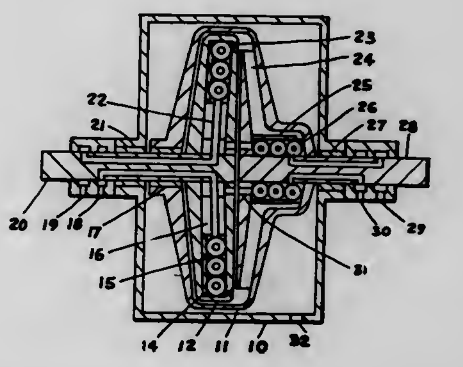
3,834,179
TURBINE WITH HEATING AND COOLING

Michael Eskeli, 6220 Orchid Ln., Dallas, Tex. 75230

Continuation-in-part of Ser. No. 405,628, Oct. 11, 1973. This application Oct. 23, 1973, Ser. No. 408,381

Int. Cl. F25b *3/00*

U.S. Cl. 62—401 **5 Claims**

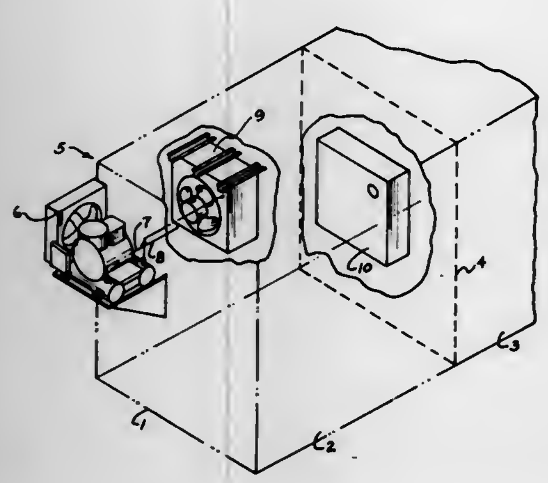


A method and apparatus for generating power by passing a fluid from higher energy level to a lower energy level by compressing said fluid within a centrifuge type first rotor, and discharging said fluid via nozzles near the periphery of said first rotor in a forward direction to a second rotor which is an inward flow type reaction turbine; and then passing said fluid near the center of said rotors back to said first rotor. Heat is being added to said fluid within said first rotor, and heat is being removed from said fluid within said second rotor. Said heat addition is from a heating fluid being circulated within a heat exchanger in said first rotor, and cooling is by a cooling fluid circulated within a heat exchanger in said second rotor. Said first fluid being circulated within said rotors is sealed therein, and is usually gaseous. Said heating and cooling fluids are from external sources and may be either liquids or gases.

3,834,180
HEAT EXCHANGE UNIT

Horace Edgar French, III, Montgomery, Ala., and Harold F. Smith, Garland, Tex., assignors to UMC Industries, Inc., New York, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,213
Int. Cl. F25d *17/04*
U.S. Cl. 62—417 **13 Claims**



In a heat exchanging system wherein a first compartment is disposed for reception of refrigerated air from a refrigerating and condensing unit, a heat exchanging means is provided in communication with the refrigerated air in said first compartment and is arranged for reception of the air from a second compartment, whereby a first circulating member forces the refrigerated air through said heat exchanger to provide for indirect conductive chilling of the air from the second compartment also circulating through said exchanger. The refrigerated air in the first compartment may be maintained at a temperature in the vicinity of 0°F., and through its forced circulation through the heat exchanger provides for chilling of the air in the other compartment to a cooled temperature in the vicinity of 32°F.

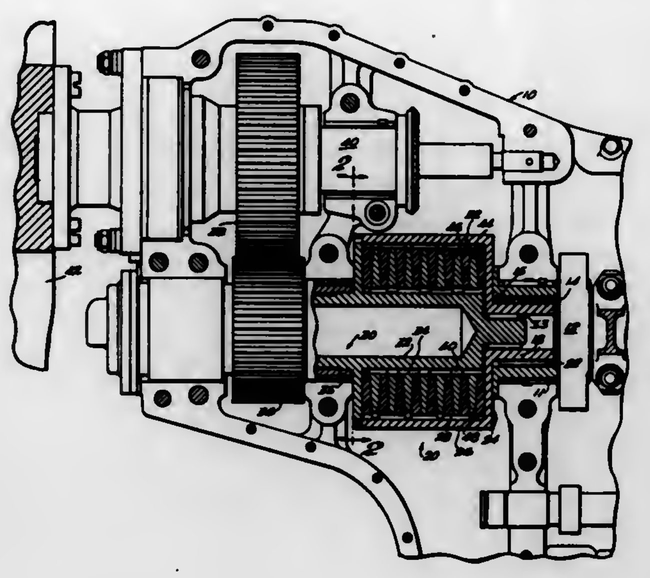
The process of performing this heat exchanging operation includes the steps of first refrigerating the air in said first compartment down to the temperature desired to provide supercooling of food or other products, while a quantity of said air is circulated by fan means through a heat exchanging means and with the concomitant circulation of the air in another compartment also through said means provides for an indirect chilling of the atmosphere in said second compartment to allow chilling of other food products, or the like, stored therein.

3,834,181
AIRCRAFT ENGINE FLEXIBLE COUPLING

Richard N. Strasburg, Williamsport, and Ezra F. Critchlow, Addison, both of Pa., assignors to Avco Corporation, Williamsport, Pa.

Continuation-in-part of Ser. No. 264,771, June 21, 1972, abandoned. This application Oct. 26, 1973, Ser. No. 410,033
Int. Cl. F16d *3/00*
U.S. Cl. 64—1 V **11 Claims**

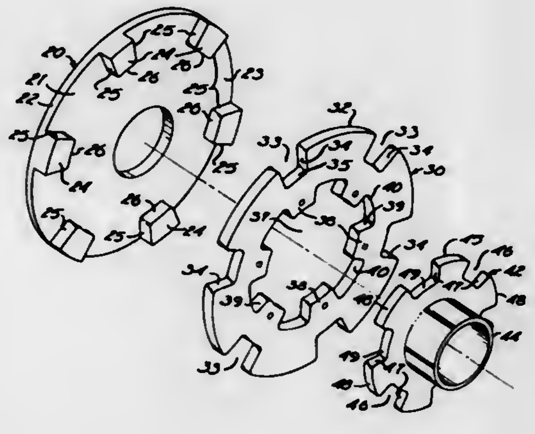
An aircraft engine of the reciprocating type has a flexible coupling interposed in the drive train between the engine crankshaft and a propeller. The flexible coupling includes an elastomeric material having a predetermined stiffness or spring rate. This stiffness is selected so that the resonant frequency of the major order for the combined propeller flexible-coupling crankshaft system is at an R.P.M. above idle but substantially below the engine's cruise R.P.M. The elastomeric compound has an internal damping factor of at least 0.2 to minimize the torsional oscillations during the resonant frequency condition.



3,834,182
FLOATING RING COUPLER

Walter H. Trask, Pasco, and Jack Dixon, Kennewick, both of Wash., assignors to Riggers Manufacturing Company, Kennewick, Wash.

Filed Jan. 22, 1973, Ser. No. 325,954
Int. Cl. F16d *3/18*
U.S. Cl. 64—9 R **3 Claims**



A flexible coupler for connecting nominally coaxial shafts drivingly connected to one another, permitting a limited amount of angular and radial misalignment between the shafts to be accommodated in the coupler. The coupler comprises three basic elements. First in an enlarged cylindrical hub fixed to one shaft. Second is a smaller cylindrical flange fixed to the other shaft in juxtaposition to the hub. Third is a "floating" annular ring also juxtaposed with the hub about the flange. Loose fitting complementary axial lugs and notches interconnect the hub and ring. Loose fitting complementary radial lugs and notches are interfitted between the ring and flange. the flange and ring are located relative to the hub for axial clearance, permitting limited angular misalignment between the two shafts. The flange and circumjacent coupler ring form a planar surface juxtaposed with the inner planar surface of the hub to form a longitudinally compact and rugged flexible drive coupler.

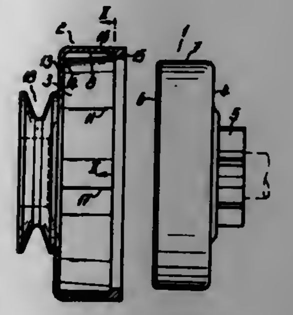
3,834,183
DRIVE CLUTCH

Erich Muller, Beutelsbach, Germany, assignor to Andreas Stihl Maschinenfabrik, Badstrasse, Neustadt, Germany

Filed Jan. 10, 1973, Ser. No. 322,433

Claims priority, application Germany, Jan. 12, 1972, 2201297

Int. Cl. F16d *3/52*
U.S. Cl. 64—15 R **20 Claims**



A drive clutch, especially for detachably connecting a motor to a tool, in which the motor and tool have respective drums connected thereto adapted to be placed in coaxial, coextensive, telescopic relation. A friction element in the radial space between the drums frictionally connects the drums with each other. The friction element may be in the form of an undulating spring carried by one of the drums and engageable with the other.

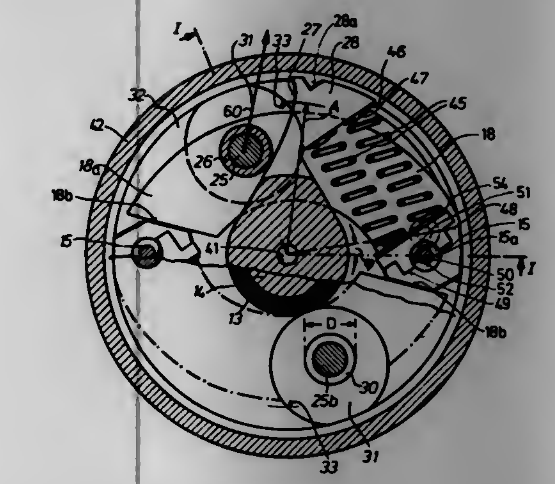
3,834,184
CENTRIFUGAL INJECTION TIMING CONTROL DEVICE FOR FUEL INJECTION PUMPS IN DIESEL ENGINES

Eberhard Hofmann, Kirchberg, Murr, and Hartmut Lehmann, Ditzingen, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed July 3, 1973, Ser. No. 376,186

Claims priority, application Germany, July 27, 1972, 2236832

Int. Cl. F16d *5/00*
U.S. Cl. 64—25 **3 Claims**

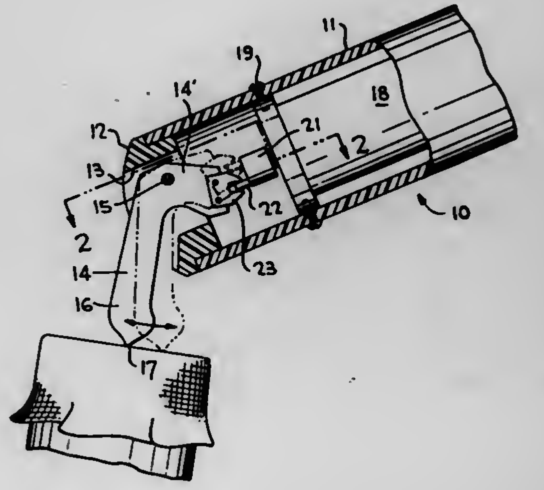


A centrifugal injection timing control device for use with a fuel injection pump having a camshaft, in a diesel engine, is described which device comprises at least one flyweight which swivels against the force of at least one compressible return spring and which changes, by its swivelling movements and in dependence on the rpm of the engine, the mutual rotary position of two coaxially arranged shafts, one of which is the camshaft and serves as the driven shaft, the other shaft being the driving shaft, and which flyweight is supported on a bolt being connected to the driving shaft paraxially with the latter; first abutment means for said return spring, associated with the driven shaft, and second abutment means for the return spring, being supported articulatedly on a stub of the bolt, which stub protrudes in the axial direction from the flyweight on the bolt; and wherein the rpm-dependent characteristic of the relative rotary positions of the two shafts expressed by an adjustment angle ϕ is controllable from a cam track provided on a lever-shaped motion-transmitting member being rigidly connected to the camshaft for movement with the latter, and which device is improved by the provision, as the second abutment means, of a bracket having on its side facing away from the return spring a recess having a bearing face of U-shaped cross section, and means for securing the bracket on the stub against displacement in the axial direction.

3,834,185
APPARATUS AND METHOD FOR MENDING KNIT FABRIC

Lonnie R. Davenport, 410 Hopkinsville St., Princeton, Ky. 42240

Continuation-in-part of Ser. No. 169,702, Aug. 6, 1971, Pat. No. 3,759,068. This application Aug. 20, 1973, Ser. No. 389,439
Int. Cl. D04b *35/00*
U.S. Cl. 66—1 R **16 Claims**



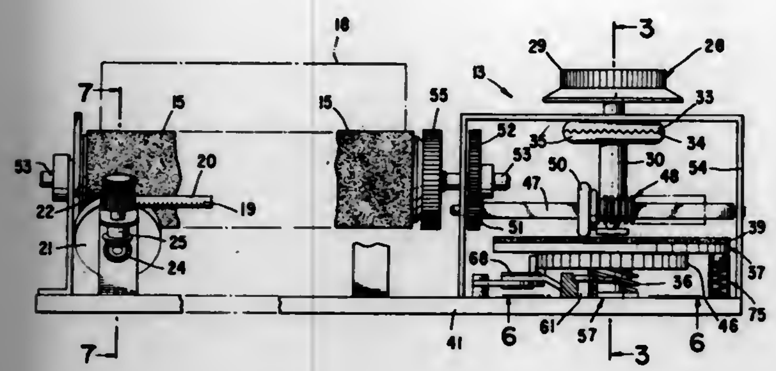
An apparatus and method for mending snags and pulls in knit fabrics, particularly knit fabrics used in apparel such as double knit fabric and light weight fabric with a lock stitch such as "no run" hosiery. The apparatus comprises a reciprocative blade member whose tip traces an arc of relatively large curvature, i.e., a substantially or near linear path. The blade is driven from an electric motor through a pin-slot drive mechanism. The method includes the step of applying the reciprocating blade tip to a piece of snagged fabric that is stretched over a mending cup such that the path traced by the blade tip corresponds to the "pull thread line" formed by the distorted knit stitches until the yarn loop is drawn back into the fabric and the distorted stitches resume their original shape.

3,834,186
KNIT CONTOUR UNIT FOR A KNITTING MACHINE

Howard D. Rogers, Westfield, and Henry Schaeflern, Pittstown, both of N.J., assignors to The Singer Company, New York, N.Y.

Filed Nov. 9, 1973, Ser. No. 414,557
Int. Cl. D04b *35/00, 37/00*
U.S. Cl. 66—1 R **8 Claims**

A knit contour unit for a knitting machine in which an input member, drivable by reciprocation of the carriage of the machine, is operatively connected to pattern advancing means through engagement with a drive plate which imparts movement to an input member. The extent of the incremental movement transmitted by the output member to the pattern advancing means is controlled by the selective positioning of the output member on the drive plate. A dial selector is rotatably and depressably mounted in the frame of the unit and automatically effectuates disengagement of the drive plate from the output member when repositioning of the output member is to be effected.



3,834,187
CAM SYSTEM FOR DOUBLE CYLINDER KNITTING MACHINE

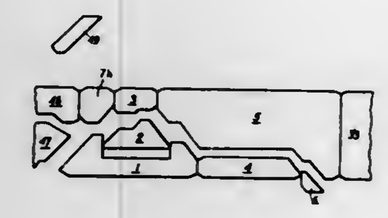
Pavel Zahradka, Trebic; Libuse Bozejovska, Predin u Trebice, and Alena Dvorakova, Trebic, all of Czechoslovakia, assignors to Elitex Zavody textilniho Strojirenstvi generalni reditelstvi, Liberec, Czechoslovakia

Filed June 16, 1972, Ser. No. 263,691

Claims priority, application Czechoslovakia, June 18, 1971, 4512-71

Int. Cl. D04b *9/10, 15/68*

U.S. Cl. 66—14 **4 Claims**



A two cylinder multifeed knitting machine having a cam system for controlling swingagle selectors and their associated needle jacks and needles; the machine is provided with a patterning device adapted to act upon the selectors and thus select needles for transfer into operative position.

3,834,188
SPRING LOADED PATTERN DRUM FOR EASE OF PATTERN JACK INSERTION

Jorge Rectoret Comas, calle Santalo, 96, Barcelona, Spain

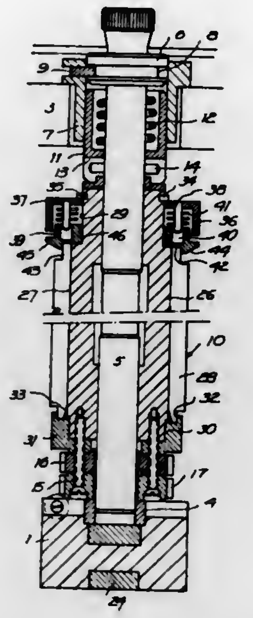
Filed June 5, 1972, Ser. No. 259,387

Claims priority, application Spain, June 8, 1971, 392470

Int. Cl. D04b *15/74*

U.S. Cl. 66—50 B **2 Claims**

A pattern drum for a knitting machine has two overhanging rings or flanges to retain the pattern drum jacks against the drum, one of the rings or flanges being axially movable to allow fitting of the pattern drum jacks. The movable ring may be resiliently urged into to the pattern drum jack retaining position.



3,834,189
WARP KNITTING MACHINE

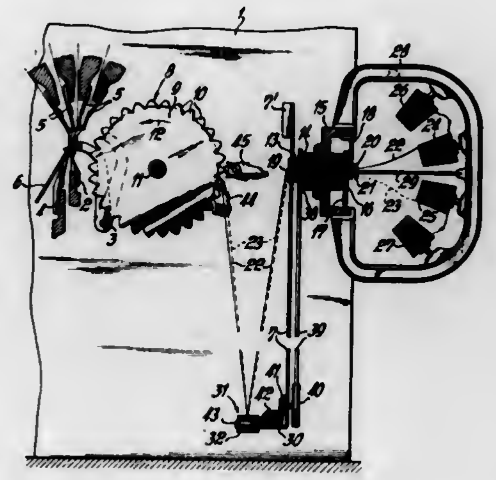
Heinz Kamp, Rickelrath; Willi Wilms, and Volker Reichardt, both of Monchengladbach, all of Germany, assignors to W. Schlafhorst & Co., Monchengladbach, Germany

Filed Mar. 16, 1973, Ser. No. 342,043

Claims priority, application Germany, Mar. 17, 1972, 2212935; Sept. 14, 1972, 2245115

Int. Cl. D04b *23/06*

U.S. Cl. 66—84 A **14 Claims**



A warp knitting machine, particularly of the Raschel type, is provided with a device for inserting a weft thread into the knitted loops wherein a crank-shaped thread laying device is provided with a thread guide which is operable to undo the twist which occurs during the revolving movement of the thread laying device, thereby making it possible to draw, for example, two weft threads, which may be of different color or composition, simultaneously from the weft thread supply reels. A weft thread storer is provided which consists preferably of two storage discs facing each other and which is movable in the direction toward the knitting needles. The warp knitting machines can produce knitted goods whose appearance and properties correspond to those of woven goods, but where the knitted product can be manufactured at substantially higher production speeds than the woven product.

3,834,190
LATCH OPENER APPARATUS FOR KNITTING MACHINES AND PARTICULARLY CIRCULAR KNITTING MACHINES

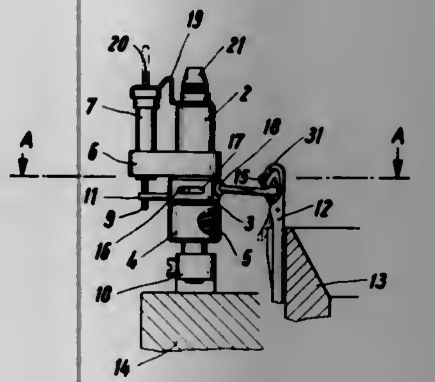
Falk Kuhn, Kiebingen, Germany, assignor to Fouquet-Werk Frauz & Planck, Rottenburg am Neckar, Germany

Filed June 13, 1972, Ser. No. 262,380

Claims priority, application Germany, June 18, 1971, 2130143

Int. Cl. D04b *15/08, 35/10*

U.S. Cl. 66—111 **7 Claims**



A tubular housing retains a spirally wound torsion spring, which is locked in one position and bears against a rotatable carrier which carries the latch opener itself in the form of a hook having a first bend, the inside corner of which may be formed as a cutting edge; and a second bend at an obtuse angle engaging the latches of the needle. If a needle latch should not open, or the needle be bent, the latch opener swings against the force of the torsion spring, thus tripping a shut-off switch to stop the machine, and simultaneously giving an indication by an indicator lamp which latch opener has tripped.

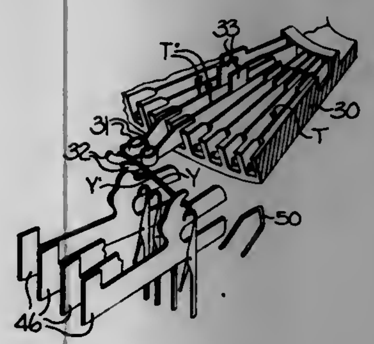
3,834,191
FABRIC SLITTING METHOD AND APPARATUS FOR CIRCULAR KNITTING MACHINE

Oscar Fregeolle, Hickory, N.C., assignor to Pilot Research Corporation, Valdese, N.C.

Filed June 12, 1969, Ser. No. 832,795

Int. Cl. D04b *33/00*

U.S. Cl. 66—147 **10 Claims**



Selected transfer bits or jacks pick up and hold the yarn at each knitting station while it is knit on needles positioned adjacent sides of the held loops. The loops held on the transfer jacks then move into engagement with a cutting device to sever the yarn and thereby slit the fabric in a walewise direction as it is being knit on a circular knitting machine. The cutting device is disclosed as either a heated wire or a mechanical cutter.

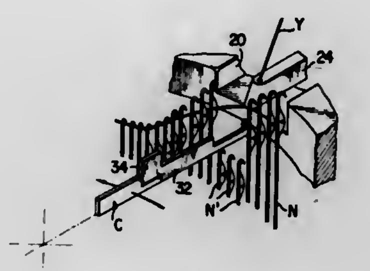
3,834,192
METHOD AND APPARATUS FOR SLITTING FABRIC ON A CIRCULAR KNITTING MACHINE

Benjamin Giraud, Valdese, N.C., assignor to Pilot Research Corporation, Valdese, N.C.

Filed Feb. 28, 1969, Ser. No. 803,209

Int. Cl. D04b *35/00*

U.S. Cl. 66—147 **11 Claims**



Seamless tubular fabric is slit in a walewise direction as it is being knit on a circular hosiery knitting machine by means of the present method and apparatus. The slitting apparatus includes a hooked element which is moved outwardly beyond the needle circle to pick up and hold the yarn as it is fed to and knit on needles positioned adjacent opposite sides of the hooked element, and means is provided for subsequently severing the yarn held in the hooked element to thereby form a slit in the fabric as it is knit.

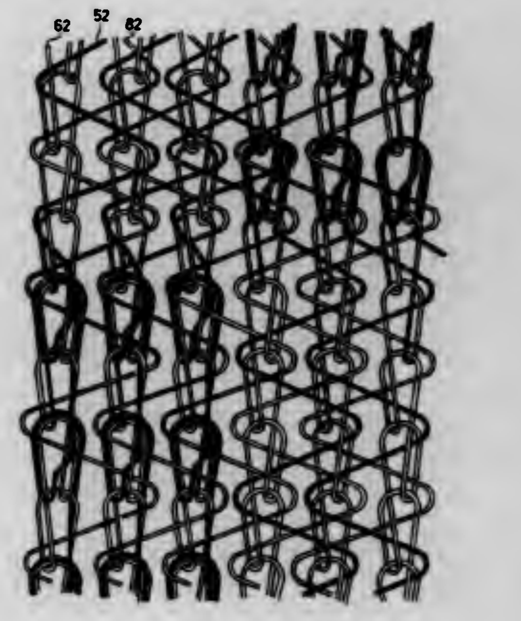
3,834,193
PROCESS FOR THE PRODUCTION OF MULTI-COLORED SINGLE FACE WARE

Christian Peter Wilkens, Obertshausen, Germany, assignor to Karl Mayer Textilmasschindnfabrik GmbH, Obertshausen, Germany

Filed Apr. 2, 1973, Ser. No. 347,255

Int. Cl. D04b *21/00*

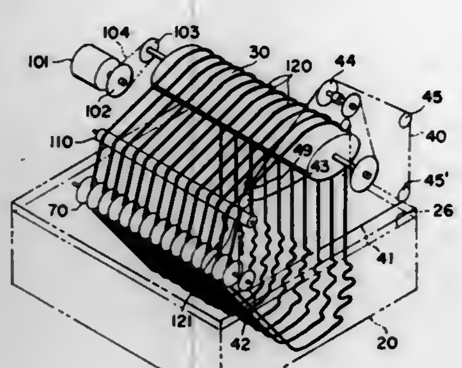
U.S. Cl. 66—195 **5 Claims**



A method for the production of a multi-colored type of single face ware utilizing a Raschel type warp knitting machine fitted with a jacquard attachment. Thread utilization by the guidelines is equalized by causing certain jacquard guide bars, namely these laying the threads on the technical back of the ware, to perform a lap additional to that performed by the remaining jacquard bars corresponding in thread utilization to the thread utilization of the guide bar laying the ground structure of the ware in the same course.

3,834,194
APPARATUS AND FLUID TREATMENT FABRIC IN ROPE FORM

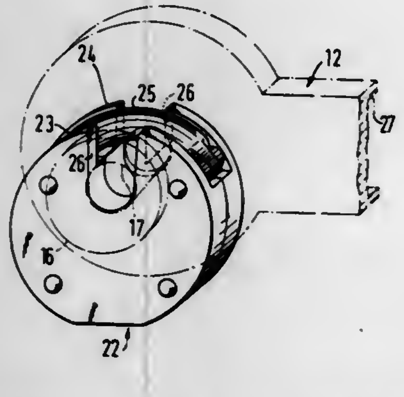
E. Stanway, Prestbury, near Macclesfield, England, assignor to United Merchants and Manufacturers, Inc., New York, N.Y.
Filed Oct. 4, 1972, Ser. No. 294,914
Claims priority, application Great Britain, Mar. 24, 1972, 13962/72
Int. Cl. B05c *3/132*; **G11b** *15/28*; **B65h** *75/02*
U.S. Cl. 68—176 **9 Claims**



Apparatus and method for passing a continuous length of textile fabric rope in a spiral path through a liquid treatment bath. One end of the rope is engaged and repeatedly wound by a conveyer mechanism about a scroll member and a winch roller. The invention particularly relates to a control system which senses the winch speed and independently actuates both the conveyer and the scroll by emitting a separate control signal for each, thereby permitting the scroll to be rotated to a larger number of revolutions than the conveyer mechanism when a wider spacing of rope convolutions is desired. Furthermore, the application enables a method of operation whereby the relative linear speed of the engaged rope end may be maintained at less than the peripheral speed of the winch roller surface but greater than one-third said peripheral speed. By a further aspect of the invention, the scroll member which guides the rope in spiral convolutions is structured to provide on one side thereof guide recesses which extend perpendicularly to the axis of the scroll thereby enabling greater lateral expansion of the rope without requireing an increase in the size of the apparatus or a decrease in the rope length.

3,834,195
HASP AND PADLOCK ARRANGEMENT

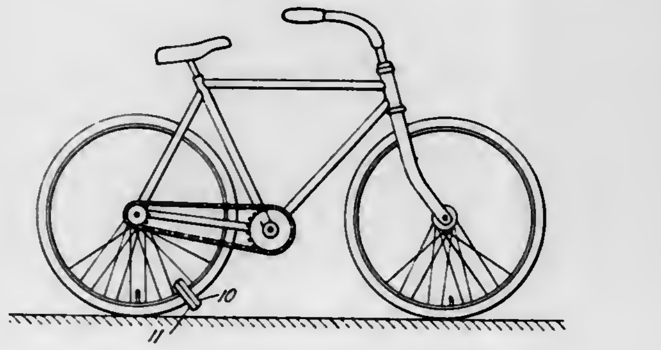
Wolfgang Winkhaus, Telgte, Germany, assignor to Aug. Winkhaus, Telgte/Westphalia, Germany
Filed Mar. 13, 1973, Ser. No. 340,842
Claims priority, application Germany, Mar. 22, 1972, 2213967
Int. Cl. E05b *65/48*
U.S. Cl. 70—8 **8 Claims**



A fastening arrangement of the hasp-and-padlock type is provided with a padlock carrier which is a pin having an axis and carrying a radial flange at its axial end remote from the associated mounting plate. The flange passes through the aperture in the hasp strap, and the shackle of the padlock fits axially between the strap and the flange with very little clearance, thereby protecting the pin. The shackle is protected against a cutting tool or saw by the flange. The dimensions of the flange and strap are selected so that the closed shackle is substantially completely received within the enveloping surface defined by straight lines connecting respective exposed edge portions of the flange and the hasp.

3,834,196
BICYCLE LOCK

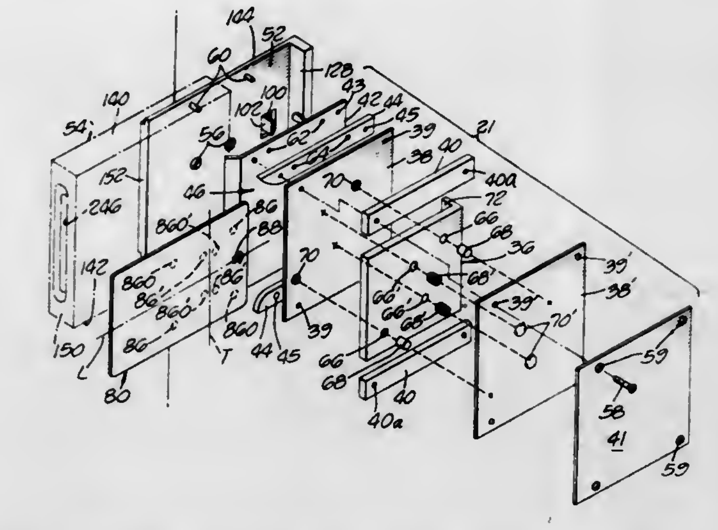
Richard W. Stone, 7235 17th Ave., South, Minneapolis, Minn. 55423
Filed Nov. 1, 1972, Ser. No. 302,754
Int. Cl. B60r *25/00*; **B62h** *5/14*; **E05b** *71/00*
U.S. Cl. 70—18 **5 Claims**



This is a bicycle lock specifically designed to be locked around the wheel of a bicycle to prevent rotation thereof and having sufficiently large cross sectional dimensions to prevent any portion thereof from being received between the jaws of a lever action cutter tool.

3,834,197
HIGH SECURITY, CARD OPERABLE MAGNETIC LOCK

Bruce S. Sedley, Larkspur, Calif., assignor to Greer Hydraulics, Inc., Los Angeles, Calif.
Filed Sept. 21, 1972, Ser. No. 290,861
Int. Cl. E05b *47/00*
U.S. Cl. 70—38 C **20 Claims**



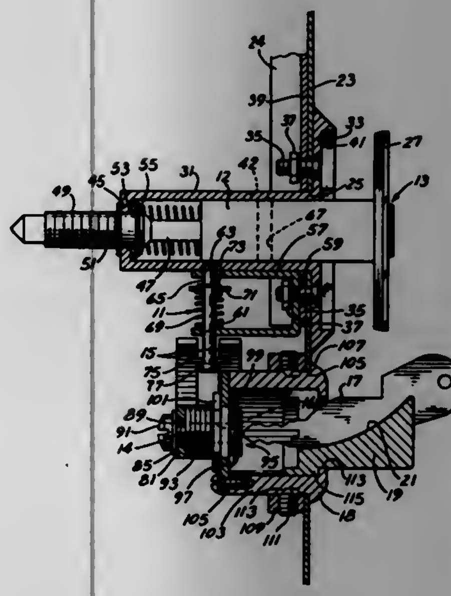
Card operable magnetic lock having tumbler-carrying core sandwiched between two lock plates. The lock plates have locking openings therein adapted to receive the ends of the tumbler magnets carried by the core to prevent relative sliding movement between the core and the lock plates. The pattern of locking openings in the lock plates are complementary in that each locking opening in each lock plate is in alignment with a solid structure or "non-opening" in the other lock plate. A magnetic sheet attracts the tumbler magnets toward one of the locking plates to seat at least one of the magnets in the locking opening in that locking plate, and a card slot disposed between the magnetic sheet and the locking plate is adapted to receive a coded magnetic card having magnetized spots thereon for attracting and/or repelling the tumbler magnets out of the locking openings in the locking plates to permit relative sliding movement between the core and the plates.

In one alternative embodiment the locking plates are removable. In another alternative embodiment such locking plate is provided with a full matrix of locking openings and shields having complementary patterns of holes are provided for coding the lock.

The lock is particularly suited for use in conjunction with door striker release mechanisms, padlocks and other devices which preclude the lock from being mounted in a horizontal position.

3,834,198
LOCK ANTI-PICK DEVICE

Max Wiczer, 9122 Kedvale, Skokie, Ill. 60076
Continuation-in-part of Ser. No. 294,385, Oct. 2, 1972, Pat. No. 3,765,199. This application Feb. 21, 1973, Ser. No. 334,394The portion of the term of this patent subsequent to Oct. 16, 1990, has been disclaimed.
Int. Cl. E05b *13/08*, *5/04*
U.S. Cl. 70—208 **8 Claims**

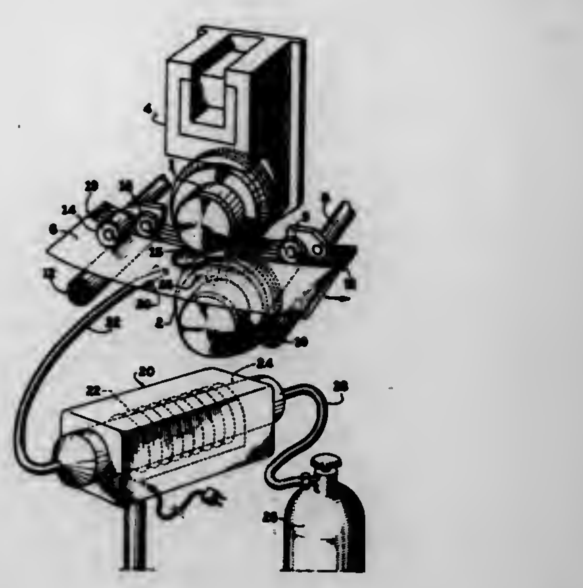


An anti-pick device for a lock is described which includes means for disabling the lock, and means including a key slot for operating the disabling means. A housing is mounted over the key slot entrance and a key holder is mounted slidably in the housing for movement along the path aligned with the key slot. A recess is provided in the key holder extending transversely of the path of movement of the key holder for receiving the key and supporting the key in alignment with the key slot.

3,834,199
METHOD AND MACHINE FOR CORRUGATING OR PLEATING SHEET METAL

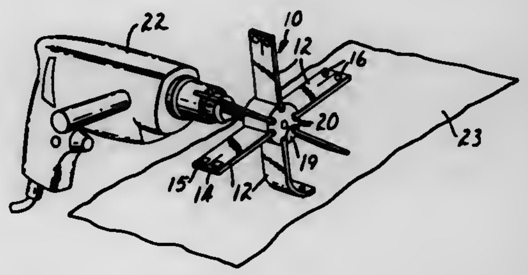
Georges Aimable Theophile Rouyer, Paris, and Maurice Henri Louis Fremont, Calmart, both of France, assignors to Societe National Industrielle Aerospatiale, Paris, France
Filed Feb. 13, 1973, Ser. No. 332,142
Claims priority, application France, Feb. 16, 1972, 72.5138
Int. Cl. B21b *9/00*
U.S. Cl. 72—38 **6 Claims**

In order to corrugate or pleat between forming rolls sheet metal irrespective of its ductility while containing the blister formed at the end of the corrugation or pleat in the course of formation, the sheet is heated locally, at a short distance upstream of the rolls, to a temperature capable of rendering the sheet ductile. The rolls are protected against harmful heating by the distance between the heating region and the forming rolls.



3,834,200
HIGH INTENSITY SHOT PEENING

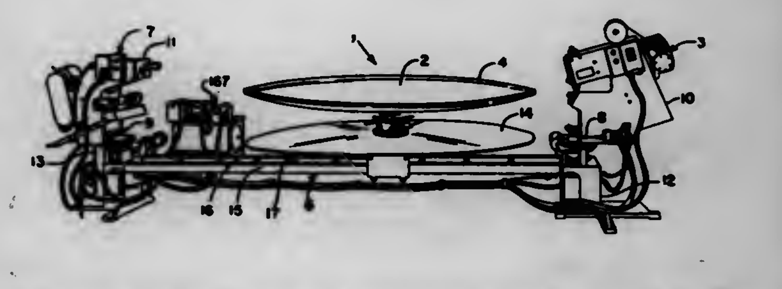
Phillip M. Winter, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of Ser. No. 244,510, April 17, 1972, abandoned. This application July 16, 1973, Ser. No. 379,249
Int. Cl. C21d *7/06*
U.S. Cl. 72—53 **17 Claims**



A high intensity peening flap construction comprising an elongate strap having at least one metal peening particle support base mechanically fastened adjacent one end thereof and a plurality of refractory hard, impact fracture resistant peening particles metallurgically joined to an exposed face of the support base.

3,834,201
APPARATUS FOR FORMING A MARGINAL EDGE PORTION OF METAL WORK PIECES

Wayne E. Willard, Independence, Mo., assignor to Blue Valley Machine and Manufacturing and Company, Kansas City, Mo.
Filed May 7, 1973, Ser. No. 358,084
Int. Cl. B21d *19/12*
U.S. Cl. 72—70 **10 Claims**



An apparatus for forming a marginal edge portion of metal work pieces includes a trimming unit adapted to trim a marginal edge portion of a work piece to a shape in accord with the shape of a template. The work piece is rotatably mounted on a carriage movably along an elongated track between the trimming unit and a forming unit adapted to bend of form the marginal edge portion of the work piece. The carriage is substantially freely movable along the track and the trimming unit and the forming unit each have heads mounted to turn about vertical axes and each have roll portions for gripping marginal portions of the work piece. Template followers are arranged for each head and spaced from and in leading relation to the respective vertical axis of the head. The template followers are operatively connected through servo mechanism to respective head portion turning members whereby the heads are turned to maintain the work piece advancing into the gripping rolls for operative engagement with the respective head portion of the trimming unit or forming unit.

3,834,202

METAL STRIP STRAIGHTENING MACHINE

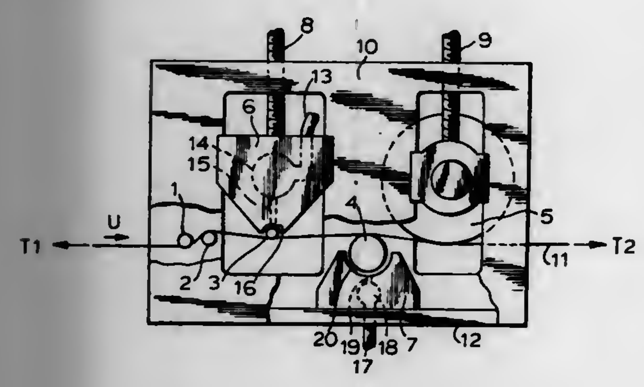
Kiyoshi Kawaguchi, Kudamatsu; Kaoru Shoge, Tokuyama, and Kenji Ono, Kudamatsu, all of Japan, assignors to Toyo Kohan Co., Ltd., Tokyo, Japan

Filed Sept. 12, 1973, Ser. No. 396,365

Claims priority, application Japan, Apr. 24, 1973, 48-45740

Int. Cl. B21d *1/02*

U.S. Cl. 72—163 **5 Claims**



The present invention relates to an apparatus for correcting warps such as gutter and curl in a metal strip. The apparatus comprises a small roll which is preceeded by rolls for correcting defects in the shape of the metal strip such as edge wave, full center and quarter buckle and said small roll is followed by at least one medium roll. The small and medium rolls are supported by a film of pressurized liquid and the rolls rotate freely in contact with the moving metal strip, which is bent under tension by said small and medium rolls. The gutter and curl defects are thus each completely eliminated independently of the other.

3,834,203

STRAIGHTENING MACHINE

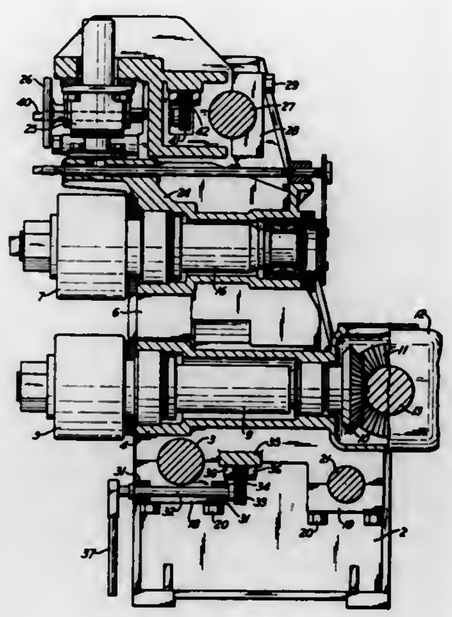
Elbert Gordon Thompson, State College, Pa., assignor to Sutton Engineering Company, Pittsburgh, Pa.

Filed Nov. 30, 1972, Ser. No. 310,974

Int. Cl. B21d *1/02*

U.S. Cl. 72—164 **3 Claims**

The ends of a horizontal bar are secured to the spaced end housings of a straightening machine. Mounted on the bar are housings for two vertically spaced rows of rolls, the housings in the lower row alternating with the housings in the upper roll. During straightening, the housings for the upper rolls press upwardly on the bar while the housings for the lower rolls press downwardly on it.



3,834,204

MACHINE FOR WRAP FORMING METAL STRIP AS IT IS UNCOILED

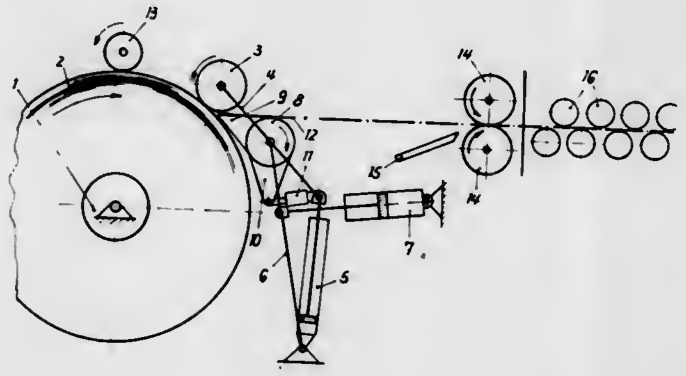
Josef Ihle, Pforzheim, Germany, assignor to Frau Irma Ungerer, Pforzheim, Germany

Filed Mar. 22, 1973, Ser. No. 343,788

Claims priority, application Germany, June 10, 1972, 2227398

Int. Cl. B21c *47/16*

U.S. Cl. 72—183 **17 Claims**



First controlled means are provided to impart a pivotal movement to a primary pivoted lever, to which a secondary pivoted lever is pivoted. Second controlled means are provided to impart to said secondary pivoted lever a pivoted movement relative to said primary pivoted lever. A processor roll is mounted on said secondary pivoted lever and engageable with the periphery of a coil of strip to be uncoiled. Said first and second controlled means are operable to hold said processor roll in engagement with the periphery of said coil as the latter decreases in diameter during the uncoiling of said strip.

3,834,205

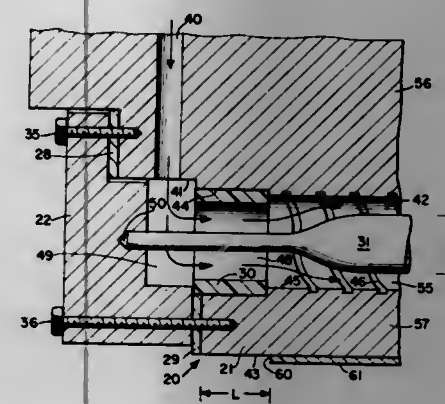
SELECTIVELY INSULATED MILL ROLL

Gustav A. Maag, Crestview Hills, Ky., and John E. Callaham, Marbrough, Mo., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Dec. 20, 1972, Ser. No. 316,809

Int. Cl. B21b *27/08*

U.S. Cl. 72—201 **2 Claims**



An improved mill roll having means for having flowable heat transfer medium circulated therethrough in close proximity to its working surface for effecting temperature control of the working surface in which roll selective insulation is provided to obviate overaffecting non-working portions of the mill roll. The improved mill roll may further comprise rods disposed within its medium-conducting passageways for the purpose of increasing the velocity of medium therethrough for any given rate of medium flow. Such rods may be configured to profile the velocity of medium through the passageways so that areas of the roll subjected to the highest head loads are contacted by the highest velocity medium and vice versa. The improvements reduce the distortion of mill rolls which would otherwise occur due to thermal gradients.

3,834,206

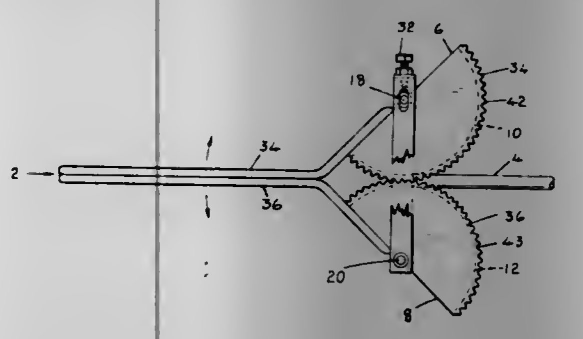
PORTABLE PRESS FOR REDUCING THE SIZE OF TUBING

Edmond Joseph Honore Lamontagne, 1003 Michigan Ave., Sarnia, Canada (N752B3)

Filed Apr. 6, 1973, Ser. No. 348,582

Int. Cl. B21d *41/04*

U.S. Cl. 72—211 **3 Claims**



For reducing the size of a length of tubing, a portable press with two grooved members is provided. The members are arcuate and are mounted so that an opening, with a slightly greater cross sectional size than, but the same shape as, that to which the tubing is to be reduced is defined between the grooves. The members are movable so that the tubing can drawn longitudinally through the opening by friction between the tubing and the movable member, thereby reducing its size.

3,834,207

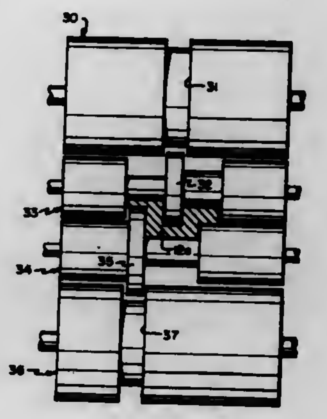
METHOD AND APPARATUS FOR FORMING AN ACCURATELY DIMENSIONED METAL STRIP HAVING VARYING THICKNESS

Roger E. Laigle, Torrington; Antone F. Rakich, Waterbury, both of Conn., and William J. Sivakoff, Buffalo, N.Y., assignors to Anaconda American Brass Company, Waterbury, Conn.

Filed Aug. 30, 1972, Ser. No. 285,015

Int. Cl. B21b *29/00, 1/08*

U.S. Cl. 72—241 **3 Claims**



A method and apparatus for forming an accurately dimensioned metal strip having a plurality of thicknesses in which a feed strip is passed through a pair of work rolls, one or both of which has a raised portion for forming the desired shape during the reduction, wherein both work rolls are supported by back-up rolls which rotate in engagement with the work rolls with one or both of the back-up rolls having a notched recess to accommodate raised portions of the work roll.

3,834,208

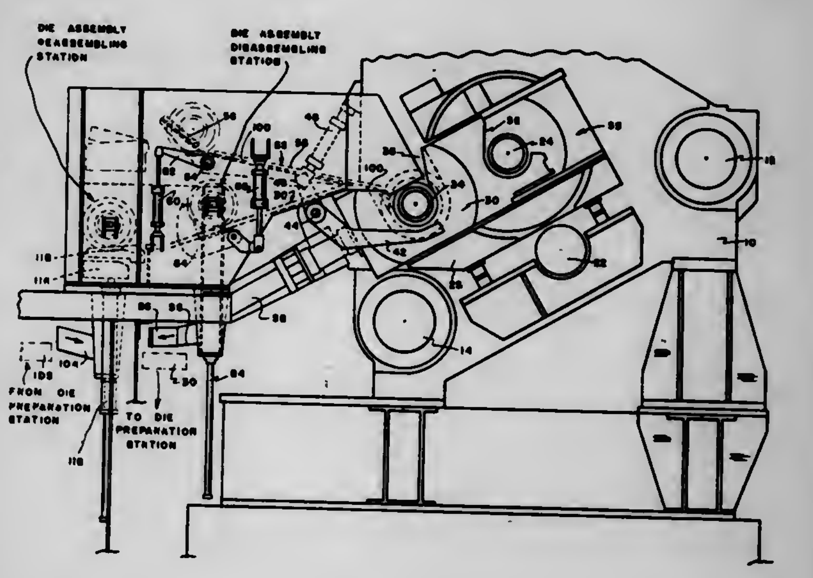
DIE CHANGING APPARATUS

Herbert K. Schmidt, Springfield, Pa., assignor to Wean United, Inc., Pittsburgh, Pa.

Filed May 25, 1973, Ser. No. 364,172

Int. Cl. B21c *23/00*

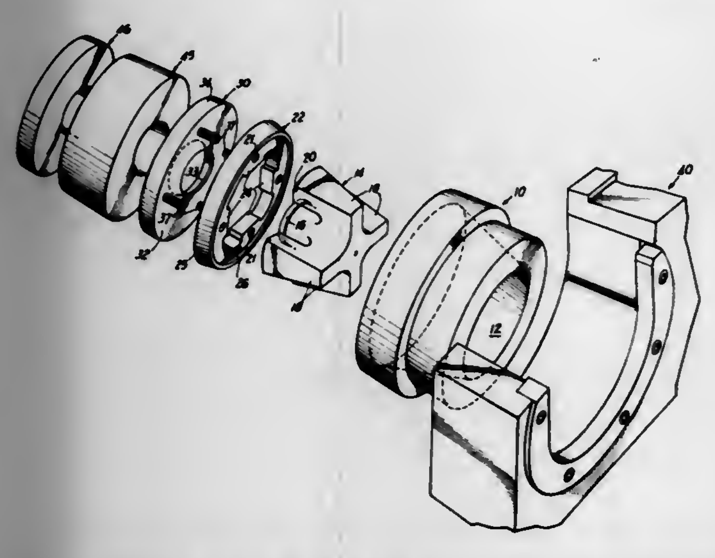
U.S. Cl. 72—263 **11 Claims**


DIE ASSEMBLY REASSEMBLING STATION
DIE ASSEMBLY DISASSEMBLING STATION
FROM DIE PREPARATION STATION
TO DIE PREPARATION STATION
100
24
30
14
10
22
28
44
42
104
118

This disclosure pertains to a die changing device for an extrusion press. The die assembly comprises a die holder, a backing plate and the die, in which connection a new die assembly is installed in the press after each extrusion operation. The new assembly is installed in the press and used while the three components of a previous assembly are automatically separated from each other and the die transferred to a cleaning and cooling station, after which the three components are automatically reassembled and held in readiness to be installed in the press for the next extrusion operation.

3,834,209
EXTRUSION DIE

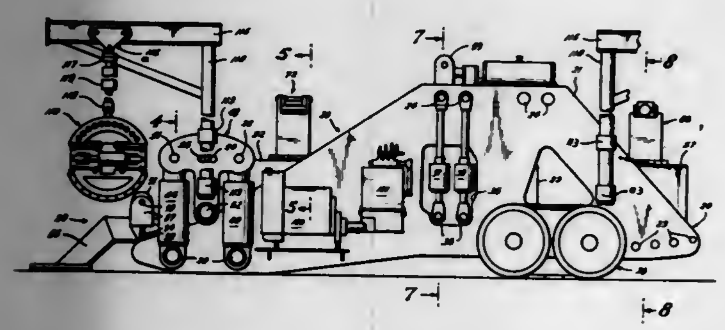
Harry M. Robertson, P.O. Box 291, Raymond, Ga. 30271
Filed Mar. 30, 1973, Ser. No. 346,352
Int. Cl. B21c *25/04*
U.S. Cl. 72—269 **15 Claims**



An extrusion die is disclosed for forming tubular extrusions from billets. The extrusion die comprises a die ring having an interior surface defining a bore. A spider is positioned within the die ring bore having a mandrel and a plurality of angularly spaced legs disposed against the die ring bore surface with the leg ends disposed in spaced relation with the mandrel. A sealing ring is positioned within the die ring bore in abutment with the spider leg ends and with the die ring bore surface, the sealing ring having a central aperture and a planar surface disposed transverse the bore axis. A die cap is provided having a planar surface disposed in abutment with the sealing ring planar surface and having an aperture extending through the die cap from a rim within the die cap planar surface, the rim being disposed in spaced relation about the mandrel. Means are also provided for holding the die cap and spider together with the sealing ring sandwitched therebetween.

3,834,210
PIPE BENDING SYSTEM

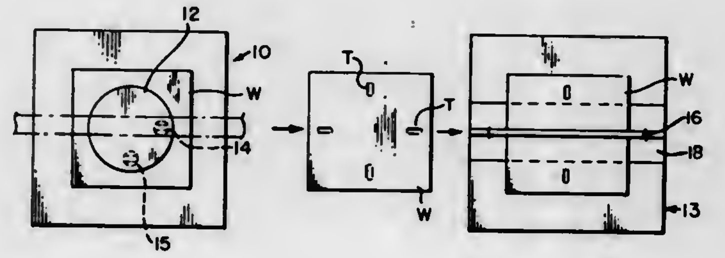
Edward A. Clavin; Lionel H. Wheeler, both of Houston, Tex.; Robert E. Brooks, Jr., and Wallace Clealon Campbell, Jr., both of Tulsa, Okla., assignors to CRC-Crose International, Inc., Houston, Tex.
Filed June 6, 1972, Ser. No. 260,275
Int. Cl. B21d *9/05*
U.S. Cl. 72—308 **22 Claims**



An improved pipe bending system including a pipe bending machine and an internal pipe supporting mandrel. The pipe bending machine comprises a main frame having connected thereto directly or indirectly a bending die, a stiffback, and a stiffback clamp, a pin-up shoe and a pin-up clamp, an internal stiffback support, and an internal pin-up support. The internal pipe supporting mandrel includes an upper assembly having a plurality of elongated inflatable bags attached thereto, a lower assembly, and means connecting the upper and lower assembly for moving them apart and into engagement with the interior of the pipe. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,834,211
A METHOD OF MANUFACTURING MULTIPLE PARTS FROM A WORKPIECE

Dennis Daniels, Bellevue, Wash., assignor to US Amada, Ltd., Seattle, Wash.
Filed Nov. 6, 1972, Ser. No. 304,102
Int. Cl. B21k *27/06*
U.S. Cl. 72—324 **7 Claims**

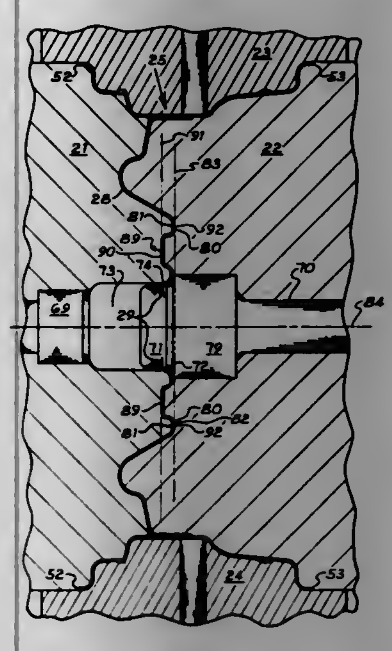


A workpiece from which multiple parts are to be separated is provided with tabs placed in the workpiece during numerically controlled punching operation. The tabs extend from the body of the workpiece and are provided with two cut edges parallel to each other and to lines of division for separating the part from the workpiece. Shearing of the part from the workpiece is accomplished by positioning the workpiece relative to the shearing knife by the use of the edges of the tabs. A die having parallel edges spaced apart the same distance as the edges of the tab is aligned with a shearing knife. A single tab placed in the die will position the workpiece along an axis and will restrict rotation of the workpiece. The tab will be removed when the part is sheared from the workpiece. The article is thus a flat piece of metal provided with a plurality of tabs positioned along lines of division of the parts to be separated from the workpiece with the long edges of the tabs overlying lines of division so that the tabs are separated from the article as parts are removed.

3,834,212
APPARATUS FOR FORMING METAL WHEELS

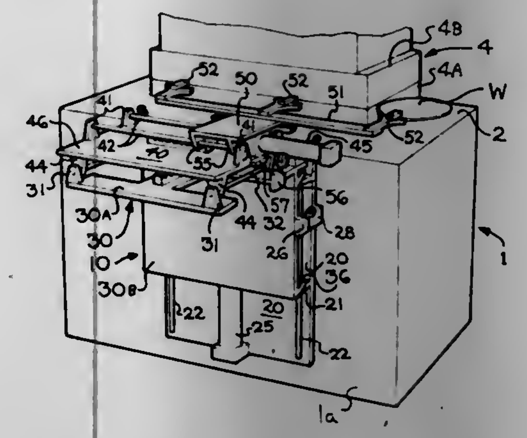
Ralph E. Roper, Indianapolis, Ind., assignor to Wallance Expanding Machines, Inc., Indianapolis, Ind.
Continuation-in-part of Ser. No. 314,121, Dec. 11, 1972, abandoned, which is a division of Ser. No. 144,155, May 17, 1971, Pat. No. 3,729,795. This application Dec. 19, 1973, Ser. No. 425,976
Int. Cl. B21d *22/00*
U.S. Cl. 72—354 **11 Claims**

A method and apparatus for forming metal wheel assemblies having a rim and attached spider. A pair of outer dies complementary to the final radial form of the wheel rim are moved together to enclose an annular metal workpiece. A pair of opposed conical dies are then moved interiorly of the outer dies and annular workpiece. Each conical die has an annular stuffing ledge which contacts the edge of the workpiece. Force is then exerted against the workpiece edges so as to plastically regenerate the workpiece between the conical dies and outer dies; thus, providing thickening of the material in desired areas. A spider extending across the workpiece is axially loaded with the conical dies causing plastic deformation of the spider. A center rod mounted to and projecting from one of the conical dies is concentric with the conical dies and extends through the spider as the spider plastically deforms therearound. A groove formed in one of the conical dies forms a seating ridge in the spider which is defined by a plane perpendicular to the longitudinal axis of the wheel rim. A plurality of seating bosses are formed into the spider by the conical dies.



3,834,213
WORKPIECE TRANSLATION MECHANISM FOR TRANSFER DIE PRESS

William G. Henzler, Toledo, and Norman J. Gressman, Sylvania, both of Ohio, assignors to Hanzler Mfg. Corp., Toledo, Ohio
Filed Feb. 12, 1973, Ser. No. 331,788
Int. Cl. B21j *11/00*
U.S. Cl. 72—405 **1 Claim**

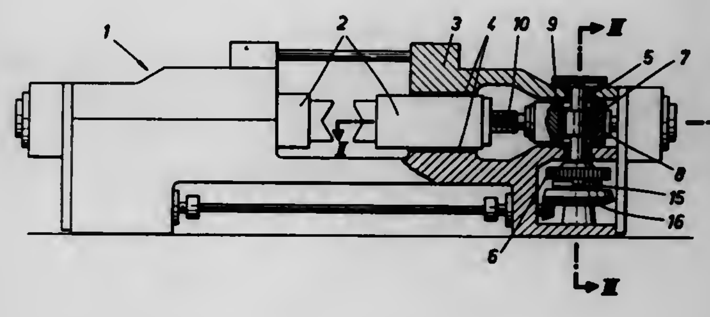


This invention relates to a workpiece translation mechanism for moving a workpiece through successive stations of a transfer stamping die. The necessary vertical and horizontal movements of the workpiece are accomplished by the cooperation of a plurality of plates which are respectively journalled to each other for reciprocal sliding vertical or horizontal relative motions. Hydraulic cylinders are employed which are operatively connected between the various plates and successively actuated to provide the desired horizontal and vertical motions of a workpiece carrier.

3,834,214
FORGING PRESS

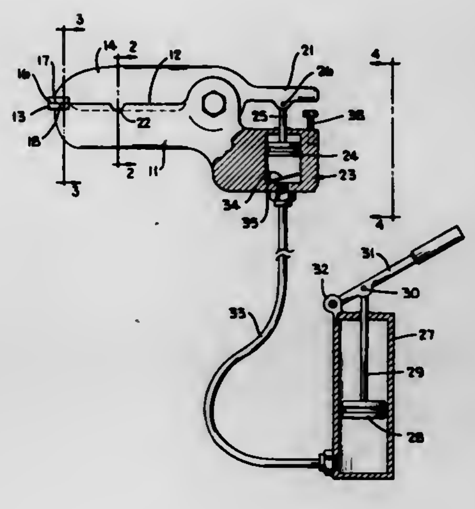
Bruno Kralowetz, St. Ulrich 142, Steyr, Austria
Filed Apr. 25, 1973, Ser. No. 354,389
Claims priority, application Austria, June 9, 1972, 4975/72
Int. Cl. B21j *9/18*
U.S. Cl. 72—407 **2 Claims**

A forging press comprises two press rams slidably movable against each other in rigid slide tracks by a drive including, for each ram, two eccentric shafts coupled for rotation in opposite senses, an eccentric carried by each shaft, a respective slide block surrounding each eccentric, an elliptic chuck containing the two slide blocks, a rotatable screw and thrust rod member extending centrally through the chuck between the slide blocks and having at one end screw threads in threaded engagement with screw threads on the associated press ram, and being corotationally connected at its other end to an adjusting gearing. The rod member is axially displaceable relative to the gearing.



3,834,215
PORTABLE HYDRAULIC STRIP SEALER AND CUTTER

Luther H. Lemley, Lafayette, Ind., assignor to Willen Corporation, Rushville, Ind.
Filed Nov. 24, 1972, Ser. No. 309,166
Int. Cl. B21d *43/28*
U.S. Cl. 72—410 **10 Claims**



A hydraulically operated tool operable to cut a steel strip and also operable to crimp a seal on the strip. A top blade is pivotally mounted to a bottom block with the cutting edge of the blade received by a groove in the top surface of the block. A second groove extends across the block for receiving and holding the strip during cutting. The distal ends of the blade and block have mating flat surfaces which are forced together to crimp a seal on the strip. In one embodiment, a pair of hydraulic cylinders are mounted to the block and are operable by a pair of handles to close the blade with respect to the block. In another embodiment, one hydraulic cylinder is mounted to the block whereas the second hydraulic cylinder is separate from the blade and block but is connected to the first hydraulic cylinder by a high pressure conduit.

3,834,216
FORGING PRESS

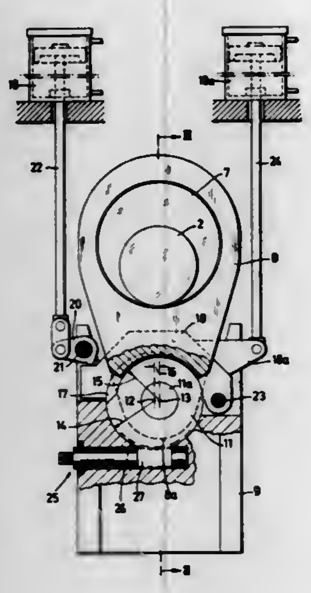
Werner Schiller, Leverkusen; Peter Obladen, Schildgen, and Leonhard Peters, Duisburg, all of Germany, assignors to Eumuco Aktiengesellschaft fur Maschinebau, Leverkusen, Germany

Filed June 27, 1973, Ser. No. 374,221

Claims priority, application Germany, June 8, 1972, 2231579

Int. Cl. B21j *9/18*

U.S. Cl. 72—441 **12 Claims**



A pressure transmitting means is disposed between the pressure rod and the slide or ram member of a forging press. The pressure transmitting means has over its entire width in the lower zone thereof facing in a direction toward the slide member, a diameter different from another diameter in the upper zone which faces in a direction toward the pressure rod. The diameters are offset with respect to each other on one side of the transmitting means and are in contact with each other on the other side of the transmitting means. The pressure rod is connected to the pressure transmitting means which is a pin member in a specific embodiment so that forces acting eccentrically on the slide or rod member can be rectilinearly transmitted to the eccentric crankshaft of the forging press by the slide or ram member and the pressure rod.

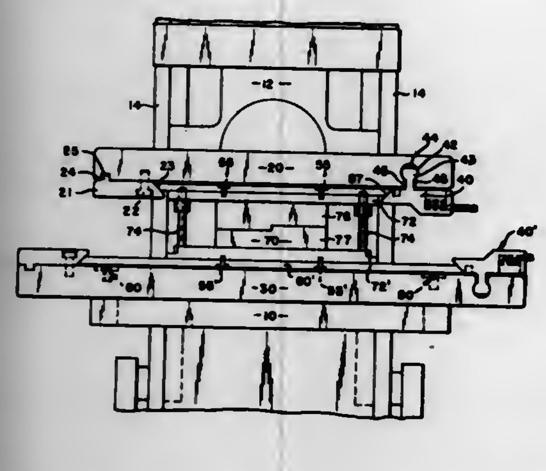
3,834,217
PIVOTAL CLAMPING MECHANISM FOR DIE SETS

John S. Ducate, Suite 100, 800 Dutch Sq. Blvd., Verona, N.J. 29210

Continuation of Ser. No. 321,124, Jan. 5, 1973, abandoned. This application Aug. 20, 1973, Ser. No. 389,592

Int. Cl. B21j *13/02*

U.S. Cl. 72—446 **12 Claims**



A quick change clamping mechanism for metal working presses having upper and lower bolsters for supporting die components therebetween. The mechanism includes a clamping plate for mounting die components, articulated clamps pivotally mounted near one edge of each bolster, and opposing stops mounted near the opposite edge thereof. Each articulated clamp is activated by a piston component which produces pivotal movement to wedge the clamping plate between inwardly sloped shoulders on the clamp and opposing stop. The lower plate is supported for sliding movement into and out of the press when the clamps are released. Modifications include substituting a second pair of clamps for the stops and providing squared shoulders on coacting portion of the upper clamping components.

3,834,218
FORGING PRESS

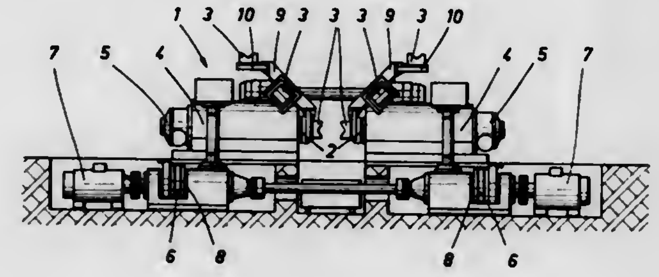
Bruno Kralowetz, and Hubert Grill, both of Steyr, Austria, assignors to GFM Gesellschaft fur Fertigungstechnik und Maschinenbau Aktiengesellschaft, Steyn, Austria

Filed July 23, 1973, Ser. No. 381,498

Claims priority, application Austria, Aug. 8, 1972, 6848/72

Int. Cl. B21j *13/02*

U.S. Cl. 72—462 **6 Claims**



The press comprises a forging box and at least one horizontal press ram having a free end. Gripping means are mounted on said free end and spring-biased in a closing sense. A first tool assembly comprising a tool frame and a tool is held by said gripping means on said free end of said press ram. A rotatable magazine comprises a plurality of angularly spaced retaining clamps, which are spring-biased in a closing sense. A second tool assembly is retained by one of said retaining clamps. First and second releasing means are mounted on said forging box. The press ram is movable to a tool-changing position, in which said gripping means are adapted to be opened by the operation of said first releasing means. Said magazine is rotatable to any of a plurality of angular positions, in each of which one of said retaining clamps is adapted to be opened by said second releasing means and closely adjacent to and in register with said gripping means when said press ram is in said tool-changing position. Said first tool assembly can be transferred from said gripping means to one of said retaining clamps when said press ram is in said tool-changing position and said magazine is in one of said angular positions. Said second tool assembly can subsequently be transferred from another of said retaining clamps to said gripping means when said magazine has been rotated to another of said angular positions and said press ram is in said tool-changing position.

3,834,219
PROCESS AND APPARATUS FOR PREDICTING THE TOOL WEAR CHARACTERISTICS OF METAL SHEET

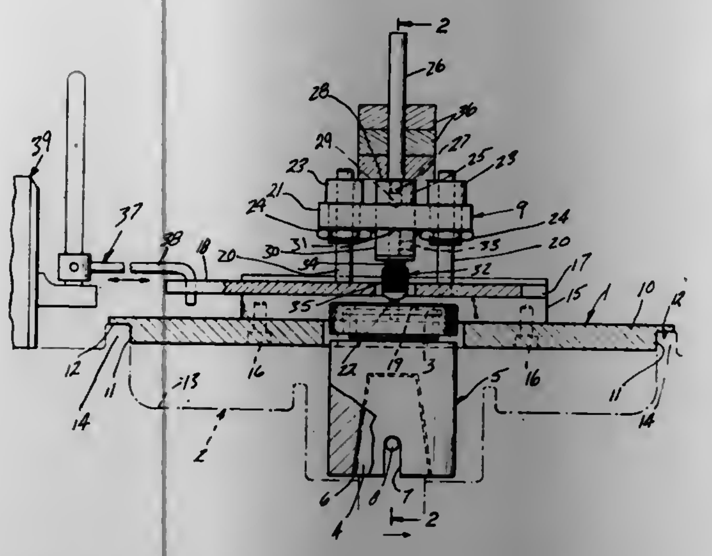
Dennis R. Brauer, Black Jack, Mo., assignor to Olin Corporation, New Haven, Conn.

Filed Aug. 22, 1972, Ser. No. 282,671

Int. Cl. G01n *3/56*

U.S. Cl. 73—7 **15 Claims**

A process and apparatus for predicting the tool wear characteristics of metal sheet. A test sample of metal sheet having a lubricated metal surface is contacted by a hardened steel ball under a given load. The test sample is rotated and the steel ball is reciprocated back and forth in a substantially linear direction across the test surface, preferably simultaneously for a given period of time. The degree of wear on the metal ball after rotation of the sample and reciprocation of the ball have ceased is an indication of the tool wear characteristics of the metal sheet. Preferably, the degree of wear is determined by optical examination using a microscope to see if abrasion or polishing of the surface of the ball has occurred.



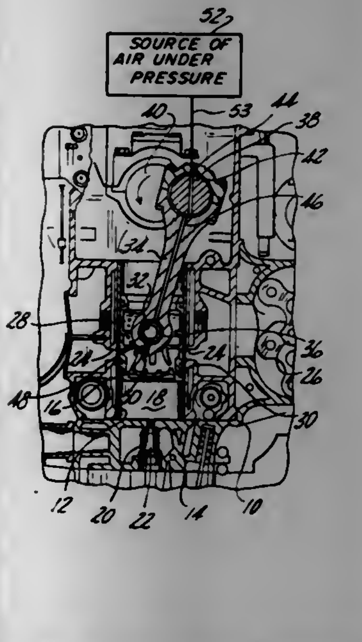
3,834,220
BUBBLE TEST FOR INTERNAL COMBUSTION ENGINES

Hollis O. Westmoreland, 12010 Arcola, Livonia, Mich. 48150

Filed Dec. 11, 1972, Ser. No. 313,853

Int. Cl. G01m *3/06*

U.S. Cl. 73—47 **5 Claims**



A procedure for locating piston and connecting rod defects in a piston operated, internal combustion engine such as a diesel engine. For two steps, the engine is supported upside down and diesel fuel or similar liquid disposed inside each piston being tested. The crankshaft is then turned over to compress the air in each combustion chamber. Air bubbling through the liquid in any piston indicates a defect, such as a sand hole, in the piston. To locate a blocked oil passage in the connecting rods, compressed air is passed through the oil gallery to form bubbles in the liquid contained in the pistons. The absence of bubbles in any piston indicates a blocked passage in the corresponding connecting rod or a blocked passage leading to the connecting rod.

In another form of the test, the engine is tested right side up. An opening is formed in the top of the combustion chamber by removing the fuel injector or fuel nozzle or plug, and the chamber is then filled with oil. By applying air pressure to the bottom of the piston, the user can detect a defective piston by observing bubbles passing up through the combustion chamber in the fuel injector opening.

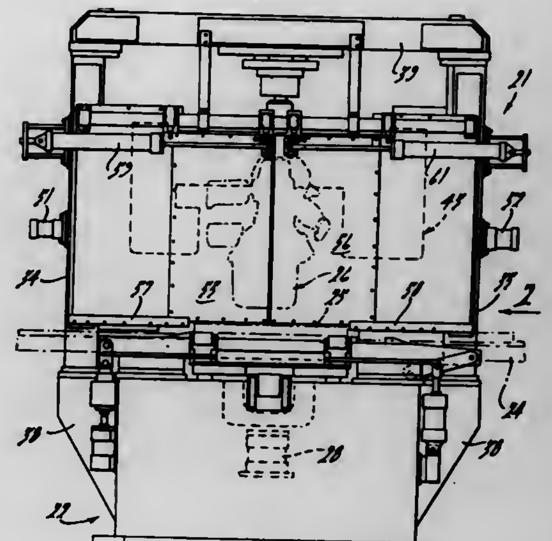
3,834,221
TEST STAND FOR VEHICLE ENGINES

Philip E. Swis, Mt. Clemens; Russell Labeau, Southfield, and Glenn M. Brown, Royal Oak, all of Mich., assignors to The Cross Company, Fraser, Mich.

Filed May 23, 1973, Ser. No. 363,054

Int. Cl. G01m *15/00*

U.S. Cl. 73—116 **25 Claims**



A cradle of inverted U shape is suspended from a frame and rockable on vertical and horizontal axes. With the cradle locked to the frame an engine to be tested is placed within the cradle and rigidly locked thereto at an exact predetermined location. The crankshaft is rotated by drive means so constructed as to add minimum dynamic unbalance to the engine. The cradle is unlocked from the frame and the dynamic unbalance of the engine is measured by seismic transducers engaging the engine or directly attached to the cradle.

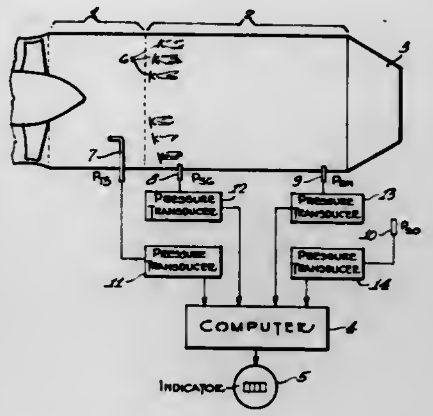
3,834,222
METHODS AND APPARATUS FOR DETERMINING THE THRUST OF A JET ENGINE

George B. McDonald, Bells Corner, Ontario, Canada, assignor to Control Data Canada, Ltd., Willowdale, Ontario, Canada

Division of Ser. No. 222,225, Jan. 31, 1972. This application Feb. 27, 1973, Ser. No. 336,165

Int. Cl. G01m *15/00*

U.S. Cl. 73—117.4 **12 Claims**



Apparatus is known for determining gross thrust in jet engines by measuring various internal pressures, including measurement of total pressure at the nozzle entrance by means of an immersed probe. The immersed probe has a very short life when an afterburner is used in the engine. The apparatus for the invention is able to determine total pressure at the nozzle entrance, without an immersed probe, from the total pressure in the diffuser and the static pressure at the nozzle entrance. Another embodiment makes use of an additional static pressure in the flame-holder region. Also, the invention is for determining the gross thrust of an engine and it distinguishes between an engine with a nozzle operating in a choked condition and an unchoked condition.

3,834,223

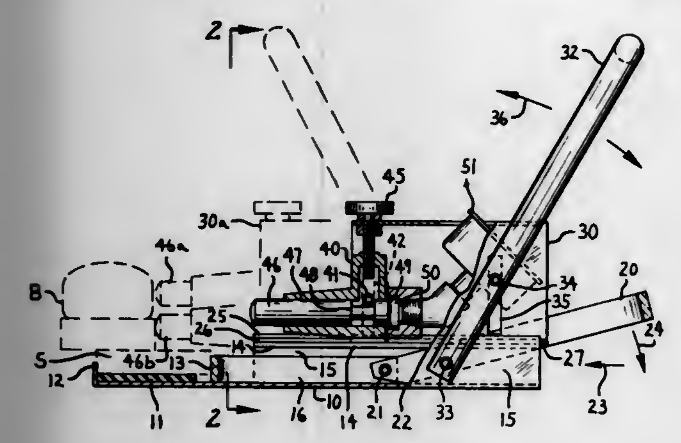
DEVICE FOR MEASURING THE LATERAL FORCES REQUIRED TO RELEASE A SKI BOOT FROM A SKI TOE CLAMP

Max Frey, 3940 S. W. Altadena Ave., Portland, Oreg. 97201

Filed Mar. 13, 1973, Ser. No. 340,918

Int. Cl. G01l ***5/03***

U.S. Cl. 73—133 A **8 Claims**



A base plate is adapted to underlie a ski having a ski boot secured thereon by a conventional type of releasable binding having a toe clamp and a heel clamp. The base plate has a ski clamp to hold the ski in a fixed position. A horizontal slide on the base member is movable by a hand lever laterally toward and away from the ski. A vertical slide on the horizontal slide carries a horizontal plunger having a projecting end arranged to be pressed against one side of the sole of the ski boot adjacent the toe clamp by manipulation of the hand lever which operates the horizontal slide. The opposite end of the plunger deflects a diaphragm to displace hydraulic fluid into a maximum reading pressure gauge which is calibrated to indicate the force necessary to release the toe of the boot laterally from its toe clamp.

3,834,224

DEVICE FOR TRANSDUCING FORCE INTO PNEUMATIC SIGNAL

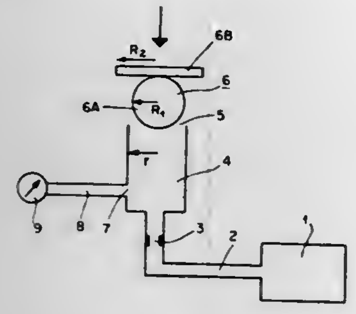
Mitsuo Uchida, Ibaraki; Sigeru Jinno, Otsu; Yoshiki Suzuki, Amagasaki; Ryuya Itagaki, and Tooru Sumi, both of Otsu, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed July 13, 1973, Ser. No. 379,170

Claims priority, application Japan, July 14, 1972, 47-69976

Int. Cl. G01l ***1/02, 1/08***

U.S. Cl. 73—141 R **4 Claims**



A device for transducing a force into a pneumatic signal comprises an air obstructing body composed of a rigid ball and supporting disc against which a force to be transduced is applied, and an air nozzle including an opening facing the rigid ball, the air nozzle being connected to a compressed air supply unit. Compressed air from the opening of the air nozzle flows away along the surface of the rigid ball. As a result the above, the air obstructing body moves upward or downward by the difference between a compressed air force acting upon the rigid ball compressed and the applied force to be transduced.

When both forces balance, the air obstructing body settles in an equilibrium position and at that time, back air pressure of the nozzle has a relationship which is proportional to the applied force to be transduced.

Back air pressure is measured by an air pressure measuring instrument connected to the air nozzle as a pneumatic signal.

3,834,225

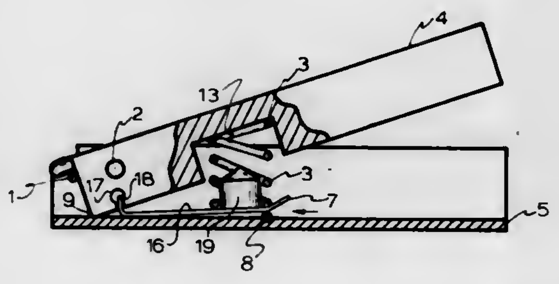
STRAND TENSION INDICATOR

Paul James Burchett, Corona del Mar, Calif.

Filed May 15, 1972, Ser. No. 253,571

Int. Cl. G01l ***5/06***

U.S. Cl. 73—144 **4 Claims**



A hand-held device for determining the tension in a flexible strand such as a tennis racquet string. One end of a pivoting device clamps around the string and bends it under spring pressure. The tension can be read directly on a scale, since the bending deflection is a function of the tension on the string.

3,834,226

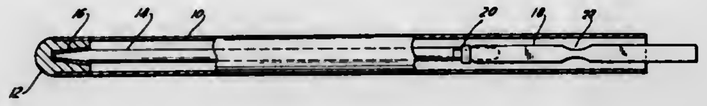
DISPOSABLE TEMPERATURE INDICATOR

Saviour S. Pecorella, Howard Beach, N.Y., and Robert Shotkin, Milburn, N.J., assignors to Becton, Dickinson and Company, East Rutherford, N.J.

Continuation-in-part of Ser. No. 171,888, Aug. 16, 1971, abandoned. This application May 10, 1973, Ser. No. 359,196

Int. Cl. G01n ***19/04***

U.S. Cl. 73—150 A **6 Claims**



An irreversible and disposable temperature-indicating device, such as but not restricted to one capable of being inserted into and of indicating the temperature of a living body. The device contains one or more heat-responsive materials preferably disposed as a film situated between and adhering to each of a pair of separable members, so arranged that each pair of separable members is capable of being pulled apart by a predetermined force at a predetermined temperature prior to melting of the material. The resulting separation is used directly or indirectly to provide indication that the predetermined temperature has been attained.

3,834,227

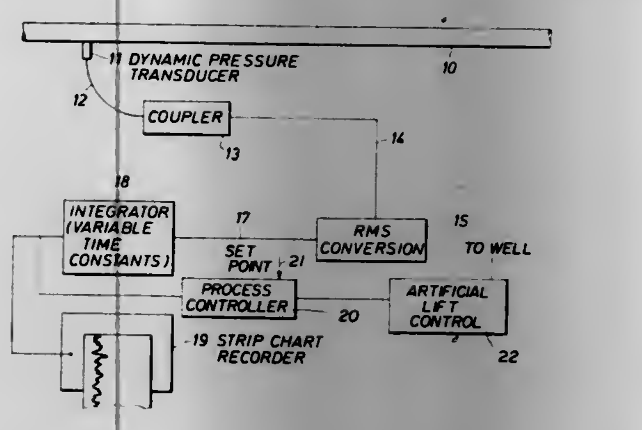
METHOD FOR DETERMINING LIQUID PRODUCTION FROM A WELL

Maurice M. Patterson, Houston, and Bass C. Sheffield, Bellaire, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Filed May 2, 1973, Ser. No. 356,650

Int. Cl. E21b ***47/00***

U.S. Cl. 73—155 **4 Claims**



A method for determining the liquid flow in a pipe having either slug or two-phase flow wherein the dynamic pressure fluctuations are measured, and converted to a useful signal. The root mean square of the signal is obtained and integrated over a specific time interval to obtain the liquid flow in the pipe.

3,834,228

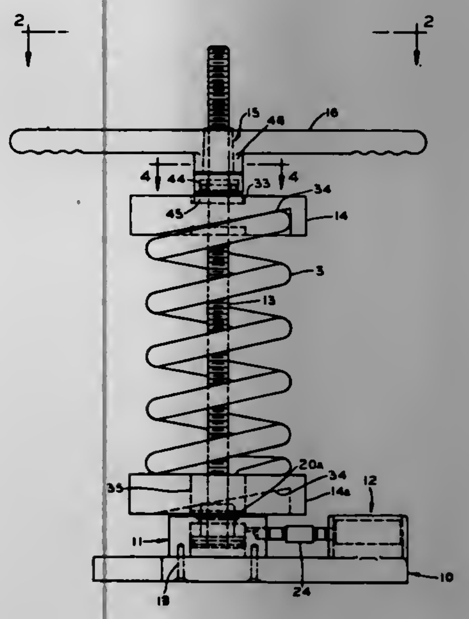
COIL SPRING TESTING DEVICE

Hilton J. Wachholz, 2171 Cleveland Ave., Columbus, Ohio 43221

Filed June 8, 1973, Ser. No. 368,268

Int. Cl. G01l ***1/04***

U.S. Cl. 73—161 **9 Claims**



A device for testing heavy type coil spring consisting of a screw having upper and lower spring retainers mounted thereon for relative axial movement, the spring to be tested surrounding the screw axially between the retainers for compression. A hydraulic load cell and indicator unit is provided and the lower end of the screw is anchored to the piston thereof. The spring is compressed by a nut threaded on the upper end of the screw and the lower end of the spring rests on the cylinder of the cell, which exerts an upward pull on the piston to actuate the connected indicator to indicate the amount of pressure developed.

3,834,229

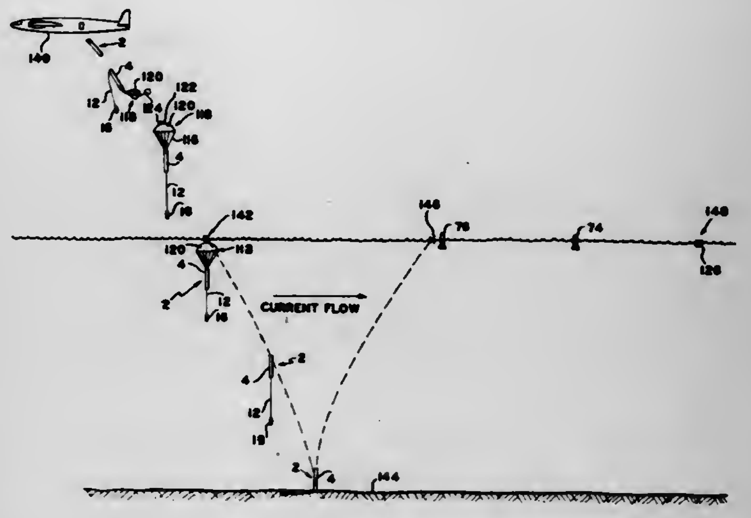
METHOD AND APPARATUS FOR MEASURING WATER CURRENTS

Henry J. White, Jr., 18 Pelican Isle, Fort Lauderdale, Fla. 33301

Filed Aug. 12, 1971, Ser. No. 171,147

Int. Cl. G01w ***1/00***

U.S. Cl. 73—170 A **25 Claims**



An instrument package containing three float markers is dropped into a body of water, a first one of the markers being designed to float on the surface. The second and third markers sink to a subsurface level and then are released with a predetermined time delay therebetween, whereupon they ascend to and float on the surface. The relative positions of all three float markers are then charted, and from such chart and the elapsed times both the water current velocity V_c at the surface and the average current velocity V from the subsurface level to the surface are calculated.

3,834,230

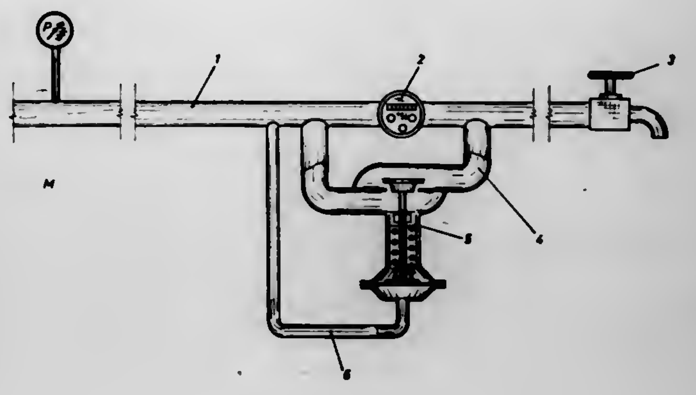
SYSTEM FOR THE PROPORTIONAL EVALUATION OF QUANTITATIVE FLOW OF FLUIDS

David Auerbach, 117 Derech Harhalom, Tel-Aviv, Israel

Filed Aug. 31, 1972, Ser. No. 285,887

Int. Cl. G01f ***1/00***

U.S. Cl. 73—199 **11 Claims**



A system for the proportional evaluation of quantitative fluid flow through a supply line to a receiver, includes a meter in the supply line that is bypassed by a line having therein a regulator valve controlled by the pressure upstream of the meter and bypass. The meter is calibrated so that for each unit of actual flow through the supply line at any pressure it will continuously show proportional quantities according to the desired rate per unit fixed by the supplier.

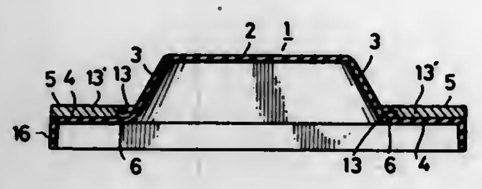
3,834,231
FLEXIBLE DIAPHRAGMS FOR GAS METER

Hachiro Hisada, Tokyo, Japan, assignor to Tokyo Toyo Rubber Industry Co., Ltd., Tokyo, Japan

Filed Apr. 17, 1973, Ser. No. 351,842

Int. Cl. G01f *1/00*

U.S. Cl. 73—279 **10 Claims**



This invention relates to flexible diaphragms for gas meters used generally for measurement of gas consumption, and a method of producing such diaphragms. More particularly, the invention relates to diaphragms having sufficient flexibility and airtightness so that they are suitable for use as a key component member in a gas measuring device such as for example a gas meter for measuring the amount consumed of household combustion gas, and a method of producing such diaphragms.

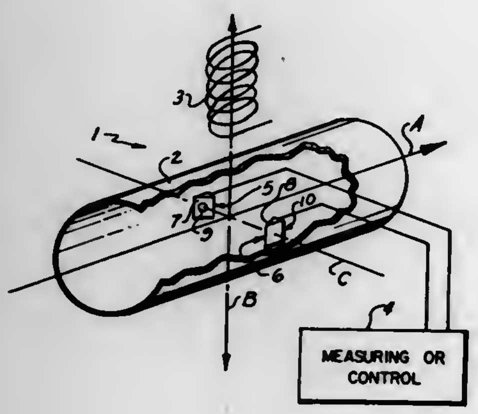
3,834,232
ELECTROMAGNETIC FLOWMETER HAVING SELF-CLEANING ELECTRODES

Heinz Walter Gruner, Irondeqoit, and Charles Gladstone Heisig, Rush, both of N.Y., assignors to Sybron Corporation, Rochester, N.Y.

Filed Aug. 22, 1972, Ser. No. 282,854

Int. Cl. G01f *1/00*

U.S. Cl. 73—194 EM **10 Claims**



Electromagnetic flowmeter electrodes having flat surfaces lying at angle of around 30° to the direction of flow. Each electrode surface consists of a relatively small conductive area surrounded by a relatively large insulating area.

3,834,233
APPARATUS FOR MEASURING THE LEVEL OF THE CONTENTS OF A CONTAINER

Andrew Douglas Willis, Growborough, and Michael Bruce Thurman, East Grinstead, both of England, assignors to Wilson Walton International Limited, Surrey, England

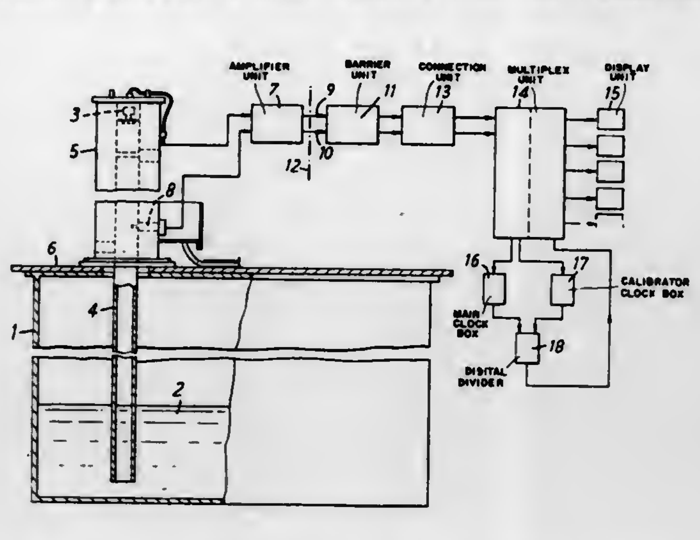
Filed Nov. 3, 1972, Ser. No. 303,408

Claims priority, application Great Britain, Nov. 5, 1971, 51613/71

Int. Cl. G01f *23/28*

U.S. Cl. 73—290 V **4 Claims**

Method and apparatus for determing the level of the contents of a container — typically the level of oil in a bulk oil tank are disclosed. An ultrasonic transmitter and receiver arrangement is mounted at the top of the tank to direct sound energy down into the tank and receive an echo from the surface of the contents. In order to compensate for inaccuracies due to changes in the velocity of sound a second receiver is preferably positioned a fixed distance from the transmitter and both received signals are processed to cancel the effects of any velocity variation in the speed of sound.



3,834,234
LEVEL GAUGE OF LIQUID METAL

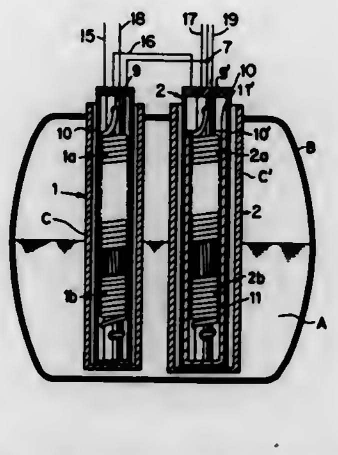
Kazuo Kobayashi, Hitachi, and Shoichi Ogaware, Ibaraki, both of Japan, assignors to Sukegawa Electric Co., Ltd., Hitachi-city, Japan

Filed Sept. 21, 1972, Ser. No. 291,080

Claims priority, application Japan, Sept. 30, 1971, 46-76744

Int. Cl. G01f *23/00*

U.S. Cl. 73—290 R **3 Claims**



A level gauge of liquid metal which has a detecting element formed with a primary coil and a secondary coil, a compensating element formed with a primary coil and a secondary coil, both elements being inserted in a container of liquid metal, said compensating element covered with metal so as to have a magnetic permeability equal to that of the liquid metal. The output of an oscillator is supplied to the primary coils of the detecting element and compensating element to detect the difference of the induced output at the secondary coils of the respective elements. Thus, reliable measurement may be obtained thereby.

3,834,235
LIQUID AND SOLID SENSING DEVICE

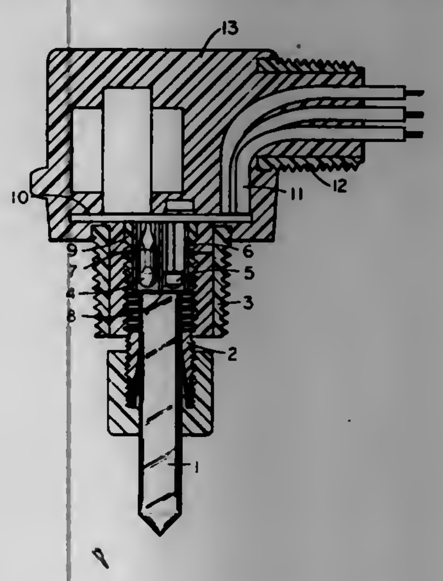
Michael John Bouton, 2558 Interstate, Apt. E., Mesquite, Tex. 75149, and Bob L. Sikes, 2433 Cardinal Ln., Garland, Tex. 75040

Filed Dec. 17, 1971, Ser. No. 209,078

Int. Cl. G01f *23/28*

U.S. Cl. 73—293 **3 Claims**

Opto-electronic single point control is a unique concept which uses the combined principles of light reflection and light refraction to activate or deactivate an all solid state switching circuit. When 120 volts AC is supplied to the control circuitry, the light source is activated and projects a beam of light through a solid quartz or plastic probe. When the device is used to sense liquids, the probe end used for sensing is fashioned in a cone shape. The light transmitted through the probe is internally reflected back through the probe when it is in a gaseous atmosphere. When the end of the probe is subjected to liquid, the light which is transmitted down the probe is refracted out of the probe and into the liquid. Both the internal reflection and the refraction of the light is registered by a light sensitive component which is an integral part of the control circuitry. The presence and absence of light determines the condition of the control circuitry. It will either switch the control circuitry from an off (deactivated) position to an on (activated) position, or vice versa. The activated or deactivated condition of the control circuitry is determined by which model is used. For liquids, the model 100A is a normally open device that is activated when in contact with liquid. The 100B model is a normally closed device that is deactivated when in contact with liquid.



When the device is used as a solid sensor, the probe end is changed from a cone shape to a flat end. Light transmitted through the probe is projected out through the flat end. When the light strikes a solid (non-liquid object), the light is reflected back into the probe and energizes the light sensor. The light sensor in turn activates or deactivates the control circuitry. Activation or deactivation of the control circuitry is again dependent upon the model being used. The 100A solid sensor is a normally closed device which is deactivated when in proximity of a solid. The 100B solid sensor is a normally open device, activated when in proximity of a solid.

3,834,236
DEVICE FOR MEASURING LIQUID LEVEL AND AIR PUMP FOR USE THEREIN

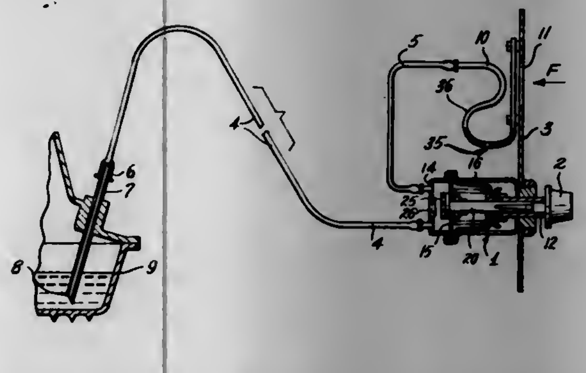
Michel Durin, Paris, France, assignor to Societe Anonyme Automobiles Citroen, Paris, France

Filed Jan. 26, 1973, Ser. No. 327,224

Claims priority, application France, Jan. 25, 1972, 72.2332

Int. Cl. G01f *23/16*

U.S. Cl. 73—302 **9 Claims**



Air pump comprises a first, constant volume chamber having an outlet, a vent to atmosphere, and an inlet connecting it to a second variable volume chamber, the volume of which is controlled by a flexible membrane. Operating means are provided for simultaneously actuating the membrane to reduce the volume of the second chamber and closing said vent so that air is expelled from the second chamber through the first chamber and its outlet, preferably into the pneumatic circuit of a manometric system for measuring the level of liquid in a container, e.g., the level of oil in the crankcase of a motor.

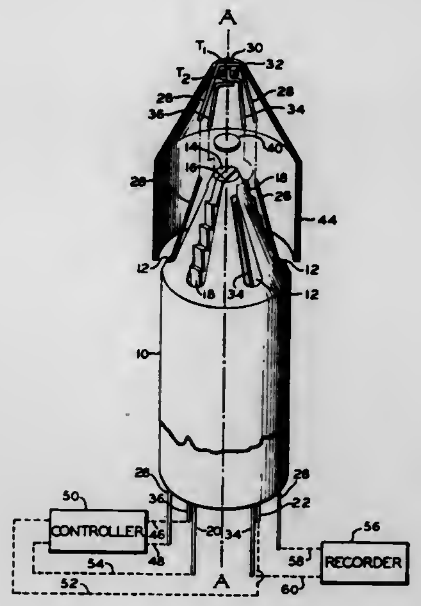
3,834,237
THERMOCOUPLE FOR SURFACE TEMPERATURE MEASUREMENTS

Donald Robertson, Ambler, Pa., assignor to Leeds & Northrup Company, North Wales, Pa.

Filed Oct. 5, 1972, Ser. No. 295,306

Int. Cl. G01k *7/04;* **H01v** *1/04*

U.S. Cl. 73—359 **2 Claims**



The improved surface temperature probe is of the type which utilizes a heater and a differential temperature measurement to control the heater so as to minimize the temperature gradient along the probe. The improvement comprises the protective shielding of the thermocouple junctions by a metal shield and the addition of supplementary heater sections to heat the shield so as to minimize the temperature gradient between the shield and the surface being measured.

3,834,238
ELECTRONIC THERMOMETER

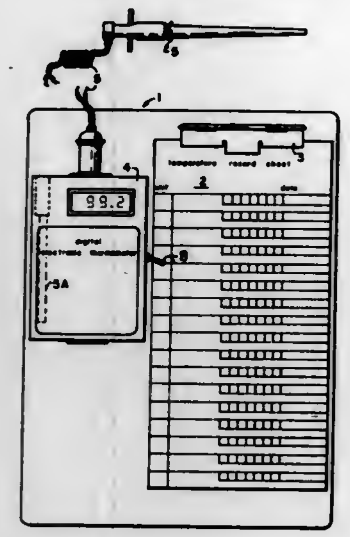
Fritz Kurt Mueller; Billy Otis Martin; Robert Cherry Martin; Bobby Joe Stricklin, and Raymond Leland Weeks, all of Huntsville, Ala., assignors to Royal Medical Corporation, Huntsville, Ala.

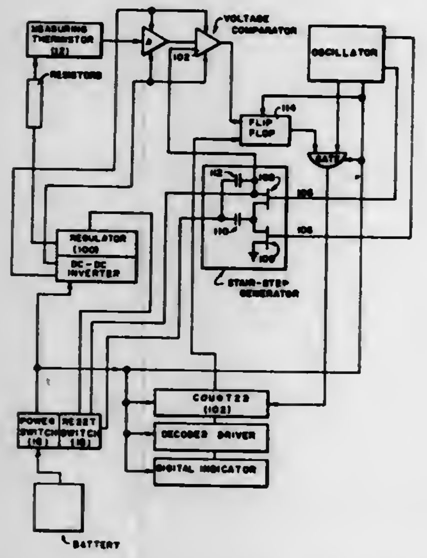
Filed Aug. 19, 1971, Ser. No. 173,115

Int. Cl. G01g *7/24;* **G01r** *17/04;* **H03k** *13/17*

U.S. Cl. 73—362 AR **3 Claims**

An electronic thermometer having: a temperature-sensitive probe and one of two optional electronic circuits, each of which has means for changing a basic comparison voltage in steps or increments through a series of stair-stepped voltages toward the amplified small voltage from the thermistor until the stabilized thermistor voltage and the comparison voltage are equal, and indicating the result in degrees. One of these circuits comprises a stairstep generator, and the other a set of resistors of different values.

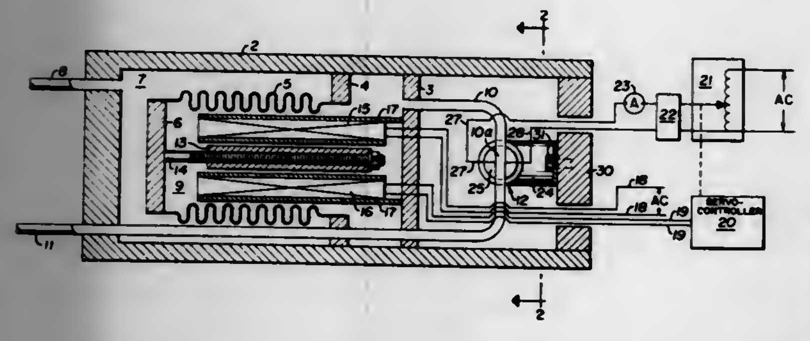




3,834,239
DIFFERENTIAL PRESSURE TRANSDUCER FOR LIQUID METALS

Earle C. King, Evans City, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa.

Filed June 15, 1970, Ser. No. 46,087
Int. Cl. G01l *9/10, 7/06*
U.S. Cl. 73—398 R **5 Claims**

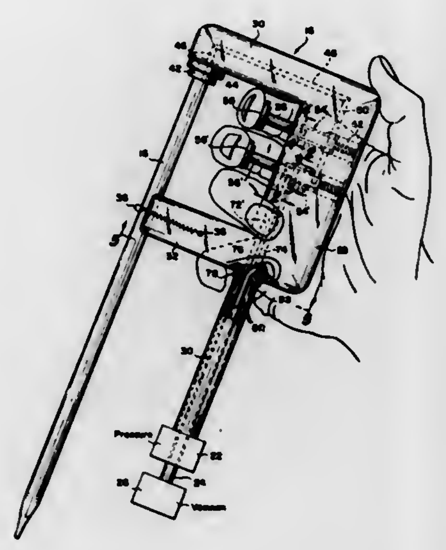


A differential pressure transducer for use with liquid metals has a chamber divided into two compartments by a moveable wall. An electromagnetic pump included in an inlet conduit to the low pressure compartment develops sufficient head to equalize the pressure in both compartments. The electrical energy required by the pump is a measure of differential pressure.

3,834,240
APPARATUS FOR DRAWING LIQUIDS INTO, AND EXPELLING LIQUIDS FROM, A PIPETTE OR THE LIKE

James W. Kenney, Philadelphia, Pa., assignor to Drummond Scientific Company, Broomall, Pa.

Filed Feb. 23, 1973, Ser. No. 335,367
Int. Cl. B01b *3/02*
U.S. Cl. 73—425.6 **14 Claims**

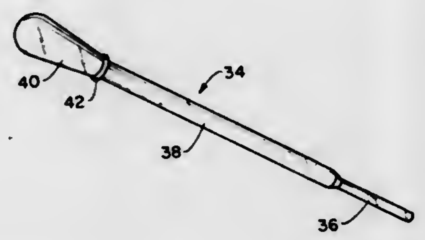


Apparatus for drawing liquids into, and expelling liquids from, a pipette, including a body member comprising a hand grip portion and a pipette supporting portion. Duct means are provided in the body member in communication with one end of the pipette held by the pipette supporting portion. Valve means are mounted on the hand grip portion beneath the fingers of the user for selectively connecting the duct means to a vacuum source or an air pressure source.

3,834,241
PIPETTE

Ralph F. Garren, 20357 Acre St., Canoga Park, Calif. 91306, and Marvin B. Sarver, 1247 N. Parish Pl., Burbank, Calif. 91506

Filed Apr. 30, 1973, Ser. No. 355,714
Int. Cl. B01l *3/02*
U.S. Cl. 73—425.6 **2 Claims**

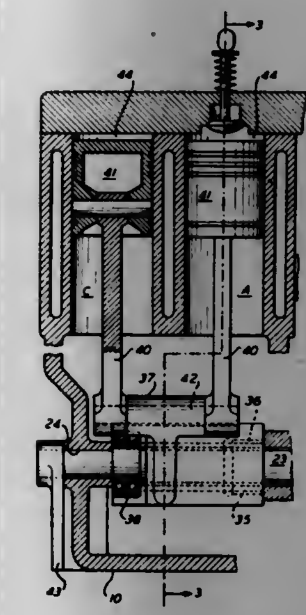


A pipette which is formed within a mold in which a raw material of a given tubing thickness is employed, the tubing to be of a plastic material, the tubing placed within the mold and caused to be raised in temperature until pliable, the plastic tube caused to be expanded against the surface of the mold, the drawing tube and the container section of the pipette being formed of a thickness to make such substantially rigid, an enlarged bulbous section connected to the container section, the thickness of the bulbous section to be substantially thinner than the container section and the drawing tube section whereby the bulbous portion may be readily manually compressed and then permitted to retract back to its at rest state causing a drawing of liquid through the drawing tube section into the container section.

3,834,242
FLYWHEEL CONVERTING OSCILLATING INTO UNIFORMLY ROTATING MOTION

Frederick W. Seybold, 1979 Dogwood Dr., Scotch Plains, N.J. 07076

Filed Dec. 4, 1972, Ser. No. 311,745
Int. Cl. F16h *21/16*
U.S. Cl. 74—25 **6 Claims**



This invention provides a multiple cylinder-piston engine having the cylinders arranged in a rectangle and paired pistons reciprocate an elongated rocker arm.

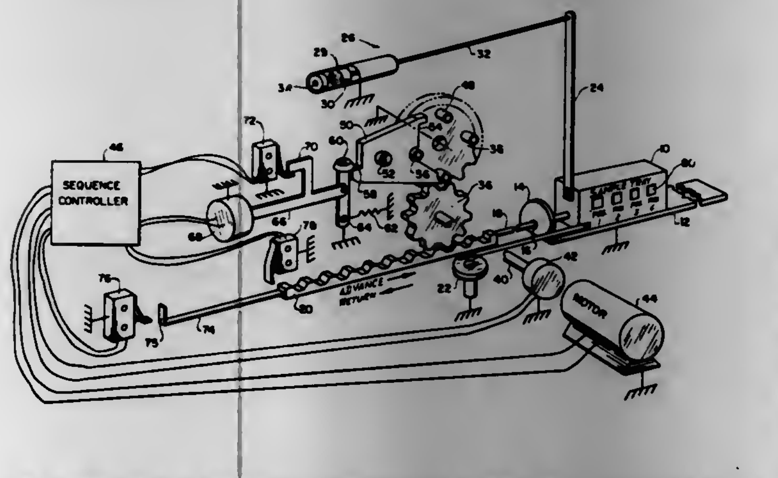
A hollow flywheel is journalled on the engine frame and it is provided with an eccentrically mounted crank arm, pin and gear, the latter meshing with a gear of equal size which is integral with said rocker arm, said arm and gear are rotatably mounted on a stationary shaft which is co-axial with the flywheel.

This stationary shaft has one end supported on the engine frame and the other end on the flywheel. A crank arm and pin is also integral with the stationary shaft and a link connects the crank pins of both crank arms, said crank arms are also provided with gear segments to insure passage thru the dead center positions of the crossed four-bar linkage formed by said link, the flywheel and the two crank arms.

3,834,243
MECHANICAL POSITIONING DEVICE FOR PRECISELY DETERMINING A SERIES OF MECHANICAL LOCATIONS

Raymond William Burke, Anaheim, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Feb. 28, 1973, Ser. No. 336,726
Int. Cl. F16h *55/04*
U.S. Cl. 74—33 **11 Claims**

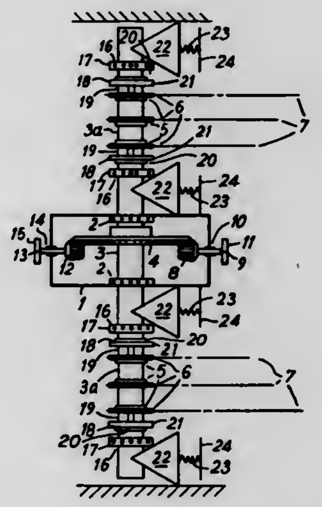


Apparatus for slidably positioning a sample tray biased in a first direction by restoring means, the sample tray being coupled to a rack member coacting with a small motor driven gear for driving the sample tray in a direction opposite to the first direction, the small gear being coupled to a large gear having a plurality of position determining protruding fingers engaging a pawl member. The pawl member is configured for limited pivotal movement about an axis, the pawl having a pocket configured in one end thereof for sequentially engaging the protuding fingers, while the other end of said pawl has a shoulder portion engaging a solenoid actuated stop lever for selectively determining the engagement of the pocket with a predetermined protruding finger. Mechanically coupled to the sample tray is a piston engaging a fixed cylinder, the sample tray being initially motor driven to the extreme limit of its first direction with the solenoid energized to permit pivoting of the pawl member, the sample tray then being precisely positioned in the opposite direction to one or more selected positions under action of selective energization of the stop lever, under the force of the restoring means, the speed of return being controlled by the piston and cylinder. Limit switches are provided for selective sequential control.

3,834,244
POWER TRANSMISSION SYSTEM

Harry Dugdale Swaine, 15 Northborough Road, London, England

Filed Aug. 14, 1973, Ser. No. 388,175
Claims priority, application Great Britain, Aug. 17, 1972, 38383/72
Int. Cl. F16h *7/00*
U.S. Cl. 74—219 **8 Claims**

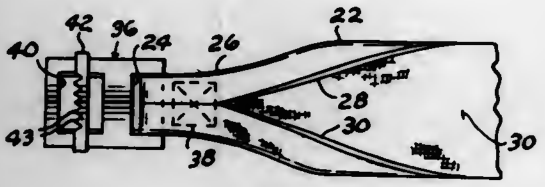


The present invention relates to a power transmission system comprising a housing, a transmission shaft mounted for rotation in that housing and extending outside the housing on either side thereof, a crown wheel gear mounted on the transmission shaft within the housing, a pinion gear in engagement with the crown wheel mounted on an output shaft carried for rotation in the housing, and a plurality of one-way clutches mounted in pairs on said transmission shaft, one of each pair being disposed on each side of the housing, each said clutch comprising a drive member by which a drive may be effected in one direction of rotation from a power source to said transmission shaft through the clutch.

3,834,245
EMERGENCY V-BELT FOR VEHICLES

Salvatore J. Cultrera, 1744 Silverwood Dr., San Jose, Calif. 95124

Filed Aug. 20, 1973, Ser. No. 390,143
Int. Cl. F16g *1/00*
U.S. Cl. 74—231 J **3 Claims**

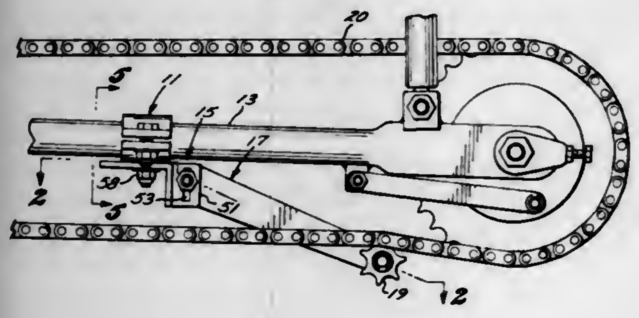


An elongated strip of woven fabric material has a locking type buckle secured to one end thereof for adjustably engaging the other end of the strip when the strip is entrained around a plurality of V-belt type pulleys.

3,834,246
MOTORCYCLE DRIVE CHAIN TENSIONER KIT

Kenneth J. McGilp, Cerritos, Calif., assignor to Excel Tool and Die Corporation, Paramount, Calif.

Filed July 19, 1973, Ser. No. 380,529
Int. Cl. F16h *7/12*
U.S. Cl. 74—242.11 B **10 Claims**

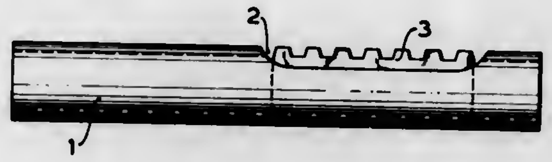


A motorcycle drive chain tensioner kit including a mounting clamp for clamping to a tine formed by the rear fork of a chain driven motorcycle and having an adjustment bracket mounted therebelow, such adjustment bracket being shiftable transversely with respect to such clamp. An elongated carrier arm is mounted on its forward extremity from such bracket and projects rearwardly to have an idler spricket rotatably mounted on the rear extremity thereof for engagement with the drive chain. A torsion spring is connected between the mounting bracket and carrier arm with a tension setting device being connected therewith to adjust the torque applied by such spring and consequently the tension maintained on such drive chain. Consequently, the mounting clamp may conveniently be mounted on the motorcycle tine, the adjustment bracket adjusted transversely with respect to such clamp to align the idler sprocket with the drive chain and the tension setting device adjusted to apply the desired tension to such drive chain to take up slack therein and maintain positive engagement with the drive and driven sprockets of such motorcycle.

3,834,247
TOOTHED RACK FOR A RACK-AND-PINION STEERING GEAR OF MOTOR VEHICLES

Manfred Belsdorf, Meerbusch 1, Poststr. 4a, and Klaus Stuck, Meerbusch 2, Thomas-Mann-Str. 23, both of Meerbusch, Germany

Filed Apr. 17, 1973, Ser. No. 351,839
Claims priority, application Germany, May 31, 1972, 2226443
Int. Cl. F16h *1/04, 55/12*
U.S. Cl. 74—422 **8 Claims**

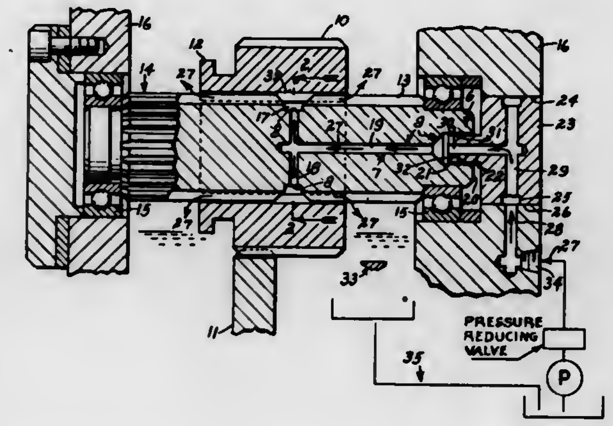


The toothed rack is constructed from a base having a hollow profile into which the toothed segment is fixedly mounted.

3,834,248
TORQUE COUPLE WITH STRUCTURE BORNE NOISE ISOLATION

Charles Thomas Caliri, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed July 5, 1973, Ser. No. 376,409
Int. Cl. F16h *55/14, 57/04*
U.S. Cl. 74—443 **5 Claims**

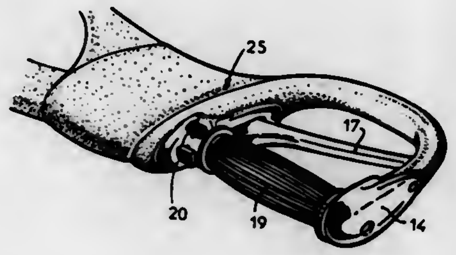


An apparatus for the transmission of torque between two members of a machine which reduces the structure borne vibration and noise through the use of pressurized fluid at the interface of torque transmitting teeth.

3,834,249
HANDLEBARS

Peter William Bothwell, 114 Shipston Rd., Stratford-On-Avon, England

Filed Mar. 13, 1973, Ser. No. 340,717
Int. Cl. B62k *21/12*
U.S. Cl. 74—551.8 **6 Claims**

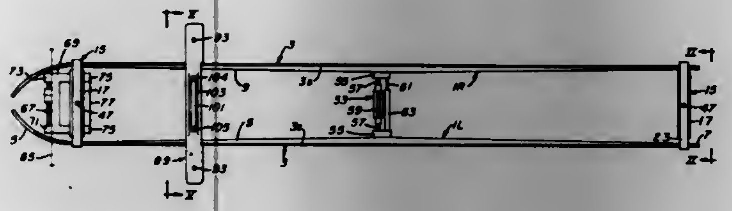


A handlebar for a motor cycle or the like, which has at one or each end thereof a hand-grip portion and a generally U-shaped rigid guard. The two ends of the guard are connected to the handlebar at respectively opposite ends of the hand-grip portion so that when the handlebar is in use the guard projects forwardly of the hand grip portion and defines with the latter an opening for a rider's hand gripping said portion, whereby the guard affords protection for the hand in the event of a crash. The guard is provided with a covering of resiliently deformable material. The covering extends around the part of the handlebar to which the inner end of the guard is secured and the outer end of the guard is connected to the outer end of the handlebar by a removable plate. The covering is recessed to receive the free end of a pivotable control lever whilst permitting movement of the lever relative to the hand-grip portion.

3,834,250
METHOD AND APPARATUS FOR TUNING A PAIR OF SKIS

Kenneth R. Fonas, 814 Pittsburgh St., North Versailles, Pa. 15137

Filed June 18, 1973, Ser. No. 371,267
Int. Cl. B21k *17/00*
U.S. Cl. 76—101 R **21 Claims**

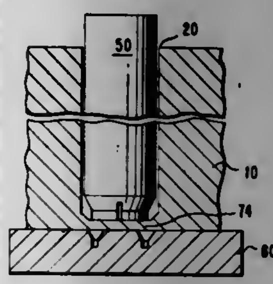


A method and apparatus for tuning a pair of skis in which the skis are secured in spaced relation as a unit tip-to-tip and heel-to-heel with the top surfaces facing each other and the running surfaces in parallel planes. The centers of the skis may be spread apart to remove the bottom camber during tuning. With the skis secured in this relation, they are rotated as a unit to successively present the various edges and the running surfaces for tuning. The apparatus includes a device for quickly and easily holding the unit in the selected positions and a tuning device which incorporates side and bottom edge files and a scraping tool.

3,834,251
METHOD

Curtis Owen Hawkins, Cove City, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 27, 1973, Ser. No. 336,196
Int. Cl. B21k *5/20*
U.S. Cl. 76—107 S **1 Claim**

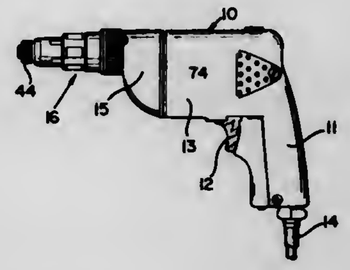


This invention is a method for making punches for punching complicated hollow filament spinning capillaries in one step. An inverse first punch is machined and then used to punch complicated inner recesses in the end of punch stock for the ultimate second punch. The second punch is further finished by machining. In addition, the complete method requires punching a complete female die using the second punch and then punching capillaries in spinneret webs located between the aligned die and second punch.

3,834,252
ADJUSTABLE POSITIVE CLUTCH SCREWDRIVER

William David Abell, Manchester, and William Frank Sindelar, Towson, both of Md., assignors to The Black and Decker Manufacturing Company, Towson, Md.

Filed June 11, 1973, Ser. No. 369,057
Int. Cl. B25b
U.S. Cl. 81—52.4 R **23 Claims**

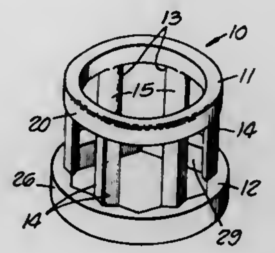


A portable, power-operated tool such as a power screwdriver which includes a housing having a motor, a gear transmission and an output shaft. An output rotary tool member is adapted to be connected to the output shaft by a positive clutch when the tool is applied to a workpiece. A novel arrangement whereby the maximum torque transmitted through the positive clutch can be limited is disclosed.

3,834,253
KEEPER FOR SOCKET WRENCHES

Harry A. Carr, 2934 El Caminito, La Crescenta, Calif. 91214

Filed June 8, 1972, Ser. No. 260,909
Int. Cl. B25b *23/08*
U.S. Cl. 81—125 **9 Claims**

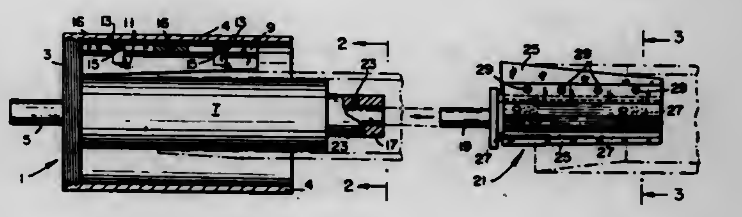


A keeper accessory for use on 12-point socket wrenches to hold a hex fastener captive without need for retainers or modification of a conventional wrench. The accessory is selectively usable with cylinder and box type wrenches and comprises at least one end ringlet preferably supporting two or more parallel legs shaped to lie along a respective point of a wrench with its radially opposed surfaces disposed to frictionally engage a hex face of a fastener and the juxtaposed point areas of the wrench thereby to grip and hold the fastener captive.

3,834,254
TAPERING TOOL

Delmer L. Smestad, P.O. Box 1164, Williston, N. Dak. 58801

Filed Jan. 4, 1973, Ser. No. 320,972
Int. Cl. B23b *5/16*
U.S. Cl. 82—4 C **1 Claim**



A pipe tapering tool formed in separable parts for internal and external tapering. External tapering is achieved by placing the tool between a drum and an adjustable outer blade housed in one of the parts. The other part severable therefrom provides adjustable blades for internal tapering, the parts being interconnected for this purpose whereby they may be turned together relative to the pipe.

3,834,255
MACHINE FOR AUTOMATICALLY FORMING SCREW-THREADS

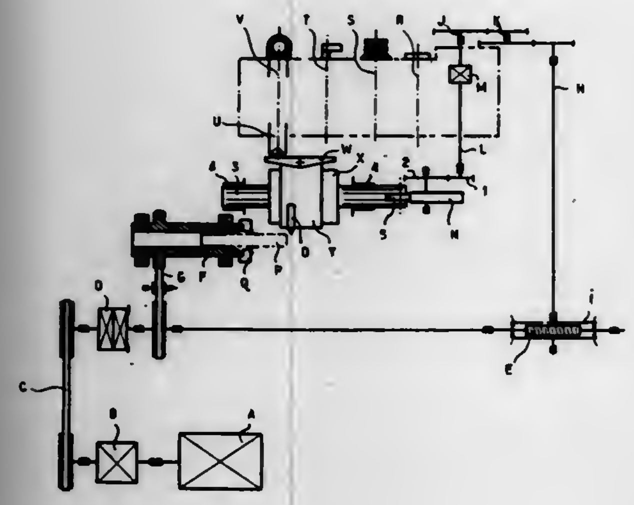
Georges C. Mulot, 152, rue Paul Doumer, Carriere-sur-Seine, France

Filed Aug. 3, 1973, Ser. No. 385,553

Claims priority, application France, Aug. 4, 1972, 72.28310

Int. Cl. B23b *5/46*

U.S. Cl. 82—5 **5 Claims**



The cutting tool of a machine for automatically cutting screw threads is carried by a cross-slide mounted on the base of the machine. The step-by-step transverse feed of the tool is actuated by a push-rod operating against the cross-slide and backed by an adjustment vernier operating colinearly with the push-rod and mounted on the machine base. Between the vernier and push-rod are peripheral portions of a pair of discs which are mounted face-to-face for rotational movement step-by-step about an axis parallel to the line of action of the push-rod and for movement along said axis. The two faces of each disc are planar and non-parallel, and the angle between the two faces of the disc is the same for each disc. By adjusting the angular positions of the discs relative to each other and the angular position of the disc assembly about said axis, a desired programme of automatic thread-cutting operations can be pre-set.

3,834,256
ULTRASONICALLY CONTROLLED THICKNESS MACHINING

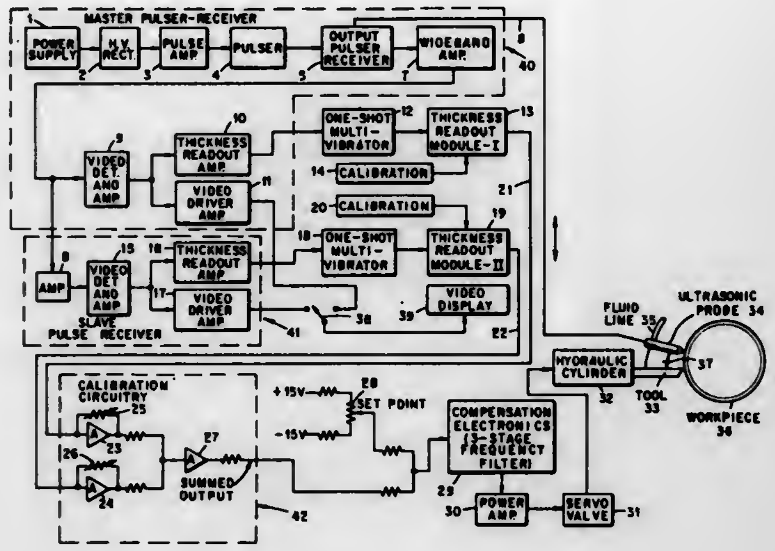
Leonard A. Abbatiello, Oak Ridge, Va.; Loren E. Carey, Lenoir City, Va.; Donald V. Ferree, Lynchburg, Va., and Walter L. Green, Knoxville, Tenn., assignors to The United States of America as represented by the Atomic Energy Commission, Washington, D.C.

Filed Aug. 15, 1973, Ser. No. 388,515

Int. Cl. B23b *25/06*

U.S. Cl. 82—21 A **7 Claims**

An ultrasonically controlled machining system is provided wherein the inside contour of the part is used as a datum surface from which the outside contour is machined to obtain a desired wall thickness. An ultrasonic probe is used to locate the datum surface and an electrohydraulic control system is used to properly position the tool a distance equal to the desired wall thickness. By using ultrasonic sound to control the distance, it is possible to apply this machining technique to most materials or combinations of materials. This concept eliminates the necessity of maintaining accurate part alignment to achieve accurate wall thickness control.



3,834,257
RADIALLY EXPANDABLE AND CONTRACTIBLE MANDREL

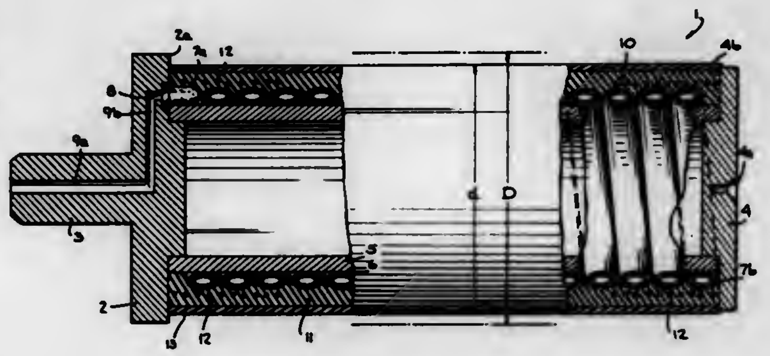
Wilhelm Ganser, Stolberg-Busbach, Germany, assignor to Uniroyal AG, Aachen, Germany

Filed Apr. 12, 1973, Ser. No. 350,561

Claims priority, application Germany, Apr. 17, 1972, 2218561

Int. Cl. B23b *31/00*

U.S. Cl. 82—44 **11 Claims**



A mandrel or work-piece holder for a tubular blank. The tubular blank may be penetrated by cutting means to provide endless annular elements such as belts for drive or power transmission uses. The mandrel comprises a supporting core having a concentrically arranged radially expandable layer formed by a spirally wound hose. The hose is connected to a source of an inflating medium. Concentric with the hose layer and firmly connected thereto is an intermediate layer of an elastic material. Concentric with the intermediate layer and removable connected thereto is an outer layer of an elastic material. The elasticity of the several layers varies such as to radially decrease.

3,834,258
APPARATUS FOR THE SIMULTANEOUS MACHINING OF A MATERIAL MOVING WITH RELATIVE MOTION WITH RESPECT TO THE TOOLS, IN PARTICULAR FOR CUTTING UP A PLATE OF GLASS

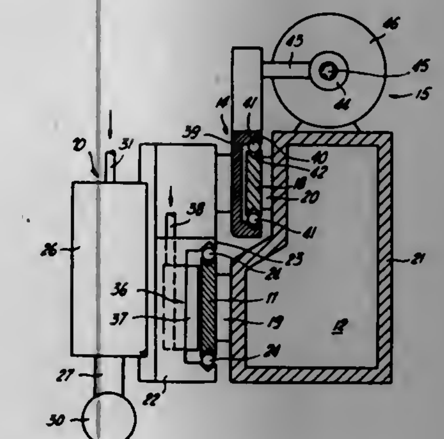
Ernst Zumstein, Butzberg, Switzerland, assignor to Bystronic Maschinen AG, Butzberg, Switzerland

Filed Dec. 4, 1972, Ser. No. 312,034

Claims priority, application Germany, Dec. 7, 1971, 2160545

Int. Cl. B26d *3/08, 5/02;* **B26f** *33/02*

U.S. Cl. 83—11 **14 Claims**



Apparatus with several tools for the simultaneous machining of a material moving with relative motion with respect to the tools, said apparatus to be used in particular for cutting a glass plate to size and comprising a support table for supporting the material and a bridge extending over said table and carrying several tool carrier units displaceable in longitudinal direction by power drive. There is provided a drive means to drive a displacing means transversely to the direction of machining, the individual tool carrier units being connected through disengageable clutches with said displacing means at preset distances from one another.

3,834,259
DISCHARGE DEVICE FOR SLICING MACHINE

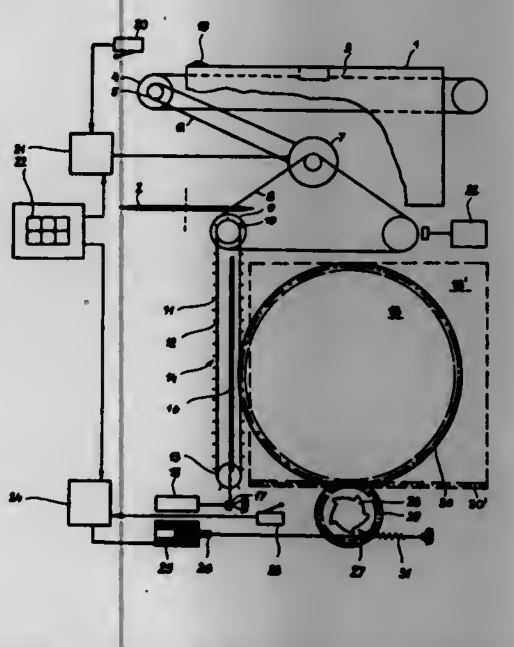
Fritz Kuchler, Klagenfurt, Austria, assignor to Brain Dust Patents Establishment, Vaduz, Liechtenstein

Filed Jan. 30, 1973, Ser. No. 328,114

Claims priority, application Austria, Jan. 31, 1972, 732/72; Mar. 21, 1972, 2390/72; Apr. 14, 1972, 3260/72

Int. Cl. B26d *4/46*

U.S. Cl. 83—69 **18 Claims**



A discharge device for a slicing machine which comprises a feeding arrangement to receive a loaf of sausage or a like. A driven blade and a conveyor arrangement for the sliced goods are provided which are driven by the feeding arrangement, e.g., in the form of chain ties provided with spikes. A discharger, as well as a discharge platform, which may be moved gradually are arranged such that the conveyor arrangement, which is driven by a gear unit or a toothed belt drive, respectively, is coupled to an electromagnetic clutch, which is driven by an electric pulse control in dependence upon the position of the feeding arrangement, if necessary via another toothed belt drive or motor respectively, preferably an impulse-controlled stepping motor. The latter can be turned off after a pre-determined number of revolutions. The discharge platform may be moved gradually in one direction by an electromagnetic drive with provisions for an electronic control, which drives the electromagnetic drive in dependence upon the movement of the discharge arm. Further a central switchboard is provided, where every button position corresponds to a control interval of electric pulse control for the clutch or the motor respectively and to a number of step impulses of the electronic control for the electromagnetic drive of the discharge platform.

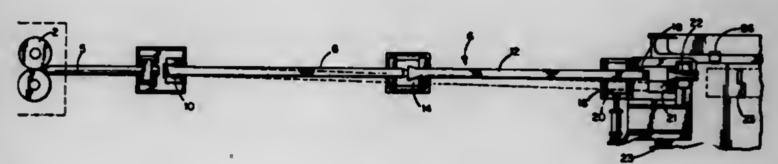
3,834,260
SWITCHING MECHANISM FOR CROPPING AND SAMPLING FRONT AND BACK ENDS OF BAR PRODUCT DELIVERED FROM MILL

Donald Sieurin, Northboro, and Robert Anderson, Worcester, both of Mass., assignors to Morgan Construction Company, Worcester, Mass.

Filed July 2, 1973, Ser. No. 375,759

Int. Cl. B23d *25/08, 31/00*

U.S. Cl. 83—106 **14 Claims**



On a rod mill, means for cropping the front and rear ends of the rod and delivering the cropped pieces directly from the shear to a crop box, and including means for dividing the rod, if desired, to produce suitable size coils.

3,834,261
HORIZONTALLY ACTING EXTRUSION DISCARD CUTTING DEVICE WHICH CAN TURN OVER AND TRANSFER EXTRUSION DISCS CUT OFF THE EXTRUSION DISCARD

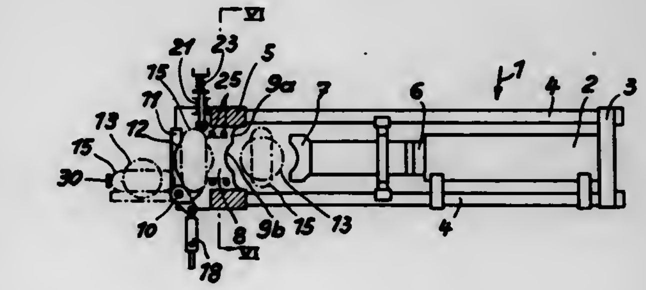
Otto Behrendt, Dusseldorf-Eller, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany

Filed Aug. 7, 1973, Ser. No. 386,436

Claims priority, application Germany, Aug. 11, 1972, 2239543

Int. Cl. B23d *33/00*

U.S. Cl. 83—161 **9 Claims**



A horizontal extrusion discard cutting device has a cutter head and a moving cutter ram which gives a shear cut in order to separate the extrusion discard into an extrusion disc and a billet discard. If the extrusion press is using flat billets, the flat extrusion discards are supplied to the cutting device in a vertical position. According to the invention, the vertical, flat extrusion disc from the cut, vertical, flat extrusion discard is moved by the cutter after cutting, against slight lateral resistance, against a vertical turn-over member, the extrusion disc is retained against the vertical turn-over member by a nose on a lower, horizontal part of the turn-over member and by a spring-biased roller for the upper part of the extrusion disc, the turn-over member is mounted on a shaft which is pivotally supported in the lower zone of the cutting head, and the shaft is then pivoted through 90° to bring the extrusion disc into a horizontal position.

3,834,262

STOCK CUTTING MEASUREMENT SYSTEMS

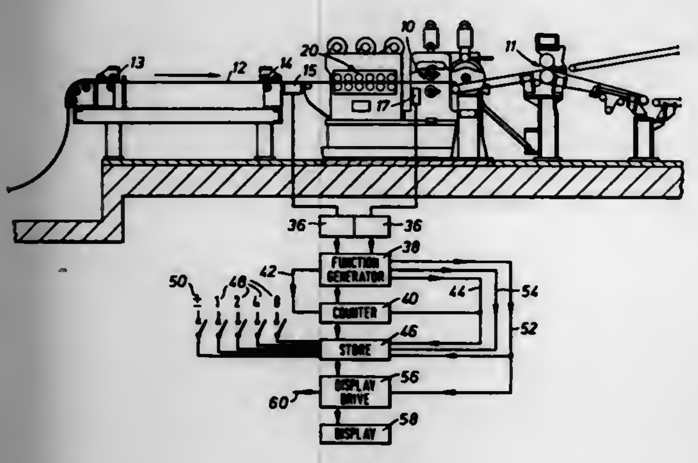
Maurice Noel Lapper, Llanelli, South Wales, Wales, assignor to British Steel Corporation, London, England

Filed Nov. 29, 1972, Ser. No. 310,462

Claims priority, application Great Britain, Dec. 3, 1971, 56285/71

Int. Cl. B26d *7/28*

U.S. Cl. 83—345 **8 Claims**



Apparatus for determining the length of portions cut from stock material characterised by a stock pulse generator 15 responsive to the movement of the stock past a cutting device 10 to provide a stock pulse train, the repetition rate of which is related to the speed of advance of the stock; a cutter pulse generator 17 responsive to the cutting device for producing a cutter pulse train, the repetition rate of which is related to the frequency of cutting operations of the cutting device, a counter 40 for counting the pulses produced by the stock pulse generator; means 38 for starting the counter in response to a cutter pulse and for stopping the counter after a predetermined further number of cutter pulses have been generated, whereby the number of stock pulses then recorded by the counter is representative of the length of the last *n* portions cut from the stock, *n* a predetermined integer in excess of one.

3,834,263

APPARATUS FOR SENSING AND MEASURING TENSION OF TOW ENTERING A STAPLE FIBER CUTTER

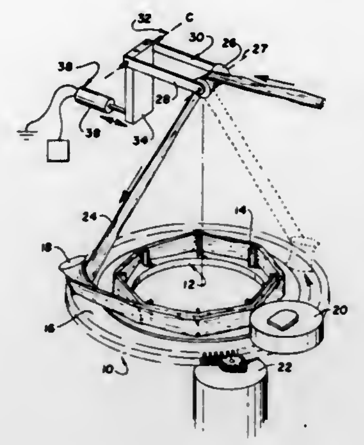
Glen C. Smith, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 30, 1973, Ser. No. 420,491

Int. Cl. D01g *1/04*

U.S. Cl. 83—346 **5 Claims**

Apparatus for sensing and measuring tension of a tow entering a staple fiber cutter, such as the staple fiber cutter disclosed in the Coffin et al., U.S. Pat. No. 3,557,648. The tow describes a circular path as it continuously is guided onto the cutter at various points around the periphery of the cutter to be wrapped therearound. Thus the tow continuously changes direction, thereby generating a force with a constant vertical component and a variable horizontal component. The apparatus senses and measures only the vertical components of force and includes a guide roll located above the cutter and on the axis of the cutter for guiding the tow to the cutter and mounted on a pivotally mounted lever, the axis of the lever lying generally in the same plane as the axis of the guide roll. A transducer bears against the lever to maintain the generally same plane of the two axes and to sense and measure the movement of the lever and hence only the vertical components of force exerted by the tow on the lever.



3,834,264

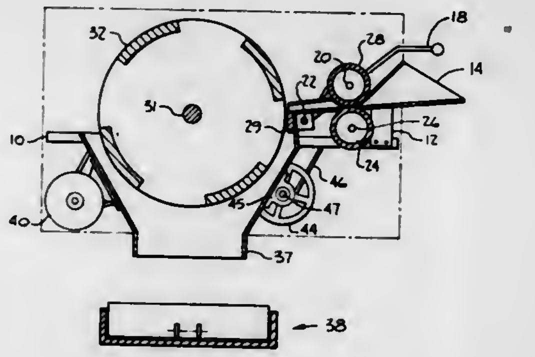
SCRAP MATERIALS PROCESSOR

Jerome F. Moshofsky, 9019 S.W. 15th, Portland, Oreg. 97219

Continuation of Ser. No. 279,238, Aug. 9, 1972, abandoned. This application Feb. 11, 1974, Ser. No. 442,005

Int. Cl. B26d *5/20, 7/06*

U.S. Cl. 83—356.3 **2 Claims**



A scrap materials processor is disclosed. The machine has a power driven feed mechanism. The rotary cutting head shears the scrap into small pieces. Pressure on the feed rolls may be manually increased or decreased as material is fed to the cutter head.

3,834,265

CERAMIC CUTTING INSTRUMENTS

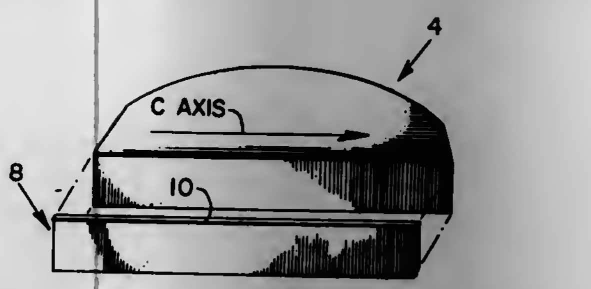
Bernard Tafapolsky, Newton, and Francis Edward Flaherty, Canton, both of Mass., assignors to The Gillette Company, Boston, Mass.

Filed Feb. 16, 1973, Ser. No. 332,914

Int. Cl. B26d *1/00;* **G01n** *1/06*

U.S. Cl. 83—651 **13 Claims**

The present invention is concerned with novel cutting edges and especially razor blades and microtome knives formed from sapphire and with novel processes for making cutting edges. The cutting instruments disclosed herein are characterized by having their cutting edges within 30° and preferably parallel to the C-axis (optical axis) of the sapphire. The process for preparing such cutting edges comprises forming the cutting edge blank from the sapphire in a manner such that the C-axis thereof will be parallel or at least within 30° of being parallel to the cutting edge which is to be formed and thereafter forming the cutting edges by a combination of mechanical and one or more chemical sharpening steps.



3,834,266

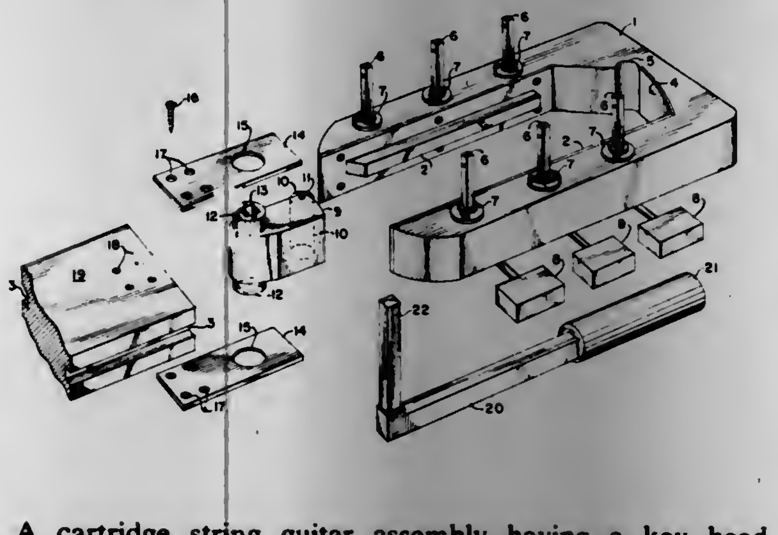
CARTRIDGE STRING GUITAR ASSEMBLY

Robert Harold Robinson, Chowchilla, Calif.

Filed Nov. 23, 1973, Ser. No. 418,664

Int. Cl. G10d *1/08*

U.S. Cl. 84—267 **6 Claims**



A cartridge string guitar assembly having a key head slidably mounted in a slideway upon a neck shank operatively movable by a cam and lever mechanism. Six square-headed key posts are revolvably mounted on the key head and connected to gear-driven tuning handles. A cartridge string housing comprising all six guitar strings as a unit and a rear bracket containing the opposite ends of the strings is inserted onto the guitar by means of six cartridge spools within the housing and each having a square hole provided vertically through its center which interlocks with its respective square-headed key post. Each of the spools has a guitar string wrapped around its cylindrical body for individually tuning same. A lever is then inserted into the pivot shaft of the cam, the shaft having a square socket vertically through its axis for turning the cam from inoperative to operative position thereby forcing the key head outward on its slideway creating a miminum amount of tension on the strings. The opposite ends of the strings are contained in a detachable bracket which is designed to be either injected into a groove of a bridge or extracted from the same in a simple operation. The strings are subsequently tuned in the usual manner.

3,834,267

CAPO FOR FIVE STRING BANJO

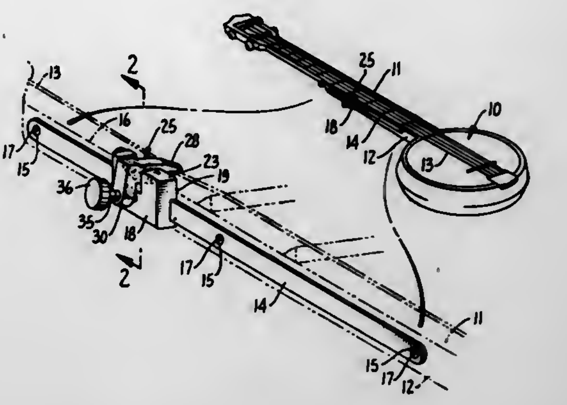
Richard Shubb, 1701 Woodhaven Way, Corte Madera, Calif. 94611, and David Coontz, 2248 Concord Ave., Concord, Calif.

Filed Sept. 27, 1973, Ser. No. 401,181

Int. Cl. G10d *1/10*

U.S. Cl. 84—318 **8 Claims**

A capo for the fifth string of a five string banjo comprising an elongated guide bar which is mounted flush against the side of the banjo's neck laterally adjacent the fifth string, a body slidably mounted on the bar, a lever arm pivotally supported by said body, one end of which extends over the fifth string and means for raising the other end of the lever arm whereby said one end is pivoted down against the fifth string exerting enough pressure thereon to effectively capo it.



3,834,268

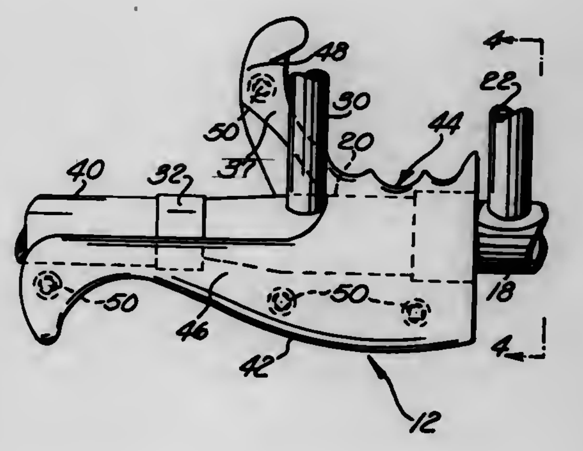
TROMBONE SUPPORT

George T. McCracken, Mayfield Village, Ohio, assignor to King Musical Instruments, Eastlake, Ohio

Filed Sept. 20, 1973, Ser. No. 399,347

Int. Cl. G10g *7/10*

U.S. Cl. 84—453 **12 Claims**

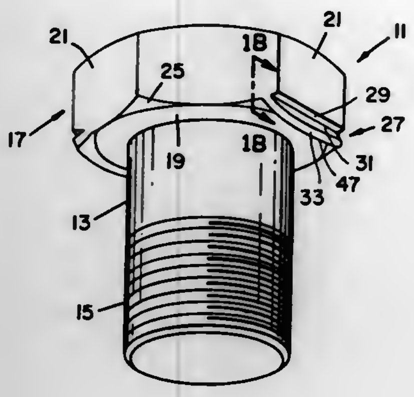


A support structure for supporting a trombone in the hand of a player with the wrist and forearm of the player having an in-line position when supporting the trombone in a playing position includes a support means for engaging with the stationary slide member of the trombone. The support means includes a first surface portion for engaging with the palm of the hand of a player and supporting substantially the entire weight of the trombone in the palm of the player's hand and a second surface portion disposed substantially parallel to the first surface portion for engaging with at least two of the fingers of the hand of the player. The support means further includes a third surface portion disposed substantially perpendicular to the first and second surface portions for engaging with the thumb of the hand of the player. The second and third surface portions cooperate with the fingers and thumb respectively of the player's hand to control the angular orientation of the trombone relative to the player while the weight thereof is supported by the first surface portion of the palm of the player's hand. The support means enables the player to support the trombone in a position which renders the player less susceptible to fatigue than known trombone supports.

3,834,269
STRESS INDICATING BOLT

Jack G. Ohringer, 1435 Dolores St., San Francisco, Calif. 94110

Filed Oct. 24, 1972, Ser. No. 300,087
Int. Cl. F16b *31/02*
U.S. Cl. 85—62 **1 Claim**

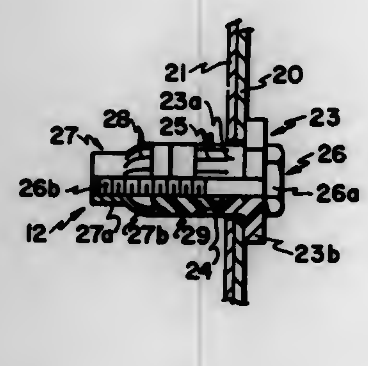


A stress indicating nut or bolt having a wedged slit formed near the bottom of the side of the head. The slit is formed by a non-material removing technique such as forging or the like. The formation of the slit results in the formation of a lip that extends below the lower plane surface of the head of the nut or bolt. The size and angle of the lip are selected to prevent exceeding the elastic limit of the lip when it is closed by tightening the nut or bolt against a surface. When the slit is closed, the stress in the bolt shank is accurately known. Alternatively, the lip may be partially closed wherein the degree of closure indicates shank stress. In the preferred embodiment two oppositely positioned lips are formed and each lip is curved to provide great lip elasticity and to prevent surface scoring.

3,834,270
FASTENER

Lee Triplett, Magna, and Wilmer R. Peterson, Kearns, both of Utah, assignors to Expando Products Company, Salt Lake City, Utah

Filed July 27, 1972, Ser. No. 275,789
Int. Cl. F16b *13/06*
U.S. Cl. 85—70 **2 Claims**

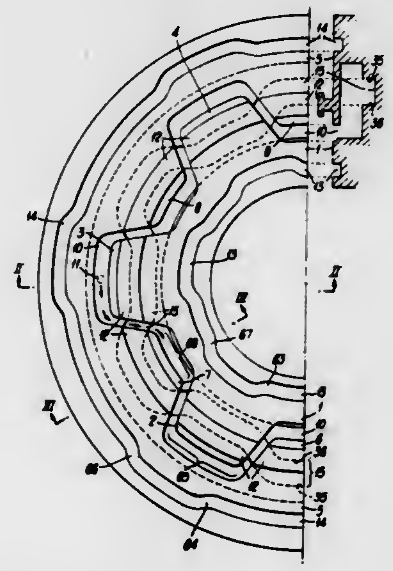


A fastener for securing members together using a rotatable driver tool from one side of the members. The fastener has a holding member locked to an expanding member and a rotatable member is inserted through the holding and expanding members to be threaded into a compression member engagable with the expanding member. Means are provided to expand the compression member as necessary to insure retention of the expanding member.

3,834,271
BRAIDING MACHINE

Ronald Hinds, Woolton, England, and James Martin Akister, deceased, late of Bury, Lancashire, England (by Nora Akister, legal representative), assignors to B & F. Carter & Co. Limited, London, England

Filed Sept. 20, 1973, Ser. No. 398,972
Claims priority, application Great Britain, Sept. 20, 1972, 43562/72
Int. Cl. D04c *3/20*
U.S. Cl. 87—46 **10 Claims**

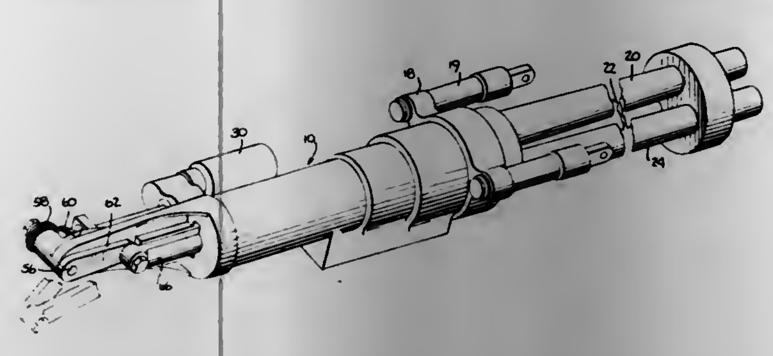


A high-speed braiding machine comprises a central disc and a surrounding annulus which are both stationary with respect to a chosen frame of reference for all the motions. Lobes on the inner periphery of the annulus are intercalated with lobes on the periphery of the disc to define between them an endless continuous sinuous gap; and carriers for bobbins of an inner set are mounted to one side of the disc and annulus so as to be rotatable about a machine axis passing through the central area of the disc whilst threads from bobbins mounted thereon pass through the sinuous gap to a braiding point spaced from the disc on its opposite side. On the side of the disc and annulus facing the braiding point and partly carried by the lobes of each of them is a circular track, concentric with the machine axis, the path of which repeatedly crosses the sinuous gap, but the track is interrupted where it does so. Carriers for bobbins of an outer set mounted on the said track are each of sufficient length in the direction of the track to pass freely over the gaps therein. Concentric central and peripheral actuator heads on the same side of the disc and annulus as the track are mounted for rotation in unison in the opposite direction to the carriers for the bobbins of the inner set, the central actuator head having an external radius less than the minimum radius of the lobed disc and the peripheral actuator head correspondingly having an internal radius greater than the maximum internal radius of the lobes annulus. On each actuator head a series of actuator fingers, one finger for each carrier of the outer set, can be projected into the annular gap between the actuator heads to engage the associated carrier and can be withdrawn to clear the said sinuous gap to allow passage of thread from a bobbin of the inner set. When the machine is in operation each carrier of the outer set is always engaged by at least one actuating finger but the passage of threads from the inner set of bobbins is not obstructed.

3,834,272
MULTIBARREL AUTOMATIC WEAPON

Raymond Arthur Patenaude, and Ivar Scott Tonseth, Jr., both of Burlington, Vt., assignors to General Electric Company, Burlington, Vt.

Filed Apr. 17, 1973, Ser. No. 351,987
Int. Cl. F41d *7/04*
U.S. Cl. 89—12 **14 Claims**

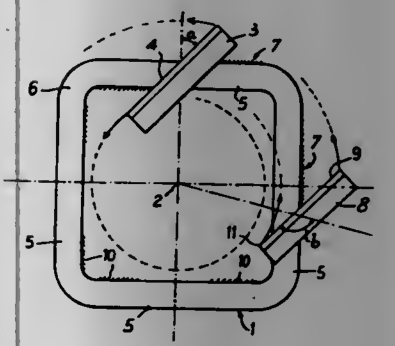


A "Gatling" type gun is provided with a single actuator rod for intermittently driving a plurality of bolts.

3,834,273
METHOD FOR FACING THE ENDS OF PIPES

Pierre Peytavin, Neuilly-Sur-Seine, France, assignor to Societe amonyme dite: Vallourec (Usines a Tubes de Lorraine-Escaut et Vallourec Reunies), Paris, France

Filed July 5, 1972, Ser. No. 269,223
Claims priority, application France, July 9, 1971, 71.25248
Int. Cl. B23b *3/12*
U.S. Cl. 90—11 C **1 Claim**



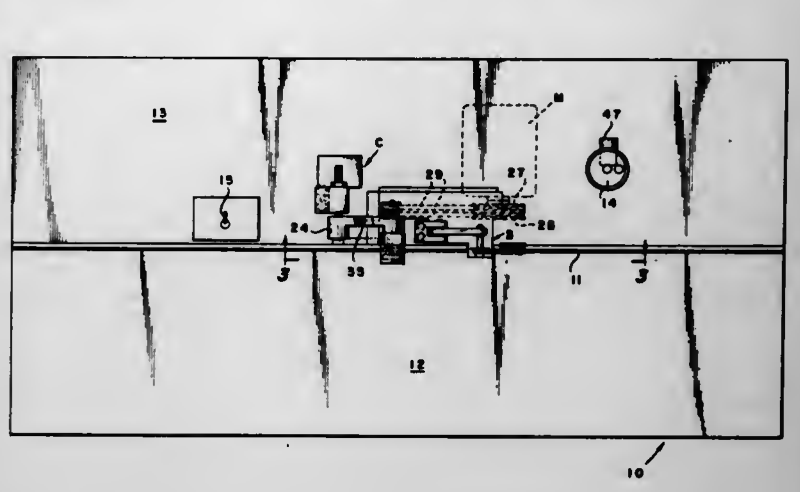
Method and apparatus for facing or tooling the ends of pipes or steelworks and especially non-circular pipes, making use of a tool-holder moved in rotation in relation to the pipe or steelwork and moved in translation towards said pipe or steelwork, characterized in that each portion of said end being faced is submitted to the alternate cuts of at least two cutting blades, at least one of said cutting blades being so directed as to cut out the burrs produced by the other cutting blade on said end.

3,834,274
CHAMFERING APPARATUS

Daniel J. Dowd, Williamsport, Pa., assignor to Westvaco Corporation, New York, N.Y.

Filed July 2, 1973, Ser. No. 375,655
Int. Cl. B23c *3/12*
U.S. Cl. 90—11 R **11 Claims**

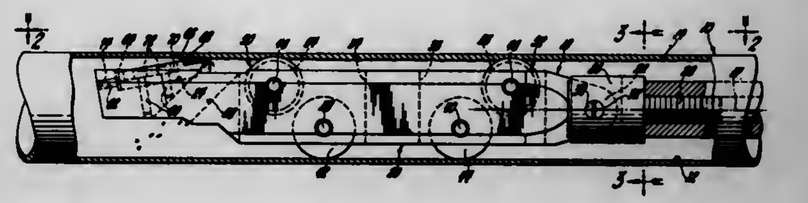
Each one of a pair of pivot arms is pivoted at one end to a stationary support, the pivots being in vertically spaced relation. The free end of each arm carries a driven shaft journaled therein. The shafts are free floating and are disposed in vertically spaced relation with their axes in a common vertical plane. Each shaft carries a chamfering tool and a guide roller therefor arranged in close proximity. Biasing means yieldingly urges the free ends of the pivot arms towards each other so that their respective guide rollers and tools forcibly engage the top and bottom faces of a workpiece passed therebetween. The shafts are driven from a single motor common thereto, using pulley and elastic belt drive connections. A similar arrangement of pivot arms carries means for applying liquid stain to the surfaces chamfered by the tools.



3,834,275
WELD BEAD REMOVAL PROCEDURE

Tandy H. Newland, Waynesville, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed July 25, 1973, Ser. No. 382,316
Int. Cl. B23d *1/00*
U.S. Cl. 90—24 B **2 Claims**



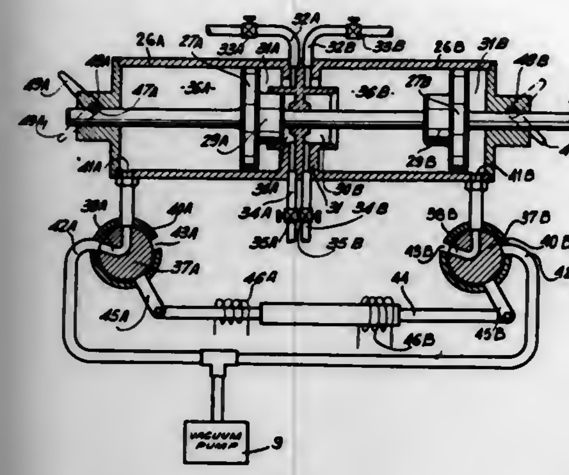
In the manufacture of cylindrical, seam-welded tube from strip stock wherein a strip is cold rolled into a cylindrical tube and the longitudinal edges of the strip are welded along a longitudinal seam of the tube, the weld operation leaving a longitudinal, raised bead on the internal cylindrical surface of the tube, a procedure for removing the weld bead including the steps of distending the internal surface of the tube in a plane containing the weld bead to a predetermined dimension exceeding the nominal internal diameter of the welded tube thereby to locate the bead at a constant radial distance from the longitudinal axis of the tube, disposing within the tube a cutting tool having a cutting edge located at a fixed radial distance from the axis of the tube exceeding the constant radial distance, and effecting relative longitudinal movement between the cutting tool and the tube so that the weld bead is removed to a constant depth.

3,834,276
RAMS

Maurice Paul Gournelle, 1 rue des Bruyeres, Asnieres, Hauts de Seine, France

Filed Sept. 7, 1971, Ser. No. 178,153
Claims priority, application France, Sept. 8, 1970, 70.32546
Int. Cl. F15b *13/044, 15/22, 15/26*
U.S. Cl. 91—51 **5 Claims**

In a fluid-operated ram a piston member is reciprocable within a casing and divides the casing into two chambers. One of the chambers is arranged to be connected to a source of driving fluid while the other is arranged to be evacuated whereas the piston member is held by a quick-release



mechanism, e.g. a mechanical bolt or an electromagnet arranged to co-operate with part of the piston member.

3,834,277
HYDRAULIC SERVO UNIT FOR AUTOMOTIVE BRAKING SYSTEM

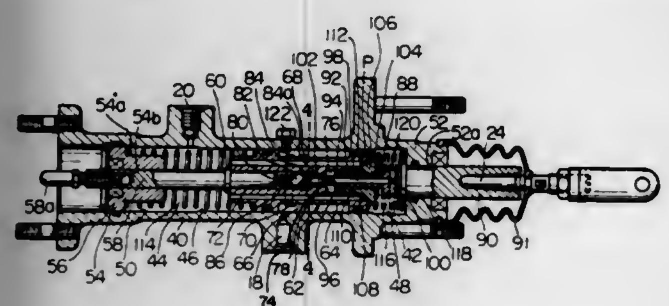
Keiichiro Yabuta, and Kazuaki Shimizu, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Nov. 8, 1972, Ser. No. 304,678

Claims priority, application Japan, Dec. 11, 1971, 46-100347

Int. Cl. F15b *9/10*

U.S. Cl. 91—376 **9 Claims**



A hydraulic servo unit for use with a master cylinder of a hydraulic braking system of a motor vehicle and adapted for reducing the physical effort required of a vehicle driver for producing a braking effect. The servo unit includes a housing having an inlet and an outlet, a power piston slidably accommodated within said housing and producing an actuating force to be transmitted to the master cylinder when fluid under pressure is applied on the power piston, valve means connected with the power piston for controlling the application of fluid under pressure on said power piston, and actuating means for controlling the valve means in accordance with a brake pedal position.

3,834,278
POWER STEERING SYSTEM WITH AUXILIARY POWER CAPABILITY

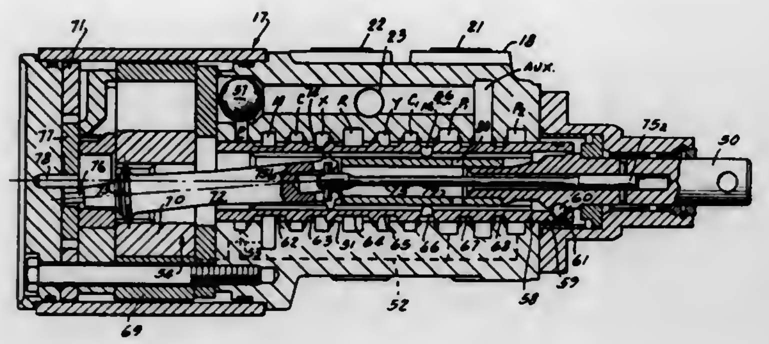
Raymon L. Goff, and Jim L. Rau, both of Lafayette, Ind., assignors to TRW Inc., Cleveland, Ohio

Filed Dec. 15, 1972, Ser. No. 315,502

Int. Cl. F15b *11/00*

U.S. Cl. 91—413 **5 Claims**

A vehicular power steering system including a primary hydraulic circuit for operating the steered wheels and a secondary hydraulic circuit for operating auxiliary equipment such as an implement or the like which may be attached to the vehicle. The system includes a fluid controller for controlling the flow of pressurized fluid from a power pump to the primary or steering circuit and the implement or secondary circuit. The fluid controller includes a valve mechanism which is constructed and arranged to provide the primary hydraulic circuit with pressurized fluid in the amount necessary to produce the desired steering maneuver while furnishing the secondary



hydraulic circuit with the excess pressurized fluid supplied by the power pump. Thus the requirements of the primary hydraulic circuit may be always satisfied and have priority over the requirements of the secondary circuit in all modes of operation.

3,834,279
METHOD AND DEVICE FOR ELECTROHYDRAULIC CONTROL OF A HYDRAULIC ACTUATOR

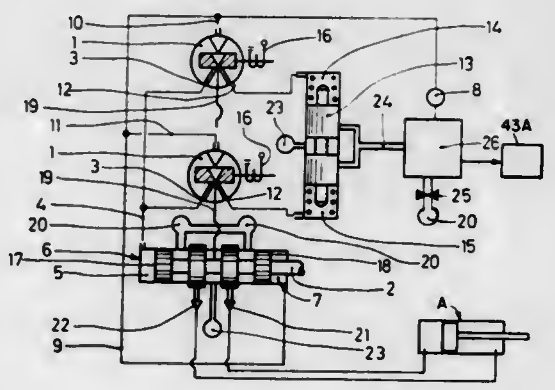
Holm Diethard Boss, and Hans Albert Butschek, both of Munich, Germany, assignors to Messerschmitt-Bolkow-Blohm GmbH, Munich, Germany

Filed Aug. 20, 1971, Ser. No. 173,525

Claims priority, application Germany, Aug. 21, 1970, 2041681

Int. Cl. F15b *11/08, 13/042*

U.S. Cl. 91—459 **7 Claims**



Method and apparatus for the electric hydraulic control of a hydraulic actuator, said control comprising a redundant servovalve circuit with switching and monitoring logic. The apparatus has a plurality of electrohydraulic servovalves each controlled by separate electrical input channels and connected to a central pressure medium source. The control further has a control spool triggered by the servovalve to control the actuator and a hydraulic logic system for monitoring errors in the servo output signal. The positioning land of the control spool is acted upon on the one side by one group of signals consisting of the combined output signals of the same sign from one selected group of servovalves and is acted upon on the other side by the central pressure medium supply while the remaining servovalve signals are applied separately to a hydraulic logic system including a comparator and switching logic means.

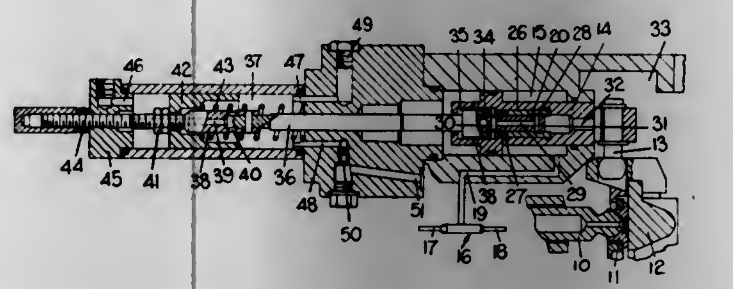
3,834,280
ACTUATORS FOR STROKE CONTROL IN HYDRAULIC MACHINES

Brian Paul Jones, Huyton, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Feb. 13, 1973, Ser. No. 332,206

Int. Cl. F04b *1/00*

U.S. Cl. 91—505 **9 Claims**



An actuator for varying the stroke of a variable stroke swash plate pump in which there is provided a body defining a cylinder within which slides a differential area, hollow piston connected to the swash plate of the pump. A passage connects the cylinder in the smaller area side of the piston with whichever of the ports of the pump is at the higher pressure via a shuttle valve. A spool valve is slidable in a sleeve in the hollow piston and has a sleeve secured thereto. The hollow in the piston is connected on one side of the spool valve with a chamber in the pump and on the other side of the spool valve with the cylinder on the larger area side of the piston. A plunger is connected with the spool valve via the sleeve secured thereto and carries an abutment against which an element slidable in a further chamber is urged by a spring. The further chamber is supplied with a control pressure signal which controls the movement of the spool valve so that the magnitude of a servo pressure derived from the pump port pressure is controlled, with the servo pressure being applied to the larger area side of the piston via the spool valve.

3,834,281
CONTROL SYSTEM FOR AXIAL-PISTON MACHINES AND THE LIKE

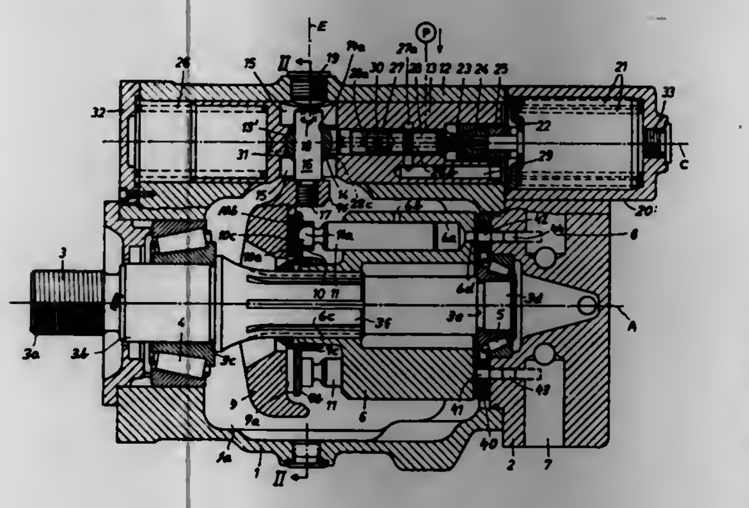
Walter Heyl, Oberafferbach; Karl-Heinz Bergmann, Feldkahl, and Hermann Kern, Grosskrozenburg, all of Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Germany

Filed Jan. 22, 1973, Ser. No. 325,889

Claims priority, application Germany, Jan. 31, 1972, 2204466

Int. Cl. F01b *3/00*

U.S. Cl. 91—506 **8 Claims**



A motion-transmitting system for converting linear actuating movement into a pivotal movement of a controlled member, especially for the control of an axial-piston machine having a tiltable controlled member by a working piston capable of linear movement, comprises a cylindrical guide body rotating in a cylindrical bore of a working piston and connected to the control member by a cylindrical pin received in a transverse bore of the cylindrical guide body. The pin is preferably threaded directly to the controlled member of the axial piston machine.

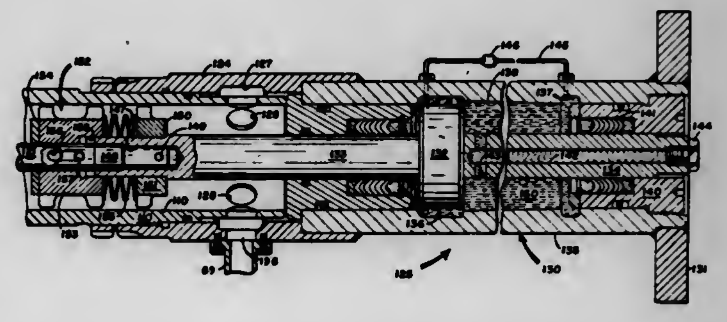
3,834,282
ACTUATOR AND LATCH

Sverre Kongelbeck, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Division of Ser. No. 97,686, Dec. 14, 1970, Pat. No. 3,742,813. This application May 4, 1973, Ser. No. 357,136

Int. Cl. F15b *15/22*

U.S. Cl. 92—10 **5 Claims**



The invention relates to actuator mechanisms and particularly provides a shock-absorbing actuator apparatus comprised of an actuator piston buffered by both a mechanical buffer and a hydraulic buffer, the mechanical buffer being comprised of stacked Belleville washers, a driven element carried on a buffer piston rod, and a driving element carried on a buffer rod, the structure acting to cushion the movement of an actuator piston.

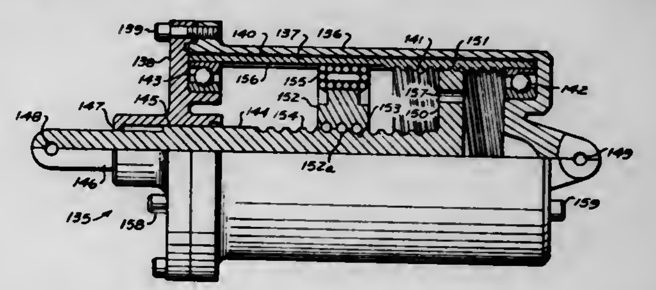
3,834,283
FLUID-OPERABLE LINEAR ACTUATORS

Rudi Beichel, and Clifton J. Reynolds, both of Sacramento, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.

Division of Ser. No. 157,296, June 28, 1971, Pat. No. 3,763,747. This application July 20, 1973, Ser. No. 381,315

Int. Cl. F01b *3/00*

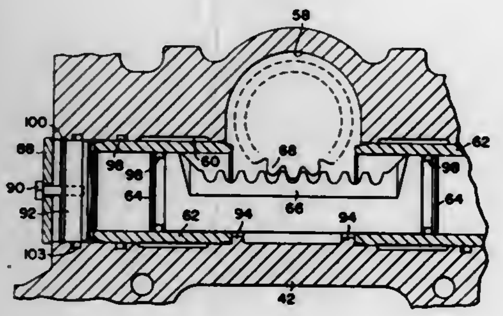
U.S. Cl. 92—33 **2 Claims**



A linear actuator according to the present disclosure includes an axially reciprocable piston having means controlling the radial position of the piston. Means is provided for imparting fluid pressure to opposite sides of the piston causing the piston to move axially. The piston is threadably engaged to a drive means so that axial movement of the piston imparts rotation movement to the drive means. An axially moveable thrust rod is threadably assembled to the drive means so that rotation of the drive means imparts axial motion to the thrust rod. In one form of the device, the piston is threadably engaged to the thrust rod which in turn is restrained from rotational movement. The piston is also threadably engaged to a sleeve which rotates with the piston, the sleeve being threadably engaged to the thrust rod so that radial movement of the sleeve drives the thrust rod axially. In another form of the device the piston is keyed to a key slot in a cylindrical bore, the key slot being helically wound so that the advance of the thrust rod is dependent upon the algebraic sum of the advance of the threaded assembly and the advance of the helical key slot.

3,834,284
HYDRAULIC STEERING FOR TRACTORS AND LIKE VEHICLES

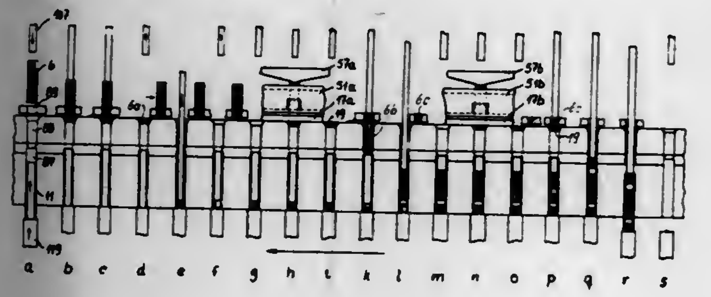
Richard Treichel, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.
Filed Apr. 5, 1973, Ser. No. 348,165
Int. Cl. F01b *9/00;* **F16j** *11/04*
U.S. Cl. 92—136 **10 Claims**



A hydraulic steering system of the class described in which steerable wheels are connected to a shaft having a pinion in mesh with the rack of a piston means and wherein each piston of the double-ended piston means is carried in a removable liner that is in turn carried in a bore or chamber of the basic housing. Each liner is constructed and mounted in such a way as to avoid axial displacement during operation of the system.

3,834,285
METHOD AND MACHINE FOR THE PRODUCTION OF COMPOSITE FILTER MOUTHPIECE

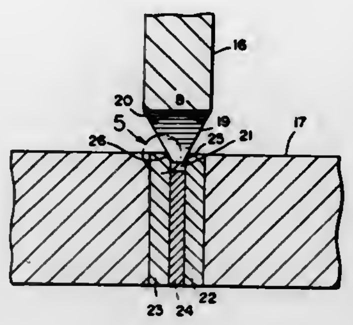
Bernhard Schubert, Neu Boernsen, and Otto Blidung, Geestchact, both of Germany, assignors to Hauni-Werke Korber & Co. K.G., Hamburg, Germany
Filed July 25, 1972, Ser. No. 275,096
Claims priority, application Germany, July 26, 1971, 2137318; July 26, 1971, 2137319; Sept. 10, 1971, 2145375
Int. Cl. A24c *5/50*
U.S. Cl. 93—1 C **27 Claims**



Filter mouthpieces with one or more thin filter disks of first filter material and one or more filter plugs of second filter material are produced by inserting alternating filter plugs and filter disks into prefabricated tubes which move sideways, by inserting filter disks between filter plugs which form a single file and travel with a web of wrapping material which is thereupon draped around the alternating filter disks and filter plugs, or by inserting filter disks between groups of axially aligned tobacco rod sections and filter plugs and thereupon wrapping adhesive-coated uniting bands therearound.

3,834,286
PLY-BONDING METHOD, APPARATUS AND PRODUCT

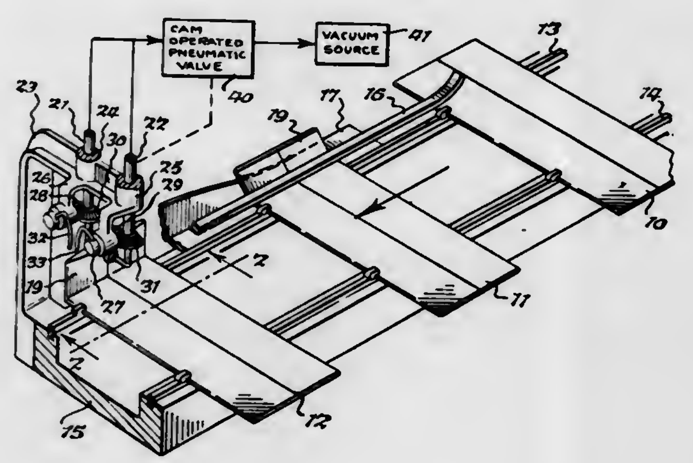
Ernst Daniel Nystrand, Green Bay, Wis., assignor to Paper Converting Machine Company, Green Bay, Wis.
Filed Oct. 3, 1972, Ser. No. 294,628
Int. Cl. B31f *5/00*
U.S. Cl. 93—1.1 **5 Claims**



Ply-bonding method, apparatus, and product wherein at least two webs are advanced between a notched, beveled wheel and two beveled anvil surfaces to subject the webs to a pair of intermittent angled compressive forces.

3,834,287
METHOD AND APPARATUS FOR OPENING TUBES OF FLEXIBLE MATERIAL

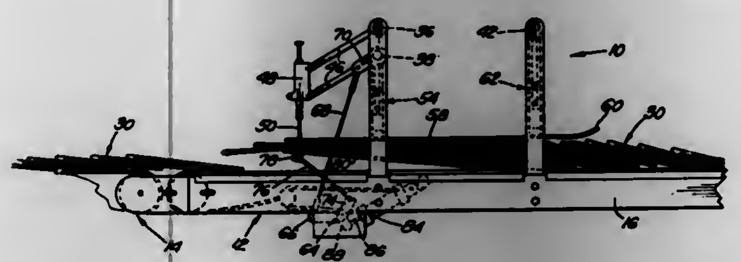
Clinton R. Hollis, Camden, Ark., assignor to International Paper Company, New York, N.Y.
Filed June 29, 1972, Ser. No. 267,361
Int. Cl. B31b *1/80*
U.S. Cl. 93—35 R **3 Claims**



A method and apparatus for spreading open the ends of bag tube blanks in a bag forming machine wherein a pair of opposing suction cups, one on each side of the path of movement of the blanks are moved in a circular path with respect to the machine frame. At the same time the suction cups are counter rotated at the same angular speed but in directions opposite to their movement in the circular path whereby the suction cup faces maintain constant their angular relationship with respect to the machine frame. The paths of movement of the cups are selected to provide concurrent tangential passage of the cups with the two walls of the bag blank and a suction pressure is applied to the cups when they are in contact with the blank. The blank is opened by action of the suction pressure as the cups move away from each other.

3,834,288
INTERCEPTOR FOR FORMING GAPS IN PAPERS CARRIED BY A CONVEYOR

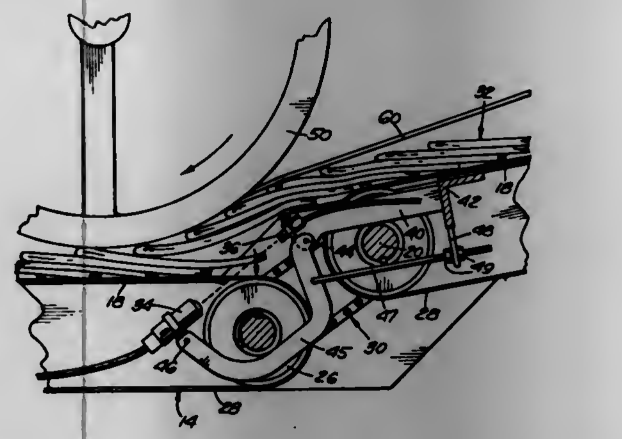
Roy E. Behrens, and Leo O. Donahue, both of Highland, Calif., assignors to Graphic Engineers, Inc., Highland, Calif.
Filed Mar. 29, 1973, Ser. No. 346,043
Int. Cl. B31b *1/98*
U.S. Cl. 93—93 R **4 Claims**



An interceptor for opening up gaps at measured intervals in a continuous stream of shingled papers carried by a belt conveyor, comprising a paper lift disposed below said papers, one end of which tilts up to raise the papers off the belt, while a spring-loaded plunger simultaneously moves downwardly from above to pinch the papers against the lift, allowing the last paper ahead of the gap to pull out, while the papers behind it are stopped. At the same time, a generally horizontal, elongated paper leveler moves downwardly from above and cooperates with the paper lift to form a long wedge-shaped space into which the papers crowd in a shortened shingle as the conveyor continues to advance. When the gap has been opened, the lift lowers the papers back onto the conveyor belts, and the leveler and spring-loaded plunger are simultaneously raised, releasing the stream of papers to move with the conveyor.

3,834,289
PHOTOELECTRIC COUNTER FOR PAPER CONVEYOR

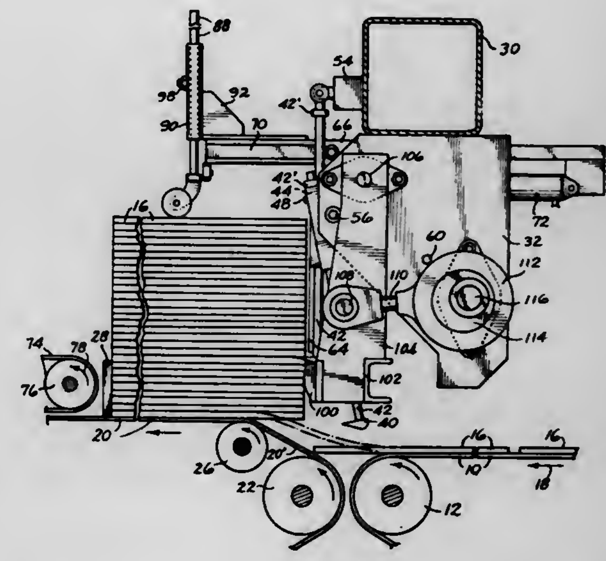
Roy E. Behrens, and Leo O. Donahue, both of Highland, Calif., assignors to Graphic Engineers, Inc., Highland, Calif.
Filed Apr. 2, 1973, Ser. No. 347,191
Int. Cl. B31b *1/96*
U.S. Cl. 93—93 C **7 Claims**



A photoelectric counter for a belt conveyor system that transports a continuous stream of shingled papers, said conveyor system comprising first and second conveyor sections, the first section delivering the papers to the second section, and the discharge end of the first section being elevated above the receiving end of the second section, so that the trailing edges of the papers flip downwardly as they leave the first section. A photoelectric cell and lamp are mounted under the conveyor sections at the point where the papers transfer from one to the other, with the light beam from the lamp positioned where it is interrupted by the downward flipping of the trailing edges of the papers. A wheel resting on the top surface of the papers presses the papers downwardly and bends them into an arcuate curve of relatively short radius, causing the trailing edges to flip smartly downwardly in a brisk and positive movement, to interrupt the light beam and actuate the photoelectric cell.

3,834,290
APPARATUS FOR COUNTING AND STACKING SHEET MATERIAL

Victor R. Nelson, 2700 S.W. Summit Dr., Lake Oswego, Oreg. 97034
Filed Apr. 26, 1973, Ser. No. 354,693
Int. Cl. B31b *1/98*
U.S. Cl. 93—93 C **7 Claims**

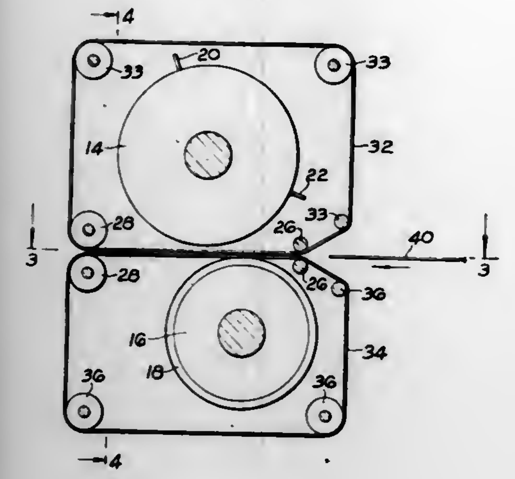


Sheets of material, such as cardboard container blanks, are conveyed to a stacking station sequentially where they are stacked vertically from underneath, the sheets being counted by counter mechanism as they are delivered to the stacking station. When a desired number of sheets have been stacked, the counter activates mechanism to extend a finger under the stack. Continued stacking of sheets under the finger elevates the latter along with the overlying sheets to a position at which the finger effects activation of ejector mechanism which removes the counted stack from above the finger to an outfeed conveyor. The finger then is retracted and lowered to initial position for subsequent extension. When the desired number of sheets have been assembled into a second stack, the counter activates mechanism to extend a second finger under the stack. Continued stacking of sheets under the second finger elevates the latter to a position at which it effects activation of the ejector mechanism to remove the counted second stack from above the second finger. Additional fingers may be provided to continue the foregoing sequence, after which the cycling reverts to the first finger. Alternatively, a single finger may be provided for use with all stacks, if the rate of stacking accommodates it.

3,834,291
STRIPPING APPARATUS AS USED IN THE PRODUCTION OF CARDBOARD AND LIKE BLANKS

Thomas Desmond Bishop, Solihull, England, assignor to The Deritent Engineering Company Limited, Birmingham, England
Filed July 7, 1972, Ser. No. 269,777
Claims priority, application Great Britain, July 10, 1971, 32476/71
Int. Cl. B31b *1/00*
U.S. Cl. 93—36 A **5 Claims**

The invention provides stripping apparatus for use in the manufacture of cardboard and similar blanks in which the cut blanks are passed through a roll pair, one of the rolls having pins or projections to engage with the scrap areas of the blank and deflect them out of the feed path, and in which each roll is encircled by a series of conveyor belts so that the belts serve to maintain the blank in the feed path, the belts being adjusted along the axes of the rolls so as to engage the blank only over the areas which are to be maintained in the feed path and not over the areas which are to be displaced out of the feed path as scrap; in a modification, some of the belts extend about the one roll and through the feed path, these additional belts being arranged so as to engage only with the scrap material and they thus serve to convey the scrap material out of the feed path.



3,834,292

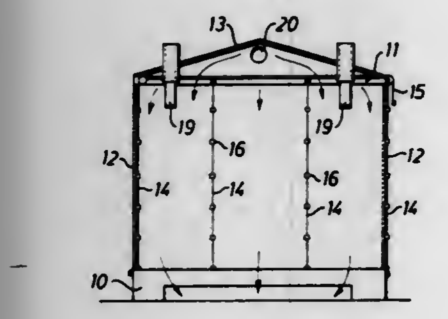
HEAT INSULATING PROTECTIVE COVER FOR TEMPERATURE SENSITIVE GOODS

Erik Ivar Sund, Valhallavagen 134, 114 41 Stockholm, Sweden

Filed Apr. 23, 1973, Ser. No. 353,622

Int. Cl. F24f ***13/00***

U.S. Cl. 98—32 **4 Claims**



A heat-insulating protective cover for temperature sensitive goods, comprising a carrier frame to be positioned over the top surface of the temperature sensitive goods, means supporting said frame from underneath, and withdrawable walls of flexible heat-insulating material extending around and over said carrier frame, said walls being lowerable from a top position to abutment against a goods carrying surface under said carrier frame with said carrier frame maintained in an unchanged position.

The protective cover is preferably provided with means for the supply of temperature controlled air to the space under the protective cover and with means for forming a free space between said cover and the stored goods, so as to ensure circulation of the temperature controlled gas in the protective cover.

3,834,293

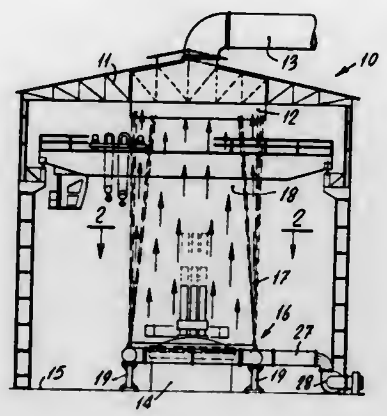
EQUIPMENT FOR CONVEYING SMOKES AND PRODUCTS OF THE COMBUSTION IN A SMELTING FURNACE

Luigu Danieli, 33042 Buttrio (Udine), Italy

Filed Nov. 22, 1972, Ser. No. 308,764

Int. Cl. F24f ***9/00***

U.S. Cl. 98—36 **5 Claims**



An equipment for the collecting and conveying smokes and combustion products of a smelting furnace. Such equipment comprises blowing means generating a screen of compressed air around the furnace, the said air screen forming a vertical closed chamber conveying the smokes leaving the furnace to a hood located above.

3,834,294

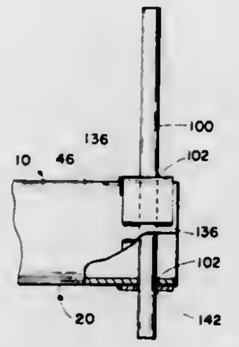
GRAIN DRYER AND AERATOR

Marion E. Wurdeman, and James A. Wurdeman, both of Columbus, Nebr.

Filed Mar. 26, 1973, Ser. No. 344,828

Int. Cl. B65g ***3/08***

U.S. Cl. 98—57 **4 Claims**



A grain dryer and aerator having a long tubular portion with auger threads on its forward end and a removable fan housing on its rearward end, the tubular portion having a reinforced part with handle mounting aperture means therethrough, the aperture means being blocked by a portion of the fan housing.

3,834,295

OVEN HOOD WITH AUTOMATIC SWITCH

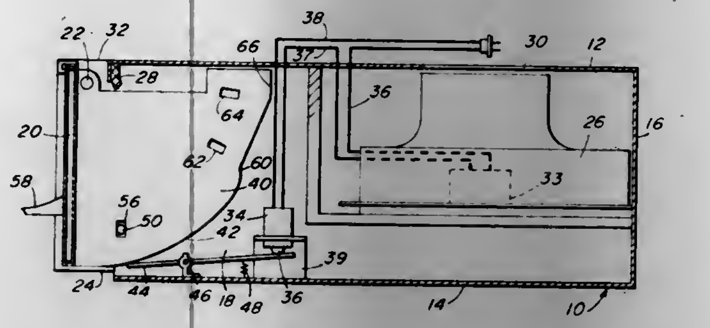
Harry W. Seidel, Mertztown, Pa., assignor to Raytheon Company, Lexington, Mass.

Filed Dec. 12, 1973, Ser. No. 424,248

Int. Cl. F23j ***11/02***

U.S. Cl. 98—115 K **7 Claims**

An exhaust hood for use with an oven or the like comprising a shell having a pivotly mounted faceplate carrying on its inner side a cam having an edge of irregular surface contour, a switch in the shell electrically connected between an external source of power and an exhaust fan within the shell, and a pivoted switch actuator or cam follower which at one end engages the irregular surface of the cam and at its other end engages the switch for controlling the switch in correspondence with the position of the actuator on the cam surface.



3,834,296

CONTINUOUS PRODUCTION OF BEER WORT FROM DRIED MALT

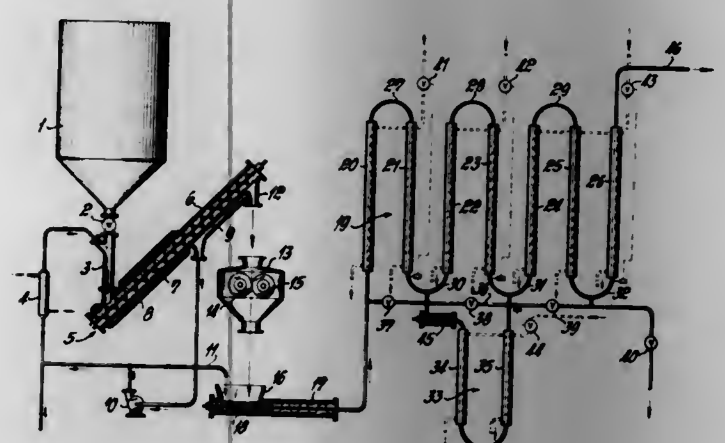
Wolfgang Kehse, Ahrensburg, and Uwe Jess, Hamburg, both of Germany, assignors to Extraktionstechnik Gesellschaft fur Anlagenbau mbH, Hamburg, Germany

Filed July 26, 1973, Ser. No. 382,714

Claims priority, application Germany, Aug. 1, 1972, 2237767

Int. Cl. C12c ***7/14, 7/16***

U.S. Cl. 99—276 **7 Claims**



An apparatus for continuously making beer wort from dried malt has a malt soaking unit and a malt crusher which is adapted to receive the soaked malt from the unit and has at least two smooth-surface cooperating rolls and drive means for driving them at differential velocities. A conduit system has a plurality of upright heatable conduit sections and serves for heating a mash which is produced after the malt has been treated in the crusher, and a clarifying unit is provided for clarifying the mash having been heated previously.

3,834,297

BALE STRAPPING SYSTEM

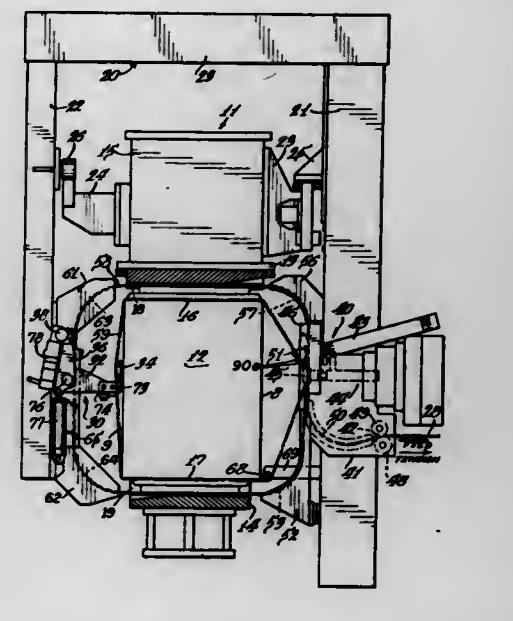
Gale Huson, Glenview, Ill., assignor to Signode Corporation, Glenview, Ill.

Filed May 15, 1972, Ser. No. 253,125

Int. Cl. B65b ***13/04***

U.S. Cl. 100—3 **39 Claims**

A bale of material such as cotton is held compressed along a vertical axes at a packaging station in a press where a strapping device at one side of the press serially feeds a plurality of straps around the bale at respective strapping locations spaced transversely along the bale sides tensioning each into engagement with the bale and joining each by a seal at one side of the bale. A strap shifting apparatus is mounted at the other side of the packaging station to a transversely movable vertical support. It includes a back-up member horizontally extending to the adjacent bale, and a transversely-extending portion alongside the bale side having a surface thereon facing away from the bale towards the support and which is engaged by a strap when tensioned. Either an arm carrying a wheel at one end and pivoted on the support near the other, or an extendable plunger carried in a cylinder at one end and having a gripping surface at the other end, then moves to compress the strap against the back-up strap surface. In the former, the wheel is then driven to cause the strap to shift, and in the latter, both anvil and plunger are mounted upon a carriage movably carried upon the support, and the carriage is driven vertically along the support to thereby move the strap, and shift the seal from the side to the bottom of the bale. The strap shifting apparatus may then be transversely moved to disengage from the strap and to be repositioned at another strapping location, and the operation repeated.



3,834,298

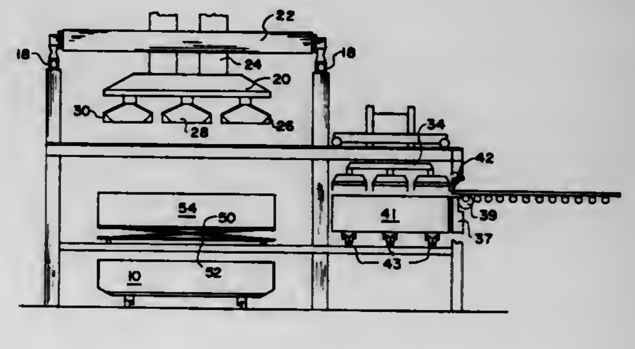
BRICK UNLOADER-STACKER APPARATUS

Forrest A. Paschal, and Gerald L. Stuart, both of Siler City, N.C., assignors to Forrest Paschal Machinery Company, Siler City, N.C.

Continuation-in-part of Ser. No. 267,251, June 28, 1972, abandoned. This application Aug. 2, 1972, Ser. No. 277,266

Int. Cl. B65b ***13/00***

U.S. Cl. 100—7 **21 Claims**



Brick are unloaded from a kiln car one double-layer course at a time and formed into a stack at a receiving station by a combination unloader-stacker head rather than being unloaded by one apparatus and transferred along a conveyor to a stacking apparatus in single or double-layer courses or rows. During the unloading and stacking, a tyne course pickup head is operated synchronously with the unloader-stacker head to form a tyne course at a prescribed position in the stack. The receiving station may be either an elevator operated table or a set of powered conveyor rollers onto which the brick stack is formed. Completed stacks formed by the unloader head are then transferred as a unit to the stacking head.

3,834,299

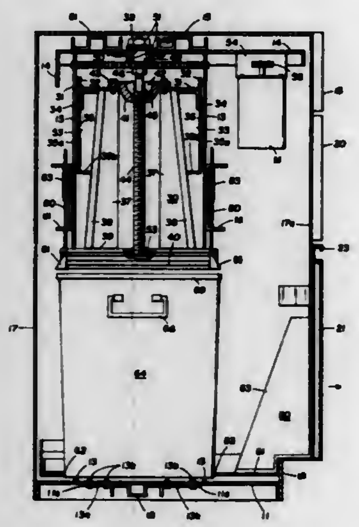
TRASH COMPACTOR WITH HOLD-DOWN MEANS FOR TRASH CONTAINER AND LINER

Joseph F. Bourgeois, Cedar Rapids, and James M. Grace, Elberon, both of Iowa, assignors to Amana Refrigeration, Inc., Amana, Iowa

Filed Mar. 23, 1973, Ser. No. 344,190

Int. Cl. B30b *15/30*

U.S. Cl. 100—229 A **6 Claims**



A trash container for use in a trash compactor employs a round bucket in which is placed a disposable plastic bag. A bag liner in the form of a one piece, collapsible sheet of polyurethane is placed around the interior of the bucket over the disposable bag to protect the latter during compaction of trash. In order to prevent trash jammed between the edge of the ram and bag liner from pulling out the latter when the ram of the compactor is withdrawn, a number of spring loaded hold-downs bear against the top edge of the liner and are automatically lifted clear by the ram at the top of its stroke so that the container can be removed.

3,834,300

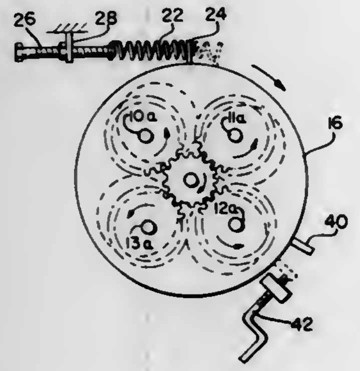
AUTOMATIC DENSITY CONTROL FOR ROLLING-COMPRESSING MACHINES

Joseph Molitorisz, Bellevue, Wash., assignor to Rotopak Systems Inc., Bellevue, Wash.

Filed Apr. 13, 1972, Ser. No. 243,641

Int. Cl. B30b *3/04*, *13/00*, *15/30*

U.S. Cl. 100—89 **3 Claims**



A self-actuating skew-angle control system in which a planetary drive is employed at the driving end of a rolling-compressing channel with the roller ends being mounted in the housing of a planetary gear drive so that an increase in the rolling resistance caused by the increase of material within the channel results in rotation of the gear drive housing to cause skewing of the driven ends of the rollers against a predetermined bias force resulting in the material being moved axially out of the discharge end of the channel.

3,834,301

PROCESS AND DEVICE FOR NON-IMPACT PRINTING WITH LIQUID INK

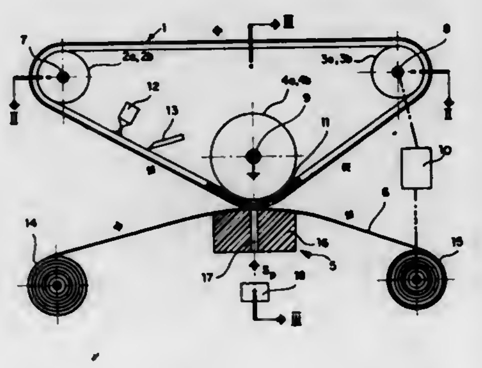
Jean-Pierre Croquelois, Lausanne; William Erskine, Grand-Lancy/Ge, and Raymond Gerber, Moillesulaz, all of Switzerland, assignors to Battelle Memorial Institute, Carouge, Geneva, Switzerland

Filed Nov. 6, 1972, Ser. No. 304,004

Claims priority, application Switzerland, Nov. 17, 1971, 16767/71

Int. Cl. G01d *5/44*

U.S. Cl. 101—1 **8 Claims**



A process and device are provided for non-impact printing with liquid ink, in which ink dots of controlled size are printed at high speed on paper sheet or strip in accordance with desired printing patterns corresponding to printing control signals delivered by a data source. Electrically conductive ink is retained by capillary action in a plurality of uniform perforations in an electrically conductive ink-carrier provided with an ink-repelling layer. To provide selective ink transfer onto the paper, the ink-carrier is maintained at a given constant potential and the paper sheet is placed between said ink-repelling layer and an array of electrodes which are selectively aligned with perforations of the ink-carrier and receive said printing control signals in the form of voltage pulses of given amplitude and short duration. A localized electric field of controlled intensity and duration is thereby momentarily created between each selected electrode and the ink contained in the perforation in alignment therewith, so as to provide rapid attraction of the ink surface towards the paper for contact therewith. The amount of ink transferred onto the paper during contact may be controlled to provide ink dots of given size by suitable adjustment of the amplitude and duration of the voltage pulses, as well as adjustment of the distance between the paper and the ink at rest in each perforation.

3,834,302

LABEL PRINTING

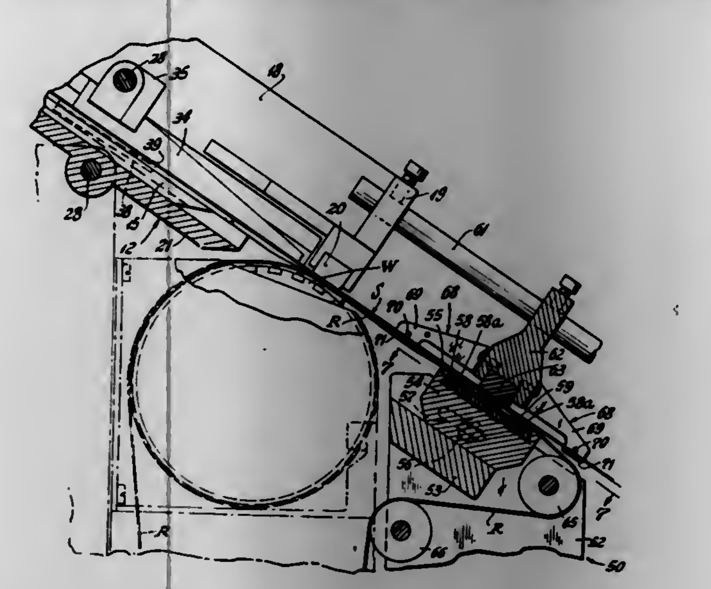
Peter G. Canaiy, 1137 Mill Plain Rd., Fairfield, Colo. 06430

Filed Oct. 20, 1972, Ser. No. 299,434

Int. Cl. B41l *45/02*

U.S. Cl. 101—69 **2 Claims**

There is disclosed a label printing machine having settable type wheels for printing data on a continuous strip of labels with an attachment for striking-in additional data pertaining to a particular succession of labels. The additional data may comprise the name and address of the party to whom a package containing the labels may be sent while the data printed on the label by the settable type identifies the contents of the package to which the label is to be applied.



3,834,303

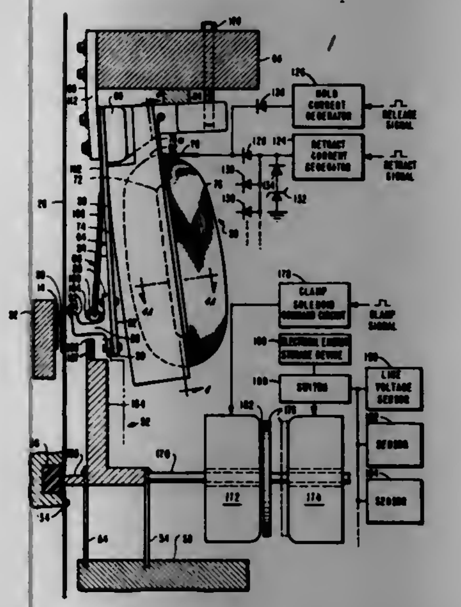
HIGH SPEED LINE PRINTING APPARATUS

Gordon Brent Barrus, El Segundo; Leo Joseph Emenaker, Playa Del Rey, and Raymond Franklin Melissa, Inglewood, all of Calif., assignors to Pertec Corporation, El Segundo, Calif.

Filed Feb. 16, 1973, Ser. No. 333,221

Int. Cl. B41j *5/12*

U.S. Cl. 101—93 C **17 Claims**



A high speed line printer includes a print-receiving medium, a continuously moving type carrier, a ribbon positioned between the print-receiving medium and the type carrier, and a bank of hammer units having individually fired but simultaneously retracted hammers positioned adjacent the print-receiving medium. Each hammer is magnetically retracted and held against the force of a flat spring armature. Upon release of a hammer, the stored mechanical energy of the spring causes the hammer to be driven to a printing impact and a damper prevents subsequent printing impacts due to hammer oscillation. Each hammer unit comprises a pole piece with a convex pole face and a hammer which includes the flat spring armature secured at one end to the pole piece and an impact element mounted on the outer surface of the armature at the other, free end thereof. The damper has a low mass body which includes energy absorbing material and is spring biased to a normal position in contact with the impact element. The utilization of multiple impacts between the damper and hammer permits the damper mass to be reduced so as to reduce the total movable mass, thereby decreasing hammer flight time and increasing efficiency. An interposer is operable to prevent the printing of an unwanted line by inhibiting the flight of the hammers in the event of an error condition such as a power failure.

3,834,304

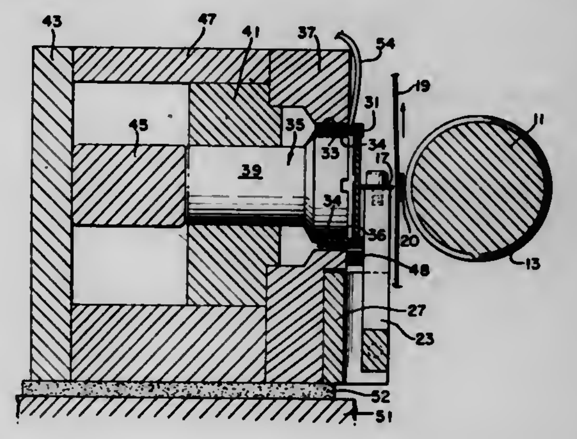
HELICAL BAR PRINTER AND HAMMER THEREFOR

John T. Potter, Locust Valley, N.Y., assignor to Potter Instrument Company, Inc., Plainesview, N.Y.

Filed May 21, 1970, Ser. No. 39,314

Int. Cl. B41j *7/08*

U.S. Cl. 101—93 C **8 Claims**



In a printer which selectively prints in response to binary coded input character signals, a plurality of rigidly supported, lightweight blades repeatedly strike a continuously rotating helical bar, printing dot patterns. A movable, lightweight coil fixed to each blade respectively and disposed in a magnetic field drives the blade. Logic circuits, which control the hammers to print alphanumeric characters, include a read only memory which stores binary signal sets representing dot patterns to be printed in rows to compose alphanumeric characters. In response to the received binary characters, addresses in the read only memory are selected to compose the corresponding alphanumeric characters. The binary signal sets at the selected addresses are read out to shift registers, one corresponding to each hammer. The signals in the shift register are read serially out of the shift registers and control actuation of the corresponding hammers as they are read out.

3,834,305

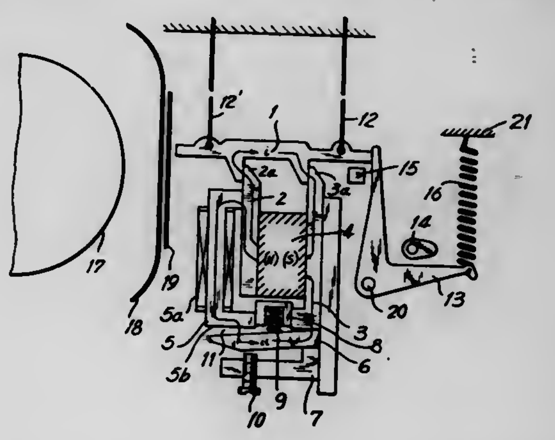
PRINTER

Yoshifumi Gomi, Chino, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Aug. 21, 1973, Ser. No. 390,289

Claims priority, application Japan, Aug. 23, 1972, 47-83641

U.S. Cl. 101—93 C **11 Claims**

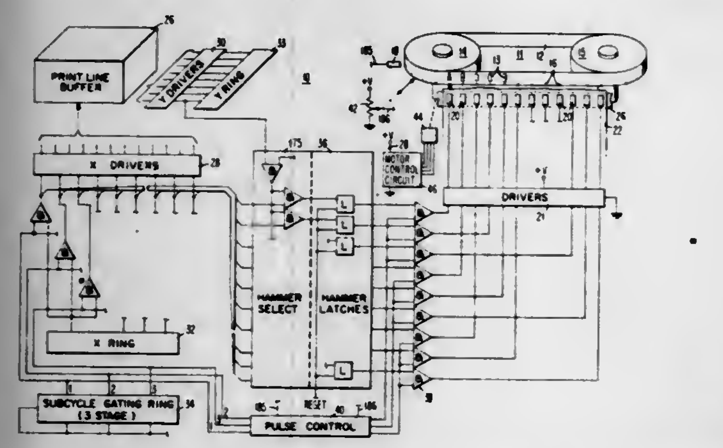


A printer is provided with a plurality of print hammers, each of which is maintained in a rest position engaging a deformed elastic body. Individual magnetic circuits in combination with a single permanent magnet are provided for selectively maintaining each of said print hammers in said rest position and for selectively releasing said print hammers to effect printing. Each magnetic circuit consists of a first portion including a device for adjusting the reluctance of said second portion upon release of the associated print hammer. The first and second portions are connected in parallel with a permanent magnet common to at least two print hammers. Each of said print hammers is released from its rest position by exciting a control coil in said magnetic circuit in a direction such that the magnetomotive force applied to said print hammer to hold said print hammer in position is decreased, the displacement of the print hammer being the product of the release of the energy of the elastic body.

3,834,306
PRINT DENSITY CONTROL

Richard Lyman Gilbert, Endicott, and Michael David Hryck, Endwell, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 26, 1973, Ser. No. 344,666
Int. Cl. B41j *5/22*
U.S. Cl. 101—93 C **6 Claims**

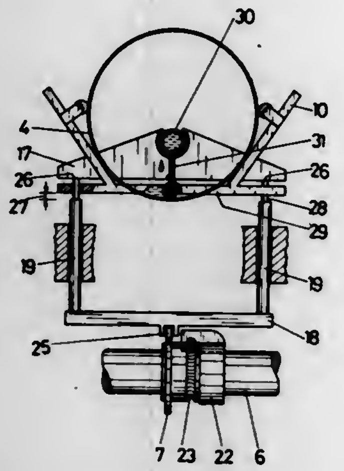


Print hammers in a printer are energized from a source of electrical energy whose voltage may vary. The motor driving the type carrier is energized from an oscillator whose frequency is caused to vary with the voltage of the print hammer source to prevent misregistration between the print hammers and the type characters on the type carrier. The duration of the pulses energizing the print hammers is controlled by print scan pulses derived from timing marks on the type carrier to provide constant print density.

3,834,307
ROTARY SCREEN INTERRUPTER WITH SQUEEGEE LIFT MEANS

Peter Zimmer, Untere Sparchen 54, A-6330 Kufstein, Austria

Filed Sept. 6, 1972, Ser. No. 286,670
Claims priority, application Austria, Sept. 6, 1971, 7722/71
Int. Cl. B41f *15/38;* **B41l** *13/04*
U.S. Cl. 101—115 **9 Claims**

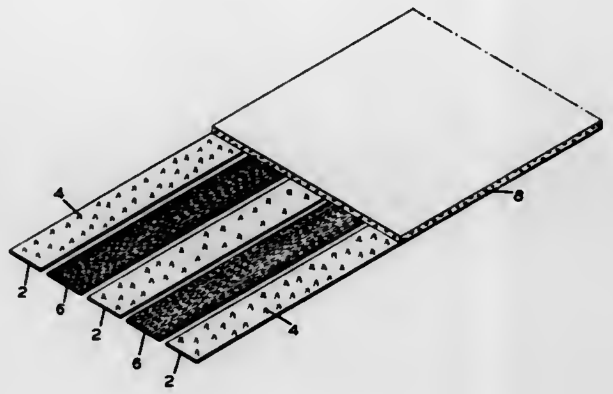


A rotary screen printing machine with a plurality of rotary screens has individual screen lifting devices. Cam shafts have cam plates mounted thereon which raise rams. Each ram has two lifting surfaces. The first lifting surface raises the dye supply and squeegee device within the rotary screen. Then, the second lifting surface raises the rotary screen.

3,834,308
CONDITIONED SLIDE SURFACE FOR CARPET PRINTER

William A. Moggio, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

Filed Sept. 11, 1972, Ser. No. 287,621
Int. Cl. B41f *1/28, 15/18, 21/08*
U.S. Cl. 101—407 BP **1 Claim**

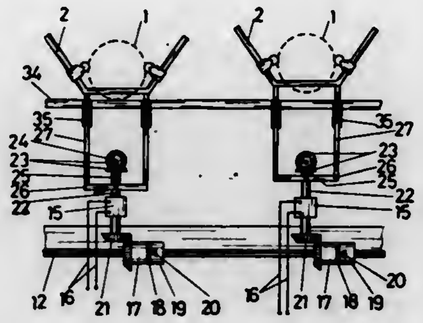


Flat-screen printers for placing a pattern on carpet are provided with a relatively flat stationary surface to support the carpet in place while printing. Herein the normally flat surface of a printer has been replaced by a roughened surface to eliminate the friction and suction drag which is normally encountered when a prewetted foam-back carpet is slid across the flat stationary surface of the printer.

3,834,309
ROTARY SCREEN PRINTER WITH PROGRAMMABLE SCREEN INTERRUPT

Peter Zimmer, Untere Sparchen 54, A-6330 Kufstein, Austria

Filed Sept. 5, 1972, Ser. No. 286,304
Claims priority, application Austria, Sept. 6, 1971, 7721/71
Int. Cl. B41f *15/10*
U.S. Cl. 101—115 **6 Claims**

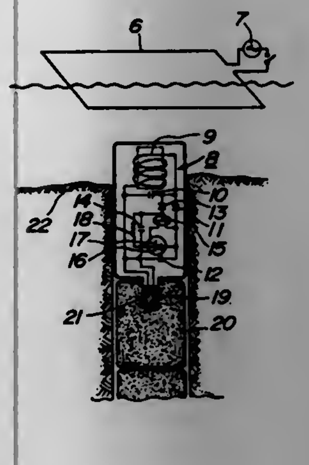


A rotary screen printing machine has a plurality of individual rotary screens each having a lifting device. A control element is connected to each of the lifting devices. A drive is operatively connected to the control element to synchronize the rate of rotation of each of the rotary screens and the lifting thereof by the lifting devices.

3,834,310
REMOTE CONTROL CIRCUIT AND APPARATUS FOR EXPLODING EXPLOSIVES

Takeo Ueda, and Yoshiro Ohsumi, both of Chita-gun, Japan, assignors to Nippon Oils and Fats Company Limited, Chiyoda-Ku, Tokyo, Japan

Filed June 18, 1973, Ser. No. 370,617
Claims priority, application Japan, June 23, 1972, 47-62981
Int. Cl. F42b *3/00;* **F42d** *3/00;* **F42c** *13/00*
U.S. Cl. 102—22 **2 Claims**

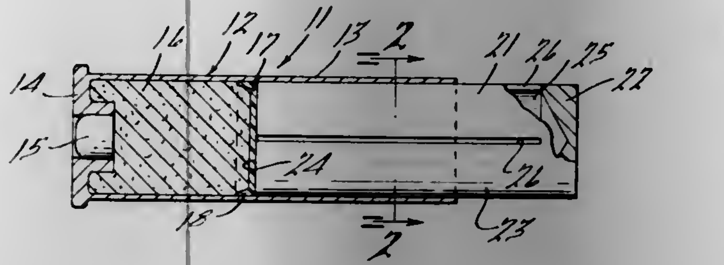


A remote control circuit and apparatus for exploding explosives. Electric power generated at a resonance circuit when it is tuned to a control electromagnetic field is used to charge an ignition condenser. Provision is made for a control circuit including a controlled rectifier called a triac. The control circuit is adapted to generate a starting pulse at an instant when the control electromagnetic field is extinguished. The starting pulse serves to make the controlled rectifier conductive and hence discharge the ignition condenser through a detonator, thereby initiating it and exploding blasting explosives used to break rock and other solid material.

3,834,311
CARTRIDGE

Robert C. Mawhinney, Danville; Edward F. Lamp, Walnut Creek, and Stephen F. Mulich, Jr., San Ramon, all of Calif., assignors to MB Associates, San Ramon, Calif.

Continuation of Ser. No. 148,496, June 1, 1971, abandoned. This application Dec. 7, 1972, Ser. No. 312,937
Int. Cl. F42b *13/20*
U.S. Cl. 102—41 **3 Claims**

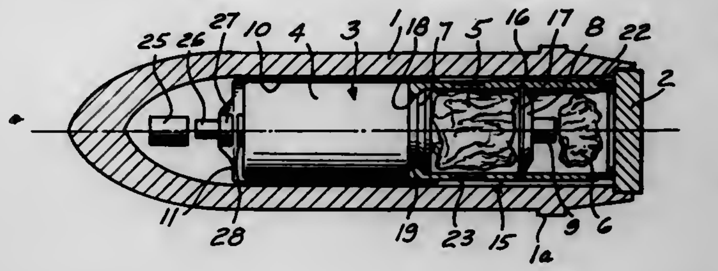


A projectile is effective for a short time and distance and is thereafter rendered ineffective as a result of its rotation in flight. The projectile is mounted in a case of the standard type which permits it to be used in a standard gun. The projectile has a solid head and a hollow extension, the latter of which has longitudinal slots providing a plurality of side wall sections. The sections hinge outwardly from the head, in the position of blades of a propeller, when rotated by the lands in a gun barrel after passing therefrom to quickly reduce the velocity and the striking power of the projectile. By changing the weight at the free end of the side wall sections the time and distance at which the projectile is effective can be changed.

3,834,312
PARACHUTE-BORNE FLARE ASSEMBLAGE

Bjorn Herman Olof Simmons, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Continuation-in-part of Ser. No. 341,071, March 14, 1973, , which is a continuation of Ser. No. 101,499, Dec. 28, 1970, abandoned. This application Apr. 27, 1973, Ser. No. 355,057
Int. Cl. F42b *13/38*
U.S. Cl. 102—35.4 **7 Claims**

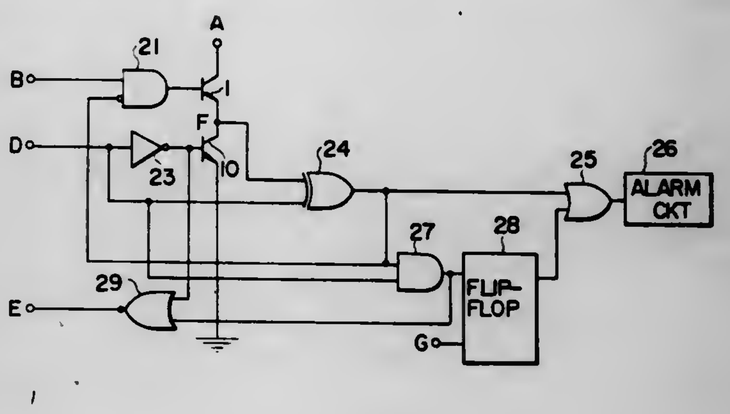


There is disclosed a parachute-borne flare assemblage airlifted by being fired from a rifled gun barrel. This assemblage comprises a hollow projectile which houses the flare package proper. The package includes the flare composition, a main parachute for supporting the flare composition, a drag parachute for reducing the forward velocity and brake flaps for reducing the spin velocity imparted to the projectile when fired and thus also to the flare package and persisting after ejection of the flare package from the projectile. The flare package is ejected as a unit from the projectile by an ejection charge a predetermined time after firing of the projectile, or in other words, when the projectile has reached a selected point in its trajectory. Further ejection and ignition charges free at timed intervals the brake flaps for reducing the spin velocity and the drag chute for reducing the forward velocity of the ejected flare package. Also at timed intervals, components jacketing the package while in the projectile are released and thrown clear by the centrifugal force acting upon these components after ejection from the projectile. Finally, the main parachute unfolds and supports the flare composition which is ignited by an ignition charge, the ignition of which is initiated by the firing of the ejection charge ejecting the flare package as a unit from the projectile.

3,834,313
DETONATOR

Kazuo Sato, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan

Filed May 9, 1973, Ser. No. 358,517
Claims priority, application Japan, May 10, 1972, 47-45361
Int. Cl. F42c *11/00*
U.S. Cl. 102—70.2 A **7 Claims**

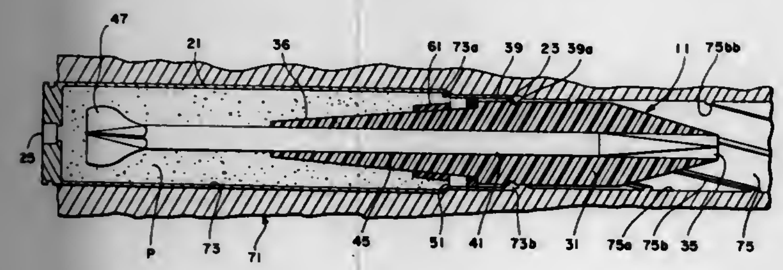


In the detonator disclosed, a semiconductor device has its path of major current flow placed in series with a switched power source and a checking apparatus. An explosive adjacent the semiconductor device is set off when the semiconductor device is biased on so it overheats enough to burn out. A checking switch and circuit means test the transistor by biasing it into its low or normal operating range. A meter indicates the operating condition of the semiconductor device without requiring an initiating current. The semiconductor device may be a transistor, a diode, a thyristor, etc.

3,834,314
PULLER SABOT AMMUNITION WITH SLIP SEAL

Robert B. Young, Jarretsville, Md., assignor to AAI Corporation, Cockeysville, Md.

Filed Dec. 29, 1972, Ser. No. 319,135
Int. Cl. F42b *31/00*
U.S. Cl. 102—93 **15 Claims**

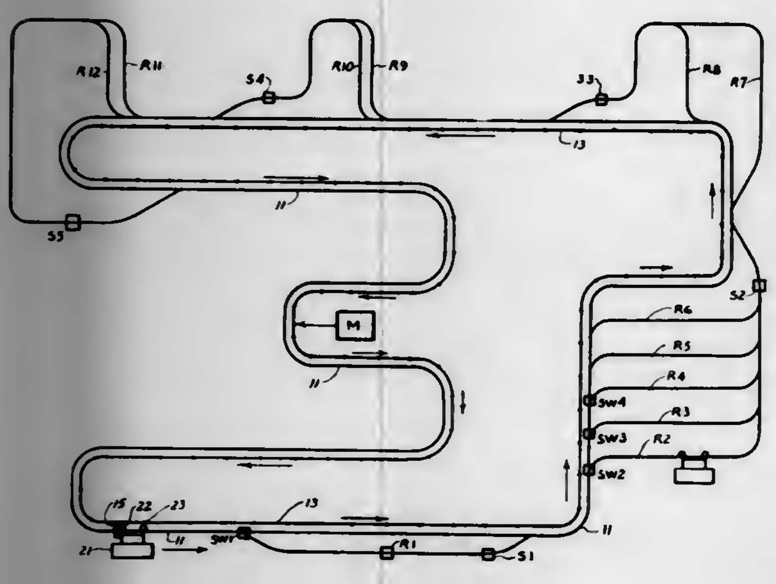


Discarding sabot ammunition adapted for a rifled barrel, including a cartridge having a finned flechette projectile with a projectile-gripping puller sabot riding within the lands of a rifled barrel and a radially protruding anti-friction annular slip seal engaging and riding in sealing relation with the grooves between the rifling lands.

3,834,315
PNEUMATIC CONTROL SYSTEM FOR A TROLLEY DISPATCH NETWORK

Kent F. Warner, White Plains, N.Y., assignor to W & H Conveyor Systems, Inc., Carlstadt, N.J.

Continuation of Ser. No. 133,671, April 13, 1971, abandoned. This application Apr. 6, 1973, Ser. No. 348,506
Int. Cl. B65g *17/42*
U.S. Cl. 104—88 **3 Claims**

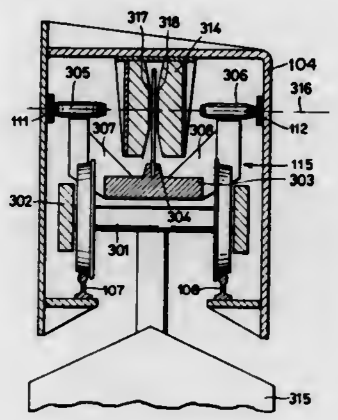


A trolley dispatch network in which a penumatic control system is provided to switch trolley carriers from the main rail to various spurs connected to receiving stations.

3,834,316
TWO RAIL SUSPENSION RAILWAY WITH A LINEAR MOTOR

Walter Hennings, Kirchen/Sieg, Germany, assignor to Arn. Jung Lokomotivfabrik GmbH, Jungenthal bei Kirchen, Germany

Filed Mar. 9, 1972, Ser. No. 233,150
Int. Cl. B60l *13/00*
U.S. Cl. 104—148 LM **11 Claims**

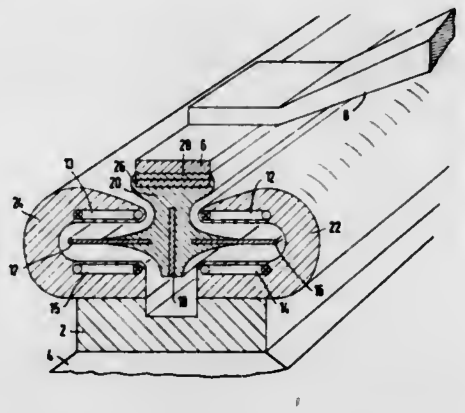


A suspended carriage railway system having a linear motor. There is provided for such a system fixed supporting means for mounting a spaced pair of tracks. An undercarriage is supported on said track and in turn supports an intermediate frame. One part of linear motor means is mounted on the fixed supporting means and the other part thereof is mounted on the intermediate frame. Said frame is related to the undercarriage for sidewise relative movement with respect thereto but is rigidly guided by lateral rails against sidewise movement with respect to the fixed supporting means. Thus the intermediate frame is held accurately against sidewise movement and the linear motor means mounted on said intermediate frame and the fixed supporting means are held accurately against sidewise movement with respect to each other. This makes possible a minimum spacing of the linear motor components while permitting the undercarriage structure to move sidewardly in response to clearance between the supporting wheels and the rails. The railway carriages are suspended from the undercarriage means.

3,834,317
MAGNETIC MOVING VEHICLE SUSPENSION

Jurgen Miericke, Nurnberg, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Dec. 4, 1972, Ser. No. 311,566
Claims priority, application Germany, Dec. 7, 1971, 2160680
Int. Cl. B61b *13/08*
U.S. Cl. 104—148 SS **12 Claims**

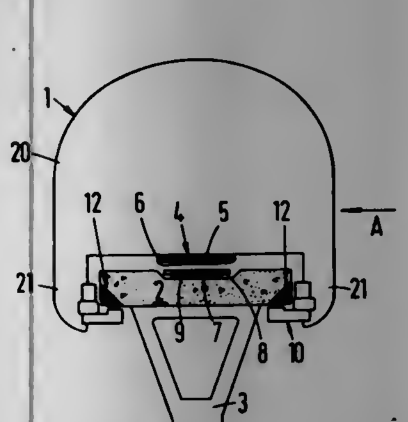


A magnetic moving vehicle suspension has at least two null-flux systems arranged to provide vertical suspension and resistance to rolling of the vehicle, the electric current-carrying magnet loops of these two systems being positioned to cooperatively form a common flux field in a vertical plane between them, and the trackway, in addition to the horizontal electrically conducting track loops of non-magnetic material of these two systems, further including vertical electrically conducting track loops of non-magnetic material cooperating with this common flux field to form a third null-flux system providing resistance to transverse horizontal motion of the vehicle. The magnet loops may be formed by superconductors and the trackway loops may comprise plates made of electrically conductive non-magnetic material, preferably made of several layers of this material laminated together.

3,834,318
GROUND TRANSPORTATION SYSTEMS AND TRACKS AND VEHICLES THEREFOR

Thomas George Fellows, Barnet, and Richard John Armstrong, Bevan, Waterbeach, both of England, assignors to Tracked Hovercraft Limited, London, England

Filed Jan. 23, 1973, Ser. No. 326,030
Claims priority, application Great Britain, Jan. 24, 1972, 3332/72
Int. Cl. B61b *13/04, 13/08*
U.S. Cl. 104—148 MS **18 Claims**



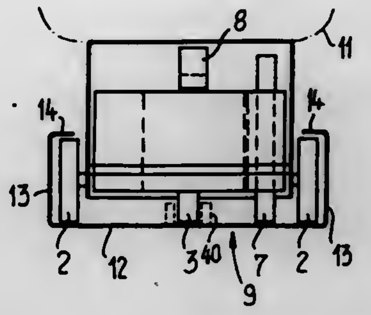
In a ground transportation system comprising a prepared track and a vehicle adapted for operation along the track, the vehicle has first and second electromagnets spaced laterally apart on the vehicle. The track has two lengths of magnetic material extending along the track and arranged so as in combination with the core of each electromagnet to provide a transverse low reluctance path for magnetic flux. Of the two air gaps in each flux path, one is formed by faces of the magnetic material and the core which are substantially vertical and the other is formed by faces of the magnetic material and the core which are substantially horizontal. By controlling the electric supply to the electromagnets the vehicle can be maintained substantially at a predetermined transverse position relative to the track.

3,834,319
CONVEYOR INSTALLATION WITH TRANSPORT CONTAINERS

Werner Kastenbein, Zurich, Switzerland, assignor to Hans Ingold & Co., Zollikon, Switzerland

Filed Jan. 10, 1973, Ser. No. 322,363
Claims priority, application Switzerland, Jan. 14, 1972, 493/72
Int. Cl. B61f *13/00*
U.S. Cl. 104—246 **13 Claims**

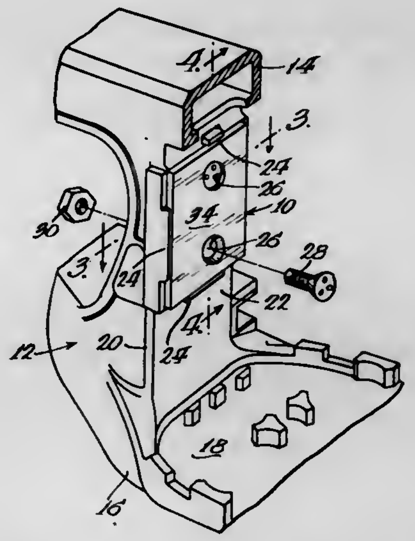
A conveyor installation with transport containers guided at a rail and each of which can be propelled by means of its own drive unit. Each of the transport containers is supported at the associated rail through the agency of a respective pair of travelling wheels arranged in the direction of the transverse axis of the transport container and by means of guide wheels arranged in the lengthwise axis of the transport container.



3,834,320
SPRUNG MOUNTED SNUBBER WEAR PLATE

Carl E. Tack, Elmhurst, Ill., assignor to Trans Dyne, Inc., Chicago, Ill.

Filed Jan. 5, 1973, Ser. No. 321,131
Int. Cl. B61f *5/12, 5/50;* **F16d** *69/04*
U.S. Cl. 105—197 D **7 Claims**



A sprung wear plate particularly useful for reliable secure application to the side frame columns of a railway truck is made from a single metal strip having a concave surface facing the flat mounting surface on the side frame column. The plate has holes for attachment by bolts through aligned holes in the column. High strength bolts are used such that tightening of the bolts flattens out the concave surface of plate into full contact with the column locking the bolts therein. The bolts preferably have tapered heads received in tapered holes in the plates to prevent accidental application of the plates with the concave surface facing outwardly.

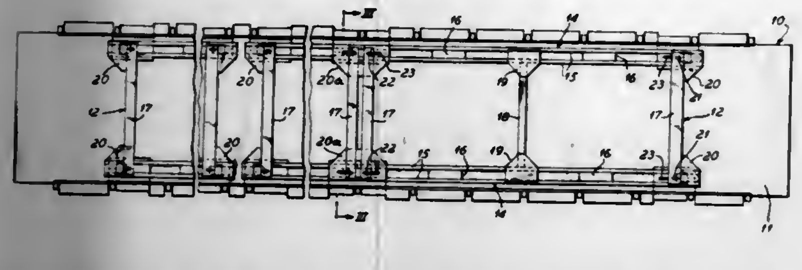
3,834,321
CUSHIONED RACK FOR CONTAINERS ON FLATCARS

Robert A. Pratt, Oak Brook; Keith W. Broling, Olympia Fields, and Richard A. Tatina, La Grange, all of Ill., assignors to Portec, Inc., Oak Brook, Ill.

Filed Oct. 18, 1973, Ser. No. 407,412
Int. Cl. B65j *1/24*
U.S. Cl. 105—366 A **9 Claims**

Cushioned container support for supporting containers on flatcars. The support includes a rack for one long container or two shorter containers having bolsters extending across the rack at each end of the rack and intermediate the ends of the rack. Each bolster has twist locks at its opposite ends for locking the container to the car. The twist locks intermediate the ends of the rack are retractable to accommodate a longer container to be supported on the rack and on the end bolsters.

The rack and bolsters are supported on elastomeric shear pads bolted to the floor of the car between guides for the rack. The bolsters have parallel depending friction members spaced inwardly of the guide members. The friction members form side beams and a retarding means for the rack and the shear pads are disposed between the friction members. During elongation of the elastomeric shear pads upon heavy impact stresses, the friction members are pulled down and frictionally engage the guides to slow down maximum travel of the bolsters and rack.



3,834,322

MIXER TYPE CAR FOR TRANSPORTING MOLTEN PIG IRON

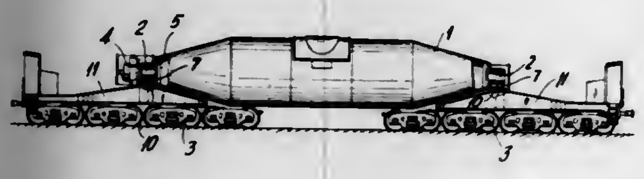
Gunter Meier, Weseler Str. 17, Oberhausen, Germany (42); Winfried Laubach, Nansen Str. 14, Gelsenkirchen, Germany (465), and Josef Horstmann, Oskar Str. 82, Oberhausen, Germany (42)

Filed June 25, 1973, Ser. No. 373,037

Claims priority, application Germany, June 26, 1972, 2231180

Int. Cl. B61d *5/04*

U.S. Cl. 105—367 **8 Claims**



A car structure for very large containers such as mixing tanks for transporting molten pig iron comprises a long tank having a cylindrical trunnion at each end which are supported on bearings on a wheel carriage. At least one of the bearings includes a first bearing part which is secured to a bridge support of the undercarriage and has a top spherical support surface which rotatably receives a similar spherical bottom surface of a second lower bearing part. The lower bearing part includes an opened top bearing support surface for rotatably receiving the trunnions of the large tank and it is closed by a bearing cover part. A tilt drive is carried by the trunnions and it includes a drive member having a driving pinion which meshes with a large gear carried on the trunnion shaft. The tilt drive engages against the outer end of the associated second lower bearing part and it includes a torque stay member which is engaged into a receiving member carried on the lower bearing part. The lower bearing part is anchored in position on the bridge member by a centrally disposed king pin.

3,834,323

DRUM PALLET

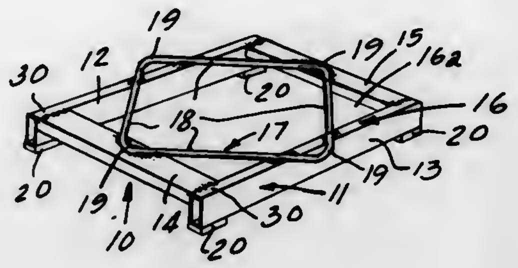
Carl E. Weinmann, Lake City, Minn., assignor to Valley Craft Products, Inc., Lake City, Minn.

Filed Sept. 15, 1972, Ser. No. 289,448

Int. Cl. B65d *19/00*

U.S. Cl. 108—51 **8 Claims**

A drum pallet, such as of steel, includes a shallow metal rectangular base or base portion, a loop of metal receptive in the bottom rim of a drum, such loop being secured to the upper side of said base and overhanging the longer sides thereof, there being one to four such loops on each base, a set of cleats on the bottom of the base receptive of the top rim or rims of another drum or drums on which the pallet is stacked, such structure enabling the use of a hand truck to load a filled drum directly onto the pallet.



3,834,324

RACK CONSTRUCTION FOR THE STORAGE OF ARTICLES

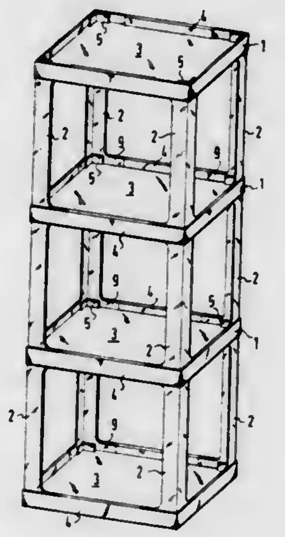
Franz Josef Lang, Kelkheim, Germany, assignor to Display-Design GmbH fur moderne Verkaufsforderungs-mittel und Raumausstattung, Kelkheim, Germany

Filed Oct. 19, 1972, Ser. No. 298,955

Claims priority, application Germany, Oct. 27, 1971, 2153603

Int. Cl. A47b *47/04*

U.S. Cl. 108—91 **8 Claims**



The present invention relates to a rack construction assembly for the storage of articles. The rack construction comprises several base plates which are held one above the other by means of supporting elements to be assembled with the base plates. In the region of the junction points of base plates and supporting elements there are provided locking elements which lock in when the base plates are connected with the supporting elements, thus securing the single parts of the rack construction against unintentional disengagement. This rack construction can be assembled and disassembled quickly and without any tools and offers all-over access to pick up articles.

3,834,325

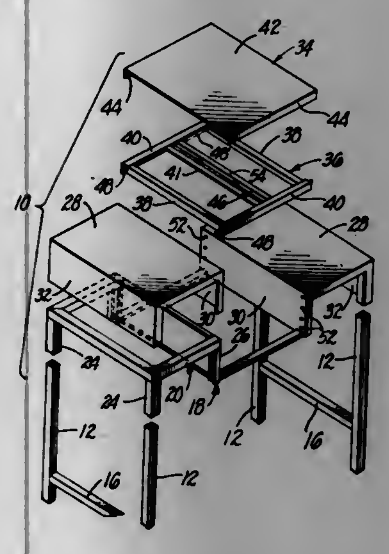
TABLE

Ralph J. DeWilde, 718 Calspur, Claremont, Calif. 91711

Filed Oct. 24, 1972, Ser. No. 299,687

Int. Cl. A47b *21/02*

U.S. Cl. 108—96 **3 Claims**



A table having a top with an adjustable panel whch may be raised and lowered relative to the remainder of the top to provide a work surface whose elevation above the floor may be adjusted. The table is designed for use primarily by wheel chair patients.

3,834,326

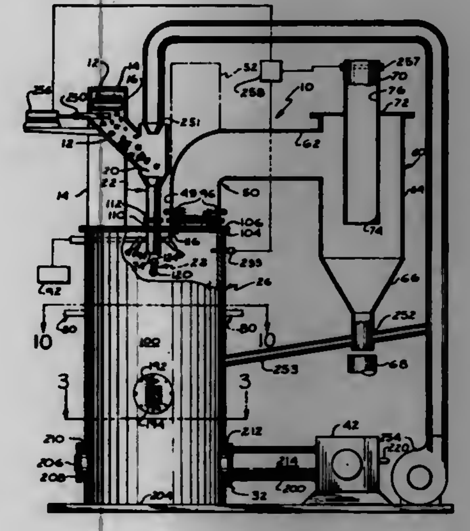
LOW POLLUTION INCINERATION OF SOLID WASTE

Norman K. Sowards, Moore, Idaho, assignor to Environmental Products, Inc., Idaho Falls, Idaho

Filed Apr. 26, 1973, Ser. No. 354,812

Int. Cl. F23g *5/00*

U.S. Cl. 110—8 R **2 Claims**



An incinerator system and method wherein pieces of solid waste, such as fragments of wood, are conveyed to an influent vertical feed tube where an air jet pump injects them into an incinerating chamber or vessel and at the same time providing influent air for aiding combustion of volatile matter. The falling waste particles are horizontally distributed by striking a cone shaped spreader and secondary air directed horizontally and radially from the spreader may or may not be used to aid in the particle distribution. The particles are "pre-dried" as they pass through the high temperature vapor space before reaching a fluidized bed. A fluidized bed, situated immediately above an air delivery chamber at the bottom of the vessel, supports combustion of the solid wastes in the top layer of fine granular material. The top layer is supported by coarse stone and a perforated plate with cover caps in that order. The air delivery system channels high temperature air into the fluidized bed until operating temperature is reached and so channels ambient air thereafter. Volatile matter given off by combustion of the solid waste in the fluidized bed is burned smokelessly in the vapor space immediately above the bed. The temperature of the vapor space and the bed are set by one or more controlled water spray nozzles. The vessel exhaust is processed through a cyclone separator to remove small particles. A fog nozzle spray system cools the exhaust before it reaches the cyclone.

3,834,327

CYCLONE FURNACE HAVING ASH REMOVAL MEANS

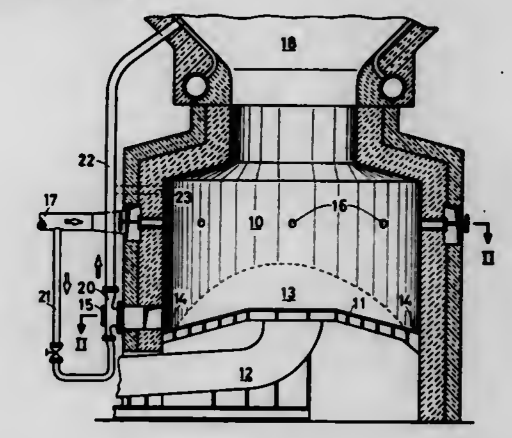
Bengt Hellstrom, Goteborg; Ulf Karsberg, Saffle, and Ingmar Astrom, Stenungsund, all of Sweden, assignors to Gotaverkens Angtekniska AB (Gotaverken Heat Engineering Co. Ltd.), Goteborg, Sweden

Filed Apr. 18, 1973, Ser. No. 352,304

Claims priority, application Sweden, June 14, 1972, 007803/72

Int. Cl. F23g *7/00*

U.S. Cl. 110—18 R **4 Claims**



In cyclone furnaces used for burning bark and similar wood refuse, the removal of ash and cinder involves a delicate problem because the combustion residues are easily fused when subjected to elevated temperature. The commonly used openings in a grate covering an ash pit is not satisfactory to remove the rotating products, and it is now proposed to arrange an opening in the side wall of the cyclone, just above the grate, and to fit an ejector means into said opening for continuously removing the combustion residues.

3,834,328

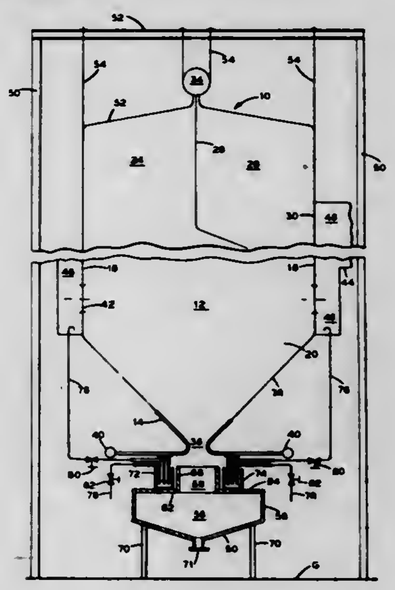
FURNACE SEAL

Andrew J. Blazewicz, Barberton; Edward J. Piaskowski, Massillon, and James F. Wood, Stow, all of Ohio, assignors to The Babcock & Wilcox Company, New York, N.Y.

Filed July 11, 1973, Ser. No. 378,293

Int. Cl. F23j *1/00*

U.S. Cl. 110—165 R **10 Claims**

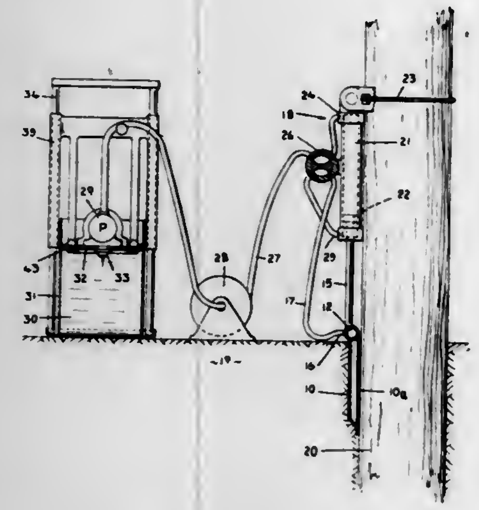


An improved furnace seal comprising a plurality of laterally spaced endless skirts immersed in a liquid trough and including means for supplying a gaseous medium to the spacing between skirts.

3,834,329
APPARATUS FOR APPLYING PRESERVATIVE MATERIAL TO ERECTED POLES AND THE LIKE

John W. Suggitt, 11 Farningham, Islington, Ontario, and Walter V. Inkis, 86 Oxford St., Kitchener, Ontario, both of Canada

Filed Sept. 2, 1971, Ser. No. 177,218
Int. Cl. A01c *23/02*; **B27k** *3/02*
U.S. Cl. 111—6 **4 Claims**

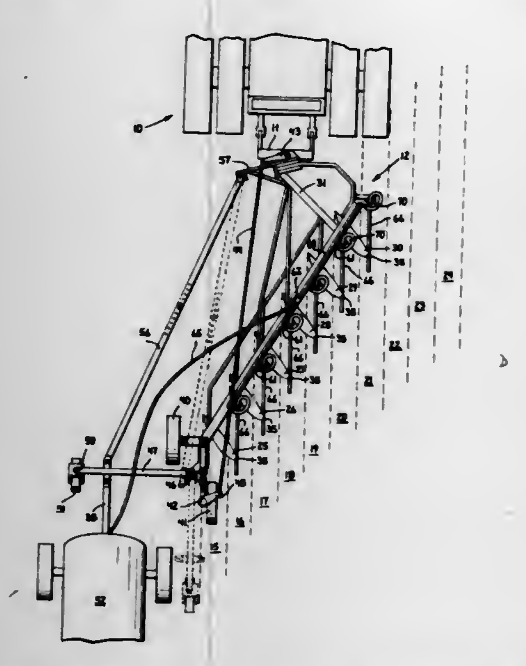


An apparatus for applying preservative grease to an erected utility pole or the like comprises an injection tool in the form of a spade adapted to be driven into the ground, the spade providing internal passageways opening into the concave operative face of the spade. The spade is actuated by a hydraulic ram, powered by the preservative material under pressure, the ram serving also as a metering device for regulating the quantities of material injected in accordance with the vertical movements of the spade.

3,834,330
COMBINED PLOW AND FERTILIZER DISPENSER

Roy H. Wallace, Chalmers, Ind.

Continuation-in-part of Ser. No. 702,296, Feb. 1, 1968, abandoned. This application Oct. 15, 1970, Ser. No. 80,955
Int. Cl. A01c *23/02*
U.S. Cl. 111—7 **7 Claims**

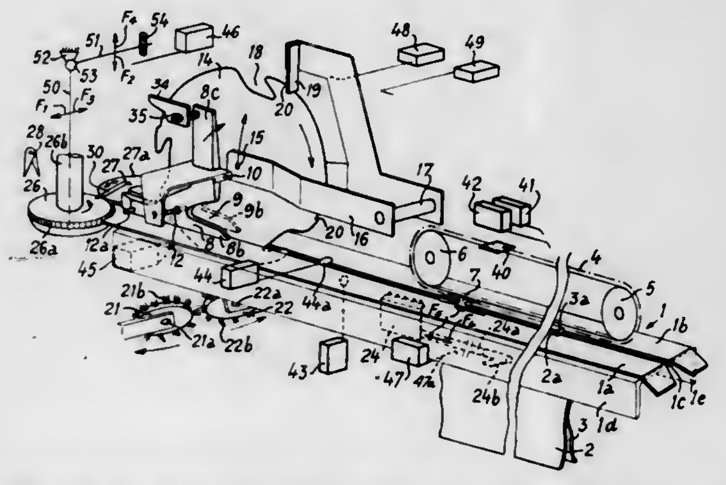


A combined plow and anhydrous ammonia fertilizer dispenser wherein the ammonia tank is connected to the plow so as to be drawn over unplowed ground. Hose means lead from the tank to the individual plow blades and dispense fertilizer beneath the soil being turned over in the furrows. The hoses are held in position by novel wear-reducing clamps. A further embodiment combines a chisel plow and fertilizer dispenser. The plow blades have hoses mounted thereon by clamps. Some of the plow blades which are located rearwardly of other plow blades push the dirt into the furrows cut by the forwardly located plow blades and also cover the exhaust end of the hoses with dirt causing the fertilizer to be retained in the soil.

3,834,331
MACHINE FOR AUTOMATIC ASSEMBLY OF KNITTED ARTICLES

Jean-Pierre Raisin, and Andre Bernardot, both of Troyes, France, assignors to Centre Technique Industriel dite: Institut Textile De France, Hauts-de-Seine-Boulogne, France

Filed Oct. 9, 1973, Ser. No. 404,759
Claims priority, application France, Oct. 9, 1972, 72.35749
Int. Cl. D05b *7/00, 27/00*
U.S. Cl. 112—27 **23 Claims**

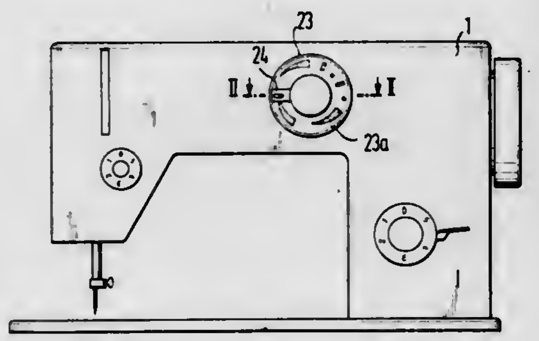


A machine for automatically assembling knitted articles has a guideway to direct the selvedges of articles towards a sewing machine where they will be connected. A selvedge unrolling device upstream of the sewing machine comprises a disc having notches which receive "tailor-tacks" of the selvedge edges and are swung aside by rotation of the disc to lift the tailor tacks upwardly well clear of the sewing machine needle whereupon the tack escapes from the notch and the disc rotates until a fresh notch is presented to the selvedges to be stitched together.

3,834,332
ARRANGEMENT ON A ZIG-ZAG OR AUTOMATIC SEWING MACHINE FOR THE ADJUSTMENT OF THE STITCH POSITION AND WIDTH OF THE STITCH

Gunther Max Gude, Rannungen near Schweinfuri, Germany, assignor to Meister-Werke GmbH, Schweinfurt, Germany

Filed June 28, 1972, Ser. No. 267,109
Claims priority, application Germany, June 28, 1971, 2132064
Int. Cl. D05b *3/02*
U.S. Cl. 112—158 A **8 Claims**

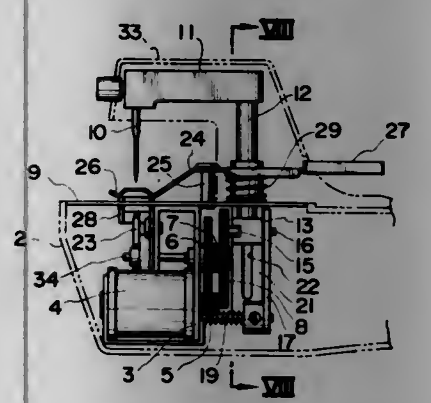


An adjustment device for use on a zig-zag or automatic sewing machine for adjusting the stitching field, wherein the adjusting elements for the stitch position and width of the stitch have a common turnable unit, and a single manual adjusting means is provided for the simultaneous adjustment of the adjusting elements for the adjustment according to choice of all kinds of stitch positions and widths of stitches.

3,834,333
ELECTROMOTIVE HAND SEWER

Tsuneo Seyama, Yono, Japan, assignor to Aidearu Kiki Co., Ltd., Tokyo, Japan

Filed Jan. 3, 1973, Ser. No. 320,755
Claims priority, application Japan, Feb. 7, 1972, 47-15638
Int. Cl. D05b *1/00*
U.S. Cl. 112—169 **2 Claims**



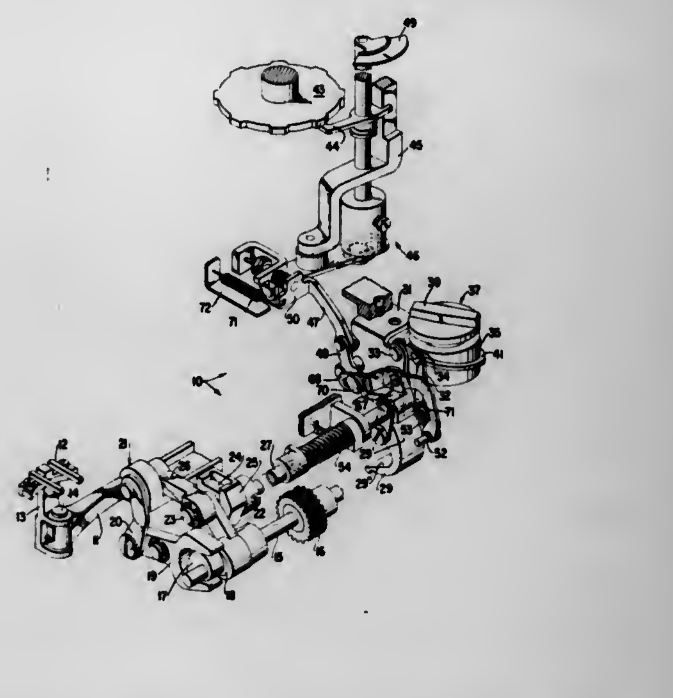
This invention relates to a hand sewer which is actuated by a motor with dry cells or household electricity and is worked by a single hand. The hand sewer comprises a box and a handle as one body. The handle accommodates dry cells or a converter for using household electricity and has a switch button which can be easily pushed by a forefinger. The box is covered with a needle plate and accommodates a motor, a transmission gearing, a reciprocating means, a looping means and a feeding means. A reciprocating rod of the reciprocating means pierces out through the needle plate from the inside of the box and has an arm fixed to the upper end. The arm has a needle attached to the tip. The needle plate has a sewing hole and a pair of parallel slots for a feed dog and is provided with a lever plate comprising a presser foot and a presser lifter. By driving the motor, the transmission gearing actuates harmonically the needle, the looper and the feed dog.

3,834,334
WORK FEED CONTROL MECHANISM

Kenneth D. Adams, Madison, and William L. Herron, Elizabeth, both of N.J., assignors to The Singer Company, New York, N.Y.

Filed June 14, 1973, Ser. No. 370,074
Int. Cl. D05b *27/02*
U.S. Cl. 112—210 **7 Claims**

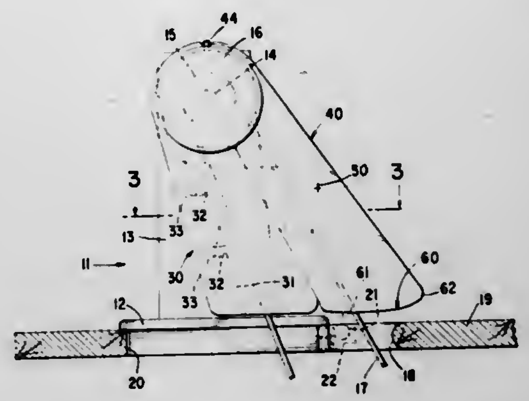
A stitch length and cam feed mode ratio control mechanism for the work feed regulating system of a sewing machine that includes a feed regulator shaft rotatably mounted in the frame of the machine operably connected to a feed dog and adapted to influence movement imparted thereto so as to cause same to transport work transversely across the work supporting bed of the machine by predetermined incremental distances. A feed regulator lever arm is secured to the regulator shaft. A floating link member is carried at one end thereof by an element associated with the cam feed linkage system and is provided at its other end with a pin positionable along said feed regulator lever arm and engageable therewith. Manually operable means are provided for guiding said pin along the feed regulator lever arm for stitch length selection and for simultaneously establishing the proportionate amount of motion transmitted from the feed cam to the regulator shaft, the radius of curvature of the feed regulator lever arm and path of movement of said pin being such as to enable the positioning of the pin along the lever without effecting angular movement of the said lever arm when a portion of the cam is being tracked which dictates a zero stitch length. The cam, while in any position other than the zero position, causes the pin to be urged against the said lever arm so as to rotate same and the regulator shaft by an amount representative of the radial location of the pin along the lever.



3,834,335
BELT GUARD FOR SEWING MACHINES

George D. La Police, Somerville, and Charles R. Odermann, Lake Valhalla, both of N.J., assignors to The Singer Company, New York, N.Y.

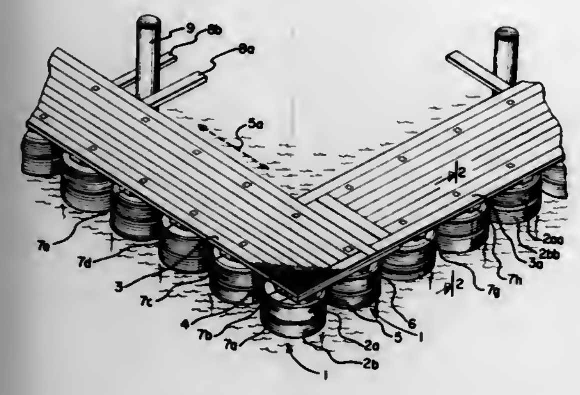
Filed Nov. 8, 1973, Ser. No. 414,014
Int. Cl. D05b *83/00*
U.S. Cl. 112—261 **3 Claims**



A belt guard is disclosed for a sewing machine which is adapted to be hinged in a cut-out in a table top through which a drive belt extends upwardly to a belt pulley on the sewing machine main shaft. The belt guard includes a portion fixed to the sewing machine frame and a movable portion pivoted at the top to the fixed portion. The movable belt guard portion extends to the opposite side of the hinge between the sewing machine and the table top where it is formed with a cam surface which slides along the table top when the sewing machine is turned upwardly to influence a separation of the belt guard portions so as to provide access for inspection and replacement of the drive belt.

3,834,336
FLOATING SPACE FRAME

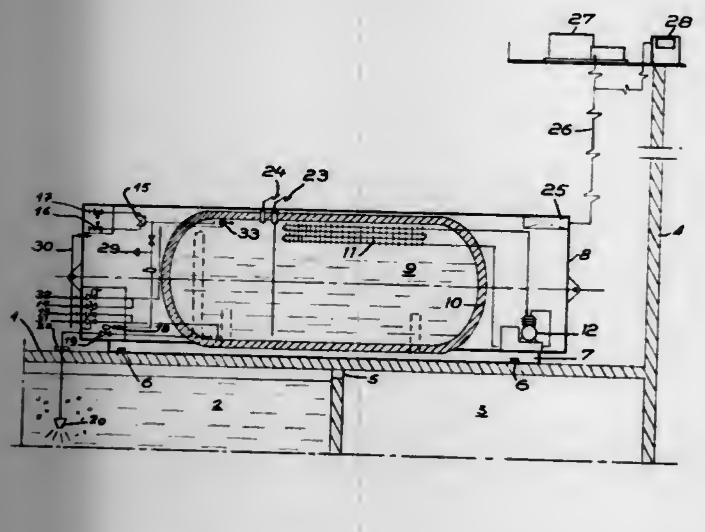
Donald E. Peters, 81 Rustic Pl., Staten Island, N.Y. 10308
Filed May 21, 1971, Ser. No. 145,773
Int. Cl. B63b *35/00*
U.S. Cl. 114—.5 F **7 Claims**



A durable float which in a preferred embodiment includes polyurethane filled automobile tires including an attaching rod extending through the center of each polyurethane mass through the center of each tire, with the plurality of the polyurethane filled tires joined between their respective bases and joined between their respective top surfaces with any desired deck structure mounted on top of the joining-structures, each polyurethane-filled-tire unit being spaced from other units at predetermined intervals sufficient to avoid collection of floating debris, to give the desired live load.

3,834,337
SUBMARINE RESERVOIRS

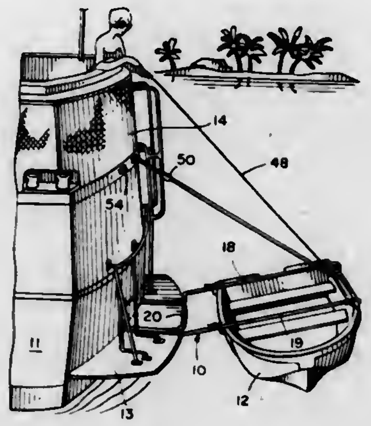
Claude R. Bremaud, Merignac, France, assignor to Societe anonyme dite: Societe Europeenne De Propulsion, Puteaux, France
Filed Feb. 22, 1973, Ser. No. 334,630
Claims priority, application France, Apr. 19, 1972, 72.13823
Int. Cl. B63g *8/22*
U.S. Cl. 114—16 E **7 Claims**



Submarine reservoirs of large dimensions, of the type designed to be towed to the desired location for installation on the seabed, are immersed by drawing compensatory gas stored in the liquid state in an auxiliary enclosure associated with the reservoir, whereby the reservoir is submerged and when located the auxiliary enclosure can be detached from the installed submarine reservoir.

3,834,338
DINGHY LIFTING DEVICE

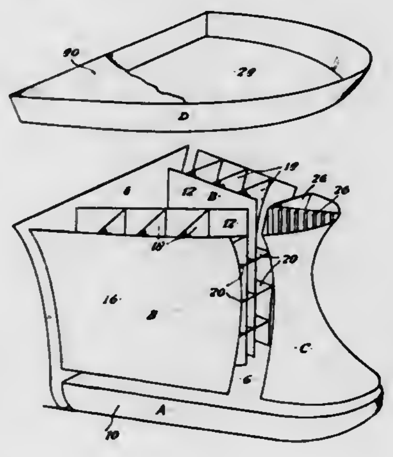
William Renouf, Kenilworth, Ill., assignor to N. S. Stephens Company, Inc., Northbrook, Ill.
Filed May 16, 1973, Ser. No. 360,626
Int. Cl. B63b *35/72, 23/04*
U.S. Cl. 114—43.5 **11 Claims**



A lifting device for raising a dinghy from the water includes a U-shaped tubular frame having a pair of generally parallel side tubes and a transversely extending end tube which is adapted to be pivotally secured to a cruiser or other mounting member for the dinghy. An outer tube is telescopingly received in each of the side tubes, and the side tubes and outer tubes are adapted to lie athwart the gunwales of the dinghy. Abutment means are mounted on each of the side tubes and each of the outer tubes, and over-center latch means connected to each of the side tubes and outer tubes permit the outer tubes to be telescopingly retracted to clamp the gunwales of the dinghy between the abutment means. A cleat is mounted on the abutment means on each of the side tubes, and a line can be passed around the dinghy and secured to the cleat if desired. The frame can be pivoted upwardly about its pivotal attachment to the cruiser to raise the dinghy from the water, and a latch secured to a cross member extending between the outer ends of the outer tubes can secure the outer tubes to the cruiser.

3,834,339
CONSTRUCTION OF SHIPS

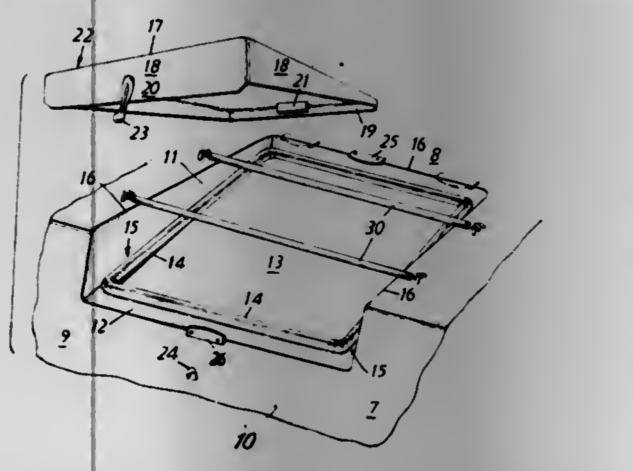
Robert Rutherford, North Shields, England, assignor to Swan Hunter Group Limited, Wallsend, Northumberland, England
Filed Oct. 16, 1972, Ser. No. 297,629
Claims priority, application Great Britain, Oct. 21, 1971, 48990/71
Int. Cl. B63b *3/02*
U.S. Cl. 114—77 R **6 Claims**



A fore end structure for a ship, and method of constructing same, consisting of a number of prefabricated units adapted to be assembled to form said fore end, the port and starboard of said units being of an orthogonal nature in that the webs interconnecting the sideshell portion and associated bulkhead of said units extend normally to the waterline of the ship, thereby to improve the efficiency of the sideshell stiffening.

3,834,340
MARINE CRAFT

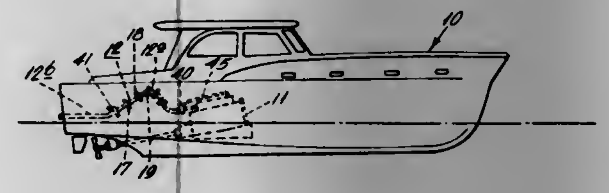
David C. Thorpe, London, England, assignor to Richmond Marine Limited, London, England
Continuation-in-part of Ser. No. 887,295, Dec. 22, 1969, Pat. No. 3,674,170. This application Apr. 20, 1972, Ser. No. 245,896
Claims priority, application Great Britain, Jan. 23, 1969, 4029/69The portion of the term of this patent subsequent to July 4, 1989, has been disclaimed.
Int. Cl. B63b *19/14*
U.S. Cl. 114—201 R **23 Claims**



A marine craft hull having an opening in which a storage container can be located, said container comprising a bin the upper edge of which is provided with an outwardly projecting flange, a cover which extends over the bin and engages the flange and means for rigidly securing the cover in position on the boat hull.

3,834,341
FLUID-COOLED ENGINE EXHAUST SYSTEM

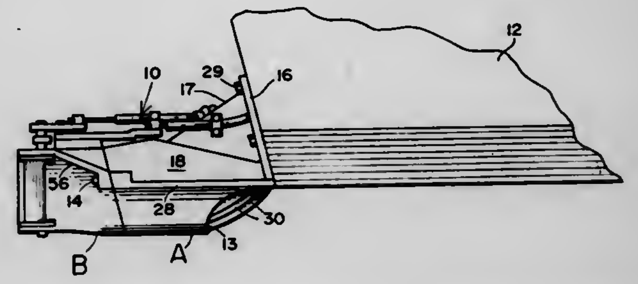
Peter R. L. Sexton, Philadelphia, Pa., and Samuel H. Tibbetts, III, Rockport, Maine, assignors to Maine Technical Industries Incorporated, Rockport, Maine
Filed May 18, 1972, Ser. No. 254,716
Int. Cl. B63j *5/00*
U.S. Cl. 115—.5 R **13 Claims**



In a water-cooled engine exhaust system for boats having inboard engines wherein exhaust gases from the engine are vented through a shaped conduit, couplings are provided to enable the conduit to be fabricated from a series of straight and curved sections. The sections are composed of coaxial pipes of different diameters which cooperate to provide a central flow passage for exhaust gases and an annular flow passage for the cooling fluid. Each coupling comprises complementary elements which are mounted on the ends of the sections and which are fastened together by means of band clamps. Each element is internally constructed to provide fluid communication between the central and annular passages in adjacent conduit-sections. Special transition coupling members are also provided for the ends of the conduit to supply cooling water to and to remove cooling water from the annular passage.

3,834,342
WATER JET PROPULSION DEVICE

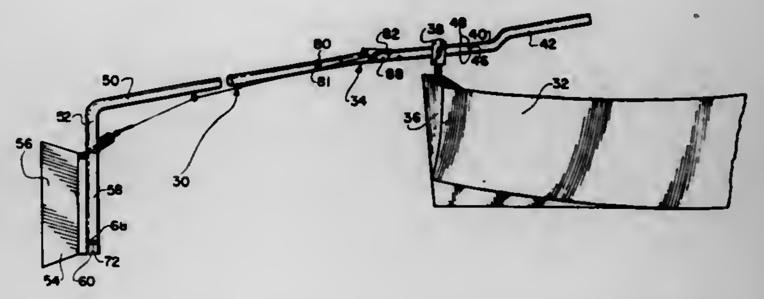
Harry L. Schoell, 19611 N.W. 39th Ct., Miami, Fla. 33054
Filed July 13, 1973, Ser. No. 379,198
Int. Cl. B63h *11/10*
U.S. Cl. 115—12 R **6 Claims**



A water jet propulsion device for propelling boats and the like having a housing whose inlet, water passageways and outlets are in substantially a horizontal plane with water deflecting shoulders extending horizontally on each side of the housing whereby the device is only partially submerged in the water when in operation to reduce its resistance to the flow of water. A vertical wall in the housing divides the flow of water into two streams that impinge on water deflector members mounted at the outlet in order to steer the boat or cause it to move backwardly.

3,834,343
ARTICULATED SCULLING OAR

Walter M. Hopkins, 1306 W. Glenoaks Blvd., Glendale, Calif.
Filed Nov. 14, 1972, Ser. No. 306,489
Int. Cl. B63h *16/04*
U.S. Cl. 115—28 R **9 Claims**

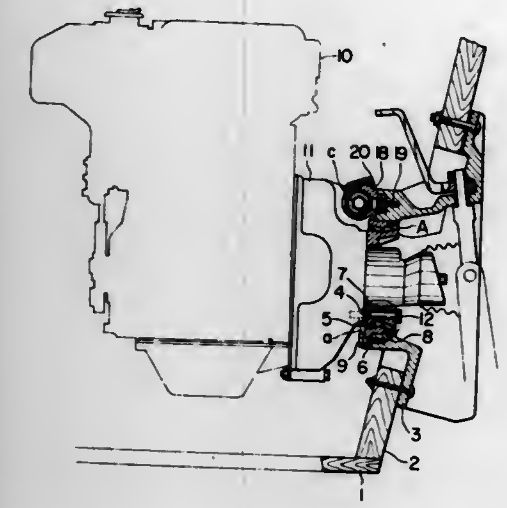


Disclosed is a collapsible sculling oar designed for universal pivotal attachment to a boat, especially small watercraft, to impart motion thereto in a manner generally known as "sculling." The oar includes a shaft portion extending generally horizontally over the boat, an adjustable handle removably mounted at one end of the shaft, and at least one adjustable blade-supporting arm removably mounted at the other end of the shaft and depending substantially vertically therefrom into the water, in spaced relation from the boat. The blade is arranged to move back and forth on the supporting arm through a predetermined arc of movement, a depressible protrusion being arranged on the arm to limit movement of the blades relative thereto and to permit displacement of the blade from one position to another for opposed sculling movement. A lever-operated locking mechanism is provided to halt movement of the blade on the arm and to lock the former into a predetermined position such as to constitute a ruddering effect of the blade.

Dual blade embodiments are likewise disclosed.

3,834,344
APPARATUS FOR MOUNTING A MARINE ENGINE

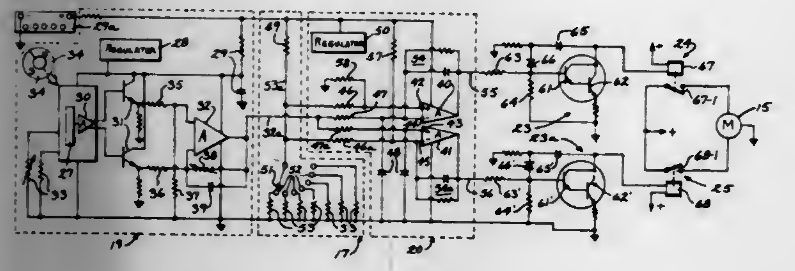
Takao Yoshino, Tokyo, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan
Filed Dec. 29, 1972, Ser. No. 319,675
Claims priority, application Japan, Dec. 29, 1971, 46-3451
Int. Cl. B63h *5/00*
U.S. Cl. 115—34 R **3 Claims**



An apparatus for mounting a marine engine which has a transom mounted to a stern and having a circular hole formed at the center thereof, main mounting means having an inner cylinder connected to the engine, an outer cylinder connected to the transom, and a rubber member press-fitted in wedge fashion into the gap formed between the inner and outer cylinders for absorbing the engine vibration and a bush type mounting means having an inner cylinder connected to the flywheel housing of the engine, an outer cylinder connected to the transom, and vulcanized rubber member between the inner and outer cylinders for absorbing the engine vibration, and O-rings provided at the inside of the inner cylinder and at the outside of the outer cylinder for preventing water from entering into the engine.

3,834,345
MARINE DRIVE SETTING APPARATUS

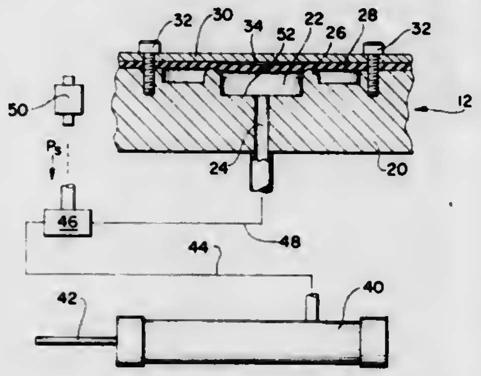
James R. Hager, Fond du Lac, and Hugh E. Riordan, West Bend, both of Wis., assignors to Brunswick Corporation, Skokie, Ill.
Filed Feb. 5, 1973, Ser. No. 329,726
Int. Cl. B63h *5/12*
U.S. Cl. 115—41 HT **29 Claims**



Apparatus for power positioning and holding of an outboard marine drive includes a manual trim angle selection input signal generator. A position sensitive signal generator in the form of a Hall cell or a resistor is secured on the gimbal ring unit with a movable element set in accordance with and by the movment of the marine drive. A comparator provides a pair of output signals in accordance with the relative magnitude of the two signals and depending upon whether drive is to be raised or lowered. The output signals are similarly connected through amplifying and switch isolating circuitry to actuate an electric motor and hydraulic pump unit to raise or lower the stern drive unit the position sensor and the manual input are nulled. A slight dead band maintains stable operation as the stern drive is moved to a new trim position. A fail-safe circuit prevents malfunctioning if the sensing system open circuits.

3,834,346
FLUID CIRCUIT INDICATOR

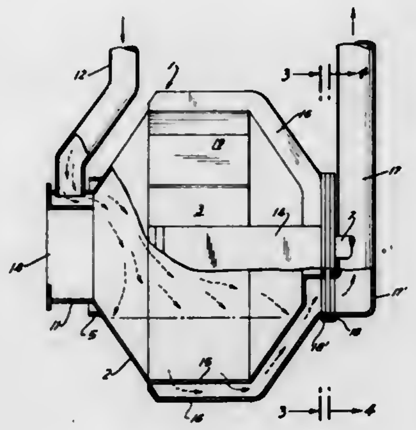
Larry Clyde Cowan, Saunderstown, R.I., assignor to Leesona Corporation, Warwick, R.I.
Filed Sept. 15, 1972, Ser. No. 289,578
Int. Cl. G01l *19/12*
U.S. Cl. 116—70 **9 Claims**



A device for providing an indication of the condition of a pressurized fluid circuit is disclosed. The device includes means defining a restricted zone and a supply of compressible material positioned in communication with the restricted zone. The restricted zone is provided with aperture means exposing at least a portion of the compressible material for visual inspection. Fluid inlet means are connected with a fluid circuit and operate to admit pressurized fluid to the restricted zone, in consequence of which the compressible material is compressed. The contrasting relaxed and compressed conditions of the compressible material afford visual indications of the condition of the fluid circuit.

3,834,347
TABLET COATING APPARATUS

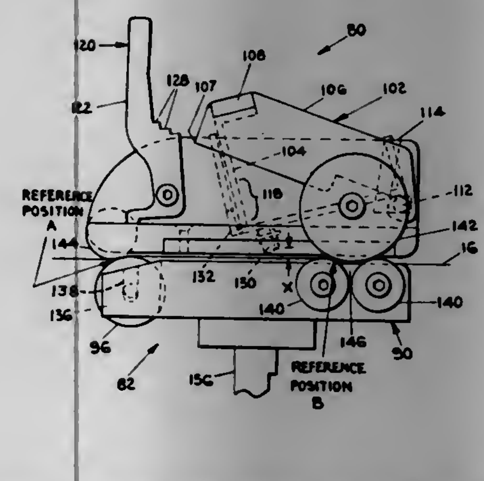
Shimesu Motoyama, and Shuri Yamada, both of Tokyo, Japan, assignors to Freund Ind. Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 261,934, June 12, 1972, abandoned.
This application Feb. 11, 1974, Ser. No. 441,730
Claims priority, application Japan, June 16, 1971, 46-43554
Int. Cl. B05c *3/08*
U.S. Cl. 118—19 **1 Claim**



An apparatus for applying pharmaceutic tablets or the like with coat of other material such as sugar or the like is provided. The apparatus comprises a single drum supported for rotation and having a plurality of discrete perforation areas discretely provided along the cylindrical wall of the drum. These perforated areas are air-tightly covered by respective suction ducts which are adapted to be communicated with a stationary exhaust conduit disposed at one side of the drum every time when the corresponding perforated area comes to a predetermined angular position during the rotation of the drum. The supply of air to dry the coating of tablets is carried out by way of a supply conduit which is disposed at the other side of said drum and opens therein.

3,834,348
PRINTING SCREEN COATING APPARATUS

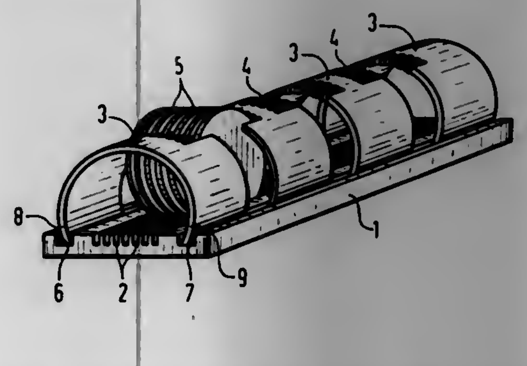
James A. Black, 13700 Sparta N. W., Kent City, Mich. 49330
Filed June 1, 1972, Ser. No. 258,856
Int. Cl. B05c *5/02*
U.S. Cl. 118—323 **36 Claims**



An apparatus and method for the automatic and controlled application of smooth, even, controlled thickness coatings of viscous fluids such as photographic emulsions to taut, flexible, suspended layers of materials such as silk printing screens. The apparatus employs an adjustable frame for supporting various sizes of materials to be coated in unique cooperation with special spreading means for evenly spreading viscous fluids on the screen as motive power means moves the spreading means at a controlled, predetermined rate. Preferably, curing means is supplied for drying or baking the fluid on the screen. The spreading means includes a tray for holding and spreading the fluid and a base for movably supporting the tray over the screen to be coated without direct, physical contact therewith. The tray moves in unison with the base by a unique arrangement employing magnetic attraction.

3,834,349
DEVICE FOR HOLDING SEMICONDUCTOR DISCS DURING HIGH TEMPERATURE TREATMENT

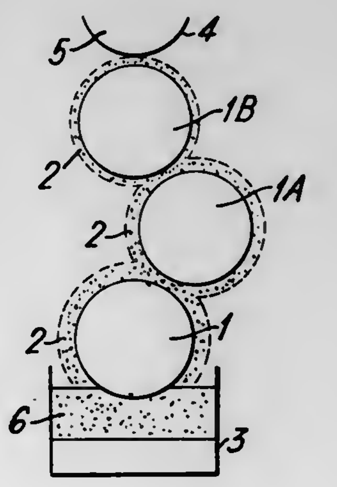
Wolfgang Dietze; Reimer Emeis; Wolfgang Keller; Alfred Muehlbauer, all of Munich, and Konrad Reuschel, Vaterstetten, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed June 12, 1972, Ser. No. 261,945
Claims priority, application Germany, July 7, 1971, 2133877
Int. Cl. B05c *11/14*
U.S. Cl. 118—500 **6 Claims**



A device for holding semiconductor discs during high temperature treatment, such as the diffusion of impurities therein, consisting of a base plate having grooves extending therealong, and a plurality of spaced holders supported by the base plate, the holders having slots therein which are vertically aligned with the grooves in the base plate so that a semiconductor disc positioned with its edge in one of the grooves will be supported by the slots in the holder at a position at or above its center of gravity to prevent bending of the discs during high temperature treatment.

3,834,350
ELECTROGRAPHIC APPARATUS FOR MAGNETIC PRINTING

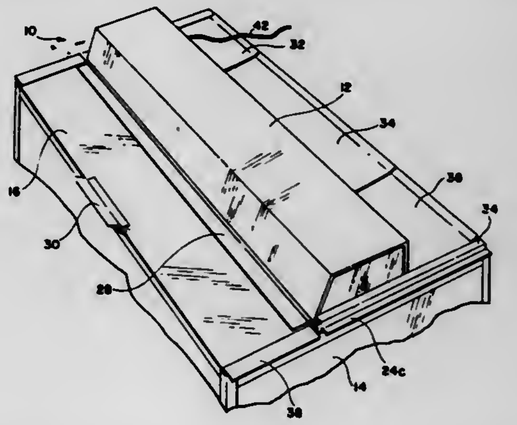
Robert James Hodges, Cheshunt, England, assignor to Standard Telephones and Cables Limited, London, England
Continuation of Ser. No. 770,691, Oct. 25, 1968, abandoned.
This application Oct. 28, 1970, Ser. No. 84,947
Claims priority, application Great Britain, Nov. 23, 1967, 53328/67; Mar. 8, 1968, 11415/68
Int. Cl. G01d *15/12;* **B05b** *3/02*
U.S. Cl. 118—637 **1 Claim**



Electrographic apparatus wherein a rotatable surface is interposed between the recording surface of the apparatus and means is provided for applying printing powder to the rotatable surface, the rotatable surface providing the means to develop a latent image on the recording surface. The thickness of the layer of printing powder is regulated by a plurality of magnetic drums spaced apart from one another by an amount which decreases near to the recording surface.

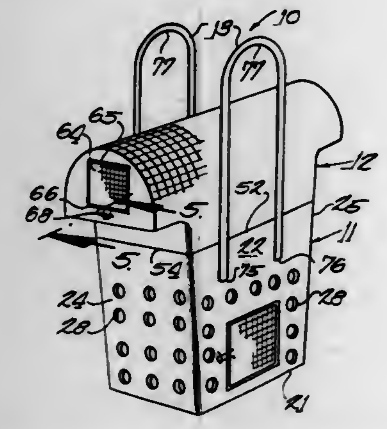
3,834,351
NON-CORROSIVE, INSULATED ILLUMINATION DEVICE FOR AN AQUARIUM

Walter E. Schmidt, Winter Park, Fla., assignor to Petcoa Industries, Inc., Toledo, Ohio
Filed Aug. 26, 1971, Ser. No. 175,294
Int. Cl. A01k *63/00*
U.S. Cl. 119—5 **11 Claims**



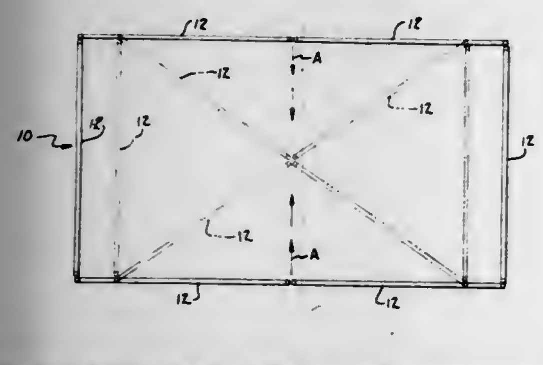
This invention relates to an illumination device which may be proportioned and constructed so as to effectively cover and illumine aquaria such as are found in homes as well as in public buildings and the like. The housing of the device and other portions which might oxidize if exposed to water are constructed of inexpensive non-corrosive material such as plastic, and other portions are of glass, so owners of salt water aquarias will find this device to be ideally suited to their needs. A fluorescent tube of the type which has been found to be beneficial to plant growth is preferably used as illumination means for providing the proper illumination for displaying the brilliant colors typically present in the tropical aquarium, which tube is shielded by a panel of glass from the water of the aquarium with which this device is used. The plastic housing, advantageously, is insulative both from the heat as well as the electrical standpoints, adding a distinct safety factor. The front portion of my device features a hinged access panel which enables the owner to easily feed and care for the fish in the aquarium, while the rear portion is fitted with removable panels so that filters, heaters, and similar types of aquarium accessories may be easily mounted in a convenient and unobtrusive portion of the aquarium.

3,834,352
TRAVEL BIRD CAGE
Tillie Gervis, 4390 Collins Ave., Miami Beach, Fla. 33140
Filed Jan. 14, 1974, Ser. No. 433,276
Int. Cl. A01k ***31/00***
U.S. Cl. 119—17 **5 Claims**



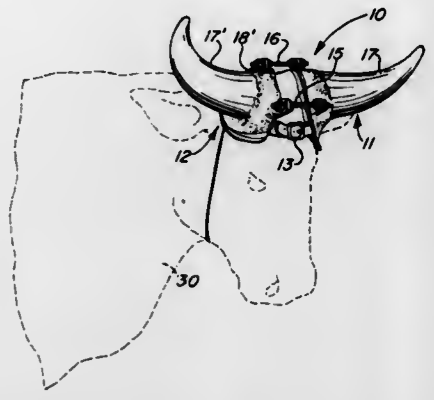
A bird cage for confining small birds during transportation of the birds from one place to another and consisting of a bottom half fabricated out of transparent rigid material provided with perforated ventilating openings throughout and having an entrance door in a side thereof and a clean out door in the bottom thereof, a top half manufactured of a fine mesh material which is affixed to the top edge of the bottom half, the top half provided with porch like extensions with at least one extension having an access door provided therein, and a pair of carrying handles affixed to opposite sides of the bottom half and projecting upwardly therefrom to a height above the top half and being manufactured of flexible material adapted to have the top portions thereof flexed together for ease of carrying in the hand of an individual when transporting the cage.

3,834,353
HAYSTACK FEEDER
Marlo W. Groezinger, Rt. 2, Freeport, Ill. 61032
Filed Nov. 12, 1973, Ser. No. 414,710
Int. Cl. A01k ***5/00***
U.S. Cl. 119—60 **10 Claims**



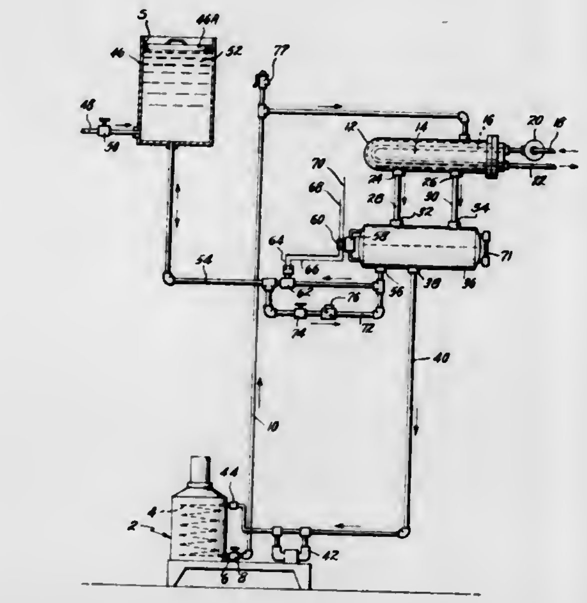
Six panels are hinged together at adjacent ends to form a haystack feeder. The hinging allows the feeder to collapse inwardly into two triangular configurations as the cattle eat away the haystack.

3,834,354
IMITATION HORNS FOR STEERS
Robert Lee Kelton, 1895 Hayden Ln., Tempe, Ariz. 85281
Filed Sept. 20, 1973, Ser. No. 398,945
Int. Cl. A01k ***17/00***
U.S. Cl. 119—144 **6 Claims**



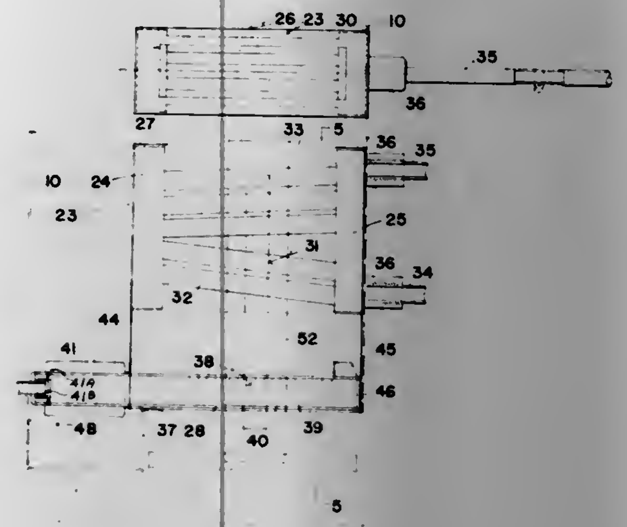
Apparatus comprising imitation hollow horns appropriately formed for slipping over the natural trimmed horns of a steer and attached to its head for rendering a steer with short horns usable for roping purposes and for protecting the steer's head from the rubbing effects of the rope.

3,834,355
STEAM SYSTEMS EQUIPPED WITH AN EXCHANGE RESERVOIR
Perry Arant, Huntington Beach, Calif., assignor to Clayton Manufacturing Company, El Monte, Calif.
Filed Sept. 12, 1973, Ser. No. 396,866
Int. Cl. F22b ***35/00***
U.S. Cl. 122—33 **15 Claims**



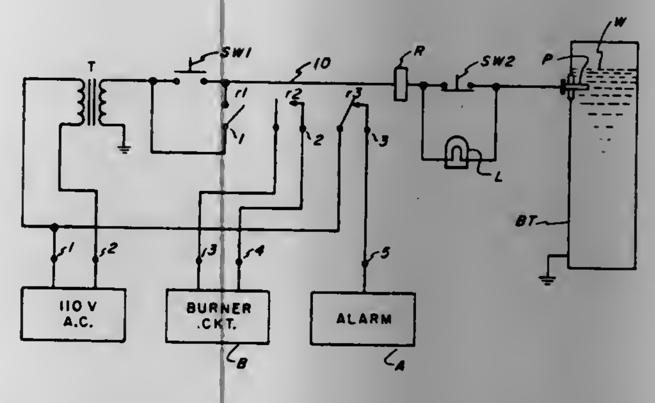
Closed, corrosion-free steam generating systems, including a heat exchanger and a condensate receiver, and having an exchange reservoir for pre-treated feed water; and control means arranged for the exchange of liquid between the reservoir and the condensate receiver to permit automatic "unloading" of excess liquid from the closed system while in operation and without discharge to waste, and for automatic or manual "loading" of the system upon cooling by return of liquid from the reservoir to the system, while preventing creation of a vacuum condition in the system that would draw contaminating air into the system.

3,834,356
ENGINE HEATING DEVICE
Frank Baillargeon, P.O. Box 409, Longlac, Ontario, Canada
Filed Aug. 25, 1972, Ser. No. 283,704
Int. Cl. F22b ***17/00***
U.S. Cl. 122—265 **8 Claims**



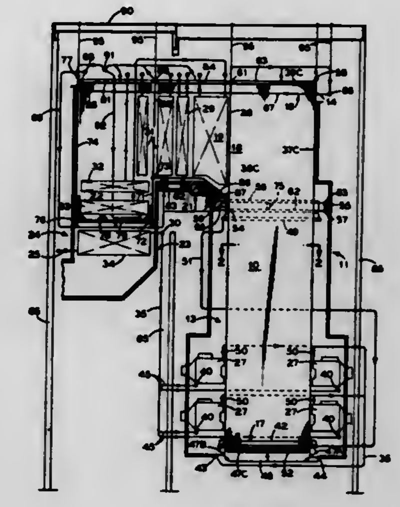
An auxiliary or preheater fueled by liquified propane gas or the like is temporarily connected to the coolant system of an engine for heating the coolant thereof. The heater includes a core heated by the propane through which the coolant from the engine system circulates by convection.

3,834,357
LOW-WATER CUT OFF SYSTEM
Leo W. Kaczmarek, Chicago, and Charles E. Adamson, Addison, both of Ill., assignors to International Telephone and Telegraph Corporation, New York, N.Y.
Filed June 7, 1973, Ser. No. 367,856
Int. Cl. F22b ***37/42***
U.S. Cl. 122—504 **10 Claims**



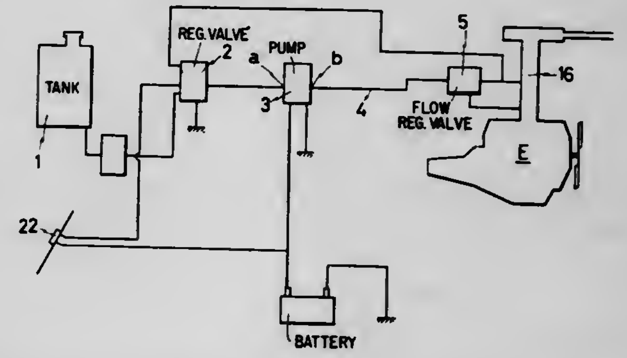
A system is disclosed for monitoring the water level in hot water boilers or the like and, when the water level falls below a prescribed level, turning off a burner and sounding an alarm. The system includes a manual control for testing whether the system is actually functioning, or not, and also whether it is functioning efficiently, or not. It incorporates improved probe means and means enabling servicing to be more efficiently carried out. Manual reset, or start, means are included to assure that the system will start-up after halting only when an attendent is at hand and thus prevents dry-firing.

3,834,358
VAPOR GENERATOR
Arthur M. Frendberg, Akron, Ohio, and Walter P. Gorzegno, Florham Park, N.J., assignors to The Babcock & Wilcox Company, New York, N.Y.
Filed July 9, 1965, Ser. No. 470,819
Int. Cl. F22b ***37/24***
U.S. Cl. 122—510 **11 Claims**



A forced flow vapor generator wherein the upright boundary walls of the furnace are subdivided into a plurality of separate continuous upflow fluid heating passes, with the parallel flow tubes of one of the fluid heating passes being interlaced and coextensive with the parallel flow tubes of another of the fluid heating passes, with provisions for interconnecting the tubes of the fluid heating passes to provide serial flow of fluid successively through the respective fluid heating passes and for mixing the fluids to equalize fluid enthalpies as they flow from one furnace fluid heating pass to another, and with the number and the total internal cross-sectional area of the tubes of one fluid heating pass being greater than the number and total internal cross-sectional area of the tubes in the other fluid heating pass to provide a fluid mass flow in the latter greater than the fluid mass flow in the former.

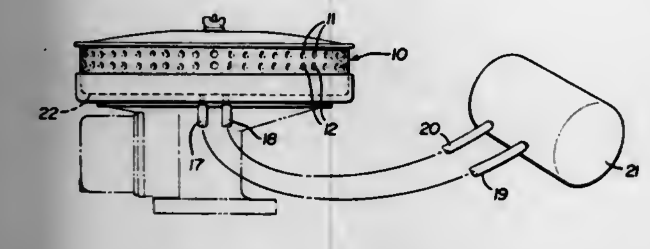
3,834,359
NOXIOUS GAS MINIMIZING METHOD AND APPARATUS FOR AN INTERNAL-COMBUSTION ENGINE
Akira Ando, Yokohama, Japan, assignor to Safer Co., Ltd., Tokyo, Japan
Filed Apr. 3, 1972, Ser. No. 240,721
Claims priority, application Japan, Apr. 30, 1971, 46-29283
Int. Cl. F02b ***47/00;*** **F02m** ***25/00***
U.S. Cl. 123—1 A **16 Claims**



A method and apparatus for minimizing noxious gases that are contained in the waste gas of an internal-combustion engine wherein a liquid for minimizing the said gases (hereafter referred to as "the liquid") is automatically injected into the combustion chamber in a quantity equivalent to the volume of the produced noxious gases, and a method for protecting the internal-combustion engine.

3,834,360
ENGINE INTAKE AIR MOISTURIZER

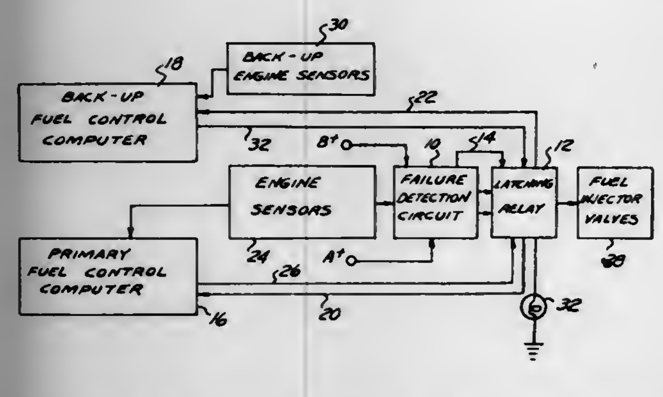
James A. Blitch, P.O. Box 206, E. Palatka, Fla. 33026
Filed Apr. 26, 1973, Ser. No. 354,488
Int. Cl. F02d *19/00*
U.S. Cl. 123—25 A **8 Claims**



A porous clay ring having radial air passages and a water chamber for supplying water to the radial passages through the pores of the ring to be picked up by the air flowing through these passages to an engine carburetor.

3,834,361
BACK-UP FUEL CONTROL SYSTEM

William A. Keely, Highland, Mich., assignor to The Bendix Corporation, Southfield, Mich.
Filed Aug. 23, 1972, Ser. No. 283,145
Int. Cl. F01b *25/08;* **F02g** *3/00;* **F02b** *3/00*
U.S. Cl. 123—32 EA **16 Claims**

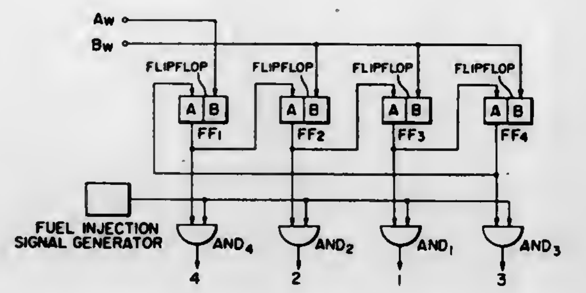


A back-up fuel control system is disclosed herein for sustaining the operation of an electronic fuel control system of an internal combustion engine in the event of a malfunction in the primary fuel control computer or its associated sensors. The back-up fuel control system comprises an unsophisticated electronic computer which responds to a minimal number of engine sensors and generates a signal indicative of the engine's fuel requirements and a failure detection circuit monitoring the performance of the primary fuel control computer. The failure detection circuit automatically activates the back-up fuel control computer and switches the fuel delivery means response from the signals generated by the primary fuel control computer to the signals generated by the back-up fuel control computer.

3,834,362
METHOD AND DEVICE FOR CONTROLLING FUEL INJECTION

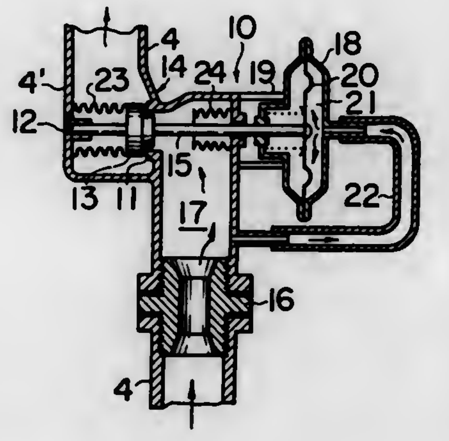
Tomon Takeshita, and Shigetsugu Ozaki, both of Nagoya, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-ken, Japan
Filed Oct. 27, 1972, Ser. No. 301,274
Claims priority, application Japan, Oct. 30, 1971, 46-86586
Int. Cl. F02b *3/00*
U.S. Cl. 123—32 EA **11 Claims**

Method and device for controlling fuel injection in a multicylinder spark-ignition engine, wherein the fuel injection preparation signals are sequentially produced from the ignition signals generated for all of the cylinders and the ignition signal applied to a certain cylinder, and are applied to devices for actuating the fuel injection valve of the cylinders in the same order as that of the ignition. Signals produced by the ignition signals are delayed for a predetermined time depending upon the engine speed and load and said delayed signals are applied to said devices to which said preparation signals are applied, so that the fuel is injected into cylinders in the same order as that of the ignition and at the appropriate time.



3,834,363
ENGINE EXHAUST RECIRCULATION APPARATUS

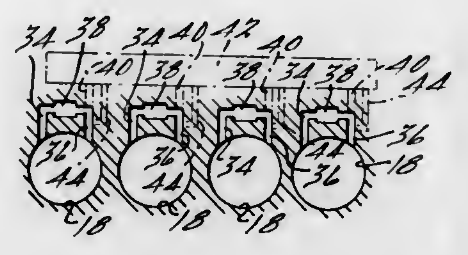
Kenji Goto, and Kiyohiko Mizuno, both of Susono, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan
Filed Aug. 18, 1972, Ser. No. 281,950
Claims priority, application Japan, Apr. 17, 1972, 47-44289
Int. Cl. F02b *33/00;* **F02m** *7/00*
U.S. Cl. 123—119 A **2 Claims**



An apparatus is provided for the recirculation of exhaust gases from an automobile's engine at a constant volume comprising a flow control valve in a passage for recirculating part of the engine exhaust gases into the engine's intake system.

3,834,364
HIGH EFFICIENCY-LOW POLLUTION EMISSION ENGINE

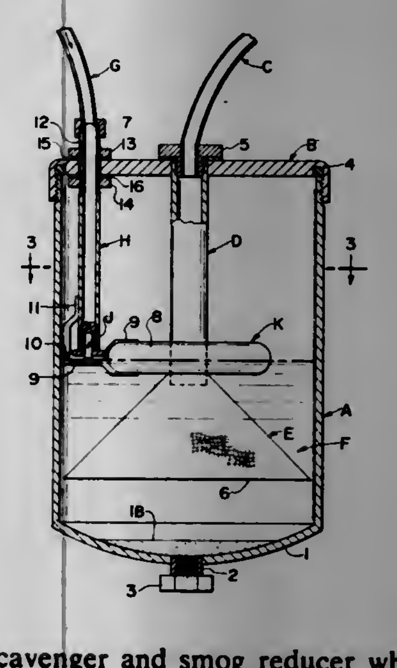
Donald D. Bartholomew, 8984 Devon Rd., Utica, Mich. 48087
Continuation-in-part of Ser. No. 55,919, July 17, 1970, abandoned. This application Aug. 24, 1972, Ser. No. 283,301
Int. Cl. F02m *27/08, 29/00, 27/00*
U.S. Cl. 123—119 E **9 Claims**



A high efficiency, low pollution engine utilizing a source of ultrasonic energy to produce atomization of the fuel or fuel mixture preparatory to or after the fuel has been delivered to the combustion chambers of the engine; the means for producing the ultrasonic energy including in part the high pressure gases or gaseous mixture produced by the engine itself during operation thereof. The high pressure gases are caused to pass over or through a suitable whistle like structure that produces high frequency or ultrasonic sound wave energy which is selectively communicated to the fuel prior to the same being ignited within the engine's combustion chambers and/or to the engine exhaust.

3,834,365
CRANKCASE SCAVENGER AND SMOG REDUCER

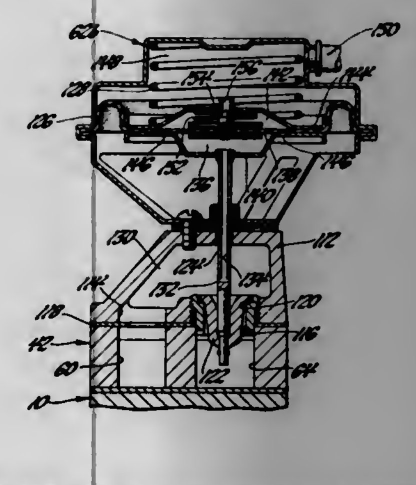
Isaac S. Ussery, 10121 Denny St., Oakland, Calif. 94603
Filed Mar. 30, 1973, Ser. No. 346,304
Int. Cl. F02m *25/06*
U.S. Cl. 123—119 B **2 Claims**



A crankcase scavenger and smog reducer which receives gaseous fumes through a conduit that leads from the crankcase of an internal combustion engine and draws these fumes through a body of the fuel used to operate the engine, this body of fuel being contained in a separate tank and diluting any hydrocarbons in the fumes and permitting the heavier particles to drop to the bottom of the body of fuel. A cone-shaped diffusion member is mounted on the outlet end of the conduit and is submerged in the fuel body. The fumes will be drawn through the body of fuel and out through the top of the tank by means of a conduit that leads to the intake manifold. The vacuum created in the intake manifold is sufficient to draw the washed fumes from the top of the tank.

3,834,366
EXHAUST GAS RECIRCULATION CONTROL VALVE

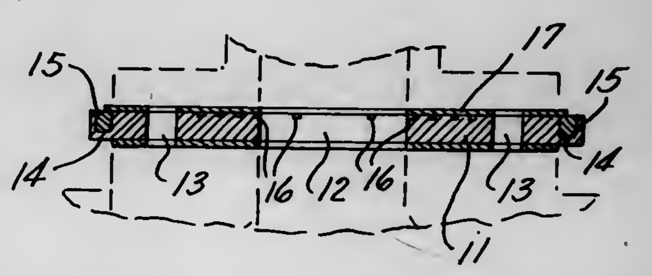
William L. Kingsbury, Madison Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.
Continuation of Ser. No. 244,378, April 17, 1972. This application July 2, 1973, Ser. No. 375,362
Int. Cl. F02m *25/06*
U.S. Cl. 123—119 A **5 Claims**



A vacuum operated valve responsive to exhaust back pressure controls recirculation of exhaust gases from the intake manifold exhaust crossover passage to the intake manifold induction passages.

3,834,367
CARBURETION ATTACHMENT FOR AUXILIARY AIR

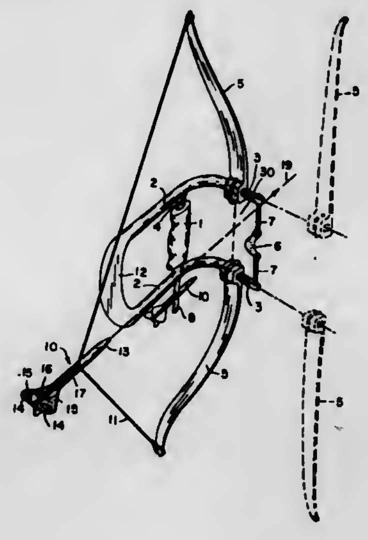
Rolando Mario Dalerta, 10850 N.W. 10th Ave., Miami, Fla. 33168
Filed May 18, 1973, Ser. No. 361,455
Int. Cl. F02m *23/04*
U.S. Cl. 123—124 R **5 Claims**



A carburetion attachment consisting of a relatively thin insert to be bolted between the carburetor and the intake manifold. The insert has the shape of a normal gasket separating the carburetor from the intake manifold. The insert has openings extending downwardly therethrough coinciding with the throats of the carburetor and the securing bolts therefor. One face of the insert has spiral grooves formed therein with their inner ends opening into the throat opening and their outer ends opening into the peripheral groove in the insert. A felt member is positioned in the peripheral groove to serve as a filter. A plate completely covers the spiral grooves and extends over half of the felt filter in the peripheral groove. The plate seals the spiral grooves to prevent the leakage of air therefrom.

3,834,368
ARCHERY BOW WITH A SLING SHOT IN COMBINATION

Ervin D. Geiger, R. R. No. 4, Albion, Ind.
Filed June 4, 1971, Ser. No. 149,916
Int. Cl. F41b *7/00*
U.S. Cl. 124—20 B **13 Claims**



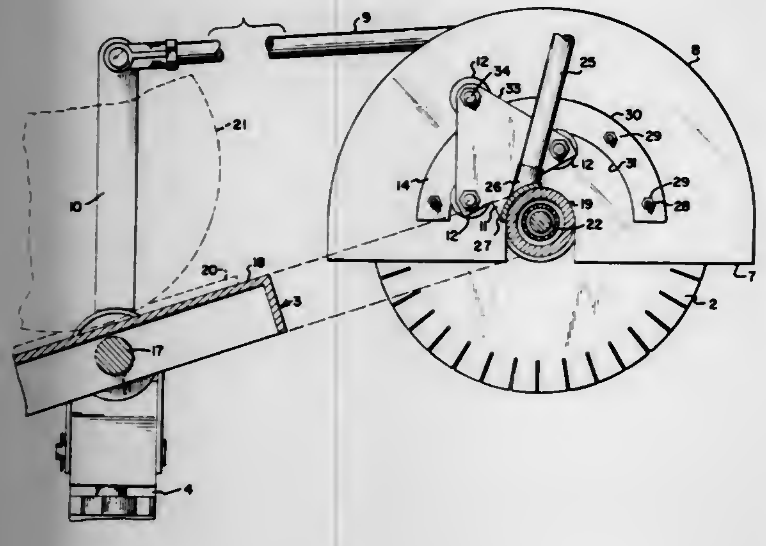
A bow and sling shot in combination has a construction in which sections are cantilever supported to define a laterally extending opening between the two cantilever sections. The opening permits unrestricted vision whereby the user can employ binocular sighting to follow the flight of the arrows. The open section also permits any preferred configuration for the projectile including stabilizer sections which makes a more stable flight pattern for the projectile once it is released and passes through the opening. The bow configuration causes the bowstring to move in a plane which is offset from a user's forearm thus preventing slapping, scraping and injury to the forearm as the bowstring moves from extended to released position.

A grip which is laterally offset from the bowstring is combined with an inner-forearm-contacting bow section so that as the bowstring is pulled back the twisting tendency about the grip is resisted by the forearm reaction section of the bow whereby the bow is prevented from twisting about the grip. By combining both the forearm reaction section and the grip, as the combined mounting and steadying a greater pull can be applied to the bowstring because of the use of naturally greater muscular abilities of the combination of wrist and forearm instead of the wrist alone. A sling shot projectile propelling device is attached to the cantilevered sections. The grip or shaft has a hollow interior for holding projectiles for the sling shot.

3,834,369

SAW BLADE HOOD LEVELING STRUCTURE

Victor H. Haase, Kansas City, Mo., assignor to Robert G. Evans, Company, Kansas City, Mo.
Filed Jan. 22, 1973, Ser. No. 325,663
Int. Cl. B28d *1/04*
U.S. Cl. 125—13 SS **5 Claims**



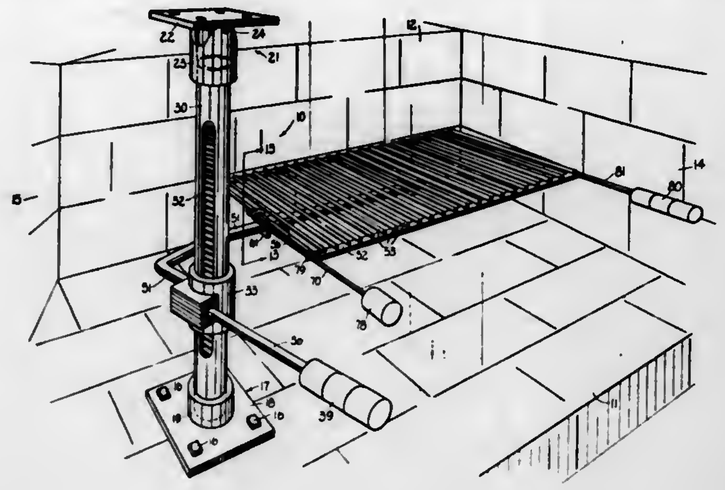
A rotary saw, such as a masonry saw includes a rocker platform supporting a rotating saw blade and blade driving elements, the platform being pivoted to the saw frame and spaced above a work piece table surface. A saw hood partially covers the blade and is pivotally mounted on the platform by an external curved band or segment engaging multiple grooved rollers. A pivotal link connects the hood to a standard mounted on the saw frame and maintains the lower edge of the hood in a horizontal attitude regardless of platform tilt angle.

3,834,370

ASSEMBLY

John R. Nelson, Roby Rd., Stoughton, Wis. 53589
Filed Feb. 8, 1971, Ser. No. 113,387
Int. Cl. F24b *1/26*
U.S. Cl. 126—137 **11 Claims**

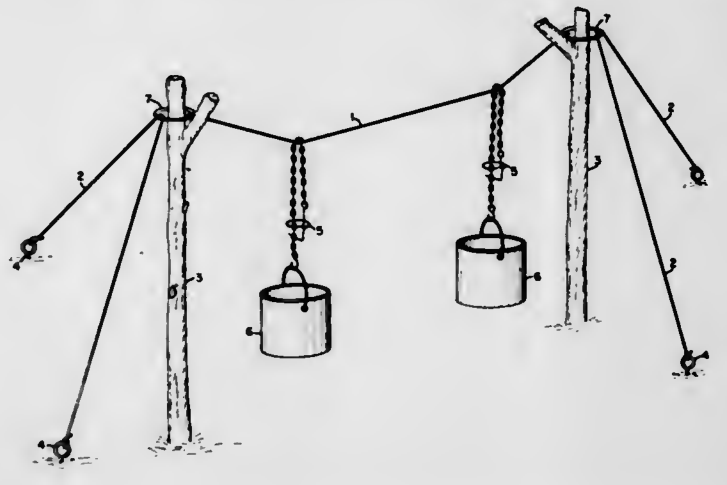
A grill for use in a fireplace or outdoors comprises a rack and pinion elevating assembly. A shaft which operates the pinion may be pushed to lock the elevating assembly and pulled to unlock the elevating assembly so that the grill may be raised or lowered. The grill may be tilted and latched in any one of several tilted positions.



3,834,371

FOLDABLE RACK FOR SUSPENDING COOKING PANS OVER A CAMPFIRE

Wilhelm E. Walles, 3606 Chestnuthill Dr., Midland, Mich. 48640
Filed Jan. 10, 1972, Ser. No. 216,391
Int. Cl. A47j *37/00;* **F24b** *3/00;* **F24c** *1/16*
U.S. Cl. 126—30 **1 Claim**



The invention is a one-piece lightweight foldable rack for suspending cooking pans over a campfire.

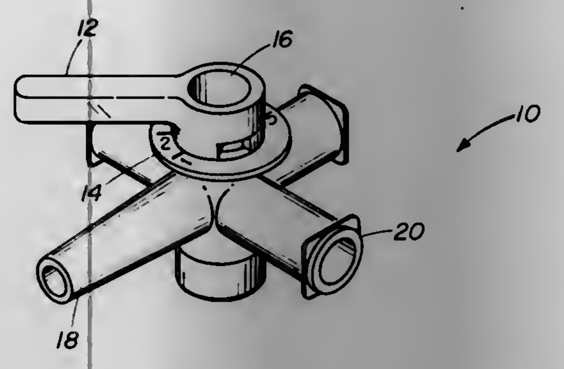
The one-piece rack consists of a center metal chain supported by 2 vertical sticks or poles and kept over the fire by four rope supports, secured by pegs and has two adjustable metal chains with hooks to hold the pans. The chain for holding a pan has at one end a hook for a cooking pan and at its other end a hook for adjusting chain length, including an eye through which the other end of the chain passes.

3,834,372

DISPOSABLE MANIFOLD WITH ATMOSPHERIC VENT

Stephen Z. Turney, 320 Morris Ave., Lutherville, Md. 21093
Filed Jan. 12, 1973, Ser. No. 323,272
Int. Cl. A61b *5/02;* **A61m** *1/00*
U.S. Cl. 128—2 F **14 Claims**

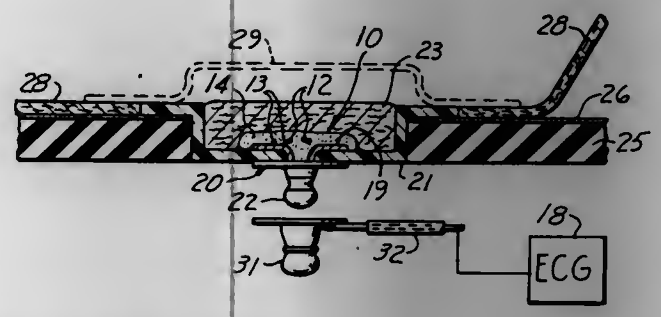
A manifold is formed with a plurality of ports for connection to various components such as arterial-venous pressure generators, a syringe, and a source of fluid and pressure sensitive transducers. The manifold includes one or more rotary members which are selectively positioned for interconnecting selected ones of the components. Various sampling, flushing and pressure measuring operations may be performed by use of the manifold. The manifold further includes a venting port arrangement for venting the pressure sensitive transducers to the atmosphere when a pressure measurement is not being taken. This protects the transducer from overpressurization and consequential damage.



3,834,373

SILVER, SILVER CHLORIDE ELECTRODES

Takuya R. Sato, 5130 Randall St., Culver City, Calif. 90230
Filed Feb. 24, 1972, Ser. No. 228,827
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 E **25 Claims**

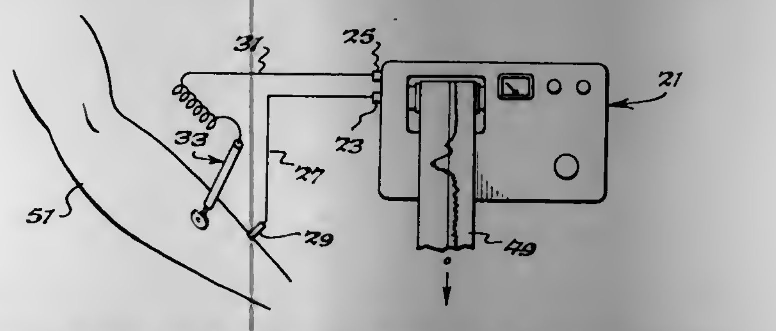


Silver, silver chloride electrodes comprise a plurality of silver particles and silver chloride particles and an electrically insulating, water impermeable, inert organic matrix therefor. The silver particles and silver chloride particles are interspersed with each other in and throughout the matrix.

3,834,374

DIAGNOSTIC ELECTRICAL SCANNING

Minas Ensanian, P.O. Box 98, Eldred, Pa. 16731
Filed Apr. 6, 1972, Ser. No. 241,635
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.1 R **7 Claims**

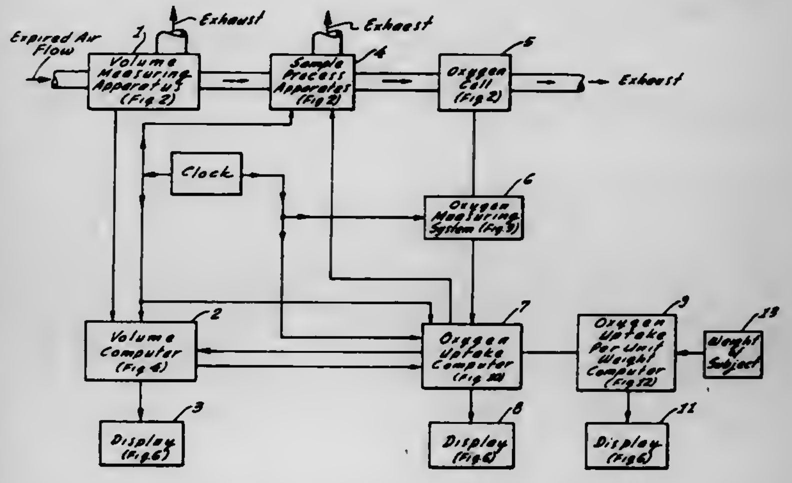


Body surface bioelectrical potentials are determined and recorded by use of a stationary electrode in contact with the body surface and an exploratory electrode which comprises a rotatable element, that preferably carries an electrolyte. Scanning of the body surface along a continuous path or over an area is carried out by rolling at least one exploratory electrode over the said surface, thus permitting mapping of the potentials along the line or over the area contacted by the exploratory electrode, whereby abnormalities of the skin or portions of the body under the skin may be detected.

3,834,375

RESPIRATORY GAS ANALYZER FOR MEASURING AND DISPLAYING OXYGEN UPTAKE IN EXPIRED AIR

Clifford Sanctuary, Palos Verdes Estates; Donald C. Woods, Big Bear City, and John A. Bachman, Woodland Hills, all of Calif., assignors to Del Mar Engineering Laboratories, Los Angeles, Calif.
Division of Ser. No. 243,369, April 12, 1972,. This application July 20, 1973, Ser. No. 380,975
Int. Cl. A61b *5/08*
U.S. Cl. 128—2.07 **6 Claims**

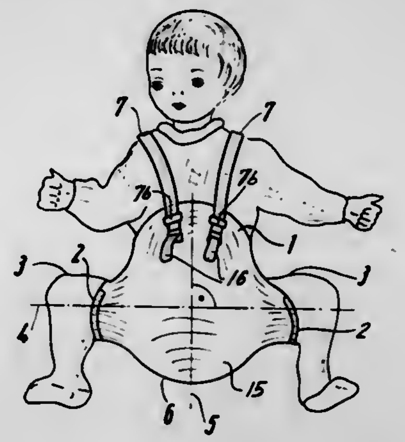

Exhaust
Exhaust
Expired Air Flow
1
Volume Measuring Apparatus (Fig 2)
Sample Process Apparatus (Fig 2)
4
5
Oxygen Cell (Fig 2)
Exhaust
Clock
6
Oxygen Measuring System (Fig 9)
2
Volume Computer (Fig 4)
7
Oxygen Uptake Computer (Fig 10)
9
Oxygen Uptake Per Unit Weight Computer (Fig 12)
13
Weight of Subject
3
Display (Fig 6)
8
Display (Fig 6)
11
Display (Fig 6)

A respiratory gas analyzer is provided in the form of a breath gas measuring instrument and system in which the oxygen uptake in the expired air of a subject, and the oxygen consumption per unit of weight of the subject, are periodically calculated and digitally displayed. A true sample of the expired air is accumulated by gradual extraction within the system of the invention on a periodic basis for gas analysis, and a computer included in the system calculates the oxygen depletion of each total sample to standard temperature and at ambient pressure and provides a digital display of oxygen uptake. An additional computer is included in the system which responds to the compensated oxygen depletion and to the subject's weight to provide a digital display of the oxygen uptake per unit weight of the subject.

3,834,376

ORTHOPEDIC APPLIANCE

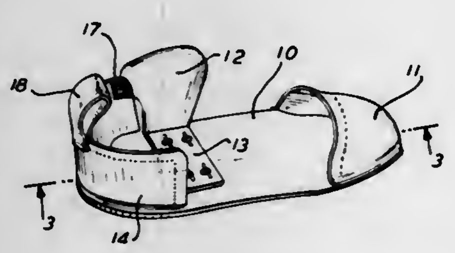
Oskar Thum, Fibigerstrasse 81, Hamburg, Germany
Filed Apr. 10, 1973, Ser. No. 349,784
Claims priority, application Germany, Apr. 11, 1972, 2217289
Int. Cl. A61f *3/00*
U.S. Cl. 128—80 A **15 Claims**



An orthopedic appliance is disclosed which is particularly useful for correcting hip dislocations in children. The appliance is intended to maintain the legs of a child spread apart in such a manner that the thighs extend laterally of the torso and normal thereto. The appliance consists of a shell having two spaced leg support sections which are connected by an arcuate transverse wall. The transverse wall defines a cavity intermediate the leg support sections. When the shell is placed between the legs of a child so as to spread these apart, the leg support sections at least partly encircle the thighs and the cavity is located between the legs and is open to the buttocks. Shoulder straps are provided for maintaining the shell in requisite position on the child.

3,834,377
EASILY REMOVABLE ORTHOPEDIC SHOE PLATFORM

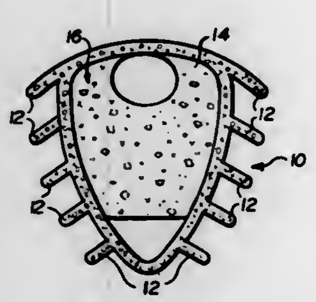
Steve Lebold, 45 Church St., Montclair, N.J. 07042
Filed Sept. 19, 1973, Ser. No. 398,660
Int. Cl. A61f *3/00*
U.S. Cl. 128—80 H **10 Claims**



This invention relates to an orthopedic device adapted for application to the shoe of a patient having partial paralysis or other infirmities which may induce weak or rolling ankles or a tendency for foot drop and which will provide ankle and foot support, said device being easily attached and removed by the patient with one usable hand or by another party.

3,834,378
INTRAUTERINE DEVICE

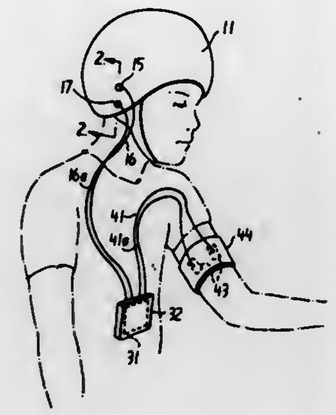
Irwin S. Lerner, Greenwich, Conn.; Hugh J. Davis, Baltimore, Md., and Thad J. Earl, Defiance, Ohio, assignors to A. H. Robins Company, Incorporated, Richmond, Va.
Continuation of Ser. No. 88,538, Nov. 12, 1970, abandoned. This application Feb. 26, 1973, Ser. No. 336,066
Int. Cl. A61f *5/46*
U.S. Cl. 128—130 **17 Claims**



An intrauterine device composite is provided which comprises a plastic matrix, such as a copolymer of ethylene and vinyl acetate, having a particulate material selected from the group consisting of metals such as copper, zinc, silver, platinum, or cadmium, and metal salts dispersed within the matrix. The particulate preferably includes both a metal and a salt, such as a sulfate, thereof, although solely a salt or a metal particulate may be utilized. In addition, a radio-opaque particulate such as barium sulfate is preferably also dispersed within the composite. The particulate material preferably comprises between 0.1% to 50% by weight of the composite, and the matrix preferably has a water permeability or rate of water vapor transmission of at least 0.3 grams/100 square inches/24 hours/mil at 25° C.

3,834,379
DETERRENT FOR SELF-DESTRUCTIVE ACTIONS

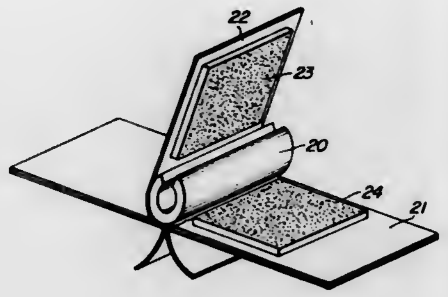
Mooza V. P. Grant, 4510 Cumberland Ave., Chevy Chase, Md. 20015
Filed Sept. 25, 1972, Ser. No. 291,576
Int. Cl. A61n *1/38*
U.S. Cl. 128—132 R **3 Claims**



A helmet to be worn by a patient having a tendency to inflict self-destructive blows to the head, contains a transducer switch. Actuation of the transducer switch by a blow to the helmet, activates an electrical circuit which generates an electrical pulse of predetermined voltage, current and time. The electrical pulse is used to shock the patient.

3,834,380
HOLDER FOR INTRAVENOUS INJECTION CANNULA AND TUBING

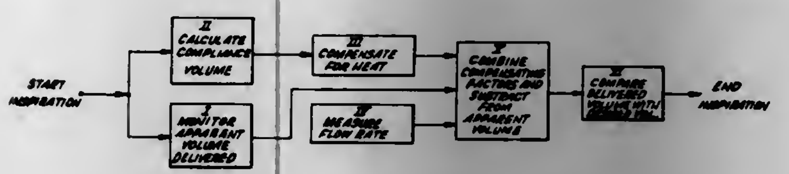
William A. Boyd, 3599 Wellington, Salt Lake City, Utah 84106
Filed Nov. 15, 1972, Ser. No. 306,610
Int. Cl. A61m *05/00, 25/02*
U.S. Cl. 128—133 **8 Claims**



A holder for tubular items, particularly equipment used during intravenous injections, such as infusion tubing or the hub of an injection cannula, comprises a strip of adhesively-backed tape and a longitudinally split, elongate, cylindrical, clamping tube of flexible and preferably resilient plastic material securely attached to the top of the tape. A latch for positively keeping the clamping tube closed about a received item may be provided, preferably in the form of a securement flap attached to the clamping tube at one side thereof and interlocking means having component parts attached, respectively, to the securement flap and at the opposite side of the clamping tube. For holding both an injection cannula and infusion tubing during the administering of an intravenous liquid, two or more clamping tubes may be provided in juxtaposed position on a single piece of tape.

3,834,381
COMPLIANCE COMPENSATED VENTILATION SYSTEM

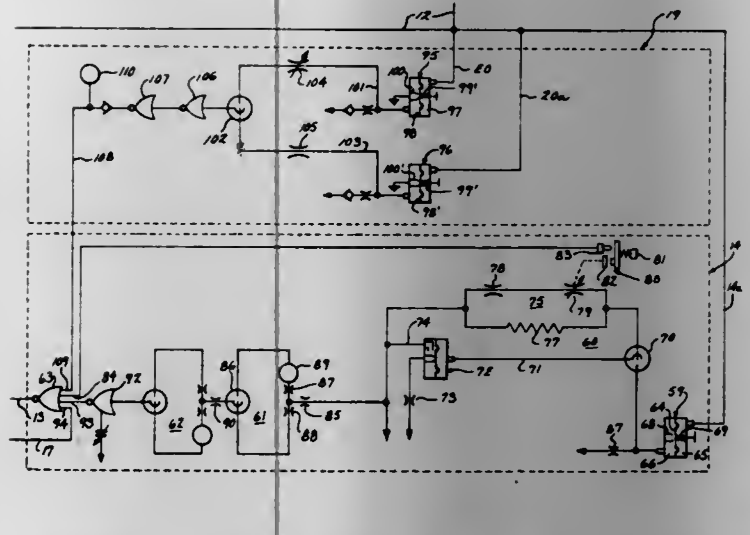
Kenneth M. Peterson, Venice, Calif., assignor to Puritan-Bennett Corporation, Kansas City, Mo.
Filed Aug. 25, 1972, Ser. No. 283,915
Int. Cl. A61m *16/00;* **G01d** *5/14*
U.S. Cl. 128—145.6 **10 Claims**


START INSPIRATION
II CALCULATE COMPLIANCE VOLUME
I MONITOR APPARENT VOLUME DELIVERED
III COMPENSATE FOR HEAT
IV MEASURE FLOW RATE
V COMBINE COMPENSATING FACTORS AND SUBTRACT FROM APPARENT VOLUME
VI COMPARE DELIVERED VOLUME WITH
END INSPIRATION

Method and apparatus for maintaining a substantially constant volume of gas flow to a patient, particularly an infant, with a volume-limited ventilation system, regardless of changes in the pressure and compliance of the delivery system or patient. The delivery pressure is monitored and combined with corrective factors derived from compliance changes in the system, gas heating under pressure, initial gas pressure, and gas overflow due to inherent system delays. The combined corrections are used to compute a compliance-compensation volume which is the volume of gas trapped within the gas delivery system. The compliance compensation volume is subtracted from the apparent volume of gas delivered to the system to determine the volume of gas actually delivered to a patient. The delivered volume is then compared with a desired reference volume and is terminated when they are equal.

3,834,382
FLUIDIC RESPIRATOR CONTROL SYSTEM WITH PATIENT TRIGGERING RESPONSE MEANS

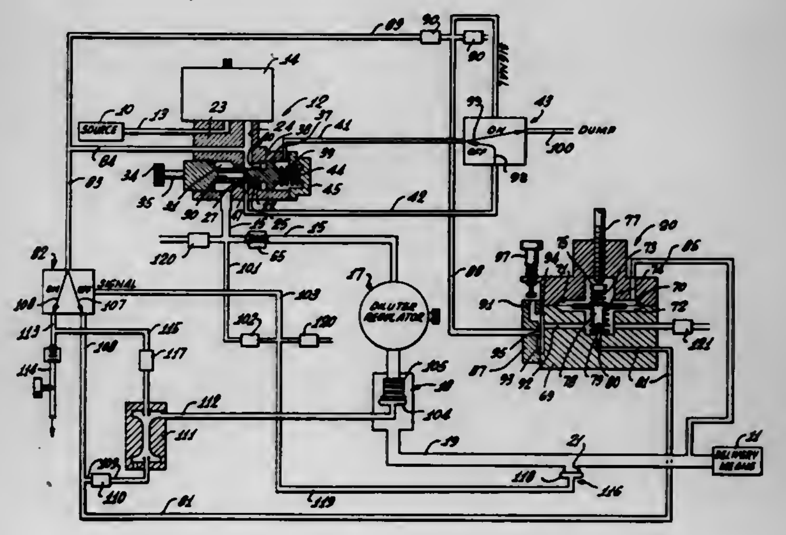
Warren A. Lederman, Wauwatosa, and Alfred J. Pawlak, Milwaukee, both of Wis., assignors to Johnson Service Company, Milwaukee, Wis.
Filed Sept. 5, 1972, Ser. No. 286,293
Int. Cl. A61m *16/00*
U.S. Cl. 128—145.8 **14 Claims**



A respirator unit has patient triggering control means with an isolating fluidic repeater connected to an operational amplifying circuit employing a summing impact modulator and a feedback network. Two cascaded stages of differentiation connect the amplifying circuit to an output logic gate for controlling a control oscillator to initiate an inhalation cycle. An inhibit circuit includes a pair of pressure taps connected to spaced points on the flow line. Fluidic repeaters connect the taps to a fluidic comparator. A fluidic time delay means is connected to the output of the comparator and connected in common to the output logic gate to inhibit the triggering control means during the exhalation cycle. The fluidic oscillator includes a flip-flop circuit with output lines interconnected to control the exhalation and inhalation valves between the fluid air-oxygen mixer source and the patient. Inhalation and exhalation time adjustment means are provided. A positive pressure cutoff circuit includes a fluidic amplifier which produces a logic on-off type signal in accordance with the magnitude of patient pressure and is connected to the oscillator to terminate the inhalation cycle and initiate the exhalation cycle. An automatic selection switch means is provided to selectively deactivate the inhalation and exhalation time adjustment, and the triggering control means to control the respirator operating mode.

3,834,383
RESPIRATION APPARATUS WITH FLOW RESPONSIVE CONTROL VALVE

James Weigl, and James E. P. Davis, both of Santa Monica, Calif., assignors to Puritan-Bennett Corporation, Kansas City, Mo.
Filed Dec. 11, 1972, Ser. No. 313,981
Int. Cl. A61m *16/00*
U.S. Cl. 128—145.8 **7 Claims**

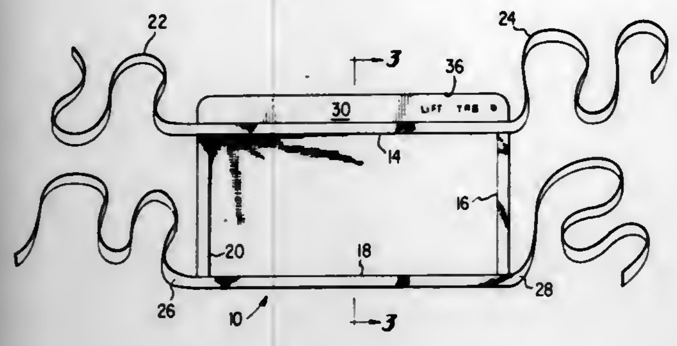


Intermittent positive pressure breathing apparatus having a combined flow-responsive and control valve which is opened to initiate the inspiration phase of a breathing cycle by a triggering valve, monitors the decreasing flow rate resulting from back-pressure buildup in the apparatus, and closes to terminate the flow at a selected and adjustable terminal flow rate. The control valve has a plunger that is carried by a piston upon which differential pressures are applied from the inlet and outlet ends of the valve's flow passage, and a spring assists the outlet pressure in urging the plunger toward an annular seat which is adjustably positioned on one side of the passage and defined as the beveled end of a tubular seat member. The plunger is positioned in the passage in accordance with the flow rate to maintain a constant pressure drop, and engages the seat to shut off all flow when the rate falls to the selected terminal flow rate.

3,834,384
SURGICAL MASK WITH ADHESIVE VAPOR BARRIER

Herman R. Raines, 32 Henley Rd., Overbrook Hills, Pa. 19151
Filed May 1, 1973, Ser. No. 356,184
Int. Cl. A62b *23/02*
U.S. Cl. 128—146.2 **4 Claims**

The invention provides an improved surgical mask which provides a vapor barrier between the mouth and nostrils which are covered by the mask during the use of the same, and the area proximate the eyes of the user and thus prevents the fogging or clouding of any optical device being used by the user.



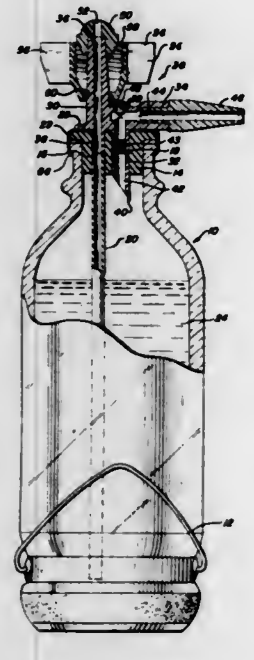
3,834,385
DISPOSABLE HUMIDIFIER

Michael O. Pekkarinen, Lincolnshire, Ill., assignor to Baxter Laboratories, Chicago, Ill.

Filed Nov. 9, 1972, Ser. No. 304,943

Int. Cl. A61m ***15/00***

U.S. Cl. 128—194 **8 Claims**



Oxygen to be administered to a patient is humidified by passing the oxygen through a standard water-containing solution bottle. A coupling assembly having an inlet tube and an outlet tube is inserted into the two openings defined by the stopper of the intravenous solution bottle, and is coupled to an oxygen supply. The connector assembly is capable of supporting the bottle, and carries a humidified oxygen outlet to which a nasal cannula is coupled.

3,834,386
BLOOD DRIP CHAMBER

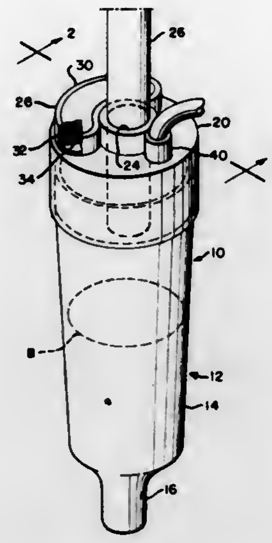
James R. Sisley, Seattle, Wash., assignor to Sweden Freezer, Seattle, Wash.

Filed Sept. 7, 1972, Ser. No. 286,857

Int. Cl. A61m ***5/16***

U.S. Cl. 128—214 C **4 Claims**

A blood drip chamber is provided with a cap having a large penetration area which includes a self-sealing rubber supported by a layer of stiffer material. The inner surface of the stiffening material is at the same general level as the remainder of the inner surface of the cap so that blood is not held by capillary action in the penetration area. The blood drip chamber includes a reservoir having a sidewall, a lower discharge port and an upper end. A blood inlet port is positioned centrally in the cap so that the inflow of blood is maintained away from the sidewalls of the reservoir.



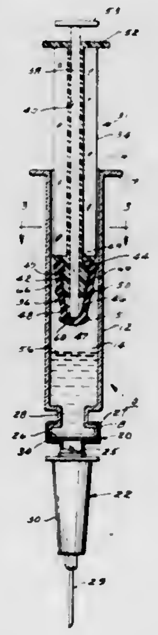
3,834,387
BREECH LOADED SYRINGE WITH DEFORMABLE PISTON

Alexander M. Brown, Daytona Beach, Fla., assignor to Sherwood Medical Industries, Inc., St. Louis, Mo.

Filed Aug. 10, 1972, Ser. No. 279,614

Int. Cl. A61m ***5/22***

U.S. Cl. 128—218 P **4 Claims**



A plunger assembly for a syringe adapted to be filled through the breech end of the syringe barrel including a piston rod having a piston on the distal end thereof for insertion into the breech end of the barrel, and a piston control member slidable in an opening in the piston rod and engageable with the interior of the piston to stretch the piston and provide a vent passage around the piston during movement of the piston and piston rod in the barrel. Medicament is introduced into the syringe barrel to the desired level and the plunger rod and control member are moved relative to each other to stretch and deform the piston. The deformed piston is then moved in the syringe barrel to a desired position and released by the control member into sealing engagement with the barrel.

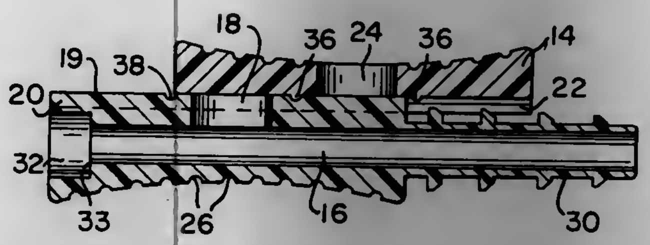
3,834,388
SUCTION CONTROL ARRANGEMENT FOR A SUCTION CATHETER

Philip H. Sauer, Bolingbrook, Ill., assignor to Cenco Medical/Health Supply Corporation, Chicago, Ill.

Filed Jan. 29, 1973, Ser. No. 327,814

Int. Cl. A61m ***1/00***

U.S. Cl. 128—276 **5 Claims**



A suction control arrangement for a suction catheter having a body portion with a passageway formed longitudinally therethrough and a port means formed therein to provide access to the interior of the passageway, and having a cap means mounted on the body portion with an opening formed in it. The cap means is movable on the body portion such that the opening in the cap means and the port in the body portion may be aligned to eliminate suction through the passageway and the body means when the body means is attached at its opposite ends to suction conduit means in a suction catheter system. Alternately, the cap means may be moved to a closed position over the port means to establish suction in the system. The body portion and cap means have cooperative locking means to maintain the cap means in selected open or closed position with respect to the body portion.

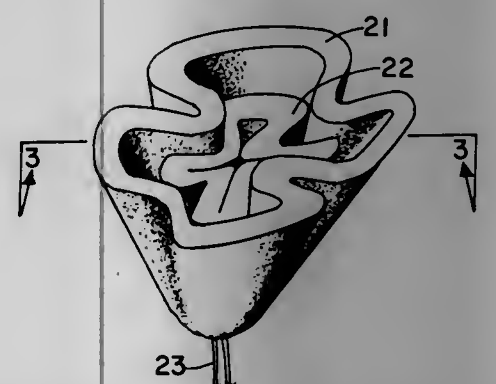
3,834,389
TEXTILE TAMPON HAVING A RESILIENT FOAM CORE

Bernard Allen Dulle, Montgomery, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Nov. 28, 1972, Ser. No. 310,035

Int. Cl. A61f ***13/20***

U.S. Cl. 128—285 **12 Claims**



A textile tampon having a compressible resilient spongiform core within the textile mass to cause the textile mass to expand laterally in the vagina so that the tampon conforms to the cross section of the vagina, thereby forming an intimate contact between the textile mass and the vaginal walls.

3,834,390
COMBINATION NEUROSURGICAL SPONGE

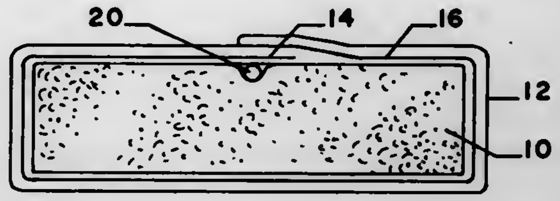
Winfred S. Hirsch, Plainview, N.Y., assignor to Edward Weck & Company, Inc., Long Island City, N.Y.

Filed Nov. 20, 1972, Ser. No. 307,884

Int. Cl. A61f ***13/00***

U.S. Cl. 128—296 **12 Claims**

A neurosurgical sponge has an inner, highly absorbent nonwoven layer. A porous, nonwoven laminate is wrapped about the inner layer with the cut edges folded underneath the folded end. A piece of x-ray detectable material is inserted between the two layers and the layers are stitched or heat sealed together.



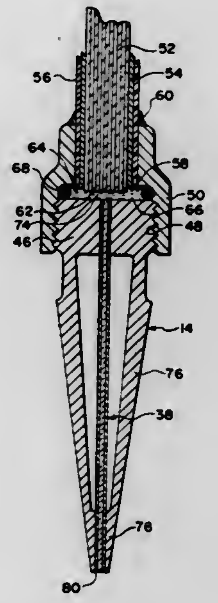
3,834,391
METHOD AND APPARATUS FOR PHOTOEPILATION

Carol Block, Chicago, Ill., assignor to Carol Block, Ltd., Chicago, Ill.

Filed Jan. 19, 1973, Ser. No. 325,026

Int. Cl. A61n ***5/06;*** **A61b** ***17/00***

U.S. Cl. 128—303.1 **7 Claims**



Photoepilation apparatus comprises a needle or probe carrying a single protected optical fiber which is supported throughout its length adapted to be connected into a photoepilation system including a gaseous discharge source of light energy. The free end of the probe is tapered with a gradual taper to a relatively fine diameter to enable said free end to be brought close to the follicle entrance of a hair shaft or body it is desired to remove.

The method disclosed includes applying light energy in flashes through the use of the optical fiber at the entrance to a hair follicle.

3,834,392
LAPAROSCOPY SYSTEM

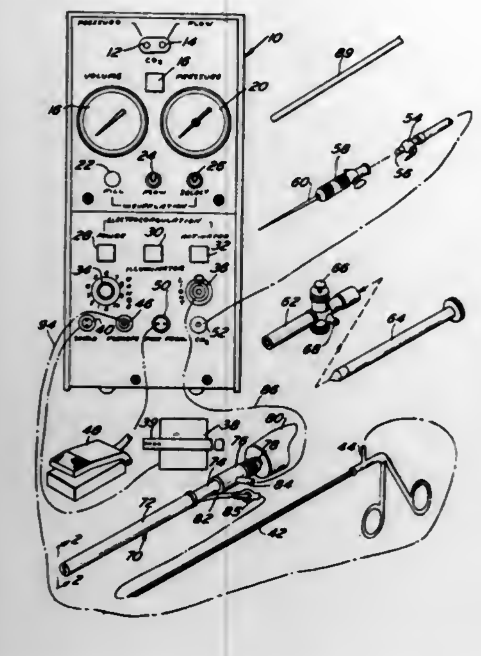
Russell A. Lampman, Yardley, and William R. Knepshield, Malvern, both of Pa., assignors to KLI, Inc., Ivyland, Pa.

Filed Feb. 1, 1973, Ser. No. 328,513

Int. Cl. A61b ***17/36***

U.S. Cl. 128—303.13 **4 Claims**

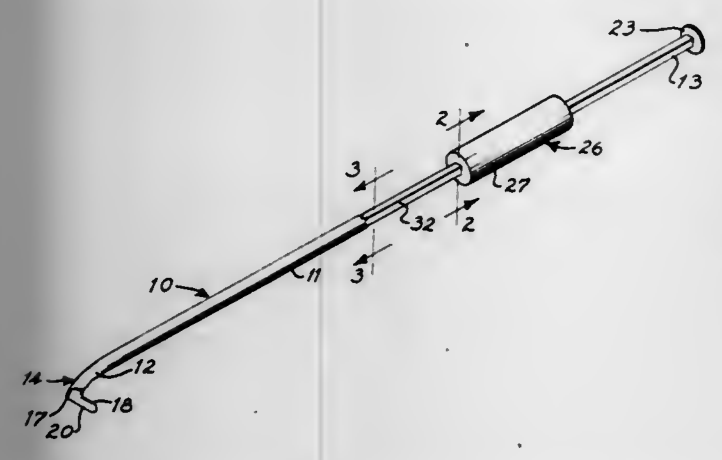
A laparoscopy system for female sterilization whereby a single unit contains the power source to provide illumination, oscillatory electrical power and CO_2 for a laparoscopy. CO_2 gas, under pressure, is first passed into the body through a needle into the peritoneal cavity. The fallopian tubes are identified and then the laparoscope, which contains a telescope connected to a source of illumination, is inserted into the body cavity. A flexible forceps is, thereafter, inserted through the laparoscope into the body cavity. The forceps is manipulated to successively close the passage through each fallopian tube, either by means of sending electrical oscillations through the forceps to simultaneously cut, seal and cauterize each tube in turn, or by means of a specific clamp which clamps the passage shut.



3,834,393
VETERINARY SURGICAL TOOL FOR ENLARGING THE PELVIC GIRDLE OF A HEIFER DURING PARTURITION

Robert B. Goggins, Ennis, Mont. 59729

Filed July 9, 1973, Ser. No. 377,301
Int. Cl. A61b *17/32, 17/42;* **A61d** *1/08*
U.S. Cl. 128—305 **4 Claims**

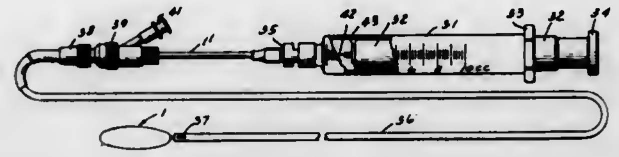


A veterinary tool facilitating sectioning of the pelvic floor of a heifer to remedy dystacia in parturition of a heifer comprises an elongated shank having a hook-shaped section at a forward end and an abutment flange at a rearward end. A slidably impact weight is mounted to the shaft forward of the abutment flange. The hook-shaped section includes a rearwardly facing, angularly projecting knife edge and a forwardly projecting blunt point. A portion of the shank is polygonal in cross-section and extends through a complementary opening within the impact weight. This relationship provides for longitudinal movement of the impact weight along the shank but prevents angular movement of the shank and weight relative to one another facilitating manual angular alignment of the knife edge by turning the weight about the shank axis. The impact weight may be forcibly moved longitudinally along the shank to strike the abutment flange creating a reaction force sufficient to pull the knife edge rearwardly to section the pelvic floor of the heifer and thereby allowing enlargement of the transverse diameter of the pelvic girdle.

3,834,394
OCCLUSION DEVICE AND METHOD AND APPARATUS FOR INSERTING THE SAME

James A. Hunter, 1725 West Harrison, Chicago, Ill. 60605, and Robert W. Sessions, 1309 Lloyd Ave., Lombard, Ill. 60608

Continuation of Ser. No. 878,813, Nov. 21, 1969, abandoned. This application Feb. 23, 1972, Ser. No. 232,323
Int. Cl. A61b *17/12;* **A61m** *25/00*
U.S. Cl. 128—325 **34 Claims**

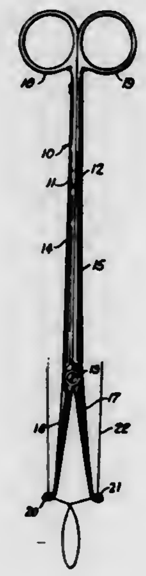


A method of effecting the occlusion of a blood vessel by forming an access opening in the body of the patient communicating with the desired blood vessel, introducing an occluson member in the vessel, moving the member to the desired point of occlusion, and thereat expanding the member to a size greater than the diameter of the vessel whereby the member is substantially immovably retained therein; the member comprising an expandable and contractable body, capable of disposition in a relatively contracted state in which it may be positioned at the desired point of occlusion, or in an expanded state, the body being constructed to contain the means for effecting such expansion; an example of apparatus for practicing the method comprising a catheter in the form of an elongated tubular conduit of a length to extend from said desired point of occlusion to said access opening and constructed at one end for operative connection with such an occlusion member and the other end for operative connection with actuating means cooperable with means disposed in the tubular conduit for effecing transition of said member from one of its states to the other of its states.

3,834,395
KNOT TYING INSTRUMENTS

Manuel V. Santos, Soutelo Branca, Aveiro, Portugal

Filed Mar. 9, 1973, Ser. No. 339,588
Int. Cl. A61b *17/12*
U.S. Cl. 128—326 **1 Claim**

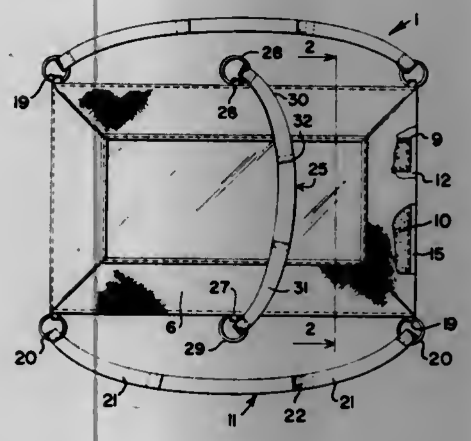


Knot tying instruments are intended for use by surgeons for applying loops or knots in threads in the body of a patient. Each instrument has a pair of jaws or holders through which or around which a thread is passed. According to one construction the thread holders are attached to the ends of two elongated bars which are pivoted to provide a scissor-like structure. The opposite ends may have rings to be held by the fingers of the user. According to another construction the thread holders are firmly held by an elongated rod the opposite end of which carried a handle.

3,834,396
TEMPERATURE DIFFERENTIAL APPLICATOR HOLDER

Stephen F. Foster, and Linda R. Foster, both of 440 Tefft, Apt. 7, Topeka, Kans. 66607

Filed June 18, 1973, Ser. No. 370,953
Int. Cl. A61f *7/04*
U.S. Cl. 128—403 **10 Claims**

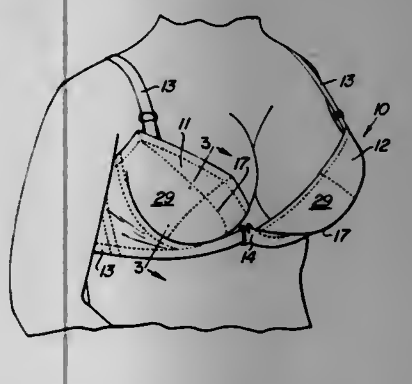


A holder for items used to apply a temperature differential to a selected portion of the body of a user includes a first compartment formed of panels of flexible porous material and adapted to receive a heating pad therein. A pocket overlies the first compartment and is adapted to receive a moist cloth and retain same in a position having a center portion thereof exposed and the pocket is formed of an edge portion of one of the panels of the first compartment. A second compartment overlies the other panel of the first compartment and is adapted to receive cold objects, such as ice cubes or the like therein, and the second compartment is formed by an exterior flexible porous panel secured in overlying relation with the other panel of the first compartment. Fastening members are mounted on the panels forming the first and second compartments for closing same. Attachment members are mounted on the holder for removably attaching same to a selected portion of the body of a user with either the pocket or the exterior panel of the second compartment in engagement with the user.

3,834,397
BRASSIERE CONSTRUCTION

Bonnie Alice Birch, 556 Delno Dr., Murray, Utah 84107

Continuation-in-part of Ser. No. 188,171, Oct. 12, 1971, abandoned, which is a continuation-in-part of Ser. No. 825,739, May 19, 1969, abandoned. This application Mar. 14, 1973, Ser. No. 341,120
Int. Cl. A41c *3/10*
U.S. Cl. 128—480 **10 Claims**



A brassiere for improving the bustline of the wearer, by creating a pronounced cleavage in the bustline and providing a full, naturally appearing bustline, has a shell with two cups provided with appropriate straps and fastening means for securing the brassiere to the wearer. Each cup comprises a shaped foam rubber layer and has multiple outer layers of a padding material attached to the lower and outer underarm circumferencial areas of the foam rubber layer. A thick inner layer of padding material is disposed within the cup correspondingly with the placement of the outer layers. The cup construction is adapted to force the natural bosom upwardly and inwardly to create a pronounced cleavage and to provide a desireable, naturally appearing softness, fullness, and shape to the bustline.

3,834,398
SMOKABLE SUBSTITUTE MATERIAL

Theodore S. Briskin, Beverly Hills; Norman G. Schnautz, Van Nuys, and Inderjit Sabherwal, Los Angeles, all of Calif., assignors to Sutton Research Corporation, Los Angeles, Calif.

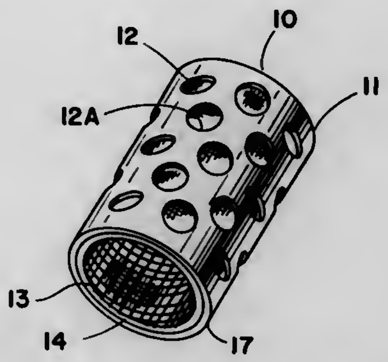
Filed Feb. 22, 1972, Ser. No. 226,267
Int. Cl. A24b *13/00*
U.S. Cl. 131—2 **13 Claims**

A smokable material and cigars and cigarettes formed thereof comprising a mixture of a resinous binder comprising the homopolymer or copolymer of the hydroxy and ketone derivatives of vinylene carbonate and a combustible filler. Non combustible fillers may also be added. The combustion products of the composition are primarily carbon dioxide and water.

3,834,399
TOBACCO SMOKING EQUIPMENT

Jon W. Beam, 510 Cherry St., Cushing, Okla. 74023

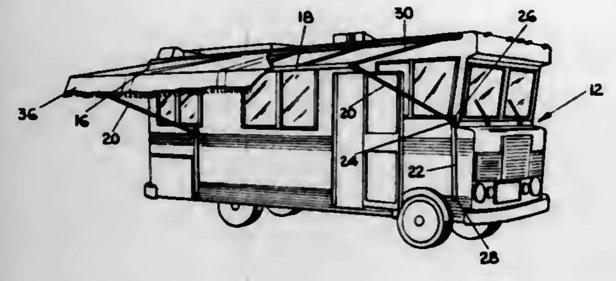
Filed Nov. 24, 1972, Ser. No. 309,157
Int. Cl. A24d *01/14, 01/22*
U.S. Cl. 131—3 **9 Claims**



A detachable charge housing is provided wherein the side wall is perforated with a plurality of air vent openings that are covered internally by an overlapping paper section which is both porous and absorbent which is wrapped around a metal screen wire sleeve inserted into the charge housing in such a manner that the disposable assembly is retained by frictional contact and with the thusly described charge housing assembly being loaded with smoking tobacco and seated vertically in the upstream open end of a smoking holder, comprising additionally an affixed stem section having a longitudinal smoke channel therein. The smoking holder is provided in a preferred modification and an optional modification. The construction and operation of the two modifications are identical with the exception that the optional modification has a perforated side wall which is formed above the charge housing seat which substantially encompasses the charge housing in a spaced relationship. The principal features of the invention are that the porous and absorbent paper section which surrounds the burning tobacco charge does not burn and that it allows air filtration which improves the combustion of the tobacco charge and absorbs moisture therefrom which subsequently evaporates thus resulting in a drier and cooler smoke than that which is produced by conventional tobacco smoking pipes.

3,834,400
AWNING CONSTRUCTION

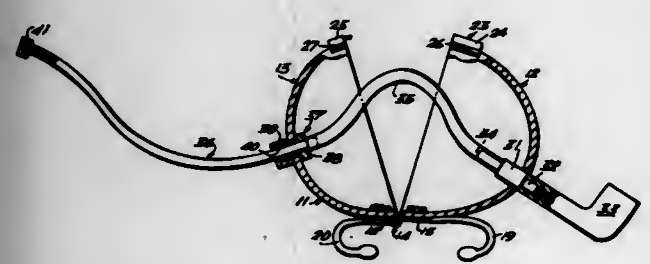
James L. Sattler, Big Rapids, Mich., assignor to Wildwood Products, Inc., Lookout Mountain, Tenn.
Filed Mar. 29, 1972, Ser. No. 239,299
Int. Cl. E04f *10/00*
U.S. Cl. 131—5 AT **6 Claims**



An awning construction for travel vehicles and the like in which an awning fabric is secured at one end to the vehicle and is supported at its outer end by a frame including an end bar to which the outer portion of the fabric is attached and side arms to which the end bar is rotatably attached. The lower ends of the side bars are attached for slidable movement to the side of the vehicle or can be disposed vertically and secured to a helical spring stake for supporting the outer end of the awning. Spring loaded and extendable rafters extend from the vehicle beneath the fabric and engage the end bar in locking relationship thereto to prevent rotational movement of the end bar with respect to the rafters. The fabric is attached to the end bar by a special clamp and the lower front portion of the end bar so that the awning fabric is drawn taut around the top and front side of the end bar. The slidable mounting for the side bars is secured to the vehicle through a channel bracket which is securely fastened to the vehicle and which distributes the force from the side bars along the side of the vehicle.

3,834,401
NOVELTY SMOKER'S PIPE

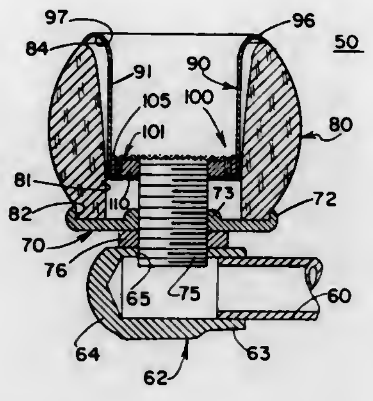
Mark L. Wilson, 18102 N.E. 25th Pl., Miami, Fla. 33160
Filed Jan. 30, 1973, Ser. No. 328,131
Int. Cl. A24f *13/12, 13/22*
U.S. Cl. 131—178 **3 Claims**



A novelty smoker's pipe in the form of a fanciful animal characterized by a substantially spherical body member comprising the torso and head of the animal, a pipe bowl projecting from the head end of the body member and constituting the nose or snout of the animal, a compoundly curved tube extending outwardly of the opposite end of the body and constituting the tail of the animal, and hook members extending downwardly of the underside of the body member and constituting the legs of the animal. In a preferred form of the invention, the body member is comprised of a hollow coconut shell, longitudinally divided to provide two shell halves secured together at the bottom by a hinge to permit opening thereof for use as a receptacle. A length of flexible tubing within the coconut shell and communicating between the pipe bowl and the tubular tail provides for the drawing of smoke from lighted tobacco in the pipe bowl through the outer end of the tail-piece in smoking.

3,834,402
SMOKING PIPE

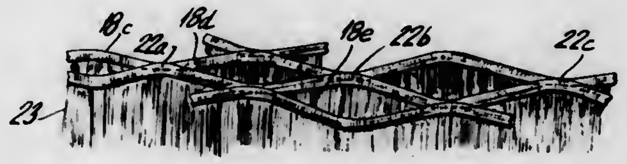
Dennis D. Paul, 6129 N. Paulina, Chicago, Ill. 60660
Filed Aug. 27, 1973, Ser. No. 391,826
Int. Cl. A24f *05/08*
U.S. Cl. 131—205 **7 Claims**



A smoking pipe having a cork bowl with a metal insert to provide a decorative appearance which is also an insulator preventing the bowl from becoming hot to the touch. A removable support on the inside of the bowl supports and filters tobacco and the like smoked in the pipe and is held in place between a ring and an internally threaded washer which is mounted on a hollow threaded connector which also holds a threaded bowl mounting plate and a threaded spacer washer thereon and is connected to a threaded opening in the adjacent end portion of the stem. The metal insert protects the cork bowl from combustion.

3,834,403
WIG CONSTRUCTION

Byong Kwon Ahn, Corona, N.Y., assignor to Bando America, Inc., New York, N.Y.
Filed Nov. 17, 1971, Ser. No. 199,528
Int. Cl. A41g *3/00*
U.S. Cl. 132—53 **10 Claims**

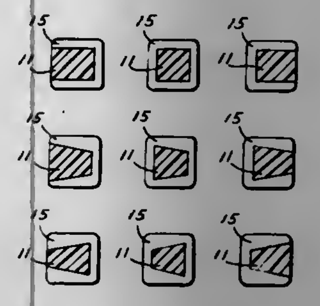


A wig construction in which spaced points of adjacent strips of wefting are joined together at points of attachment offset from strip to strip to form a wefting network expandable to conform to the wearer's head. The periphery of the wefting network is attached to fabric which includes a cap band and may include a section of a cap.

3,834,404
DENTAL FLOSS HOLDER APPARATUS

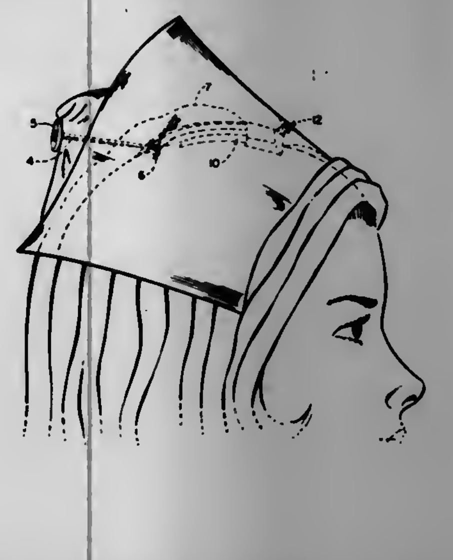
Chiu-Ying Wong Chien, 4629 Creekbend, Houston, Tex. 77035
Filed July 13, 1973, Ser. No. 378,985
Int. Cl. A61c *15/00*
U.S. Cl. 132—91 **4 Claims**

An illustrative embodiment of the present invention includes a dental floss holding apparatus having a novel and efficient means for attaching dental floss between a pair of spaced apart arm members which hold the length of floss disposed therebetween in a taut condition. If the floss is broken during usage, the short broken portion may be quickly and easily discarded and the novel floss attaching means utilized to rapidly recondition the floss holder for continued usage.



3,834,405
NURSE'S CAP ATTACHMENT SYSTEM

Carolyn Creel McCord, Mobile, Ala.
Continuation-in-part of Ser. No. 115,638, Feb. 26, 1971, abandoned. This application Aug. 10, 1972, Ser. No. 279,326
Int. Cl. A42b *7/00*
U.S. Cl. 132—101 **6 Claims**

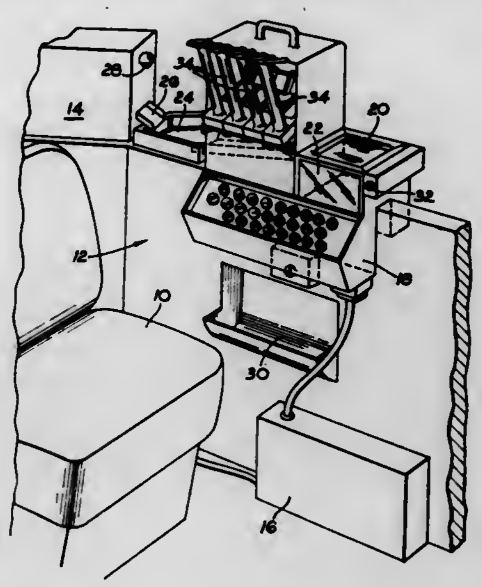


A cap attachment system for easily but securely attaching a standard nurse's cap to the head of the nurse including a plastic comb attachment having a series of odd-numbered, asymmetrically disposed, staggered tines with rounded points and a flat undersurface and having a pin clasp for attaching the comb to the front of cap, the comb attachment being further secured to the cap at its rear, upper portion by means of a rubber band disposed between the button on the cap through the standard slit in the cap to an optional groove at the end of the central tine, all of which when placed in position securely attaches the cap to the head of the wearer. A bobby pin is further included near the rubber band's attachment to the tine to insure that the tension of the rubber band does not pull the end of the comb away from the head of the wearer.

3,834,406
TICKET SYSTEMS

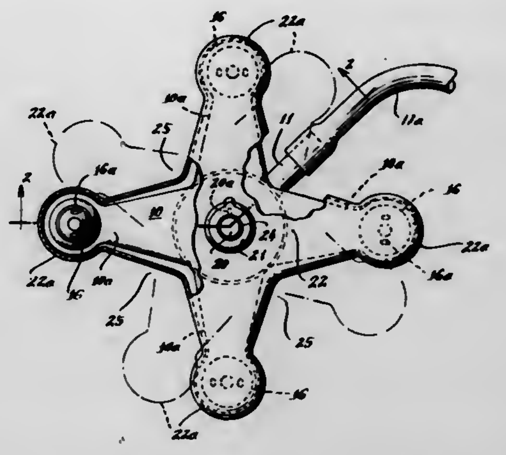
Alec Patrick James, Birmingham, England, assignor to National Research Development Corporation, London, England
Filed Jan. 29, 1973, Ser. No. 327,290
Claims priority, application Great Britain, Feb. 16, 1972, 7054/72; Mar. 1, 1972, 9515/72
Int. Cl. G07d *1/06*
U.S. Cl. 133—2 **10 Claims**

The invention provides change dispensers, each for dispensing coins of a different value, connected logically to switches, each for setting up the value of tickets required to be issued, and possibly also for causing issue of such tickets, and to further switches, each for setting up the value of monies tendered, so that by operating one appropriate switch from each series of switches, the correct change (if any) is issued without any mental arithmetic on the part of the operator.



3,834,407
MILKING UNIT WASHER

Richard G. Heitman, Rhinebeck, N.Y., assignor to The DeLaval Separator Company, Poughkeepsie, N.Y.
Filed May 14, 1973, Ser. No. 359,629
Int. Cl. B08b *9/00, 11/02*
U.S. Cl. 134—56 R **4 Claims**



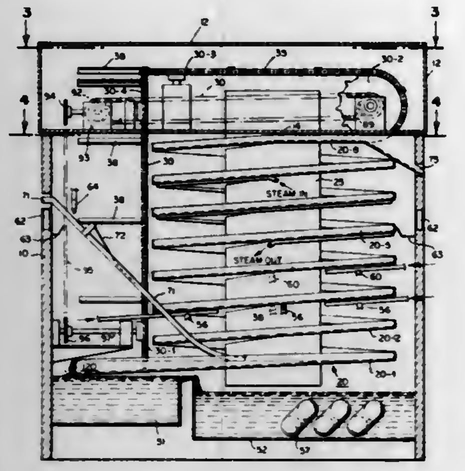
The teat cups are applied to outlets of a washer unit from which a cleaning liquid is sucked through the liners of the teat cups to a vacuum source. Upon removal of the teat cups from these outlets, a cover of the washer unit automatically descends from a washing position with a rotating movement to cover the outlets; and to prepare for the next washing operation, the cover is lifted and rotated to its washing position, where it is held by the teat cups when re-applied to the outlets.

3,834,408
APPARATUS FOR CLEANING SMALL ITEMS

Richard E. Thalacker, Bowling Green, Ky., assignor to Detrex Chemical Industries, Inc., Detroit, Mich.
Filed Sept. 13, 1972, Ser. No. 288,685
Int. Cl. B08b *3/02, 3/10;* **B65g** *19/00*
U.S. Cl. 134—83 **7 Claims**

Compact apparatus for cleaning electronic, and other small items of manufacture, of soils, such as those which result from prior manufacturing operations, includes a helical non-vibratory elevator track, which is wound upwardly about a cylindrical supporting stem, and an endless chain conveyor for pushing the items along the track. The soiled items are deposited into a load chute leading down to a lower flight of the track.

This portion of the track is submerged, or partially submerged, in a cleaning solution which is flowing down the track into a lower sump. The immersed soiled items are pushed through the cleaning solution along the lower level of the track, and, after emerging therefrom, are pushed up the track through sprays of clean distillate solvent and a vapor zone located at intermediate flight levels, then through a drying zone at upper flight levels, after which the cleaned and dried items are discharged from the track down a discharge chute. The conveyor for conveying the items up the helical elevator track may preferably include an endless chain having fixtures or pushers extending laterally therefrom at spaced intervals for pushing the items along the track. The helical track and its chain conveyor occupy but a small amount of floor space and the entire cleaning system is housed in a compact housing.



3,834,409
CLEANSING RECEPTACLE FOR CAPILLARY WRITING PEN PARTS

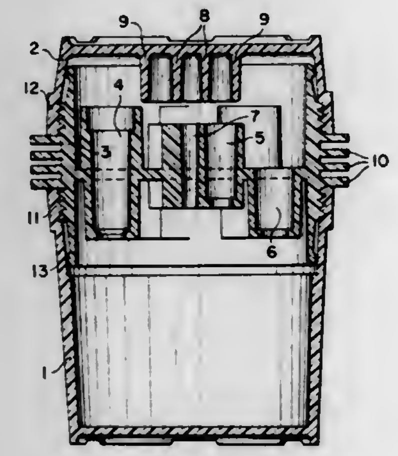
Lasse Kuparinen, Hamburg, Germany, assignor to Koh-I-Noor Rapidograph, Inc., Bloomsbury, N.J.

Filed Feb. 22, 1973, Ser. No. 334,827

Claims priority, application Germany, Feb. 25, 1972, 7207146

Int. Cl. B08b *3/04*

U.S. Cl. 134—117 9 Claims



A closed reservoir of the type used for cleansing capillary pen parts so as to remove dried ink and the like. The receptacle includes a base reservoir containing the cleansing liquid, an intermediate support platform complementally engagable with the reservoir and including a plurality of sleeves conformed to the exterior configuration of the several pen parts, for example cap, reservoir, writing tip; and a cover which closes the reservoir and support. The receptacle is distinguished in that the cover holds the pen parts in place during shaking so as to agitate the cleansing liquid, yet the intermediate platform may be removed from reservoir and cover and supported independently for washing or drying.

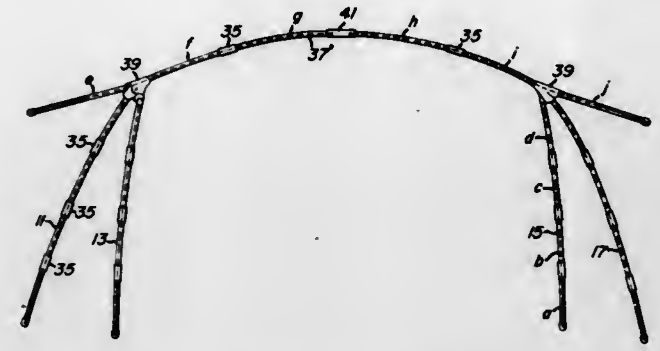
3,834,410
COLLAPSIBLE TENT

Norman P. Leibel, Pottsville, Pa., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 27, 1973, Ser. No. 298,705

Int. Cl. A45f *1/16*

U.S. Cl. 135—3 E 4 Claims



A tent comprising a two-piece collapsible frame consisting of spring-loaded sections which are automatically connected on the unrolling of the tent.

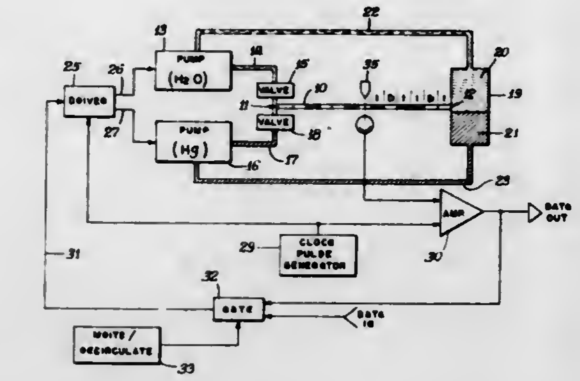
3,834,411
METHOD AND APPARATUS FOR STORING DIGITAL INFORMATION IN FLUID MEDIUM

Alan Richardson Jones, Miami, Fla., assignor to Dade Reagents, Inc., Miami, Fla.

Filed July 15, 1968, Ser. No. 745,029

Int. Cl. G06d *1/00*

.U.S. Cl. 137—1 15 Claims



A fluidic memory system which is compatible with conventional fluidic logic elements includes a number of pumps for selectively introducing quanta or segments of any of a plurality of fluids into the input end of a storage tube in response to a digital input signal. The different fluids are generally immiscible as used in the system and are distinguishable from each other by characteristic and detectable differences in a physical property, each fluid being representative of a discrete data level of the input signal. A pattern of fluid quanta is thus formed in sequential relation in the tube to provide a "permanent" or "non-volatile" representation of the input signal. The fluids remain separate, although adjacent quanta are contiguous, as they are advanced through the tube. As the fluid pattern is transmitted along the tube the selected physical characteristics of the fluid quanta or segments is sensed by a detector and signals are generated which correspond with the data level of each fluid being sensed. The signal pattern may then be recirculated, or a new pattern may be introduced into the memory tube. Fluids discharged at the output end of the tube may be separated and returned to their respective pumps. Modifications including a scanning system for reading the data at a faster rate then the propagation rate of the individual quanta are also described.

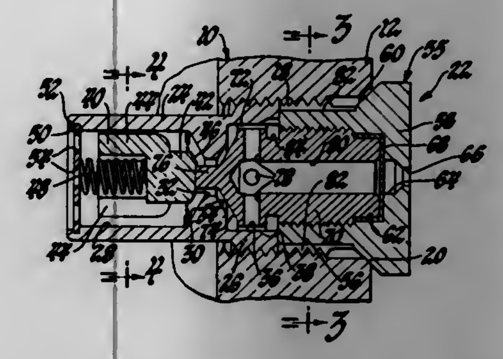
3,834,412
COMBINED FILL, PRESSURE RELIEF AND BLEED VALVE ASSEMBLY FOR PRESSURE VESSELS

Wayne V. Fannin, Xenia, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed June 25, 1973, Ser. No. 373,389

Int. Cl. F16k *17/16, 45/00*

U.S. Cl. 137—68 5 Claims



A combined fill, pressure relief, and bleed valve assembly for pressure vessels includes a valve portion having a valve housing threaded within a threaded bore in the wall of the pressure vessel and mounting a valve member biased to closed position against a valve seat of the housing. The valve member can be unseated to conventionally fill the pressure vessel. A pressure relief and bleed portion includes a second housing having a hollow body threaded exteriorly and interiorly and a head provided with an outlet. A plurality of bleed grooves on the exterior of the body open to the inner end of the body and to the head. A hollow plug is threaded within the body and seats a pressure rupturable diaphragm against the inner surface of the head to close the outlet. The body is threaded into the bore after filling. The inner end of the body seats on the valve housing to close the inner ends of the bleed grooves and the head seats on the wall to close the outer ends of the bleed grooves. An extension of the plug unseats the valve member to permit pressure fluid to flow through the plug to the pressure rupturable diaphgram. A partial unthreading of the body insufficient to disengage the extension from the valve member unseats the inner end of the housing from the valve housing and the head from the pressure vessel wall to permit the bleed grooves to bleed pressure fluid to atmosphere.

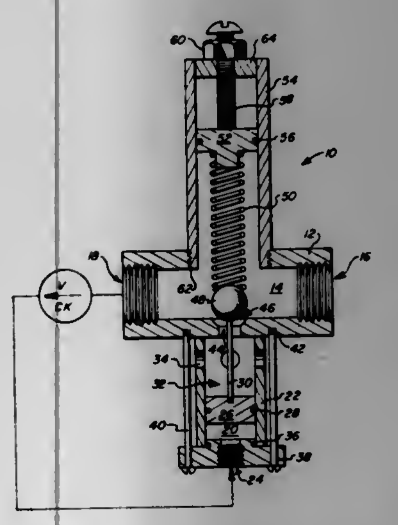
3,834,413
UNIVERSAL HIGH PRESSURE REGULATOR

Fred M. Peterson, 3233 Caddo Tr., Fort Worth, Tex. 76135

Filed Dec. 11, 1972, Ser. No. 313,685

Int. Cl. F04b *49/08*

U.S. Cl. 137—116 2 Claims



A universal high pressure air regulator which functions as a two stage constant running unloader and regulator when used in conjunction with a check valve, an excess air release and regulator where no check valve is employed, or a safety valve, accomplished through the action of a valve seal adjustably spring biased in a closed condition and responsive to a pressure actuated cylinder, so that at a predetermined pressure the cylinder causes sufficient pressure to be applied against the valve to just overcome the combined spring biasing means and air pressure acting upon the valve which is exposed to the compressor airstream, thus preventing full unloading and permitting a balanced condition wherein only the air being used is replaced, excess air being discharged, i.e., only the peak of the pressure pulse is used or goes into the tank; when air usage from the receiver is ended the air pressure on one side of the valve overcomes both the spring and air pressure on the other side of the valve at the air pulse low cycle, dumping all the air pressure in the line until receiver air is again used, at which time the valve closes starting the cycle again.

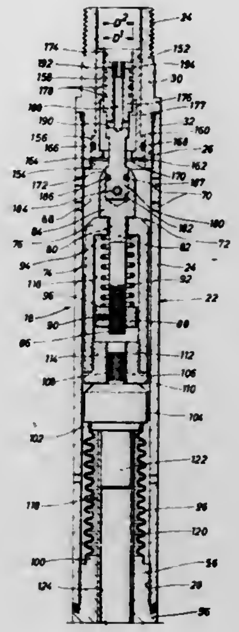
3,834,414
METHOD AND APPARATUS FOR GAS-LIFT PRODUCTION OF LIQUID FROM WELLS

Everett D. McMurry, Houston, Tex., assignor to McMurry Oil Tools, Inc., Houston, Tex.

Filed Aug. 29, 1972, Ser. No. 284,590

Int. Cl. F04f *1/08*

U.S. Cl. 137—155 15 Claims



Method and apparatus for gas-lift production of fluid from wells and including a bellows controlled pressure differential responsive gas-lift valve mechanism incorporating a choke structure. The choke may be calibrated for the particular flow rate of the production zone to which the gas-lift valve mechanism is related, in order to provide the valve mechanism with optimum gas-lift capability without allowing any one valve mechanism to use excessive gas and thereby rob other gas-lift valves of sufficient gas for proper operation thereof.

3,834,415
SEWERAGE AIR RELEASE VALVE

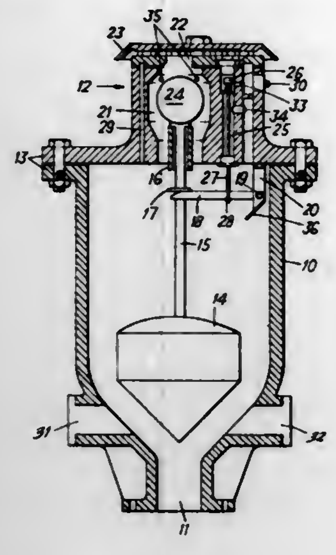
Keith Roderick Herron, Queensland, Australia, assignor to James Kemp & Co. Pty. Ltd., Queensland, Australia

Filed Jan. 31, 1973, Ser. No. 328,286

Int. Cl. F16k *31/18*

U.S. Cl. 137—202 5 Claims

A sewerage air release valve includes a float-and-ball closed vent orifice, a high pressure gas release valve and valve control means to open said high pressure valve on downward movement of the float. All operating parts are mounted on the release valve top cap for easy replacement and maintenance.

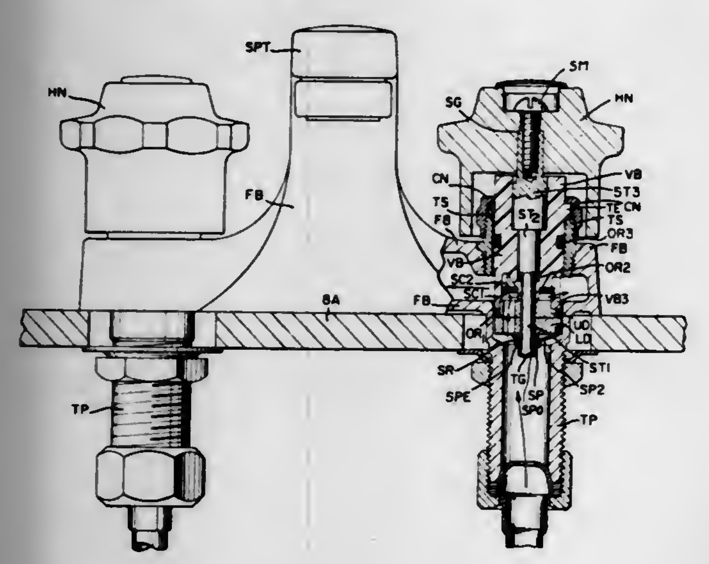


3,834,416

CERAMIC DISC FAUCET VALVE

Richard G. Parkison, Somerville, N.J., assignor to American Standard Inc., New York, N.Y.

Continuation-in-part of Ser. No. 244,503, April 17, 1972,.
This application Feb. 26, 1973, Ser. No. 335,616
Int. Cl. F16k *5/04, 5/18, 47/14*
U.S. Cl. 137—550 **11 Claims**



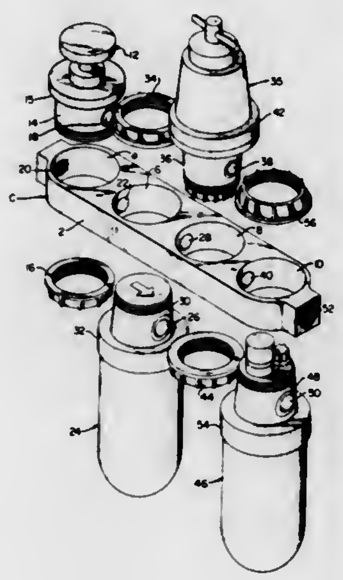
This application discloses a valve structure for controlling the flow of a fluid, such as water, to be delivered from a faucet. The valve structure includes a housing having a tapered inner wall shaped to have a central cylindrical opening for receiving and guiding a rotatable longitudinal stem. Two ceramic discs mounted about the stem and in intimate contact with each other are arranged so that the upper disc is held stationary against motion about and along the stem, while the lower disc is coupled to the stem to rotate with the stem without introducing any rotation of the upper disc. The coupling of the lower disc to the stem is achieved by a spider member having an opening to receive and grip a tang at the base of the stem. The spider member also has extended arms which reach to about the periphery of the lower disc and cause the lower disc to follow any rotary movement of the stem. The spider member also applies spring pressure against the under surface of the lower disc to hold it in contact with the upper disc. Each of the ceramic discs has a plurality of ports through which the fluid flows when the ports of the lower disc are in alignment with those of the upper disc but, when the stem is rotated to dis-align the ports of the two discs and eliminate any overlap between the ports of the two discs, the fluid flow will be stopped. The contiguous surfaces of the two discs are very smooth and flat to prevent leakage of fluid between the discs and additionally to minimize friction and drag. A handle may be affixed to the top of the stem to control the rotary motion of the stem. Screens may be positioned above the upper disc and they may be held within the tapered wall of the housing and, being in the fluid flow path, they serve to minimize noise that would otherwise be generated by the rapid fluid flow through the valve structure.

3,834,417

COUPLING UNIT FOR FLUID CONTROL COMPONENTS

Clair Dean Holben, Littleton, and John J. Humphrey, Denver, both of Colo., assignors to C. A. Norgren Co., Littleton, Colo.

Filed Apr. 10, 1972, Ser. No. 242,381
Int. Cl. F17d *1/00*
U.S. Cl. 137—613 **14 Claims**



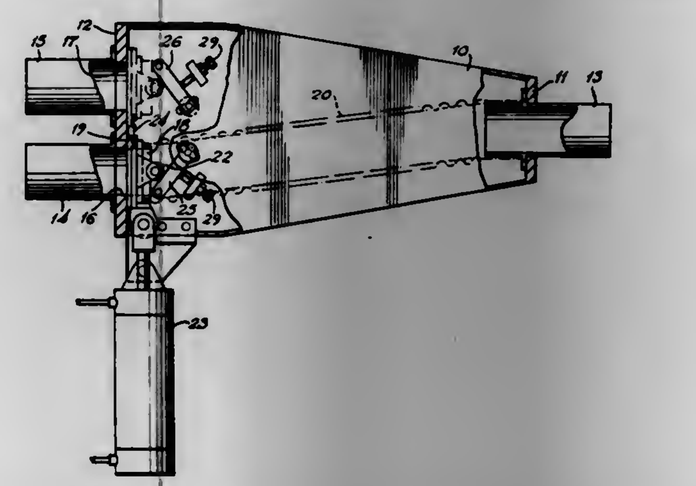
A coupling unit is provided for removably connecting a fluid control component in a fluid supply line. The coupling unit includes a member for supporting at least one such component and includes an aperture through which the component extends and in which it is held in fluid-tight relationsip with the inlet and outlet thereof being in communication with passageways extending from the aperture to an inlet and outlet of the member for connection in a fluid line. In one embodiment the member is provided with a plurality of apertures in fluid communication for receiving fluid control components, such as a valve, a filter, a regulator and a lubricator connected in series. The inlet and outlet ends of the coupling unit can be made to removably receive threaded inserts provided with different thread types so that the coupling unit can be attached to fluid lines having different threads. In a further embodiment the unit comprises a yoke having two opposed open-ended portions in fluid communication and one or more mating elements which are attachable to one or both of the open-ended portions of the yoke to form an aperture through which a fluid control component can extend. If desired, the side walls of the apertures may be tapered to facilitate positioning the fluid control component having a similarly tapered body. The portion of the aperture adjacent the ports may be formed as flats which cooperate with a similar flat on the fluid control component so that one flat engages a seal on the other flat to form a fluid tight juncture.

3,834,418

CONTROL VALVE

James Roger Clancy, Stockport, England, assignor to Henry Simon Limited, Stockport, Cheshire, England

Filed May 18, 1973, Ser. No. 361,448
Claims priority, application Great Britain, June 21, 1972, 29179/72
Int. Cl. F16k *11/06*
U.S. Cl. 137—625.48 **15 Claims**



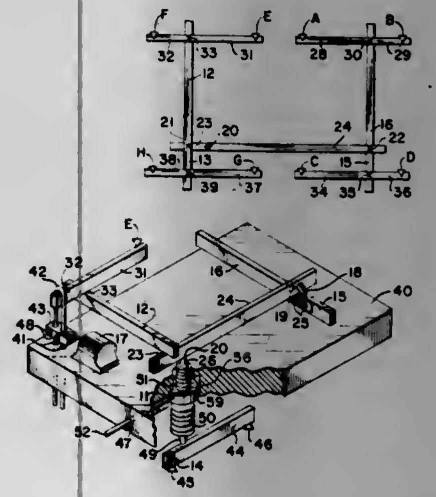
A fluid flow control valve of the kind having a single port which is to be connected selectively to one or other of a pair of ports, said valve comprising a ported member connected to said single port by a flexible duct, said member being movable between two positions thus to be aligned with one or other of said pair of ports, means being provided for effecting automatically a seal between said member and a respective one of said ports when said alignment takes place, said member being movable preferably linearly across a surface containing said pair of ports, and said sealing means is arranged to force the member against said surface as it approaches alignment with said port.

3,834,419

DIGITAL COUNTERPOSING ACTUATORS

Edward Bozoyan, 1812 West St., Union City, N.J. 07087

Division of Ser. No. 58,500, July 27, 1970, Pat. No. 3,686,970.
This application Aug. 28, 1972, Ser. No. 284,419
Int. Cl. F16k *11/00*
U.S. Cl. 137—625.63 **12 Claims**



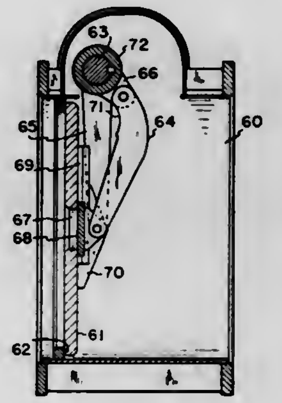
A digital actuator comprising a combination of small lever arms in conjunction with a series of on/off torque motors constructed and arranged to reduce the stroke ratings of motors to binary-weighted displacements and add them up to one another; a hydraulically controlled modified sliding spool valve having a shift arm and positional bellows at each end; a control pressure bellows to receive the total of binary-weighted displacements and proportionally shift the spool by means of one of its shift arms via either positioner bellows.

3,834,420

THREE LEVER VALVE WITH RELIEF PORT

Harry P. Finke, Pittsburgh; Hugh B. Carr, Coraopolis, and Carl D. Wilson, McMurray, all of Pa., assignors to Bloom Engineering Company, Inc., Pittsburgh, Pa.

Division of Ser. No. 296,823, Oct. 12, 1972, Pat. No. 3,804,124. This application Oct. 29, 1973, Ser. No. 410,827
Int. Cl. F16k *1/20*
U.S. Cl. 137—630.12 **3 Claims**



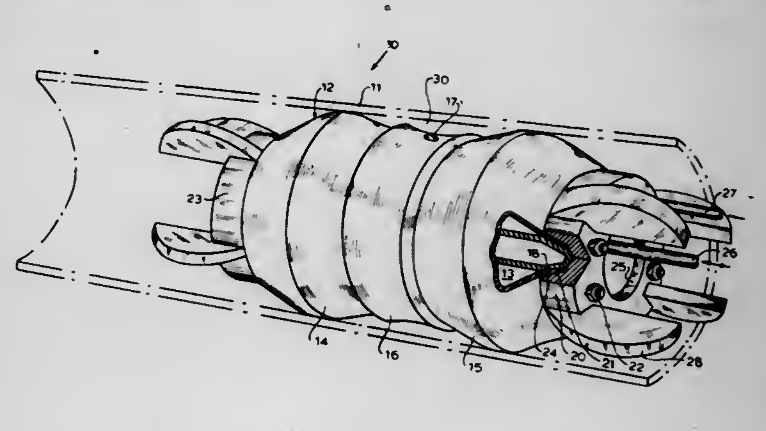
The valve includes a housing having an opening therethrough, a valve seat positioned about the opening and a valve disc positioned within the opening to engage the valve seat. The valve disc is operated through three levers which parallel move the valve disc from the valve seat initially and then rotate the disc through 90°. A relief port is positioned within the valve disc and a closure means for the relief port is connected to the central lever so that the relief port is opened prior to the opening of the valve disc.

3,834,421

PACKER FOR SEALING PIPE LEAKS

Daniel R. Daley, Orlando, Fla., assignor to Penetryn Products, Inc., Orlando, Fla.

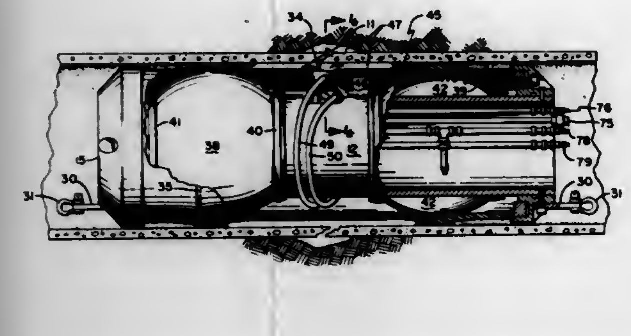
Filed Oct. 25, 1972, Ser. No. 300,498
Int. Cl. F16d *55/12*
U.S. Cl. 138—97 **6 Claims**



A packer apparatus for the internal sealing of pipe leaks has a cylindrical casing with a single inflatable sleeve thereon sealed at each end to the casing so that the sleeve may be inflated by the application of air under pressure between the cylindrical casing and the sleeve. The sleeve has a thickened middle portion so that the end portions inflate more rapidly so that when placed in a pipe and inflated, the end portions will form a void area in the middle portion with the walls of the pipe. An air line is connected through the casing for applying air under pressure and a grouting line passes through the casing and through the middle portion of the inflatable sleeve and is attached to the sleeve for applying grouting chemicals to the void area created during the inflation of the sleeve. The grouting line has a flexible portion between the casing and the sleeve to allow the expansion of the inflatable sleeve and skids provided for the packer to ride on when the sleeve is deflated.

3,834,422
SEWER REPAIR APPARATUS

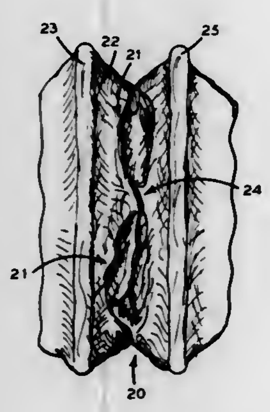
Richard E. Larson, Minnetonka, Minn., assignor to Cherne Industrial, Inc., Edina, Minn.
Filed Jan. 19, 1973, Ser. No. 325,020
Int. Cl. F16l *55/18*
U.S. Cl. 138—97 **13 Claims**



A sewer repair apparatus for internally repairing leaks in sewer pipes and the like which includes a single grouting sleeve adapted for engagement with the inside surface of the pipe to be repaired, means for selectively expanding portions of the grouting sleeve to define a grouting chamber and to force grouting material into the portion of the pipe which leaks and means for introducing grouting material into said grouting chamber.

3,834,423
CONTRACTILE-EXTENSIBLE CONDUIT AND METHOD OF MAKING SAME

Arthur M. Elson, Trenton, N.J., assignor to Acme-Hamilton Manufacturing Corporation, Trenton, N.J.
Filed May 30, 1972, Ser. No. 257,919
Int. Cl. F16l *11/08*
U.S. Cl. 138—122 **5 Claims**

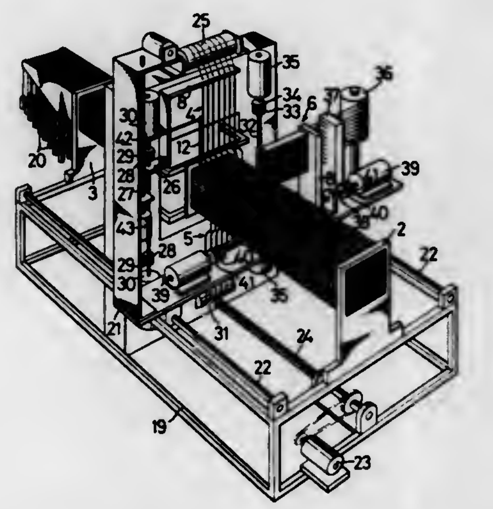


A flexible conduit having a helical wire reinforcement embedded in the wall thereof; the reinforcement being of a character to normally place the conduit in its axially contractile condition, yet permitting axial extension as required and restoration to its contractile condition; together with a method of making such a conduit. The convolutions of the helical wire reinforcement being under torsional stress whereby the conduit in its contractile state has pleat forming wall portions between successive helical convolutions of the reinforcement; such pleat forming wall portions tending to extend radially inward despite repeated alternate extension and contraction of the conduit.

The conduit is formed by disposing inner and outer wall portions of elastomeric material on a mandrel with an interposed helical wire winding therebetween; the winding being applied over the inner wall portion in an axially stretched condition while the winding is subjected to torsional forces.

3,834,424
THREE-DIMENSIONAL FABRIC, AND METHOD AND LOOM CONSTRUCTION FOR THE PRODUCTION THEREOF

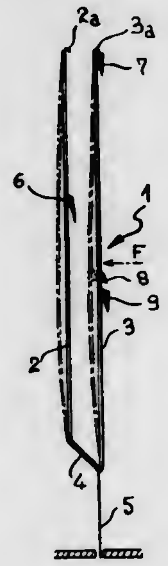
Kenji Fukuta, Yokohama; Yoshihiro Nagatsuka, Yokosuke; Shigeo Tsuburaya; Rihei Miyashita; Juniti Sekiguti, all of Yokohama; Eiji Aoki, Tokyo, and Motoe Sasahara, Yokohama, all of Japan, assignors to Agency of Industrial Science & Technology, Tokyo, Japan
Filed Mar. 19, 1973, Ser. No. 342,602
Claims priority, application Japan, May 19, 1972, 47-50023
Int. Cl. D03d *47/04*
U.S. Cl. 139—22 **6 Claims**



Method of weaving a three-dimensional fabric which comprises the steps of inserting a number of doubled weft yarns between the layers of the warp yarns, securing the loops which connect the weft yarns by means of a binder yarn threaded therethrough, inserting vertical yarns between the vertical rows of warp yarns perpendicularly to the weft and warp yarns, and after repeating the first two steps beating the woven yarn with a reed. A loom for carrying out this process is also disclosed.

3,834,425
DOUBLE HOOKS FOR DOUBLE-LIFT OPEN-SHED JACQUARD

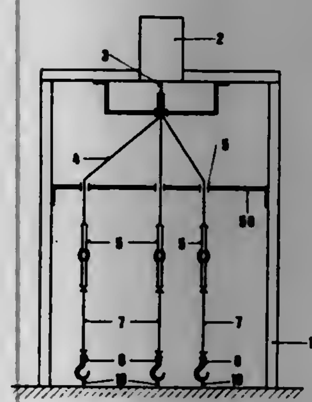
Rene Neyraud, Saint-Cyr-Au-Mont-D'Or, France, assignor to Verdol S.A., Lyon, France
Filed Mar. 13, 1973, Ser. No. 340,905
Claims priority, application France, Mar. 27, 1972, 72.11156
Int. Cl. D03c *3/08*
U.S. Cl. 139—65 **6 Claims**



In a double hook for a double-lift open-shed jacquard, of the kind formed of a steel wire bent to U-shape to determine two parallel branches each carrying one of the main beaks of the hook while one branch has an open-shed catch welded thereto, this catch is welded to the branch along at least one of the two lateral generatrices thereof in order that the weld or welds may be situated substantially in the neutral plane of the branch with respect to the deflections to which it is submitted in operation. This avoids wire breakages due to the fatigue of the steel resulting from the repeated stresses which tend to concentrate around the weld when same is effected along a generatrix situated in the longitudinal plane of the hook, i.e. in the plane of flexion thereof.

3,834,426
METHOD AND APPARATUS FOR CONNECTING THE ONE ENDS OF HEDDLES OR RATHER SPRING TIE-RODS TO ELASTIC DRAW CORDS IN A JACQUARD MACHINE

Otto Muller, Uetikon am See, Switzerland, assignor to Staubli Ltd., Horgen-Zurich, Switzerland
Filed Nov. 30, 1972, Ser. No. 310,814
Claims priority, application Switzerland, Dec. 2, 1971, 17515/71
Int. Cl. D03c *3/40, 3/44*
U.S. Cl. 139—85 **8 Claims**

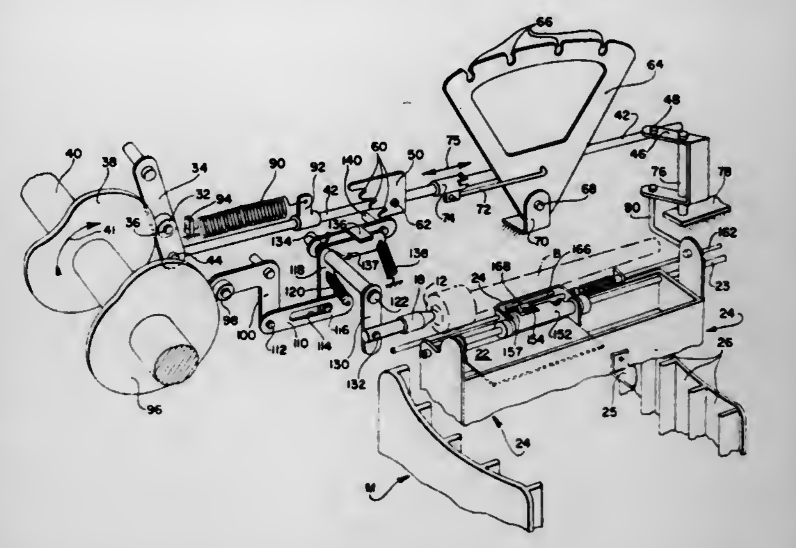


A method and apparatus for connecting the ends of heddles and of spring tie-rods to elastic draw cords in a Jacquard machine. The elastic cord material is clamped into a tight engagement with the bent portion of a heddle. The apparatus utilized for accomplishing this connection is a roller mechanism having a cord brake and two fixed guide rollers which are arranged so that they are spaced from one another. A movable guide roller is arranged between the fixed guide rollers and serves to supply cord at a known tension and at a fixed length to the cord clamping and cutting mechanism. A heddle-holding mechanism places a hook-shaped end of a heddle in close association with the elastic cord. The cord is subsequently received in the hook on the heddle and clamped therein.

3,834,427
BOBBIN ALIGNMENT MEANS

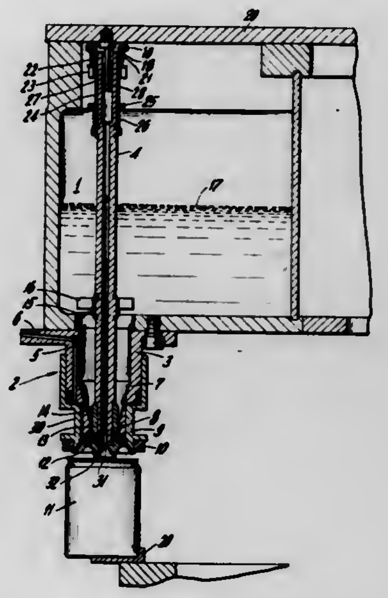
Robert E. Morton, Warwick, R.I., assignor to Leesona Corporation, Warwick, R.I.
Filed Mar. 20, 1973, Ser. No. 342,977
Int. Cl. D03j *1/12*
U.S. Cl. 139—224 A **5 Claims**

The instant invention relates to a bobbin alignment mechanism for use with bobbin handling equipment such as a bobbin winding machine. The alignment mechanism includes a plurality of alignment gates situated within the guideways of, say, a bobbin magazine to sequentially align the bobbin in the correct attitude within the magazine. The plurality of gates are sequentially movable from a bobbin holding position. Release of a downstream gate is actuated by movement of an upstream gate to its bobbin holding position under the weight of a bobbin supplied by a distribution chute above the upstream gate. Means are included on the distribution chute to release a holding catch engaging the upstream gate to release said upstream gate to its released position and thereby release of a bobbin to the downstream gate as the distribution chute is pivoted across the cells of said magazine.



3,834,428
MOVABLY DISPLACEABLE RETURN GAS PIPE IN A COUNTER PRESSURE FILLING MACHINE

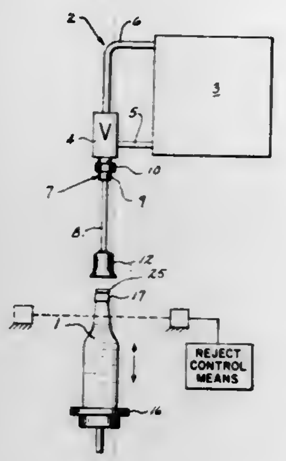
Friedrich Rademacher, Kamen-Sudkamen, Germany, assignor to Holstein & Kappert Maschinenfabrik Phonix GmbH, Dortmund, Germany
Filed Jan. 15, 1973, Ser. No. 323,640
Claims priority, application Germany, Jan. 19, 1972, 2202292
Int. Cl. B65b *31/04*
U.S. Cl. 141—39 **8 Claims**



In a counter pressure filling machine including a liquid-gas chamber divided by a liquid level into a liquid space and a superposed pressurized gas space, a filling machine which does not use a filling tube communicates with the liquid space for filling a vessel. An axially displaceable gas return pipe extends through the filling member so that its outlet end communicates with the vessel to be filled and its opposite end is located within the gas space in the liquid-gas chamber. A cylinder of variable volume is connected to the end of the gas return pipe within the gas space. The cylinder includes at least one channel which can be opened and closed for admitting flow from the gas space into the gas return pipe. When a vessel is not being filled by the machine, the gas return pipe and the cylinder are sealed from the gas space and the interior of the gas space is maintained at atmospheric pressure. The liquid outlet part from the filling member is closed by a seal member mounted on the gas return pipe. During filling, when the pressure within the gas space and within the gas return pipe is equalized, the gas return pipe along with the seal member are axially displaced so that the liquid outlet part is opened.

3,834,429
METHOD AND APPARATUS FOR DETECTING BEVERAGE BOTTLES HAVING A LIP DAMAGED OUTWARDLY OF THE CROWN SEALING SURFACE

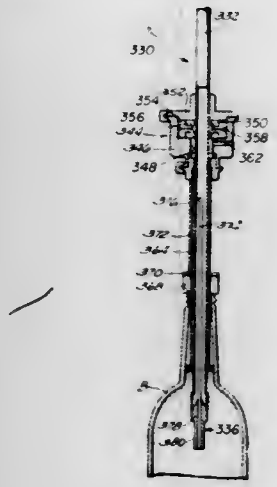
Arthur F. Schulz, Milwaukee, Wis., assignor to Joseph Schlitz Brewing Company, Milwaukee, Wis.
Filed Aug. 25, 1972, Ser. No. 283,803
Int. Cl. B07b *13/18;* **B65b** *1/48*
U.S. Cl. 141—83 **4 Claims**



Method and apparatus are disclosed for the detection of beverage bottles having a lip damaged outwardly of the crown sealing surface. Such detection is provided for in conjunction with the bottle filling operation wherein the filling apparatus seals on the bottle lip outwardly of the crown sealing surface and the bottle is then subjected to a counter pressure. If the counter pressure developed in the bottle is less than the pressure imposed on the beverage in the source reservoir, a short fill results. Thus, if the bottle lip is damaged outwardly of the crown sealing surface and in the region of sealing, a lesser counter pressure is developed in the bottle due to leakage past the seal which will result in a detectable short fill and can be rejected from the production line.

3,834,430
FILLING MACHINE FOR CONTAINERS

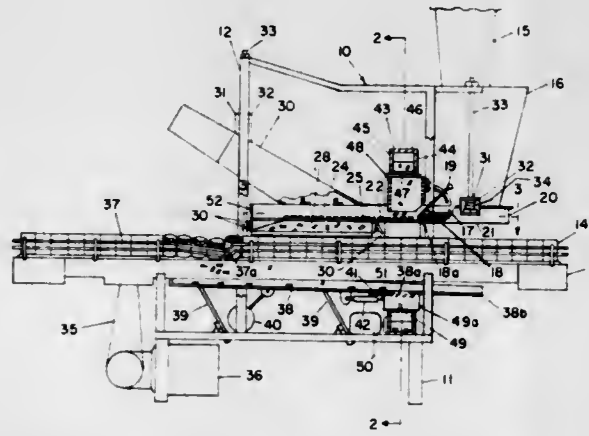
Paul R. Fechheimer, Worcester, Mass.
Division of Ser. No. 85,442, Oct. 30, 1970, abandoned. This application Sept. 11, 1972, Ser. No. 287,805
Int. Cl. B65b *3/24*
U.S. Cl. 141—119 **1 Claim**



A filling nozzle for effecting the controlled filling of a container such as a bottle with liquid and which includes a center filling tube or stem for directing liquid into the container and an outer sleeve-like element for controlling the opening and closing of the filling tube and defining an annular passage around the filling tube to enable air or other container gas to escape from the container during the filling operation. According to the invention, the sleeve-like element is maintained under a vacuum and a liquid draw-back tube is mounted axially within the lower end of the filling tube to communicate the container with the gas escape passage following the termination of the main filling flow of liquid thereto for the purpose of dropping the liquid level in the container to an exact, predetermined final position.

3,834,431
CONTAINER FILLING APPARATUS

David R. Zittel, Columbus, and Fortunato Ajero, South Milwaukee, both of Wis., assignors to Hughes Company Inc., Columbus, Wis.
Filed May 3, 1973, Ser. No. 356,939
Int. Cl. B65b *1/08*
U.S. Cl. 141—131 **7 Claims**

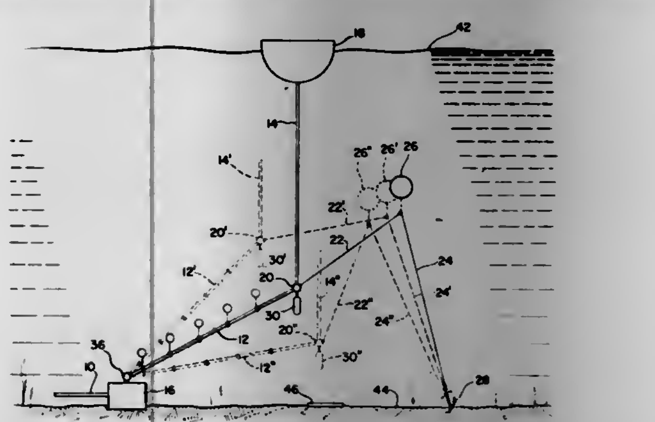


Apparatus for continuously filling containers with particulate material. The apparatus has a vibratory feeder pan with a longitudinally elongated feed slot. The slot is formed by the spaced lower edges of a pair of transversely inclined lower feed surfaces. A horizontal upper feed surface has a pair of diverging diagonal distributing edges which each overlie one of the lower feed surfaces. Particulate material is distributed along the length of the lower feed surfaces by the distributing edges and directed through the feed slot by the lower feed surfaces in a longitudinally uniform manner when the feeder pan is longitudinally vibrated.

3,834,432
TRANSFER SYSTEM FOR SUBOCEANIC OIL PRODUCTION

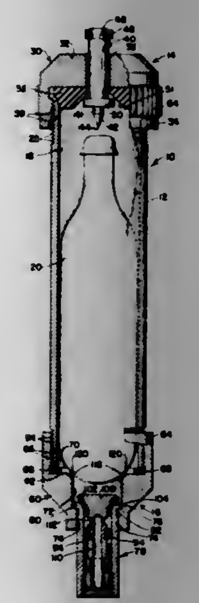
Herbert J. Lilly, Jr., Mission Viejo, and George W. Morgan, Anaheim, both of Calif., assignors to Subsea Equipment Associates Limited, Hamilton, Bermuda
Filed Sept. 11, 1969, Ser. No. 857,108
Int. Cl. B65b *1/04*
U.S. Cl. 141—388 **5 Claims**

A transfer system for offshore petroleum production has a vertically movable riser extending from a collection tank on the ocean floor to a storage tanker on the ocean surface. The riser is releasably attachable by a pivotal connection to the tanker during flowing operation and disconnectable during storms or otherwise violent sea states. In the disconnected mode, the riser remains submerged under the ocean surface to avoid excessive structural loading. The riser is articulated and moored by a system of weights and floats to maintain tension within acceptable stress limits throughout a wide range of changes in vertical and some horizontal movement of the tanker.



3,834,433
CARTRIDGE-ACTUATED DEVICE FOR INFLATING TIRES AND THE LIKE

Arnold M. Thompson, Box 1722 Gary Ave., Wheaton, Ill. 60090
Filed Nov. 22, 1971, Ser. No. 201,051
Int. Cl. B60c *23/00*
U.S. Cl. 141—392 **2 Claims**

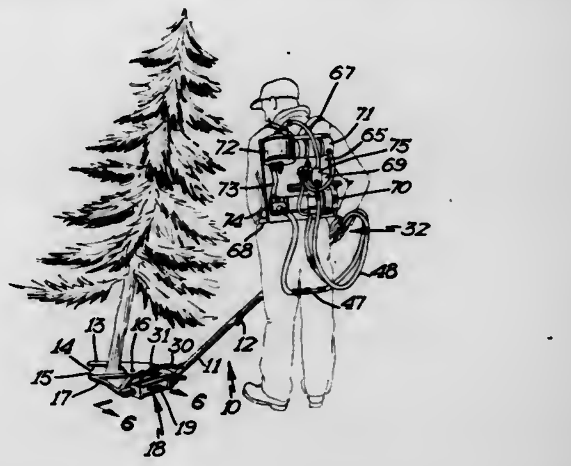


A small cartridge-actuated device adapted to inflate tires and other articles and embodying a sealed container in which a removable CO_2 type cartridge is punctured by an impact plunger at one end of the container to thus fill the container with pressurized gas which may be applied to the valve stem of a tire by a valve-equipped fitting at the other end of the container.

3,834,434
PORTABLE CUTTING DEVICE

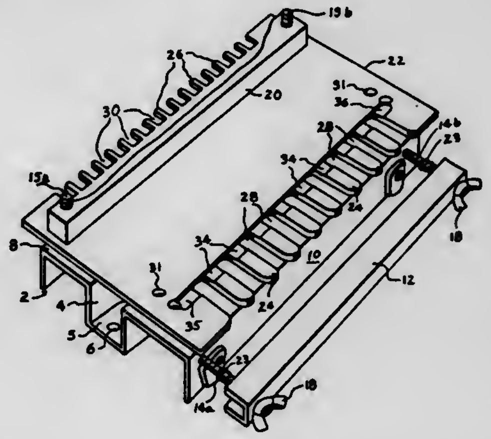
Harold L. Walsh, 802 N. Park Ave., Park Rapids, Minn. 56470
Filed Mar. 23, 1973, Ser. No. 344,254
Int. Cl. A01g *23/08*
U.S. Cl. 144—34 E **3 Claims**

A portable cutting device includes a support structure provided with straps to permit mounting of the support structure on the back of a user, and the supporting structure also has a pump, reservoir and engine mounted thereon. An elongate hollow handle has a mounting plate at one end thereof which is connected to a cutting blade, and an operating valve is mounted on the other end of the handle. The cylinder and piston unit is connected to the blade and mounting plate, and the piston is provided with a valve therein which is operable to facilitate retraction of the piston upon release of the operating valve handle.



3,834,435
DOVETAIL FIXTURE

Wilfred M. McCord, Jr., Louisville, Ky., assignor to Vermont American Corporation, Louisville, Ky.
Division of Ser. No. 275,303, July 26, 1972. This application Oct. 15, 1973, Ser. No. 406,298
Int. Cl. B27f *1/08*
U.S. Cl. 144—144.5 **5 Claims**

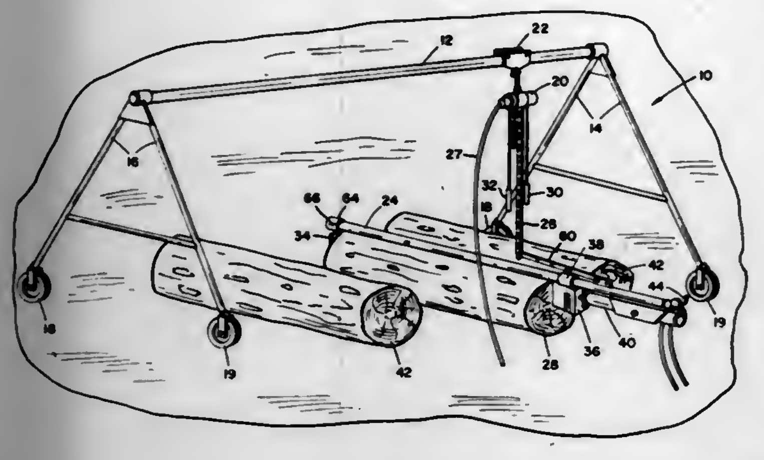


This invention is concerned with dovetail fixtures for clamping and holding orthogonally disposed workpieces and for guiding a cutting tool. A slotted guide member in the form of a comb or template is held against one of the workpieces to guide a router or similar cutting tool as the bit traces the dovetail pattern. A different cutter guiding template is employed herein. In addition novel workpiece locating members are movably attached to both the horizontal and the vertical work-receiving surfaces for spacing workpieces relative to each other during cutting.

3,834,436
PORTABLE OVERHEAD POST AND RAIL SPLITTER

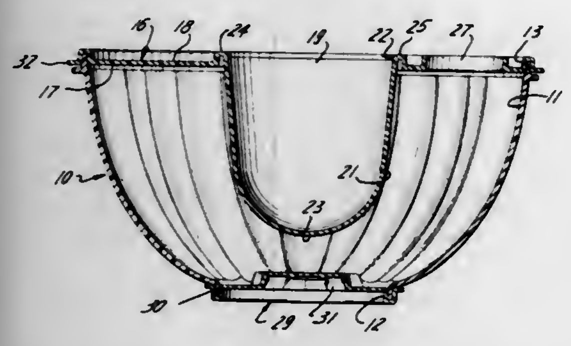
Jamie L. Burkett, P.O. Box 366, Pilot Hill, Calif. 95664
Filed Sept. 13, 1973, Ser. No. 397,044
Int. Cl. B27c *9/02*
U.S. Cl. 144—326 R **12 Claims**

Apparatus which can be used to split logs lying on the ground into posts and rails of a desired size is disclosed. The apparatus includes an overhead track mounted on a mobile carriage. A horizontal beam is suspended from a hoist which moves along the overhead track so that the beam can be lowered into position over a particular log to be split. The beam has a depending plate near one end and a depending blade near the other end so that the log to be split is disposed between the plate and the blade. The blade is attached to a sleeve which fits over the beam so that the blade can slide along the beam. A hydraulic actuator is used to force the blade into the log while the plate prevents movement of the log to split the log along the grain thereof.



3,834,437
MOLD FOR INGESTIBLE SUBSTANCES

James P. Swett, and Harold P. Ashton, both of Providence, R.I.
Division of Ser. No. 91,147, Nov. 19, 1970, Pat. No. 3,700,204.
This application Aug. 28, 1972, Ser. No. 284,014
Int. Cl. B41b *11/62*
U.S. Cl. 150—.5 **2 Claims**

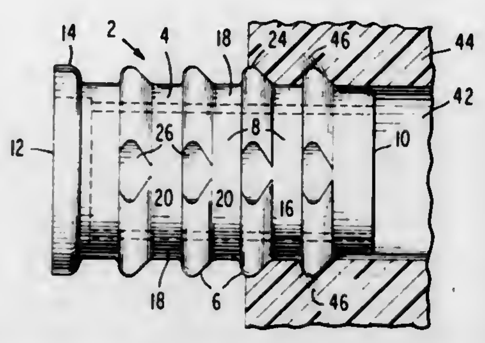


A reusable molding kit and method of molding ingestible substances. The kit comprises a central mold portion and a multiple seal closure having a depressed portion which is inwardly directed. The central mold portion has smaller and larger end openings either of which can be sealed by the multiple seal closure. The depressed portion in the multiple seal closure causes a hollow well to be formed in the molded substance. The hollow well can be filled with various different substances to give a pleasing appearance. The depressed portion also serves as an additional mold for ingestible substances. A multicolored molded substance may be formed by filling the central mold portion with a moldable substance, filling the depressed portion with a second moldable substance having a different color, hardening the substances, removing the substances and inserting the second substance into the hollow well formed in the first substance.

3,834,438
ULTRASONIC INSERTS

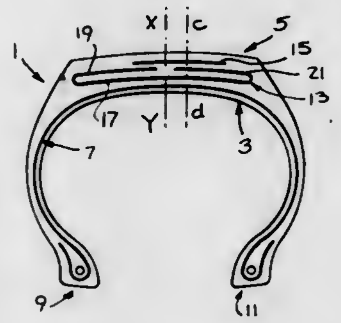
Theodore Zlaylek, Jr., Yardley, Pa., assignor to Yardley Products, Yardley, Pa.
Filed Jan. 17, 1973, Ser. No. 324,339
Int. Cl. F16b *39/282*
U.S. Cl. 151—41.73 **1 Claim**

A metal insert adapted to be at least partially embedded in thermoplastic material is provided with a cylindrical body having spaced annular ribs on the outer surface thereof. The ribs have surfaces facing toward the inner end of the insert which are inclined at about 135° with respect to the adjacent surface of the cylindrical body and have opposite radially extending surfaces facing toward the outer end of the insert. The outer extemities of the ribs are rounded so as to eliminate sharp edges or corners contacting the thermoplastic material thereby facilitating movement of the insert into the material and at the same time reducing the stress and mechanical working of the material under heat and pressure during displacement and flow thereof about and into retaining engagement with the ribs as the insert is embedded in the thermoplastic material.



3,834,439
ASYMMETRIC PNEUMATIC VEHICLE TIRE

Henri J. Mirtain, Compiegne, France, assignor to Uniroyal S.A., Clairoix, France
Filed Jan. 26, 1973, Ser. No. 326,635
Claims priority, application France, Feb. 2, 1972, 72.03478
Int. Cl. B60c *9/18*
U.S. Cl. 152—361 FP **11 Claims**



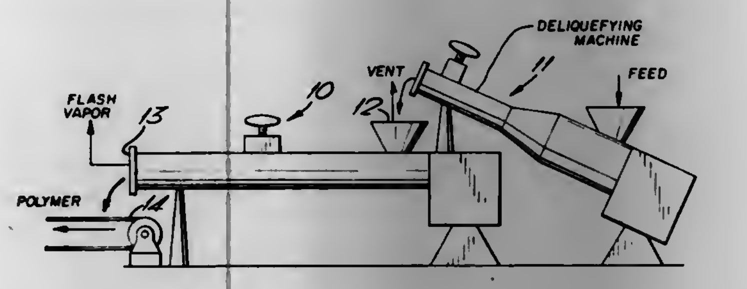
An asymmetric pneumatic vehicle tire is disclosed. The tire includes a carcass, a tread overlying the crown region of the carcass and a tread reinforcing band positioned between the tread and the crown region. The reinforcing band circumferentially surrounds the carcass and includes a rubberized sheet of parallel ply cords which is folded at its sides to provide a first transversely continuous circumferential layer and a second circumferential layer formed by first and second portions and having a circumferential zone of discontinuity. The reinforcing band further includes a circumferential ribbon of rubberized parallel ply cords which is positioned adjacent to the sheet of cords and in the zone of discontinuity. The zone of discontinuity and the ribbon are so positioned that the midpoint between the axis of the zone of discontinuity and the axis of the ribbon is offset from the median equatorial plane of the tire, thereby providing the desired asymmetric tire.

The foregoing abstract is neither intended to define the invention disclosed in this specification, nor is it intended to be limiting as to the scope of the invention in any way.

3,834,440
METHOD FOR DRYING POLYMERIC MATERIALS

Nathan John McCracken, Sarnia, Ontario, Canada, assignor to Polymer Corporation Limited, Sarnia, Ontario, Canada
Filed Sept. 15, 1972, Ser. No. 289,567
Int. Cl. B01d *1/00;* **F26b** *7/00;* **B01d** *1/28*
U.S. Cl. 159—47 R **9 Claims**

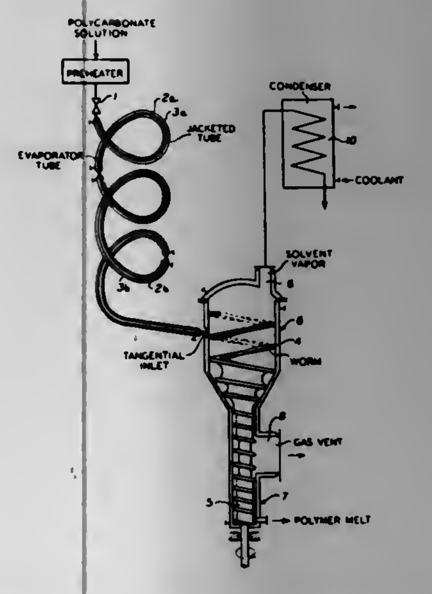
An improved extrusion dryer for drying wet polymeric materials comprises a compression zone where the wet material is compressed and heated and an expansion zone where the compressed hot material is allowed to expand and the volatile liquid to volatilize. The expanded material is conveyed by screw to an unrestricted outlet where it is separated from vapours and isolated in the dry form.



The extrusion dryer of this invention operates at low temperatures and low power consumption and is suitable for drying at high throughput rates elastomeric polymers such as polybutadiene, butyl rubber, as well as heat sensitive polymers.

3,834,441
PROCESS FOR CONCENTRATING POLYMER SOLUTIONS BY EVAPORATION

Hugo Vernaleken, Krefeld; Otto Court, Neub; Ludwig Bottenbruch, and Axel Lippert, both of Krefeld-Bockum, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
Continuation of Ser. No. 27,078, April 9, 1970, abandoned.
This application Aug. 7, 1972, Ser. No. 278,693
Claims priority, application Germany, Apr. 25, 1969, 1921045
Int. Cl. B01d *1/22*
U.S. Cl. 159—49 **2 Claims**

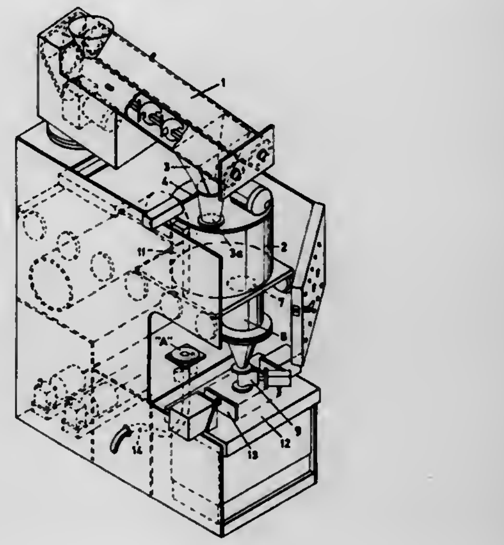


Polymer solutions are concentrated by evaporation, whereby the solution is heated under pressure and expanded through a nozzle into a coiled tube in which a decreasing pressure gradient is maintained in direction of flow and the gas velocity is increased and the temperature is raised above the melting temperature of the polymer.

3,834,442
METHOD AND APPARATUS FOR THE PREPARATION OF FOUNDRY MOULDS OR CORES

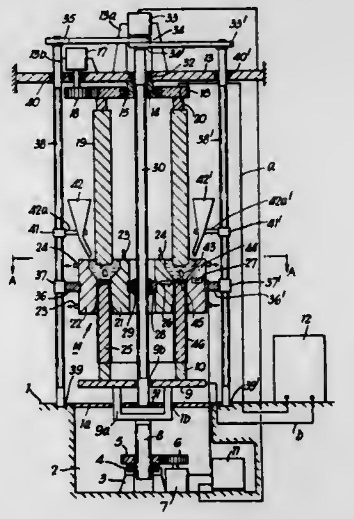
Albert Edwards, Peterborough, England, assignor to Baker Perkins Limited, Peterborough, England
Filed Aug. 18, 1972, Ser. No. 281,751
Int. Cl. B22c *15/24*
U.S. Cl. 164—21 **8 Claims**

A method and apparatus for preparing a foundry mould or core using the cold setting method wherein separate charges of sand and binder mixture on the one hand and sand and catalyst mixture on the other hand are delivered to a mixing chamber in which the separate charges are intermixed to produce a final sand/binder/catalyst mixture. The final mixture is allowed to pass into a communicating blowing chamber and held in the blowing chamber whilst gas under pressure is admitted into the mixing chamber to purge it and at the same time build up pressure on the final mixture in the blowing chamber. When the pressure on the final mixture has reached a suitable blowing level, the communication between the blowing chamber and the mould or core base is opened for blowing the mixture into the box.



3,834,443
METHOD AND APPARATUS FOR MANUFACTURE OF TUBULAR BODIES BY ELECTROSLAG REMELTING

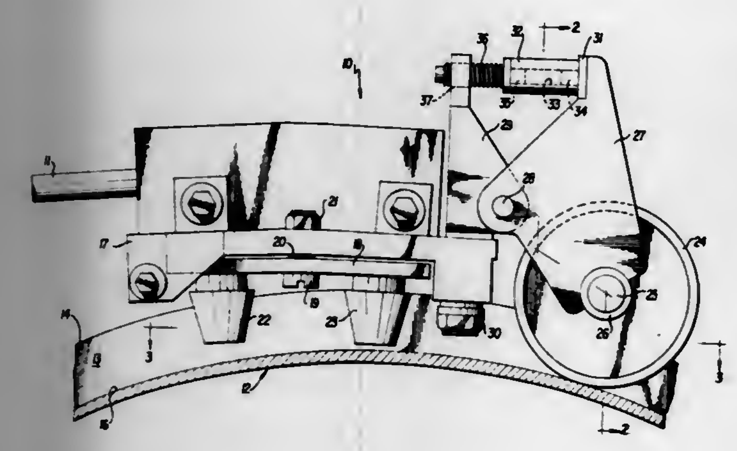
Akira Ujiie, Kobe, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 9, 1973, Ser. No. 322,229
Claims priority, application Japan, Feb. 4, 1972, 47-12244
Int. Cl. B22d *27/02*
U.S. Cl. 164—52 **8 Claims**



The disclosure provides an apparatus and a method for producing tubular bodies by an electroslag melting process. Metallic electrodes are suspended vertically with their lower ends projecting into a mould. The lower ends of the metallic electrodes are melted and form a pool of molten metal, from which the desired tubular body is formed. As the lower ends of the metallic electrodes are consumed the mould is raised so that contact is maintained between the lower ends of the metallic electrodes and the pool of molten metal.

3,834,444
METHOD AND APPARATUS FOR MAINTAINING A SMOOTH CASTING WHEEL USING A WHEEL SPREADER AND CRACK CLOSER

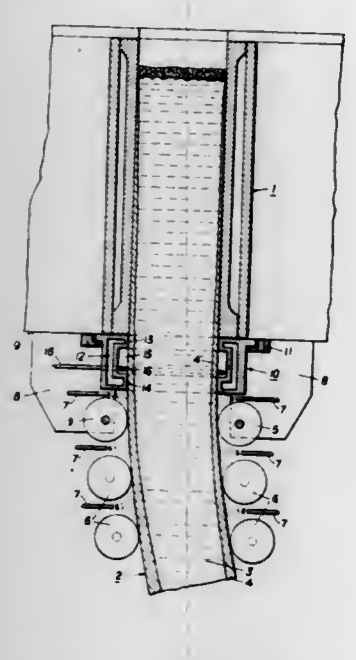
Milton E. Berry, Carollton, Ga., assignor to Southwire Company, Carrollton, Ga.
Filed Dec. 23, 1971, Ser. No. 211,233
Int. Cl. B22d *11/06*
U.S. Cl. 164—87 **12 Claims**



This disclosure relates to a combined wheel spreader and crack closer adapted to maintain the predetermined draft angle of the casting groove of an open casting wheel while simultaneously working the interior surface thereof to close cracks and smooth out flaws therein during a casting operation. The wheel spreader includes rollers adapted to bear in rolling contact against the interior side walls of the casting groove, and the crack closer includes a roller adapted to bear in rolling contact against the bottom surface of the casting groove.

3,834,445
CONTINUOUS CASTING MOLD HAVING A BREAKOUT SENSING AND CONTROL DEVICE

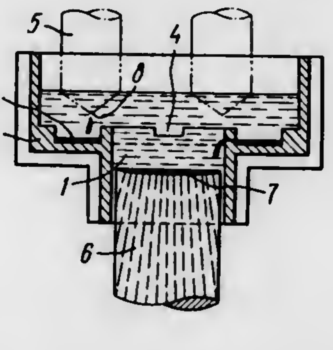
Heinz Raschke, Linz-Urfahr, Austria, assignor to Vereinigte Osterreichische Eisenund Stahlwerke, Linz, Austria
Filed Aug. 25, 1972, Ser. No. 283,849
Claims priority, application Austria, Sept. 20, 1971, 8129/71
Int. Cl. B22d *11/12*
U.S. Cl. 164—150 **10 Claims**



The invention relates to an apparatus to be used at a continuous casting plant for preventing the results of a break through of the solidifying bar. Such apparatus comprises a protective body which is resistant against liquid metal and immediately below the mould surrounds the bar shell over at least part of its circumference and is provided with a cavity open towards the bar shell for receiving liquid metal, and in said body a sensor connected with an alarm system for indicating a metal break through so that casting may be interrupted.

3,834,446
MOULD FOR ELECTROSLAG REMELTING OF METALS

Boris Izrailevich Medovar, bulvar Lesi Ukrainki, 2, k.v. 8; Vitaly Mikhailovich Bagla, ulitsa Semashko, 10, k.v. 24/3; Jury Vadimovich Latash, Vozduknoflotsky prospekt, 81, k.v. 14; July Georgievich Emelyanenko, ulitsa Jarvina, 5, k.v. 9; Boris Borisovich Fedorovsky, bulvar Lepse, 29, k.v. 64; Jury Fedorovich Alferov, ulitsa Borschagovskaya 143, k.v. I, and Evgeny Alexandrovich Abramovich, all of Kiev, U.S.S.R.
Continuation of Ser. No. 242,832, April 10, 1972, which is a continuation of Ser. No. 92,401, Nov. 24, 1970. both abandoned.
Filed June 8, 1973, Ser. No. 368,065
Int. Cl. B22d *27/02*
U.S. Cl. 164—252 **2 Claims**

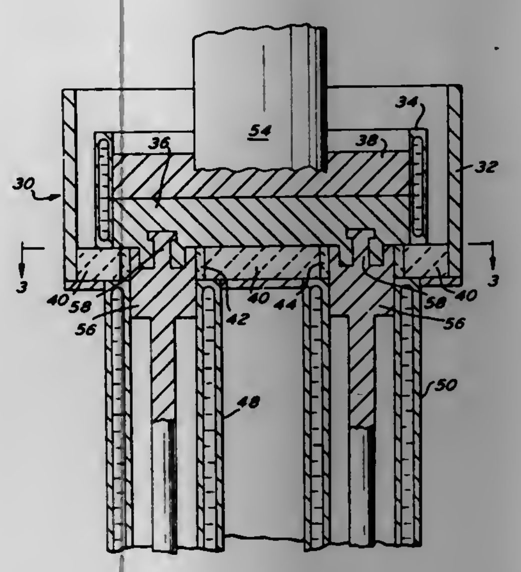


A mould for electroslag remelting of metals is disclosed, said mould comprising a space for forming an ingot, whose height is smaller than that of the ingot, and an intermediate tank filled up with molten metal and communicated with the space by ducts made in the flange of the mould, the outlets of the ducts being disposed as close as possible to the inner wall of the space to provide for a uniform delivery of the molten metal to the wall of the working space of the mould and, therefore, to make it possible to carry out the remelting process without using a deep metal bath with a flat bottom and to obtain ingots homogeneous in their structure and chemical composition. The mould can be used for producing ingots of a large cross section, for example, 800-3000 mm in diameter.

3,834,447
APPARATUS FOR CASTING A PLURALITY OF INGOTS IN A CONSUMABLE ELECTRODE FURNACE

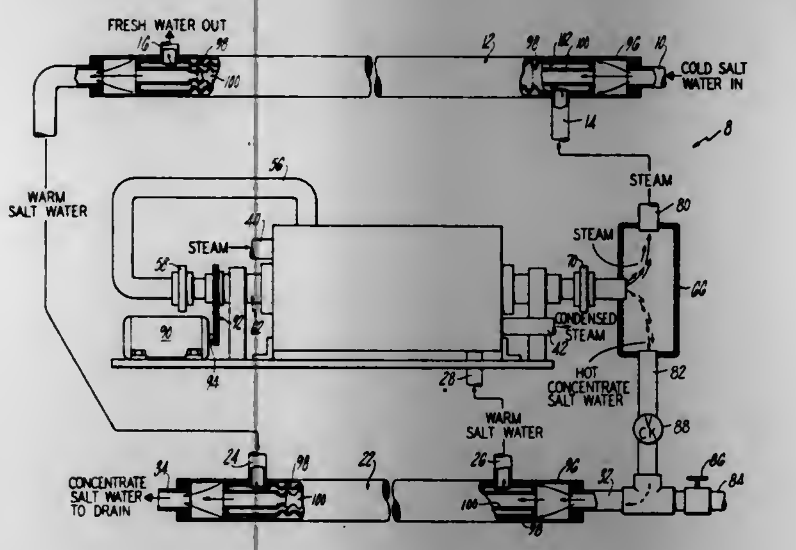
John Luchok, Delran, and Patrick J. Wooding, Morrestown, both of N.J., assignors to Consarc Corporation, Rancocas, N.J.
Division of Ser. No. 177,939, Sept. 7, 1971, Pat. No. 3,782,445. This application May 9, 1973, Ser. No. 358,742
Int. Cl. B22d *11/10*
U.S. Cl. 164—273 M **3 Claims**

A method and apparatus for continuously casting one or more ingots by maintaining a pool of molten metal in a first ingot section that has a larger transverse cross sectional area than the transverse cross sectional area of the ingot mold or molds which are in open communication with said first ingot section by causing said molten metal to flow continuously from said pool into said ingot mold or molds while preventing the molten metal in said pool from freezing at the interface of said first mold section and said mold or molds. A refractory lining for said first mold section is used to prevent the molten metal from freezing.



3,834,448
HEAT TRANSFER METHOD AND APPARATUS

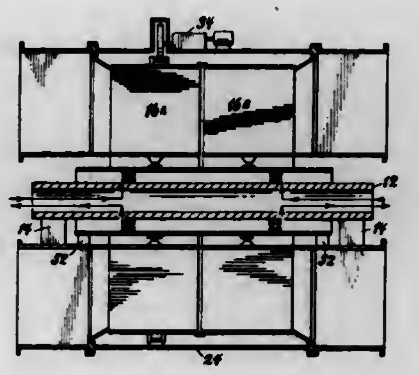
Ralph D. Cooksley, 110 Ridgewood Rd., Waterford, Conn. 06385
Division of Ser. No. 813,570, April 4, 1969,. This application May 13, 1971, Ser. No. 142,893
Int. Cl. F28d *7/10*
U.S. Cl. 165—1 **2 Claims**



Desalination apparatus for boiling salt water and condensing the resulting steam having a primary heat transfer unit with a twisted and spirally formed heat transfer tubular conduit for the salt water which is rotated within a steam chamber for heating the salt water while maintaining the salt water in the rotating tubular conduit substantially in its liquid state by the pressure increase resulting from its rotation. Steam emanating from the salt water heated by the primary heat transfer unit is conducted through a condenser having an elongated inner and outer coaxial twisted tubes and through which the inlet salt water is conducted, thereby preheating the cold water while condensing the steam. The hot salt water residue from the primary heat transfer unit is conducted through a secondary heat transfer unit (like the condenser in construction) for preheating the inlet salt water further before it is conducted to the primary heat transfer unit.

3,834,449
HORIZONTAL SUPPORT FOR ROTARY REGENERATIVE HEAT EXCHANGER

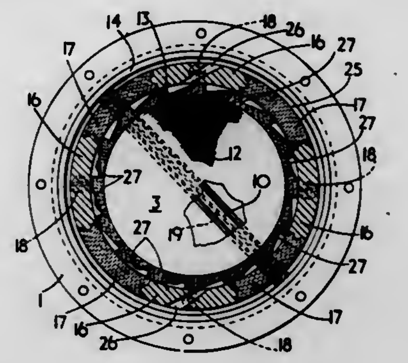
Harlan E. Finnemore, Wellsville, N.Y., assignor to The Air Preheater Company, Inc., Wellsville, N.Y.
Filed Apr. 5, 1972, Ser. No. 241,287
Int. Cl. F28d *19/00*
U.S. Cl. 165—7 **5 Claims**



A rotor arrangement for a rotary regenerative heat exchanger that is adapted to rotate about a fixed horizontal shaft that extends axially through the rotor. The rotor is comprised of a plurality of independent sectorial segments, each of which is pivotally connected to a cylindrical sleeve which in turn concentrically surrounds the horizontal rotor shaft. Bearing means that support the sleeve for rotation about the horizontal shaft are located in the space between the rotor shaft and the concentric sleeve.

3,834,450
ROTARY REGENERATIVE HEAT EXCHANGER

Robert Noel Penny, 12 Alderbrook Rd., Solihull, England
Filed Dec. 11, 1972, Ser. No. 313,881
Claims priority, application Great Britain, Dec. 18, 1971, 58898/71
Int. Cl. F28d *19/00*
U.S. Cl. 165—8 **5 Claims**

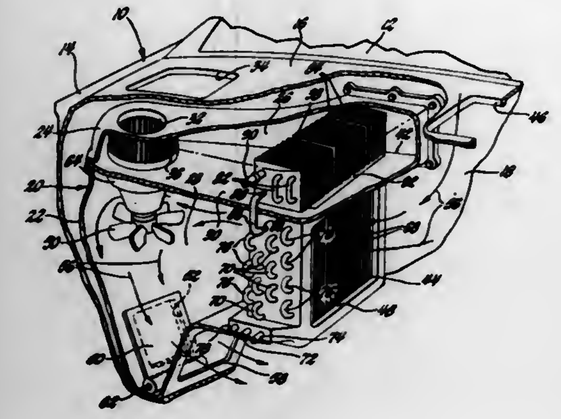


A rotary regenerative heat exchanger in which a disc-like matrix is rotated by providing circumferentially-spaced impulse buckets around the outer periphery of the matrix into which a nozzle is arranged to discharge a jet of fluid.

3,834,451
AIR CONDITIONING SYSTEM WITH MULTIPLE FUNCTION HEAT EXCHANGER

Richard C. Kozinski, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Apr. 13, 1973, Ser. No. 350,918
Int. Cl. B60h *3/00*
U.S. Cl. 165—23 **3 Claims**

An automobile heating and air conditioning system including a thin-walled casing whose interior is divided by a horizontal wall member into an upper and a lower compartment. An evaporator is enclosed within the upper compartment and a combination condenser-engine coolant warmed heater is enclosed in the lower compartment. The lower compartment has one outlet to the passenger compartment of the automobile and another outlet to atmosphere. An air damper is pivotal between the two outlets to alternately block one or the other whenever the heating and air conditioning system is in a cooling or a heating mode of operation respectively. Air is passed through the evaporator and the condenser by blower means mounted on the divider wall. A recess in the divider wall beneath the evaporator collects water condensed on the evaporator and an opening through the wall member distributes the water onto the condenser to increase the effective cooling.



3,834,452
REMOVABLE HEAD PRESSURE VESSEL, ESPECIALLY FOR BOILING-WATER REACTORS

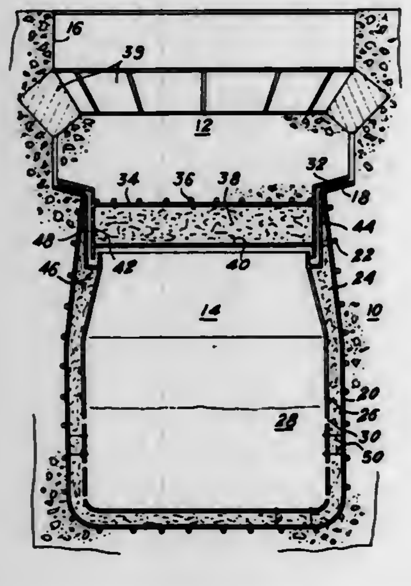
Didier Costes, Paris, France, assignor to Commissariat A L'Energie Atomique and Electricite De France (Service National), both of Paris, France

Filed Apr. 18, 1972, Ser. No. 245,239

Claims priority, application France, Apr. 21, 1971, 71.14145

Int. Cl. F24h *3/00*

U.S. Cl. 165—47 **9 Claims**



The pressure vessel comprises a main portion having a top opening, a lid for the tight closure of the opening which is provided with a seal forming a leak-tight joint with the main portion and which is provided at the bottom portion thereof with a heat-insulating plug extending below the level of the leak-tight joint between the lid and the main portion. The heat-insulating plug has a continuous downwardly projecting peripheral skirt and the main portion comprises a trough placed in such manner that the skirt extends therein when the lid is in position.

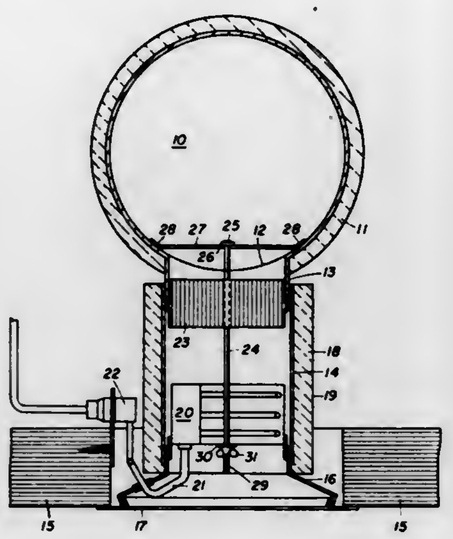
3,834,453
AIR CONDITIONING UNIT

Uno Waldemar Johansson, Kallered, Sweden, assignor to Tiem Incorporated AB, Stockholm, Sweden

Filed Nov. 7, 1972, Ser. No. 304,304

Int. Cl. F24h *3/02*

U.S. Cl. 165—54 **1 Claim**



An easily assembled air condition unit for attaching to an air distribution conduit comprising an air proof tubular member, a throttling member fitted into one end thereof, an air distributor member fitted at the other end, and a heater attached to the distributor member, the components being formed in such a manner that they are easily assembled and form a guide for fitting to a collar at the distribution conduit, a carrier extending therefrom passing through the unit and being provided with means for retaining the unit at the conduit.

3,834,454
COOLING ARRANGEMENT FOR THYRISTOR DISCS

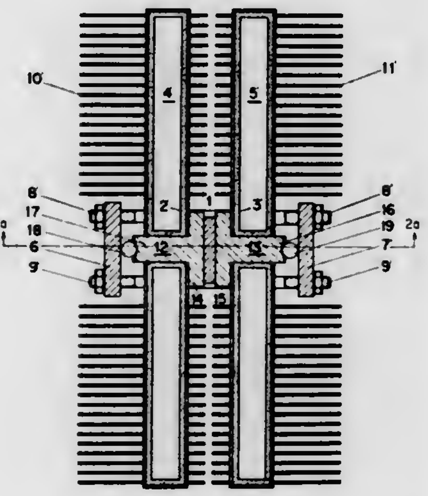
Gregor Gammel, Dossenheim; Uwe Heidtmann, Nusslock, and Elmar Muller, Alzey, all of Germany, assignors to BBC Aktiengesellschaft Brown, Boneri & Cie, Baden, Switzerland

Filed Feb. 11, 1972, Ser. No. 225,522

Claims priority, application Germany, Feb. 13, 1971, 2107008; Feb. 13, 1971, 2107009

Int. Cl. F28f *9/00*

U.S. Cl. 165—80 **2 Claims**



A cooling arrangement for dissipating the heat produced by a power thyristor disc includes a pair of metallic press blocks having a good heat conduction characteristic and which have their end faces clamped into pressure contact with opposite faces of the disc. Heat pipes filled with a vaporizable liquid are secured at the sides of the press blocks and these function to effect transfer of the heat from the blocks to the liquid causing it to vaporize and travel longitudinally in the direction away from the blocks. The heat in the vaporized liquid is removed

by condensation on the pipe wall and transferred to the surrounding atmosphere by cooling fins located on the outer wall surface of the pipes. The condensate is then returned to the heating zones at the ends of the pipes for recycling by means of a metallic capillary structure lining the inner wall surface of the pipes.

3,834,455
HEAT EXCHANGERS FOR STIRLING CYCLE ENGINES

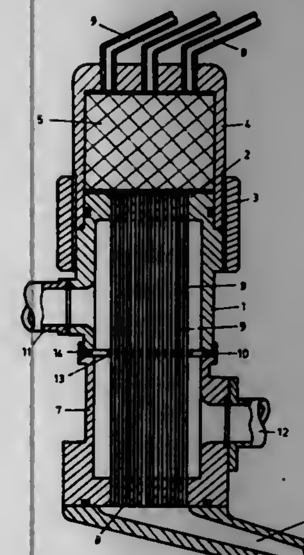
Sven Anders Samuel Hakansson, Malmo, Sweden, assignor to Kommanditbolaget United Stirling (Sweden) AB & Co., Malmo, Sweden

Filed May 15, 1973, Ser. No. 360,578

Claims priority, application Sweden, May 19, 1972, 23684/72

Int. Cl. F28f *7/00*

U.S. Cl. 165—81 **3 Claims**



A structural arrangement for a heat exchanger provides for movements without significant stresses of a heat exchanger in a Stirling Cycle Engine during changes of operating temperature. Two coaxial shell sections are arranged with a plurality of parallel heat exchange pipes axially mounted therebetween and affixed to the two sections. A flexible sealing element is sandwiched between the two shell sections to allow movement of the shell sections perpendicular to the axes of the heat exchange, pipes. A spacer separating the heat exchange pipes in the middle allow the pipes to bow as unit with evenly distributed deformation during temperature changes. Fluid conveyance pipes are connected to each shell section at the opposite ends of the heat exchange pipes.

3,834,456
AQUEOUS ORGANIC HEAT-SINK FLUIDS

Ewart C. Clarke, and David N. Glew, both of Sarnia, Ontario, Canada, assignors to The Dow Chemical Company, Midland, Mich.

Filed July 3, 1972, Ser. No. 268,465

Int. Cl. C09k *3/18;* **F28d** *13/00*

U.S. Cl. 165—104 **13 Claims**

This invention comprises aqueous organic hydrate compositions each of which melts at an invariant temperature and has a large latent heat of fusion associated with its liquid-solid phase change coupled with small volume changes. The compositions are, at normal temperatures, single phase, liquid, water-rich solutions containing at least one organic component. Such compositions are particularly suitable for use in thermal or heat-sink structures designed for environmental conditions experiencing large heat transfer fluxes.

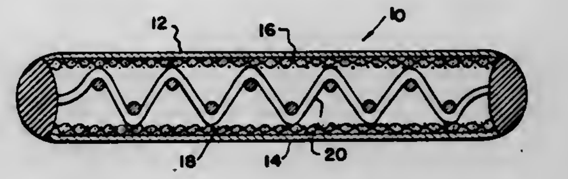
3,834,457
LAMINATED HEAT PIPE AND METHOD OF MANUFACTURE

Per Madsen, Detroit, Mich., assignor to The Bendix Corporation, Teterboro, N.J.

Continuation of Ser. No. 107,464, Jan. 18, 1971, abandoned. This application Jan. 17, 1973, Ser. No. 324,463

Int. Cl. F28d *15/00*

U.S. Cl. 165—105 **1 Claim**



A laminated heat pipe comprised of outer layers defining therebetween a heat pipe chamber, porous wick layers bonded to the inner surfaces of the outer layers, and an inner porous plenum layer located between and bonded to the wick layers. The porous wick layers are configured so that capillary flow of a contained working fluid will occur in the conventional manner, while the porous plenum layer is configured so that capillarity attraction thereto of the working fluid is lower than its attraction to the wick layers. Hence, the liquid phase working fluid is present substantially entirely in the wick layers, and the plenum layer provides both for a vapor flow path and structural support of the outer layers. The method of manufacture includes the step of first forming a laminate comprised of outer solid sheets, a pair of wick layers and an innermost sandwiched plenum layer all bonded together. The desired heat pipe configuration is then cut from the laminate, with the cut edge then sealed about its periphery save for a small opening through which the working fluid is introduced and which is subsequently sealed.

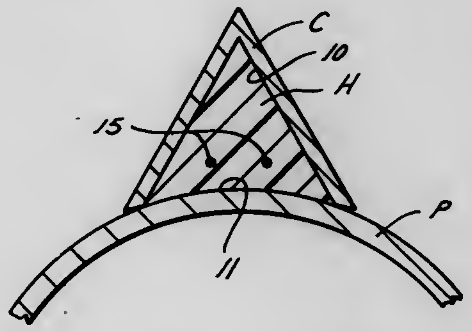
3,834,458
PIPE HEAT TRANSFER ASSEMBLY AND METHOD OF MAKING SAME

James E. Bilbro, and Ben C. Johnson, Jr., both of San Marcos, Tex., assignors to Thermon Manufacturing Company, San Marcos, Tex.

Filed June 15, 1973, Ser. No. 370,396

Int. Cl. B23p *15/26*

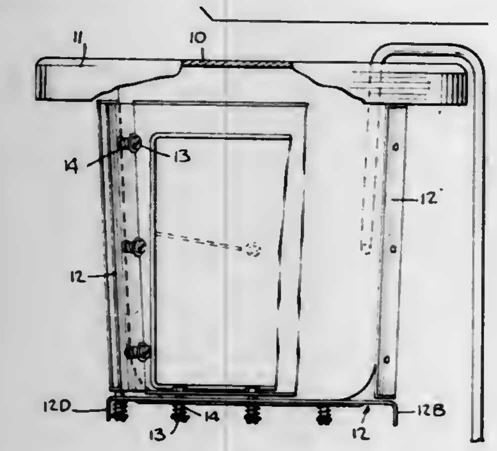
U.S. Cl. 165—164 **7 Claims**



Pipe heat transfer assembly and method of making same, wherein a strip of heat transfer material is pre-shaped to a solid flexible form for closely comforming with a heat transfer element for either heating or cooling and which is also pre-shaped to fit closely within an external channel member, whereby the entire assembly may be more easily and rapidly installed with unskilled labor in the field on a pipe to be heated or cooled, using retaining band means as the holding means for the assembly, with the assurance of complete coverage of the heat transfer element by said heat transfer material so as to eliminate air gaps. The heat transfer material may be pre-shaped by molding or extruding, with the heat transfer element embedded therein during such pre-shaping, or with a preformed space for the heat transfer element. The heat transfer material is solid, capable of retaining its shape, and remains flexible, after pre-shaping, within the normal temperature range to which the material is subjected, preferably within a range of from about 10°F. to about 120°F.

3,834,459
HEATED VESSEL FOR CORROSIVE FLUIDS

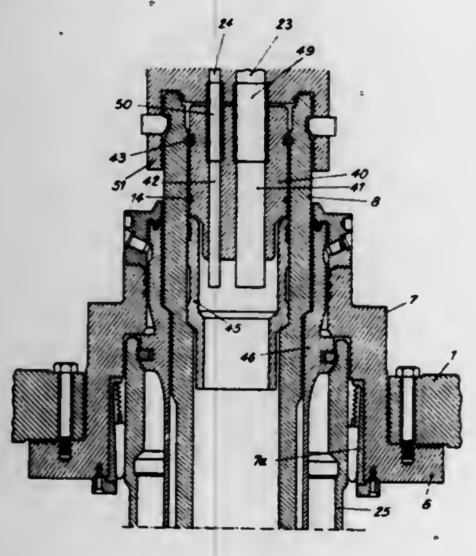
Howard M. Layton, Pound Ridge, N.Y., assignor to Interlab, Inc., Danbury, Conn.
Filed Aug. 22, 1973, Ser. No. 390,330
Int. Cl. F28b *3/12*
U.S. Cl. 165—169 **7 Claims**



An externally heated process vessel useable with corrosive fluids. The vessel is formed by a thin-walled container of a plastic material that is non-reactive with respect to the solution, and a jacket surrounding the container and in intimate contact therewith. The jacket is constituted by an assembly of metallic plate sections on whose outer walls are mounted heating elements. The joints of the section are joined to each other or to the plastic container by resilient means which render the jacket expansible to allow for differences in the thermal characteristics of the inner container and the outer jacket.

3,834,460
WELL-HEAD ASSEMBLY

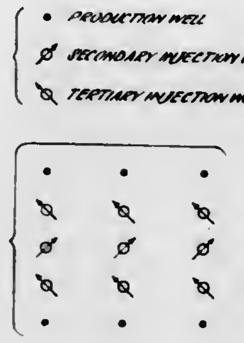
Andre Brun, Paris, France; Albert Jaffe, and Philippe de Panafieu, both of London, England, assignors to Subsea Equipment Associates Limited (SEAL), Hamilton, Bermuda
Filed Dec. 27, 1972, Ser. No. 318,972
Claims priority, application France, Dec. 27, 1971, 71.46719
Int. Cl. E21b *33/035*
U.S. Cl. 166—.6 **11 Claims**



A two unit well head assembly for submarine oil well completions which includes suspension means for production pipes, connection means for electric lines and hydraulic control lines, valves for controlling flow through passageways in the well head and guide means to ensure correct alignment of the assembly.

3,834,461
TERTIARY RECOVERY OPERATION

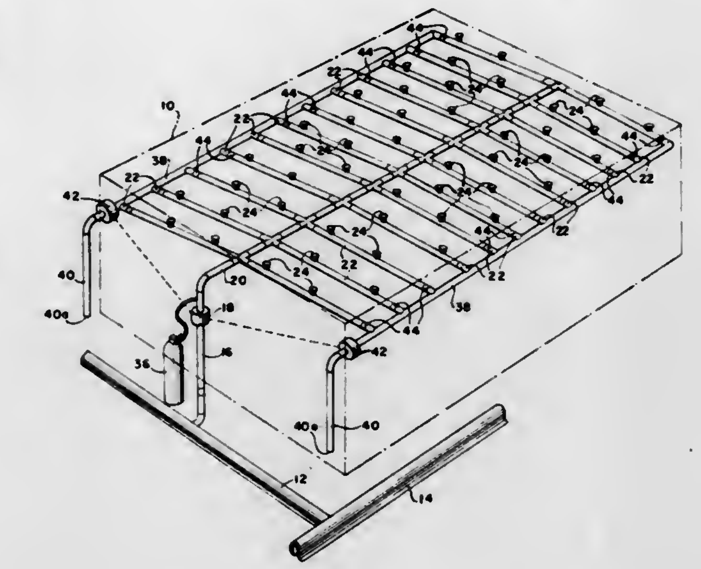
Joseph T. Carlin, Houston, and Joseph C. Allen, Bellaire, both of Tex., assignors to Texaco Inc., New York, N.Y.
Filed Dec. 22, 1972, Ser. No. 317,581
Int. Cl. E21b *43/00*
U.S. Cl. 166—245 **8 Claims**



At the conclusion of a secondary recovery operation after breakthrough of the driving fluid at the production wells, additional injection wells are located between the original injection well and the production well(s), this region usually having a high oil saturation after the drive.

3,834,462
AUTOMATIC FIRE PROTECTION SYSTEM FOR LOW TEMPERATURE ENVIRONMENTS

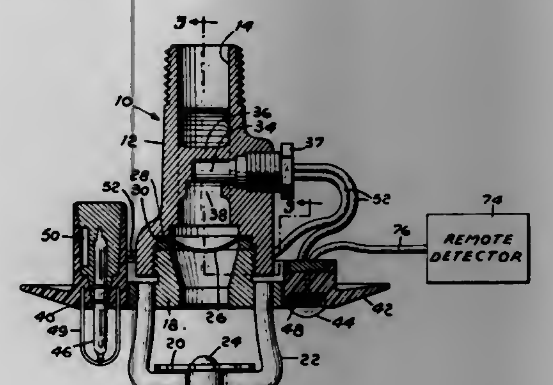
Lawrence Orloff, Foxboro; John N. DeRis, Sharon, and John D. Coons, Norwood, all of Mass., assignors to Factory Mutual Research Corporation, Norwood, Mass.
Filed Feb. 28, 1973, Ser. No. 336,604
Int. Cl. A62c *35/00*
U.S. Cl. 169—17 **10 Claims**



A fire extinguishing system for low temperature environments in which a network of pipes are supported in an elevated position in the space to be protected and are connected to a source of extinguishant. A plurality of thermally operable extinguishant discharge heads are connected to the network of pipes and are adapted to open in response to a predetermined fire condition in the space. A control valve normally prevents the flow of extinguishant to the network of pipes, and is responsive to the opening of one or more of the heads for permitting the flow of extinguishant to the network of pipes. One or more common drain lines are connected to the pipes in the network for permitting the flow of extinguishant through all of the pipes upon the opening of one or more of the heads.

3,834,463
SENSITIVE SPRINKLER

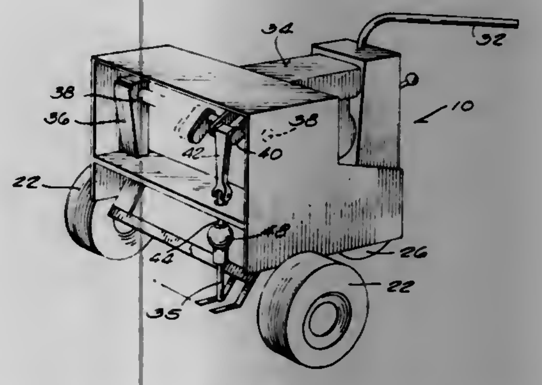
Roger L. Allard, North Smithfield; William J. Malinowski, and Rudolph W. Kalns, both of Pembroke, all of R.I., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed Feb. 28, 1973, Ser. No. 336,849
Int. Cl. A62c *35/08*
U.S. Cl. 169—28 **17 Claims**



A sensitive sprinkler includes a body having an inlet port coupled to a fluid supply line and an outlet orifice having a deflector mounted adjacent thereto to deflect fluid flowing through said sprinkler. A rupture disc valve is positioned in the fluid flow path between the inlet port and outlet orifice to block fluid flow through the flow path. An explosive squib is mounted in the fluid flow path upstream of the rupture disc so that when exploded an expansive gas directs a pressure through said fluid to rupture the disc. A fire detector assembly electrically activates the squib substantially immediately upon detection of a fire.

3,834,464
AERATING MACHINE

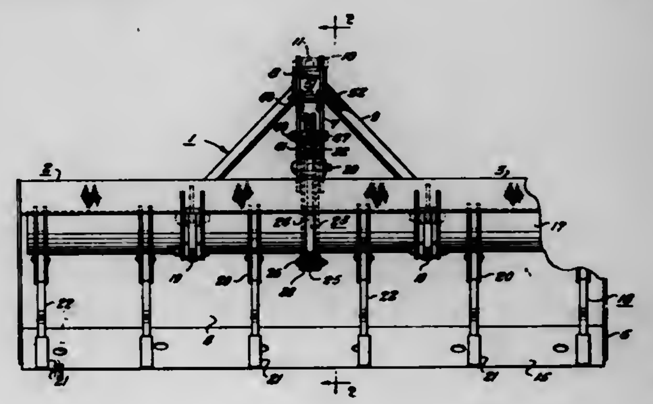
Carl H. Carlson, St. Paul, and Frank A. Slaker, New Brighton, both of Minn., assignors to Outboard Marine Corporation, Waukegan, Ill.
Filed Feb. 27, 1973, Ser. No. 336,381
Int. Cl. A01b *45/02*
U.S. Cl. 172—22 **11 Claims**



Disclosed herein is an aerating machine including a frame supported on a pair of ground-engaging wheels, a drive shaft which is selectively and rotatably driven by an engine, a crankshaft which is operably connected to and vertically reciprocates a plurality of turf-perforating tines, and a camshaft which is operably connected to the tines to provide synchronized movement thereto so that the tines are maintained in stationary horizontal position relative to the ground during aeration. The wheels, the crankshaft, and the camshaft are selectively driven by the drive shaft through chain and sprocket drives which are actuated by clutches located on the drive shaft and the camshaft. The operation of the clutches is controlled by a single control lever which pivotally mounted on the frame for movement between spaced positions corresponding to different modes of machine operation and which is operably connected to the clutches by a linkage which is arranged to coordinate the engagement and disengagement of the clutches in response to pivotal movement of the single control lever between the various operating mode operations.

3,834,465
EARTH WORKING IMPLEMENT LIFT ASSEMBLY

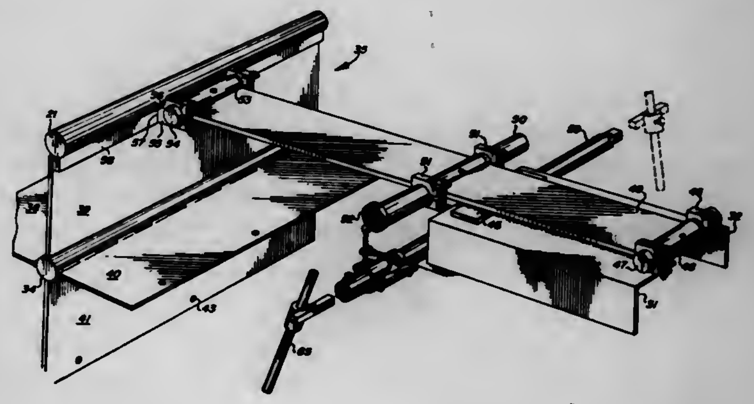
Johnnie C. Collins, Dallas, Tex., assignor to Servis Equipment Company, Dallas, Tex.
Filed Feb. 5, 1973, Ser. No. 329,757
Int. Cl. A01b *49/02, 59/043*
U.S. Cl. 172—197 **4 Claims**



A lift assembly for an earth working implement adapted to be attached to a tractor rear lift mechanism and having a scraper blade and scarifier means movable between extended earth engaging and retracted inoperative positions, the assembly including extensible hydraulic means and crank means pivotally connecting the scarifier means to the hydraulic means for raising and lowering said scarifier means as well as latch means for maintaining the latter in extended position, said hydraulic means being pivotally mounted to permit its limited movement and prevent damaging thereof when extended upon accidental disengagement of the latch means and upward retraction of said scarifier means.

3,834,466
AGRICULTURAL APPARATUS FOR IRRIGATION PURPOSES

Earl E. Chandler, Rt. 1, Box 29AB, Florence, Ariz. 85232
Continuation-in-part of Ser. No. 251,147, May 8, 1972, abandoned. This application Aug. 6, 1973, Ser. No. 385,997
Int. Cl. A01b *13/16*
U.S. Cl. 172—235 **9 Claims**



Apparatus intended for use in working the land immediately adjacent to an irrigation ditch to provide flow channels from the ditch to a plot of furrowed land spaced from the ditch or a plot of unfurrowed land such as used in growing hay or similar crops. The apparatus comprises a frame that is drawn by a tractor and in which is rotatably mounted an assembly of four angularly spaced blades. Mechanism is provided to cause the blade assembly to rotate with an intermittent motion. The blade assembly is adjustable to adapt it to either of the two types of work above described.

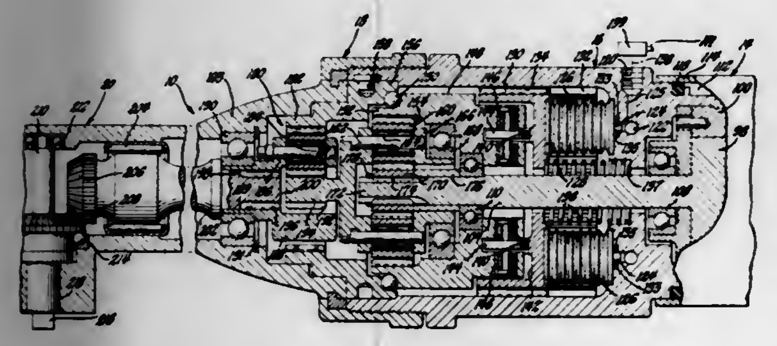
3,834,467
POWER TOOL WITH TORQUE CONTROL

John R. Fuchs, Leawood, Kans., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 6, 1972, Ser. No. 304,149

Int. Cl. B25b *23/14*

U.S. Cl. 173—12 **11 Claims**



The drawings illustrate a power tool whose torque output may be continuously measured and controlled by the torque reaction on a rotatably mounted planetary ring gear, with transducer means associated therewith for converting the torque reaction to a fluid pressure signal to cut off the fluid flow to the motor rotor at a predetermined torque.

3,834,468
HAMMER-DRILL

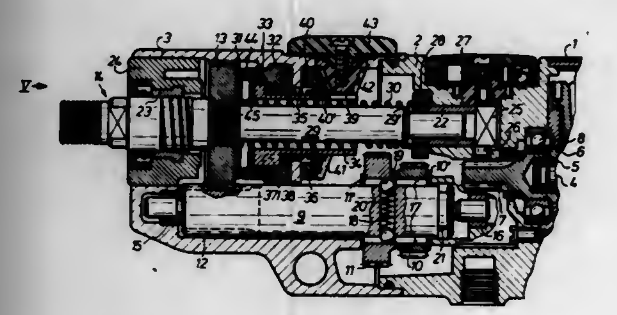
Alfred Hettich, Echterdingen, and Reinhold Stroezel, Leinfelden, both of Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany

Filed Apr. 14, 1972, Ser. No. 243,939

Claims priority, application Germany, May 7, 1971, 2122582

Int. Cl. B25d *11/00*

U.S. Cl. 173—48 **9 Claims**



A drive is mounted in a housing and has a rotary output shaft connected with a tool spindle for rotating the latter. An arrangement is provided which will impart a predetermined number of longitudinally acting impacts per revolution on the tool spindle and another arrangement is provided for varying this number of impacts at the will of an operator.

3,834,469
INTERNAL COMBUSTION OPERATED HAMMER

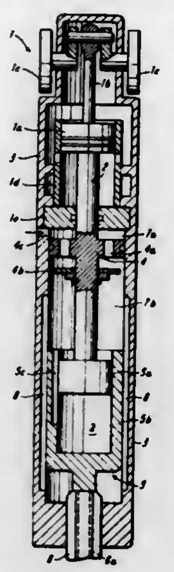
Philipp Uebel, Munich, Germany, assignor to Wacker Werke KG., Munchen, Germany

Filed Nov. 14, 1972, Ser. No. 306,311

Int. Cl. B25d *9/00*

U.S. Cl. 173—75 **8 Claims**

An internal combustion operated hammer operated by a one-cylinder lifting motor, in which a driving rod directly drivingly connected to the motor piston and extending through the cylinder head of the motor linearly reciprocates in striking direction a striking mechanism which comprises parts resiliently cushioned with regard to each other, and in which a compressor located between the cylinder head and the striking mechanism furnishes scavenging air to scavenging air passage means in the tool.



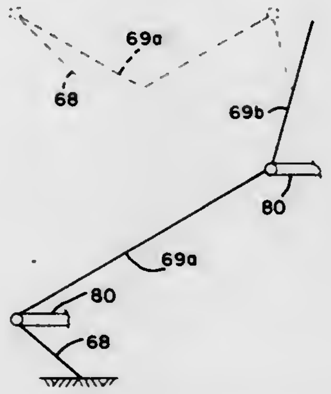
3,834,470
FLEXIBLE HOOD MEANS

Laszlo Gyongyosi, Clarksburg, and David A. Gregory, Lost Creek, both of Va., assignors to Ingersall-Rand Company, Woodcliff Lake, N.J.

Division of Ser. No. 332,686, Feb. 15, 1973, Pat. No. 3,800,890. This application Nov. 5, 1973, Ser. No. 412,740

Int. Cl. E21c *7/02*

U.S. Cl. 175—211 **5 Claims**



The system comprises an enclosure for enveloping a portion of drill rod used with an earth drilling machine the enclosure having only one side opening formed therein for coupling to a source of suction. The enclosure has axially aligned holes formed in the top and bottom thereof for admitting drill rod therethrough for address to the earth; and at least one "-floating" type seal disposed about the drill rod for tracking radial excursions of the drill rod during drilling. A baffle plate fixed to the enclosure prevents the travel of large earth cuttings to the source of suction. Further, a flexible hood is carried about the enclosure, and is movably mounted for elevation from the ground area and for lowering thereto to prevent an escape of earth cuttings dust.

3,834,471
JARRING TOOL

Clifford C. Bottoms, San Fernando, Calif., assignor to Dresser Industries, Inc., Dallas, Tex.

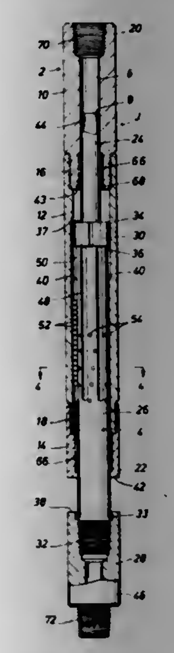
Filed Mar. 12, 1973, Ser. No. 340,349

Int. Cl. E21b *1/10*

U.S. Cl. 175—304 **15 Claims**

A jarring tool in accordance with this invention may jar in either upward or downward direction and operates in either

direction without rotation or the like. A jarring tool of the present invention comprises an elongated outer member with an elongated inner member telescopically mounted therein. Each of the members has a pair of axially directed striking surfaces facing in opposite directions, and each such surface of one member is opposite to and engageable with one of the striking surfaces of the other member. The distance between the striking surfaces on one of the members is greater than the distance between the striking surfaces on the other member, so as to allow telescopic movement between the two members limited in either direction by engagement of two of the opposed striking surfaces. Spline means cooperative between the two members prevent rotation but allow relative axial movement. Latching means hold the two members in neutral relative positions. The latching means is releasable under axial forces of sufficient magnitude imposed on the members in one direction to allow telescopic contraction of the members and striking of one set of opposed striking surfaces, and releasable under axial forces of sufficient magnitude imposed on the members in the other direction to allow telescopic extension of the members and striking of the other set of striking surfaces.



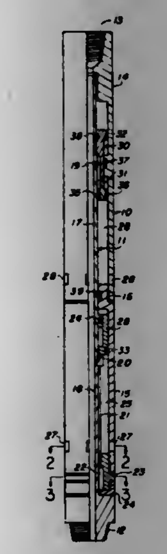
3,834,472
JARRING ACCELERATOR

Lee E. Perkins, P.O. Box 1430, 127 Malibou Blvd., Houma, La. 70360

Filed Mar. 16, 1973, Ser. No. 341,964

Int. Cl. E21b *17/00*

U.S. Cl. 175—321 **18 Claims**



Accelerator apparatus for use with a jar in a drill string comprising: a cylindrical housing; a tubular mandrel disposed within the housing for axial movement between a fully retracted position and a fully extended position relative thereto; connection threads on the housing and mandrel for connecting the apparatus in a drill string above a jar; at least one annular chamber formed between the housing and mandrel; ports providing fluid communication between the chamber and a substantially constant pressure fluid source, and an annular surface carried on the mandrel within the annular chamber for transmitting forces from fluid within the chamber to the mandrel, tending to force the mandrel toward its retracted position. At least one other annular surface may be carried on a sleeve member mounted in the chamber independently of the mandrel but engagable by a portion of the mandrel on a predetermined amount of movement from its fully retracted position toward the fully extending position to cumulatively assist the first annular surface in transmitting forces from the fluid to the mandrel.

3,834,473
METHOD TO REGULATE FEEDING OF BULK MATERIAL

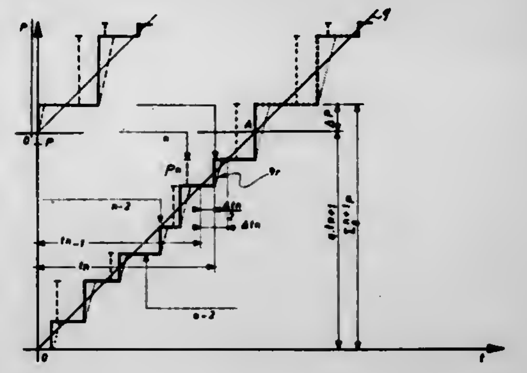
Marc M. Girard, Ugine, and Daniel M. Martin, Metz, both of France, assignors to Institut de Recherches de la Siderurgie Francaise, Saint-Germain-en-Laye, France

Filed May 21, 1973, Ser. No. 362,184

Claims priority, application France, May 25, 1972, 72.18591

Int. Cl. G01g *19/00*

U.S. Cl. 177—1 **4 Claims**



A method intermittently supplying bulk material, especially scrap iron, to a point of use so as to supply thereto a charge equal to a predetermined mean constant rate of supply per unit of time of such material, in which successive discrete quantities of such material are withdrawn, for instance by being elevated by an electromagnet, from a storage area, in which the weight of each withdrawn quantity or partial charge is measured, and in which the time of departure of each charge toward the point of use is calculated as a function of the sum of weights of preceding quantities released, the weight of the elevated quantity and the desired charge, and an apparatus for carrying out the aforementioned steps and to calculate the time periods of releasing successively raised quantities of material.

3,834,474
METHOD AND APPARATUS FOR DETERMINING THE QUANTITY OF A BULK MATERIAL DEPOSITED ON A CONVEYOR

Willem Knol, Oude Grensweg, 96 Hengelo (O.), Netherlands

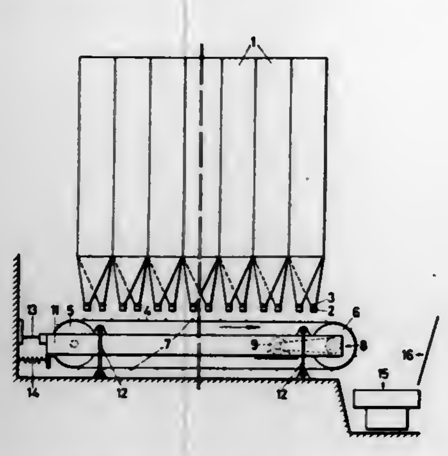
Filed Oct. 15, 1971, Ser. No. 189,520

Int. Cl. G01g *3/00, 9/00*

Claims priority, application Netherlands, Oct. 16, 1970, 7015227

U.S. Cl. 177—1 **19 Claims**

The weight of bulk material deposited on a conveyor is measured with reference to the force exerted by the conveyor on the material to accelerate it in the direction of transport. When the dispensed material contacts the conveyor belt, the belt applies a force to the material in the conveying direction to accelerate the material from its initial velocity to the velocity of the conveyor belt. An equal and opposite reaction force is inherently applied to the conveyor by the material as the material is deposited onto the conveyor. The reaction force is directly related to the quantity of material dispensed onto the conveyor belt since force *F*, acceleration *a* and mass *m* (a quantity measurement) are related by the basic equation $F = ma$. A suitable force measuring apparatus may be applied to detect the force or quantity measurement.



3,834,475
WEIGHING SYSTEM

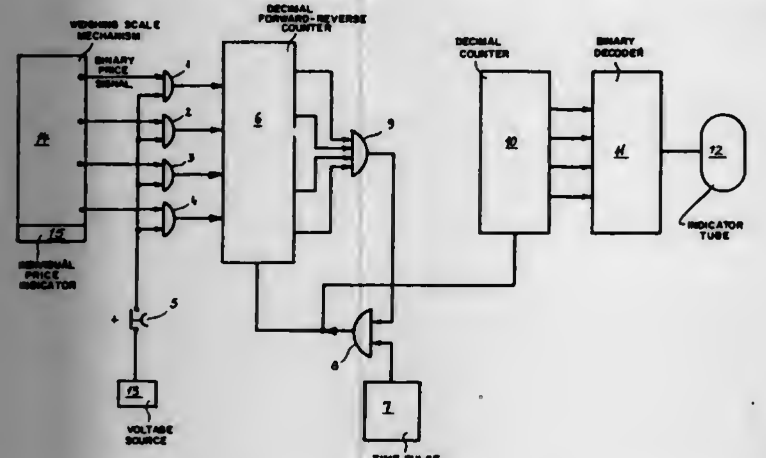
Fritz Kuchler, Klagenfurt, Austria, assignor to Brain Dust Patents Establishment, Vaduz, Liechtenstein

Filed Mar. 26, 1973, Ser. No. 345,075

Claims priority, application Austria, Mar. 24, 1972, 2575/72

Int. Cl. G01g ***23/22***

U.S. Cl. 177—25 **6 Claims**



An input couples a weighing scale having an individual price indicator and producing a binary signal corresponding to the price of a transaction to inputs of a first counter for selectively supplying signals corresponding to the price of a transaction from the weighing scale to the first counter. The first counter thus provides a count corresponding to the price of each weighing transaction An output couples the outputs of the first counter to the input of a second counter and simultaneously erases the count of the first counter. The second counter thus provides a count corresponding to the total price of a plurality of weighing transactions.

3,834,476
IMPACT ATTENUATING, REPLACEABLE POWERPLANT SUPPORT

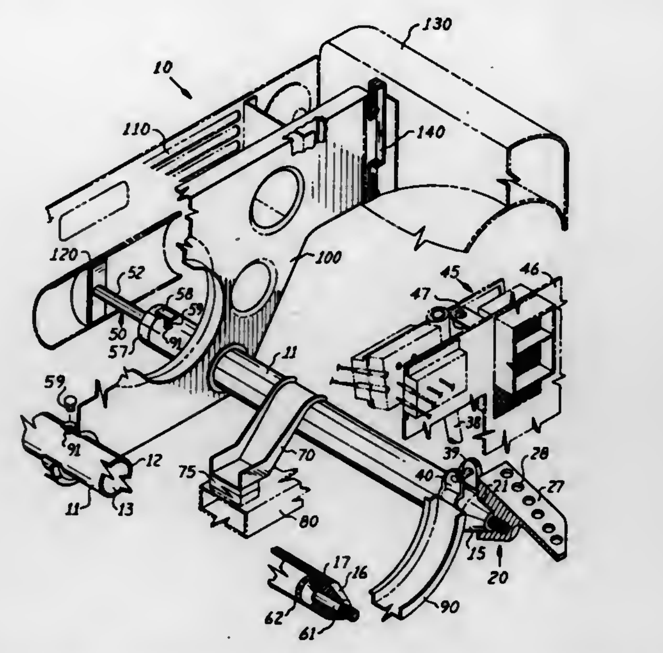
George Alan Donaldson, 237 E. Dunton Ave., Orange, Calif. 92665

Filed Nov. 6, 1972, Ser. No. 304,223

Int. Cl. B60r ***21/00***

U.S. Cl. 180—64 L **4 Claims**

An easily replaceable powerplant support is disclosed for use on motor vehicles, of either rigid frame or unit body construction. The two main intercostal members are adaptable to engage impact attenuating devices while the vehicle is in use; as well as being adaptable to engage a powerplant removal fixture during removal or replacement of the powerplant and its support for maintenance and inspection or substitution.



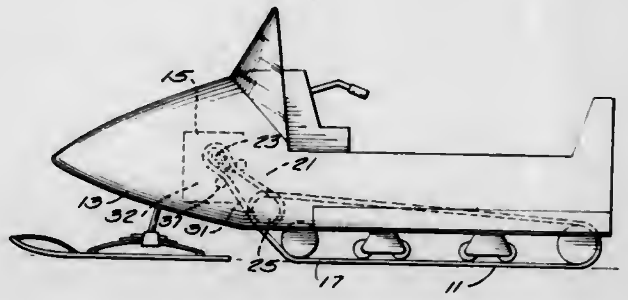
3,834,477
SNOWMOBILE CHAIN TENSIONING DEVICE

Louis W. Sandow, Menomonee Falls, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed May 4, 1973, Ser. No. 357,392

Int. Cl. B62d ***55/12;*** **F16h** ***7/08***

U.S. Cl. 180—9.64 **1 Claim**



Disclosed herein is a snowmobile including first and second idler members respectively located exteriorly of the opposite runs of a flexible endless member trained about driving and driven members supported by a chassis at a fixed distance from each other, means co-axially mounting the idler members for pivotal movement into engagement with the outer surface of the flexible endless member, and a unitary helical spring biasing the idler members in opposite rotative directions toward each other so as to engage the idler members with the outer surface of the flexible endless member and thereby to tension the flexible endless member.

3,834,478
PIVOTAL GUARD FOR A VEHICLE

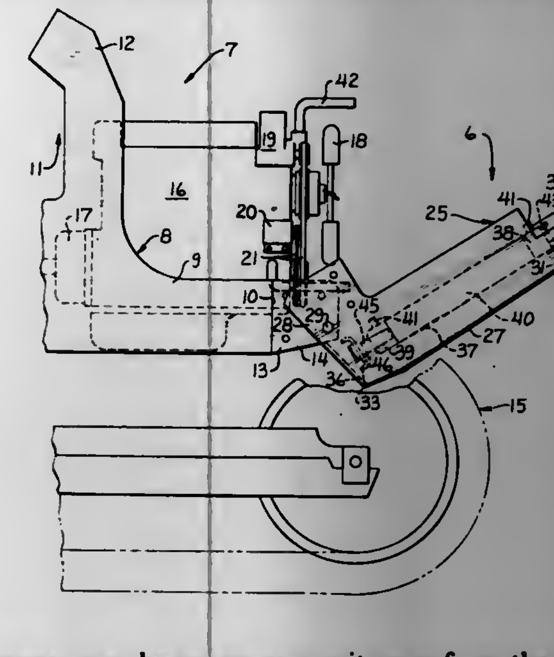
George F. Alexander; Frank J. Helmig, both of Pekin; Eldon D. Oestmann, Washington, and Ellis A. Sitton, East Peoria, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 28, 1973, Ser. No. 345,568

Int. Cl. B60k ***11/04***

U.S. Cl. 180—68 P **17 Claims**

A pivotal guard for a vehicle having a main frame with a heat generating power unit supported thereon and a heat exchanger operatively associated with the power unit including a generally upstanding frame disposed in spaced shielding relation to the power unit and being pivotally connected to the vehicle main frame with the heat exchanger removably secured in the upstanding frame so that the guard and the heat exchanger may be swung as a unit away from the power unit to provide service access thereto.



3,834,479
BATTERY HOLDDOWN

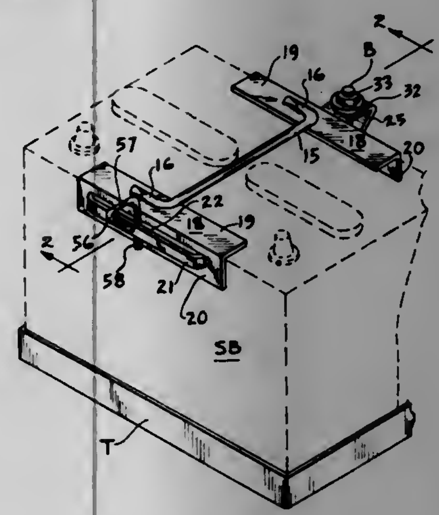
Bernard P. Bowers, Ontelaunee Township, Berks County, and Delight E. Breidegam, Jr., Kutztown, both of Pa., assignors to East Peru Manufacturing Company, Inc., Lyon Station, Pa.

Continuation-in-part of Ser. No. 330,516, Feb. 8, 1973.

Filed May 29, 1973, Ser. No. 364,624

Int. Cl. B60r ***18/02***

U.S. Cl. 180—68.5 **4 Claims**



A storage battery holddown is disclosed having a transverse bar with end holder brackets secured at each end, the end brackets having horizontal flanges for engagement with the battery case and vertical flanges extending downwardly along and close to opposite sides of the battery case. The vertical flanges have struck-out strips extending substantially their length for engagement by attaching or clamping devices. At one side of the battery the clamping device includes a clip for engagement with a vertical threaded bolt and at the other side a retaining bracket rod engaging in an opening in an interior wall portion of the vehicle and with a vertical flange and associated struck-out strip.

3,834,480
HYDRAULIC TRAILER STEERING AND SWAY CONTROL MECHANISM

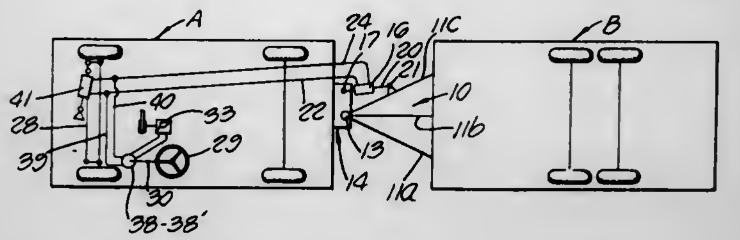
Leland T. McGee, Rt. No. 1, Box 69E, Fort Jones, Calif. 96032

Filed Dec. 8, 1972, Ser. No. 313,503

Int. Cl. B60d ***3/00;*** **B62d** ***5/06***

U.S. Cl. 180—79.2 B **5 Claims**

Automatic trailer steering and sway control mechanism in which the wheel guiding means of the tow vehicle operates through a hydraulic steering cylinder having coupled relation with a hydraulic steering cylinder on the pulling tongue of the trailer such that the tow vehicle and trailer vehicle become a coordinated and synchronized unit in which the trailer is stabilized by being steered, rather than dragged, in the proper and more efficiently desired direction in response to guiding changes in the direction of travel of the tow vehicle.



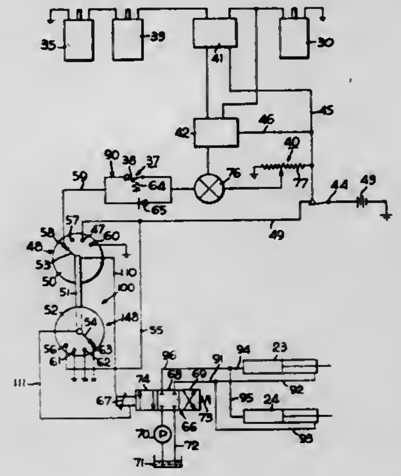
3,834,481
WHEEL SLIPPAGE SENSING CONTROL FOR A VEHICLE

Richard G. Carlson, Greendale, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Oct. 25, 1972, Ser. No. 300,715

Int. Cl. B60l ***3/10***

U.S. Cl. 180—82 R **11 Claims**



A drive wheel slippage sensor and control for operating in conjunction with the weight distribution system on a draft vehicle.

3,834,482
OCCUPANT PROTECTION DEVICE FOR MOTOR VEHICLES AND THE LIKE

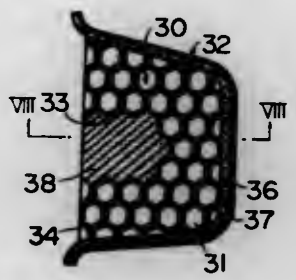
Akihiro Wada, Chiryu, and Shingto Ito, Toyota, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan

Filed June 15, 1972, Ser. No. 263,242

Claims priority, application Japan, Oct. 20, 1971, 46-83118

Int. Cl. B60k ***37/00;*** **B60r** ***21/02***

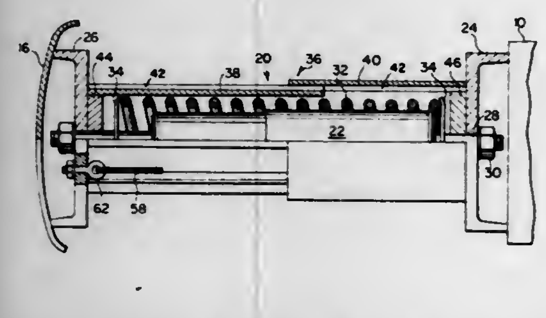
U.S. Cl. 180—90 **2 Claims**



An occupant protection device for automotive vehicles including a honeycomb shaped structural member attached to the base of an instrument panel, a pad layer and a fancy covering. The honeycomb shaped structural member has a plurality of hollow cells surrounded by side walls having openings in the direction perpendicular to that of the action of impact force and protects the occupant by permitting the deformation of the member to absorb shock which may be caused by a secondary collision of the occupant with the instrument panel.

3,834,483
SHOCK ABSORBING BUMPER SYSTEM

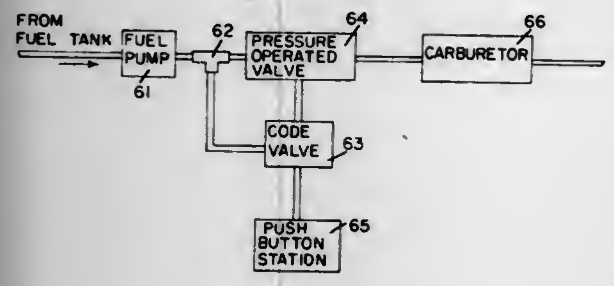
J. F. Palmer, Shanghai, Va. 23158
Filed Aug. 9, 1973, Ser. No. 386,926
Int. Cl. B60k *33/00;* **B60r** *19/06*
U.S. Cl. 180—91 **4 Claims**



A compound shock absorbing bumper system for automotive vehicles and the like, including a plurality of fluid operating cylinders surrounded by coil springs with the combination being housed and attached between the vehicle frame and bumper. The coil springs normally urge the bumper and cylinders to an extended operative shock absorbing position. Controls are provided in the vehicle to selectively move the bumper to a retracted position or release it for movement to the extended position. Means can be combined with the controls to simultaneously downshift the vehicle drive system.

3,834,484
ANTI-THEFT DEVICE FOR INTERNAL COMBUSTION ENGINES

Arlon G. Sangster, Sterling, Mass. 01564
Filed Apr. 5, 1972, Ser. No. 241,354
Int. Cl. B60r *25/04*
U.S. Cl. 180—114 **7 Claims**



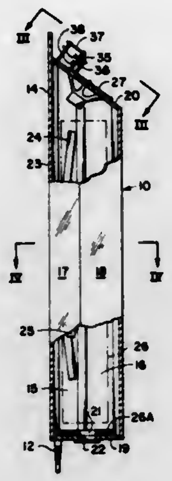
A keyboard with a plurality of push buttons thereon is mounted in the driver's compartment and is connected by push rods to a new and improved valve mechanism in the fuel line adjacent the carburetor. The valves are arranged to operate only in a predetermined code to allow gas to flow when the ignition switch is turned to "on" position.

A solenoid is de-energized to move the valves canceling the code when the ignition is turned off, and even though this sole electric part of the device should fail, the operation of the vehicle would be the same as though the theft-proof device were not present.

Means is also operable to prevent the cancellation of the code at the operator's will, so that the vehicle can be operated as normal.

3,834,485
ACOUSTIC SPEAKER SYSTEM

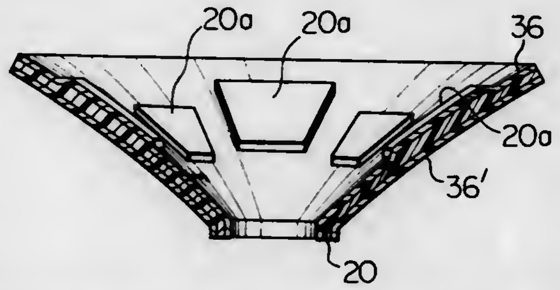
Antony Z. Doschek, and Mary Louise Doschek, both of 84B Kingston Ave., Pittsburgh, Pa. 15205
Filed Oct. 1, 1973, Ser. No. 402,572
Int. Cl. G10k *13/00;* **H04r** *7/18*
U.S. Cl. 181—31 B **10 Claims**



An acoustic speaker system is provided having a substantially air-tight speaker enclosure without uninterrupted parallel interior surfaces, said enclosure having a length to width ratio greater than 3 and preferably between 4 and 5. Dampening means are provided to reduce and disperse resonant vibrations of the enclosure. Low frequency, middle frequency and high frequency loudspeakers are rigidly and angularly mounted on an end portion of the enclosure in substantially parallel relation, preferably at an angle between 35° and 55° to an associated compound corner of a listening room. The middle and high frequency speakers are both preferably back enclosed and are positioned exteriorly of the low frequency speaker on stand-off supports, with the middle frequency speaker preferably positioned between the low and high frequency speakers. The speakers are positioned with the enclosure so that they are all capable of forwardly radiating into a closely spaced compound corner preferably between 1½ and 5 feet from the low frequency speaker and the low frequency speaker is capable of backwardly radiating into the enclosure. Cross-over means are also provided for selectively directing the electrical signals according to their frequency to the low frequency, middle frequency and high frequency speakers, respectively.

3,834,486
VIBRATION DIAPHRAGM AND CONE EDGE OF A LOUDSPEAKER

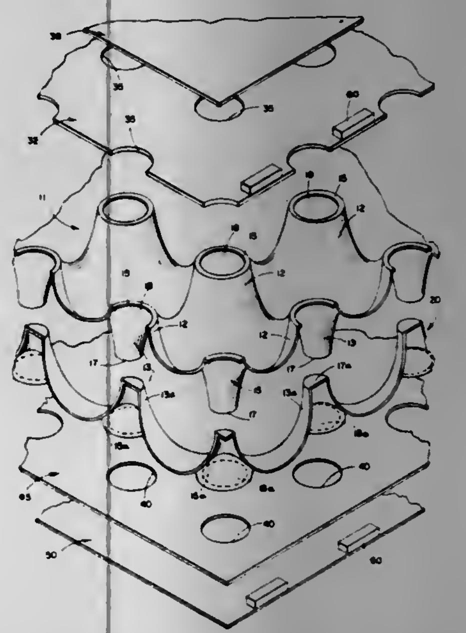
Yasuhiko Tsuge, and Noboru Koizumi, both of Osaka, Japan, assignors to Matsushita Electric Industrial Company, Limited and Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan
Filed May 30, 1972, Ser. No. 257,527
Claims priority, application Japan, May 28, 1971, 46-44319; July 5, 1971, 46-49725; July 12, 1971, 46-61451
Int. Cl. G10k *13/00;* **H04r** *7/00*
U.S. Cl. 181—32 R **7 Claims**



Herein disclosed are an improved vibration diaphragm and an improved cone edge of a loudspeaker, wherein the vibration diaphragm is formed of a foamed plastics which is formed with portions having a density or densities lower than the remaining portion of the diaphragm and/or which has at least one coating of resin applied to at least one surface of the foamed plastics in the form of an aqueous emulsion and wherein the cone edge is formed of a foamed plastics having a closed-cellular structure. The vibration diaphragm and cone edge, which may preferably be used in combination with each other, will contribute to improving the acoustic characteristics of the loudspeaker to a considerable extent.

3,834,487
SANDWICH CORE PANEL WITH STRUCTURAL DECOUPLING BETWEEN THE OUTER FACE SHEETS THEREOF

Jesse R. Hale, 25913 Stanford St., Hemet, Calif. 92343
Filed Mar. 8, 1973, Ser. No. 339,339
Int. Cl. E04b *1/84*
U.S. Cl. 181—33 G **4 Claims**

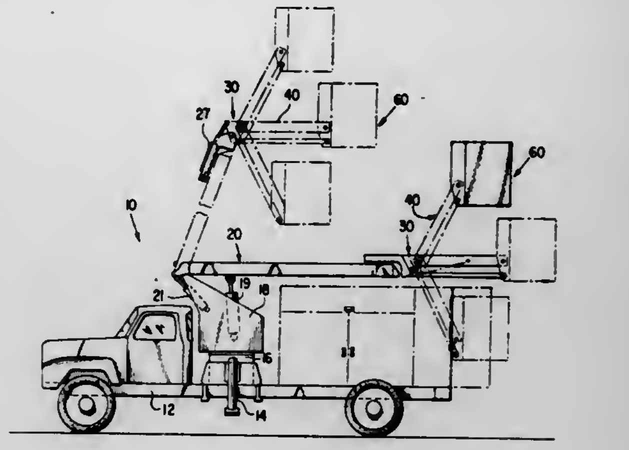


A sandwich core panel is formed from an inner and an outer pair of face sheets which are spaced from each other and having core structures formed from first and second anticlastic membranes respectively sandwiched therebetween. The membranes each have a first set of nodes which project in a first direction and a second set of nodes which project in a direction opposite to the first direction. The nodes of the first set have end faces of a smaller diameter than the end portions of the second set. The end face portions of the second set of nodes of both membranes have apertures formed therein such that the end portions of the first sets of nodes of each of the membranes pass through the node end portions of the other membrane. The end face portions of the first set of nodes for each of the membranes is adhered to the inner surface of a respective one of the outer face sheets, while the end portions of the other set of nodes of each of the membranes is adhered to the inner surface of a respective one of the inner face sheets. This arrangement provides a structurally rigid unit having a high strength to weight ratio with decoupling between the face sheets such that the transfer of energy therebetween is attenuated.

3,834,488
AERIAL PLATFORM WITH ARTICULATING JIB

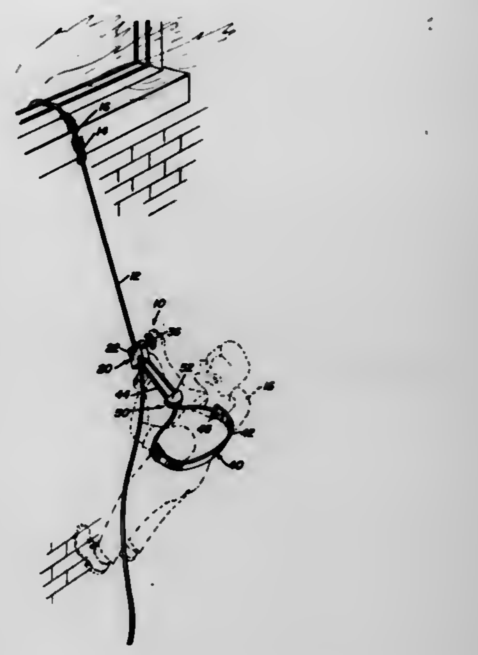
John L. Grove, P.O. Box 695, McConnellsburg, Pa. 17233
Filed Nov. 6, 1972, Ser. No. 303,760
Int. Cl. B66f *11/04*
U.S. Cl. 182—2 **14 Claims**

An aerial platform is carried by an extensible boom which is mounted on a motor vehicle for swinging movement in horizontal and vertical planes: a connector is pivoted to the end of the boom, a jib is pivoted at one end to the connector for vertical swinging movement and the aerial platform is pivotally connected to the other end of the jib. The jib has upper and lower arms, which remain parallel. The platform is a basket and the arms are connected to the lower portion of the basket. Power devices cause pivoting of the connector relative to the boom, and the boom relative to the vehicle, and comprise hydraulic cylinders connected in master-slave relationship.



3,834,489
FIRE ESCAPE DEVICE WITH BELT TIGHTENING SLIDE

Nicholas A. Rabelos, Daytona Beach, Fla., assignor to Rescue Industries, Inc., Datona Beach, Fla.
Filed May 1, 1973, Ser. No. 356,081
Int. Cl. A62b *1/14*
U.S. Cl. 182—5 **7 Claims**



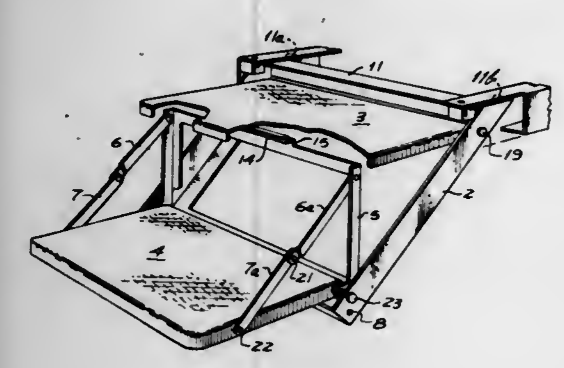
A fire escape in the form of an elongated flexible member anchored at the upper end thereof to a building structure or stationary device associated with the building structure with the flexible member being of sufficient length to reach to the ground or some other lower level by which a person may safely escape from a fire in the building. A slidable, manually actuated device is mounted on the flexible member for longitudinal sliding movement in relation thereto with the rate of movement or descent being manually controlled by a person supported therefrom by a belt type sling. The sling includes a flexible member such as a rope having its ends connected to the ends of a belt and a central portion extending through the slidable device with a slide receiving both portions of the rope for movement toward and away from the person whose torso is encircled by the sling thereby enabling the sling to be snugly engaged with the torso of the person using the device thereby preventing the person from sliding downwardly through the sling thereby providing a fire escape device which is easy to use but yet will effectively retain the user in the belt type sling.

3,834,490

STEP ARRANGEMENT

Robert B. Ford, 8834 E. Naomi Ave., San Gabriel, Calif. 91775

Filed May 31, 1973, Ser. No. 365,536
Int. Cl. E06c *5/04*
U.S. Cl. 182—88 **4 Claims**



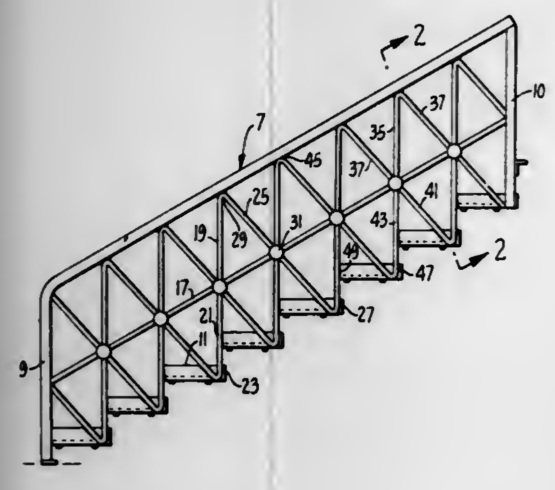
A foldable and retractable heavy duty set of steps is described wherein sheer loading on pivot points is relieved to provide special structural strength for unusual loading conditions.

3,834,491

RAIL OR TRUSS STAIRWAY

Clarence H. Pelto, 80 Duboce Ave., San Francisco, Calif. 94103

Filed July 11, 1973, Ser. No. 378,157
Int. Cl. E04f *11/12*
U.S. Cl. 182—106 **5 Claims**



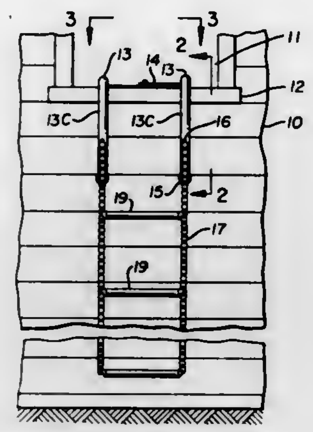
A truss or rail stairway is provided wherein the handrails support the weight of the stairway treads. The supports for the treads are in the form of triangular members so that a very rigid structure is provided, yet one which is light in weight.

3,834,492

PORTABLE FIRE ESCAPE LADDER

Hugo V. Ronk, Martinsburgh, W. Va., assignor to American La France Inc., Willoughby, Ohio

Filed Aug. 27, 1973, Ser. No. 392,125
Int. Cl. E06c *1/56*
U.S. Cl. 182—196 **5 Claims**



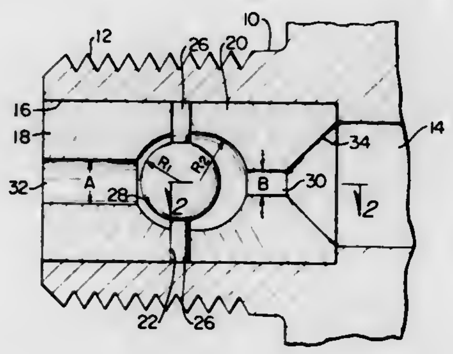
A portable fire escape ladder provides a window sill bracket with chains depending therefrom and a plurality of tubular rungs secured to the chains at spaced intervals therealong.

3,834,493

RECLASSIFIER FOR OIL FOG LUBRICATION SYSTEMS

Alexis Hubert, Littleton, Colo., assignor to C. A. Norgen Co., Littleton, Colo.

Filed Mar. 23, 1973, Ser. No. 344,356
Int. Cl. F16n *39/00*
U.S. Cl. 184—7 R **10 Claims**



Reclassifier for oil fog lubrication systems for producing oil droplets of discrete size for lubricating machines or the like, characterized by a generally spherical chamber having a ball supported therein forming a surrounding passageway between a supply orifice and a diametrically disposed discharge orifice. A film of oil collects on the upstream face of the ball and flows around its surface to the downstream face where it is picked up by the air flow and is discharged in the form of droplets through the discharge orifice.

3,834,494

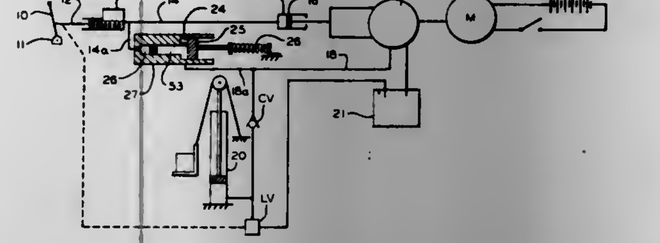
MANUALLY-CONTROLLED HYDRAULIC ACTUATOR SYSTEMS

Leo D. Bates, and Melvin R. Caldwell, both of Greene, N.Y., assignors to The Raymond Corporation, Greene, N.Y.

Filed Feb. 23, 1973, Ser. No. 335,030
Int. Cl. B66b *9/20*
U.S. Cl. 187—9 **15 Claims**

The power which a lift truck operator can demand by maximum deflection of a manual lifting control is made to vary automatically as a function of the load being lifted, thereby limiting power consumption to a safe amount but allowing small

loads to be lifted at high speeds. In a main embodiment hydraulic fluid is bled from a master-slave system which liks the operator control to a controllable hydraulic pump or motor, with the amount of fluid bled varying in accordance with the load. Means for providing various desired operating characteristics are illustrated.

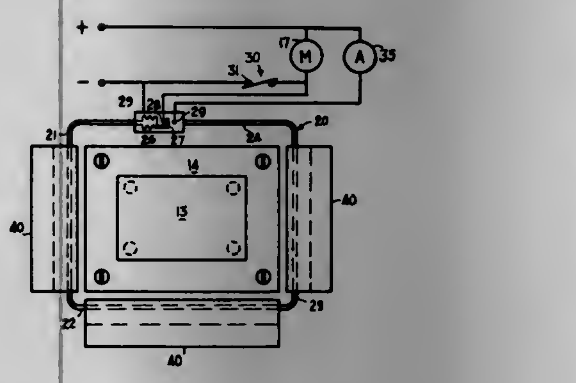


3,834,495

PILE DELIVERY WITH SAFETY DEVICE

Claus Simeth, Offenbach, Germany, assignor to Roland Offsetmaschinenfabrik Faber & Schleicher AG, Offenbach/Main, Germany

Filed June 12, 1973, Ser. No. 369,155
Claims priority, application Germany, June 14, 1972, 2228839
Int. Cl. H02h *5/12*
U.S. Cl. 187—29 R **1 Claim**



A delivery pipe installation for a sheet fed printing press or the like which includes a delivery platform of the floor-seating type with means for raising the platform and for lowering the platform to the floor as copies are deposited. Surrounding the platform location is an elastically deformable, fluid filled conduit, preferably in the form of a rubber hose, arranged at the floor in such a position that it will be stepped on by the operator in the event that he stands too close to the platform as it is being lowered to floor level. An electric switch responds to an increase in pressure within the hose, preferably for the purpose of disabling the motor which lowers the platform but alternatively to sound an audible or visible alarm to indicate to the operator that he is standing in a dangereous position.

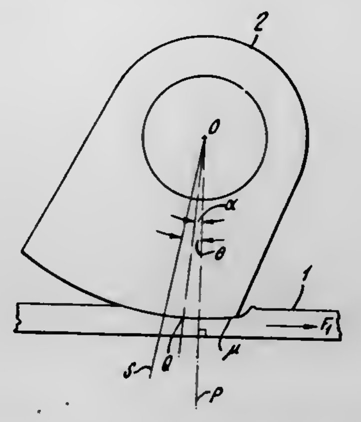
3,834,496

VEHICLE SAFETY DEVICE

Takezo Takada, Hikone, Japan, assignor to Takata Kojyo Co. Ltc., Tokyo, Japan

Filed Sept. 1, 1972, Ser. No. 285,718
Claims priority, application Japan, Sept. 18, 1971, 46-70327
Int. Cl. F16d *59/00*
U.S. Cl. 188—136 **7 Claims**

A vehicle passenger restraining belt extends from a retraction reel and one or both opposite faces of the belt are frictionally engaged by respective brake members which are swingable about transverse axis. The brake member has a curved friction brake face spaced from its swing axis distances which increase in a direction opposite to the belt withdrawal direction. As a withdrawal force is applied to the belt its withdrawal is frictionally prevented by the brake member and with increased force the brake member is advanced to retract its point of engagement with the belt to increase the angle between a line extending perpendicularly to the belt from the brake member axis and a line between the axis and the point of engagement until such angle exceeds a predetermined angle whose tangent equals the coefficient of friction between the brake and belt faces and the belt slips along the brake with the kinetic energy of the passenger being absorbed. The brake is normally disabled by a solenoid which is energized through a series of connected inertia switch, a manually actuated switch and a seat occupation actuated switch.

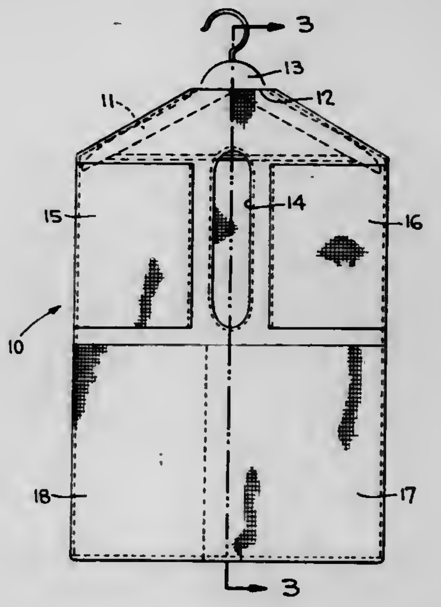


3,834,497

STORAGE BAG FOR CLOTHING ARTICLES OR THE LIKE

Beatrice M. Furst, 1723 Illingsworth Ave., Allentown, Pa. 19103

Filed Oct. 19, 1972, Ser. No. 299,172
Int. Cl. A45c *11/00*
U.S. Cl. 190—43 **6 Claims**



A storage bag which can be used for camping or the like is substantially flat when not being used to accommodate articles so that it can be folded or rolled into a package of low bulk when stored. The bag is used in connection with a conventional clothes hanger and has an inner chamber for storing bulky items. Quick access to this chamber is provided by a slit or opening through a flat surface of the bag. Further, many additional articles may be stored in the bag by providing pockets on the front and rear surfaces thereof, which pockets are substantially flush with the flat bag when no articles are being stored therein.

3,834,498
VEHICLE BRAKING BY GEARING LOCK UP CLUTCHES

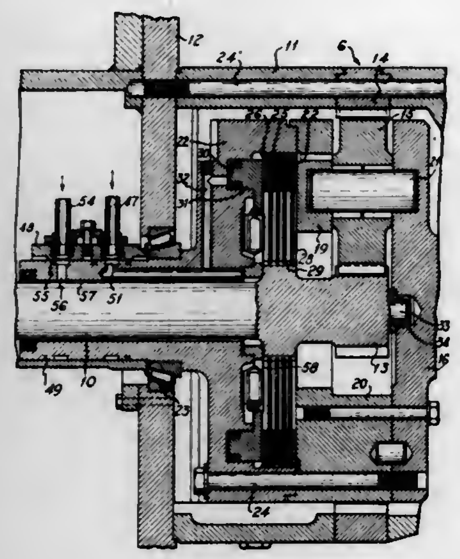
Herbert Edward Ashfield, Meltham, England, assignor to David Brown Tractors Limited, Huddersfield, England

Continuation-in-part of Ser. No. 117,553, Feb. 22, 1971, abandoned. This application Oct. 4, 1973, Ser. No. 407,893

Claims priority, application Great Britain, Feb. 28, 1970, 9788/70

Int. Cl. F16h *57/10*; **B60k** *29/02*

U.S. Cl. 192—4 A **10 Claims**



A drive control system for a vehicle such as an agricultural tractor includes disc braking means for the vehicle's final drive transmission having co-axial input and output shafts drivably connected by epicyclic gearing including a non-rotatable reaction member in which two mutually engagable elements of the braking means are carried by respective members of the epicyclic gearing which are rotatable at different speeds. This enables the output member to be brought to rest without transmitting vibrations to the final drive casing due to neither of the mutually engagable elements of the braking means being connected to the casing. Associated with the braking means is an arrangement for lubricating the brake disc space during non-braking periods.

3,834,499
CLUTCH, BRAKE AND MOTOR CONTROLS FOR SYNCHRONIZED GEAR SHIFTING

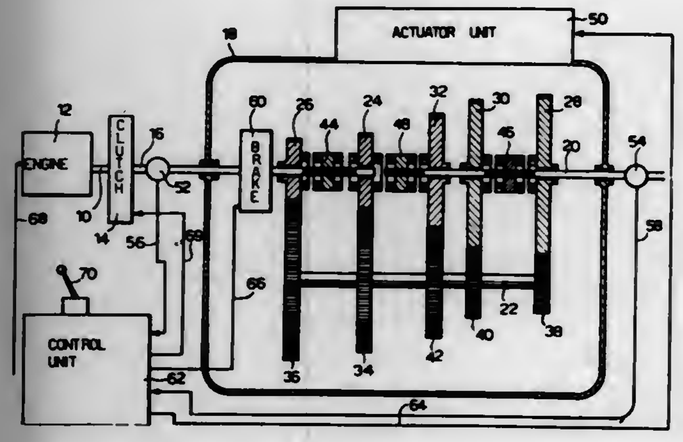
Giovanni Candellero, and Stefano Aimo, both of Turin, Italy, assignors to FIAT Societa per Azioni, Turin, Italy

Filed Sept. 25, 1972, Ser. No. 292,035

Claims priority, application Italy, Sept. 25, 1971, 70163/71

Int. Cl. B60k *29/00, 21/00*

U.S. Cl. 192—.09 **4 Claims**



This invention provides an electronic gear synchronisation system for a motor vehicle gear box in which the input and output shaft speeds are recorded by respective transducers and the respective speed signals provided thereby are utilised in an electronic control unit to control the selective operation of accelerator means (e.g., the vehicle engine) and decelerator means (e.g., a shaft brake) acting on the gearbox input shaft so as to bring the ratio of the speeds of the input and output shafts into conformity with the preselected gear ratio, in a short time interval between disengagement of one pair of gears and engagement of another selected pair of gears.

3,834,500
DOG CLUTCH

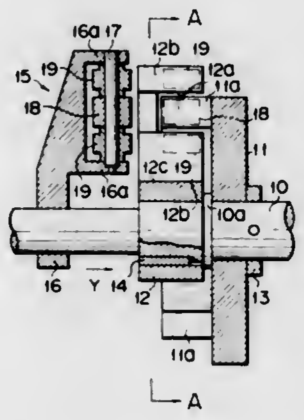
Teruo Tsuchiya, Tokyo; Hisashi Imai, and Ryohei Motegi, both of Yokohama, all of Japan, assignors to Tokyo Keiki Co., Ltd., Tokyo, Japan

Filed June 4, 1973, Ser. No. 366,852

Claims priority, application Japan, June 7, 1972, 47-56632

Int. Cl. F16d *11/04, 27/10*

U.S. Cl. 192—67 R **4 Claims**



A dog clutch has a first member with a plurality of dogs on one side and a fork-shaped second member with a plurality of dogs on one side. These two members are mounted on a common shaft in a facing relationship. Three engaging rolls are rotatably supported on an interposer capable of sliding along the axis. When the interposer is permitted to slide from a clutch disengaging position to a clutch engaging position by an electromagnet, some of the rolls engage the dogs of the first member while the remaining rolls engage the dogs of the second member, thereby effecting clutch engagement.

3,834,501
DUAL SPRING DEVICE FOR PREVENTING IMPROPER DISENGAGEMENT OF CLUTCH

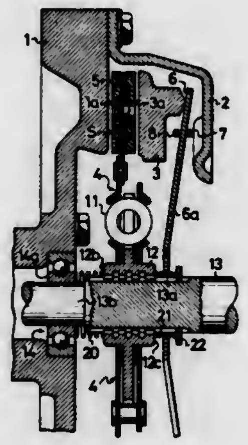
Kazuma Adachi, Yao, Japan, assignor to Kabushiki Kaisha Daikin Seisakusho Neyagawa, Osaka Pref., Japan

Filed Oct. 24, 1972, Ser. No. 300,366

Claims priority, application Japan, Jan. 12, 1972, 47-6478; Japan, Nov. 17, 1971, 46-107639

Int. Cl. F16d *13/50, 13/22*

U.S. Cl. 192—70.28 **1 Claim**



A device comprising a clutch disc having clutch facings between a flywheel and a pressure plate, a main drive shaft splined to a spline hub of the clutch disc for conjoint rotation therewith, a pilot bearing for supporting an end of the main drive shaft rotatably on the flywheel, a spring member interposed between the splined hub and a portion of the pilot bearing to be rotated conjointly with the main drive shaft for moving the clutch disc to a neutral position upon disengagement of the clutch, and means for determining the neutral position.

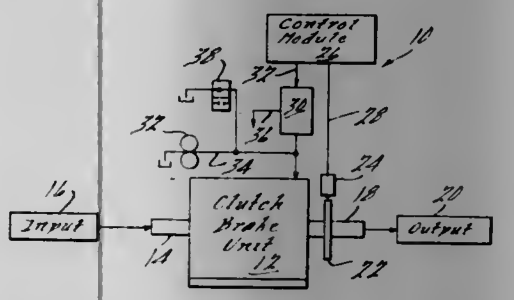
3,834,502
VARIABLE SPEED DRIVE WITH ELECTRONIC CONTROL MEANS

Gordon M. Sommer, Grosse Pointe, Mich., assignor to G. M. Sommer Co., Inc., Detroit, Mich.

Filed Sept. 22, 1972, Ser. No. 291,216

Int. Cl. F16d *43/24, 13/72, 67/04*

U.S. Cl. 192—104 F **13 Claims**



A variable speed drive comprising a clutch-brake unit having aligned input and output shafts rotatably supported in a housing and including clutch and brake disc stacks located in a liquid reservoir defined by the housing, and selectively engageable through actuation of a hydraulically operable piston. The loading pressure of the clutch disc stack is selectively modulated to provide a variable rotary speed to the output shaft by a control system which includes an electrically operable valve for controlling the piston, and a control module which provides a variable output signal to the valve in response to a selected rotary motion preset in the control module. In one application of the drive, the rotary motion of the output shaft is converted to bi-directional linear motion by the addition of a fixed displacement pump and a four-way valve.

3,834,503
DUAL HYDRAULIC COUPLING

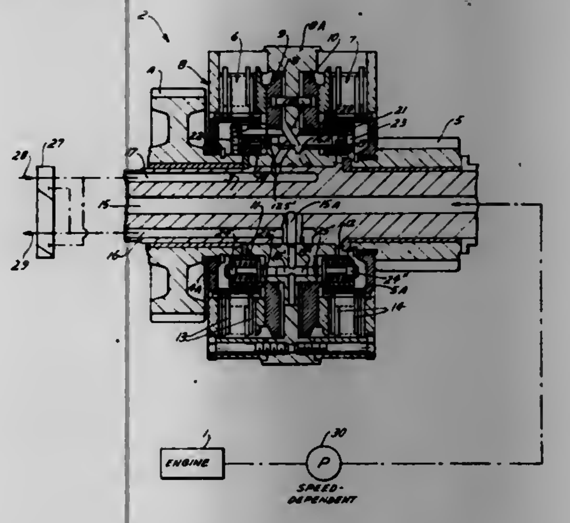
Gerhard Maurer, and Fritz Geiger, both of Friedrichshafen, Germany, assignors to Zahnradfabrik Friedrichshafen Aktiengesellschaft, Friedrichshafen, Germany

Filed Apr. 2, 1973, Ser. No. 347,341

Claims priority, application Germany, Apr. 1, 1972, 2215922

Int. Cl. F16d *13/72*

U.S. Cl. 192—113 B **10 Claims**



A dual hydraulic clutch, mounted on a shaft for operatively connecting same with either of two pinions seated thereon, has a central partition flanked by two axially movable pistons adapted to co-operate with respective sets of clutch plates. An axial displacement of either piston entrains two interconnected rings on opposite sides of the partition, each ring carrying a pair of spring-loaded plungers normally bearing on the partition for biasing both pistons into a retracted position. Upon the admission of pressure fluid to a piston for the engagement of its clutch plates, the corresponding plungers unblock a pair of normally blocked ports in the partition for the circulation of lubricant to the respective clutch assembly.

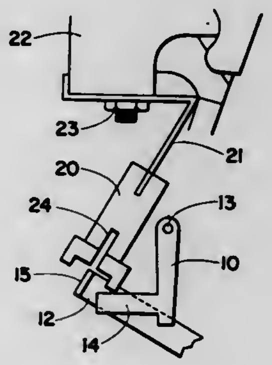
3,834,504
ANTI-FRAUD DEVICE FOR COIN OPERATED APPARATUS

Raymond Charles Hemming, and Harry Maria Coumans, both of London, Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Apr. 16, 1973, Ser. No. 351,467

Int. Cl. G07f *3/02, 5/04*

U.S. Cl. 194—1 G **1 Claim**



An anti-fraud device for pay telephones and other coin operated devices in which a locking member which holds back a first inserted coin and is released by insertion of a second coin, is required to move past a stop which is flexibly mounted. In the event of attempted fraud by means of violently vibrating the apparatus —as by striking the coin release button vibration of the stop prevents movement of the locking member. Normally such vibration of the apparatus causes the locking member to move and release the first coin —causing actuation of the coin controlled mechanism.

3,834,505
INK JET PRINTING APPARATUS WITH LINE SWEEP AND INCREMENTAL PRINTING FACILITIES

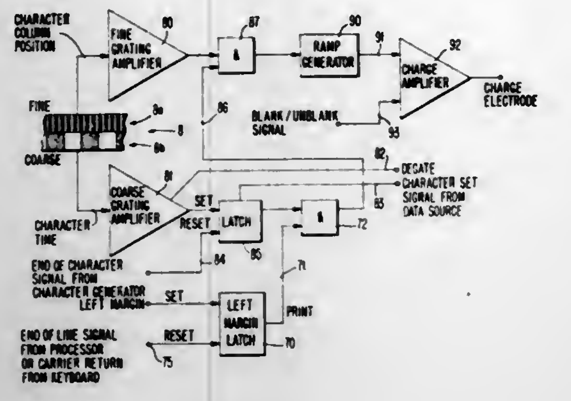
Raymond L. Fowler; James D. Hill; Richard W. McCornack; N. Kenneth Perkins, all of Lexington; Michael L. Sendelweck, Georgetown; Donald L. West, Lexington; Thomas H. Williams, Lexington, and Krikor Yosmali, Lexington, all of Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 11, 1972, Ser. No. 313,919

Int. Cl. G01d *15/18*

U.S. Cl. 197—1 R **10 Claims**

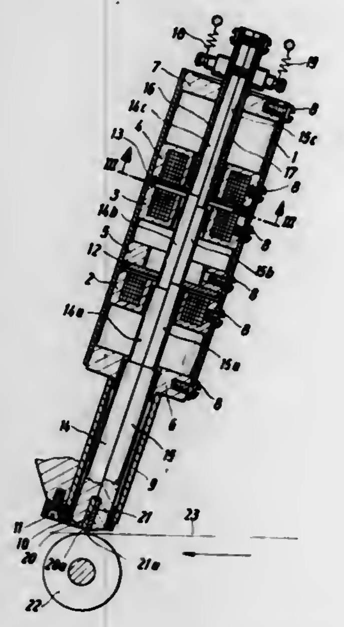
An ink jet printing apparatus is described having facilities for printing information in character locations, (boxes) each character location comprising a plurality of vertical columns of drop locations, and a number of characters comprising a line of information. Structures and circuits are included for insuring correct location of information within the character boxes and also providing for one mode in which characters are printed continuously line-by-line and another mode in which characters are printed incrementally character-by-character. During incremental printing, as well as the first character in a line or group of characters, provision is made for re-bounding the printhead back into the box of the character just printed, that is, prior to the next character box to be printed to insure that when the printhead starts up again for the next character that all drop components for that character, including any



located in the immediate vicinity of the character boundary, are properly placed during printing.

3,834,506
RECORDER HEAD FOR CODE CHARACTERS IN LINE PRINTING

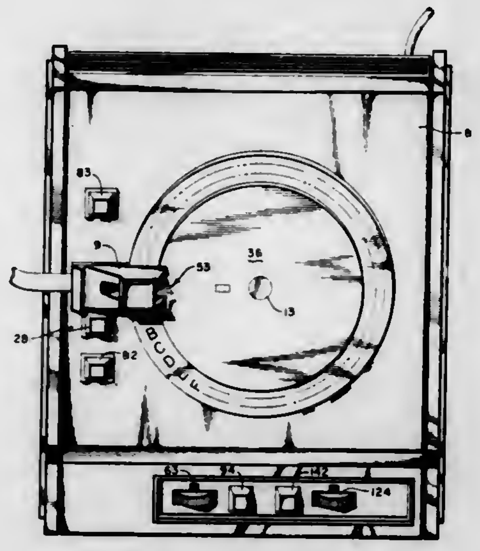
Horst Priebs, Bielefeld, Germany, assignor to Anker-Werke AG, Bielefeld, Germany
Filed Apr. 9, 1973, Ser. No. 349,624
Claims priority, application Germany, Apr. 8, 1972, 2216967
Int. Cl. B41j *3/50*
U.S. Cl. 197—1 R **4 Claims**



Recorder head for recording code characters by line printing includes a cylindrical housing having forward and rearward guide means, a pair of axially displaceable printing rods of substantially equal length disposed adjacent and parallel to one another and guidable by the forward and rearward guide means, means having a line type face located at the forward end of the printing rods, respectively, the line type of the printing rods having a printing width individually and in combination one with the other which embody respectively different line thicknesses for a parallel line code, electromagnet means comprising pot-shaped printing magnets disposed one behind the other and formed with respective core bores, armature plates located adjacent and coordinated with the printing magnets, respectively, the armature plates being also formed with respective bores, the pair of printing rods extending together through the core bores of the printing magnets and the bores of the armature plates, each of the printing rods having a stop operatively engageable by a respective armature plate in response to activation of the printing magnets for axially displacing the respective printing rod into a printing position, the printing rods respectively having a semicircular cross section and being formed with stepped longitudinally extending portions having respective end faces forming the stops for the armature plates of the respective printing magnets, the electromagnet means also including a potshaped restoring magnet having a bore through which the printing rods extend, and abutment means mounted on an end of the printing rods and drivingly engageable by a respective armature plate cooperating with the restoring magnet for displacing the printing rods to a non-printing position.

3,834,507
PRINTING APPARATUS

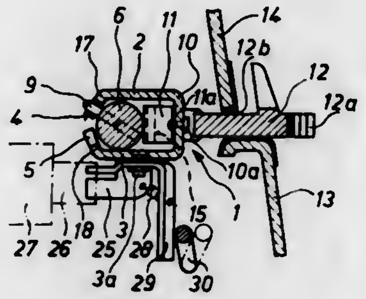
Franklin C. Bradshaw, St. Paul, Minn., assignor to Kroy Industries Inc., Stillwater, Minn.
Filed Jan. 30, 1973, Ser. No. 327,945
Int. Cl. B41j *1/30*
U.S. Cl. 197—6.7 **8 Claims**



A printing apparatus of the type having an image carrier, a color carrier, a font with a plurality of raised, selectively positionable characters, and a piston assembly whereby activation of the piston assembly causes an image to be transferred from the color carrier to the image carrier. The printing apparatus further includes backspace means for compensating for letter interlock.

3,834,508
MULTIPLE PITCH MARGIN STOP DEVICE

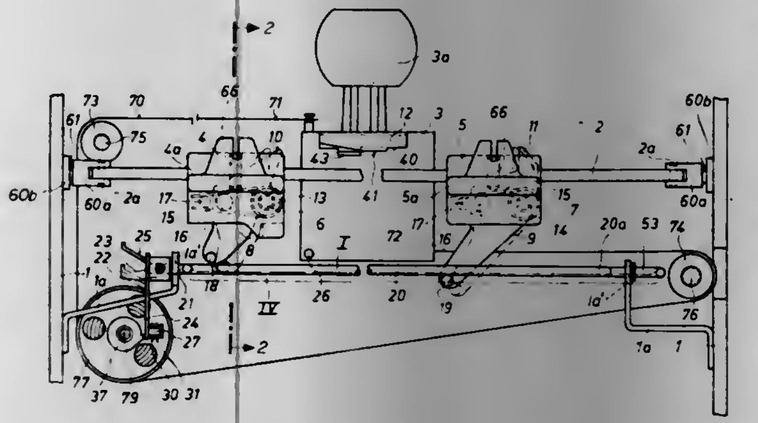
Gerhard Ruh, Wilhelmshaven, Germany, assignor to Olympia werke AG, Wilhemshaven, Germany
Filed Oct. 26, 1972, Ser. No. 300,991
Claims priority, application Germany, Nov. 16, 1971, 2156772
Int. Cl. B41j *21/02*
U.S. Cl. 197—63 **10 Claims**



A margin stop device for a typewriter with exchangeable type heads having types of different widths, and requiring carriage steps of different length. A stop rail has a row of stops and is mounted so as to be movable between two operative positions in which one stop engages one or the other of two rack portions of a margin stop on the stop rail. The rack portions have recesses of different pitches, corresponding to the different carriage steps, and the rack portions are long enough to include pairs of first and second registering recesses. The length of the rack portions is at least equal to the distance between the stops on the stop bar so that at least one stop is located in the first or second recesses when the stop rail is in one of the operative positions. The stop rail with the margin stop in an operative position, is blocked against longitudinal movement for stopping the typewriter carriage in a position corresponding to the length of the carriage steps for that operative position. In each operative position, the respective rack portion can be manually operated to release the engaging stop so that the margin stop can be longitudinally adjusted and then again placed in the respective operative position.

3,834,509
FUNCTION CONTROLLING MARGIN STOP ARRANGEMENT

Gerhard Ruh, Wilhelmshaven, Germany, assignor to Olympia Werke AG, Wilhelmshaven, Germany
Filed Dec. 15, 1972, Ser. No. 315,662
Claims priority, application Germany, Dec. 16, 1971, 2162431
Int. Cl. B41j *21/02*
U.S. Cl. 197—63 **15 Claims**

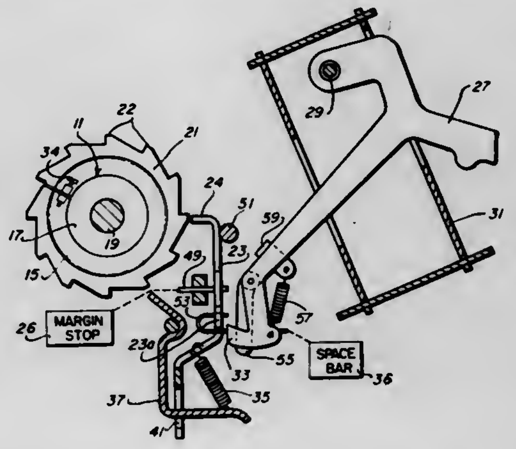


The first and second margin stops of a typewriter carry first and second control levers operated by the typewriter carriage at the end and beginning of a typed line, respectively, and being located on opposite sides of a control bail which is turned by the operated first control lever to effect a first function required at the end of a typed line, for example, ringing a bell, and by the operated second control lever to effect a function required at the beginning of a typed line after a carriage return, for example, disengaging a drive clutch so that the carriage stops. Since the bail is parallel to the margin stop rail, the control levers can slide along the bail when the margin stops are adjusted. Lost motion connections are provided between an actuating lever secured to the control bail, and links connected with the bell and with the drive clutch, respectively, so that the respective functions can be independently carried out.

3,834,510
DEVICE FOR CONTROLLING A KEY-OPERABLE, POWER-DRIVEN LINE SPACING AND CARRIAGE RETURN

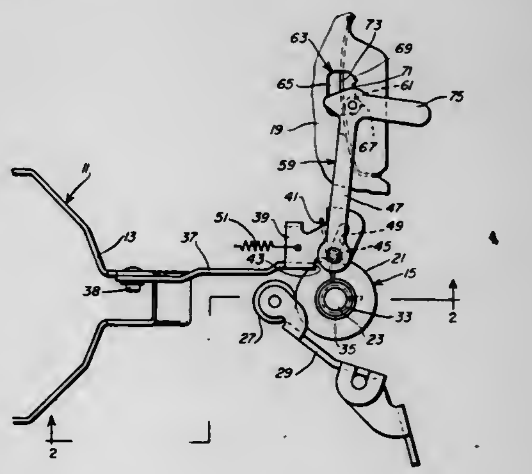
Josef Lendl, Ottensoos, Germany, assignor to Adlerwerke vorm Heinrich Kleyer Aktiengesellschaft, Frankfurt (Main), Germany
Filed June 14, 1972, Ser. No. 262,627
Claims priority, application Germany, June 16, 1971, 2129842
Int. Cl. B41j *19/90*
U.S. Cl. 197—120 **4 Claims**

The operation of a conventional power-driven typewriter mechanism for line indexing a paper platen and moving a carriage to a left margin position is controlled by a latching arrangement which is provided for engaging and effecting the operation of a clutch in the power drive to the mechanism. The latching arrangement is initially operated by depressing a carriage return key to a first position to initiate the operation of the clutch to cause line indexing and carriage movement to a left margin position, whereupon further depression of the carriage return key causes the latching arrangement to repeatedly engage and operate the clutch for effecting repeated line indexing. When the clutch is engaged and operated by the latching arrangement to effect carriage movement, the latching arrangement is temporarily removed from the control of the carriage return key so that if power to the typewriter is interrupted the latching arrangement will be disengaged from the clutch to prevent further operation when power to the typewriter is restored. In addition, the latching arrangement may also be disengaged from the clutch to interrupt the movement of the carriage by actuating another suitable key, for example, the space bar.



3,834,511
RIBBON TRANSPORTING ARRANGEMENT

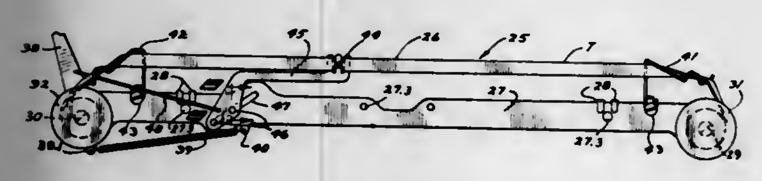
Hans-Georg Hengelhaupt, Nuernberg, Germany, assignor to Triumph Werke Nuernberg, AG, Nuernberg, Germany
Filed Apr. 12, 1973, Ser. No. 350,522
Claims priority, application Germany, Apr. 20, 1972, 2219312
Int. Cl. B41j *33/14*
U.S. Cl. 197—151 **3 Claims**



A typewriter ribbon is carried by a ribbon lifter and advanced therethrough in response to the movement of the ribbon lifter. The ribbon is frictionally engaged for advancement by a drive roller carrying a coiled clutch spring and rotational movement is imparted to the drive roller by an actuating linkage connected to the ribbon lifter and having a pair of spaced-apart abutments for engaging a free end of the clutch spring. Movement of the actuating linkage in one direction constricts the clutch spring and rotates the drive roller, while movement of the actuating linkage in a reverse direction enlarges the clutch spring to effect relative rotational movement with the drive roller. The advancement of the ribbon in response to the movement of the ribbon lifter is selectively controlled by adjusting means for varying the distance between the pair of spaced-apart abutments of the actuating linkage.

3,834,512
CORRECTION TAPE ATTACHMENT FOR TYPEWRITERS

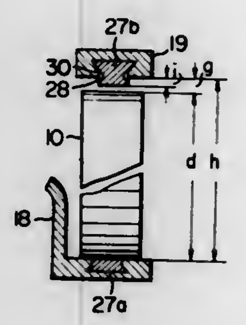
Dorothy E. Haugen, Minnetonka Mills, Minn., assignor to Efficiency Products Company, Minnetonka Mills, Minn.
Filed July 14, 1972, Ser. No. 272,078
Int. Cl. B41j *29/16*
U.S. Cl. 197—181 **8 Claims**



A typewriter attachment presenting correction tape in the strike area of the type and between the ink ribbon and the platen, the attachment having supply and take-up spools on the frame which is a thin strip of stiff sheet metal fitted onto a substantially flat paper guide; and also having an operating lever to alternately raise the correction tape into the strike area of the type and then return the tape below the strike area and simultaneously advance the tape to locate a fresh portion of the tape adjacent the strike area for subsequent use.

3,834,513
GUIDE RAIL MEANS

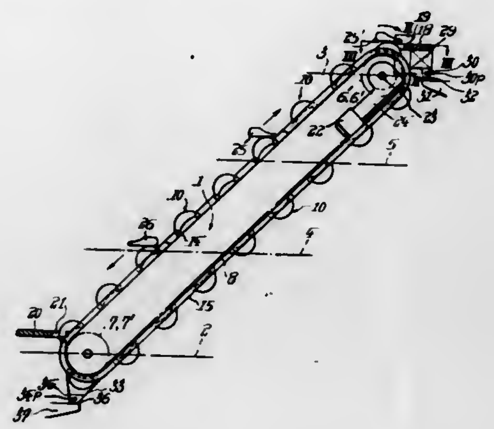
Masaki Miura, Katsuta; Ken Ichiryu, Mito, and Hayashi Nakazawa, Katsuta, all of Japan, assignors to Hitachi Ltd., Tokyo, Japan
Filed Dec. 13, 1972, Ser. No. 314,535
Claims priority, application Japan, Dec. 20, 1971, 46-102716; Mar. 8, 1972, 47-23182; Mar. 8, 1972, 47-2319
Int. Cl. B66b *9/12*
U.S. Cl. 198—16 R **28 Claims**



Guide rail means on which wheels travel, characterized by the provision of elastic members for absorbing impact forces occurring in contact engagement of said wheels with the cooperating guide rails, said elastic members being disposed along the respective surfaces of the guide rails as projecting slightly beyond said surfaces of the guide rails, so that only after the impact forces of the wheels having been absorbed by said elastic members, the wheels are adapted for direct contact engagement with the cooperating guide rails to finally be conducted substantially by the guide rails.

3,834,514
ESCALATOR

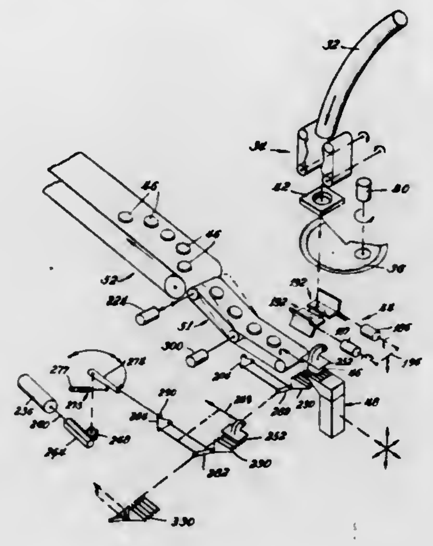
Moritomo Wakamatsu, Yokohama, Japan, assignor to Nihon Algonquin Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 2, 1973, Ser. No. 320,276
Int. Cl. B66b *9/12*
U.S. Cl. 198—16 **1 Claim**



A portable escalator for use in a structure, such as a cargo hold of large ships, comprising a number of step means pivotally mounted one after the other on a pair of endless chain members each entrained about two sprocket wheels which are rotatably mounted on a main frame of the escalator respectively at each end thereof. Either one of the two sprocket wheels is operatively connected to a suitable actuating power source. Each of step means includes a desired number of crescent-shaped vertical plates spaced one from each other similarly to comb teeth so as to eliminate the need of feathering action of each step means during operation even when the portable escalator is used at different inclinations.

3,834,515
RAPID ACTION ARTICLE TRANSFER APPARATUS

Miles S. Bajcar, Palos Hills; Gary Leonard Wallace, Oak Lawn, and John J. Linehan, Arlington Heights, all of Ill., assignors to Chemetron Corporation, Chicago, Ill.
Filed Sept. 28, 1972, Ser. No. 293,157
Int. Cl. B65g *47/00*
U.S. Cl. 198—27 **9 Claims**

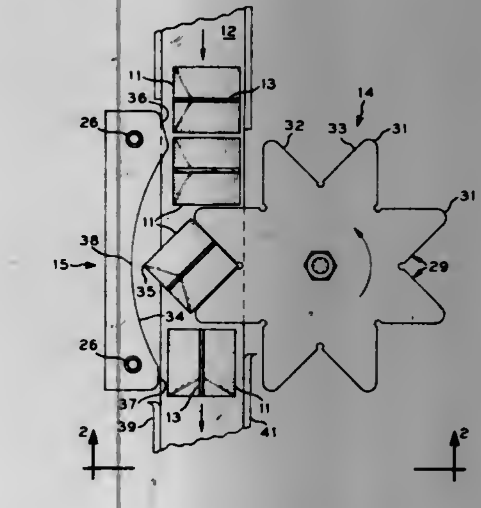


Apparatus for rapidly transferring successively deposited groups of material such as sliced food product from a platform such as a scale platform to a conveyor or the like. The platform is provided with a plurality of slots to accommodate the fingers of a pickup platen which moves upwardly to pick up material on the platform and after pickup moves laterally away from the platform to deposit the material at a remote location on a downward stroke. After depositing the material the platen moves back toward the platform for the next pickup

and thus travels in a repetitive pattern resembling a parallelogram for each pickup of material. A stop member is provided to move with the platen and prevent the material from jumping off the platen during pickup and lateral movement away from said platform.

3,834,516
APPARATUS FOR ROTATING ARTICLES ON A MOVING CONVEYOR

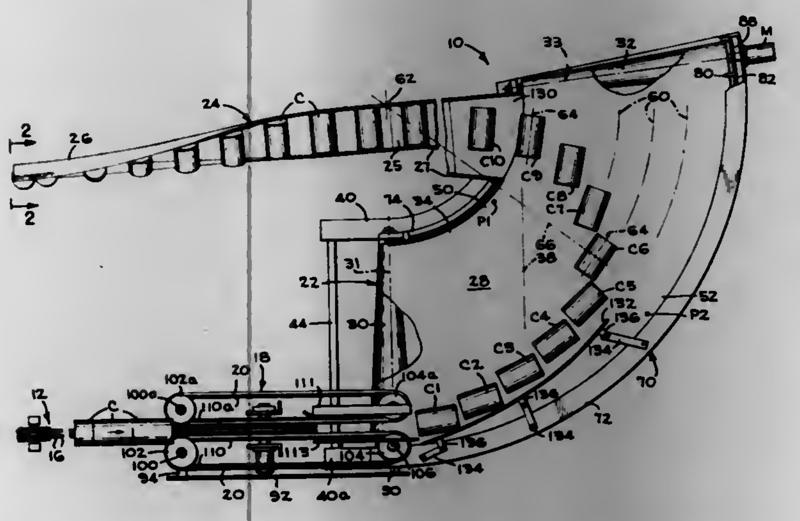
Eugene F. Reeser, Hicksville, N.Y., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Jan. 2, 1973, Ser. No. 320,499
Int. Cl. B65g *47/24*
U.S. Cl. 198—283 **8 Claims**



A star wheel and a cam element are mounted on opposite sides of a conveyor belt so that articles being transported by the belt engage the star wheel, causing the rotation of the star wheel and the article. The cam element forces the article to remain in engagement with the star wheel until the article has been rotated substantially 90°.

3,834,517
HIGH SPEED CONTAINER ORIENTING MECHANISM

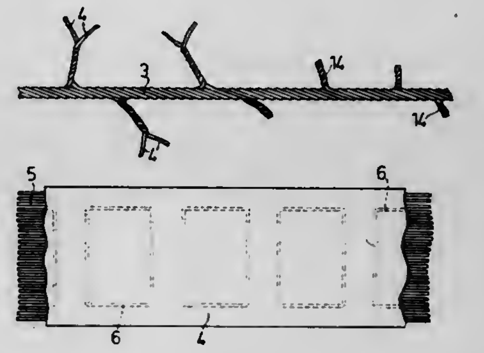
James L. Reimers, Saratoga, Calif., assignor to FMC Corporation, San Jose, Calif.
Filed Jan. 22, 1973, Ser. No. 325,680
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 AC **3 Claims**



An orienting mechanism including an inclined endless belt having inlet and outlet paths substantially 180 degrees apart for reorienting cylindrical containers of steel, glass, aluminum, etc., delivered in end to end abutting relation, for discharge in single file upright position, at relatively high rates; the containers do not impact one another, or any fixed structure. This preserves seal integrity and assures that the sterile environment of the product is maintained.

3,834,518
ELECTRICAL CONDUCTOR ELEMENT FOR CHECKING POSSIBLE DAMAGE TO CONVEYOR BELTS, AND CONVEYOR BELT EQUIPPED WITH SUCH CONDUCTOR ELEMENT

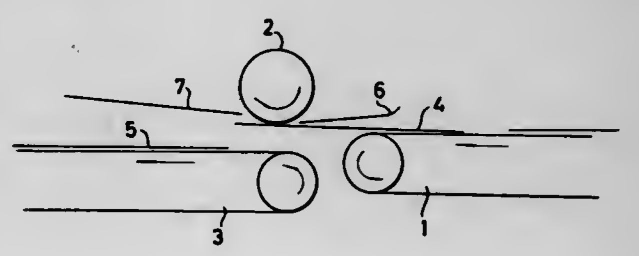
Hans Specht, Northeim; Bruno Kroll, Ronnenberg, and Alfred Gruttner, Harenberg, all of Germany, assignors to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany
Filed Oct. 2, 1973, Ser. No. 402,748
Int. Cl. B65g *15/30*; H01b *5/08*; B65g *43/02*
U.S. Cl. 198—40 **10 Claims**



An electric conductor element for insertion into a conveyor belt for checking possible damage thereto, such as slits and cracks, which includes a metallic wire cable comprising a plurality of wire strands and being shaped in the form of a loop while having its ends spliced together over a length of from one-twentieth to approximately one-tenth of the circumference of the finished loop. The spliced strand ends are twisted to each other and protrude laterally from the remainder of the conductor element. The invention also includes a conveyor belt of elastomeric material having reinforcing strength carriers extending in the longitudinal direction of the belt and spaced from each other in a direction transverse to the longitudinal direction of the belt, while a plurality of loop-shaped conductor elements of the above-mentioned type are imbedded in the belt and located in a plane at least approximately parallel to the surface of the belt and in spaced relationship to the strength carriers, said loop-shaped conductor elements being distributed over the length of the belt in spaced relationship to each other.

3,834,519
MAGNETIC CONVEYOR

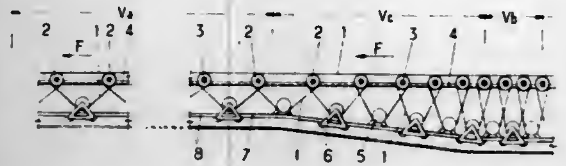
Yoshio Kitazawa; Ikuji Ariyoshi; Masato Nagawa, and Kenji Terai, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan
Filed Apr. 14, 1972, Ser. No. 243,938
Claims priority, application Japan, Apr. 15, 1971, 46-28956
Int. Cl. B65g *47/24*
U.S. Cl. 198—41 **3 Claims**



A magnetic conveyer comprising a pair of pulleys, a belt around the pair of pulleys, a plurality of magnetic rail pieces fixedly arranged inside the belt, and a magnet rail extending across the width of the belt and rotatably supported at a supporting point so that it may taken any desirable angle to the axial line of the conveyer.

3,834,520
VARIABLE SPEED DRIVE SYSTEM

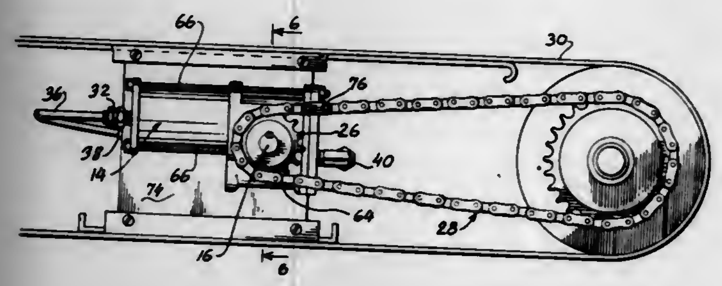
Pierre Patin, 9 rue Nicolas Houel, 75005 Paris, France
Filed June 5, 1973, Ser. No. 367,120
Claims priority, application France, June 30, 1972, 23811, Fraace, Oct. 13, 1972, 36260
Int. Cl. B65g *63/00*
U.S. Cl. 198—110 **19 Claims**



A variable speed drive for moveable elements guided along a trajectory has couplings connecting the elements in pairs. The couplings are formed of deformable polygonal loops having the same constant perimeter. The loops are mounted in tension between at least three linking points are carried respectively by two successive moveable elements and at least one linking point follows a cam arranged along the trajectory. The profile of the cam is such that the moveable element move toward and away from each other in the regions of deceleration and acceleration. Some of the linking points are formed by pivotable and/or slidable members to allow free formation of the polygonal loops.

3,834,521
AIR DRIVE FOR CONVEYOR

Richard A. Rauch, Woodbury; George Camas, Scarsdale, and Elliott Shulman, East Northport, all of N.Y., assignors to CPE Industries, Inc., Queens, N.Y.
Filed May 15, 1972, Ser. No. 252,994
Int. Cl. B65g *23/00*
U.S. Cl. 198—203 **6 Claims**

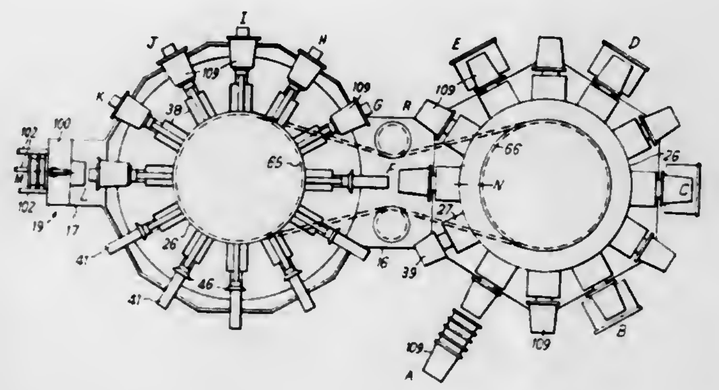


An air drive for a conveyor comprising an air cylinder having air entry ports at each end and a valve to control air flow into the cylinder. The valve is actuated by a cam which is mounted on a crankshaft attached to the piston rod. As the piston reciprocates in the cylinder the cam oscillates, changing the operational position of the valve in accordance with the position of the piston. Also mounted on the crankshaft is a unidirectional clutch which in turn drives a conveyor in interrupted single direction motion.

3,834,522
TAKE OFF AND STACKER FOR CONTAINER PRINTING MACHINE

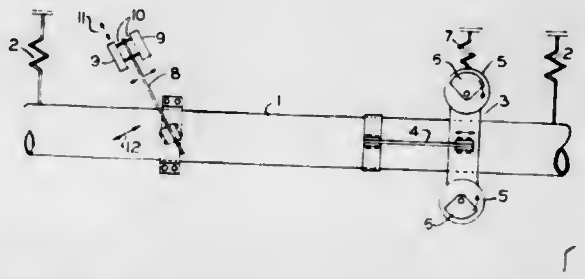
John Maxwell Jackson, Potters Bar, England, assignor to Chromax Limited, Watford, Hertfordshire, England
Filed Feb. 16, 1973, Ser. No. 332,799
Claims priority, application Great Britain, Feb. 17, 1972, 7419/72
Int. Cl. B65g *47/91, 47/52*
U.S. Cl. 198—210 **7 Claims**

A transfer machine which grips containers printed at high speed with volatile ink, holds each container for a period of time sufficient to allow the ink to dry, and then feeds the container into a stacking device. The transfer machine comprises a turret and a plurality of carriages mounted on and spaced around the turret, each carriage being movable radially on the turret and fitted with a suction head for gripping a container. The transfer machine is driven in synchronism with the printing machine so that the turret is indexed to register each carriage in turn with the unloading station of the printing machine and subsequently with the stacking device. Slide blocks on the base of the transfer machine engage the carriages in register with the unloading station and the stacking device at each index position of the turret, and cam mechanism reciprocates the slide blocks so as to move one carriage radially outwards to grip the container at the unloading station and return to the radially inner position carrying the container, and to move the other carriage radially outwards to feed its container into the stacking device. The time delay in transferring each container from the printing machine to the stacking device depends on the number of times the turret is indexed during this transfer.



3,834,523
CONVEYOR GUIDED BY DYNAMIC VIBRATION ABSORBERS

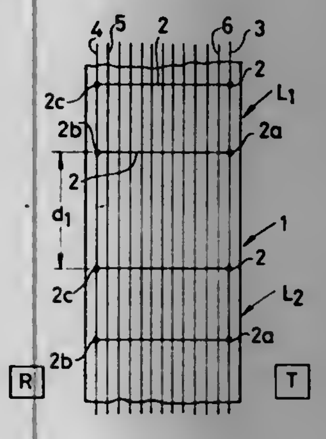
Robley W. Evans, Louisville, Ky., assignor to Rexnord, Inc., Milwaukee, Wis.
Filed Feb. 24, 1972, Ser. No. 229,158
Int. Cl. B65g *27/00*
U.S. Cl. 198—220 CA **1 Claim**



A long slender vibratory conveyor, supported on isolation springs distributed along its length, is vibrated along an inclined path in response to vibratory force transmitted longitudinally through the conveyor and transverse vibratory forces generated by a plurality of dynamic vibration absorbers spaced at intervals along the length of the conveyor and oriented to suppress vibration normal to the desired inclined path. To reduce the effect of the dynamic vibration absorbers, the absorbers have, in the direction of the inclined path, natural frequencies that are substantially different from the operating frequency of the conveyor. In the event the natural frequency of the conveyor, vibrating laterally as a free beam, is near the operating frequency, the spacing of the dynamic absorbers is selected to locate at least some of the absorbers at antinodes of the lateral vibration.

3,834,524
CONDUCTOR LOOPS FOR ASCERTAINING DAMAGE IN STEEL CABLE REINFORCED CONVEYER BELTS

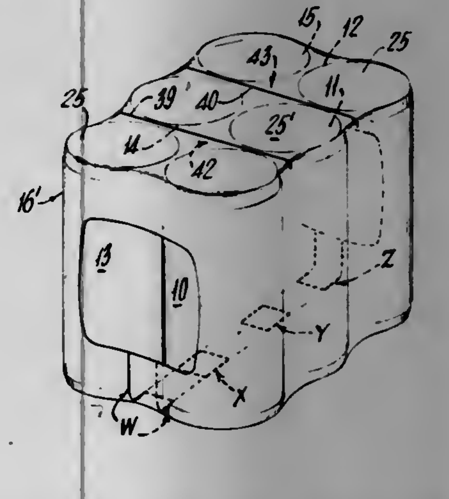
Walter Ratz, Gelsenkirchen, and Willy Laval, Saarbrucken, both of Germany, assignors to Bergwerksverband GmbH, Essen, Germany
Filed May 31, 1972, Ser. No. 258,426
Claims priority, application Germany, July 21, 1971, 2136347
Int. Cl. B65g *43/00*
U.S. Cl. 198—232 **9 Claims**



An arrangement for ascertaining damage in a steel cable reinforced conveyer belt in which a plurality of conductor loops are arranged spaced from each other along the conveyer belt and in which each of the conductor loops is formed by a pair of conductor bridges and portion of two different cables of the belt between opposite ends of the bridges which are respectively electrically and mechanically connected to these cables. Damage of any of these bridges will result in signals in a receiver device outside the belt and electromagnetically coupled with the loops, when the damaged loop is located within the effective range of a transmitter and a receiver device.

3,834,525
SHRINK-PACKAGE CONSTRUCTION

Nicholas V. Morgese, Garnerville, N.Y., and Robert H. Ganz, Saddle River, N.J., assignors to Ganz Brothers, Inc., Bergenfield, N.J.
Filed Aug. 10, 1972, Ser. No. 279,718
Int. Cl. B65d *71/00*
U.S. Cl. 206—161 **3 Claims**

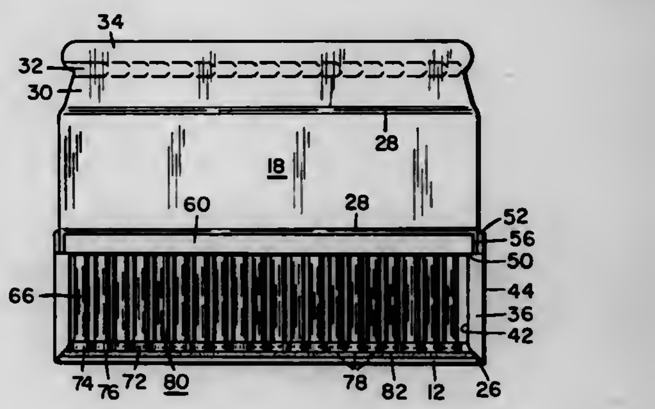


The invention contemplates use of heat-shrinkable plastic film for the packaging of clusters of containers, such as cylindrical beverage cans of a given size, and clustered in a pattern, as in the familiar "2×3 six-pack," for which at least one dimension comprises a plural odd-integer number of containers. As described herein, the film is s circumferential wrap from a sheet, wherein ends of the sheet establish a region of overlap at the bottom of the cluster, the direction of wrap being such as to establish upstanding side panels along clusters sides characterized by the plural odd-integer number. The top panel is characterized by two like parallel slits which are spaced substantially to the extent of the container diameter, the slits extending in the wrap direction and symmetrically straddling the center of the cluster.

By performing the slitting operation after the shrinking operation, there is negligible exposure of the containers to dust or contamination via the slits, yet the slits define a simple and highly effective "handle" for central and correct application of lifting effort, in unit-handling portability of the package.

3,834,526
CONTAINER AND PARTIONING SYSTEM FOR TUBULAR OBJECTS

Anthony R. Zine, Jr., Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Mar. 13, 1972, Ser. No. 234,069
Int. Cl. B65d *85/42, 25/14, 5/22*
U.S. Cl. 206—437 **3 Claims**



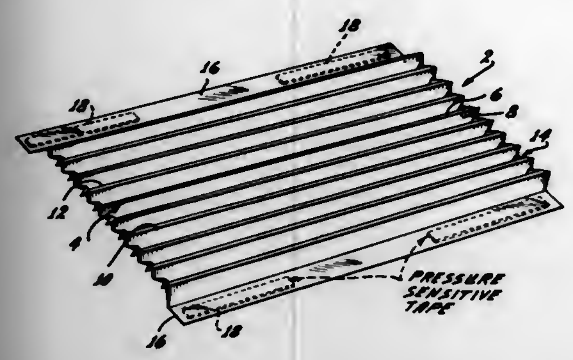
A container and partitioning system for tubular objects including a container structure, partitioning means, a plurality of stoppered tubes and a compression member. The container structure includes opposed side panels, rear panels, a bottom panel, a top panel and a pivotal front panel. The partitioning assembly, housed in the container, includes a partitioning means, having a series of predetermined spaced depressions or apertures, adjacent to the container rear panel, and a plurality of blood collection tube assemblies having a closure with a flanged portion, the diameter of which is greater than that of the collection tube. The partitioning means depressions are adapted to permit the spaced insertion of the collection tube bottom ends, while adjacent ones of the parallel tubes are adapted to abut on the peripheral surfaces of their flanged portions, thus permitting spaced partitioning of the collection tube assemblies. The compression member, preferably of resilient material, restrains the assemblies against axial movement during shipment thereof.

3,834,527
DISPOSABLE OIL DRIP PAN

Gerald F. Howe, 6510 State, Huntington Park, Calif. 90255
Filed Apr. 27, 1973, Ser. No. 355,068
Int. Cl. B65d *69/00, 85/00;* **F16n** *31/02*
U.S. Cl. 206—494 **5 Claims**

A disposable oil drip pan formed of a stiffened oil-resistant material which includes a plurality of interconnected accordion folds. Each of the accordion folds includes a pair of side walls and a ridge formed at the intersection of the pair of side walls with each accordion fold being movable between a flattened position with the side walls in contacting relation and an open position with the side walls inclined upwardly toward the ridge.

A plurality of valleys are formed in the oil drip pan with each valley being positioned between an adjacent pair of accordion folds. Each valley is formed by the intersection of a side wall of one accordion fold with a side wall of an adjacent accordion fold and foldable gusset closures are positioned at the ends of each of the valleys. The gusset closures are shaped and positioned to close the ends of the valleys with the accordion folds in an open position and to lie flat between adjacent accordion folds when the accordion folds are in a flattened position. Means are also provided to retain the accordion folds in an open position with the oil drip pan positioned on a supportive surface.



3,834,528
CARRIER-BAGS

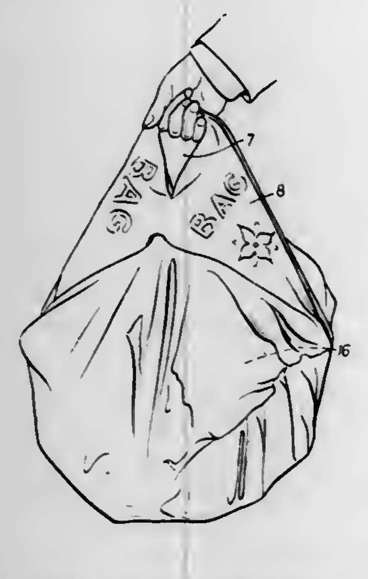
Nigel Evans Pickford, and Henry Charles Deards, both of Welwyn, England, assignors to British Visqueen Limited, London, England

Filed Feb. 22, 1972, Ser. No. 227,807

Claims priority, application Great Britain, Mar. 5, 1971, 6108/71, Great Britain, Apr. 30, 1971, 12342/71, Great Britain, June 10, 1971. 19891/71

Int. Cl. B65d *85/00, 33/02, 33/08*

U.S. Cl. 206—526 **9 Claims**



A carrier-bag formed from a rectangular sheet of flexible material, e.g., plastics film, by securing two opposite edges each in pleated or bunched form, such that goods to be packed may be stacked upon the flat, empty bag and the bag opened out around the goods, and carried by handles provided towards the other pair of opposite edges.

3,834,529
DEVICE AND METHOD OF DENSITY MEASUREMENT AND CONTROL OF FLOTATION SYSTEMS

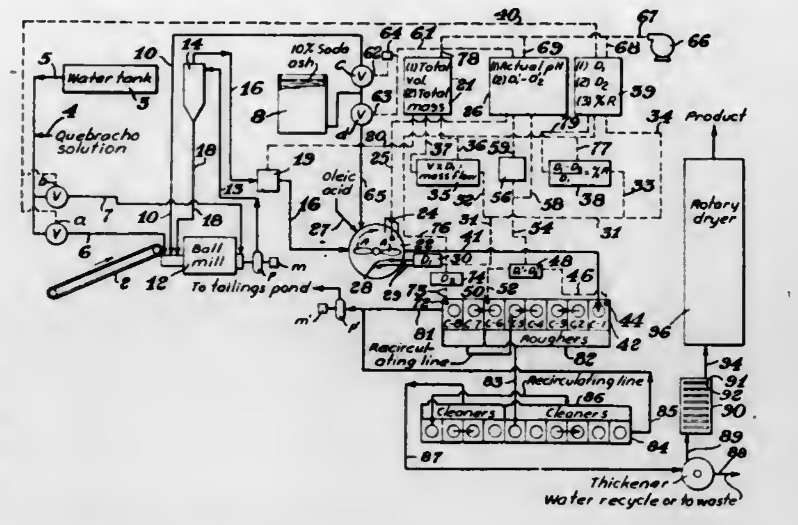
Porter Hart, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jan. 20, 1972, Ser. No. 219,221

Int. Cl. B03b *9/00, 13/00*

U.S. Cl. 209—1 **8 Claims**

Two open-end tubes are vertically immersed, open-end down at substantially the same level, one near the place of entrance of a liquid in process in a series of treating vessels and the other near the outlet of the liquid whereby densities of the liquid at the respective locations are measured by means of a suitable pneumatic assembly, the density values are translated to and recorded as a pneumatic pressure differential and the pneumatic pressure differential is either (1) automatically converted to and recorded in meaningful values and the indicated adjustments manually made to restore and tend to maintain the optimum density differential, or (2) directed to an optimizer whereby optimum adjustments are automatically made to restore and tend to maintain a maximum density differential. Where a fluctuating level of liquid exists, two probes immersed at different depths to define a fixed stratum may be used in cooperation to obtain one density value.



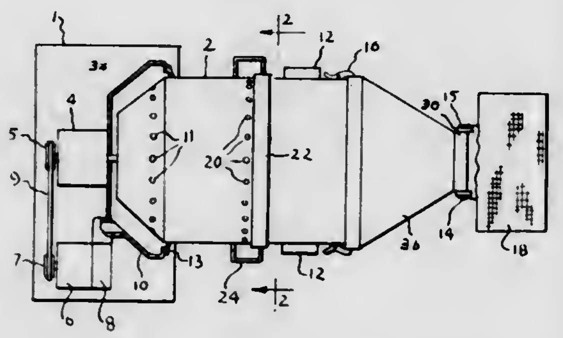
3,834,530
PERMANENT WAVE HAIR ROLLER WASHER

Verna S. Bell, 6707 Concord Hill, Louisville, Ky. 40228

Filed Nov. 7, 1972, Ser. No. 304,405

Int. Cl. B07b *4/06*

U.S. Cl. 209—3 **4 Claims**



An apparatus for washing permanent wave hair rollers and method for using same wherein prior to washing said rollers wave solution saturated papers are removed therefrom in the washer which is in the form of a rotating drum through which a blast of air is forced. Baffles cause the curlers to fall into the air stream so that the curlers' papers are driven into an exhaust cannister.

3,834,531
MEMORY DEVICE

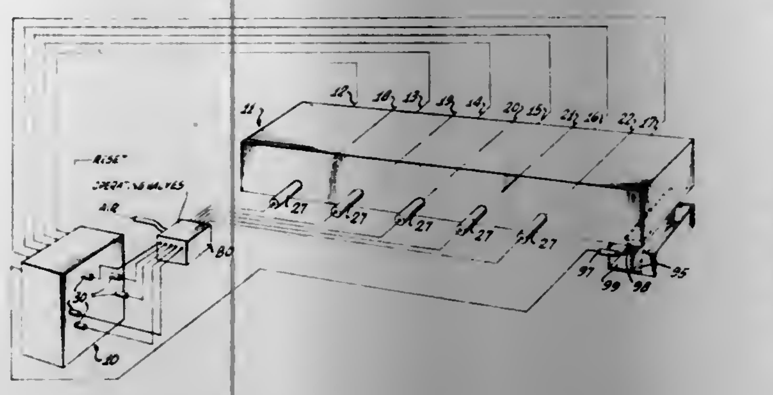
Johannes Bollerup, El Monte, Calif., assignor to Anja Engineering Corporation, Monrovia, Calif.

Filed Apr. 27, 1973, Ser. No. 355,165

Int. Cl. B07c ; H01h *43/00*

U.S. Cl. 209—74 M **21 Claims**

A memory device and a method for selectively controlling the processing of articles in an automated machine performing a sequence of processing steps on the articles as they are moved through successive work stations on the machine. A wheel carries a number of uniformly spaced pins around its circumference, and is indexed in unison with the processing machine, each article being associated with a corresponding pin for the sequence of processing steps. A pin is moved to a new position with respect to the wheel on detection of an abnormality in the corresponding article; and is subsequently detected as being in this new position by appropriately disposed microswitches coupled to mechanisms to control subsequent processing steps on the abnormal article.



3,834,532
DEVICE FOR TRANSPORT AND GAUGING OF MECHANICAL PIECES PARTICULARLY USED ON AUTOMATIC MEASURING MACHINES

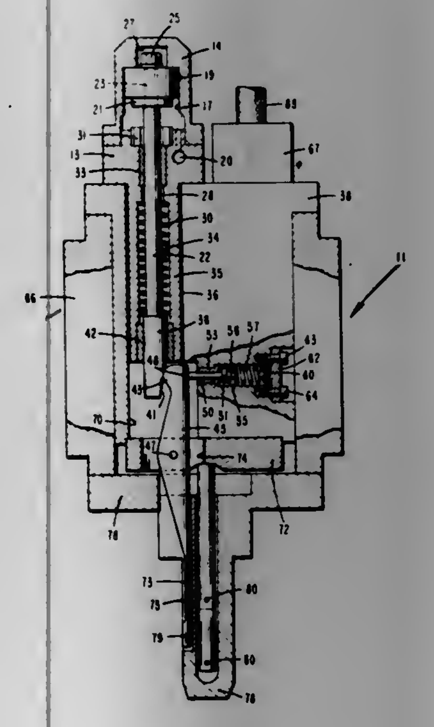
Sergio Solaroli, Bologna, Italy, assignor to Finike Italiana Marposs-Soc. In Accomandita Semplice di Mario Possati & C.

Filed May 9, 1973, Ser. No. 358,596

Claims priority, application Italy, May 9, 1972, 3419/72

Int. Cl. B07b *13/04*

U.S. Cl. 209—82 **4 Claims**



A device for transporting and size gauging of mechanical pieces which includes a mechanical arm for the support and displacement of a piece grasping and measuring unit which is constituted of a measuring means defining a plug with feelers and a grasping unit formed of grasping elements movable by corresponding operating means to an operating position and back to a rest position. The grasping elements are composed of at least one shaped rod pivoted on a plug supporting shell and having an end inserted in the plug provided with mechanical piece hooks facing an opening of the plug with the rod cooperating with a first pushing element to pivot into contact with the mechanical piece. The rod also cooperates with a second pushing element which biases the rod to a position of rest.

3,834,533
CONCENTRATION OF OXIDE COPPER ORES BY FLOTATION SEPARATION

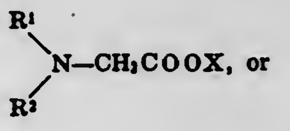
Stephen E. McGuire; John C. Stauter, and Carl D. Kennedy, all of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed Sept. 11, 1972, Ser. No. 288,200

Int. Cl. B03d *1/02*

U.S. Cl. 209—166 **9 Claims**

Oxide copper ores in subdivided form may be concentrated in a flotation separation process by slurrying said ores in an aqueous solution of a flotation reagent followed by generating gas bubbles in the slurry to float the oxide copper and recovering the concentrated oxide copper from the surface of the slurry, wherein the floatation reagent is

(I) 

$$\begin{matrix} R^1 & \\ & N{-}CH_2COOX, \text{ or} \\ R^2 & \end{matrix}$$

II. condensation reaction products of
- A. polybasic amines of the structure $H_2N(CH_2CH_2NH)_nH$, and
- B. organic halides of the structure R^2Y

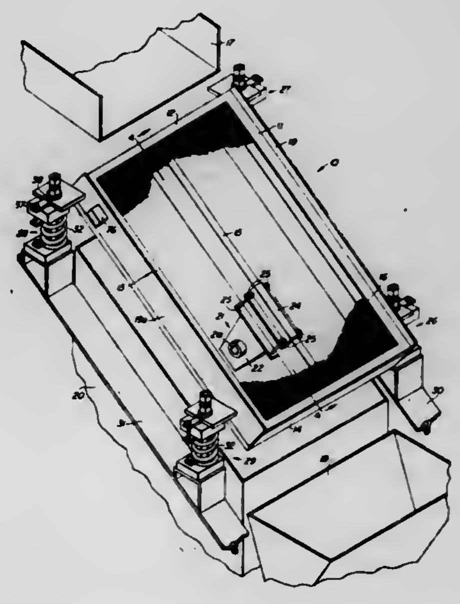
3,834,534
VARIABLE MODE VIBRATORY SCREEN

Thomas D. Peterson, and Ralph W. Crosser, Jr., both of Salt Lake City, Utah, assignors to Kennecot Copper Corporation, New York, N.Y.

Filed Dec. 20, 1971, Ser. No. 209,629

Int. Cl. B07b *1/28, 1/42*

U.S. Cl. 209—326 **6 Claims**



A variable mode vibratory screen for screening and conveying particulate matter and for varying the mode of vibration during the screening operation preferably includes a frame, screen cloth mounted on the frame, and springing means attached to the frame for resiliently supporting the frame on a load-bearing surface. Means for imparting vibratory motion to the screen is mounted on the frame, preferably on a longitudinal structural member extending the length of the underside of the frame. Control means connected to the vibratory means varies the vibratory mode of the screen during operation. The mode can be varied between high frequency, low amplitude vibration and high amplitude, low frequency vibration to effect optimum screening efficiency and high acceleration of the particulate matter across the surface of the screen. The vibrational modes can be varied, for example, by automatic sequencing through a preselected series of modes, or by a sensing device which senses any lessening of the amplitude of vibration caused by the build-up of particulate matter on the screen and signals a control mechanism to change the vibrational mode.

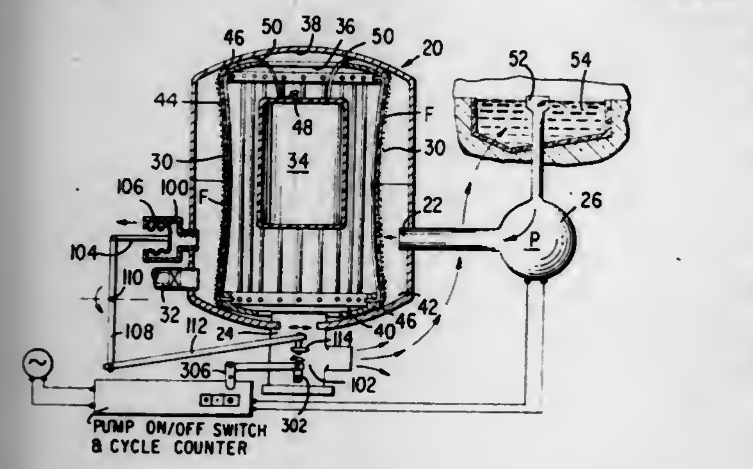
3,834,535
SWIMMING POOL FILTERING SYSTEM

Raymond E. Portyrata, North Haven, Conn., assignor to Diaclear, Inc., Hamden, Conn.

Filed Aug. 9, 1972, Ser. No. 279,281

Int. Cl. B01d *37/02, 23/24*

U.S. Cl. 210—75 **11 Claims**



A filtering system is disclosed including a filter tank, a pump for directing liquid through an inlet into the tank and a liquid outlet formed for directing liquid from the tank to a swimming pool, or the like. A particulate filter may be disposed between the inlet and outlet of the tank and may generally comprise a layer of filter particles disposed on an upstream side of a porous, filter substrate member. Apparatus is included for automatically homogenizing the filter particles with the dirt deposits, captured on and within the filter. The automatic apparatus may include an expansible/compressible member disposed adjacent the filter substrate on a downstream side thereof. A valve may be disposed within the outlet of the tank and, upon closing the valve and operating the pump to force water through the inlet, the expansible/compressible member may be compressed to within a fraction of its original volume. The pump may then be suddenly shut off so as to cause the expansible/compressible member to suddenly expand, to force water in an upstream direction through the filter substrate, so as to knock the filter particles off the substrate and to generally evenly mix (homogenized) filter particles with the captured dirt.

A waste outlet may be provided, and, upon the completion of a desired number of automatic homogenizing cycles, the waste outlet may be opened and the pump used to pump all the dirt carrying filter particles out through the waste outlet. Thereafter, new filter particles may be transmitted through the pump to the upstream side of the filter substrate.

3,834,536
AEROBIC WASTEWATER TREATMENT APPARATUS

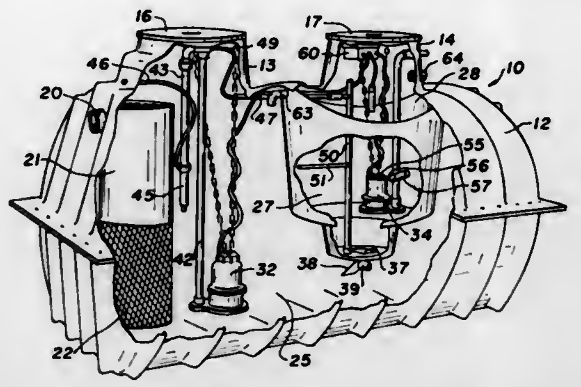
Harley E. Kelsey, North Vancouver, British Columbia, Canada, assignor to Northern Purification Services, Ltd., North Vancouver, British Columbia, Canada

Filed Oct. 10, 1973, Ser. No. 405,156

Int. Cl. B01d *21/24*

U.S. Cl. 210—104 **19 Claims**

Apparatus for treating wastewater including a settling chamber within an aeration chamber, a valve-controlled outlet at the bottom of the settling chamber, a pump for directing liquid from the aeration chamber into the settling chamber, a pump in the settling chamber for directing supernatent liquid out of the apparatus, and control means for the pumps to operate said pumps sequentially to direct liquid from the aeration chamber into the settling chamber, and after a predetermined settling period, to pump supernatent liquid out of the latter chamber. The apparatus includes valve means at the bottom of the settling chamber operable to discharge sludge therefrom.



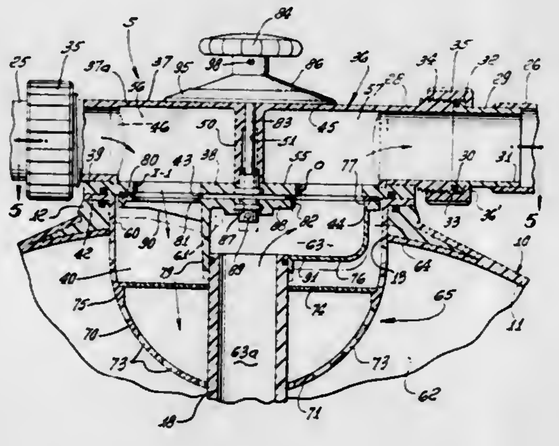
3,834,537
HIGH THROUGHPUT FILTER HAVING MULTIPOSITION VALVE

James E. Brett, Redondo Beach, Calif., assignor to Purex Corporation, Ltd., Lakewood, Calif.

Continuation-in-part of Ser. No. 305,172, Nov. 9, 1972,. This application June 29, 1973, Ser. No. 375,010

Int. Cl. B01d *23/24*

U.S. Cl. 210—136 **21 Claims**



Filter for swimming pool water in which multiple operational modes including filtration, backwash and rinse modes are achieved with a valve structure affording positive sealing during operation, positive locking into mode, and adjustment between modes without frictionally wearing critical seals in the valve, and positive sealing at the waste discharge against air flow into the filter. The filter valve structure further employs large ports and direct flow passages to provide low pressure drop, even at very high flow rates through the filter, and a novel water distributor to avoid turbulence and undue disruption of the filter medium during filtration.

3,834,538
FLOATING ANTI-POLLUTION APPARATUS

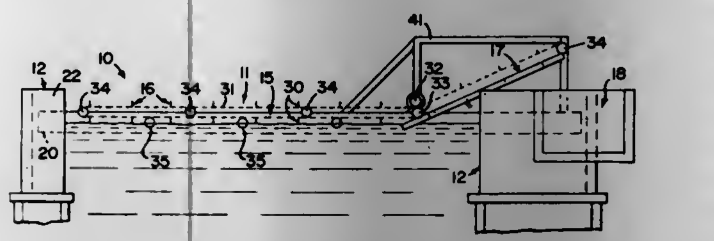
Joseph Richard Laman, Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Oct. 10, 1972, Ser. No. 296,411

Int. Cl. B01d *33/00;* E02b *15/04*

U.S. Cl. 210—154 **1 Claim**

Floating apparatus to be anchored across a polluted stream to skim the water and collect the debris. The apparatus includes a floating boom anchored within abutments by means which also provide barrier seals. The upstream side of the boom presents a baffle surface. Adjacent the baffle surface a series of paddle means skim the water and collect the debris. At one end of the boom the paddle means traverse a ramp. The coaction of paddle means against the ramp moves skimmed liquids and collected debris to a sump.



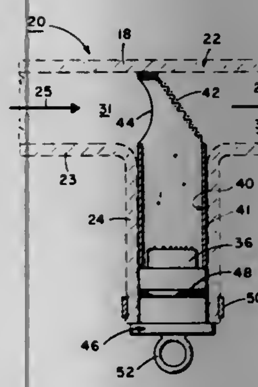
3,834,539
TRAP FOR REMOVING SOLID PARTICLES FROM A LIQUID CIRCULATING SYSTEM

Claude W. Thompson, 654 Shawnee, Houston, Tex. 77034

Filed Dec. 26, 1972, Ser. No. 318,140

Int. Cl. B01d *29/36*

U.S. Cl. 210—167 **2 Claims**



This invention relates to a trap for removing solid particles from a liquid flowing in a conduit. The trap comprises a filter element disposed across the conduit at an angle sloping rearwardly with respect to the direction of liquid flow in the conduit. A receptacle communicates with the conduit rearwardly adjacent to the lower end of the filter element.

3,834,540
COMBINED APPARATUS FOR THE BIOLOGICAL PURIFICATION OF WASTE WATERS

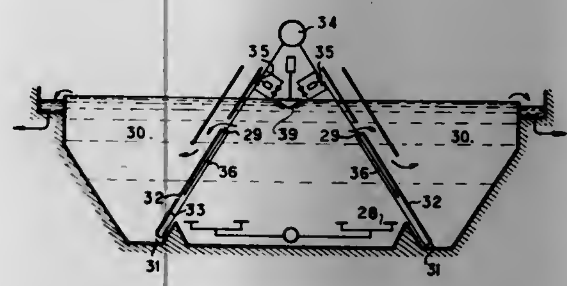
Jacques J. P. Bernard, Saint Germain en Laye, France, assignor to Degremont, Societe Generale D'Epuration et D'Assaninissement, Rueil-Naimaison, France

Filed Jan. 3, 1972, Ser. No. 214,794

Claims priority, application France, July 20, 1971, 71.26465

Int. Cl. C02c *1/08*

U.S. Cl. 210—195 **1 Claim**



Combined apparatus for the biological purification of waste waters by means of activated sludges, which comprises at least two coupled clarification tanks which are in communication with an aerator tank as well as means for recycling the settled sludges coming from the clarification tanks into the aerator tank, characterized by the fact that the means for recycling the settled sludges consist of air pumps of the "air-lift" type which discharge into the aerator from each of the clarifiers and which are fed with air with a pulsating intermittent flow, alternating in each of the clarifiers, which causes a pulsating recirculation of the settled sludges, alternately from each of the clarifiers towards the aerator. The air-lifts are so developed that they have a base which is flared with respect to their top, said base constituting the orifice thereof for the drawing in of settled sludges which are to be recycled.

3,834,541
APPARATUS FOR THE SEPARATION OF SUSPENDED SOLIDS FROM LIQUIDS

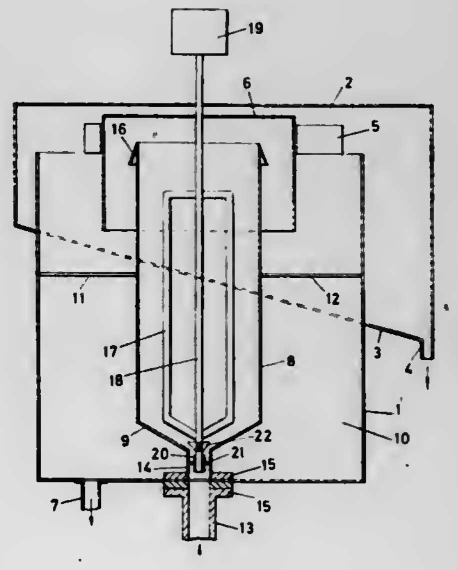
John Trethowan Rundell, Keston, and Paul Richmond Pottage, Stockton, England, assignors to Tate & Lyle Limited, London, England

Filed June 19, 1972, Ser. No. 263,785

Claims priority, application Great Britain, June 22, 1971, 29223/71

Int. Cl. B03d *1/24*

U.S. Cl. 210—219 **8 Claims**



Apparatus for separating flocculated solids from a liquid by flotation-clarification comprises: a separator chamber; a flocculator chamber centrally located within the separator chamber; a trough surrounding the top of the separator chamber; liquid inlet means located at the bottom of the flocculator chamber; liquid agitating means located within the flocculator chamber; means allowing floc-containing liquid to flow with minimal agitation from the top of the flocculator chamber into the separator chamber; means for transferring floating flocculated solids from the top of the separator chamber to the trough; and solids outlet means located at the bottom of the trough.

3,834,542
MAGNETIC SEPARATOR AND CONVEYOR

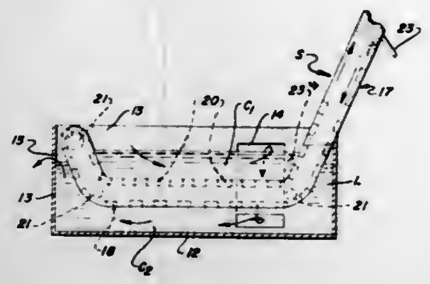
Charles A. Linstruth, Jackson, Mich., assignor to Van Straaten Chemical Company, Chicago, Ill.

Filed Aug. 9, 1972, Ser. No. 279,030

Int. Cl. B01d *35/06*

U.S. Cl. 210—222 **7 Claims**

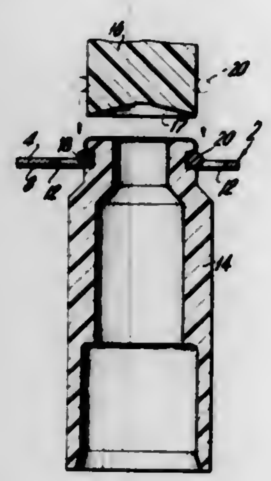
A magnetic separator-conveyor apparatus is provided for removing or separating ferrous matter entrained in a liquid such as cutting oils, machine tool coolants, and the like. The apparatus utilizes a plurality of spaced magnets carried on an endless chain drive or the like, which in turn is mounted for relative movement within an elongated housing having a substantially-non-magnetic elongated slide surface. A portion of the housing adjacent one extremity is normally submerged in the liquid to be magnetically cleansed and the remainder of the housing rises at an angle from the liquid. The ferrous matter in the liquid is magnetically attracted to the submerged portion of the slide surface and moved along the slide surface so as to be elevated out of the liquid as the spaced magnets move relative to the interior side of the slide surface. The normally-submerged portion of the housing features a novel saucer-shaped configuration which in conjunction with the novel double-chamber design of the reservoir for the liquid to be cleansed, increases the active separation surface, provides for double-pass operation and improves separation efficiency.



3,834,543
MEMBRANE MOUNTING ASSEMBLY AND METHOD

Alfred E. Dreves, Scotia, N.Y., assignor to General Electric Company, Milwaukee, Wis.

Filed Sept. 1, 1972, Ser. No. 285,653
Int. Cl. B01d *31/00, 39/16*
U.S. Cl. 210—232 **20 Claims**



There is provided a membrane mounting assembly comprising a frame having a membrane-covered central opening and a selectively rupturable border, e.g., perimeter of perforations in the membrane, within the opening. The membrane is mounted on the open end of a hollow cylindrical structure, such as an electrode holder, without tearing and the need to trim any excess, by centering such an assembly over the structure, fixing the membrane to the open end, e.g., by locking in an annular recess with an annular gasket, and tearing the frame and excess membrane away from the structure along the selectively rupturable border.

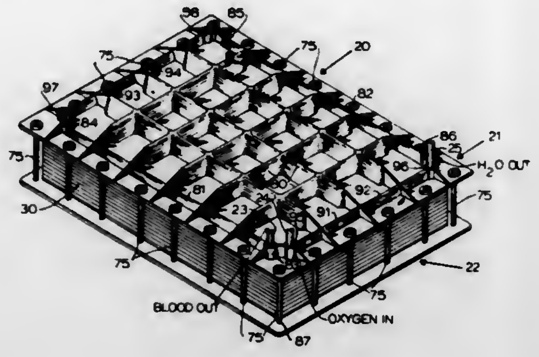
3,834,544
MEMBRANE DIFFUSION APPARATUS

William H. Tyson, Jr., Moraga, and Mogens L. Bramson, San Francisco, both of Calif., assignors to Cutter Laboratories Inc., Berkeley, Calif.

Filed July 6, 1971, Ser. No. 159,589
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **38 Claims**

Membrane diffusion apparatus for use as a blood oxygenator, dialyzer, or for general diffusion or heat transfer purposes.

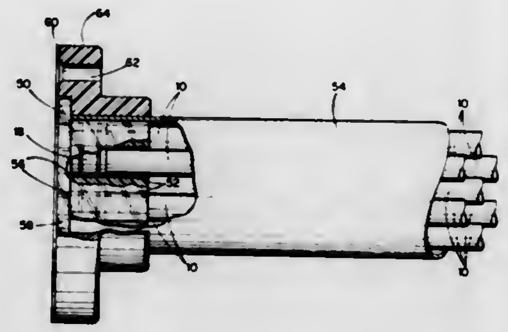
One example is a disposable blood oxygenator comprising a plurality of frames, membranes, and screens which when stacked and clamped together, form cells for a three-fluid system, blood oxygen, and water. Each fluid has frames and membranes, some of which may have shaped identical to those for another fluid, and the frames and membranes are provided with manifold slots for the independent uniform distribution of each fluid to and from its respective fluid system. Similar structures may be used in a three-fluid dialyzer, while a four-fluid system for both oxygenating and dialyzing may employ the same basic principles.



3,834,545
SUPPORTED TUBULAR MEMBRANE

Joseph Del Pico, Brockton, and Edward M. Shea, Saugus, both of Mass., assignors to Abcor, Inc., Cambridge, Mass.

Filed Feb. 20, 1973, Ser. No. 333,804
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **18 Claims**



A tubular membrane is provided, the open end of the tubular membrane having a generally U-shaped elastomeric membrane boot, the inner wall of the boot extending over the semipermeable membrane on the interior of the support tube, the exterior wall of the boot containing two integral gasket ridges, and the membrane boot secured in position to the interior wall of the support tube. The tubular membrane is readily adapted to be installed in a sealing relationship within a singular shell, or within a multitube modular housing in a membrane system.

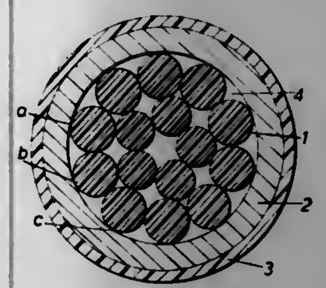
3,834,546
SEMI-PERMEABLE TUBULAR ASSEMBLY

Robert Brun, Vaucluse, and Michel Pages, Ardeche, both of France, assignors to Rhone-Poulenc S.A., Paris, France

Filed May 4, 1973, Ser. No. 357,227
Claims priority, application France, May 5, 1972, 72.16107
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **8 Claims**

A flexible semi-permeable membrane, for fluid separation apparatus, for reverse osmosis, ultra-filtration or gas separation, including a cord comprising a plurality of longitudinally extending yarns forming a core and a knitted woven or braided textile sheath surrounding the core. A semi-permeable membrane surrounds the cord, the core of which communicates with the exterior near at least one of its ends. In the manufacture of the assembly the cord is passed through a

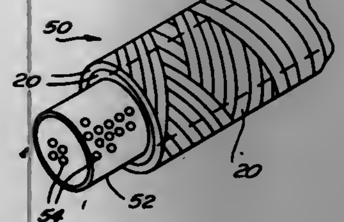
heated cylindro-conical tube to calibrate and smooth the sheath and is impregnated with water. The cord is then coated with a collodion the solvent of which is evaporated to form the semi-permeable membrane and the water is at least partly removed.



3,834,547
FIBROUS PRODUCT

Armen Renjilian, Albany, N.Y., assignor to Albany International Corp., Albany, N.Y.

Division of Ser. No. 264,302, June 19, 1972, , which is a continuation-in-part of Ser. No. 850,747, Aug. 18, 1969,. This application July 16, 1973, Ser. No. 379,320
Int. Cl. B01d *27/00*
U.S. Cl. 210—497.1 **6 Claims**



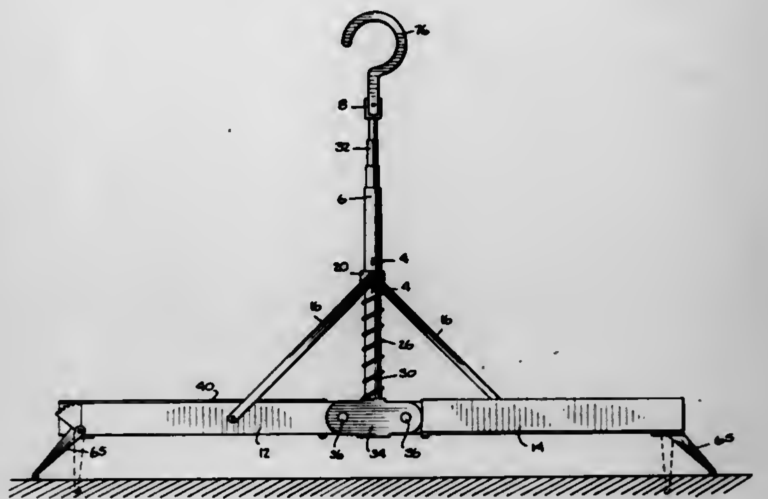
An improved roving capable of being mechanically worked without first forming a yarn is disclosed. The improved roving is in the form of a strand of staple fibers prepared in accordance with customary textile carding process. The formed roving is treated with a resin binder and, when cured, the fibers resemble a reticulated network. The fibers are disoriented and cross over one another at a multiplicity of points to form bonding sites at the cross-over point when the resin is cured, while maintaining the fibers spacially separated between the bonding sites. The thus treated roving is found to have good flexibility and abrasion resistance while providing the roving with unexpected tensile strength, increased elasticity, permeability, void volume and porosity even when the roving is subjected to compressive forces as compared with untreated roving subjected to the same forces.

3,834,548
COLLAPSIBLE SUPPORT UNIT FOR A GARMENT BAG OR THE LIKE

Ethan W. Cliffton, 307 W. 106 St., New York, N.Y. 10025, and Matthew J. Culligan, Polly Park Rd., Rye, N.Y. 10580

Filed Oct. 26, 1972, Ser. No. 301,086
Int. Cl. A47f *5/10*
U.S. Cl. 211—118 **13 Claims**

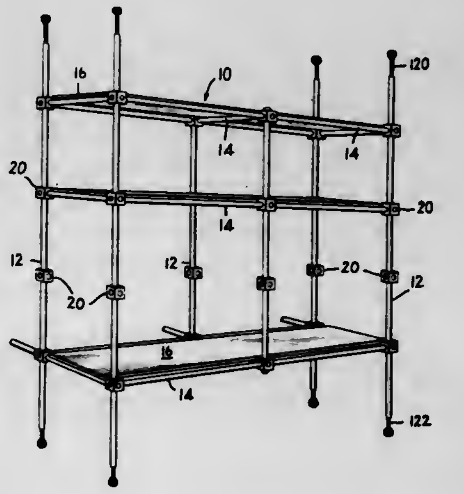
A collapsible support unit for supporting a generally flat object, such as a garment bag, in vertical disposition above the ground. The support unit includes an upright vertical shaft having a connection at its upper end for releasably engaging an upper end of the object to be carried. Two base legs are pivotally connected to the lower end of the shaft and are movably between a retracted position lying against the shaft and an extended position extending generally horizontally, in opposite transverse directions, in which the base legs are adapted to rest on the ground. Two base feet are provided, each being pivotally connected to a free end of an associated one of the base legs. In a folded position each base foot lies against its associated base leg. A mechanism associated with each base foot moves it between its folded position and an unfolded position in which the base foot extends generally horizontally at an outward inclination from its associated base leg, as the base leg moves between its retracted and extended positions, respectively.



3,834,549
STRUCTURAL SYSTEM

Robert J. Burg, Hartsdale, Milton Lieberman, Blauvelt, and Armand A. Fiorenza, Wantagh, all of N.Y., assignors to Gordon Tube Products Company, Inc., Bronx, N.Y., by said Lieberman

Filed Sept. 25, 1972, Ser. No. 291,972
Int. Cl. A47f *5/00*; **F16b** *7/00*
U.S. Cl. 211—148 **21 Claims**



A structural system in which a three-dimensional framework of horizontal stringers and vertical struts are connected in the region of intersection of the struts and stringers by a cube-shaped hollow connector made of two separable complementary connector parts. The connector is provided with socket passages in each of its six sides for receiving the tip ends of the struts and stringers and further has retainer means for preventing withdrawal of horizontal stringers with a fastener being employed within the connector to connect vertical struts received in the connector.

3,834,550
CRANE OVERLOAD SAFETY DEVICE WITH TEMPERATURE COMPENSATION

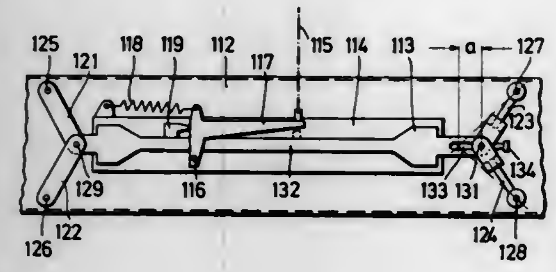
Peter Eiler, Dusseldorf-Benrath, Germany, assignor to Leo Gottwald K.G., Dusseldorf-Holthausen, Germany

Filed Apr. 14, 1972, Ser. No. 244,021

Claims priority, application Germany, Apr. 21, 1971, 2119279

Int. Cl. B66c *13/48*

U.S. Cl. 212—39 MS **9 Claims**



A crane overload safety device including at least one pivoted arm connected to a strain measuring device adapted to be fixed to a loaded part of the crane. The pivoted arm is provided with one or more photocell devices or the like and cooperates with at least one cam disc. The strain measuring device is in the form of a tension rod dynamometer both ends of which are adapted to be attached to the loaded part of the crane by multipoint suspension devices.

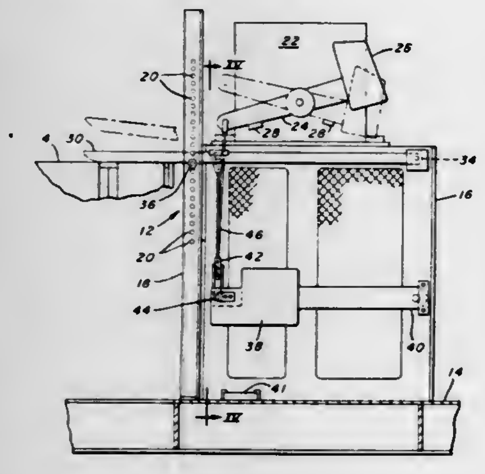
3,834,551
CONTROL FOR CRANE HOIST HAVING A LIFT RAM

John P. Nanowsky, Boardman Township, Mahoning County, Ohio, assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Sept. 27, 1973, Ser. No. 401,315

Int. Cl. B66c *13/50*

U.S. Cl. 212—39 MS **6 Claims**



Device of the invention comprises a limit switch arrangement for positively controlling the upward travel of the lift ram of a crane hoist. The arrangement includes a pivotally mounted sensing arm extending into the path of the ram and connected by means of a cable with the counterweighted actuating arm of the limit switch in the electrical circuit powering the ram-lifting mechanism of the crane hoist. A pivotally mounted elongated counterweight is connected with the intermediate portion of the cable by means of a fitting through which the cable is threaded. The counterweight normally functions to maintain the sensing arm in initial resting position and the actuating arm of the limit switch in position keeping the limit switch closed and current flowing to the ram-lifting mechanism. Means are provided on the cable between the counterweight and the actuating arm to limit movement of the cable through the fitting. In operation, lifting of the sensing arm by the top of the ram as it rises causes lifting of the counterweight and removal of cable-tension from the counterweighted actuating arm so that it may rotate to position causing the limit switch to open and interrupt flow of current to the ram raising mechanism.

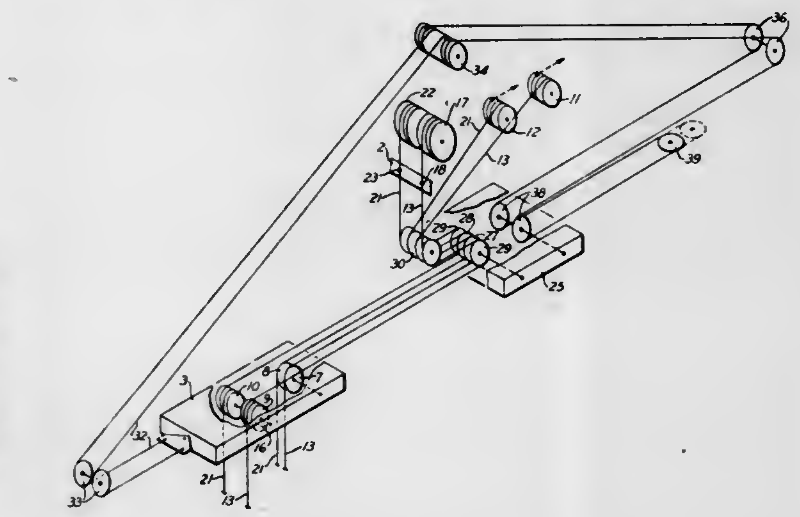
3,834,552
CRANE WITH MEANS FOR REMOVING WORN LINES

Gerard V. Lofink, Coraopolis, Pa., assignor to Heyl Patterson, Inc., Pittsburgh, Pa.

Filed Mar. 21, 1973, Ser. No. 343,373

Int. Cl. B66c *21/00;* **B66d** *1/76*

U.S. Cl. 212—95 **4 Claims**



A trolley, movable along a boom that extends laterally away from a supporting tower, carries anchor drums and vertical sheaves and releasable means normally locking the drums against rotation. Lines wound on supply reels supported by the tower extend out to the anchor drums and around them and then down around sheaves connected with a load carrier below the trolley. From there the lines extend up and over the trolley sheaves and then to power drums at the tower. The lines normally are prevented from unreeling from the supply reels by releasable means, but by releasing all of said releasable means the power drums can withdraw lines from the supply reels to replace with new line the used lengths of line between the anchor drums and the power drums.

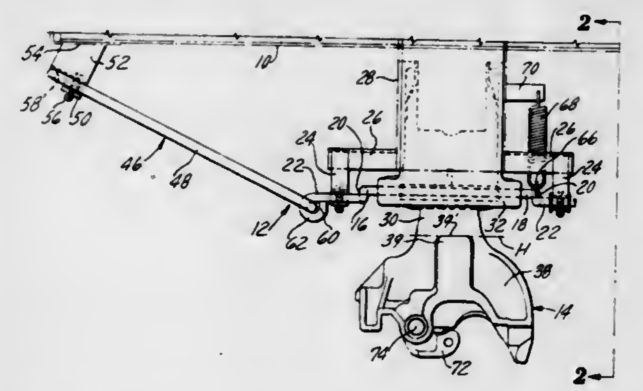
3,834,553
ROTARY OPERATED COUPLER LOCKLIFT MECHANISM

Kenneth L. DePenti, Mayfield Heights, Ohio, assignor to Midland-Ross Corporation, Cleveland, Ohio

Filed Sept. 10, 1973, Ser. No. 395,958

Int. Cl. B61g *3/08*

U.S. Cl. 213—166 **8 Claims**



A bottom rotary operated railway car coupler for actuation by a bail type uncoupling rod mechanism has a rotor lever with an operating arm portion engageable by the bail of the uncoupling mechanism and contoured to not only clear the car underframe without striking it when the coupler is buffed back to its fully buffed position but to also provide sufficient clearance with the underside of the coupler head to enable rotation of the rotor lever to its full knuckle opened position in all positions of the coupler in service.

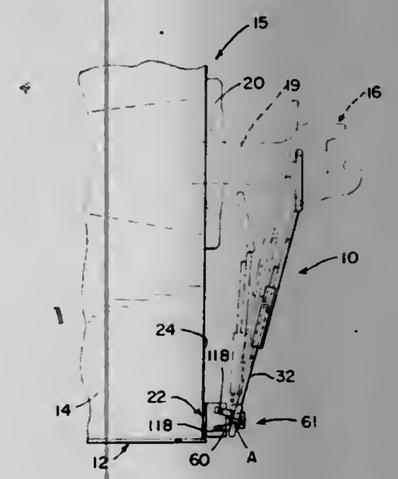
3,834,554
UNCOUPLING LEVER FOR RAILROAD CARS WITH STANDARD DRAFT GEAR CUSHIONING

Osvaldo F. Chierici, Elmhurst, Ill., assignor to Holland Company, Lombard, Ill.

Filed Nov. 1, 1973, Ser. No. 411,742

Int. Cl. B61g *3/08*

U.S. Cl. 213—166 **12 Claims**



An uncoupling lever assembly for railroad cars equipped with standard draft gear cushioning, which lever assembly comprises a handle section and a lock lifter section, each including an elongate rectilinear bar, that are assembled to provide an effective operating length for the assembly that may be extended and contracted as required by coupler side swing and coupler impacts. The handle section bar has an operating handle affixed to one end of same for pivotal connection to the car, the handle section bar being unencumbered the rest of its length and to and through its other end. The lock lifter section bar has a lock lifter rod member affixed to one end of same having a hook eye adapted for a conventional application to the coupler lock lifter, and also has affixed to one side of same adjacent its other end a single channel member that defines a single slideway for the lever assembly in which the handle section bar is slidably received. The lever assembly bars are in side by side relation, with the lock lifter bar channel member slidably mounted on the handle section bar, and the handle section bar projecting through and inboard of the slideway when the coupler is in its neutral centered relation relative to the car. The result is that the portion of the handle section bar projecting inboard of the car from the slideway forms the portion of the adjuster accommodating take up and let out of the effective length of the lever assembly, as is required by coupler side swing and coupler impacts.

3,834,555
ARTICLE TRANSFER APPARATUS

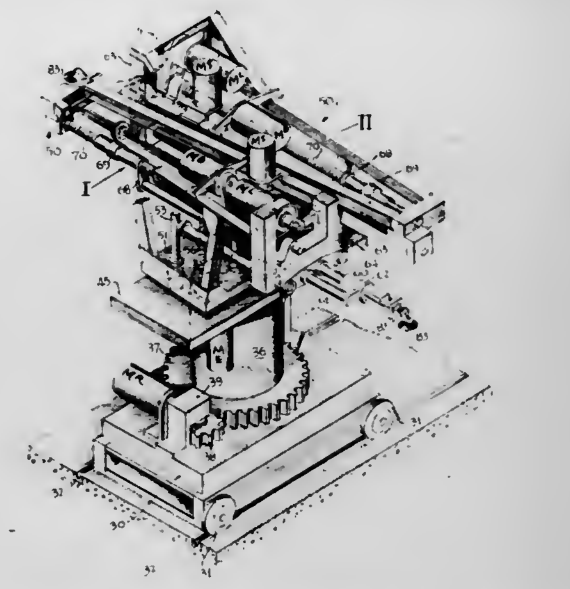
Russell J. Bennington, Maple Glen, and Laszlo G. Szalay, Norristown, both of Pa., assignors to The Budd Company, Troy, Mich.

Filed Dec. 4, 1972, Ser. No. 312,083

Int. Cl. B65g *29/00*

U.S. Cl. 214—1 BT **3 Claims**

Article transfer apparatus which has independent actions subject to programmed teach sequence and programmed teach motions for removing articles from one unit, such as a press, and moving them while positively held by a single engaging element to another fixed location or station, such as another press; the article engaging means having a bending movement, a swivelling movement, a horizontal traversing reciprocating movement, a vertical bodily elevating movement, and a turning movement about a vertical axis. In a preferred embodiment, paired units are employed on a common turning mount to minimize press stoppage time.



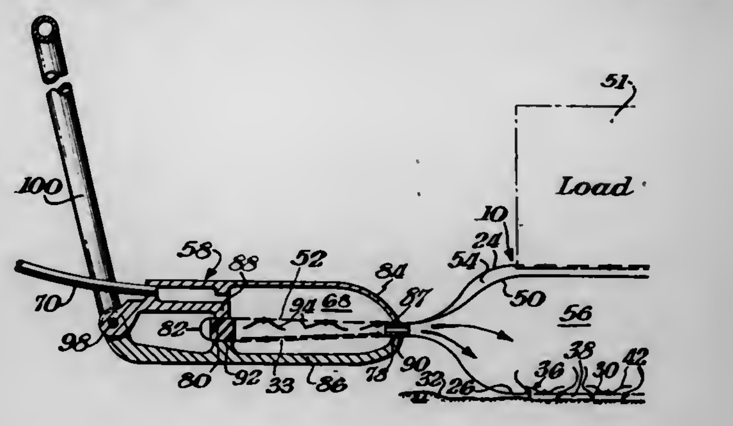
3,834,556
AIR CUSHION PALLET

Arthur G. Crimmins, Wilmington, Del., assignor to All American Industries, Inc., Wilmington, Del.

Filed Feb. 1, 1973, Ser. No. 328,744

Int. Cl. B65g *61/00*

U.S. Cl. 214—1 BE **13 Claims**



A flexible shallow air cushion chamber having valved holes in its upper and lower surfaces provided optional pressurized air cushions between its lower surface and the ground and between it and a load disposed upon its upper surface. Air pressure is optionally supplied to the upper or lower surfaces or to both to facilitate movement over the ground or to slide a load on or off it as required. Air inlet ports are provided through lateral extensions on two sides of the pallet which are grasped by an air-supplying clamp. The inlet ports are check valved, to prevent outward leakage of air if misaligned clamping should occur, by flexible flaps and the lateral sections are reinforced to prevent them from being crushed when they are clamped. The clamp includes a pair of clam shell-shaped jaws with an air hose and traversing rod connected to it. The rod is a handle or a linkage on a forklift truck.

3,834,557
AUTOMATIC HANDLING MACHINES

Julien Devillers, Livry Gargan, France, assignor to Societe C.M.V., Puteaux, France

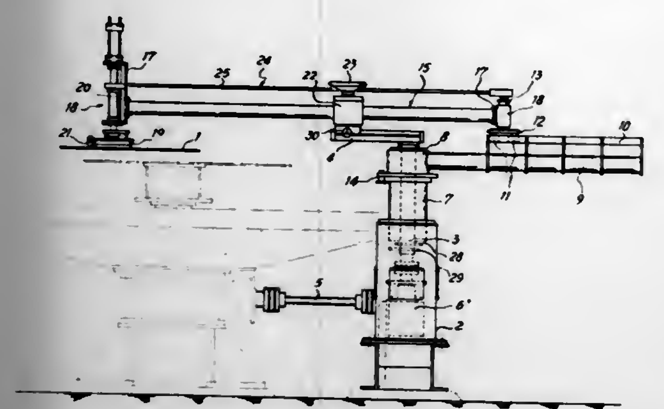
Filed Apr. 3, 1973, Ser. No. 347,382

Claims priority, application France, Apr. 5, 1972, 72.11866

Int. Cl. B66c *1/02*

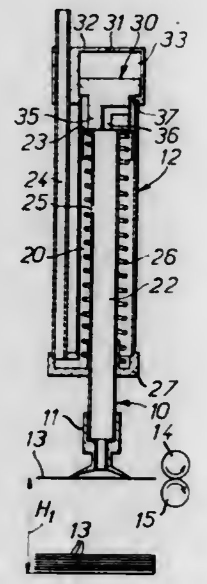
U.S. Cl. 214—1 BH **9 Claims**

An automatic handling machine for transferring objects, for example vehicle windows, from one location to another comprises a horizontal arm pivotally mounted at one end for movement about a vertical axis. The other end of the arm is provided with means, such as a suction cup, for gripping the objects. The pivotal mounting for the arm includes a slide which is translatable in a horizontal direction. A connecting rod is linked to the arm at a point intermediate the ends of the arm and is adapted to turn in a horizontal plane about a fixed axis.



3,834,558
PNEUMATIC ELEVATOR FOR LIFTING A SHEET OF MATERIAL

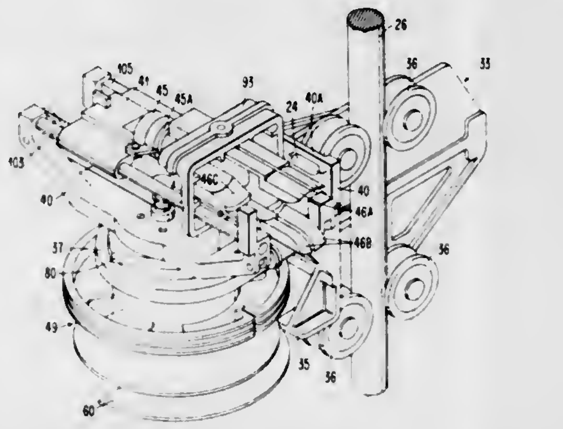
Michel Bru, Chatenay-Malabry, France, assignor to Ets. J. J. Carnand & Forges de Basse-Indre, Boulogne, France
Filed Aug. 6, 1973, Ser. No. 385,653
Claims priority, application France, Aug. 11, 1972, 72.29050
Int. Cl. B65g *59/04*
U.S. Cl. 214—1 BT **8 Claims**



Pneumatic elevator for lifting a sheet of material for introducing it between drive rollers of the type having a tubular piston with a suction nozzle at its distal end displaceable in a cylinder with which it forms an annular space. The piston moves downwards in the cylinder under the force of gravity, its upward movement with the sheet held thereby being assured by a spring. The upward movement is limited by a movable plug to a height corresponding to the position at which the sheet is to be introduced between the rollers. The plug comprising a tubular portion and two laterally extending bearing members. The plug divides the cylinder into three chambers: a first chamber to one side of a first bearing member and the open upper end of the cylinder and communicating with the atmosphere through an air filter to prevent clogging of the chamber, a second chamber to one side of the second bearing member remote from the first bearing member and adapted to communicate directly with the interior of the piston, and third chamber formed about the tubular portion between the first and second bearing members and adapted to be connected to the suction means and communicating with the interior of the piston through the pressure-drop orifice in the tubular portion. The plug acts as valve means for connecting the annular space with the suction means in the upper rest position of the plug and the atmosphere in the lower operating position of the plug. The lifting power of the pneumatic elevator is greatly increased by a substantial reduction in the force exerted upward movement by the spring.

3,834,559
ARTICLE HANDLING APPARATUS

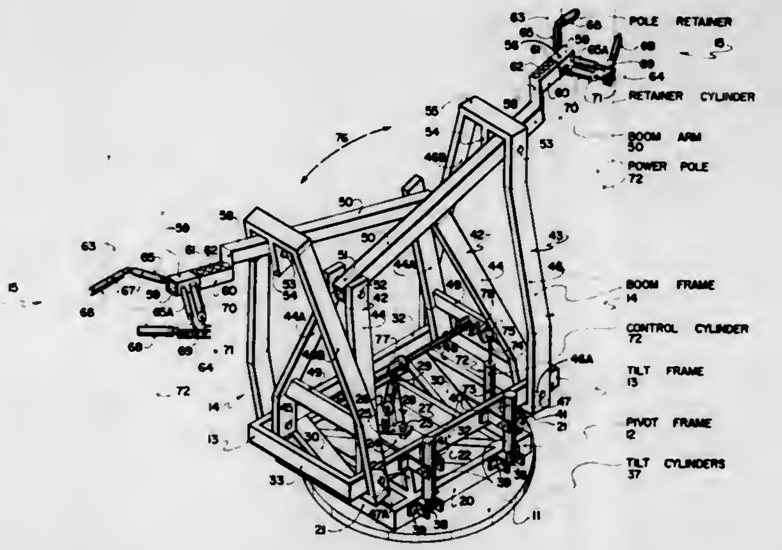
Donald W. Schaffer, Lakewood, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation-in-part of Ser. No. 304,698, Nov. 8, 1972. This application Oct. 23, 1973, Ser. No. 408,716
Int. Cl. B25j *3/00;* **B66c** *1/00*
U.S. Cl. 214—1 BT **5 Claims**



A dual storage wall automatic storage and retrieval apparatus preferably for article storage includes a novel, pivotable, article storage and retrieving device for enabling the orientation of the articles in the storage compartments to remain the same. The article handling mechanism can exchange articles at the ends of the storage arrays. Resilient and spaced-apart guiding fingers facilitate article exchange between a carriage and storage compartment.

3,834,560
POLE HOLDING AND SETTING DEVICE

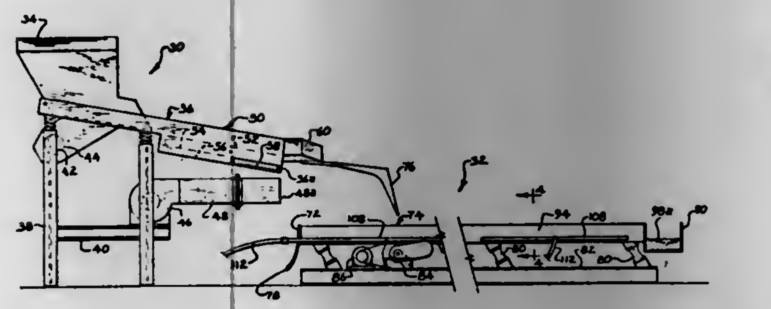
Arthur G. Miller, 165 McNab Cres., Regina, Saskatchewan, Canada
Filed May 8, 1973, Ser. No. 358,333
Claims priority, application Canada, May 11, 1972, 141849
Int. Cl. B66f *11/02*
U.S. Cl. 214—3 **24 Claims**



A frame is mounted on a truck or the like and includes a pair of opposed pole supporting boom assemblies. Means are provided to adjust the relationship between the poles held by the assemblies and to straighten them so that they lie perpendicular to the horizontal. Means are also provided to align one pole with the other prior to tamping them in position in the holes pre-formed in the ground.

3,834,561
METHOD AND APPARATUS FOR SEPARATING WOOD BARK FROM GRAVEL

Gerald W. Crow, 11552 S.W. Lesser Rd., Portland, Oreg. 97219
Division of Ser. No. 362,376, May 21, 1973. This application Dec. 19, 1973, Ser. No. 425,986
Int. Cl. B02c *21/00*
U.S. Cl. 241—24 **1 Claim**

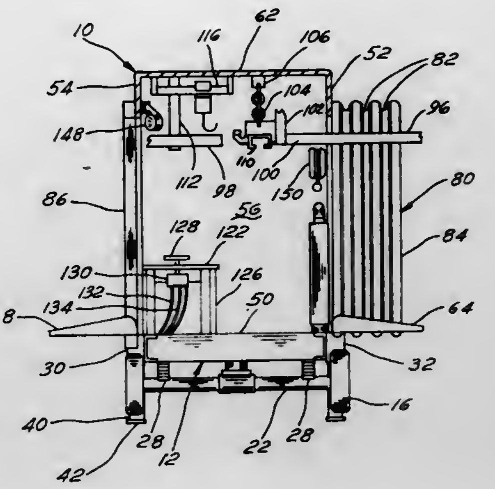


A bark and bedding gravel mixture is dumped into a hopper and moves along an inclined vibratory conveyor onto a screening section which screens limbs and other large chunks of wood from the bark-and-gravel mixture as well as sand-sized particles. The limbs and wood chunks are reduced to chips and stored for later use. The sand is conveyed to an aggregate storage site for reuse as bedding material. The bark-and-gravel mixture is dropped from an outlet of the screening section toward but short of the infeed end of a vibratory conveyor table through an air stream which blows the majority of the gravel and bark onto the table while oversize rocks fall short of the table. The bark-and-rock mixture moves through vibratory action along the table into a gravel channel which is separated from a second, bark channel by a transversely inclined rampway forming a ridge between the two channels. An air stream directed across the gravel channel toward the rampway induces the bark portion of the mixture, which forms a stratified layer over the gravel under vibration, to move up the rampway and into the bark channel as both the bark and gravel travel downstream on the table. Sand is screened from the bark near the downstream end of the bark channel after the bark has been dried. The cleaned and dried bark moves from the downstream end of the bark channel to a hog which reduces the bark chunks to a size suitable for use as fuel. The gravel moves from the downstream end of the gravel channel to the gravel storage area for reuse in bedding a log storage yard.

3,834,562
MOVABLE LOADING DOCK

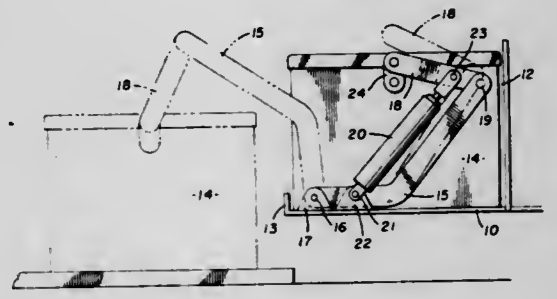
Lyle W. Norrie, Etobicoke, Ontario, Canada, assignor to Swift & Company, Chicago, Ill.
Filed Aug. 22, 1973, Ser. No. 390,516
Int. Cl. B65g *67/02*
U.S. Cl. 214—38 BA **7 Claims**

An intermediate vehicle useful as a loading dock in transferring goods between two transport vehicles comprises an enclosure mounted on wheels and having jacking means and equipped with dock boards and a system of overhead rails extendable from oppositely disposed openings for access to said transport vehicles.



3,834,563
BATTERY CARRIER

John J. Teti, Bluefield, W. Va., assignor to A-T-O Inc., Willoughby, Ohio
Filed Oct. 10, 1972, Ser. No. 296,261
Int. Cl. B60p *1/48*
U.S. Cl. 214—77 R **4 Claims**

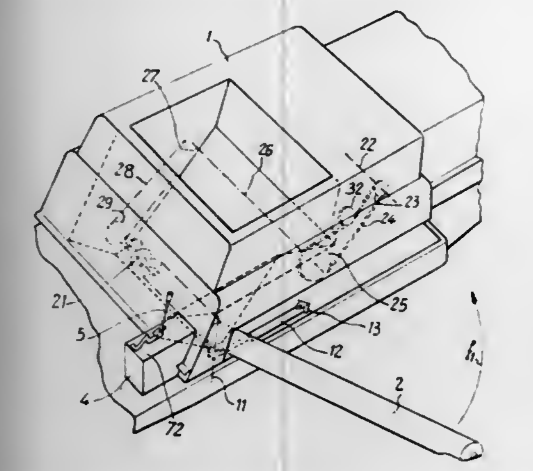


A battery carrier for moving the batteries of mine tractors and the like into and out of a receiving compartment therefor includes pivoted arms having their free ends supporting the battery and power means for moving the arms and the battery carried thereby in an arcuate path with a minimum of vertical travel.

3,834,564
CONTROL DEVICE FOR THE COMBINED OPERATION OF AN UNLOADER TUBE AND AUGER CLUTCH OF A COMBINE HARVESTER

Michel A. Laurent, Villeneuve D'Ascq; Jean M. Lemoine, Wasquehal, and Georges L. Godderis, Croix, all of France, assignors to International Harvester Company, Chicago, Ill.
Filed Oct. 23, 1973, Ser. No. 408,337
Int. Cl. B60p *1/42*
U.S. Cl. 214—83.26 **9 Claims**

A control system for the grain auger and discharge tube of a combine harvester. A single handle may be displaced from a central, neutral position to set the tube to a transport position, or to a work position, and from said work position only to an auger actuating position.



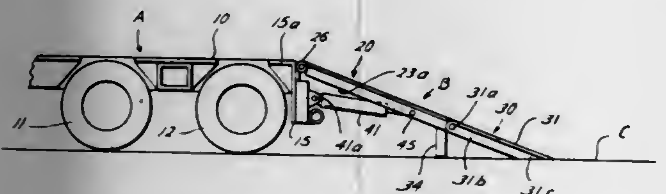
3,834,565
HYDRAULIC LOADING RAMP

Roy S. Goodman, Jr.; Dee Maryon Kirk, and Harvey D. Kirk, all of Denison, Tex., assignors to R. S. Goodman Company, Denison, Tex.

Continuation of Ser. No. 165,123, July 22, 1971, abandoned. This application June 4, 1973, Ser. No. 366,990

Int. Cl. B65g *67/02*

U.S. Cl. 214—85 **1 Claim**



A rectractable runway is pivotally connected to the load bed of a trailer and is extendible to the ground or other load area so that materials including heavy construction equipment, can be moved therebetween.

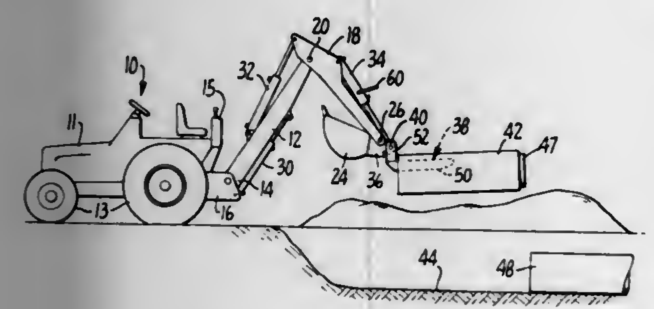
3,834,566
PIPE HANDLING ATTACHMENT FOR A BACKHOE

William K. Hilfiker, Eureka, Calif., assignor to Hilfiker Pipe Co., Eureka, Calif.

Filed Jan. 18, 1973, Ser. No. 324,575

Int. Cl. B66f *9/00*

U.S. Cl. 215—138 R **10 Claims**



A conventional hydraulically actuated backhoe excavator adapted to handle heavy and cumbersome pipe sections by a shaft attached to and extending from the rear of the bucket such that it rotates with the bucket in the plane of the boom and stick without significantly impairing the excavating capabilities of the backhoe.

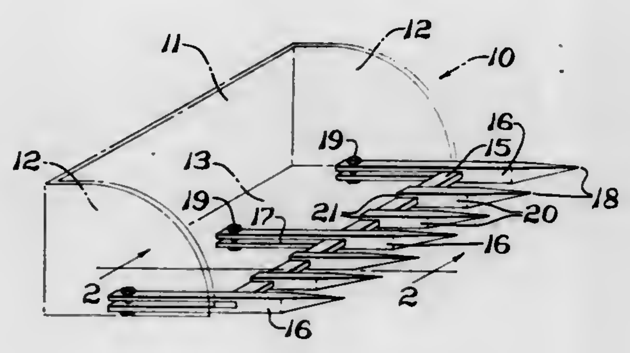
3,834,567
ADAPTER APPARATUS FOR TRACTOR

Joseph Miller, 812 Allyn St., Akron, Ohio 44311

Filed Aug. 8, 1972, Ser. No. 278,709

Int. Cl. E02f *3/70*

U.S. Cl. 214—145 **3 Claims**



An adapter apparatus for the conventional bucket of a tractor or high lift which converts the conventional bucket thereof to a special purpose bucket having a plurality of prongs which handle loose barnyard fertilizer or hay.

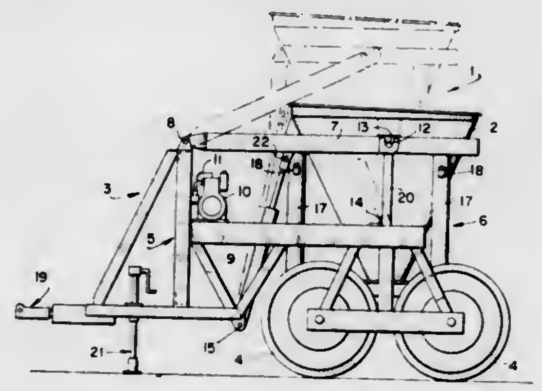
3,834,568
PORTABLE BIN CARRIER ASSEMBLY

Clarence E. Larson; Richard H. Dawley, both of Columbus, and Roger Reese, Lancaster, all of Ohio, assignors to Martin Marietta Corporation, New York, N.Y.

Continuation of Ser. No. 59,455, July 30, 1970, abandoned. This application July 10, 1972, Ser. No. 270,167

Int. Cl. B65g *65/04*

U.S. Cl. 214—307 **5 Claims**



A portable bin carrier has pivotally mounted lifting arms that engage lifting lugs on the bin to be carried. The bin is raised for transport by raising the lifting arms. Support members are provided to support the lifting arms as the bin-supporting carrier is moved from one location to another. The lifting arms disengage from the bin lifting lugs upon being lowered while the bin is independently supported at its desired elevation following movement to its desired location. Telescoping legs are provided on the bin so that said bin may be independently supported at desired upper and lower elevations. Hydraulic means are provided for raising and lowering said lifting arms between upper and lower positions, including an intermediate position for support of the bin during transport and prior to elevation of the material-bearing bin to its desired higher elevation at a job site.

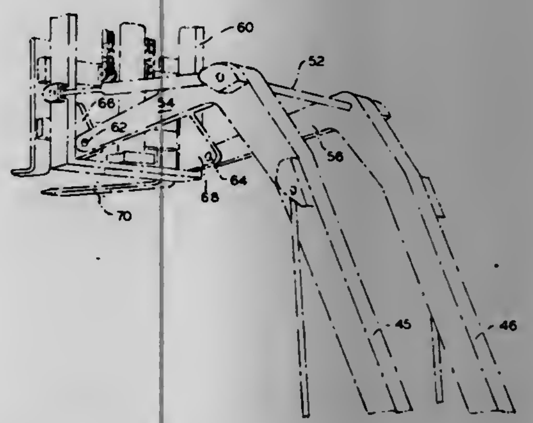
3,834,569
EXTENDED REACH TRUCK

Donald A. Holtkamp; Willard L. Chichester, and Robert R. Rabbitt, all of Battle Creek, Mich., assignors to Clark Equipment Company, Buchanan, Mich.

Filed Jan. 27, 1972, Ser. No. 221,346

Int. Cl. E02f *3/86*

U.S. Cl. 214—762 **16 Claims**



An extended reach mechanism for trucks in which the mechanism has a vertical member pivotally attached to the rear portion of the vehicle for pivoting forwardly and rearwardly, and an arm connected to the upper end of the vertical member and extending forwardly for supporting a load attachment such as a fork mounted on an upright. The vertical member and forwardly extending arm are operated by power means consisting of hydraulic cylinders, and a compensating means is included in the mechanism which adjusts the power means for the arm to cause the arm and the load attachment to move on a horizontal plane as the arm moves forwardly and rearwardly with the load. The compensating mechanism may include an adjustable hydraulic linkage for operating a valve to control the fluid to the hydraulic cylinder operating the arm for raising and lowering the load.

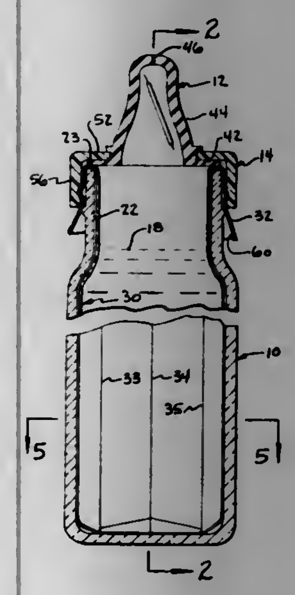
3,834,570
NURSING UNIT WITH IMPROVED PLASTIC LINER

Arthur C. Barr, 111 King St., Madison, Wis. 53703

Continuation-in-part of Ser. No. 206,965, Dec. 10, 1971, abandoned, which is a division of Ser. No. 68,368, Aug. 31, 1970, Pat. No. 3,645,414, which is a continuation-in-part of Ser. No. 862,840, Oct. 1, 1969, Pat. No. 3,545,637, which is a continuation-in-part of Ser. No. 744,537, July 12, 1968, Pat. No. 3,471,050. This application Feb. 7, 1973, Ser. No. 330,397

Int. Cl. A61j *9/04*

U.S. Cl. 215—11 E **12 Claims**



An impervious baby bottle is provided with a plastic liner, a nursing nipple, and a retaining cap. The plastic liner has longitudinal ribs on its exterior surface which extend over the lip of the bottle. The ribs provide venting spaces between the lip and the liner to vent the area between the bottle and liner to atmosphere so the liner collapses as liquid is dispensed therefrom. Several embodiments of the plastic liner are shown.

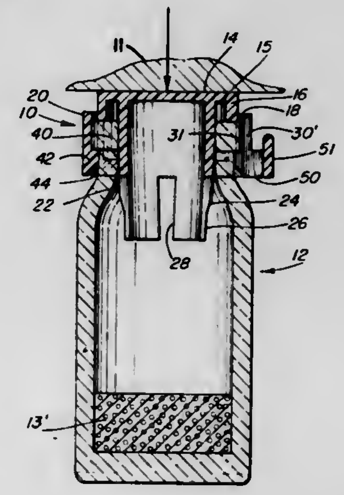
3,834,571
CONTAINER CLOSURE FOR LYOPHILIZED PRODUCTS

Ralph A. Bartell, Parsippany, N.J., assignor to Warner-Lambert Company, Morris Plains, N.J.

Filed Nov. 20, 1972, Ser. No. 308,096

Int. Cl. B65d *41/46, 51/16*

U.S. Cl. 215—256 **6 Claims**



The specific disclosure provides an integrally formed closure for a lyophilized product container having a neck, an upwardly facing opening in the neck and an external radial bead on the neck. The closure comprises a downwardly extending stopper portion having port means for venting the container during a lyophilization process, and means for seating the closure in a first position in the neck during the lyophilization process with the port means being positioned at least in part above the opening. The closure also includes a downwardly extending tear away skirt portion having means for engaging the bead when the closure is seated in a second position in the neck with the port means positioned below the opening to prevent venting of the container.

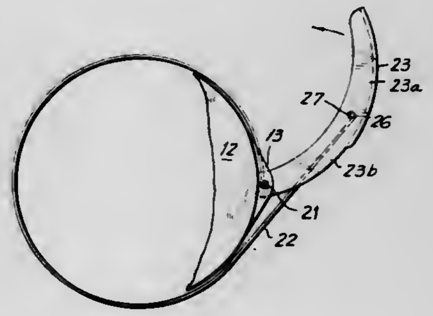
3,834,572
CLOSURE CAP FOR CONTAINER

Murray L. Eskenazi, 8 Judith Ct., East Rockaway, N.Y. 11518

Filed Oct. 20, 1972, Ser. No. 299,496

Int. Cl. B65d *45/34*

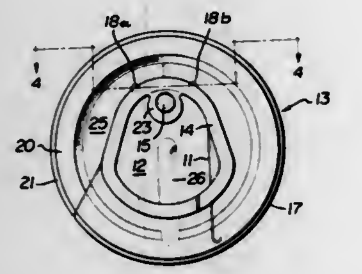
U.S. Cl. 215—272 **8 Claims**



A cap suitable for closure and reclosure of a container, especially when the container is pressurized, consists of a top and a side wall which is essentially cylindrical and is flexible. The cap is provided with a clamp and flexible band so pivoted that moving the handle toward the container cap draws a flexible band tightly around the periphery of the cylindrical wall compressing it against the container and effecting a tight seal. The cap may be grooved or have blind holes around the inner surface of the cylindrical wall in order to increase the flexibility of the side wall and to provide what are in effect suction cups.

3,834,573
METAL CLOSURE

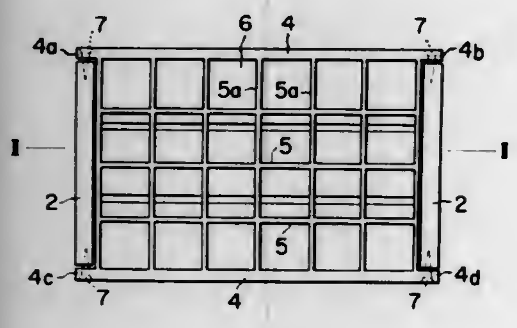
Charles W. Amos, Waterville, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed July 17, 1972, Ser. No. 272,679
Int. Cl. B65d *43/02*
U.S. Cl. 215—255 **2 Claims**



The disclosure relates to an improvement in construction of convenience opening type bottle closures. The closure comprises an inner liner cap or gasket engaging the bottle finish and an outer metal closure crimped around the bottle finish or rim. In the top of the outer cap there is a spaced pair of embossed projections which are located to place the pull ring member in tension, that is, to load it in a taut condition and prevent tear strip fracture, accidentally, while the package is in transit or handling prior to opening by the user.

3,834,574
CASING ADAPTED TO ACCOMMODATE AND TRANSPORT BOTTLES

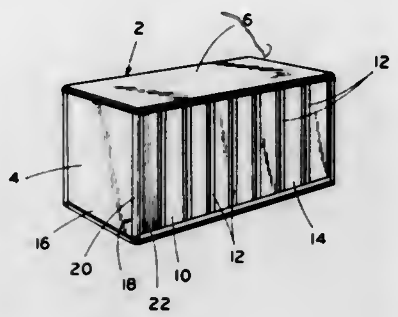
Ichiro Nudeshima, Iida, and Daisaku Nudeshima, Fujisawa, both of Japan, assignors to Mitsubishi Kasei Kogyo Kabushiki Kaisha, a/k/a Mitsubishi Chemical Industries Limited, Tokyo-To, Japan
Filed Aug. 16, 1973, Ser. No. 388,751
Claims priority, application Japan, Aug. 21, 1972, 47-96784
Int. Cl. B65d *15/24*
U.S. Cl. 217—19 **6 Claims**



The casing of this invention comprises a combination of an outer member of wood and an inner member of a synthetic resin. The outer member comprises at least one bottom plate and upright transverse side boards fastened to the opposite ends of the bottom plate or plates, and the inner member comprises a pair of longitudinal side plates and a plurality of longitudinal and transverse partition plates intersecting each other at right angles to define substantially square openings for accomodating the bottles. The longitudinal side plates and the longitudinal and transverse partition plates of the inner member are formed as an integral structure, and the inner member is then nested in the outer member between its transverse side boards.

3,834,575
CONTAINER FRONT END CONSTRUCTION

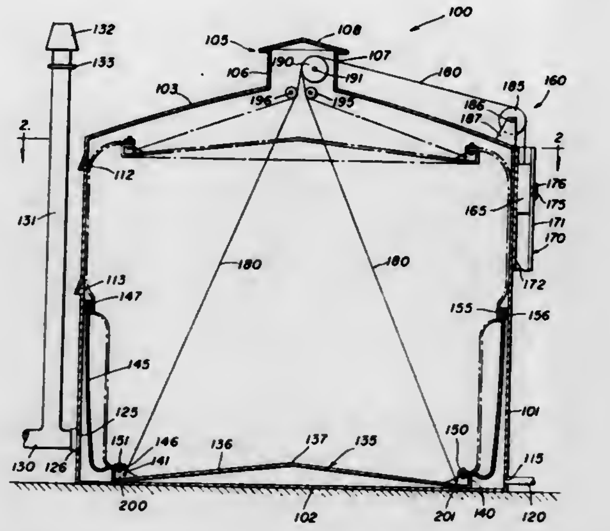
George W. Carr, Cincinnati, Ohio, assignor to Pullman Incorporated, Chicago, Ill.
Filed May 10, 1973, Ser. No. 359,050
Int. Cl. B62d *33/00*
U.S. Cl. 220—1.5 **14 Claims**



A container construction such as a truck body for a vehicle or the like comprising a front wall and a pair of side walls connected by a pair of vertically extending front corner structures, each corner structure including an upright front corner post connecting with an end of the front wall and an upright side corner post connecting with the front corner post and the forward end of a respective side wall. The vertically extending connecting structure between the corner post and side post includes dovetailing front and side corner post portions and laterally spaced fastening means on the dovetailing front and side post portions or laterally spaced front and side post overlapping portions on the dovetailing front and side post portions that allow relative vertical sliding movement between the front and side walls for assembly of the container.

3,834,576
FLUID STORAGE CONTAINER

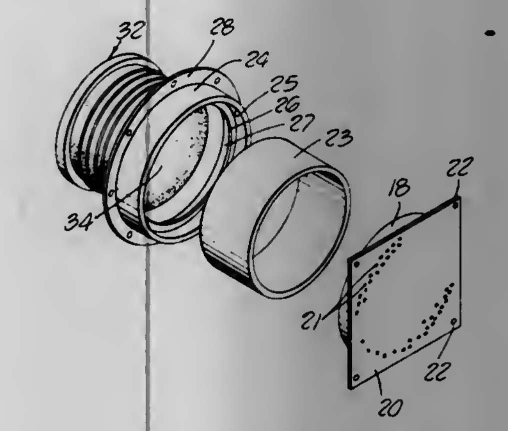
Milton W. Heisterberg, Flossmoor, Ill., assignor to General American Transportation Corporation, Chicago, Ill.
Filed Feb. 16, 1972, Ser. No. 226,897
Int. Cl. B65d *87/18*
U.S. Cl. 220—26 S **13 Claims**



A fluid storage container is provided including a cylindrical shell, a piston positioned within the cylindrical shell and vertically movable with respect thereto, a seal positioned between the periphery of the piston and the cylindrical shell in sealing engagement with the piston and the cylindrical shell to provide a fluid-tight storage area within a portion of the cylindrical shell, a fluid inlet in communication with the storage area for admitting fluid thereinto, and a counterweight mechanism connected to the piston for substantially counterbalancing the weight of the piston and for maintaining the piston centrally positioned within the cylindrical shell during vertical movement of the piston therewithin. The counterweight mechanism is connected to the piston through a focal point located vertically above and in vertical alignment with the center of the piston.

3,834,577
PORTING APPARATUS FOR A REFRIGERATED STORAGE CHAMBER

Robert Tempero, San Jose, Calif., assignor to Transfresh Corporation, Salinas, Calif.
Filed May 30, 1972, No. 257,882
Int. Cl. B65d *41/00*
U.S. Cl. 220—42 B **8 Claims**



A pair of openings of appropriate size are formed in the refrigerated chamber, one at each end thereof. The inner opening end includes a cylindrical band covered by a perforated plate. An elongated hollow cylinder of poor heat conducting material is received within the opening, its inner end being seated within the cylindrical band. The other cylinder end is sealed to an annular fitting that is secured to the outer chamber wall. A resilient expandable plug is removably received within the annular fitting and hollow cylinder to hermetically seal the passageway.

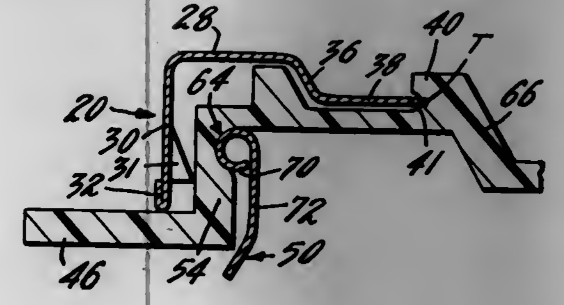
3,834,578
FLOWED-IN POLYURETHANE GASKETS FOR PAIL AND DRUM COVERS

David B. Smith, Watertown, and Joel A. Gribens, Framingham, both of Mass., assignors to W. R. Grace & Co., Cambridge, Mass.
No Drawing. Filed June 22, 1972, Ser. No. 265,148
Int. Cl. B65d *53/06;* **C08g** *22/48, 41/04*
U.S. Cl. 220—46 R **1 Claim**

Superior sealing performance can be imparted to pail and drum covers by equipping them with flowed-in gaskets made from a composition comprising a nitrile rubber, a polyurethane prepolymer and a carbon dioxide blocked polyamine curing agent.

3,834,579
CONTAINER HAVING A METAL OVERCAP-THERMOPLASTIC LID CLOSURE ASSEMBLY

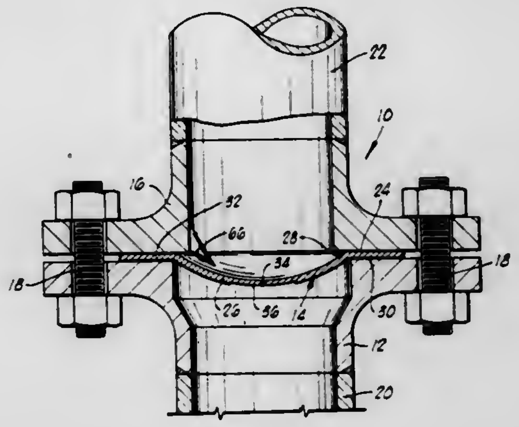
Leonard Thomas LaCroce, Paramus, N.J., assignor to American Can Company, Greenwich, Conn.
Filed Mar. 27, 1973, Ser. No. 345,262
Int. Cl. B65d *43/10*
U.S. Cl. 220—60 R **15 Claims**



A container is provided having a no-tool, easy-open thermoplastic lid-metal overcap closure assembly thereon. The lid and overcap are secured together to form the assembly by the engagement of overcap tongues in an upwardly-protruding annular retaining bead in the lid in one embodiment wherein the overcap is a retaining ring, and by the engagement of a radially inwardly-extending curl at the base of the overcap skirt with a lower portion of the lid skirt in another emboidment wherein the overcap has a substantially full central panel. The assembly lid and overcap skirts are spaced radially from each other to enable the lid skirt to bow outwardly as it passes over the bead on the container throat when the assembly is being placed on the container. The assembly is removably secured to the container by seating and abuttingly engaging an undercut adjacent the junction of the lid rim and skirt with the container throat bead and by crimping the lower portion of the overcap skirt against a corresponding portion of the lid skirt.

3,834,580
SAFETY PRESSURE RELIEF DEVICE

Gary Joe Ludwig, and Loren E. Wood, both of Tulsa, Okla., assignors to Black, Sivalls & Bryson, Inc., Tulsa, Okla.
Filed Sept. 25, 1972, Ser. No. 291,951
Int. Cl. F16k *17/16*
U.S. Cl. 220—89 A **9 Claims**

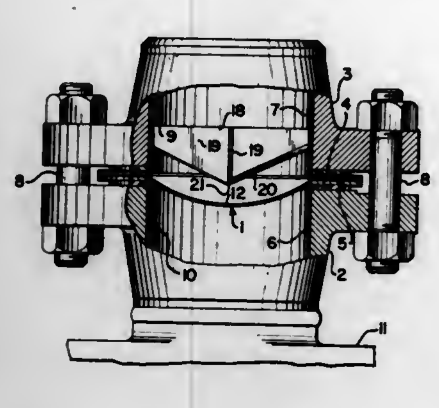


The present invention relates to an improved safety pressure relief device of the type having a concave-convex reverse buckling rupture disk supported between inlet and outlet supporting members. By the present invention the rupture disk includes scores on a surface of the concave-convex portion thereof creating lines of weakness therein, and an area of relative weakness is positioned at the center of the concave-convex portion so that upon failure the disk reverses itself from the center of the concave-convex portion outwardly towards the periphery thereof and then tears along the lines of weakness.

3,834,581
REVERSE BUCKLING DISC ARRANGEMENT FOR DIRECT MOUNTING

Robert L. Solter, Blue Springs, and Franklin A. Hansen, Raytown, both of Mo., assignors to Continental Disc Corporation, Kansas City, Mo.
Filed Oct. 2, 1972, Ser. No. 294,260
Int. Cl. F16k *17/40*
U.S. Cl. 220—89 A **11 Claims**

A safety pressure relief device of the reverse buckling type for mounting directly between ASA type flanges includes a pre-seated bulged disc arrangement secured to or trapped by a centering ring unit containing a knife-blade, the centering ring unit telescoping into a flange bore and operably positioning both the disc arrangement and the knife-blade between and



within the flanges, eliminating the need for disc base and disc holddown flanges.

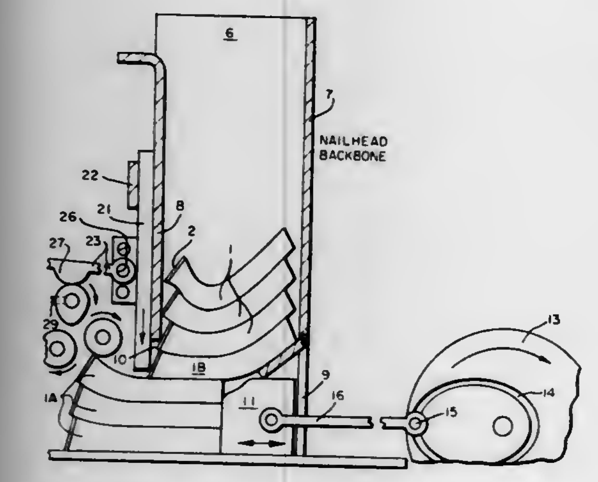
3,834,582
MOVING GATE FOR HOPPER DISCHARGING FLAT ARTICLES OF IRREGULAR THICKNESS

Peter Aspinwall, Carlisle, Mass., assignor to Comstock & Wescott, Inc., Cambridge, Mass.

Filed July 11, 1973, Ser. No. 378,374

Int. Cl. B65g *59/06*

U.S. Cl. 221—248 **6 Claims**



In bookbinding apparatus a hopper accumulates a stack of books received from a binder with extra thick spines and discharges them to a book trimmer, the hopper having at its lower end an entrance through which a pusher drives a selected lower group of books out an exit. As a group of books exits a vertically reciprocating gate at the exit moves downwards from an upper position accommodating the extra thickness of the book spines to a lower position which allows only the selected group of books to pass out through the exit.

3,834,583
APPARATUS FOR SORTING ROD-LIKE ARTICLES

Helmut Brodbeck, Trossingen, Germany, assignor to Efka-Werke Fritz Kiehn GmbH, Troesingen/Wurtt, Germany

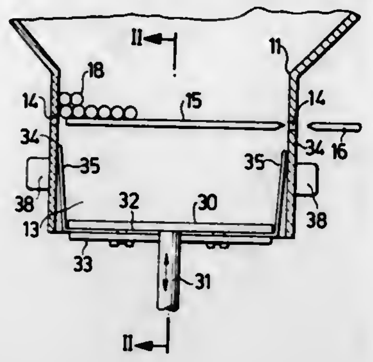
Filed Mar. 15, 1972, Ser. No. 234,710

Claims priority, application Germany, Mar. 19, 1971, 2113384; Apr. 1, 1971, 2115871

Int. Cl. B65h *3/32*

U.S. Cl. 221—251 **17 Claims**

Apparatus for apportioning rod-like articles is provided, comprising a hopper adapted to be divided into an upper receiving reservoir and a lower measuring chamber of defined dimensions. Slide means are insertable within the hopper in a horizontal plane, perpendicular to the longitudinal axis of the rod, so as to separate the reservoir from the chamber. The slide means are cyclically operated to permit a measured amount of rods to move from the receiving chamber to the measuring chamber. Means are provided to eject the rods from the measuring chamber.



3,834,584
DEVICE FOR DISPENSING ROLLING ARTICLES

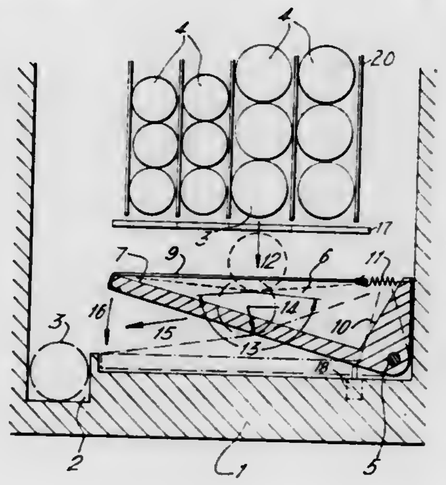
Walter Stute, Frankfurt am Main, Germany, assignor to Perod S.A., Maisons-Alfort, France

Filed Sept. 1, 1971, Ser. No. 176,892

Claims priority, application Germany, Nov. 4, 1970, 2054227

Int. Cl. B65g *11/00*

U.S. Cl. 221—312 **13 Claims**



A device in a vending machine for transferring rollable articles, such as bottles, from a storage location in the vending machine to a delivery position therein is disclosed.

The device includes a strip of resilient or resiliently supported material positioned below the storage location to receive articles as they are individually discharged therefrom. The surface of the strip which receives the discharged articles is either permanently, or periodically, inclined towards the delivery position to provide a sloping surface down which the discharged bottles roll and because of the resilient nature of the material or of the suspension thereof, the weight of the discharged bottle causes a depression in the surface of the strip which tends to restrain the bottle from rolling askew.

The depression travels along the surface with the rolling bottle and constrains the bottle to follow a substantially linear path towards the delivery position in the vending machine.

3,834,585
PLASTICS ACCUMULATOR HAVING FIRST-IN, FIRST-OUT ARRANGEMENT

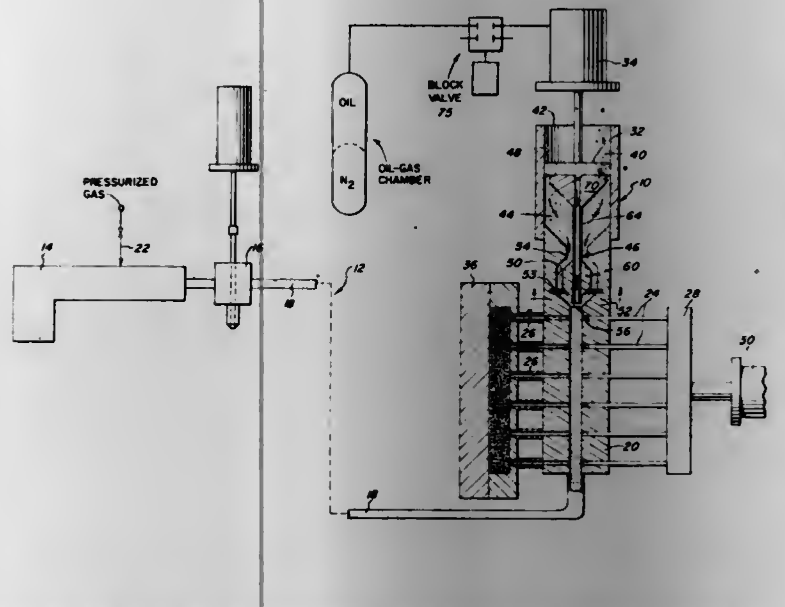
James E. Aker, Seymour, Ind., assignor to Standard Oil Company, Chicago, Ill.

Division of Ser. No. 116,410, Feb. 18, 1971, Pat. No. 3,707,248. This application Apr. 17, 1972, Ser. No. 244,976

Int. Cl. G07f *11/02*

U.S. Cl. 222—1 **6 Claims**

Heat degradation of plastics is minimized using an accumulator in which fresh plastic is introduced into the accumulator at a point remote from the point where previously stored plastic is withdrawn. Consequently, plastic which was last introduced into this accumulator is withdrawn before freshly introduced plastic. A control system for regulating the flow of plastic is also disclosed.



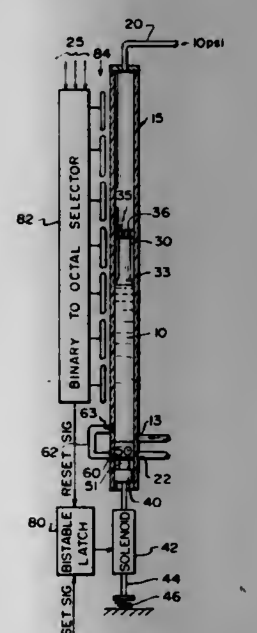
3,834,586
FLUID MEASURING AND DISPENSING SYSTEM

Jack L. Wilhelmson, Fenton, Mo., assignor to Sherwood Medical Industries, Inc., St. Louis, Mo.

Filed June 2, 1971, Ser. No. 149,299

Int. Cl. B67d *5/54*

U.S. Cl. 222—47 **14 Claims**



Liquid which is to be measured and dispensed flows through an inlet port into the bore of a vertical measurement tube, forcing a free piston upward. A plurality of sensors are vertically located along the tube. When the sensor enabled by a liquid volume selector detects the free piston, a solenoid driven valve piston moves to block the inlet port and opens a discharge port. Purge gas, entering at the top of the tube bore, is now effective to force the free piston downward and dispense the liquid. After the free piston has forced all liquid out of the tube, a gas passageway couples the purge gas in the tube bore to the discharge port, simultaneously purging the measurement tube and the discharge port.

3,834,587
MEANS FOR AUTOMATIC CONTROL OF BATCHING WHEN CASTING FROM A HEAT-RETAINING OF CASTING FURNACE OR LADLE (CRUCIBLE)

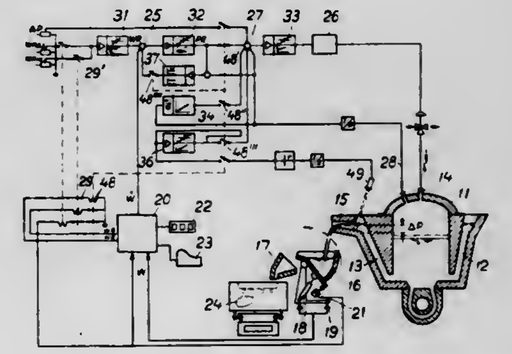
Fredrikson Bengt, and Bergman Kjell, both of Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Nov. 13, 1972, Ser. No. 305,684

Claims priority, application Sweden, Dec. 18, 1971, 14738/71

Int. Cl. B22d *37/00*

U.S. Cl. 222—56 **4 Claims**



For the automatic control of batching when casting from a heat-retaining furnace or ladle, an arrangement is provided for tapping the ladle in batches into a batching ladle. An arrangement is provided for weighing the batching ladle and the output signal of the weighing arrangement is fed to a deriving device which gives an output signal dependent on the melt flow. The output signal of the deriving device is fed to a comparison device along with a signal representing a desired value. A control device for the tapping of the furnace is combined with the output signal of the comparison device to terminate tapping when a predetermined quantity of melt has been tapped.

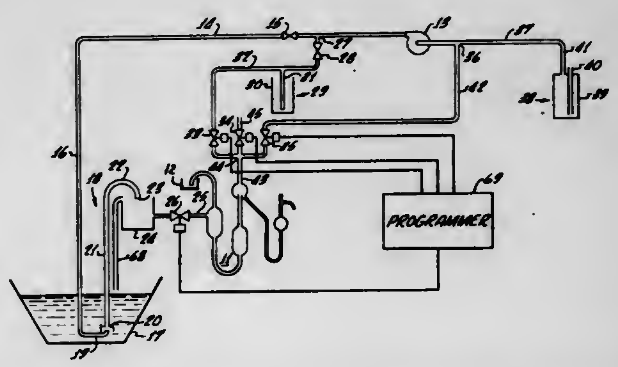
3,834,588
SAMPLING APPARATUS

Robert H. Jones, Fullerton, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed July 18, 1973, Ser. No. 380,351

Int. Cl. B67d *5/08*

U.S. Cl. 222—61 **15 Claims**



Apparatus for selectively delivering measured quantities of liquid from a flowing channel to a storage vessel to produce a composite sample. A container is supplied with a continuous flow of liquid from the channel at a constant level. A dispensing tube has an inlet connected to receive air during vacuum, vent and pressure portions of an operation cycle and an outlet connected to deliver a sample to a recipient system. An air pump has an output connected to supply air under pressure through one conduit to the air lift tube which supplies the liquid from the channel and through a branch conduit to the inlet of the dispensing tube. A transfer vessel operatively connected between the inlet and outlet of the dispensing tube receives liquid from the container during the vacuum portion of the operation cycle at a level above that of the liquid remaining in the dispensing tube from a previous operation cycle. A vacuum regulator unit is operatively connected to the air pump inlet to regulate the vacuum to the dispensing tube and a pressure regulator is operatively connected to the branch conduit to regulate the pressure to the dispensing tubes. Valves responsive to a programmer operate to selectively control the flow of air from the air pump to the dispensing tube during an operation cycle.

3,834,589
PRESSURE-RESPONSIVE SAFETY DEVICE FOR AEROSOL DISPENSER AND CONTAINERS EQUIPPED THEREWITH

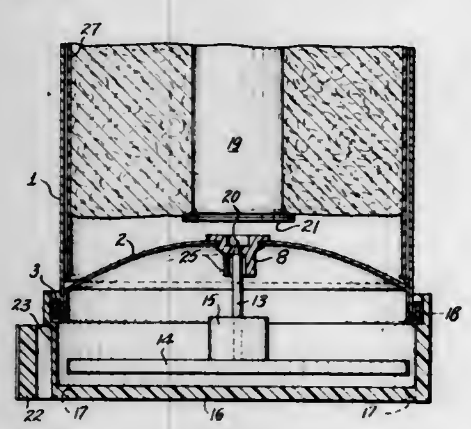
Bruno P. Morane, Paris; Charles Paoletti, Aulnay Sous Bois; Manlio Maurelli, Vaujours; Louis Merrien, Fontenay Sous Bois, and Robert Sathicq, Villepinte, all of France, assignors to L'Oreal, Paris, France

Division of Ser. No. 43,696, June 5, 1970. This application July 11, 1972, Ser. No. 270,643

Claims priority, application France, June 10, 1969, 69.19182; Sept. 1, 1969, 69.29795

Int. Cl. B67d *5/32*; B65d *83/14*

U.S. Cl. 222—80 **4 Claims**



Container has concave bottom, and cartridge of pressurizing gas within it near the bottom. A resilient safety device is seated in the bottom and defines a central hole. A pin is slidably positioned in said hole in alignment with the cartridge so as to rupture said cartridge when depressed. The safety device bulges outwardly when there is excessive pressure inside the container, thus enlarging the hole so that gas can escape around the pin.

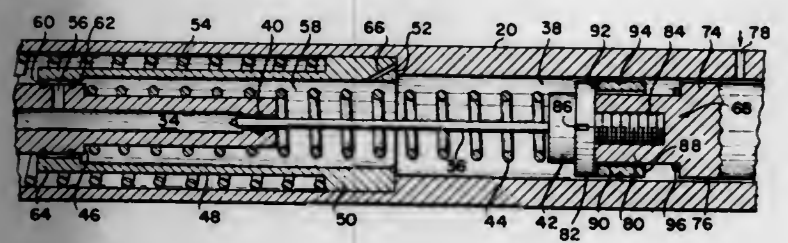
3,834,590
MICROLITER FLUID DELIVERY APPARATUS

John E. Robinson, Springfield, and James W. Kenney, Philadelphia, both of Pa., assignors to Drummond Scientific Company, Broomall, Pa.

Filed Oct. 24, 1972, Ser. No. 300,154

Int. Cl. B67d *1/08*; G01n *1/14*

U.S. Cl. 222—148 **29 Claims**



This apparatus includes a cylindrical barrel having positioned therein a cylinder in which a piston is slideable longitudinally for drawing fluid into a sample-receiving member connected to the apparatus. A piston assembly engaged with one end of the piston is operable within the barrel to actuate the piston and to simultaneously compress the air within the barrel on the down stroke of the piston assembly. Movement of the first piston through the cylinder discharges the majority of the fluid from the sample-receiving member. Means are provided for sequentially admitting the compressed air to the sample receiving member to blow out any fluid droplets remaining in the member. The discharge of the fluid and blowing out of the sample-receiving member are effected in a single stroke of the piston assembly.

3,834,591
BATCH FEEDER WITH FLEXIBLE AND ADJUSTABLE CONTAINER WALLS

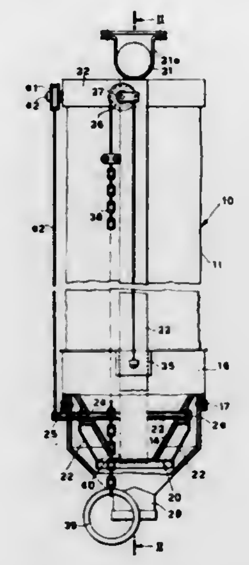
Camillo Pirovano, Via Spluga, Cernusco, Lombardone, Italy

Filed June 16, 1972, Ser. No. 263,690

Claims priority, application Italy, June 25, 1971, 26320/71

Int. Cl. B67d *3/00*

U.S. Cl. 222—185 **5 Claims**



Batch feeder, particularly for distributing fodder in animal breeding places, comprising a container with a tubular wall, which is deformable axially and resiliently, a discharge mouth for the product to be delivered, a discharge valve mounted in said mouth and means controlling the axial deformation of said tubular wall, whereby the capacity of the batch feeder can be adjusted and any seepage through the discharge valve is avoided.

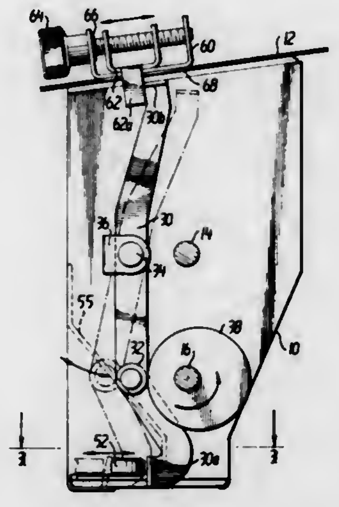
3,834,592
TONER REPLENISHER WITH MANUAL ADJUSTMENT OF DISPENSING RATE

Gabriel B. Cherian, Hatfield, Pa., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Nov. 3, 1972, Ser. No. 303,477

Int. Cl. G03g *15/08*

U.S. Cl. 222—277 **6 Claims**



A plurality of finger-like dispensing arms are mounted for pivotal movement back and forth along a path over a slot in the bottom of a toner dispenser hopper. The degree of pivotal movement controls the amount of toner dispensed. A linkage including a cam follower arm is provided for driving the dispensing arms in one direction in response to rotation of a continuously rotating cam. Springs provide the force for driving the dispensing arms in the opposite direction and for holding the cam follower against the cam. A manually adjustable stop element is provided for limiting the movement of the cam follower arm as it attempts to follow the cam in response to the force exerted by the springs. By adjusting the stop element, the degree of pivotal motion of the dispensing arms may be adjusted to any value throughout a continuous range extending from no motion to some predetermined maximum degree of motion, thereby adjusting the dispensing rate.

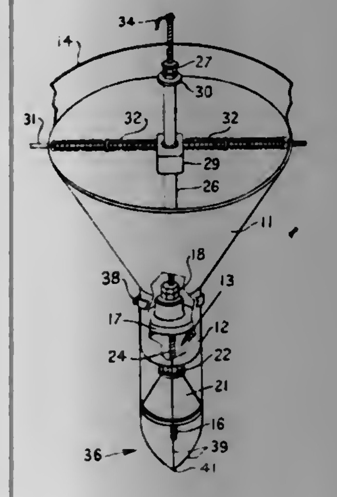
3,834,593
ADJUSTABLE GRANULAR MATERIAL DISPENSER

Earl W. James, 148 29th Ave., San Mateo, Calif.

Filed June 18, 1973, Ser. No. 371,275

Int. Cl. G01f *11/40*

U.S. Cl. 222—440 **4 Claims**



For dispensing granular material (such as vitamin conditioner for animals) a conical hopper having a discharge chute at the bottom is provided with a metering and dispensing valve structure which is adjustable for varying the quantity of material metered. A threaded rod is supported by a fitting at the center of the top of the hopper and is movable relative to the hopper between three positions: (a) filling position; (b) closed position; and (c) dispensing position. The lower end of the rod carries a bottom valve member which has a maximum diameter to close off the chute in filling or closed positions. Spaced upward of the bottom valve member and also on the threaded rod is top valve member which closes off the chute in closed and dispensing positions. The adjustable distance between the members determines the volume dispensed.

3,834,594
DEVICE FOR THE VENTING OF JERRY CANS

Wofram Schiemann, Eugen-Nagele-Strasse 17, 714 Ludwigsburg, Germany

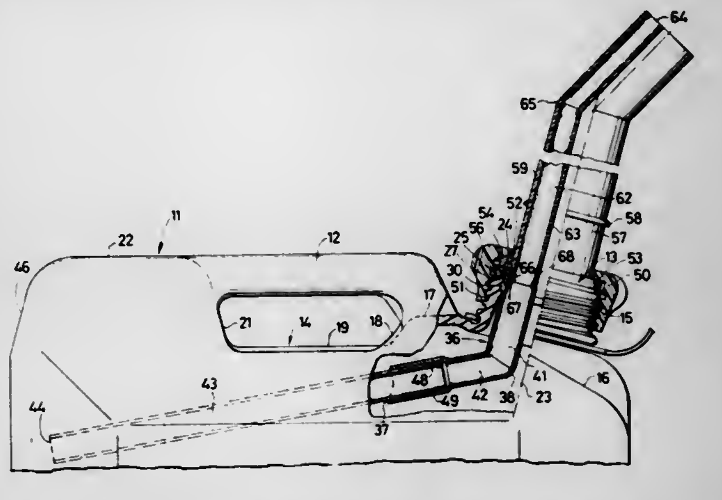
Filed Aug. 15, 1972, Ser. No. 280,817

Claims priority, application Germany, Oct. 26, 1971, 2153155

Int. Cl. B67d *3/00*

U.S. Cl. 222—464 **13 Claims**

A molded plastic jerry can has a ring insert fitted at its spout. The insert has a nipple starting at about the inner perimeter of the spout and extending first parallel to the axis of the spout and then bending towards the upper part of the rear wall of the can. A long tube is press fitted on the end of the nipple with its free end terminating close to the rear wall. The spout can have a discharge pipe extending from it. The discharge pipe has a vent tube which runs from the top of the nipple to the discharge end of the pipe.



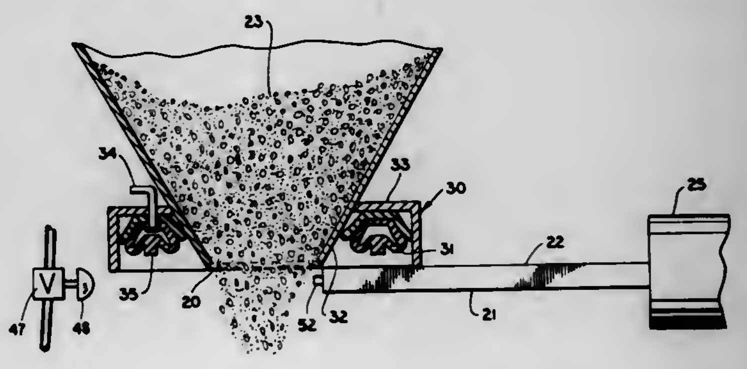
3,834,595
STORAGE BIN WITH FLOW CONTROL SEALING APPARATUS

James Donald Brock, and Erbie Gail Mize, both of Chattanooga, Tenn., assignors to Astec Industries, Inc., Chattanooga, Tenn.

Filed Feb. 26, 1973, Ser. No. 335,700

Int. Cl. B67d *5/34*

U.S. Cl. 222—504 **15 Claims**



Storage bin for receiving and dispensing a material such as asphalt mix. The storage bin has openings for receiving and discharging the material stored therein, and each of the openings is provided with flow control apparatus including a gate which selectively opens and closes the opening to control the discharge of material therethrough. A fluid impermeable sealing condition is maintained between the gate, when closed, and the interior of the storage bin by means of a seal which is positioned between the bin and the gate in surrounding relation with the discharge opening in the bin and which is selectively operable to undergo sealing engagement with the gate.

3,834,596
BOTTLE-CLOSURE STRUCTURE

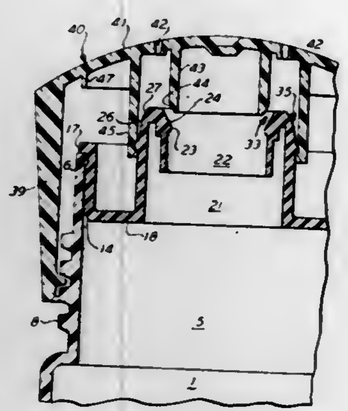
Thomas J. Brady, Madison; Richard L. Lawrence, Short Hills; Carmen J. Gonnella, Succasunna, and Gottfried Metzler, III, Brookside, all of N.J., assignors to The Mennen Company, Morris Township, N.J.

Filed July 11, 1973, Ser. No. 378,230

Int. Cl. B67d *3/00*

U.S. Cl. 222—520 **9 Claims**

A closure structure for a bottle from which there extends a neck carrying external threading. A conduit member is supported within the neck in coaxial and fluid-tight relation thereto, and communicates with the interior of the bottle. A cover element is assembled in coaxial relation to the neck, having internal threading engaged with the external neck threading thereby to cause rotations of the cover element to be accompanied by axial movements thereof toward and away from the bottle; the cover element may be generally of inverted-cup shape, and in its transverse portion may be provided with aperturing displaced from its axis. Means, comprised partially in the cover element and partially in the conduit member, form a valve closed and opened by the abovementioned movements of the cover element; when closed the valve blocks, but when open it permits, fluid flow from within the conduit member to said aperturing. And appropriate means are interposed, and block fluid flow, between the outward side of the valve and the engaged threadings.



3,834,597
CLOSURE AND POURING DEVICE FOR CONTAINERS

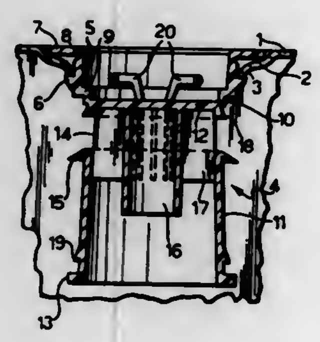
Piergiacomo Guala, Alessandria, Italy, assignor to Angelo Guala Di Piergiacomo E. Roberto Guala & C.S.A.S., Alessandria, Italy

Filed June 27, 1973, Ser. No. 374,166

Claims priority, application Italy, Jan. 19, 1973, 67091/73

Int. Cl. B65d *25/44*

U.S. Cl. 222—525 **3 Claims**



A closure device for cans or like containers comprising integrally formed first and second parts with a frangible bridge connecting part forming a guarantee seal. The first part is snap engageable into an opening in the wall of a can so that it cannot be removed therefrom without it being immediately apparent, such as by the breakage of a specially weakened part. The second part is held in the closed position by the frangible connecting part which must be broken in order to effect initial opening of the closure device to extend the said second part to a pouring position. Reclosure, but not resealing, can be effected by retracting the second part back to its initial position until cooperating abutments on the first and second parts engage.

3,834,598
FOLDABLE HANGER

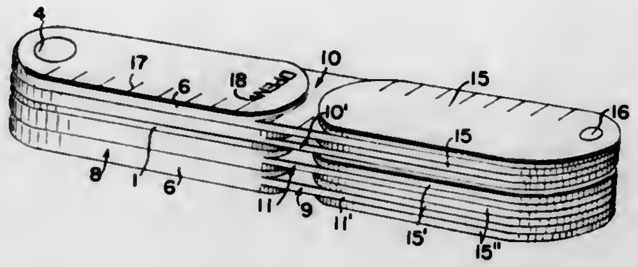
Yutaka Matsumoto, No. 21-1, 1-chome, Higashisugano, Ichikawa, Japan

Filed Oct. 13, 1972, Ser. No. 297,485

Claims priority, application Japan, May 1, 1972, 47-51316

Int. Cl. A47j *51/10*

U.S. Cl. 223—89 **3 Claims**



A foldable portable hanger for hanging clothes or laundered garments comprises a suspending rod, a plurality of shoulder rods each pivotally mounted on said suspending rod and becoming immobile at a substantially horizontal position, a plurality of leg rods each pivotally mounted on said suspending rod and becoming immobile at an oblique position, and one to several hanging rods mounted on both said shoulder rods and said leg rods, and serves to suspend clothes and wash.

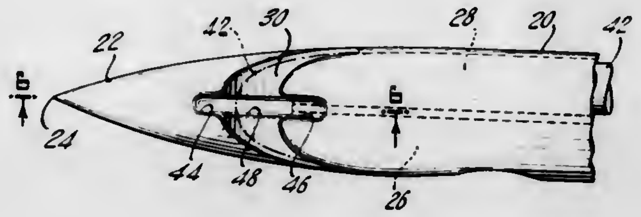
3,834,599
NEEDLE

Nicholas George Herr, 2391 Webb Ave., Bronx, N.Y. 10468

Continuation-in-part of Ser. No. 277,944, Aug. 4, 1972, Pat. No. 3,754,693. This application Aug. 23, 1973, Ser. No. 390,973

Int. Cl. F02d *11/10;* **D05b** *85/00*

U.S. Cl. 223—102 **10 Claims**



A needle which includes an elongated body formed with a front pointed tip for piercing through the work as well as with a pair of bores rearwardly of the tip for receiving the filamentary material. The body is formed at the front ends of these bores with a transverse notch which forms an open eye so that the filamentary material can extend forwardly along the interior of one of the bores, across the open eye, and then rearwardly along the interior of the other bores enabling the needle in this way to pierce through the work while maintaining the filamentary material out of engagement with the work.

3,834,600
APPARATUS FOR THE TRANSPORT OF YARNS

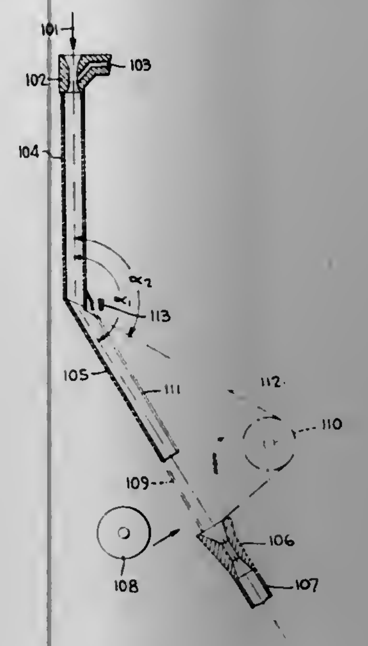
Claude Benchemoul, Roanne, France, assignor to Rhone-Poulenc-Textile, Lyon Cedex, France

Filed Sept. 7, 1972, Ser. No. 287,063

Int. Cl. B65h *17/32*

U.S. Cl. 226—97 **6 Claims**

Apparatus for the high speed transport of yarns using a fluid comprising a first guide passage, a second guide passage, the outlet of the first guide passage communicating with the inlet of the second guide passage, and a longitudinal slot in the second guide passage extending upstream from the outlet of the second guide passage along the length of the second guide passage.



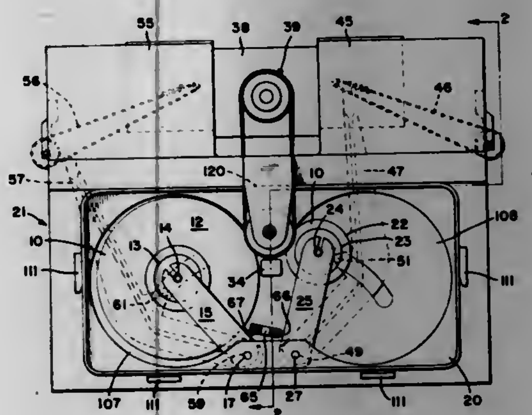
3,834,601
TAPE RECORDING SYSTEM

Jerry O. Kelley, Grass Valley, Calif., assignor to Arvin Industries, Inc., Columbus, Ind.

Filed July 11, 1972, Ser. No. 270,586

Int. Cl. B65h *17/20*

U.S. Cl. 226—191 **13 Claims**



A tape recording system has a capstan with a thin low friction metallic ring forming a tape engaging surface. A compressible ring is mounted behind the metallic ring. The entire capstan penetrates into the cassette to engage the tape, and the surface of the capstan metallic ring is bounded by flanges to guide and hold the tape onto the ring. The tape take-up within the cassette presses the outermost layer of tape against the tape engaging surface of the metal ring, forming a friction drive for the take-up. A link system interconnects the supply and the take-up to maintain the outermost layer of the supply a slight distance from the capstan when the take-up is against the capstan. When the take-up is withdrawn from the capstan, the tape slips on the low friction surface of the capstan, thus avoiding pile-up and breakage of the tape. A center point and socket system supports the capstan for accurate, low friction rotation about its axis.

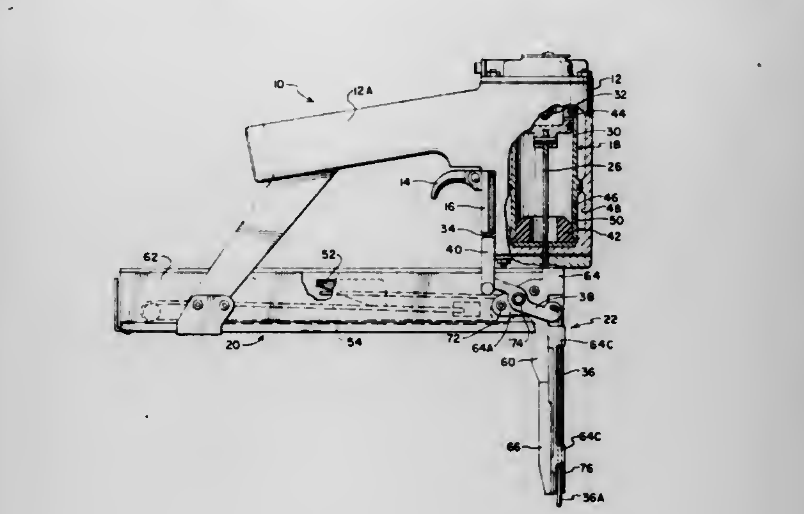
3,834,602
FASTENER DRIVING TOOL

Allen R. Obergfell, Park Ridge, Ill., assignor to Fastener Corporation, Franklin Park, Ill.

Filed Jan. 26, 1973, Ser. No. 327,105

Int. Cl. B25c *1/04*

U.S. Cl. 227—120 **31 Claims**



A stapler or nailer for applying such fasteners to inaccessible workpiece locations includes a "long nose" or extended nosepiece structure forming a drive track. Although the drive track is greatly elongated compared to a conventional tool, a fastener driving blade and a coupled piston-cylinder motor do not require corresponding longer operating strokes because the fastener is advanced through the drive track in steps on successive driver blade strokes of conventional length. This incremental movement is obtained by using a stepped driver blade to move, on successive strokes of the driver blade, a fastener supplied from a magazine through one or more fastener storage or retaining stations spaced along the drive track to a discharge opening at the lower end of the drive track.

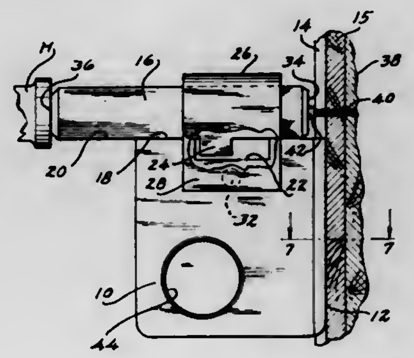
3,834,603
NAIL SETTING TOOL FOR APPLYING GROOVED PANELING

Albert A. Yocco, 2617 Jean Ave., Racine, Wis.

Filed Apr. 12, 1973, Ser. No. 350,320

Int. Cl. B25c *1/02*

U.S. Cl. 227—156 **5 Claims**



A nail-setting tool for mounting grooved paneling, having a body portion that is held by hand and inserted in the groove. A plunger that engages the head of the nail is slidable on the body portion, and a hammer is employed to engage the plunger and drive the nail so that the head thereof is flush with the bottom surface of the groove.

3,834,604

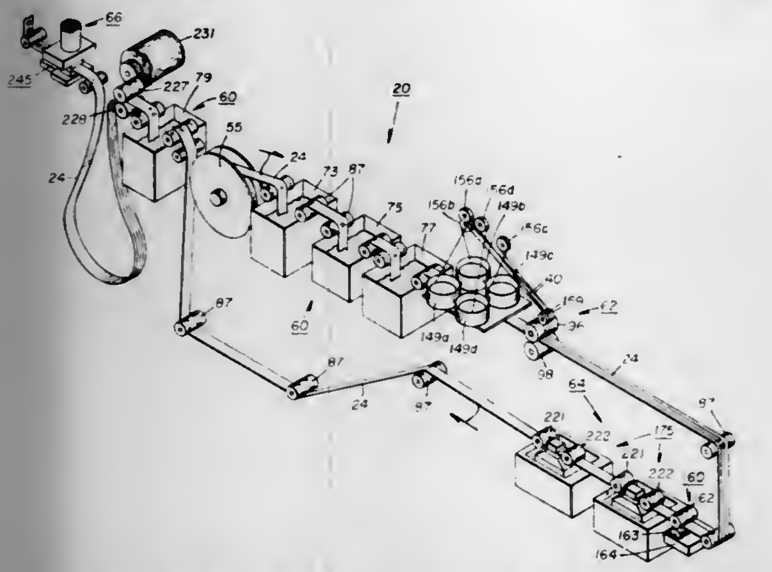
APPARATUS FOR SOLID-PHASE BONDING MATING MEMBERS THROUGH AN INTERPOSED PRE-SHAPED COMPLIANT MEDIUM

Richard L. Fendley; Gerhard E. Hoenig; George Poehlmann, and John M. Prendergast, Jr., all of Indianapolis, Ind., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Oct. 3, 1972, Ser. No. 294,755

Int. Cl. B23k *1/20*

U.S. Cl. 228—5 **28 Claims**



Apparatus for producing consistently uniform and high strength solid-phase (preferably thermocompression) bonds between two mating members and, in particular, between multiple micro-size lead-frame-fabricated electrical ribbon leads and thin film terminals formed on glass or ceramic circuit substrates, for example, through the utilization of at least one, but preferably two or more, interposed and specially contoured compliant contacts per lead. The preshaping of the compliant contacts into essentially triangular cross-section (preferably accomplished by initially roll bonding contact-forming precious metal wire(s) to lead-frame forming strip stock), has been found to be very beneficial and significant in establishing a sufficient degree of inherent compliancy to minimize, if not eliminate, force-induced circuit substrate failures due to fracture or glass cavitation, and to provide sufficient plastic deformation to insure the attainment of reliable and consistent mechanical cleaning, metal-to-metal adhesion and bond definition at the bond interfaces. The utilization of two or more pre-shaped compliant contacts per bond area, so as to produce redundant bonds, further insures against total bond and/or substrate failures due to the presence of random micro-imperfections in or blemishes on the mating bond surfaces.

3,834,605

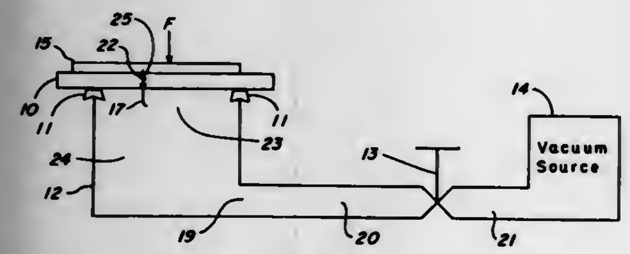
PRINTED CIRCUIT CARD COMPONENT REMOVAL APPARATUS

Harry S. Coffin, King of Prussia, Pa., assignor to Control Valve Corporation, Minneapolis, Minn.

Filed Jan. 15, 1973, Ser. No. 323,558

Int. Cl. B23k *1/00*

U.S. Cl. 228—20 **7 Claims**



Apparatus for removing a component whose leads pass through and are soldered into holes in a printed circuit board. The solder gripping the leads is melted, and the apparatus then applies a vacuum to the component side of the board to remove the component.

3,834,606

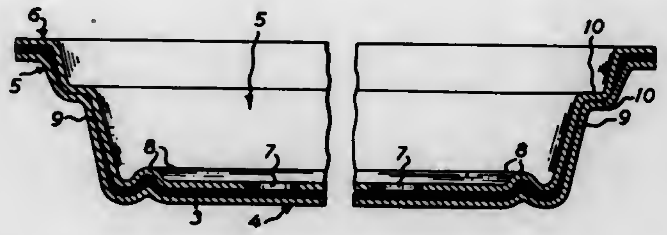
PACKAGING TRAYS AND METHODS OF MAKING THEM

Sven Ingemar Andersson, Ystad, Sweden, assignor to Torsten Jeppsson AB, Lund, Sweden

Filed Apr. 6, 1972, Ser. No. 241,574

Int. Cl. B65d *81/26*

U.S. Cl. 229—2.5 **1 Claim**



A packaging tray provided with a bottom, side walls, and an outwardly directed flange surrounding the periphery of the side walls of the tray, consists of outer and inner layers of a moldable and stretchable synthetic plastic material, and intermediate layers of liquid-absorbing material with no or but insignificant stretchability. At the molding of the tray, the side walls thereof are formed by stretching of the plastic material and in a softening operation, an adhesive bond is realized between the outer and inner layers of the stretched tray side walls which thus present an at least partially or substantially completely ruptured intermediate layer.

3,834,607

RIGID PAPERBOARD CONTAINER

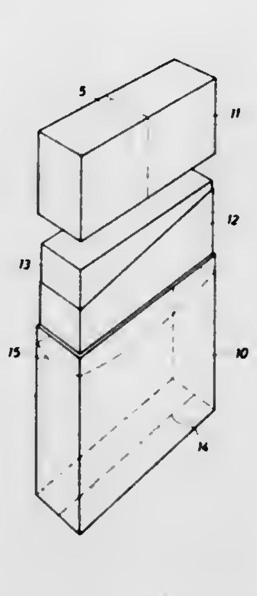
Wilfried Edgard Muylle, Schoten, Belgium, assignor to AGFA-Gevaert N. V., Mortsel, Belgium

Filed Apr. 28, 1972, Ser. No. 248,408

Claims priority, application Great Britain, Apr. 30, 1971, 12439/71

Int. Cl. B65d *5/56*

U.S. Cl. 229—14 BA **5 Claims**



A paperboard container having an opening is wrapped in a shrink-wrapping, and the wrapping is shrunk over the container. The portion of the wrapping extending over the opening is displaced towards the innerside of the container and secured so as to leave the opening unobstructed. The wrapping of the container forms an integral part of the container.

3,834,608

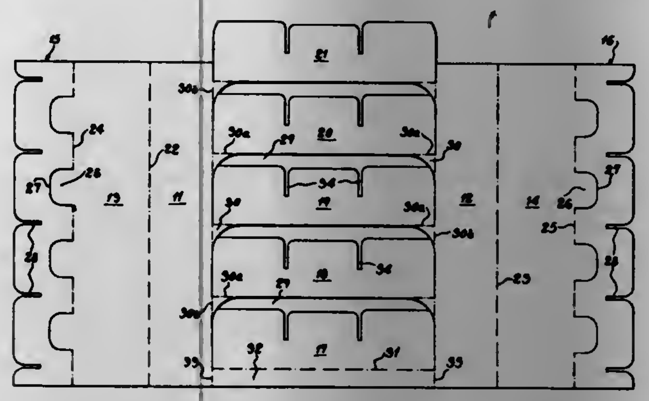
COMPARTMENTED TRAY

Ernest W. Giebel, Monroe, Mich., assignor to Union Camp Corporation, Wayne, N.J.

Filed Jan. 29, 1973, Ser. No. 327,855

Int. Cl. B65d *5/20, 5/42, 5/48*

U.S. Cl. 229—15 **4 Claims**



A four sided tray with partitioned compartments, which tray is formed from a single die cut folded blank and requires only a single flat sheet to be inserted into the center of the tray to complete the bottom of the tray.

3,834,609

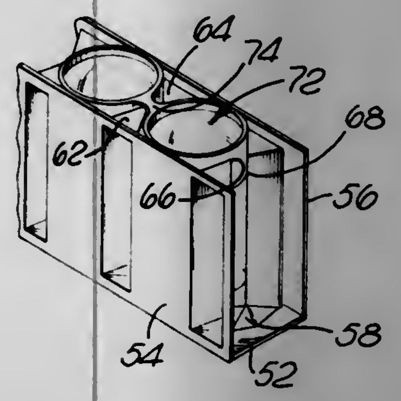
CONTAINER ASSEMBLY HAVING COMPARTMENTS AND MEANS FOR STACKING CONTAINER BLANK

Wayne Congleton, Whittier, Calif., assignor to Dolco Packaging Corporation, Burbank, Calif.

Filed July 20, 1972, Ser. No. 273,558

Int. Cl. B65d *1/24, 75/02*

U.S. Cl. 229—28 R **3 Claims**



A container assembly formed of a member which when unassembled is in a generally planar configuration. A plurality of hinge lines formed in the member enables the member to be folded into a predetermined shape for dividing the member into a plurality of predetermined sections. Hollow indentations form structural components which interact when the member is folded along the hinge lines to provide a structure of predetermined shape, and enabling a plurality of the members to be stacked when unassembled.

3,834,610

CONTAINER WITH FOLDED PANEL PORTIONS

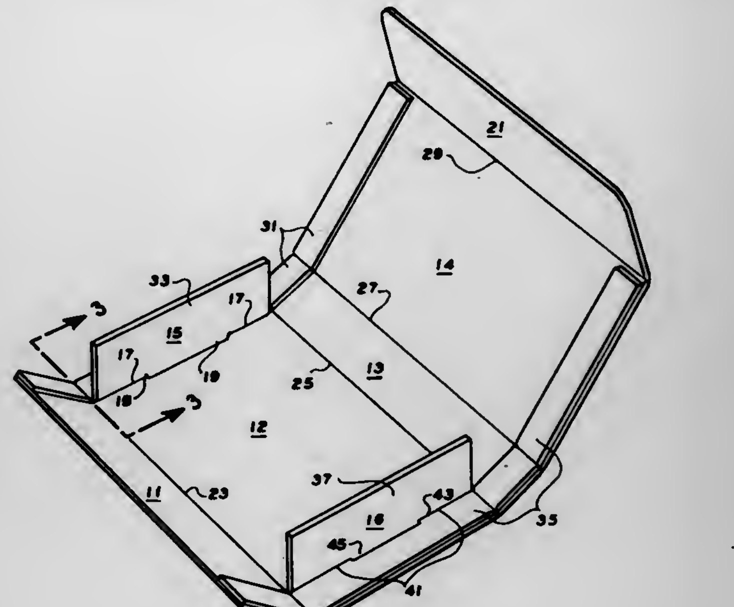
Stephen L. Elfrid, 850 Jay Dr., Downers Grove, Ill. 60515

Filed Apr. 18, 1973, Ser. No. 352,277

Int. Cl. B65d *5/02, 5/22*

U.S. Cl. 229—40 **8 Claims**

An erectible panel portion is erected and held in self-sustaining relationship to another panel portion in a container by means of a projection formed on one panel portion abutting a wall in the other panel portion adjacent a fold line. The projection is formed by an offset cut at the fold line. Also, a shipping container is disclosed having a plurality of panels in which at least two panels are planar and lie flat against each other with the container in an unassembled condition. One of the two panels is provided with a fold line for folding at least one portion of the panel away from the other panel to extend transversely thereof. The folded portion of the panel is supported in the transverse condition by means of a projection provided by an offset cut at the fold line to extend from the folded portion on the opposite side of the fold line and engage the other panel.



3,834,611

HANDLE-TYPE CARRYING BAG MADE OF PLASTICS MATERIAL SHEETING

August Schwarzkopf, Lengerich/Westphalia, Germany, assignor to Windmoller & Holscher, Lengerich, Westphalia, Germany

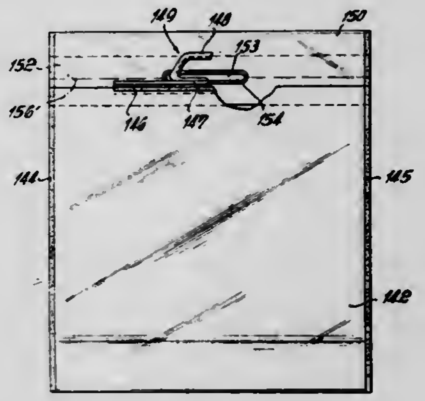
Division of Ser. No. 49,084, June 23, 1970, Pat. No. 3,693,867.

This application June 27, 1972, Ser. No. 266,564

Claims priority, application Germany, Oct. 31, 1969, 1954944; May 27, 1970, 2020549; Apr. 27, 1970, 2020548; May 22, 1970, 2025107

Int. Cl. B65d *33/02, 33/06*

U.S. Cl. 229—54 R **11 Claims**



Only one wall of the bag is provided with a heat-sealed carrying handle made of stiff synthetic thermoplastics. The other wall of the bag is provided with a lead-out slot on the level of the lower end of the handle and has a reversely foldable portion extending beyond said lead-out slot.

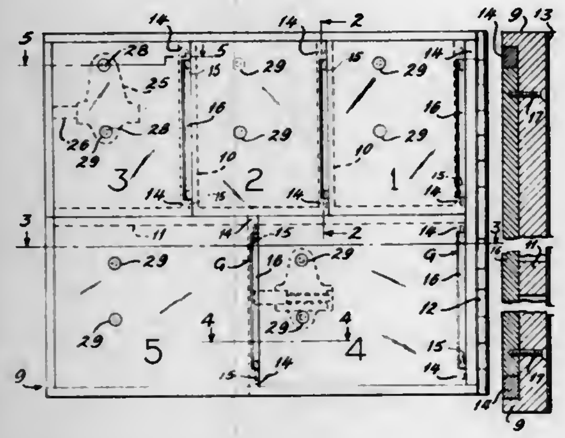
3,834,612
COMPARTMENT DOOR STRUCTURE

Willard H. Bixby, Steeleville, Ill., assignor to American Device Manufacturing Company, Steeleville, Ill.

Continuation-in-part of Ser. No. 873,031, Oct. 31, 1969, abandoned. This application Aug. 19, 1971, Ser. No. 173,034

Int. Cl. B65d *91/00*

U.S. Cl. 232—25 **11 Claims**



A compartment has a door with integral ears spaced apart and projecting from one edge of the door and substantially flush with the outer face of the door, there being a mounting bar extending between the ears and having an outer face flush with the door outer face; a hinge pin extending from each end of the mounting bar into the adjacent door ear; and elements, accessible only from the rear of the door, for securing the mounting bar to a frame closely surrounding the door and flush with its outer face. In a preferred form of the invention the mounting bar includes a flange which normally projects inwardly from the rear face of the door when the door is closed and is secured to the frame by screws or other elements accessible when the door is opened but concealed by the door when closed.

The invention contemplates the mounting of a plurality of doors, as described above, in a common frame which is hinged at one side to a cabinet or wall so as to swing on its hinge as a unit with all of the doors having their outer faces flush with the common frame.

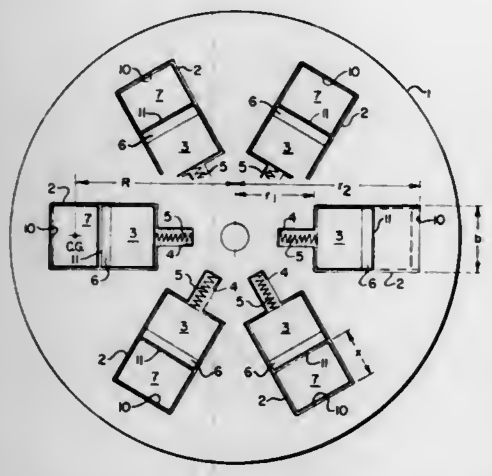
3,834,613
CENTRIFUGE ROTOR WITH SAMPLE HOLDING MEANS AND MEANS FOR BALANCING THE SAME

James J. Hankey, Canton, Mass., assignor to International Equipment Company, Needham Heights, Mass.

Continuation-in-part of Ser. No. 119,469, March 1, 1971. This application Oct. 5, 1972, Ser. No. 295,143

Int. Cl. B04b *9/14*

U.S. Cl. 233—23 A **2 Claims**



A self-balancing rotor having a plurality of compartments for accommodating a sample container and having a spring-loaded weight constrained to move only in the radial direction. The relationship among the weight, sample container and compartment is defined by the following equation.

$$r_1 = r_2 - [x + (RW/yxbh + l^2/2h)\tan\theta]$$

wherein

r_1 is the distance between the center of rotation of the rotor and the radially innermost surface of the compartment,

r_2 is the distance between the center of rotation of the rotor and the radially outermost surface of the compartment,

x is the distance between the radially innermost surface of the sample container and the radially outermost surface of a compartment,

b is the width of the compartment,

h is the height of the compartment,

R is the distance between the center of rotation of the rotor to the center of gravity of the sample container plus sample,

W is the total weight of the container and sample,

y is the density of the weight,

θ is the angle of incline of a surface of the weight with respect to a vertical plane and

l is the distance from the top of the weight to the intersection of the inclined surface, if any, and the radially outward surface of the weight. The angle, θ, ranges from 0 to $\tan^{-1}[r_2 - r_1 - x]$

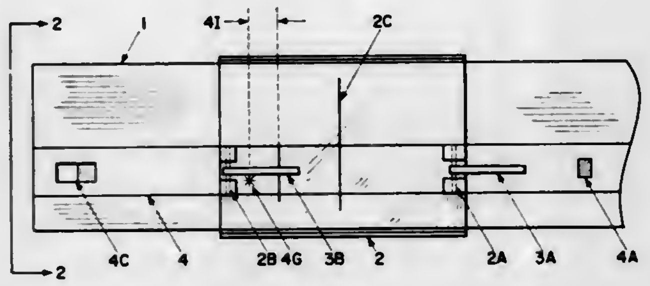
3,834,614
DECIMAL POINT INDICATOR FOR SLIDE RULE

Allen Noble, 14101 S. Woodland Rd., Shaker Heights, Ohio 44120

Continuation of Ser. No. 846,152, July 30, 1969, abandoned. This application Mar. 27, 1973, Ser. No. 345,363

Int. Cl. G06c *19/02*

U.S. Cl. 235—64.3 **2 Claims**



A numbered notched slide, 5, occupies a lengthwise bore, 4E, interior to the middle slide, 4, of the slide rule. Hook prods, 3A, 3B, attached to the cursor, 2, move this numbered notched slide. The addition of a transparent window, 4A, to observe numbers, spring, 6, and spring box, 4D, and openings in the middle slide, 4C, 4B, improve the device further. Proper operation of this improvement in the slide rule eliminates the need for the operator to carry the place of the decimal in his head while operating the slide rule.

3,834,615
METHOD FOR MONITORING MACHINING CONDITION OF MACHINE TOOL

Toshiaki Watanabe, Kasugai, and Hideo Yuhara, Nagoya, both of Japan, assignors to Okuma Machinery Works, Ltd., Kita-ku, Nagoya-shi, Japan

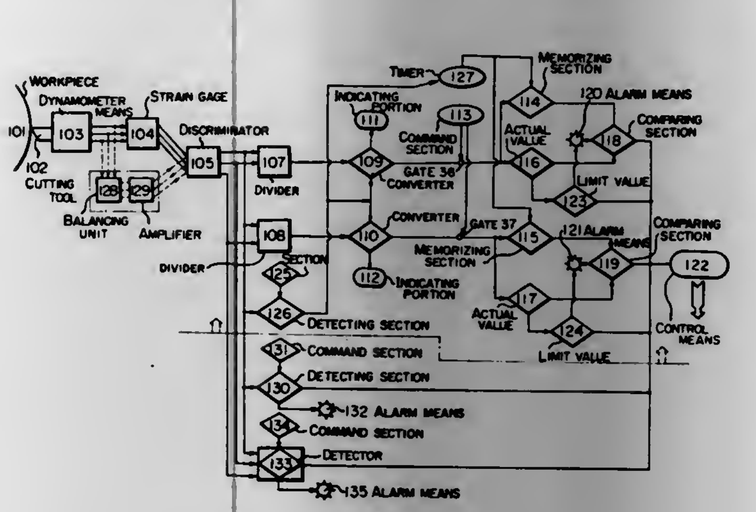
Filed Oct. 20, 1972, Ser. No. 299,562

Claims priority, application Japan, Mar. 23, 1972, 47-29248

Int. Cl. G01b *5/28*

U.S. Cl. 235—151.11 **6 Claims**

In a machine tool having a work holder and a cutting tool which is brought into cutting engagement with a workpiece held on the work holder to machine the same, the reaction force on the cutting tool is detected in the form of three components, that is, a backing force component, a feeding force component and a main force component to obtain ratios of one component to the other two components. The ratios are then compared with coresponding reference values which vary in accordance with the initial values of the ratios, so as to detect abnormal conditions of the cutting tool.



3,834,616
MULTIPLEXING CONNECTION BETWEEN A KEY BOARD AND AN INTEGRATED CIRCUIT DEVICE

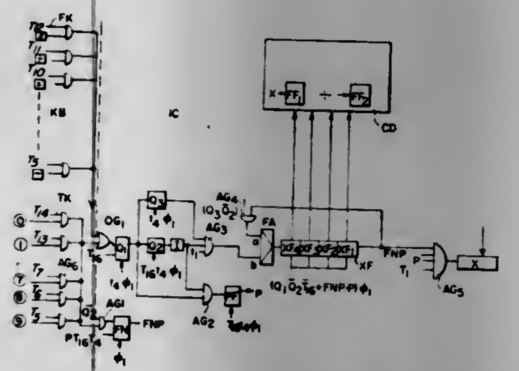
Isamu Washizuka, Kyoto, and Masaru Kaumae, Yamatokoriyama, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Sept. 13, 1972, Ser. No. 288,493

Claims priority, application Japan, Sept. 13, 1971, 46-71082

Int. Cl. G06f *3/02*; **H03k** *13/256*

U.S. Cl. 235—160 **14 Claims**



The present disclosure is directed to a multiplexing connection arrangement for use between a key board and an integrated circuit device for introducing key signals into the integrated circuit. The arrangement enables multiplexing transmission between the keyboard and the integrated circuit device with a reduction of the necessary number of connection terminals integrated circuit device for receiving the key input information. The individual key information is respectively taken out from the key board at different timing intervals not overlapping each other in time. Addition is repeatedly carried out during the period beginning at the appearance of the key signals and ending at a time boundary marker, so that the key inputs are introduced in a binary fashion into the integrated circuit through the minimum connection terminals. The arrangement is used in desk-top electronic calculators, electronic price-computing scales, electronic cash registers, etc.

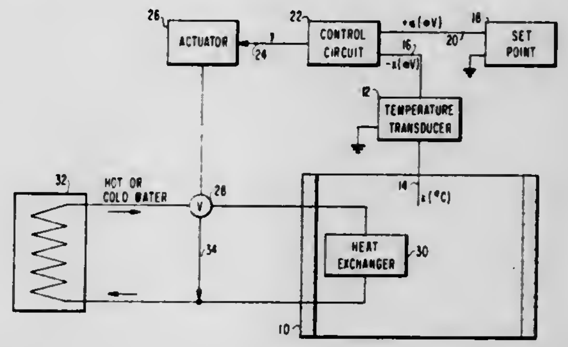
3,834,617
PID CONTROLLER FOR HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS

Milos Dyntar, Steinhausen, Switzerland, assignor to Landis & GYR AG, Zug, Switzerland

Filed May 14, 1973, Ser. No. 359,919

Int. Cl. G05b *11/42*

U.S. Cl. 236—1 C **19 Claims**



A heating and/or air conditioning system including a novel controller of the PID type. A proportional integrator (PI) circuit is arranged to receive the output signal from a differentiator (D) circuit which has been delayed and inverted in a summing circuit together with an input control signal to thereby provide a PID controller having a negative delayed D influence. Such controllers are sometimes referred to as a PI-minus-D controller. The circuit employs operational amplifiers and the time delay provided by the differentiator circuit is 7 minutes as compared with the time constant of approximately 2 minutes for the integrator and the PI portion of the circuit. The PID controller as disclosed operates through a broad range of frequencies between about 20 seconds and 50 minutes to produce a substantially optimum regulation of the fuel or heat exchanging medium control valve without the need for a separate field adjustment by the installation mechanic.

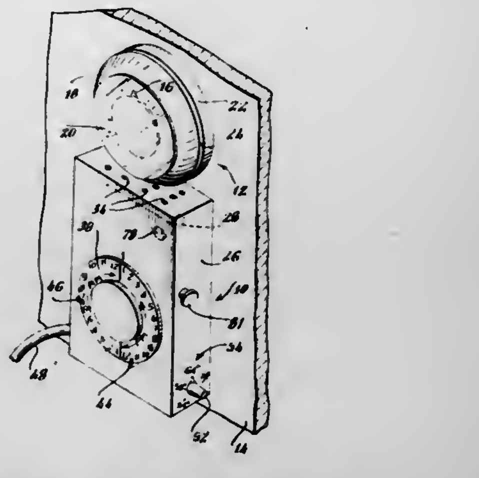
3,834,618
TEMPERATURE SETBACK CONTROL

Leonard Buckwalter, Weston, Conn., assignor to Louis H. Keens, Milton, Conn., a part interest

Continuation-in-part of Ser. No. 385,857, Aug. 6, 1973, abandoned. This application Feb. 11, 1974, Ser. No. 441,419

Int. Cl. H01h *37/14*

U.S. Cl. 236—46 **17 Claims**



A temperature setback control is described which may be conveniently utilized with existing heating systems by mounting the control within an air-flow influencing distance from a conventional thermostat which controls the heating system. The control produces a convection flow of heated air during a setback time period to obtain a temperature setback level in the room heating zone or building in which the thermostat is located. A temperature sensor regulates the operation of the

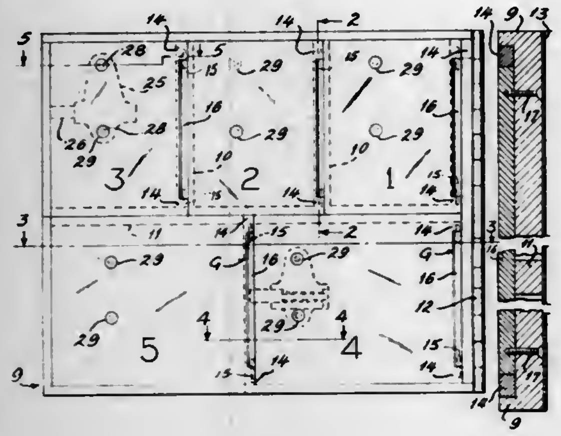
3,834,612
COMPARTMENT DOOR STRUCTURE

Willard H. Bixby, Steeleville, Ill., assignor to American Device Manufacturing Company, Steeleville, Ill.

Continuation-in-part of Ser. No. 873,031, Oct. 31, 1969, abandoned. This application Aug. 19, 1971, Ser. No. 173,034

Int. Cl. B65d *91/00*

U.S. Cl. 232—25 **11 Claims**



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The invention contemplates the mounting of a plurality of doors, as described above, in a common frame which is hinged at one side to a cabinet or wall so as to swing on its hinge as a unit with all of the doors having their outer faces flush with the common frame.

3,834,613
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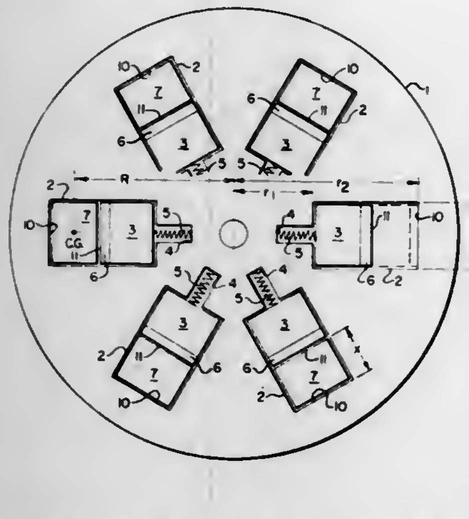
Continuation-in-part of Ser. No. 119,469, March 1, 1971. This application Oct. 5, 1972, Ser. No. 295,143

Int. Cl. B04b *9/14*

U.S. Cl. 233—23 A **2 Claims**



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wherein

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r_2 is the distance between the center of rotation of the rotor and the radially outermost surface of the compartment,

x is the distance between the radially innermost surface of the sample container and the radially outermost surface of a compartment,

b is the width of the compartment,

h is the height of the compartment,

R is the distance between the center of rotation of the rotor to the center of gravity of the sample container plus sample,

W is the total weight of the container and sample,

y is the density of the weight,

θ is the angle of incline of a surface of the weight with respect to a vertical plane and

1 is the distance from the top of the weight to the intersection of the inclined surface, if any, and the radially outward surface of the weight. The angle, θ, ranges from 0 to $\tan^{-1}[r_2 - r_1 - x]$

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Int. Cl. G06c *19/02*

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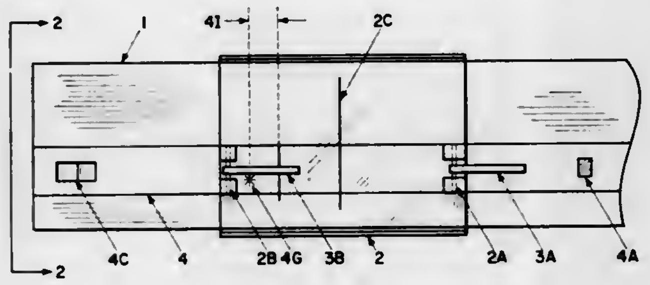

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Filed Oct. 20, 1972, Ser. No. 299,562

Claims priority, application Japan, Mar. 23, 1972, 47-29248

Int. Cl. G01b *5/28*

U.S. Cl. 235—151.11 **6 Claims**

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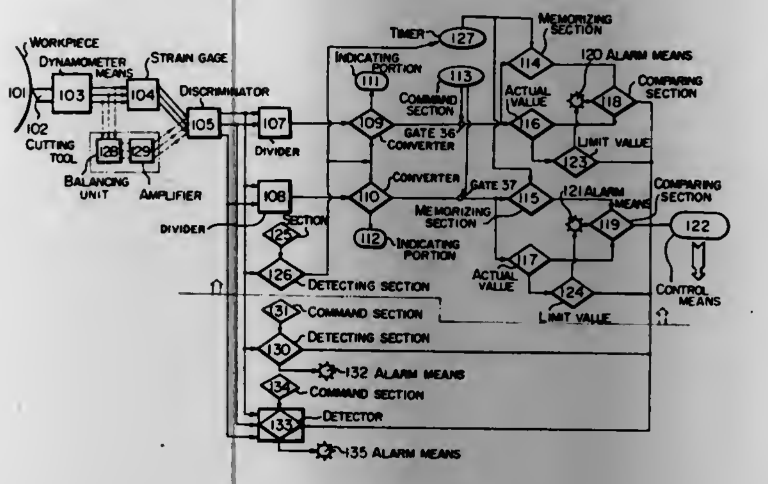

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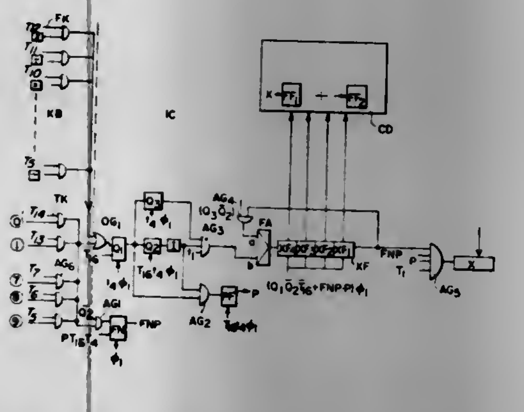
Claims priority, application Japan, Sept. 13, 1971, 46-71082

Int. Cl. G06f *3/02;* **H03k** *13/256*

U.S. Cl. 235—160 **14 Claims**



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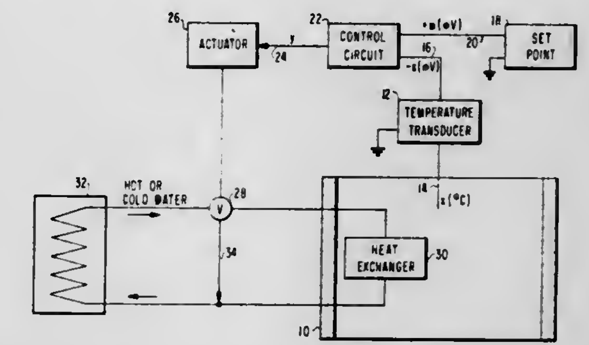
3,834,617
PID CONTROLLER FOR HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS

Milos Dyntar, Steinhausen, Switzerland, assignor to Landis & GYR AG, Zug, Switzerland

Filed May 14, 1973, Ser. No. 359,919

Int. Cl. G05b *11/42*

U.S. Cl. 236—1 C **19 Claims**



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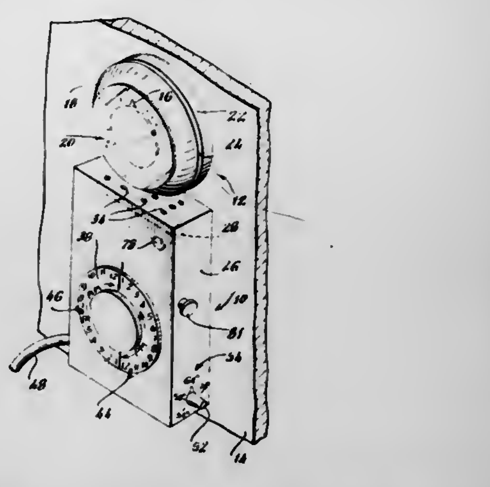
Int. Cl. H01h *37/14*

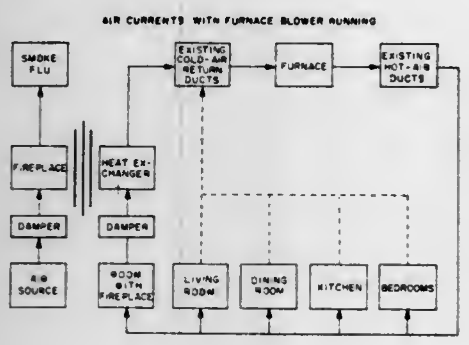
U.S. Cl. 236—46 **17 Claims**



A temperature setback control is described which may be conveniently utilized with existing heating systems by mounting the control within an air-flow influencing distance from a conventional thermostat which controls the heating system. The control produces a convection flow of heated air during a setback time period to obtain a temperature setback level in the room heating zone or building in which the thermostat is located. A temperature sensor regulates the operation of the control to maintain the room at the setback temperature level. A housing to enable the influencing of the thermostat with the convection flow of heated air is described.

3,834,619
FIREPLACE SYSTEM

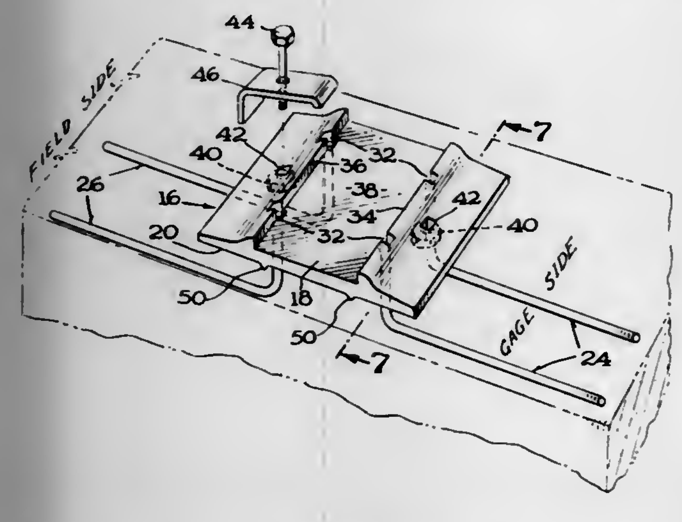
Donald F. Glover, 4128 Sir Walter Rd., Olney, Md. 20832
Filed Jan. 2, 1974, Ser. No. 430,075
Int. Cl. F24b *7/00*
U.S. Cl. 237—81 **10 Claims**



This fireplace system consists of an integrated fireplace heat exchanger and forced air furnace. The heated air from the fireplace heat exchanger flows to the furnace cold air return duct, through the furnace and thence to the structure. A preferred fireplace heat exchanger for use in this system is a downdraft heat exchanger.

3,834,620
PRECAST RAILROAD TIE AND TIE PLATE

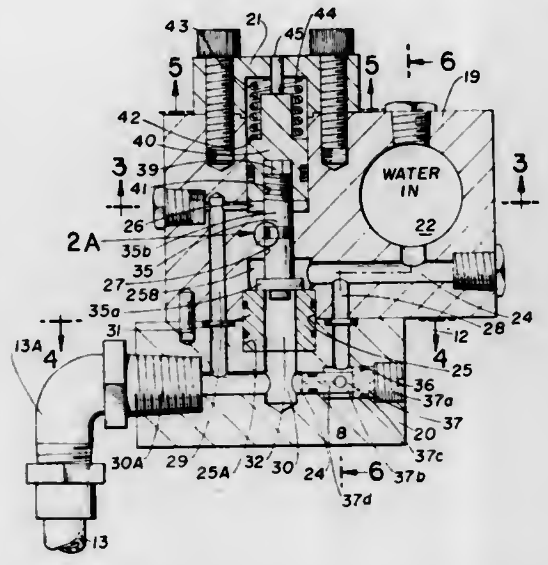
Jamie S. Barlett, 6927 Green Hill, Tampa, Fla. 33617
Filed Dec. 19, 1972, Ser. No. 316,567
Int. Cl. E01b *2/00, 9/00, 9/40*
U.S. Cl. 238—287 **27 Claims**



A reenforced precast concrete railroad tie having rail supporting and anchoring plates integrally molded thereinto. The rail plates in one form have a pair of L-shaped anchor and reenforcing rods welded to each of the gage and field sides of the tie plate, with portions of the rods having substantial longitudinal length to supplement other reenforcing rods molded longitudinally within the tie. The tie plate is further provided on its generally planar underside with either a welded on or integrally formed fixed threaded nut depending between each pair of the L-shaped rods at the gage and field sides to accomodate complementally threaded bolts cooperating with rail clip fasteners, the bolts passing through tie-plate-formed apertures correspondingly aligned with the threaded opening in the nuts. In another form the L-shaped rods are replaced by inverted T ot π shaped rods. A novel apparatus subassembly and related method utilizing presently conventional components and techniques in a novelly improved manner is also contemplated herein.

3,834,621
FLUID DELIVERY SYSTEM

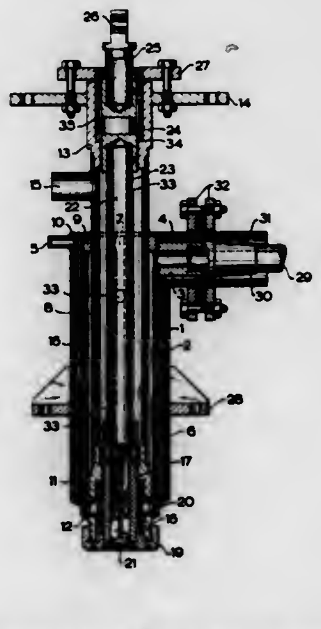
Amos Pacht, and Hubert E. Magee, Jr., both of Houston, Tex., assignors to Partek Corporation of Houston, Houston, Tex.
Filed Oct. 13, 1972, Ser. No. 297,216
Int. Cl. F16k *21/00*
U.S. Cl. 239—76 **11 Claims**



A high pressure fluid delivery system is disclosed in which two or more guns, each having a high pressure nozzle outlet and a low pressure dump outlet, may be connected to and operated from the same pump. Pressure responsive control apparatus is provided in the flow line between each gun and the pump and each such apparatus includes a valve responsive to the fluid pressure at its respective gun for directing fluid either directly to such gun when flow is through the gun nozzle, or through an orifice in said apparatus substantially the same size as the nozzle orifice of such gun when the gun is dumping.

3,834,622
FILLING NOZZLE WITH HEATING JACKET

Leo Berg, Hurth-Alstadten, Germany; Gerhard Johann Lenemann, Middelbourg, Netherlands, and Johannes Wilhelmus Kinneging, Schwalbach/Hessen, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack bei Koln, Germany
Filed Aug. 15, 1972, Ser. No. 280,806
Claims priority, application Germany, Aug. 18, 1971, 2141314
Int. Cl. B05b *1/24*
U.S. Cl. 239—132.1 **5 Claims**



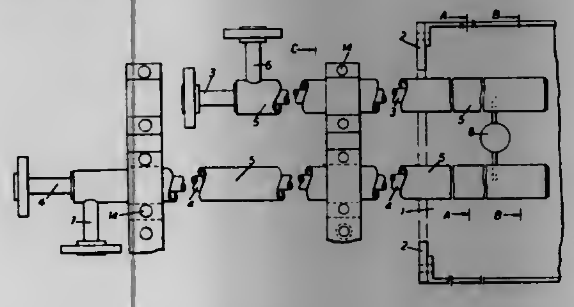
Liquid yellow phosphorus is filled into drums with the use of a filling nozzle or lance. The nozzle or lance substantially comprises a control tube provided with a plurality of perforations and connected at its top end portion to a cylindrical member which carries an eye for the connection of a control unit via a connecting piece of tubing. A nozzle supporting tube which concentrically surrounds the control tube and is provided in its upper part with a warm water inlet, carries at its bottom end a control cylinder with a control piston having a drilling running through it. The control piston is fixed to a nozzle tube via a conical bottom. At its top end, the nozzle supporting tube has a gland with a supporting flange, the nozzle tube concentrically surrounding the nozzle supporting tube so as to form an annular chamber receiving the yellow phosphorus. A heating jacket is disposed around the nozzle tube so as to form a heating chamber, the heating jacket having passed through it in its upper part firstly a double tube delivering warm water to the heating chamber and delivering yellow phosphorus to the annular chamber, and secondly a water outlet. A supporting flange is secured to the heating jacket, and a spring-loaded water outlet valve is provided in the bottom end portion of the control piston.

The installation filling drums with liquid phosphorus with the use of the filling nozzle of lance substantially comprises a roller track which is arranged in inclined position.

A rotating table is mounted after the fashion of a turret in the pivot on a vertical shaft. A stationary filling column is secured to the periphery of the rotating table, with filling nozzle. A switch and control desk are arranged at the back of the filling column, and a level driven roller track and a stripper are arranged on the periphery of the rotating table at the point at which the roller track commences.

3,834,623
SPRAYING SUBSTANCES

John Terence Sullivan, and Robert George Littlefair, both of Stockton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England
Filed July 27, 1973, Ser. No. 383,294
Claims priority, application Great Britain, Aug. 2, 1972, 36013/72
Int. Cl. B05b *1/24*
U.S. Cl. 239—139 **7 Claims**

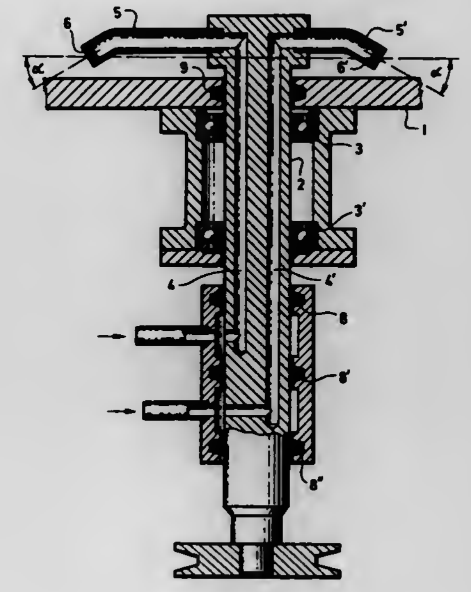


Apparatus for spraying substances which are solid at ambient temperatures, using an atomising nozzle having an inlet for compressed air, an inlet for liquid, and an outlet for spraying mixed air and liquid, comprises a steam-jacketed pipe for compressed air connected to the air inlet and a steam-jacketed pipe for the substance connected to and through the liquid inlet so as to deliver the molten substance substantially up to the spray outlet.

3,834,624
APPARATUS FOR FLUIDIZING POWDERS

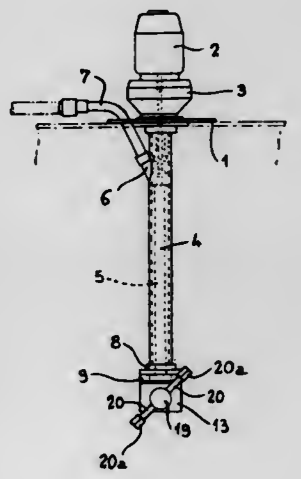
Jan Novosad; Vladimir Bazant; Vlastimil Smid, and Ratibor Majzlik, all of Praha, Czechoslovakia, assignors to Ceskoslovenska akademie ved, Praha, Czechoslovakia
Filed June 27, 1973, Ser. No. 374,014
Claims priority, application Czechoslovakia, June 27, 1972, 4566-72
Int. Cl. B05b *3/02*; **F23d** *11/04*
U.S. Cl. 239—214.15 **7 Claims**

The apparatus comprises a vertical vessel provided with a rotating gas-feed unit for maintaining powders in a fluidized state. The rotating gas-feed unit is provided above the bottom of the vessel with at least one tube extension terminating in a nozzle. The gas-feed unit may contain a plurality of tube extensions with nozzles, the tube extensions having different lengths and being bent in such a way, that the longitudinal axis of the nozzles forms an angle of 0° – 90° with respect to a radial direction passing through the nozzle opening in the direction of nozzle rotation and an angle of 0° – 45° in the same plane in the direction towards the bottom of the vessel. The vessel can be provided by several gas-feed units to which mixer blades may be attached.



3,834,625
DESCALING APPARATUS WITH ROTARY JETS

Jean Barthod-Malat, 21 rue Baraban, Lyon, France
Filed June 20, 1973, Ser. No. 371,759
Int. Cl. B05b *3/00, 13/06*
U.S. Cl. 239—227 **4 Claims**



In an apparatus with rotary jets of the kind wherein the jet unit is rotatably carried by a support which rotates about an axis perpendicular to the axis of the said unit (as for instance, the axis of the jet unit being horizontal and the axis of the support vertical), the support drives the jet unit through a speed reducing gearing with perpendicular axes (as for instance a worm gearing) which receives its motion from a planet pinion carried by the support and in mesh with a fixed crown gear, the number of teeth on the pinion and on the crown gear being incommensurable so that the jet unit is at different angular positions after each full revolution of the support.

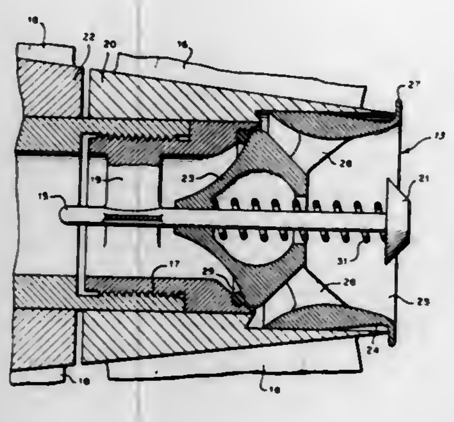
3,834,626
BELLMOUTH VEHICLE EXHAUST PORT

Maurice M. Sevik, and Fred E. Smith, both of State College, Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 6, 1970, Ser. No. 31,052

Int. Cl. B64d *33/04*

U.S. Cl. 239—265.13 **2 Claims**



Subject disclosure relates to a unique exhaust nozzle for an underwater vehicle which minimizes the generation and radiation of acoustic energy over a wide band of frequencies. The improved exhaust nozzle structure comprises an external annular lip that extends outwardly at a right angle to the longitudinal axis of the vehicle and forms a cavity downstream from the vehicle into which combustion gases of the vehicle are noiselessly discharged.

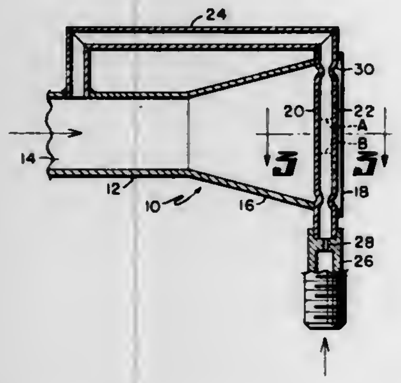
3,834,627
FLAT AIR-BLAST FUEL INJECTOR

Sidney C. Watkins, Bridgeport, Conn., assignor to Avco Corporation, Stratford, Conn.

Filed Apr. 2, 1973, Ser. No. 346,768

Int. Cl. B05b *7/08, 7/12;* **F02c** *7/22*

U.S. Cl. 239—430 **9 Claims**



A fuel injector comprises a duct receiving pressurized air and having an elongated slot as a closed flared end. A fuel distribution manifold is positioned within the conduit adjacent the slot and has a series of spaced discharge ports for directing fuel out of the manifold. A momentum balance is achieved between fuel which enters the manifold at one end and air entering at the other end of the manifold to provide discharge of fuel from a varying numbr of openings. This automatically provides a uniformly distributed fuel/air mixture for given levels of fuel flow irrespective of variations in air density. The injector is also provided in annular form for use in an annular combustor of a gas turbine engine.

3,834,628
TRICKLE IRRIGATION DEVICE

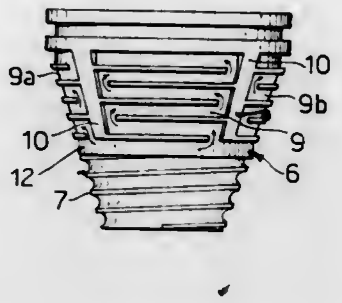
Herzl Selman, Ramot Hashavim, Israel

Filed Mar. 20, 1973, Ser. No. 342,964

Claims priority, application Switzerland, Apr. 25, 1972, 6140/72; South Africa, Jan. 29, 1973, 73/0636

Int. Cl. B05b *1/30*

U.S. Cl. 239—542 **10 Claims**



Trickle irrigation devices are described comprising an outer housing and an inner core. The contacting surfaces of the housing and core define a chamber and a plurality of separate parallel labyrinths each communicating with the chamber. The core is fixed within the housing by means of threads which define a spirally-extending conduit providing a path, between the water inlet and the chamber to the labyrinths. In one described embodiment, the core is a unitary member formed with both the threads and the labyrinth configuration; and in a second described embodiment the core comprises two sections, one being formed with the threads, and the other being a replaceable annular insert formed with the labyrinth configuration.

3,834,629
METHOD AND MEANS FOR SHAPING A STREAM OF MELT FLOWING FROM A TAPPING HOLE

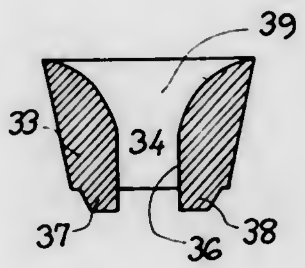
Per Ingvar Hellman, and Jan Ivar Sondell, both of Soderfors, Sweden, assignors to Stora Kopparbergs Bergslags Aktiebolag, Falun, Sweden

Filed Aug. 18, 1972, Ser. No. 281,984

Claims priority, application Sweden, Aug. 24, 1971, 10748/71

Int. Cl. B05b *1/04*

U.S. Cl. 239—594 **4 Claims**



A falling stream of a liquid tends to obtain a circular cross sectional shape, owing to the surface tension of the liquid. In the manufacture of metal powder by atomizing a falling stream of molten metal it is desired, however, that the stream shall have a flattened cross sectional shape. It has been found useful to make the molten metal flow through an orifice having a rectangular cross sectional area, and to make the molten metal follow the short sides of the orifice for a longer distance than it follows the long sides of the orifice.

3,834,630
RECOVERY OF PACKAGED CONTENTS

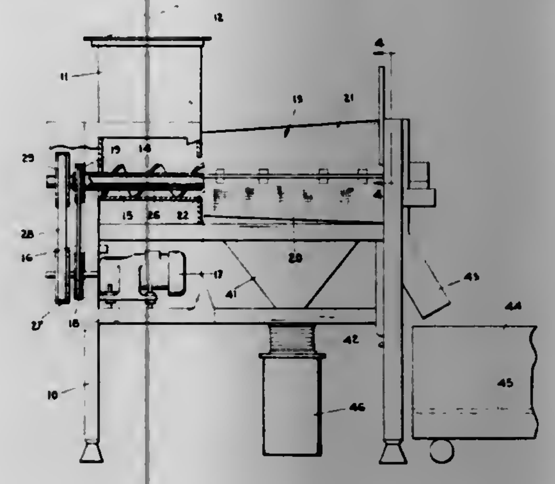
William B. Nelson, London, England, assignor to Gunson's Sortex, Limited, London, England

Filed June 2, 1972, Ser. No. 259,208

Claims priority, application Great Britain, Nov. 26, 1971, 54988/71

Int. Cl. B02c *13/08*

U.S. Cl. 241—19 **16 Claims**



A package opening apparatus and method to recover contents of packages of paper and other tearable materials wherein the packaging material is beaten and shredded in a separating container or zone, the contents of the package is passed through holes in the separating container or zone, and the packaging material is blown by a draft induced within the separating container or zone out through an outlet in the separating container or zone.

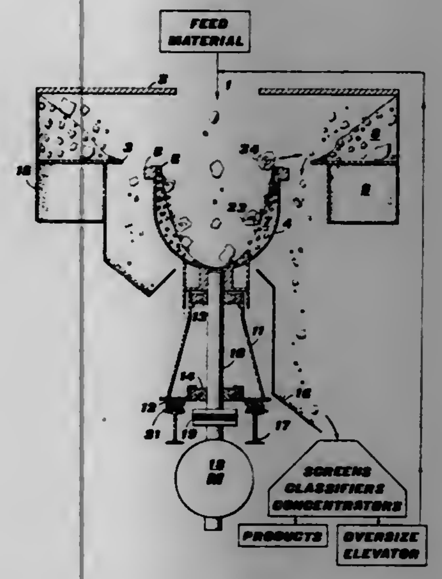
3,834,631
SPIN BREAKING PROCESS

Thomas C. King, Florence, Ariz. 85252

Filed Apr. 18, 1973, Ser. No. 352,226

Int. Cl. B02c *19/00*

U.S. Cl. 241—26 **22 Claims**



A tensile-type crushing system combined with autogenous grinding. A symmetrical bowl-shaped element is rotated at high speed, and is autogenously lined with centrifuged material in process. Combined intermediate crushing, fine crushing and grinding is accomplished as pieces of feed material are accelerated by frictional contact with the autogenous bowl lining to high rotative or spin velocities about their own centers of gravity on their spiral path out of the bowl such that internal fracture is obtained when internal centrifugal force exceeds the tensile strength of the material itself. Simultaneously, additional crushing and grinding is obtained in compression and shear as a result of impact, abrasion and attrition between the particles themselves and the autogenous bowl lining in the process of acceleration in the bowl, and the process of deceleration in a surrounding stationary annular trap chamber, also autogenously lined in the impact zone of projected material with material in process. Some recycle of material projected from the rotating bowl is obtained by rebound from the trap chamber. A novel method of gyro-stabilizing the rotating bowl is used to compensate for unbalanced forces inherent in large size feed material. Efficient crushing is obtained by centrifugally induced tensile stress which requires less energy than crushing by compression stress. Contamination of product from manufactured linings and grinding media is minimized. The system may be employed with standard closed circuit screening, classification or concentration processes.

3,834,632
IMPACT ORE MILL

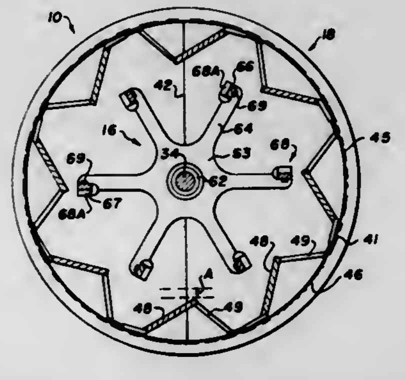
Wesley E. Docksteader, P. O. Box 758, Grand Forks, Canada

Filed Jan. 8, 1973, Ser. No. 321,723

Claims priority, application Canada, Jan. 18, 1972, 132802

Int. Cl. B02c *13/06, 13/30*

U.S. Cl. 241—187 **10 Claims**



A mill is provided for crushing ore by impaction which has a rotor and a drum driven in the same direction at varying speeds. The axis of rotation of the drum can be shifted relative to the axis of rotation of the rotor to selectively adjust the spacing between beater blades on the rotor and impact plates carried by the drum. Seals are provided between the rotor shaft and the side walls of the drum to allow this relative movement to take place. The beater blades are each made up of identical parts which can be rearranged on the rotor to compensate for wear.

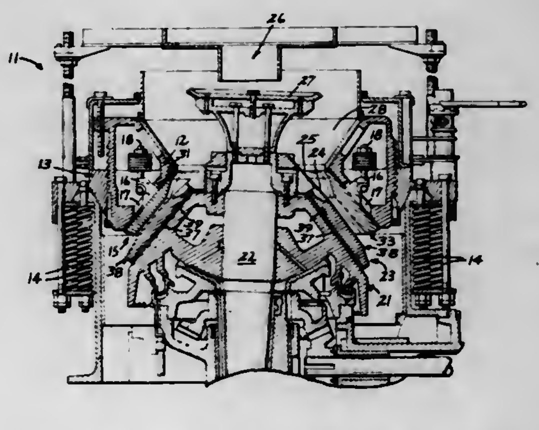
3,834,633
BOWL AND MANTLE ASSEMBLY FOR CONE CRUSHERS

James R. Dougall, New Brighton, and Alvin Donald Moll, St. Paul, both of Minn., assignors to Minneapolis Electric Steel Castings Company, Minneapolis, Minn.

Continuation of Ser. No. 243,688, April 13, 1972, abandoned. This application Dec. 10, 1973, Ser. No. 423,547

Int. Cl. B02c *2/04*

U.S. Cl. 241—295 **17 Claims**



Liner assemblies for the bowl and mantel of a gyratory cone crushing machine. Each assembly includes a liner backing plate formed from a material of low abrasion resistance, such as mild steel, and which takes the form of a truncated cone to conform to the associated bowl or mantle. The crushing surface of the liner assembly is defined by a plurality of arcuate segments cast from martensitic white iron or steel and having a thickness substantially greater than that of the backing plate. The segments are arranged in ring fashion on the backing plate and secured thereto with a resilient adhesive such as urethane.

3,834,634

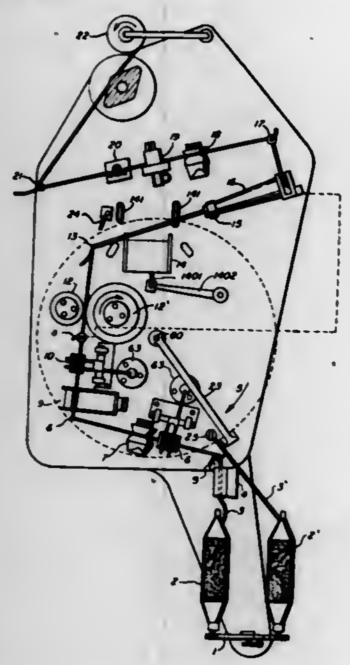
METHOD OF CONTROLLING THE KNOTTING PROCEDURE IN TEXTILE MACHINES, PARTICULARLY AUTOMATIC WINDING MACHINES AND PNEUMATIC CIRCUIT FOR PERFORMING SAID METHOD

Jiri Havlas; Premysl Kostelecky, and Jaroslav Sedlarik, all of Liberec, Czechoslovakia, assignors to Elitex, Zavody Textilniho Strojirenstvi generalni reditelstvi, Liberec, Czechoslovakia

Continuation-in-part of Ser. No. 33,477, April 30, 1970, abandoned. This application Dec. 7, 1970, Ser. No. 95,542

Int. Cl. B65h *54/22*

U.S. Cl. 242—35.6 R **13 Claims**



Improved method and apparatus for controlling the yarn knotting procedure in textile machines. The invention is particularly adapted for application of winding machines having a source of supply of yarn from which the yarn travels to the winding mechanism, and a knotting mechanism disposed downstream of the winding mechanism. The apparatus includes means for detecting the absence of yarn under tension in a zone downstream of the knotting mechanism, fluid pressure means for initiating the operation of the knotting mechanism, a source of fluid under pressure, conduit means including a valve means selectively connecting the fluid pressure source and the means for operating the knotting mechanism, and means operated by the yarn tension detecting means for operating the valve means to actuate the knotting mechanism.

3,834,635

METHOD AND APPARATUS FOR BRAKING FILAMENTARY MATERIAL UNWOUND FROM A PACKAGE

Erwin Pfarrwaller, Winterthur, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland

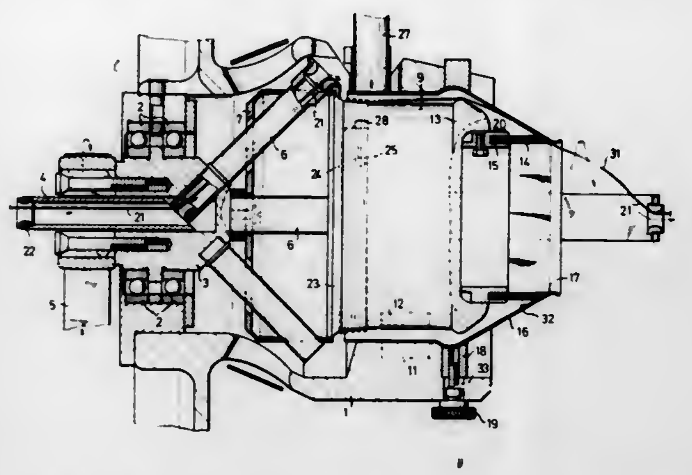
Filed Apr. 19, 1973, Ser. No. 352,831

Claims priority, application Switzerland, Apr. 28, 1972, 6404/72

Int. Cl. B65h *51/02*

U.S. Cl. 242—47.01 **18 Claims**

The braking device is constructed and positioned to act on the filamentary material from within the balloon formed by the material during an unwinding step, for example, for a pick in a weaving machine. The braking device can be used in cooperation with a balloon limiter or not. Braking occurs as soon as no further material is needed for a picking operation.



3,834,636

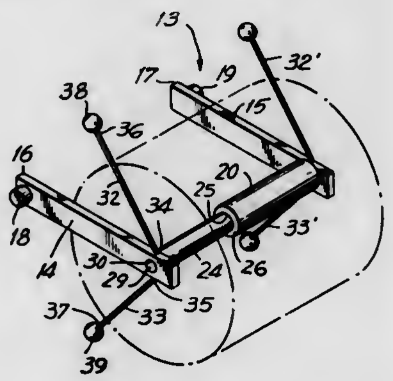
EXTENSIBLE TOILET TISSUE ROLL HOLDER

Richard Linick, 62-10 99th St., Rego Park, N.Y. 11374

Filed Nov. 15, 1973, Ser. No. 415,981

Int. Cl. B65h *19/00*

U.S. Cl. 242—55.2 **11 Claims**



Apparatus for adapting existing wall mounted toilet tissue support fixtures of the type having opposed, inwardly facing roll support sockets to receive toilet tissue rolls of larger than standard diameter. The apparatus includes extensible support bars, the inner ends of which are mounted in existent fixtures, the outer ends of which receive the tissue roll, and strut means which may be variably positioned to enable the apparatus to be accommodated to varying dimensional characteristics of existing fixtures.

3,834,637

COIL STABILISING SYSTEM

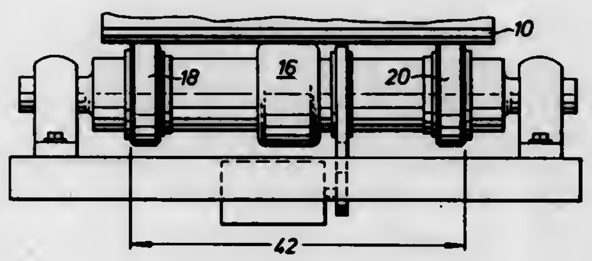
Geoffrey Ronald Reed, Ham, England, assignor to British Steel Corporation, London, England

Filed June 4, 1973, Ser. No. 366,291

Claims priority, application Great Britain, June 5, 1972, 26090/72

Int. Cl. B65h *17/08*

U.S. Cl. 242—65 **7 Claims**



An apparatus for supporting a coil of strip material and for rotating it about its polar axis comprises two sets of rollers arranged in parallel side-by-side relation, each set of rollers being coaxial upon a shaft. One driven roller is provided to rotate the coil by frictional engagement therewith, the remaining said rollers being idlers whose peripheral speed is permitted to vary compared to that of the driven roller to accommodate local variations in the peripheral speed of the coil which may arise due to local variations in coil radius. The width of the coil contacting surface of each roller constitutes a minor portion only of the axial distance spanning the said surfaces of the two rollers axially most distant from each other.

3,834,638

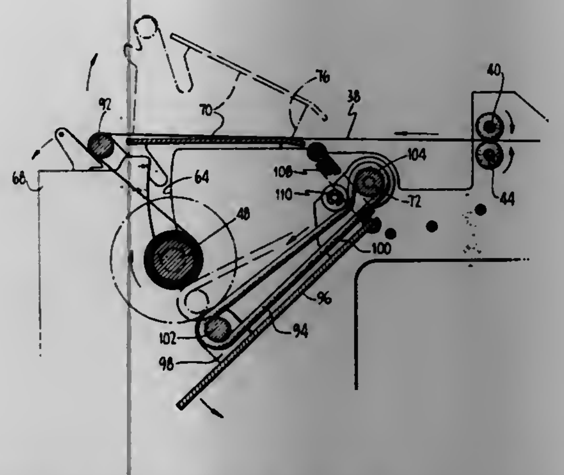
ASSEMBLY FOR SPOOLING AN AUDIT TRAIL IN A DATA TERMINAL

James G. Savage, Newark, and Arnold L. Hawkins, San Leandro, both of Calif., assignors to The Singer Company, New York, N.Y.

Filed Jan. 5, 1973, Ser. No. 321,196

Int. Cl. B65h *17/00*

U.S. Cl. 242—67.1 R **4 Claims**



An assembly for facilitating spooling of a roll of record media, such as paper, to provide a permanent record of all transactions entered into a point-of-sale terminal comprising a movable belt engageable with the paper to rotate the paper and spool to wind the paper onto the spool, thus automatically compensating for the change of diameter of the roll.

3,834,639

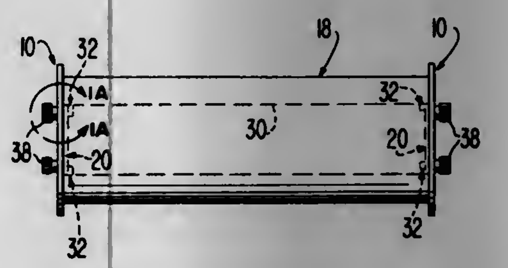
MOUNT FOR CYLINDRICAL ROLL

Walter W. Barber, 31830 Trenor Ave., Hayward, Calif. 94514

Filed Apr. 13, 1973, Ser. No. 351,053

Int. Cl. B65h *75/02*

U.S. Cl. 242—68 **13 Claims**



Mounting structure for each end of a cylindrical roll, such as a length of photographic film wound on a central, tubular core of a penetrable material, such as cardboard or the like. The structure comprises a generally circular flat plate having a central, circular projection on one face thereof. The projection is receivable within one end of the core and has lock means thereon accessible from the opposite face of the plate for releasably coupling the projection to the core. The plate, when attached to one end of the roll, can be supported on roller means, thereby allowing the roll to rotate about its central axis.

3,834,640

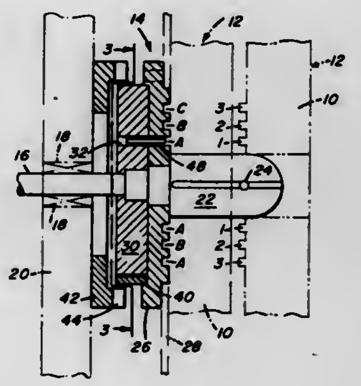
NORMALLY LOCKED SPINDLE MECHANISM UNLOCKABLE BY A COMPLIMENTARY CORE

Mark J. Devaney, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 23, 1973, Ser. No. 381,451

Int. Cl. B65h *17/02, 75/02*

U.S. Cl. 242—68.3 **10 Claims**



An improved normally locked spindle mechanism for a photographic processing apparatus or the like for preventing rotation of a core mounted thereon containing a film that is incompatible with the processing chemistry of the apparatus. The spindle mechanism has a core code structure that is responsive only to a film code structure on a core mounted thereon containing a film of a type that is compatible with the processing chemistry of the apparatus. In such instances, the film code structure coacts with the core code structure to unlock the spindle mechanism, allowing rotation of the core and the unwinding and feeding of the film therefrom into the apparatus. The core code structure is selectively changeable to conform to the processing chemistry for which the processing apparatus is programmed.

3,834,641

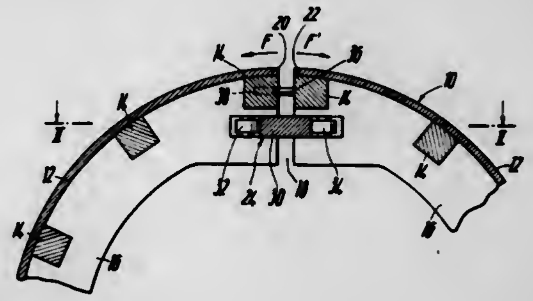
RETRACTABLE WINDING MANDREL

Bertrand P. E. Level, Le Vesinet, France, assignor to Plastrex-Manurhin S.A.R.L., Mulhouse Cedex, France

Filed Mar. 1, 1973, Ser. No. 337,020

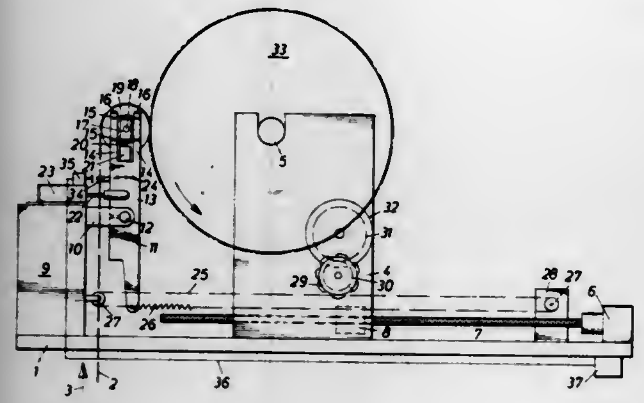
Int. Cl. B65h *75/24*

U.S. Cl. 242—72.1 **3 Claims**



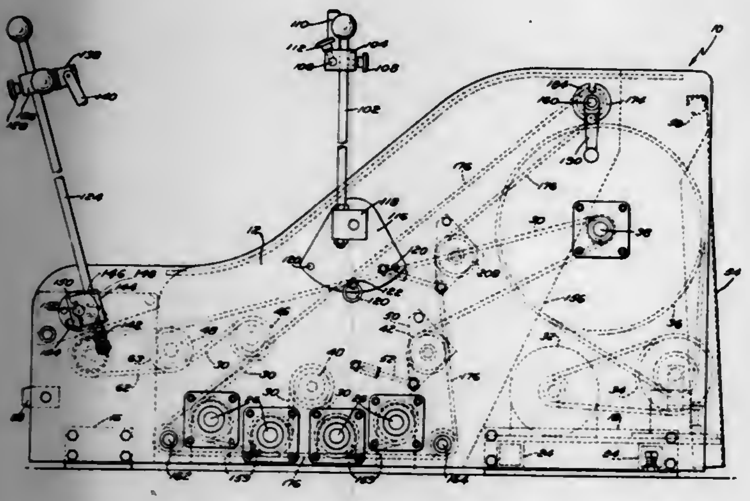
Retractable winding mandrel having a cylindrical casing slit in at least one location along the line parallel to the axis of the casing, there being abutments on the casing on each side of the slit and a cam means reciprocable between the abutments so as selectively to expend the casing, the casing being retracted or decreased in diameter when it is desired to remove a wound body therefrom.

3,834,642
APPARATUS FOR WINDING TAPES AND FILMS
Eberhard Kampf, Munich, Germany, assignor to Erwin Kampf Maschinenfabrik, Munich, Germany
Filed Mar. 6, 1973, Ser. No. 338,638
Claims priority, application Germany, Mar. 24, 1972, 2214350
Int. Cl. B65h *23/00, 17/02*
U.S. Cl. 242—75.5 **12 Claims**



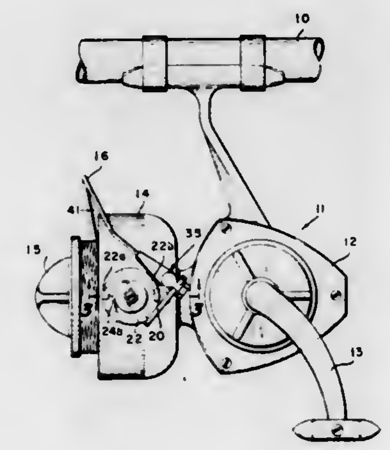
An apparatus for winding tapes and films where the support for the roll is lineally or pivotally displaced in response to the change in roll diameter which is sensed by electrical control means, and where a contact roller is applied against the roll with an adjustable predetermined pressure. The bearing for the contact roller is arranged to yield in response to the tape tension, the measurement of its displacement giving a continuous reading of the latter.

3,834,643
COIL STOCK CRADLE
Omer G. St. Sauveur, Holyoke, and Rudolph J. Adams, Chicopee, both of Mass., assignors to Carl G. Peterson Co., Smithfield, R.I.
Filed Sept. 17, 1971, Ser. No. 181,392
Int. Cl. B21c *47/22*
U.S. Cl. 242—78.7 **12 Claims**



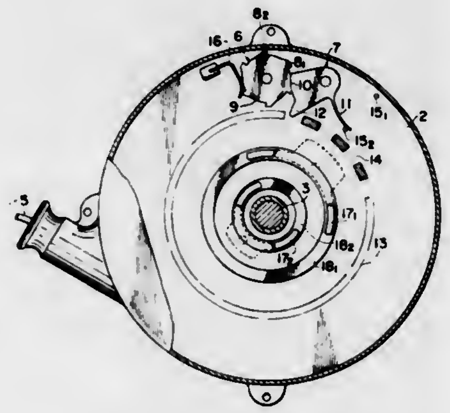
A coil stock cradle comprising a plurality of support rolls upon which the coil stock rests, a pinch roll assembly through which the free end of the strip from the coil extends, feeler means positioned adjacent the path of the strip as the strip passes from the pinch roll assembly, whereby if a predetermined amount of slack ceases to exist in the uncoiled strip, the strip will engage the feeler means, which in turn energizes motor means for driving the support rolls and the pinch rolls to feed a further length of strip from the coil, the cradle further comprising adjustable guide plates for maintaining the coil properly positioned in the cadle, said plates being adjustable in or out as a unit or being individually adjustable in or out, all of said adjustments being controllable from either side of the apparatus. The cradle also comprises a support and guide assembly for properly supporting and guiding the strip as it passes to its intended use in a punch press or the like, said support and guide assembly and the aforesaid feeler means each being universally adjustable.

3,834,644
FISHING REEL AND APPURTENANCE
Carl Stackawicz, 73 N. Midland Ave., Kearny, N.J. 07302
Filed Nov. 28, 1972, Ser. No. 309,966
Int. Cl. A01k *89/00*
U.S. Cl. 242—84.2 G **10 Claims**



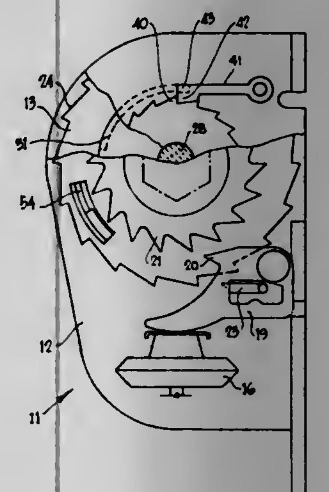
A spinning reel comprising a reciprocable fishing line spool, a rotatable carrier coaxial with the spool, and a bail and a line guide extension of the bail having pivotal connections with the carrier for being moved to casting and line take-in positions with reference to the spool, is characterized by the improvement which includes, line brake means connected with the bail and line guide on the carrier and comprising a finger forming a nip with the line guide and the nip being entrant accessibly to a fishing line being laterally moved longitudinally of the bail on a course toward one of the pivotal connections of the bail and line guide with the carrier.

3,834,645
CORD WINDING DEVICE
Toshinori Morishige, Tokyo, Japan, assignor to Starting Industry Company Limited, Tokyo, Japan
Filed Aug. 22, 1972, Ser. No. 282,664
Claims priority, application Japan, Feb. 5, 1972, 47-15297[U]; May 8, 1972, 47-53401[U]
Int. Cl. B65h *75/48*
U.S. Cl. 242—107.7 **7 Claims**



This invention relates to a cord winding device including an enclosed reel for receiving a length of cord, a spring for rewinding the reel, and a rotatable latch cooperating with the ratchet and operable to alternately release the ratchet to permit free rotation of the reel and then latch the ratchet in position restraining the reel against re-winding. A brake for controlling the rotation speed of the reel can be provided.

3,834,646
TAKE-UP SPOOL LATCH
Robert Boyson Heath, St. Marys, Australia, assignor to Rainsford Metal Products Proprietary Limited, South Australia, Australia
Filed Nov. 6, 1972, Ser. No. 303,965
Claims priority, application Australia, Nov. 9, 1971, 6940/71
Int. Cl. B65h *75/48*
U.S. Cl. 242—107.7 **9 Claims**



A take-up spool latch for a seat belt retractor of the type comprising a spool journalled for rotataion in a spool frame and incorporating a torsion spring for retracting a seat belt,

the latch having a clutch member and a brake member with means between them limiting relative movement, both the clutch and brake members having cam surfaces thereon which are engaged by a pawl which co-operates with a ratchet on the spool and is so arranged that:

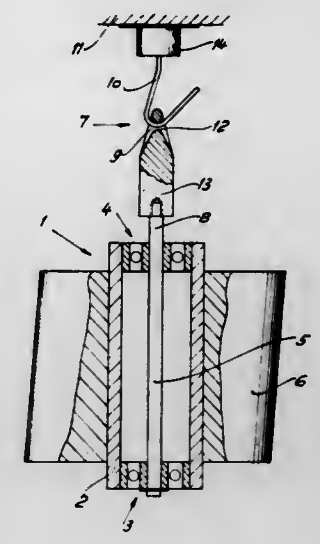
a. upon retraction of a seat belt which has been withdrawn from the spool the cam surfaces retain the pawl out of engagement from the ratchet teeth,

b. upon initial further withdrawal and during the limited rotation between the brake and clutch member the pawl is released by the cam surfaces and engage the ratchet teeth thereby preventing retraction,

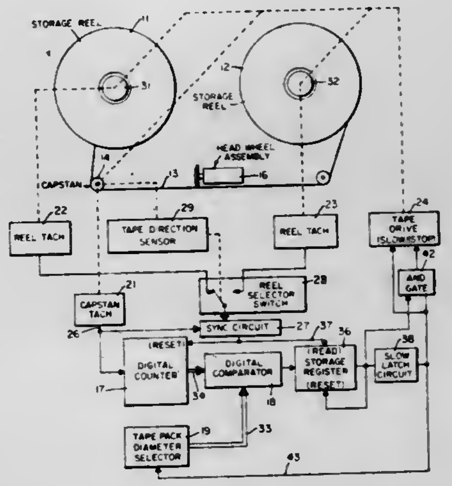
c. upon still further withdrawal the cam surfaces again engage the pawl and retain it out of engagement from the ratchet teeth, so that full retraction can again take place.

3,834,647
DEVICE FOR HOLDING A SPINDLE FOR DRAWING-OFF OF A YARN
Erhard Thaddaus May, Kempten, Germany, assignor to A. Ott, Kempten, Germany
Filed Jan. 15, 1973, Ser. No. 323,721
Claims priority, application Germany, Jan. 18, 1972, 2202086
Int. Cl. B65h *49/02*
U.S. Cl. 242—130.2 **9 Claims**

The spindle axle is disposed in vertical relation and is suspended at one end via an eye and hook so that the yarn is free to swing in a pendular manner. A damping means is also disposed between the hook and a fixed support point to damp vibrations.



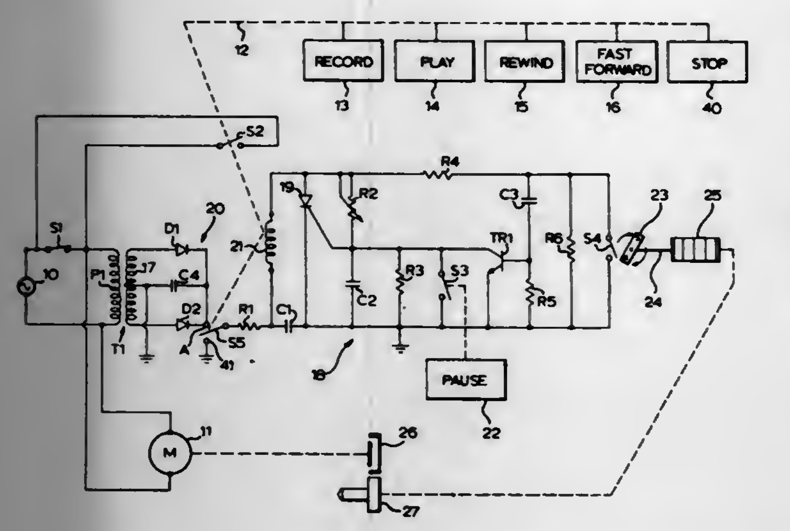
3,834,648
APPARATUS AND METHOD FOR SENSING DIAMETER OF TAPE PACK ON STORAGE REEL
Marshall G. Rose, Jr., Milpitas, and Harold V. Clark, Palo Alto, both of Canada, assignors to Ampex Corporation, Redwood City, Calif.
Filed Mar. 15, 1972, Ser. No. 234,758
Int. Cl. B65h *25/00*; **G11b** *15/32*; **G06m** *1/272*
U.S. Cl. 242—186 **6 Claims**



An end of tape sensor for sensing the approaching end of a supply of magnetic tape on a storage reel on a tape transport and for producing a control signal for controlling the tape drive means includes a feed tachometer means for detecting longitudinal tape speed, reel tachometer means for detecting reel rotational speed, digital counter means responsive to said feed and reel tachometer means for developing a digital signal representing the ratio of longitudinal tape speed to reel rotational speed, a tape pack diameter selector for producing a preselected digital ratio of longitudinal tape speed to reel rotational speed corresponding to a desired terminal tape pack diameter and digital comparator means for comparing said digital signal with said preselected digital ratio, said comparator including a storage register which produces a control signal to control said tape drive means when said digital signal and said preselected digital ratio achieve a plurality of matches in succession.

3,834,649
CONTROL NETWORK

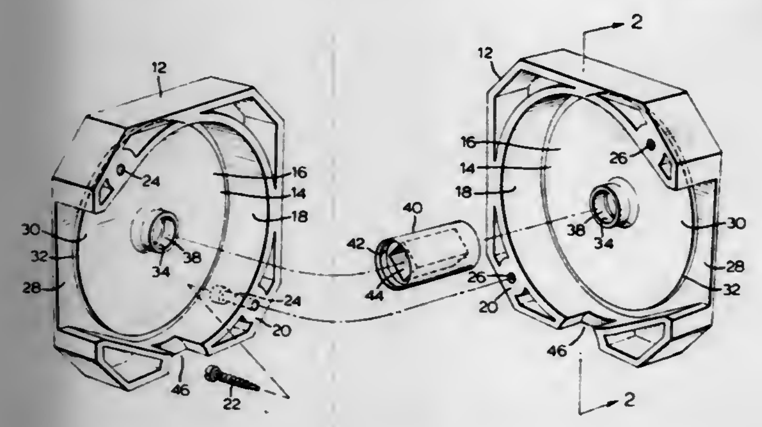
Joseph Papay, Kitchener, Ontario, Canada, assignor to Electrohome Limited, Kitchener, Ontario, Canada
Filed Sept. 5, 1972, Ser. No. 286,290
Int. Cl. B65h *25/32*; **G11b** *15/46*
U.S. Cl. 242—191 **10 Claims**



A control network that may be used to automatically turn off the drive motor and/or the mechanical drive of a tape deck when the tape has reached the end of its travel, but which also has many other uses, includes a capacitor that is connected to be charged from a source of D.C. potential. A circuit for discharging this capacitor includes a current responsive control device and a controlled discharge device having anode, cathode and control electrodes. A second capacitor connected to be charged from a source of D.C. potential is connected in circuit with the control electrode to control the operation of the controlled discharge device responsive to the charge on the second capacitor. Means are provided for discharging the second capacitor during normal operation of the tape deck or other device at a repetition rate such that insufficient charge builds up on the second capacitor to trigger the controlled discharge device.

3,834,650
TAPE CARTRIDGE

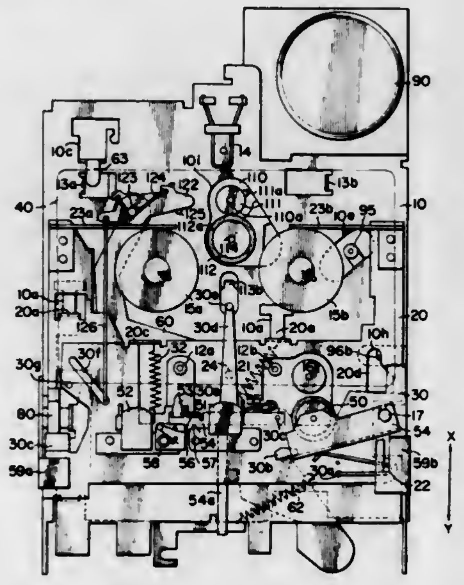
Peter Joseph Hall, Willowdale, Ontario, Canada, assignor to Microfilm Recording Company Limited, Weston, Ontario, Canada
Filed Mar. 30, 1973, Ser. No. 346,654
Int. Cl. G03b *1/04*; **G11b** *15/32, 23/04*
U.S. Cl. 242—192 **5 Claims**



A tape cartridge for fully winding a tape and a leader of greater width than the tape within the storage chamber formed within the housing. A pair of oppositely disposed winding shoulders are formed one on each end wall of the housing and extend substantially circumferentially thereof to receive the marginal edges of the leader while permitting the narrower tape to pass therebetween to be wound onto a spool which is rotatable within the housing. A passage opens outwardly from the chamber from within the housing to provide access to a leader mounted on the shoulder to permit the leader to be driven out of the chamber by being engaged by a roller or the like.

3,834,651
CASSETTE TAPE RECORDER

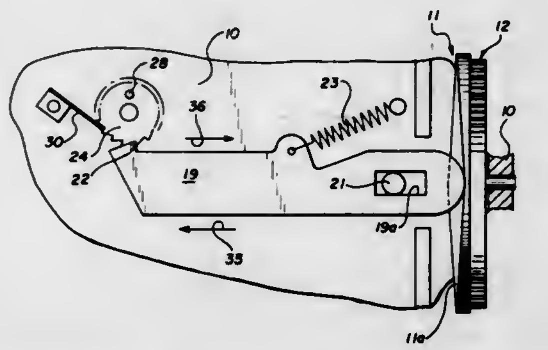
Shin Hashizume, Mito; Takashi Kubota, Katsuta; Katsuo Usui, Katsuta, and Hitoshi Ogasahara, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 19, 1973, Ser. No. 342,413
Claims priority, application Japan, Mar. 21, 1972, 47-27388
Int. Cl. G03b *1/04*; **G11b** *15/32, 23/04*
U.S. Cl. 242—199 **9 Claims**



A cassette tape recorder comprising a first motor for effecting a constant speed advance of a tape in a cassette and a second motor for effecting a fast advance of the tape, the second motor being adapted to be energized when the tape end is reached during the constant speed tape advancing operation, so as to terminate the constant speed advance.

3,834,652
FILM DRIVE FOR CINEMATROGRAPHIC APPARATUS

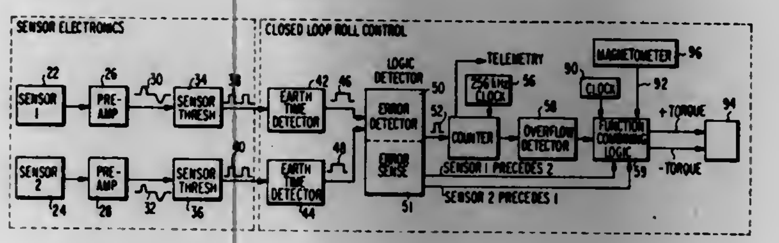
Gunter Sachs, Ruit a. F., Germany, assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Sept. 12, 1972, Ser. No. 288,473
Claims priority, application Germany, Oct. 6, 1971, 7137843[U]; Oct. 6, 1971, 7137842[U]
Int. Cl. B11b *15/32*; **G03b** *1/04*
U.S. Cl. 242—205 **6 Claims**



In a cinematographic apparatus, such as a camera or projector, an improved film coil winding mechanism is provided for advancing and winding a received film strip into a coil in a take-up chamber of the apparatus or in a received film cartridge. The coil winding mechanism includes a pawl which is mounted for reciprocal movement for advancing a cooperating ratchet member and thereby causing the film to be advanced. The pawl is driven in a first direction by drive means of the apparatus and energy is stored in the cooperating spring member such that when the pawl is released by the drive means and it becomes engaged with the ratchet member, the film is advanced as the pawl is driven in the reciprocal direction by the spring.

3,834,653
CLOSED LOOP ROLL AND YAW CONTROL FOR SATELLITES

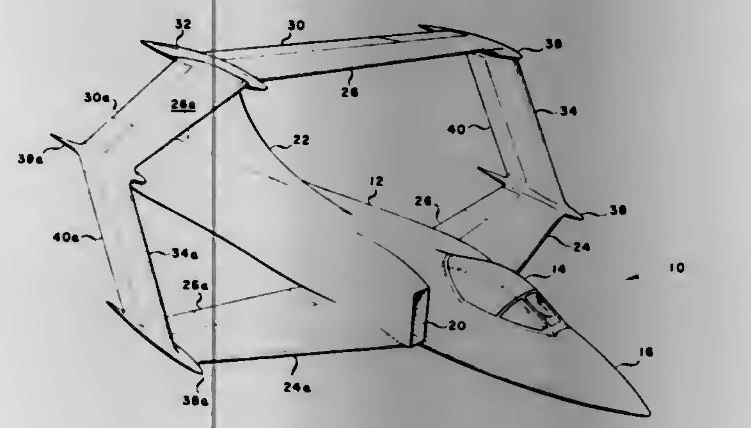
Harold Perkel, Levittown, Pa., assignor to RCA Corporation, New York, N.Y.
Filed Mar. 27, 1972, Ser. No. 238,483
Int. Cl. B64g *1/10*
U.S. Cl. 244—1 SA **7 Claims**



A magnetic torquing control system for the attitude control of pitch momentum biased satellites utilizing a closed loop for roll-axis control by interacting the satellite's magnetic dipole with the earth's magnetic field. The closed-loop system includes a pair of attitude sensors whose output error signals are processed in the satellite-mounted logic circuits to control correcting torques. At a predetermined clock-controlled time or, in response to control or sensing signals from a magnetometer, a torquer such as a magnetic dipole is energized at the position of its satellite's orbit relative to the magnetic equator to develop a magnetic field which interacts with the magnetic field of the earth to torque, primarily, the roll axis to correct thereby the errors in attitude of the pitch axis.

3,834,654
BOXPLANE WING AND AIRCRAFT

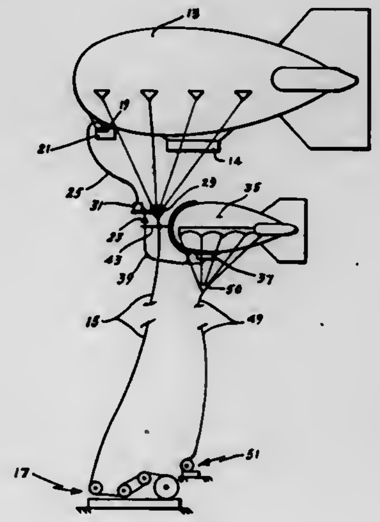
Luis R. Miranda, Sherman Oaks, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Mar. 19, 1973, Ser. No. 342,823
Int. Cl. B64c *3/06*
U.S. Cl. 244—13 **15 Claims**



An aircraft wing system wherein a first pair of rearwardly swept wings is interconnected at the wing tips to a second pair of forwardly swept wings, the interconnection being accomplished by a pair of vertically swept fins, the two pair of wings being horizontally and vertically staggered relative to one another. Each pair of wings is also structurally attached to another aircraft component.

3,834,655
TETHERED BALLOON REFUELING SYSTEM

Edward L. Crosby, Jr., Indialantic, Fla., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Mar. 26, 1973, Ser. No. 344,786
Int. Cl. B64d *39/00*; **B64b** *1/50*
U.S. Cl. 244—135 R **3 Claims**

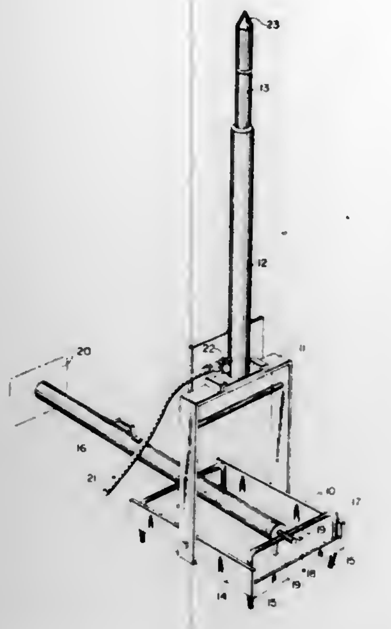


A system for refueling a tethered balloon while in flight by resupplying fuel to the auxiliary power unit without reeling in the main balloon. A nose ring attached to the tanker balloon guides it upward along the main balloon tether and serves to hold a probe on the fuel line in position to automatically engage a drogue which acts as an inlet for a pump mounted on a structure attached to the main balloon. Operation of the pump transfers the fuel from the tanker balloon to the fuel tank in the main balloon.

3,834,656
MEANS FOR MAINTAINING STABILITY OF ROCK DRILL BY REARWARD BRACING ANCHORAGE

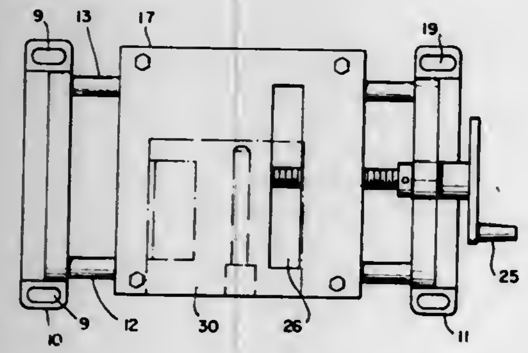
Roland L. Hunter, Meridian, Idaho, assignor to Mel Barrett; Milt Olson; Joe Furnes; Frank Michial; Richard Hunter; Don Fredricks; Boyde Holfrook; Sherm Walkley; Ed Samuels; Ed Byrnes, all of Salmon; Dick Bell; Dunham Bell, both of Osburn; Ross Murrey, Pocatello; Steve Colyer, Star; James Hunter, Meridan; Chester Hunter, Caldwell, all of, Indonesia; Carley Jeffs; Dale Taylor, both of Clearfield; Gene Jeffs, Layton, all of, Utah, part interest to each and Dock & Dock, Arlington, Va., a part interest
Continuation-in-part of Ser. No. 699,739, Jan. 22, 1968, abandoned. This application May 25, 1973, Ser. No. 364,093
Int. Cl. E21c *5/11*; **F15b** *11/08*; **E21c** *11/00*
U.S. Cl. 248—13 **8 Claims**

This invention relates to an extensible anchoring structure rigidly supported between two opposing walls of a mine stope, or drift or tunnel, whereby the rearward portion of a rock drill (the "jack leg") may be braced in fixed position to assure firm attack of the drill upon the face of the rock wall.



3,834,657
MOUNTING AND SUPPORT DEVICE FOR A ROTARY MACHINE

Antone Freitas, Jr., 14513 Elm St., San Leandro, Calif. 94579
Filed Nov. 8, 1972, Ser. No. 304,846
Int. Cl. F16m *11/04, 3/00*
U.S. Cl. 248—23 **3 Claims**

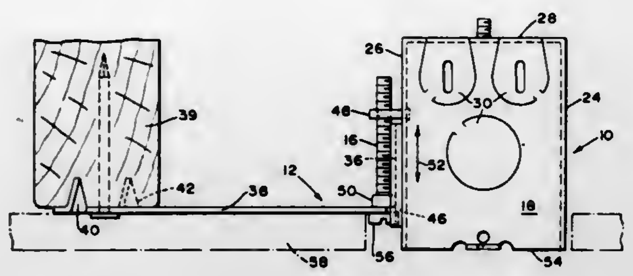


A support device for an alternator or generator includes a horizontal mounting plate which is laterally movable in relation to a driving source for the alternator or generator. The mounting plate is provided with a slot which receives and secures a bar from a generator support member or an alternator support member. The generator support member includes vertical arms in a channel-like configuration with a chain attached to the arms to secure a generator therebetween. The alternator support member includes a rod on which an alternator may be positioned by means of an aperture through the alternator. A drive belt secured between the driving source and the alternator or generator is properly tensioned by appropriate lateral movement of the mounting plate.

3,834,658
OUTLET BOX WITH ADJUSTABLE MOUNTING

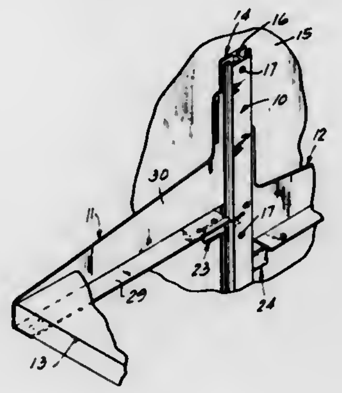
Panos C. Theodorides, 595 River St., Mattapan, Mass. 02126
Continuation-in-part of Ser. No. 227,772, Feb. 22, 1972, abandoned. This application May 18, 1973, Ser. No. 361,398
Int. Cl. H02g *3/08*; **F16b** *2/24*
U.S. Cl. 248—205 R **3 Claims**

An electrical outlet box assembly comprising in combination a box and bracket slidable on a side wall of the box and adapted to be secured to a wall stud. A screw carried by the bracket registers with a threaded opening on the side wall. When turned the screw causes the box to move on the bracket either in or out with respect to the wall surface.



3,834,659
SHELF SUPPORT STRUCTURE

Burton L. Siegal, Skokie, Ill., assignor to Tiffany Industries, Inc., Maryland Heights, Md.
Filed Mar. 9, 1973, Ser. No. 339,566
Int. Cl. A47b *47/00*; **A47g** *29/02*; **A47f** *5/00*
U.S. Cl. 248—245 **5 Claims**



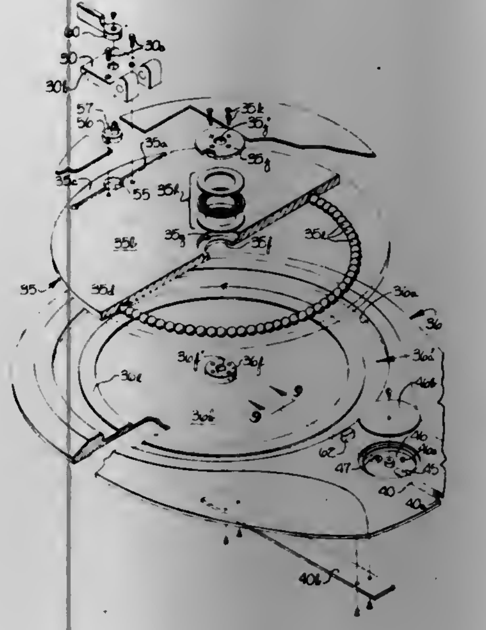
Shelf structure for positioning shelves in infinitely variable vertical positions between a pair of standards, the standards each having a vertically extending groove which receives a locking means arranged to be slidably mounted within the groove, the locking means having a gripping portion extending inwardly of the standards to permit vertical positioning of the locking means within the grooves, in combination with a shelf support means which has inclined wedge surfaces thereon arranged to engage complementarily shaped surfaces on the locking means to lock the shelf support at a predetermined vertical position along the standards.

3,834,660
PEDESTAL FOR A TREATMENT CHAIR

Dennis Frank Leffler, Charlotte, N.C., assignor to Pelton & Crane Company, Charlotte, N.C.
Filed May 17, 1973, Ser. No. 361,229
Int. Cl. F16m *11/30*
U.S. Cl. 248—418 **12 Claims**

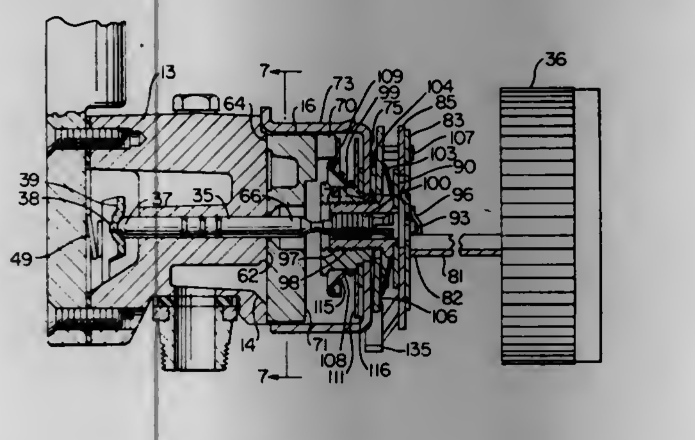
A pedestal construction for a treatment chair, such as a dental chair, having a standard with electrically operated components thereon, such as electrical controls and motors for elevating, tilting and/or traversing the seat, backrest and/or leg rest of the chair, and wherein the pedestal comprises a base with a turntable rotatably mounted thereon, and on which the standard is supported. The base and turntable are constructed so as to accommodate therein portions of electrical conductor means which extend from a source through the base and the turntable to electrical components above the turntable in such a manner as to permit nearly a full revolution of adjustment of the turntable with the standard of the chair

thereon without placing the conductor means under undue strain, and also obviating the need for providing a substantial coiled length of a conductor cable on the floor adjacent the chair in order to permit such adjustment of the turntable.



3,834,661
CONTROL SYSTEM AND CONTROL DEVICE THEREFOR OR THE LIKE

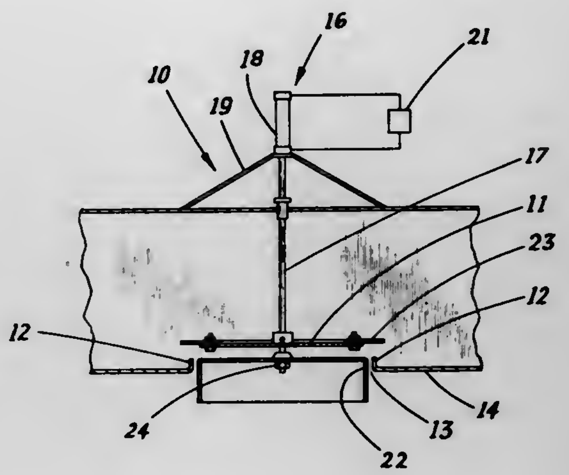
Francis S. Genbauffe, Irwin, Pa., assignor to Robertshaw Controls Company, Richmond, Va.
Continuation of Ser. No. 258,798, June 1, 1971, Pat. No. 3,780,940. This application Sept. 26, 1973, Ser. No. 400,788
Int. Cl. F23n *1/00*
U.S. Cl. 251—89 **10 Claims**



A control device for interconnecting a source of fuel to a burner, the control device having a valve seat and a movable valve member for controlling the valve seat. A movable selector is carried by the control device and a clutch is adapted to interconnect the selector to the valve member, the clutch having means for moving the valve member from an "off" position to a full "on" position thereof, as the selector is moved in one direction from its "off" position to a first position thereof. The clutch keeps the valve member in the full "on" position thereof as the selector is moved in the one direction from the first position thereof to a second position thereof. The clutch thereafter moves the valve member from its full "on" position to a reduced "on" position thereof as the selector is moved in the one direction from the second position thereof to a third position thereof, the clutch being adapted to move the valve member from the reduced "on" position thereof back to the full "on" position thereof as the selector is moved in a direction opposite to the one direction from the third position thereof to the second position thereof.

3,834,662
DAMPER

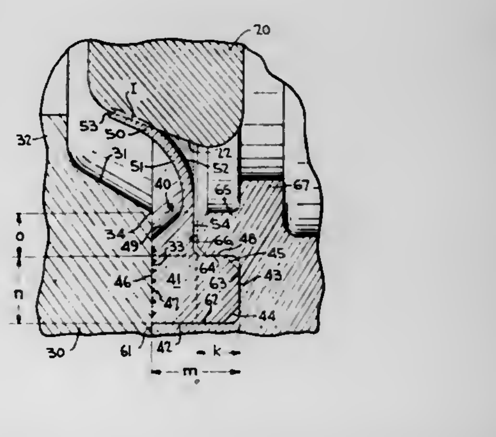
Robert G. Huntington, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.
Filed May 31, 1972, Ser. No. 258,275
Int. Cl. F16k *47/00*
U.S. Cl. 251—121 **5 Claims**



A damper arrangement wherein a damper blade opens and closes a flow through damper port, the damper blade having baffle means attached to its port engaging side, the baffle means providing an opening of constant cross-section with the port during a portion of the stroke of the damper blade to provide a buffered transition when removing a fluid system from or returning a fluid system to full fluid flow, the damper blade additionally having a peripheral flexible portion which provides a positive seal between the blade and a seat surrounding the port.

3,834,663
METAL SEAT BUTTERFLY VALVE

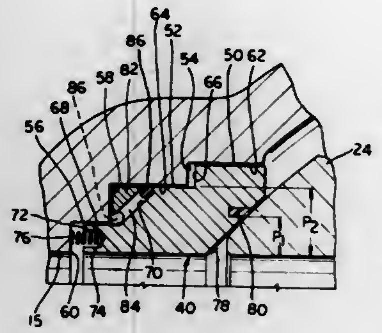
James F. Donnelly, Leicester, Mass., assignor to Jamesbury Corp., Worcester, Mass.
Filed Dec. 9, 1971, Ser. No. 206,337
Int. Cl. F16k *1/22*
U.S. Cl. 251—173 **2 Claims**



Disclosed is a butterfly valve particularly adapted for service with high pressure and high temperature fluids, and fluids containing suspended solids such as slurries. A butterfly valve is provided with a metal seat ring having a curved metal lip that is adapted to contact the peripheral surface of the valve disc. The metal seat has a configuration that enables fluid pressure from one side of the valve to enhance the sealing effectiveness of the valve. The lip of the seat is positioned to provide an interference fit with the periphery of the disc when the valve is closed, so that the valve is capable of sealing fluid from either side of the disc over a portion of the pressure rating of the valve.

3,834,664
BALL VALVE STRUCTURE HAVING PRESSURE ACTUATED SEATS

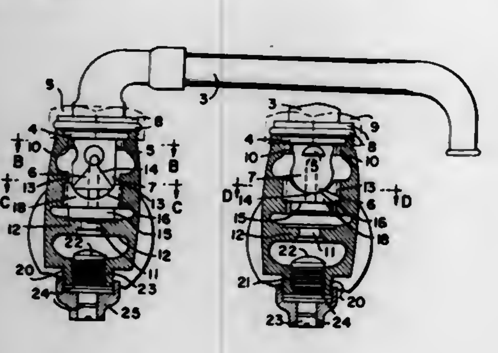
Eulas R. Atkinson, Conroe, Tex., assignor to ACF Industries, Incorporated, New York, N.Y.
Filed Mar. 5, 1973, Ser. No. 337,785
Int. Cl. F16k *5/06*
U.S. Cl. 251—174 **8 Claims**



A double-acting valve seat assembly for a valve structure having a valve body chamber and a movable valve member in the valve body chamber. A greater area at the rear portion of the upstream seat assembly is exposed when upstream or flowline fluid pressure is greater than body fluid pressure. A separate annular member is mounted in the seat recess adjacent the valve body and is spaced from the adjacent seat assembly to form an annular back seal chamber having a width extending in a generally transversely direction with respect to the longitudinal axis of the valve. An annular seal is positioned in the back seal chamber for movement between inner and outer end portions of the back seal chamber and permits leakage behind the annular member from the valve body when positioned between innermost and outermost positions thereby to relieve excessive fluid pressures in the valve body.

3,834,665
WATER SUPPLY COCK

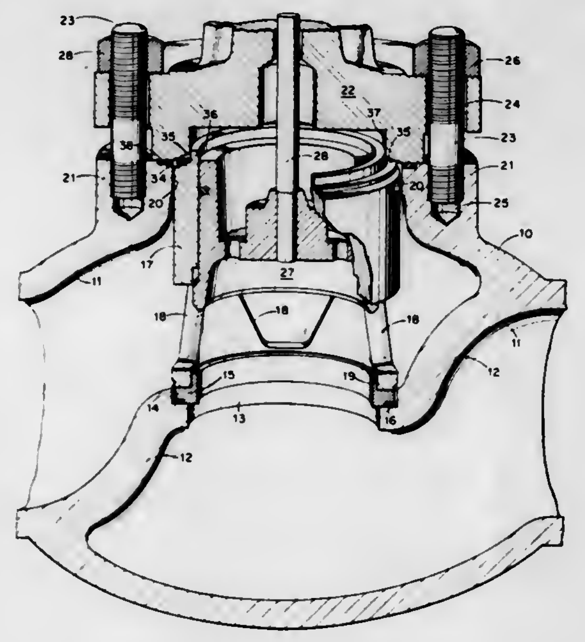
Takashi Kurioka, 15-15 chome, Higashinakamoto, Higashinariku, Osaka, Japan
Filed Nov. 21, 1972, Ser. No. 308,461
Claims priority, application Japan, Nov. 29, 1971, 46-96625
Int. Cl. F16k *31/524*
U.S. Cl. 251—349 **5 Claims**



This invention relates to a water supply cock, the waterway of which is closed or opened by the oscillating turn of the water discharge pipe. The water cock assembly comprises a main casing, and an oscillatable water discharge pipe. The main casing comprises on the inner periphery slightly below the upper opening a formed circular projected edge. The oscillatable water discharge pipe comprises a cylindrical body downwardly bent at the base end. The cylindrical body comprises a flange midway the outer periphery thereof and a pad lug turnable through an angle of 180°, touchable to engaging members disposed uprightly at both sides of the inner chamber of the main casing, and located under the flange directly below the oscillatable water discharge pipe. The front portion at the lower end of the cylindrical body comprises a semicircular surface projected at the portion directly below the pad lug and an opening to the oscillatable water discharge pipe. The cylindrical body is inserted to be freely rotatable in the main casing with the flange of the cylindrical body rested on the circular projected edge of the main casing. Box nuts inlaid with packing are screwed on the outer periphery of the main casing from the upper and lower sides thereof to seal the water leaking from the gap between the outer periphery of the cylindrical body and the inner periphery of the main casing.

3,834,666
CONTROL VALVE WITH ELASTICALLY LOADED CAGE TRIM

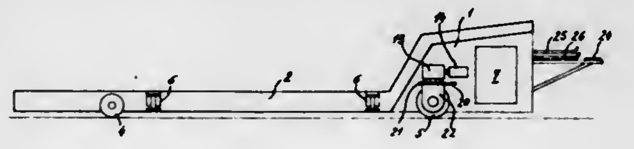
Gareth A. Keith, Needham, Mass., assignor to Masoneilan International, Inc., Northwood, Mass.
Filed Oct. 2, 1972, Ser. No. 293,818
Int. Cl. F16k *51/00*
U.S. Cl. 251—361 **1 Claim**



Valve for fluid flow control, having cage type trim, and provided with means compressible between the cage trim and valve body whereby to resiliently pressure the cage against its seat. In a preferred embodiment, the elastically loaded or compressible means comprises a flat annular piece of resilient material.

3,834,667
HANDLING APPARATUS FOR LIFTING AND DISPLACING ARTICLES OF RELATIVELY GREAT WEIGHT

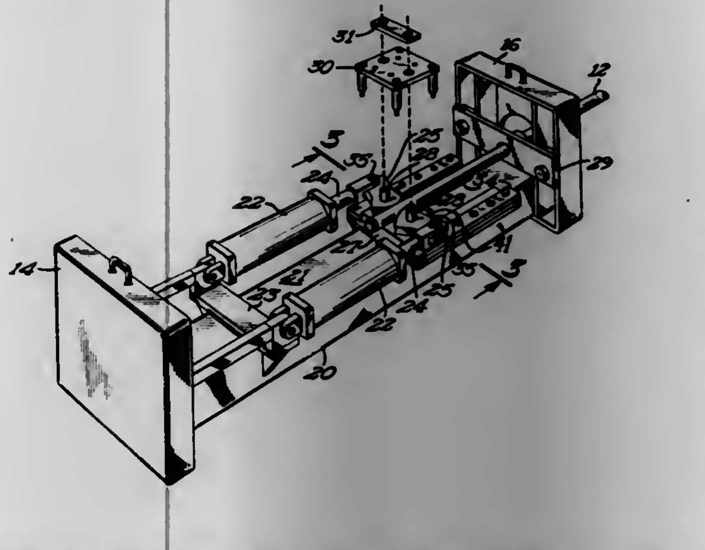
Jacobus Simon Sanger, Avenue A, Huysmans 80, Brussels, Belgium
Filed Aug. 10, 1972, Ser. No. 279,543
Claims priority, application Belgium, Aug. 19, 1971, 771508
Int. Cl. B60p *1/00*
U.S. Cl. 254—2 R **2 Claims**



The apparatus is intended for lifting and displacing articles of relatively great weight and, more especially, of elongated shape, such as boats and other water craft, containers, and the like. To this end, the apparatus comprises a casing from which there extend a pair of parallel legs defining a free space therebetween. The legs are supported on wheels adjacent their free ends, and the casing is supported on a dirigible wheel, whereby the apparatus can travel over the ground. Each leg carries a pair of jacks, one nearer its free end and the other nearer the casing. A diesel engine is supported on the casing and drives a hydraulic pump, and the pressurized hydraulic fluid from the pump is used to operate a hydraulic motor for forward and rearward movement of the apparatus, to operate the jacks, and to operate a steering device. A support extends rearwardly from the casing and carries a seat for an operator, and control handles for the motor and the various hydraulic circuits extend rearwardly from the casing for use by the operator in controlling the vehicle. The apparatus is used to lift and displace articles by extending the pair of legs under the article, operating the jacks to lift the legs and to, in turn, lift the article off of support blocks or the like. The jacks are then operated to lower the legs so that the support wheels contact the ground and the apparatus can then transport the article to a desired location.

3,834,668
PIPE PUSHING APPARATUS

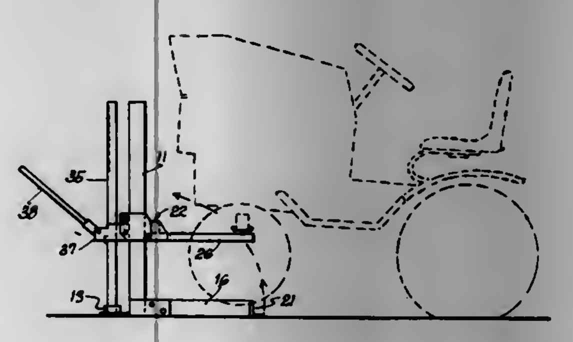
John William Casey, 138 William Ave., New Richmond, Wis. 54017
Filed Jan. 11, 1973, Ser. No. 322,853
Int. Cl. E21b *9/00*
U.S. Cl. 254—29 R **7 Claims**



Apparatus for driving a rod or pipe through the ground, including a hydraulically-actuated piston driving member coupled to a pair of pipe-gripping jaws which are themselves pivotally mounted on a slideable carriage assembly, wherein the driving member forces the jaws to clamp the pipe and simultaneously drives the slideable carriage assembly to force the pipe into the ground.

3,834,669
KNOCKDOWN JACK ASSEMBLY

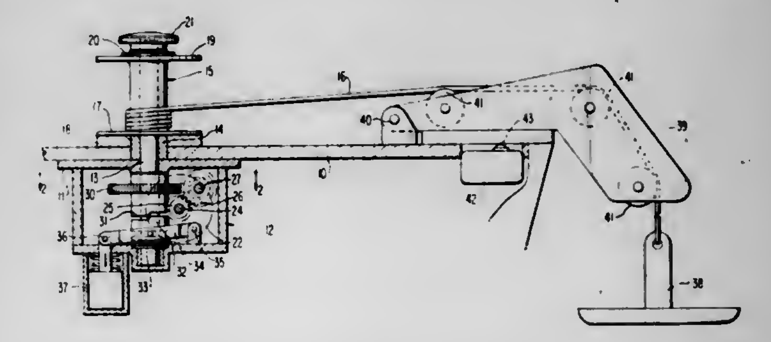
Jay H. Reid, Barrington, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.
Filed Feb. 12, 1973, Ser. No. 331,801
Int. Cl. B66f *3/00*
U.S. Cl. 254—133 **5 Claims**



A knockdown jack assembly for elevating a suburban type riding tractor and the like. The assembly includes a conventional automotive jack having an upright standard with teeth along one surface and a lever actuated lift mechanism, a guide member disposed in parallel relation to the standard and a lift assembly slidable on the guide member, the lift assembly being detachably connected to the lift mechanism whereby movement of the lift mechanism will effect corresponding movement of the lift assembly which is adapted to support the vehicle.

3,834,670
BOAT ANCHOR WINCH MECHANISM

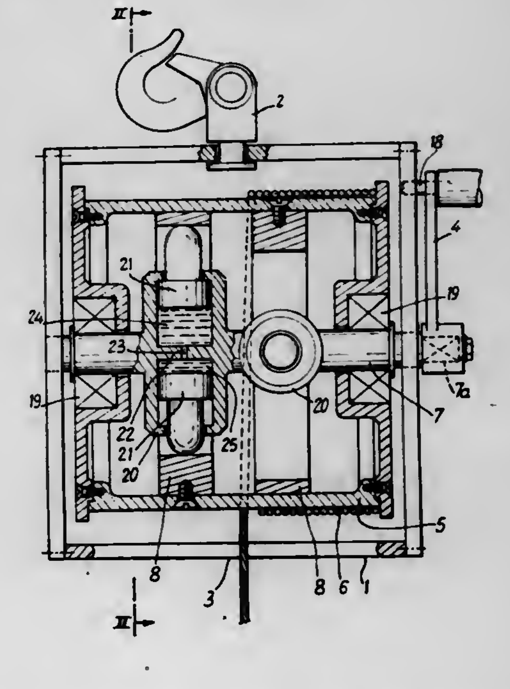
Albert F. Pityo, Treasure Island, Fla., assignor to Reel Power Equipment, Inc., St. Petersburg, Fla.
Filed Oct. 11, 1973, Ser. No. 405,586
Int. Cl. B66d *1/24*
U.S. Cl. 254—150 R **14 Claims**



A fully enclosed housing for recuction gearing and clutch means is secured to the bottom of a boat deck with only a vertical axis winch spool and shaft projecting above deck. An electric motor attached to one side of the housing below deck forms a right angular drive through the reduction gearing with the winch spool shaft. A winch spool clutch is normally engaged by a spring means and can be disengaged remotely by a mechanical device or by the operation of a motor reversing switch and an associated solenoid to allow free-falling of the anchor.

3,834,671
LOWERING APPARATUS

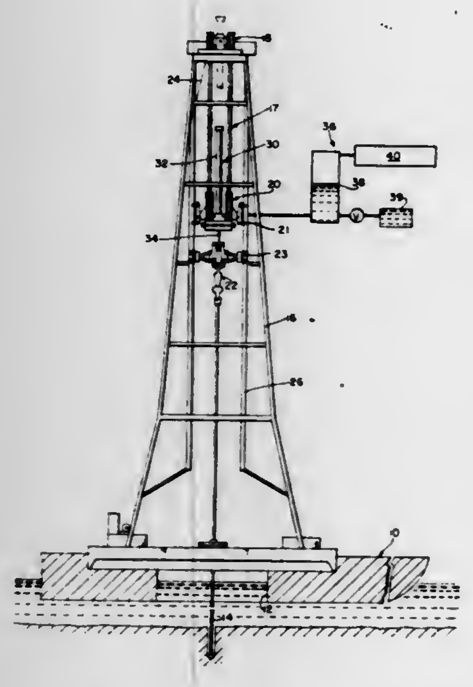
Godefroy L. M. Du Mesnil du Buisson, 44 bis, rue des, Versailles, France
Filed Aug. 16, 1972, Ser. No. 281,018
Claims priority, application France, Sept. 21, 1971, 71.33903; Jan. 24, 1972, 72.02202
Int. Cl. A62b *1/12*
U.S. Cl. 254—158 **5 Claims**



Apparatus for lowering a load from one level to a lower level (for example, for lowering a person to ground level from a burning building) which comprises a drum rotatable about an axle normally fixed in a frame. A cable is wound around the drum and rotation of the drum due to a load on the cable is retarded by the action of an annular cam inside the drum which co-operates with a piston and cylinder device to cause relative reciprocating movement between the cylinder and piston against the action of a retarding element therein, either the cam or the cylinder and piston device being fixed with respect to the support while the other is rotatable with the drum during unwinding of the cable.

3,834,672
DRILL STRING HEAVE COMPENSATOR AND LATCHING APPARATUS

Royal T. Hawley, Everett, Wash., and Richard S. Hollyer, Alexandria, Va., assignors to Western Gear Corporation, Lynwood, Calif.
Filed Apr. 30, 1973, Ser. No. 355,553
Int. Cl. B66d *1/48*
U.S. Cl. 254—172 **8 Claims**

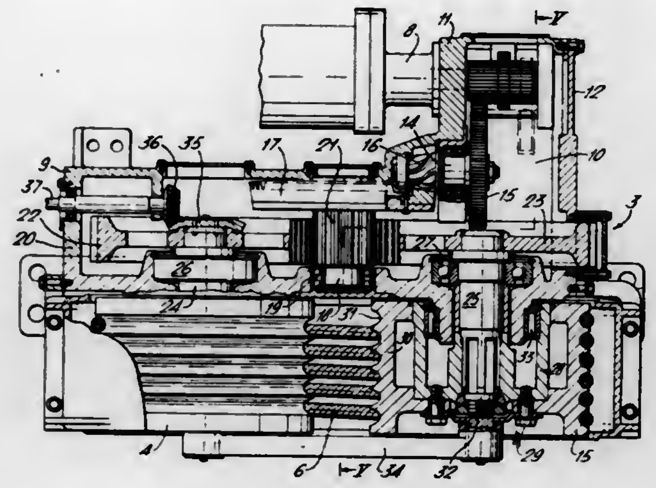


A floating drilling derrick is provided with a split crown block and an opening to allow passage of a heave compensator cylinder which is secured to a lower traveling block. The piston rod of the compensator is secured to a drill string carrier. Coupling means are provided in the traveling block and carrier to selectively lock out the heave compensator. The traveling block and carrier are kept in proper orientation by guides thereon cooperating with guide rails on the derrick.

3,834,673
TWIN CAPSTAN WINCHES

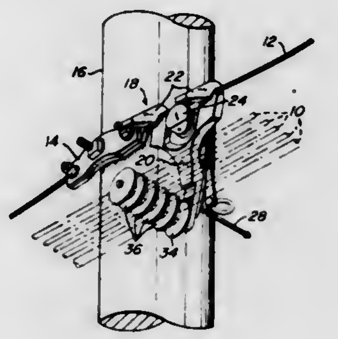
William Alexander, Elstree, England, assignor to Wharton Engineers (Elstree) Limited, Boreham Wood, England
Filed May 19, 1972, Ser. No. 255,175
Int. Cl. B66d *1/76*
U.S. Cl. 254—175.5 **4 Claims**

The invention discloses a twin capstan winch including a chain of gears between a power input shaft and a pair of capstan wheels, such gear chain including reduction gears and at least one bevelled gear, whereby the axis of rotation of the capstan wheels is at right angles to the axis of rotation of the power input shaft, the majority of gears being mounted on shafts which lie in or close to the horizontal plane passing through the capstan wheels whereby to lower the centre of gravity of the device.



3,834,674
AERIAL BLOCKS

Richard L. Jackson, Lewisburg, Ohio, assignor to Jackson Communication Corporation, Brokville, Ohio
Filed Dec. 4, 1972, Ser. No. 311,805
Int. Cl. B66d *11/38*
U.S. Cl. 254—190 R **8 Claims**

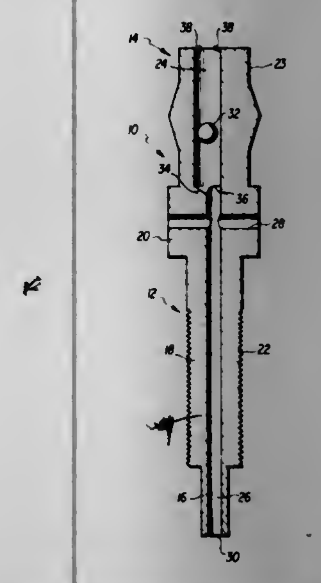


An aerial block for stringing cable from an existing supporting strand includes a casting forming a main frame having a pair of strand engaging hooks at its upper end and a downwardly depending central portion. The downwardly depending central portion has a series of vertically spaced openings formed through it which slidably receive a series of substantially identical, horizontally extending rods. Alternate rods beginning with the lowermost rod have a series of grooved sheaves rotatably mounted on them while the remaining rods serve as keeper rods and project in overlying relationship to the sheaves to prevent cable supported by the sheaves from being inadvertently displaced from them. Each of the rods has means frictionally engaging it to permit the rods to be fixed within the center frame at some preselected position.

3,834,675
METERING INJECTOR VALVE

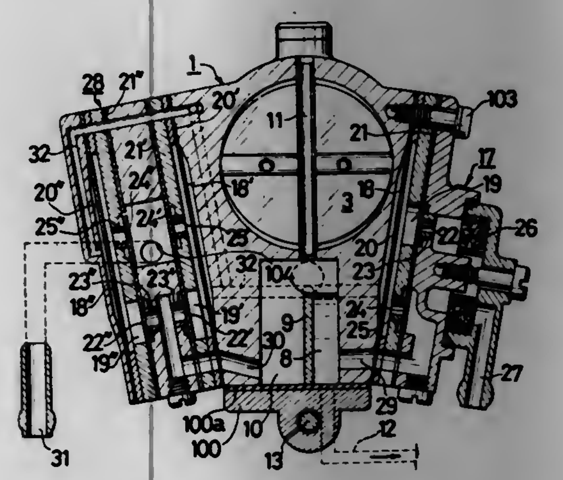
Desmond J. Farrow, North East, Md., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Apr. 30, 1973, Ser. No. 356,039
Int. Cl. F02m *15/02*
U.S. Cl. 261—18 A **5 Claims**

A metering injector valve which may be used in internal combustion engine carburetor idle systems includes a first valve housing and a second valve housing integral therewith, a first axial passageway being provided within the first housing while a second axially extending passageway, interconnected with the first passageway at the downstream end and with a source of power-fluid at the upstream end, is similarly provided within the second housing. A metering ball is reciprocably disposed within the second passageway, and a diametrically extending passageway is provided within the rear portion of the first housing so as to be interconnected with the first passageway at its central portion and be open to the atmosphere at its outer portions. Under operative idle conditions, air and a metered amount of power-fluid may enter the diametrically extending passageway and the second axially extending passageway respectively, whereupon such fluids may mix and be conducted downstream of the first passageway so as to be injected into the carburetor idle passage whereby such air-power-fluid mixes with and atomizes the fuel being admitted to the carburetor barrel.



3,834,676
CARBURETOR

Toyoshige Miyazaki, Tokyo, Japan, assignor to Keihin Seiki Manufacturing Co., Ltd., Kanagawa-ken, Japan
Filed Aug. 23, 1971, Ser. No. 174,101
Claims priority, application Japan, Aug. 21, 1970, 45-73275
Int. Cl. F02m *17/04*
U.S. Cl. 261—36 A **6 Claims**

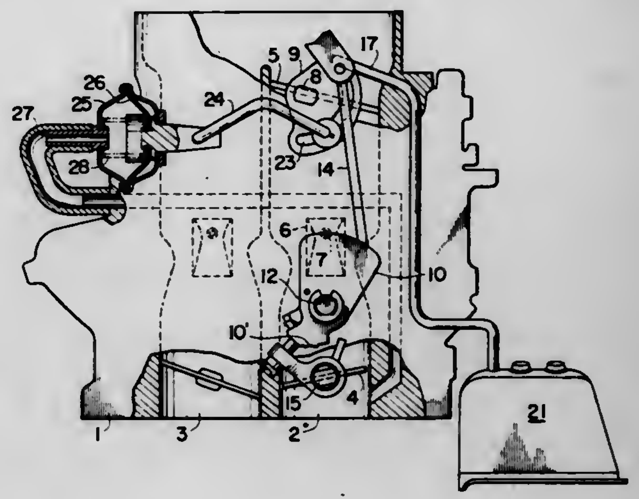


This invention relates to a fuel circulation type and floatless carburetor having an overflow chamber and fuel supply and discharge pumps located on opposite sides of the carburetor suction passage.

In order to provide an inclination insensitiveness, the carburetor fitted with a fuel-level forming and exposed fuel surface-maintaining chamber and a fuel return chamber cooperatably arranged with each other, is characterized by the provision of a suction side fuel pump leading hydraulically from a fuel supply source to the first chamber and a discharge side fuel pump leading from the second chamber back to said supply source, said pumps being of pulsative diaphragm type and positioned in close proximity to said bore and in a substantially opposed arrangement relative to each other and about said bore, said second pump having a substantially larger capacity than the first pump for the prevention of fuel leakage through an air vent passage.

3,834,677
AUTOMATIC CHOKE CONTROL

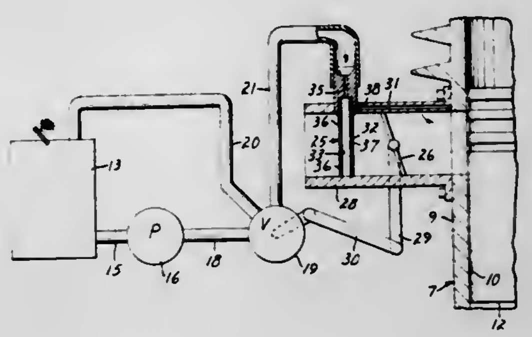
Yukio Hosho, Katsuta, Japan, assignor to Hatachi, Ltd., Tokyo, Japan
Continuation of Ser. No. 175,431, Aug. 27, 1971, abandoned. This application Dec. 12, 1973, Ser. No. 423,982
Claims priority, application Japan, Sept. 2, 1970, 45-76312
Int. Cl. F02m *1/10*
U.S. Cl. 261—39 B **10 Claims**



An automatic choke control for a carburetor in which the pivot of a bimetal for determining the degree of opening of a choke valve corresponding to the temperature of the engine is rotated in accordance with the variation in the running conditions of the engine at the time of cold starting, whereby the force for closing the choke valve is controlled in relation to the temperature of the engine.

3,834,678
FUEL INJECTION NOZZLE FOR INTERNAL COMBUSTION ENGINE

Ronald O. Baribeau, 112 N. Greeley, and Russell A. Baribeau, 317 E. Churchill, both of Stillwater, Minn. 55082
Continuation-in-part of Ser. No. 146,627, May 25, 1971, abandoned. This application Dec. 26, 1972, Ser. No. 318,376
Int. Cl. F02m *7/02*
U.S. Cl. 261—41 D **9 Claims**



A fuel injection nozzle for an internal combustion engine wherein the nozzle is disposed in the air intake passageway generally diametrically. The fuel is directed to the nozzle under pressure by a pump and metering valve. The nozzle has a central bore and transverse bores spaced along the length of the nozzle and at intervals from the wall of the intake manifold.

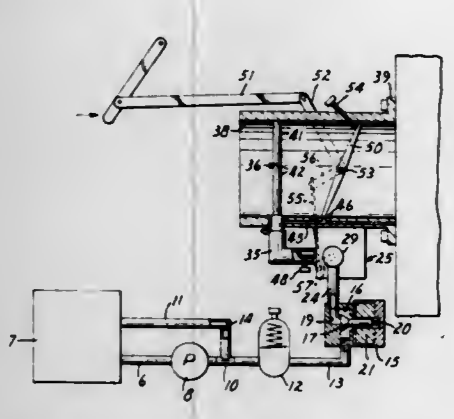
3,834,679
FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINE

Ronald O. Baribeau, 112 N. Greeley, and Russell A. Baribeau, 317 E. Churchill, both of Stillwater, Minn. 55082

Continuation-in-part of Ser. No. 318,376, Dec. 26, 1972, which is a continuation-in-part of Ser. No. 146,627, May 25, 1971, abandoned. This application Apr. 16, 1973, Ser. No. 351,480

Int. Cl. F02m *69/04*; F02d *3/02*

U.S. Cl. 261—41 D **9 Claims**



A fuel injection system for an internal combustion engine wherein fuel is pumped at a low pressure into a nozzle disposed within and extending across the intake manifold. The fuel is metered at the metering valve in response to the opening of the throttle valve in the intake manifold to provide a fuel/air ratio affording the proper operation of the internal combustion engine. The metering valve preferably has an electrically operated shutoff valve operated by the ignition switch of an automobile to close the fuel line in advance of the metering valve when the engine is shut off to avoid a surge of fuel from the pump from entering the engine. The fuel is pumped to the metering valve by a suitable fuel pump which pumps the fuel through a pressure regulator into the fuel line leading to the metering valve. A port injector nozzle which extends across the inside cylindrical area of the manifold has a plurality of restricted bores positioned in spaced relation along the length of the generally cylindrical shaped nozzle. The air flow about the nozzle reduces the pressure on the downstream side of the nozzle drawing fuel from the nozzle and vaporizing the fuel. An idle passageway formed in the wall of the intake manifold opens into the intake manifold adjacent an edge of the throttle valve such that the fuel entering the engine during idle operation is also drawn from the idle passageway and atomized before it is carried into the engine intake manifold.

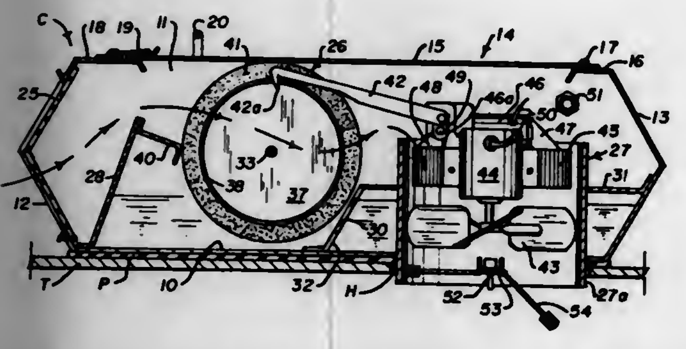
3,834,680
AIR CONDITIONING APPARATUS FOR A VEHICLE CAB

Howard S. Yost, 207 8th Ave., Greeley, Colo. 80631; Wesley Max Walker, and Dean Max Walker, both of 629, Casper, Wyo. 82644

Filed June 12, 1972, Ser. No. 261,962

Int. Cl. B01f *3/04*

U.S. Cl. 261—92 **6 Claims**



An air cooler and cleaner for a truck cab or the like formed as a comparatively flat, box-like unit adapted to be mounted upon the top of a truck cab. Air flowing into this cooler will move through a rotating, cylindrical filter and thence through a duct and into the vehicle cab. A reservoir is provided in the lower portion of the cooler through which the cylindrical filter moves to continuously wet and wash the fibers thereof.

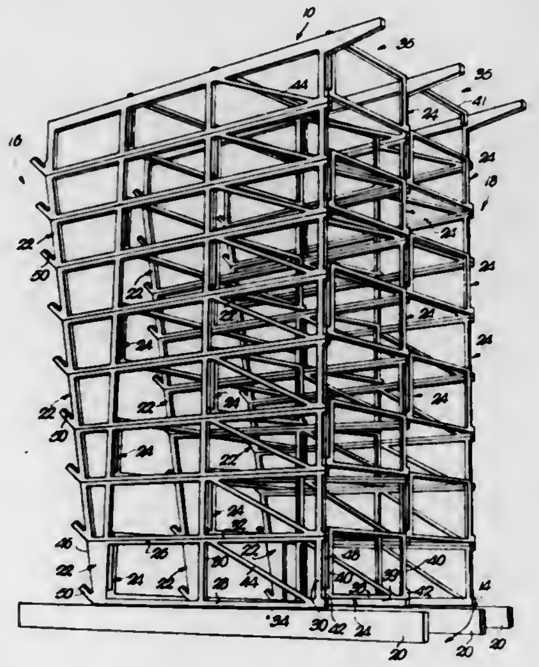
3,834,681
FIREPROOF, PREFAB FILL SUPPORT STRUCTURE FOR COOLING TOWER

Homer E. Fordyce, Kansas City, and Gerald D. Fritz, Raytown, both of Mo., assignors to The Marley Company, Mission, Kans.

Filed Aug. 17, 1972, Ser. No. 281,514

Int. Cl. B01f *3/04*

U.S. Cl. 261—111 **18 Claims**



Prefabricated, open-frame panel members of fireproof material such as concrete are stacked on edge to produce a number of side-by-side, multi-level uprights which, in turn, are laterally braced and interlocked into a rigid construction by prefabricated, open-frame bracing elements interposed between opposed panel members of each level of the uprights. The bracing elements of the structure are arranged in a number of parallel, diagonal series extending across the uprights with adjacent elements in each series being in partial juxtaposition with one another so that external forces applied to the structure are resisted by directing such forces diagonally into the ground along each series of cooperating elements. The sheer mass of the individual panel units and bracing elements contributes substantially to the structural rigidity of the completed structure, yet each unit and element may be readily hoisted into position by conventional industrial lifting equipment. Heat exchange fill suspended within the completed structure is disposed to receive water gravitating therethrough to cool the water as ambient air flows through the open structure to impinge upon the fill.

3,834,682
MIXING COLUMN FOR MEDICAL HUMIDIFIER AND METHOD OF HUMIDIFYING INHALABLE GASES

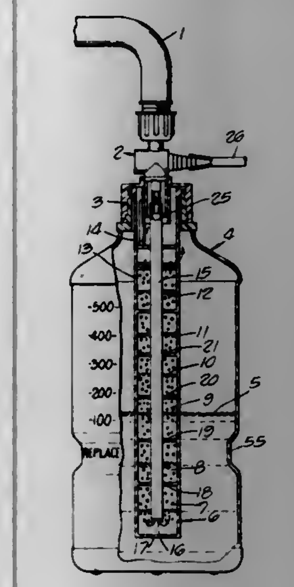
Charles J. McPhee, Sylmar, Calif., assignor to American Hospital Supply Corporation, Evanston, Ill.

Filed June 19, 1972, Ser. No. 264,314

Int. Cl. B01f *3/04*; A61m *15/00*

U.S. Cl. 261—123 **32 Claims**

A multi-stage sieve plate humidifier column with a series of plastic snap together modular mixing units that combine to form an elongated vertical column with interconnected mixing chambers. The column is confined inside a liquid supply bottle where it is submerged in a liquid used to humidify an inhalable gas such as oxygen or air. In a method of humidification, the gas is bubbled into a lower portion of the submerged column, transferred through the interconnecting chambers of the column where the bubbles are broken up and mixed with liquid, and then the humidified gas collected near a top of the column and conducted to a patient for inhalation.



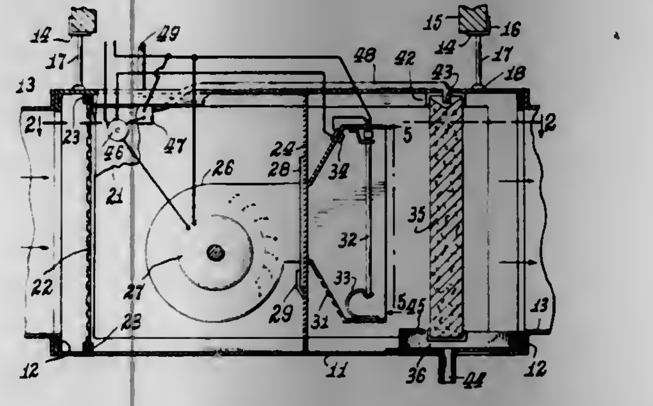
3,834,683
POWER HUMIDIFIER

Charles M. McDuffee, 16 W. State St., North Aurora, Ill. 60542

Continuation of Ser. No. 40,133, May 25, 1970, abandoned. This application Sept. 1, 1972, Ser. No. 285,615

Int. Cl. F28b *1/02*

U.S. Cl. 261—138 **6 Claims**



A power humidifier for permanent installation in a duct-defined path of air flow comprised of a housing having inlet and outlet ends and having therein, in the following sequence, a filter at the air inlet end, blower fans and a calrod heater arranged to heat air after it leaves the blowers and prior to its entrance into and through an air-pervious evaporator pad over and through which cold water is continuously flowed, for humidifying the stream of air passing therethrough. The side edges of the evaporator pad are spaced from the side walls of the housing to allow a minimum quantity of air to by-pass the evaporator pad.

3,834,684
SINTER PALLET

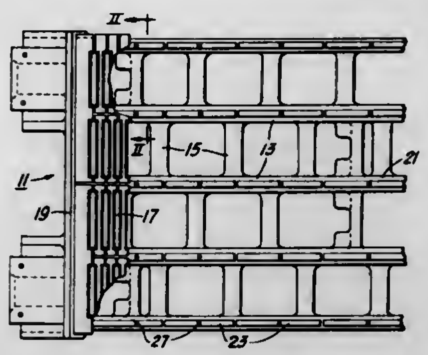
Kurt Reinfeld, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed May 4, 1973, Ser. No. 357,364

Int. Cl. F27b *21/02*

U.S. Cl. 266—21 **5 Claims**

A plurality of short cover bars are attached to the top surface of the ribs of a sinter pallet by means of a two-inch diameter boss at the center of each cover bar that is plug welded to a rib; the remainder of each cover bar is spaced apart from the pallet rib.



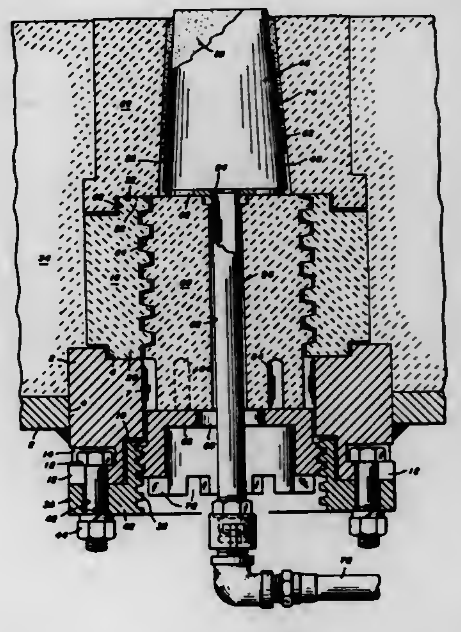
3,834,685
APPARATUS FOR INJECTING FLUIDS INTO MOLTEN METALS

Leonard P. Ziemkiewicz; Victor P. Ardito, both of Lower Burrell, and James W. Torrence, Natrona Heights, all of Pa., assignors to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.

Filed Sept. 24, 1973, Ser. No. 400,089

Int. Cl. C21c *5/48*

U.S. Cl. 266—41 **10 Claims**



Fluids, particularly gases are injected into a molten metal container through an injector head having a tapered outer surface. An opening is formed through the refractory lining of the container by means of an inner refractory member having an opening therein tapering axially inwardly toward the inside of the lining so as to receive the injector head, and an outer refractory member having a female threaded opening therein. A male threaded refractory member having a hole therethrough for passage of the fluid is threaded into the outer refractory member and bears against the injector head. A nut may be attached to the container shell and a male threaded member threaded therethrough to bear against the outer refractory member.

3,834,686
HYDRAULIC IMPACT ABSORBING BUMPER

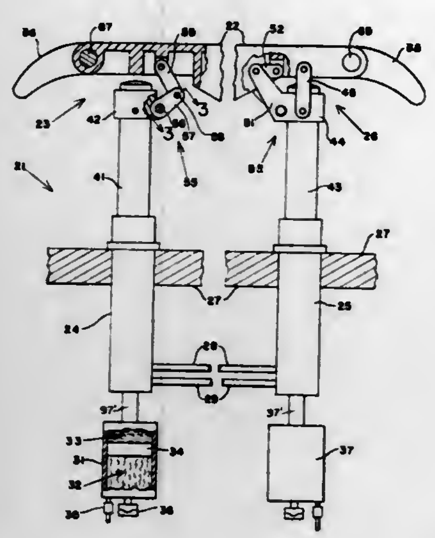
Hans C. Moritz, Sunland, and Robert Schwarz, Santa Barbara, both of Calif., assignors to The United States of America as represented by the Secretary of the Department of Transportation, Washington, D.C.

Filed Oct. 24, 1972, Ser. No. 300,250

Int. Cl. B60r *19/06*; B61f *19/04*; F16f *9/16*

U.S. Cl. 267—116 **16 Claims**

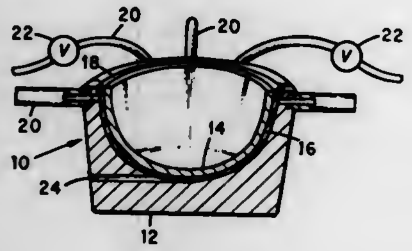
Disclosed is a hydraulic energy absorbing bumper system for vehicles that includes a bumper with two variable stroke hydraulic buffers affixed to the ends. Both the stroke and the resistance of the buffers vary in response to the impact received by the bumper, however the resistance presented by either buffer during any given stroke is constant throughout the length of the stroke. Torsion hinges coupling the buffers to the bumper allow the buffers to stroke unevenly during oblique impact yet remain parallel. The bumpers are hydraulically interconnected so that the total energy absorbed during uneven stroking in response to the oblique impact is the same as the total energy absorbed during a normal impact of the same velocity.



3,834,687
WORKPIECE SUPPORT

James A. Martin, Oak Ridge, Tenn., and W. Reneau Dubberley, Decatur, Ga., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Jan. 16, 1973, Ser. No. 324,016
Int. Cl. B23g *3/00*
U.S. Cl. 269—7 **2 Claims**



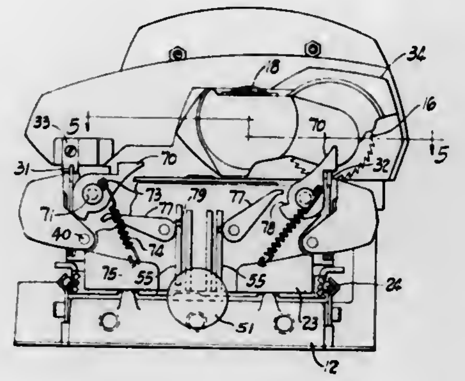
This invention pertains to a method and fixture for supporting a workpiece in a machine tool for machining purposes. The fixture comprises a machine-chuck receiving base with a projection thereon or cavity therein of a configuration generally conforming to at least a portion of an internal or external surface of the workpiece. The workpiece is positioned in a contiguous nesting relationship with the projection or cavity and a workpiece retaining liner is disposed between the internal or external surface of the workpiece and the base. The liner is formed in place and consists of a low-shrinkage elastomeric material that has been cured in place at approximately room temperature.

3,834,688
KEY VISE STRUCTURE

Robert H. Richens, Macedonia, and Charles A. Garner, Strongsville, both of Ohio, assignors to Cole National Corporation, Cleveland, Ohio

Filed Nov. 20, 1972, Ser. No. 308,285
Int. Cl. B23c *1/16;* **B25b** *1/08*
U.S. Cl. 269—42 **17 Claims**

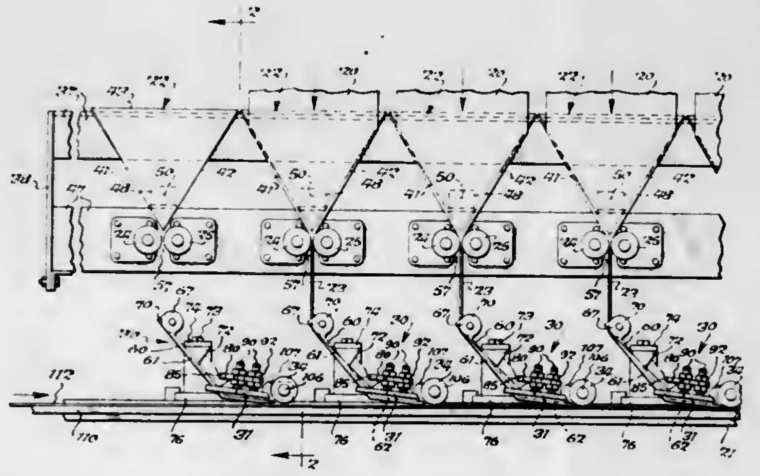
A key vise structure is disclosed wherein first and second vises are mounted on opposite ends of the frame and a movable vise jaw in each vise is moved by an end of a beam spring. The central portion of the beam spring is moved toward the vise jaws by means of a mechanical advantage means, shown in the preferred embodiment as a manual handle and a toggle mechanism. This simultaneously clamps both vises closed upon keys for use in a key machine. The key vise structure is also provided with a shoulder gauge for the key with a spring acting to yieldably urge the shoulder gauge into each of a gauging and a retracted position and this shoulder gauge is retracted by linkage means as the vises are moved to the clamped position. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.



3,834,689
WEB FOLDING APPARATUS

Charles A. Lee; Warren R. Furbeck, both of Knoxville, Tenn., and Horace N. Kemp, Camarillo, Calif., assignors to International Paper Company, New York, N.Y.

Filed Apr. 7, 1972, Ser. No. 242,189
Int. Cl. B41l *43/04*
U.S. Cl. 270—41 **6 Claims**

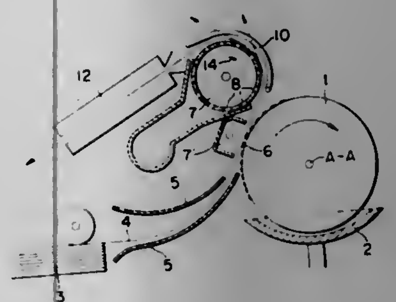


A machine for producing V-folds and then C-folds in each of a plurality of webs and for advancing the webs in a continuously moving stack. The V-folds are formed by directing the webs over generally triangular folding elements, while the C-folds are formed by advancing the V-folded webs along folding elements which are each provided with a pair of folding fingers of rectangular cross-section. The folding fingers have inwardly directed folding surfaces which converge in the direction of movement of the webs and engage separate longitudinal portions of the webs to produce the C-fold.

3,834,690
DEVICE FOR SEPARATING COPY CARRIERS FROM A ROLL, DRUM OR THE LIKE BY MEANS OF A SUCTION ROLL

Wilhelm Knechtel, Biebertal, Germany, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed July 13, 1972, Ser. No. 271,510
Claims priority, application Germany, July 20, 1971, 2136139
Int. Cl. B65h *29/20, 29/52*
U.S. Cl. 271—80 **3 Claims**

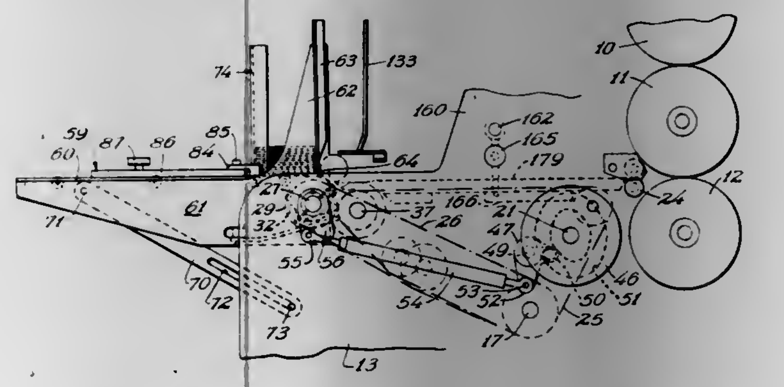


A device for separating copy carriers such as copy paper sheets from a roll, drum or the like by means of a suction roll includes a wire, rod or like member extending obliquely in front of the suction roll. The wire, rod or like member is arranged so that when a copy carrier is fed forwardly its leading edge reaches the wire for point-contact therewith and as the copy carrier is further moved the point of contact is displaced along the leading edge of the copy carrier and along the wire, whereby the copy carrier is curved toward the suction roll by the wire.

3,834,691
PRINTING PRESS FEED MECHANISM

Harold E. Paulson, 5369 Vernon Lake Dr., Dunwoody, Ga.

Filed June 23, 1972, Ser. No. 265,546
Int. Cl. B65h *3/10, 3/44, 5/16*
U.S. Cl. 271—100 **11 Claims**



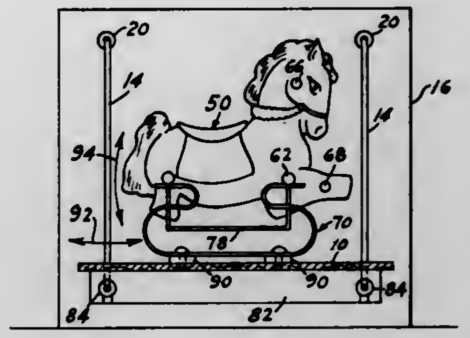
A printing press feed mechanism is provided which includes a suction feed device and a tiltable feed table capable of supporting envelopes, sheets and the like at an adjustable angle relative to the feed device to compensate for envelopes of various degrees of stiffness. An auxiliary feed hopper is provided for feeding smaller and more flexible envelopes and the like. An auxiliary suction feed device engages the front surface of the envelope to be printed, and inverts it so that the front surface is uppermost in conveying it to the printing press.

3,834,692
RIDING RECREATIONAL TOY SPRING-MOUNTED ON A SWINGING PLATFORM

James R. Meade, 51 Byberry Ave., Hatboro, Pa. 19040

Filed June 22, 1973, Ser. No. 372,678
Int. Cl. A63g *9/10, 9/16*
U.S. Cl. 272—52.5 **9 Claims**

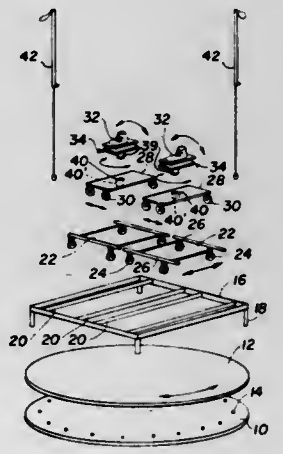
A child's toy which includes supporting structure for simulated bodies resembling animals, autos, aeroplanes and the like which may either be provided with seats extending between opposite simulated sides of the body, or a saddle upon the back of a simulated hose or pony, the body being supported by spring means which will permit tilting, swivelling or pivoting vertical bouncing movement. To further enhance the potential movement of the simulated body, one or more of the same are supported upon a platform suspended between a pair of transversely spaced upright members by means of elongated members extending downwardly from the upper portions of said upright members for purposes of additionally providing swinging or gliding movement of said platform and simulated body thereon back and forth, substantially within horizontal planes to obtain linear travel as well as a rock and swivel bounce in a vertical plane, perpendicular to the horizontal. Power means are also provided to effect such swinging movement of said platform and the animal body, if desired.



3,834,693
SKI INSTRUCTION APPARATUS

Leopold H. Poppenberger, Toronto, Ontario, Canada, assignor to The Raymond Lee Organization, Inc., New York, N.Y.

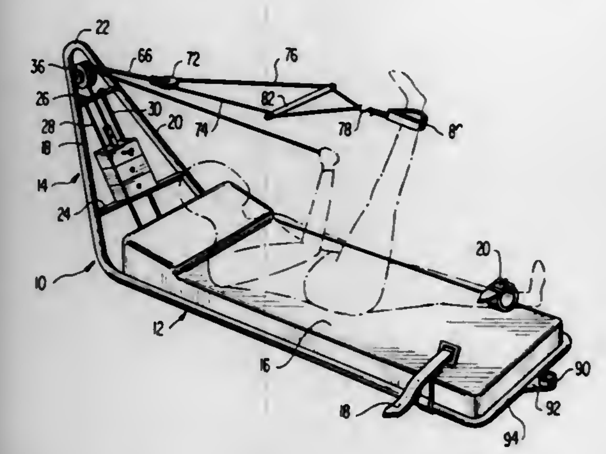
Filed Oct. 27, 1972, Ser. No. 301,452
Int. Cl. A63b *69/18, 23/04*
U.S. Cl. 272—57 B **2 Claims**



Apparatus used in ski instruction comprising: a pair of spaced horizontal platforms movable back and forth along a given direction in a horizontal plane; a pair of ski boot simulating devices; and a pair of rotatable and vertically movable hinges, each of the ski boot simulating devices being secured by a corresponding hinge to a corresponding platform. The instruction device includes structure whereby each ski boot simulating device is capable of pivoting or rocking from side to side with respect to a vertical axis, and may rotate and move vertically to a limited extent due to the provision of the rotatable and vertically movable hinges by the structure of which the ski boot simulating devices are mounted on their respective platforms. The ski instruction device of the present invention is so constructed and operable as to permit the person undergoing instruction thereon to attain and partake of all of the various movements normally encountered during actual skiing operations.

3,834,694
LEG MUSCLE EXERCISE APPARATUS

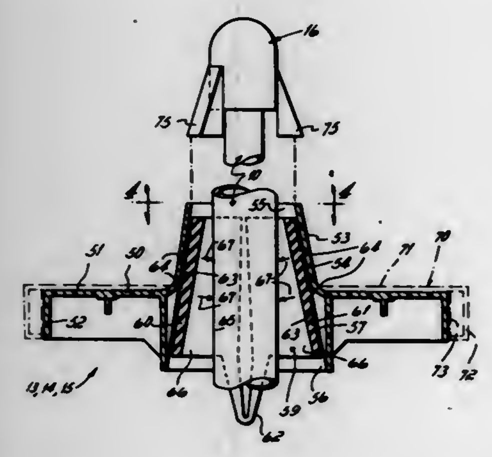
Robert H. Pridgen, 1714 Summit Pl., N.W., Washington, D.C. 20009
Filed Sept. 11, 1973, Ser. No. 396,335
Int. Cl. A63b *21/06, 21/10*
U.S. Cl. 272—58 **8 Claims**



An apparatus for exercising the thigh, hamstring, and groin muscles, including structure for applying a predetermined weight to the upwardly extending leg to thereby stretch the hamstring and thigh muscles of a person lying on his back. The weights are attached to the person's upwardly extending ankle by use of a cord and pulley system, and a one-way clutch enables the lifting of the weights by use of a cord with the hands and arms, then transferring the force of the weights to the leg to be exercised, thereby relieving the arms of the task of applying the force to the leg. A pair of pads are resiliently retained in laterally spaced relation so that a person using the device may position the pads between his knees and force them together against the resilient force to exercise his leg and groin muscles. A lazy tong device connected to the resilient arms has a curved plate adapted to engage the user's abdomen to enable the user to apply greater resistance to movement of the pads, as desired.

3,834,695
MOUNTING AND ACCESSORIES FOR FLEXIBLE POLE

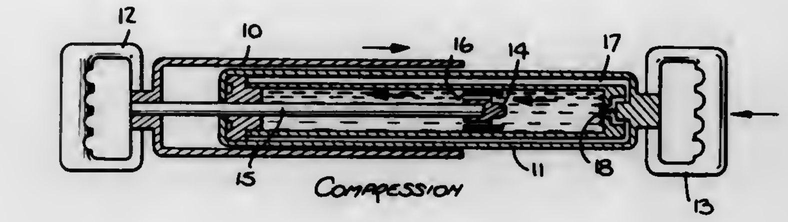
Robert Boggild, 8770 Indian Hill Rd., Cincinnati, Ohio 45243, and William L. Dale, 822 Corine Ln., Cincinnati, Ohio 45218
Filed May 7, 1973, Ser. No. 357,667
Int. Cl. A63b *9/00*
U.S. Cl. 272—60 A **5 Claims**



A flexible pole, preferably of fiberglass is removably mounted in a socket by elastomeric spaced bushings. One or more steps are removably positioned on the pole by means of a self-locking tapered clamp. The top of the pole has an elastomeric fitting having one or more flexible fingers which prevent a step from inadvertently flying off the pole.

3,834,696
DOUBLE-ACTING HYDRAULIC EXERCISER

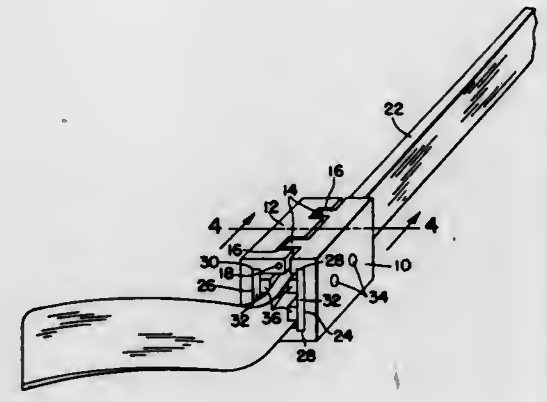
Donald Spector, Union City, N.J., assignor to Sam Rubin, New York, N.Y.
Filed May 16, 1973, Ser. No. 360,686
Int. Cl. A63b *23/02*
U.S. Cl. 272—79 C **4 Claims**



A double-acting, hydraulic exerciser composed of two telescoping tubes having handles attached to the ends thereof. The inner tube defines a chamber which is oil-filled and encloses a piston whose actuating rod is attached to the handle end of the outer tube. The piston divides the chamber into right and left sections and is provided with valves that function alternately to allow oil to pass from the right section to the left section when the tubes are brought together by the handles in a compression stroke, and to allow oil to pass from the left section to the right section when the tubes are pulled apart in an expansion stroke. Because of the incompressibility of the oil, the motion in the compression and expansion strokes is linear and affords uniform resistance to motion throughout the entire length of each stroke, so that the exercising effect is even and free of strain in both traction and expansion.

3,834,697
REMOVABLE WEIGHT FOR PRACTICING WITH ATHLETIC IMPLEMENTS

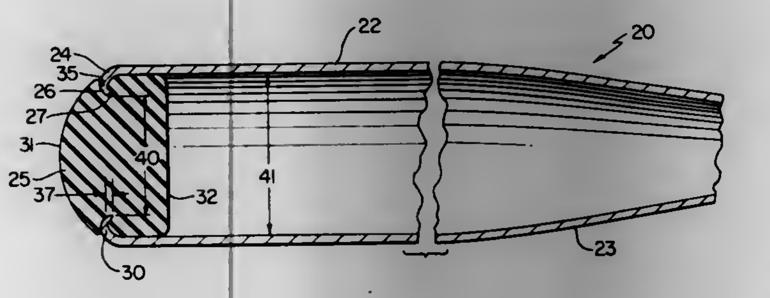
John J. McNamara, Jr., 2 Couch St., South Norwalk, Conn. 06854, and William Baum, 47 School St., Northboro, Mass. 01532
Filed May 14, 1973, Ser. No. 360,130
Int. Cl. A63b *67/00*
U.S. Cl. 273—1 B **4 Claims**



A practice device or assistor comprising a weight for quick attachment to and detachment from an athletic implement for practicing with the weight in place and playing the game with the same implement with the weight removed the weight comprises a box or cube-shaped member constructed from two similar (in reverse) halves hingedly connected together on one side edge and being provided with a latch member on the opposite side edge, each half being provided with similar undercut recesses for detachably receiving additional weights. Placed between the additional weights and an implement to be weighted are elastometric bars or strips to prevent sliding of the weights along the implement during use and to prevent marring of the implement when the latch is closed for holding the weight on the implement.

3,834,698
BALL BAT

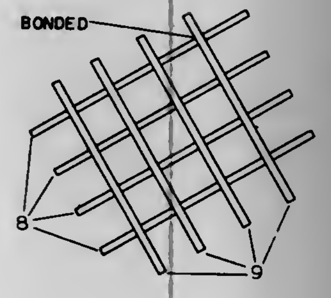
Albert M. Pouzou, Richmond, Va.
Filed Aug. 25, 1971, Ser. No. 174,588
Int. Cl. A63b *59/06*
U.S. Cl. 273—72 A **3 Claims**

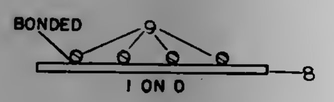


A ball bat is provided wherein the bat comprises a tubular metallic body having a handle end portion and a hitting end portion. The hitting end portion has an annular flange defining its terminal end and the flange has a radially inwardly directed portion and an integral hooking end which hooks toward the handle end portion with the radially inwardly directed portion and hooking end each having a thickness which decreases substantially gradually from the hitting end portion to the terminal edge of the hooking end. The bat is provided with an end plug which has an annular groove therein corresponding in configuration to the flange and has such flange received therewithin. The plug has a flange-engaging surface which defines one wall of the groove and engages the inside surface of the flange to thereby hold the end plug in position even after extended use of the bat.

3,834,699
METHOD OF STRINGING A GAME RACKET

Roger D. Pass, 1119 W. Montana Ave., St. Paul, Minn. 55108
Filed June 23, 1971, Ser. No. 155,830
Int. Cl. A63b *51/02, 51/08*
U.S. Cl. 273—73 D **2 Claims**

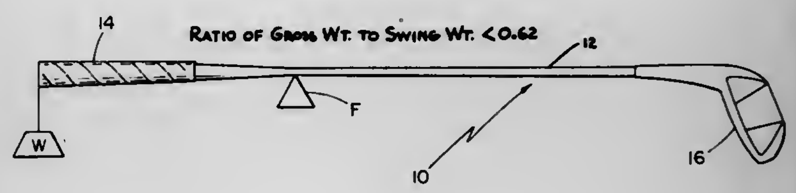




In tennis rackets and the like a faster and more efficient method of stringing racket frames wherein the strings are inserted and tensioned within the frame without interweaving the longitudinal and latitudinal strings. The net thus formed is than consolidated into a unified structure by bonding the longitudinal strings to the latitudinal strings at each point that the longitudinal strings cross the latitudinal strings.

3,834,700
METHOD OF MAKING A GOLF CLUB WHEREIN RATIO OF GROSS WEIGHT TO SWING WEIGHT IS LESS THAN 0.62

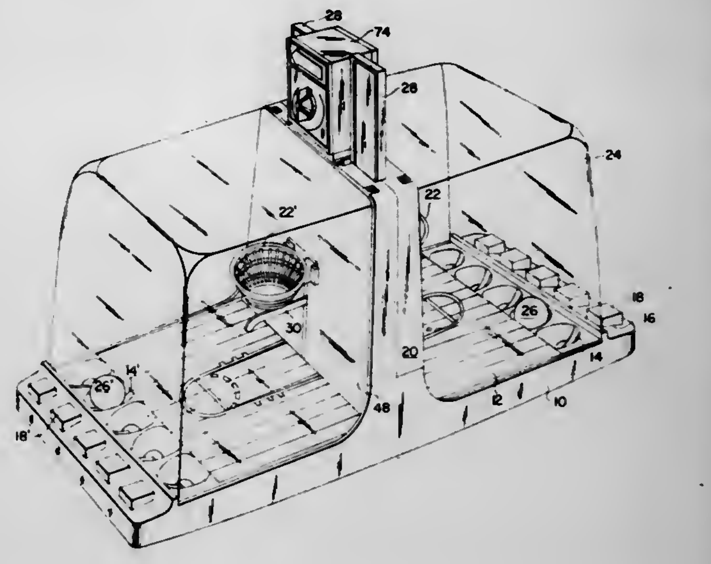
Benjamin L. Averbach, 45 Orchard St., Belmont, Mass. 02178
Filed Dec. 24, 1968, Ser. No. 786,627
Int. Cl. A63b *53/00*
U.S. Cl. 273—77 R **1 Claim**



The golf club having a ratio of gross weight to swing weight that is less than 0.62 and a head including an insert having a modulus of elasticity greater than six thousand p.s.i. defining the club's striking surface.

3,834,701
BASKETBALL GAME AMUSEMENT DEVICE

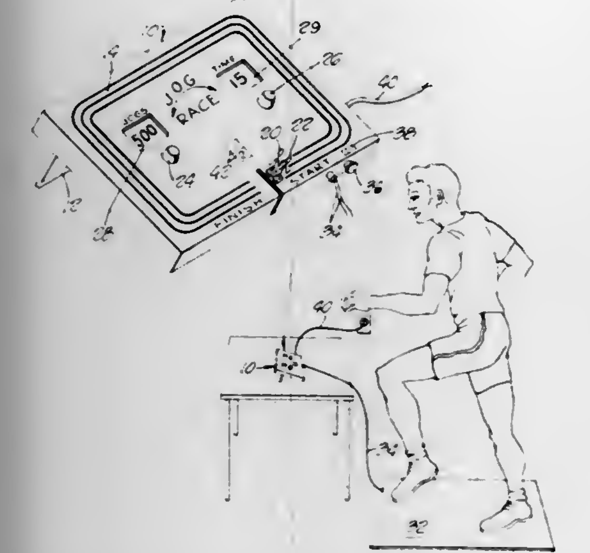
Kazuyuki Hashimoto, Ohana-Jaya 3-8-20 Katsushika-ku, Tokyo, Japan
Filed Nov. 9, 1973, Ser. No. 414,515
Claims priority, application Japan, July 7, 1973, 48-80877
Int. Cl. A63f *7/06*
U.S. Cl. 273—85 C **6 Claims**



A basketball game amusement device featuring a housing, a wall positioned at the center of the housing and extending upwardly therefrom, basket goals mounted on opposite sides of the wall and above the top surface of the housing, a transparent dome secured to said housing so as to define two separate playing areas on opposite sides of the wall, a plurality of supporting surfaces positioned in a row extending across the housing at positions near the ends thereof and within the dome, actuating members positioned within the supporting surfaces for propelling a ball located therein, a plurality of operating members extending across the opposite ends of the housing located outside of the dome and corresponding to the supporting surfaces such that as an individual operating member is depressed, its corresponding actuating member propels a ball located within its supporting surface towards its basket goal and a system associated with each of the basket goals for counting the number of times a ball passes therethrough.

3,834,702
JOGGING GAME APPARATUS

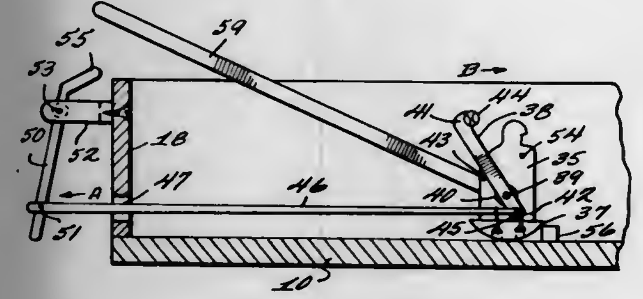
William W. Bliss, 8422 Melrose Pl., Los Angeles, Calif. 90069
Filed June 11, 1973, Ser. No. 368,744
Int. Cl. A63f *9/14;* **A63b** *23/04*
U.S. Cl. 273—86 B **5 Claims**



Game apparatus is provided which is controlled by a person jogging in place to establish a simulated race between the jogger and a simulated competitive runner. The apparatus includes a game board and two or more game pieces. The game pieces represent runners. They are controlled to move around a racetrack inscribed on the surface of the game board. One of the game pieces is controlled by a timing mechanism, which is pre-set to cause the game piece to move at a particular speed so as to complete the race in a predetermined time. Another of the game pieces is controlled by the jogger, who must jog in place at a particular rate in order to win the race with the timed game piece. Additional game pieces controlled, for example, by additional joggers and/or by additional timing mechanisms may be provided, as desired.

3,834,703
BASEBALL GAME

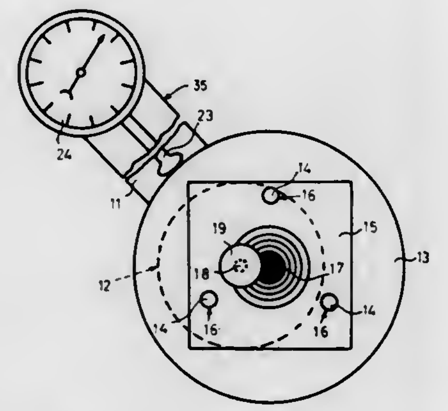
Gerald Ernest Dlouhy, 567 Smith Neck Rd., South Dartmouth, Mass. 02748
Filed Mar. 27, 1973, Ser. No. 345,466
Int. Cl. A63f *7/10, 7/06*
U.S. Cl. 273—89 **3 Claims**



A baseball game is provided with a gameboard having vertical walls perpendicular thereto to indicate an outfield wall. The infield and outfield positions are provided with net-like devices to catch and retain a hit ball. A net-like catching device is provided which has a fixed strike zone and retains a pitched ball within the catching device which has passed through the fixed strike zone. A batter is provided which has a lower stationary portion and an upper rotating portion attached to the lower stationary portion so that a bat is rotated through an arcuate swing wherein the bat is parallel to the gameboard at least during a portion of the total arcuate swing. A pitching device is provided which enables the operator to control the direction, trajectory and speed of the pitched ball.

3,834,704
TARGET WITH EVALUATING HOLES

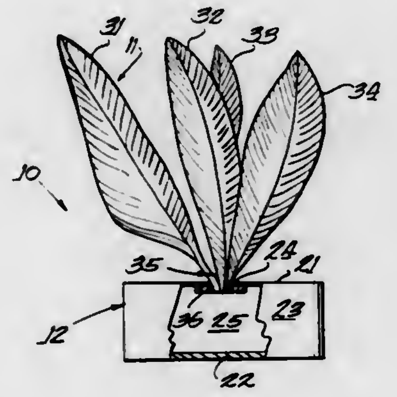
Heinz Kraússer, and Alfred Kraússer, both of Munich, Germany, assignors to Carl Edelmann GmbH, Heidenheim/Brenz, Germany
Division of Ser. No. 15,079, Feb. 27, 1970, Pat. No. 3,719,998. This application Feb. 7, 1973, Ser. No. 330,239
Claims priority, application Germany, Feb. 28, 1969, 1910345
Int. Cl. F41j *3/00*
U.S. Cl. 273—102 R **1 Claim**



A target for use with apparatus for the exact evaluation of hits on a shooting target including a rotatably mounted holding plate for an annular support disc concentrically holding the target. A plug, which can be inserted into the shot hole, is mounted in a central bore of the holding plate and forms the axis of rotation of the support disc and the target. A measuring device is provided whose sensor contacts the circumference of the support disc to show the eccentricity of the shot hole. The article of a bull's-eye target is provided having positioning holes punched therein. The holes are disposed at a uniform distance from the center of the bull's-eye in order to assure that the center of the bull's-eye coincides with the center of the supporting disc. This permits exact evaluation of hits when the target is placed back on the disc after shooting.

3,834,705
FOOTSIE BIRD GAME DEVICE

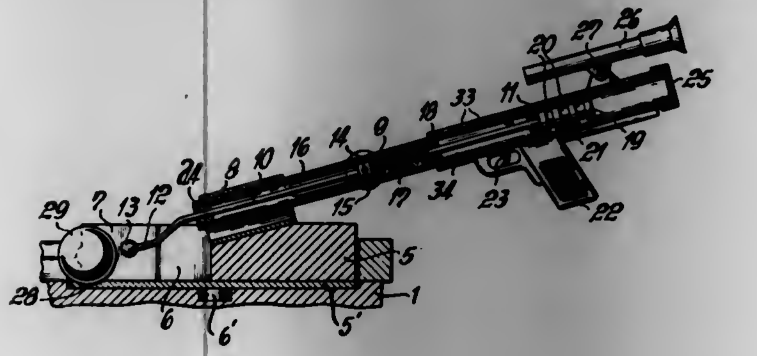
Raymond Woo Wong, 900 Richard Ln., Danville, Calif. 94526
Filed Sept. 26, 1973, Ser. No. 401,069
Int. Cl. A63b *67/18*
U.S. Cl. 273—106 A **3 Claims**



A game device including a hollow lightweight cylindrically shaped disc like member having an aperture in the center of the top surface thereof and extending axially therethrough into an interior compartment in the disc member, and a set of a plurality of feathers each having their shaft portions connected together and extending through the center of a flat washer-like member fabricated of a flexible material, the feathers being joined to the disc member by the washer-like member and joined feather shafts being forced axially through the top surface opening into the disc compartment with the washer being retained within the compartment and with the feathers projecting upwardly and radially outwardly from the disc top surface the disc intended to be kicked vertically repeatedly with an individual's feet to retain the disc in the air for the longest period of time thus facilitating an individual's development of coordination along with providing exercise to the muscles of the individual's legs.

3,834,706
POCKET BILLIARD GAME APPARATUS

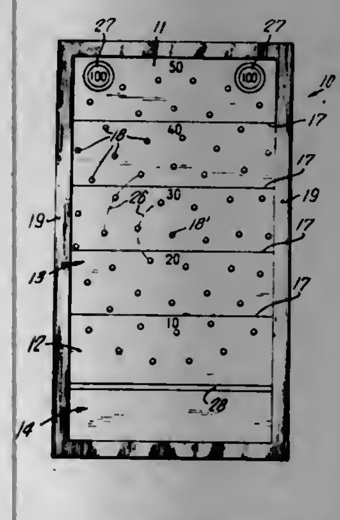
Xaver Leonhart, 8381 Harburg b., Pilsting/Ndb., Germany
Filed June 22, 1973, Ser. No. 372,620
Claims priority, application Germany, July 8, 1972, 2233649
Int. Cl. A63d *15/00, 15/04*
U.S. Cl. 273—122 R **9 Claims**



A spring projector assembly is connected on a turntable mounted at one end of the playing surface of a pocket billiard table, the turntable being rotatable about a vertical axis and the spring projector mounted inclined toward the playing surface and rotatable about its longitudinal axis relative to the turntable. The spring projector includes a hollow tubular body with a spring-loaded piston therein, the piston head having a plurality of annular grooves on its surface selectively engaging with a trigger release mechanism for selective loading of the piston spring. The piston rod protrudes from the end of the hollow tubular body adjacent the playing surface and the protruding end portion is offset from the axis of the piston rod and terminates in a cue ball engaging tip rearwardly of a ball holding impression disposed within a slot in the turntable. The portion of the tubular body in which the piston head is disposed comprises a compression chamber having plural holes through the sidewall thereof, the selective covering of which impedes the forward thrust of the piston rod ball projector upon release of the spring-loaded piston by the trigger.

3,834,707
MAGNETIC GAME

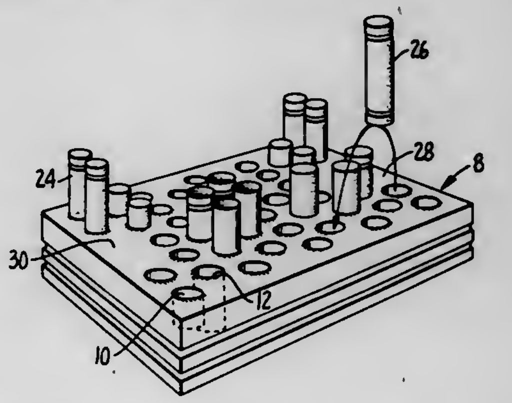
Ralph H. Birkett, 1030 4th Ave., Montreal 204, Quebec, Canada
Filed Jan. 7, 1974, Ser. No. 431,203
Int. Cl. A63f *3/00*
U.S. Cl. 273—126 A **10 Claims**



A magnetic game comprising a board of non-magnetic material having a flat upper surface. A plurality of spaced apart pins of ferrous material are secured to the board and protrude above the upper surface of the board. A first and second magnetic disc each having a known polar disposition whereby said discs will repel each other when brought in close proximity to each other. Pusher means are provided for restraining and moving one of the discs on the board upper surface whereby to cause the other disc to be repelled and displaced on the flat surface.

3,834,708
CLUSTER GAME

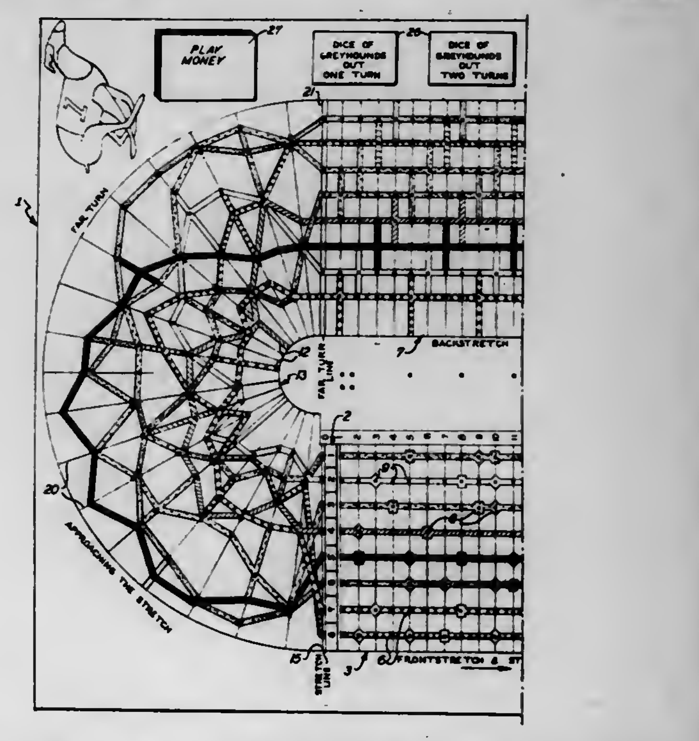
Philip L. Shoptaugh, 5860 Buena Vista Ave., Oakland, Calif. 94619
Filed Feb. 23, 1973, Ser. No. 334,996
Int. Cl. A63f *3/00*
U.S. Cl. 273—132 **4 Claims**



A board game is provided wherein the board has holes for the reception of pegs or playing pieces, the holes being of different depths and the pegs being of different lengths whereby the players in a series of moves attempt to get their pieces in a tight cluster with the pieces extending the same height above the board. In its simplest form, holes of two different depths and pegs of two different lengths are provided so that it is necessary for the player to have all of his long pegs in the deep holes and all of his short pegs in the shallow holes, forming a tight cluster to win.

3,834,709
RACING BOARD GAME APPARATUS

Kenneth E. Lamb, St. Petersburg, Fla., assignor to The Professor Inc., St. Petersburg, Fla.
Filed Aug. 22, 1972, Ser. No. 282,783
Int. Cl. A63f *3/00*
U.S. Cl. 273—134 AD **7 Claims**



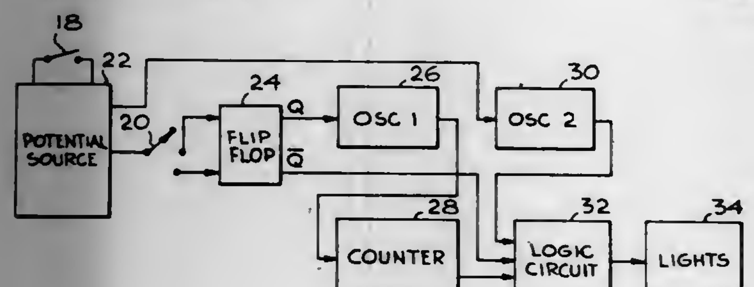
A racing game includes a playing board with endless paths having successive stations along which corresponding tokens are moved as indicated by dice. The paths are irregular and intersect at certain areas of the board to form terminal junction points which permit one player's tokens to bump, block or pass another depending upon the dice and other factors. Passing symbols, racing odds, starting lines and other instructions are included with individual programs that can be distributed to each player and correlated with the game board. Each player can use play money and betting slips to participate in a variety of games that are instructive as to the varying probabilities found in actual dog or horse racing.

3,834,710
ELECTRONIC RANDOM PREDICTOR

Andre Levy Sousan, Avenue De Suffren 20, Paris, France (75015)

Filed June 4, 1973, Ser. No. 366,656
Int. Cl. A63b *71/06*

U.S. Cl. 273—138 A **7 Claims**



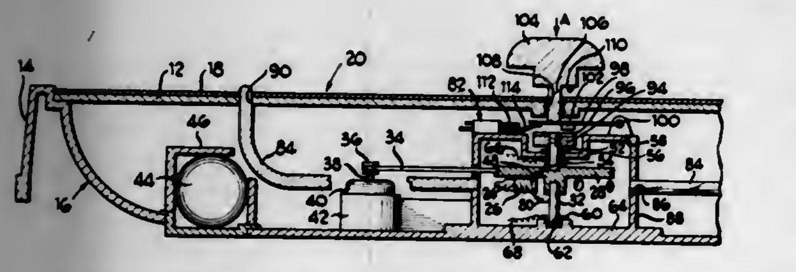
A random predictor electronic system has groups of lights with each group having at least two differently colored light sources. A logic circuit has its output connected to the groups of lights. A first oscillator controls a binary stage electronic counter with the output of the counter being one input of the logic circuit. A second oscillator powered by a source of electric potential has its output being a second input of the logic circuit. A player actuated manually positionable switch is connected to the potential source and to a flip-flop with the switch in a first position triggering one side of the flip-flop and in a second position triggering the second side of the flip-flop. The output of the first side of the flip-flop controls the first oscillator and the output of the second side of the flip-flop being a third input of the logic circuit, whereby on positioning the switch in the first position the first oscillator drives the counter and the plurality of groups of lights are not illuminated and on positioning the switch in the second position at least one of the light groups is illuminated wherein at least one of the colored light sources in the illuminated light group is illuminated in either a steady state mode or a flashing mode, or at least two of the colored light sources in the illuminated light group are illuminated in an alternating blinking mode.

3,834,711
GAME DEVICE WITH ILLUMINABLE PLAYING POSITIONS

Jeffrey D. Breslow, Highland Park, Ill., assignor to Marvin Glass & Associates, Chicago, Ill.

Filed Jan. 2, 1973, Ser. No. 319,191
Int. Cl. A63b *71/06;* **A63f** *1/18*

U.S. Cl. 273—141 A **8 Claims**



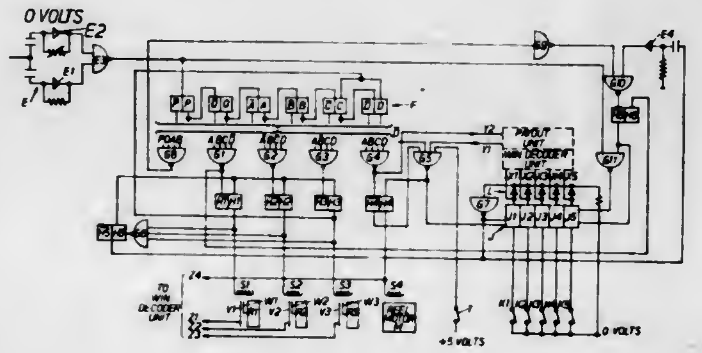
A game device which includes a game board having a playing area on which a plurality of playing positions are arranged in a generally circular pattern. A miniature light-bulb is mounted for rotation beneath the playing area and a plurality of light transmitting spoke-like rod members are mounted beneath the playing area for directing light rays from the bulb along the lengths of the rods outwardly from the bulb. The inner ends of the rods are disposed adjacent the lightbulb and the outer ends of the rods are bent upwardly and comprise indicating means at the playing positions on the playing area. The lightbulb is rotated by a battery powered motor mounted beneath the playing area and a brake mechanism is employed for selective manual operation by players of the game to bring the lightbulb to a halt at a random position to provide a chance selection of one of the playing positions by directing light rays along one of the spoke-like rods to indicate the selected position.

3,834,712
GAMING MACHINE WITH COMPARISON OF RANDOMLY DETERMINED AND PLAYER PRESELECTED SYMBOLS

Calvin Howard Cox, Pudsey, England, assignor to Bell-Fruit Manufacturing Company Limited, Nottingham, England

Filed Jan. 11, 1972, Ser. No. 217,022
Int. Cl. A43f *5/04*

U.S. Cl. 273—143 R **13 Claims**



A gaming machine which is operated by a player when he manually actuates one of a plurality of switches each bearing a different symbol to activate the machine. The machine presents a display of various symbols, inclusive of those of the switches, which on each play of the machine changes the displayed symbols in a random manner to give a new display. Correspondence between the symbol of the manually activated switch and the same randomly displayed symbol results in a win signal in a win decoder with the win signal increasing depending upon the total number of correspondences therebetween. In addition, there is a different win signal if all the displayed symbols are the same, even though they do not correspond to the symbol of the pushed switch. Prize awarding means responsive to the win decoder awards numerical totals corresponding to the win signals. While normally only one switch is actuated and each switch controls its own triggering of a different stage of a shift register, a clock mechanism connected to the shift register will trigger all the stages thereof which is equivalent to pressing all of the switches if any one of the switches is manually pushed at the exact time as that corresponding to a predetermined stage of the counting state of the clock mechanism.

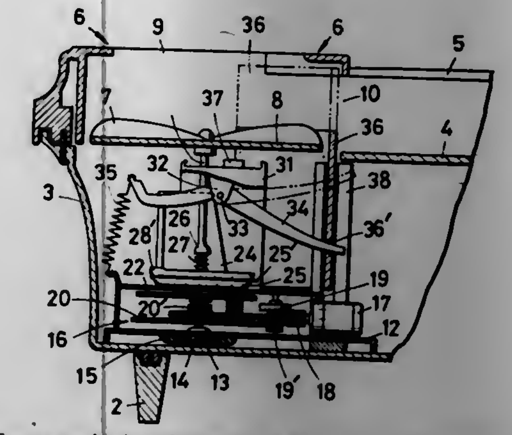
3,834,713
AMUSEMENT AND GAME BOARD WITH AUTOMATIC DICE CASTING MEANS

Yoshie Ito, No. 4-12-2, Hakusan, and Kataro Suda, No. 4-40-15, Higashi Mukojima, both of Tokyo, Japan

Filed Jan. 10, 1973, Ser. No. 322,424
Claims priority, application Japan, Mar. 7, 1972, 47-22752
Int. Cl. A63f *9/04*

U.S. Cl. 273—145 E **2 Claims**

An amusement and game board specifically incorporating an automatic dice shaking and casting device comprising in combination a dice shaking and casting section disposed with the head portion thereof to be exposed in one corner of the playing surface of the game board, wherein the dice casting section has an opening on the upper side thereof and also on one lateral side thereof facing the playing surface and a rotary disc disposed in the interior of that section to be driven by an electric motor in such a manner that it can start rotation in immediate response to the presence of a set of dice thrown thereupon by a switch adapted to serve to automatically close an electric circuit for the motor, a cam operated shutter adapted to normally close the side opening is appropriately correlated with the rotating motion of the motor so as to automatically open the side opening of the dice casting section and close it again, and another switch adapted to serve to automatically maintain the electric circuit for one complete operation and then open the electric circuit, thereby to accomplish the complete dice operation of the game board.

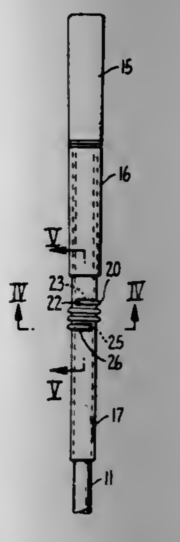


3,834,714
PRACTICE GOLF CLUB

Richard C. Smolinski, 72 Mar Vista Dr., Monterey, Calif. 93940

Filed Mar. 5, 1973, Ser. No. 338,180
Int. Cl. A63b *69/36*

U.S. Cl. 273—183 D **7 Claims**



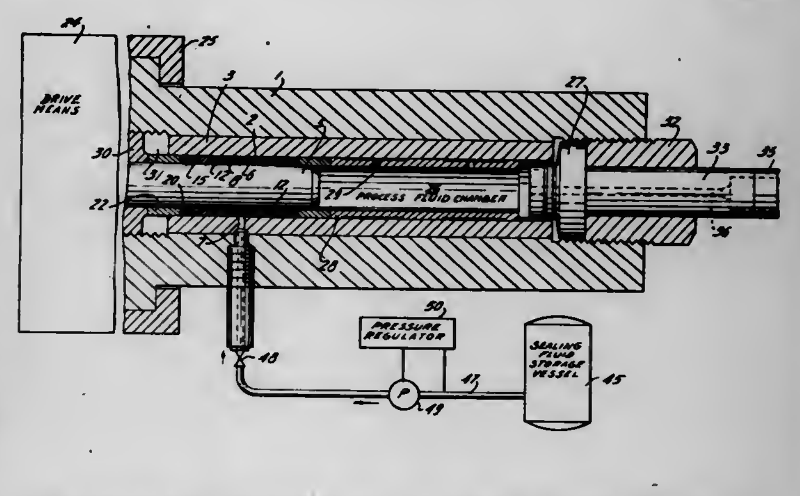
The training and practice golf club of the present invention is directed to the attainment of the proper feel of the grip for a golf swing or stroke, other than on a putting surface. This feel is obtained by dividing the club's normal grip means transversely into two parts. The upper portion is immovably secured to the upper end of the shaft in the usual manner. The lower portion of the grip means is secured to a fitted and freely rotating sleeve which is slipped over the club shaft and moved upwardly until the two grip portions abutt. A portion of the sleeve extends beyond and below the terminus of the lower grip means. A coiled spring is slipped over the sleeve portion and spaced from, but adjacent to, the terminus of the lower grip means. One end of the coiled spring is bent inwardly at right angles and restrained in a hole bored in the sleeve just below the lower grip means. The projecting end of the spring rides in a transverse slot to provide limited rotation. The lower end of the spring is also bent inwardly at right angles and rides in a registering transverse slot in the sleeve and its projecting end is restrained in a hole bored in the main shaft. In this manner the lower portion of the grip means may be rotated against the tension of the coil spring to provide the feel in properly gripping a golf club. Unless the tension by rotation is felt, the proper grip is not attained.

3,834,715
PRESSURE SEAL ASSEMBLY

Albert O. Butler, Odessa, Tex., assignor to Dart Industries Inc., Los Angeles, Calif.

Filed Apr. 26, 1972, Ser. No. 249,442
Int. Cl. F16j *15/40*

U.S. Cl. 277—1 **7 Claims**



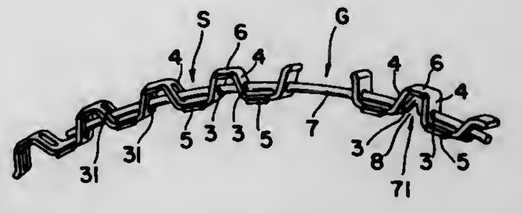
An improved pressure seal assembly is provided having an increased life span which comprises a lantern ring having an inlet to receive a sealing fluid and at least one outlet through which the sealing fluid passes, sealing fluid means in fluid communication with the inlet and outlet in the lantern ring for supplying a sealing fluid therethrough, and at least one chevron type packing ring located on each side of the lantern ring and having its convex surface thereof facing away from the lantern ring.

3,834,716
SPACER EXPANDER WITH GUIDE ROD FOR PREVENTING OVERLAPPING OF THE ENDS OF THE SPACER EXPANDER

Syoji Okada, Ohmiya, Japan, assignor to Nippon Piston Ring Co., Ltd., Tokyo, Japan

Filed Aug. 1, 1973, Ser. No. 384,539
Claims priority, application Japan, Aug. 2, 1972, 47-90392
Int. Cl. F16j *9/06, 9/18*

U.S. Cl. 277—9 **2 Claims**



Herein disclosed is a radially undulating spacer expander structure for use in a combined oil scraper piston ring together with an arcuate guide rod. The spacer expander has its two ends formed into an abutting portion and has one of its undulations composed of a crest portion, a trough portion and two connecting portions connecting the crest portion and the trough portion. A plurality of those of the undulations, which are positioned in the vicinity of the two ends, are formed at the connecting portions with bores which are positioned close to either of the crest portion or the trough portion. A plurality of those of the undulations, which are positioned at one side of the two ends, are formed at the connecting portions with slots which are positioned adjacent to the bores. The spacer expander further includes an arcuate guide rod which is received in both of the bores and the slots. According to one feature of the present invention, the guide rod has its one end folded or formed into a trapezoid space, which is defined by the connecting portion of one of the undulations and by either of the crest portion and the trough portion of the same, so as to have the one end portion retained at its folded or formed portion in the trapezoid space, so that the two ends of the spacer expander can be made free from any overlapping even when the two ends are made to approach to each other.

3,834,717
SHAFT SEALS

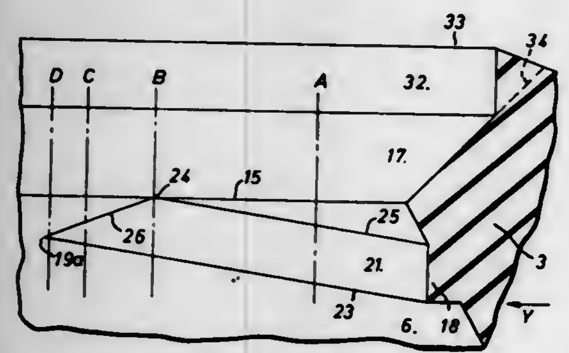
Frank Alfred Broad, Newcastle upon Tyne, England, assignor to George Angus & Company Limited, Newcastle upon Tyne, England

Filed Oct. 20, 1972, Ser. No. 299,389

Claims priority, application Great Britain, Nov. 12, 1971, 52648/71

Int. Cl. F16j *15/54*

U.S. Cl. 277—134 **4 Claims**



A positive action shaft seal with a moulded sealing edge has an improved configuration of positive action ridges meeting the sealing edge so that the ridge crests merge into the air side face and only ridge flanks meet the sealing edge.

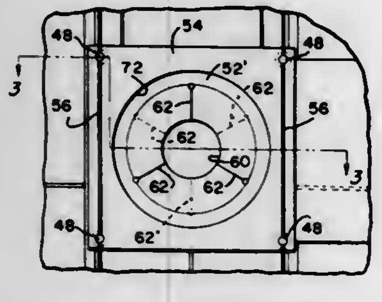
3,834,718
SEALING MEANS

Laszlo Gyongyosi, Clarksburg, and David A. Gregory, Lost Creek, both of W. Va., assignors to Ingersall-Rand Company, Woodcliff Lake, N.J.

Division of Ser. No. 322,686, Feb. 15, 1973, Pat. No. 3,800,890. This application Nov. 5, 1973, Ser. No. 412,741

Int. Cl. F16j *9/06*

U.S. Cl. 277—166 **4 Claims**



The system comprises an enclosure for enveloping a portion of drill rod used with an earth drilling machine the enclosure having only one side opening formed therein for coupling to a source of suction. The enclosure has axially aligned holes formed in the top and bottom thereof for admitting drill rod therethrough for address to the earth; and at least one "-floating" type seal disposed about the drill rod for tracking radial excursions of the drill rod during drilling. A baffle plate fixed to the enclosure prevents the travel of large earth cuttings to the source of suction. Further, a flexible hood is carried about the enclosure, and is movably mounted for elevation from the ground area and for lowering thereto to prevent an escape of earth cuttings dust.

3,834,719
PISTON HEAD ASSEMBLY HAVING AN L-SHAPED PISTON RING

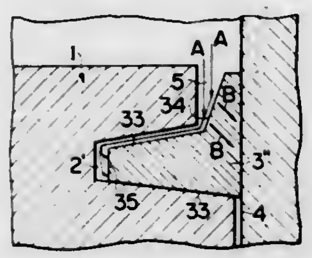
Keichiro Shin, Ageo, and Mikio Miyamoto, Ohmiya, both of Japan, assignors to Nippon Piston Ring Co., Ltd., Tokyo, Japan

Filed Oct. 27, 1971, Ser. No. 193,123

Claims priority, application Japan, Oct. 27, 1970, 45-106043; Oct. 27, 1970, 45-106044

Int. Cl. F16j *9/20;* **F01b** *31/10*

U.S. Cl. 277—170 **3 Claims**



A piston head assembly having an annular groove carries a substantially L-shaped cross-sectional ring. One side of the ring has a wear surface, while the other faces of the ring are slanted to provide gas access to the rear of the ring. The annular groove has matching faces whereby sticking and excessive wear is reduced.

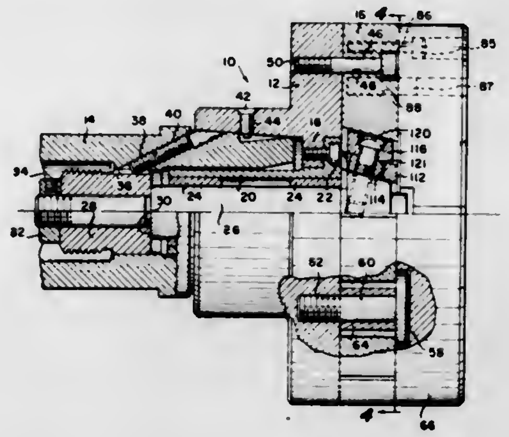
3,834,720
SELF-CENTERING JAW CHUCK

Hubert J. Parsons, Horseheads, N.Y., assignor to Hardinge Brothers, Inc., Elmira, N.Y.

Filed Feb. 7, 1973, Ser. No. 330,437

Int. Cl. B23b *31/10*

U.S. Cl. 279—1 L **17 Claims**



A self-centering, radially reciprocating jaw chuck for machine tools and the like comprising a chuck body member, a plurality of master jaws secured to the body member, each of the master jaws having a pair of circumferentially spaced fixed portions rigidly secured to the body member and a radially reciprocable portion positioned circumferentially between the fixed portions. Resilient means integral with both the fixed portions and the radially reciprocable portion connect these portions, and a work gripping member is secured to each of the radially reciprocating portions. Axially reciprocable means is provided within the body member for radially reciprocating the radially reciprocable portions, and work gripping members attached thereto, whereby flexure of the resilient means provides a self-centering action of the work gripping members with respect to the longitudinal axis of the chuck and the work.

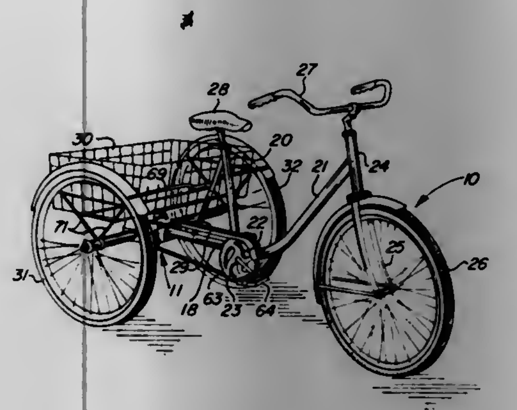
3,834,721
TWIN CHAIN DRIVE FOR TRICYCLES

Alan B. Gobby, 6645 N. 58th Ave., Glendale, Ariz. 85301

Filed Nov. 29, 1973, Ser. No. 419,981

Int. Cl. B62m *9/00*

U.S. Cl. 280—7.15 **8 Claims**



A twin chain drive mechanism for the propulsion of a pair of separated, aligned axle shafts and their attached rear road wheels of a tricycle at various speeds by the manipulation of its pedals, each independent axle shaft having a free-wheeling drive sprocket removably attached thereto which allows for coasting and the variable speeds of the wheels required during operation.

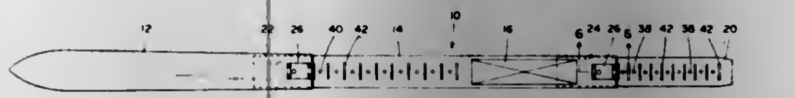
3,834,722
VARIABLE LENGTH SKI

Ewald Joseph Rainer, 15 Maida Vale, Scarboro 703, Ontario, Canada

Filed July 24, 1972, Ser. No. 274,751

Int. Cl. A63c *5/02*

U.S. Cl. 280—11.13 K **16 Claims**



Disclosed is a snow ski which has a convex snow engaging surface for use by an individual in moving over a snow surface and binding means for releasably attaching the ski to a ski boot worn by an individual. Each ski is divided into front, center and rear sections which are attached together to form a rigid ski. Each of the sections is provided with a bottom snow engaging surface for aiding in moving the ski over the snow. In one embodiment the front section is provided with a socket portion into which the center section telescopes and the center section is provided with a socket portion into which the rear section telescopes. Latching means are provided on the front and center sections to selectively lock the relative positions of the sections as desired. In another embodiment, a plurality of front and rear sections are provided of varying lengths and each can be releasably attached to the center section to form skis of different lengths.

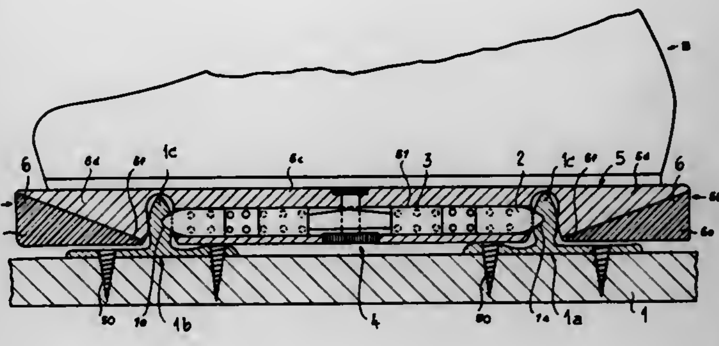
3,834,723
SKI BOOT AND USE THEREOF AS PART OF A RELEASABLE SKI BINDING

Richard Erlebach, Riezlern, Austria, assignor to Gertsch AG, Interlaken, Switzerland

Filed Aug. 21, 1972, Ser. No. 282,548

Int. Cl. A63c *9/086*

U.S. Cl. 280—11.35 D **21 Claims**



A ski boot wherein the toe portion and the heel portion of the ski boot sole which is essentially of a rigid or stiff construction are formed of elastically compressible material. The invention further contemplates employing the ski boot as part of a releasable ski binding wherein connection elements which cooperate with one another until exceeding a boundary load have a part thereof arranged at the ski and another part thereof within the ski boot sole. The connection elements are arranged at the region of the rigid intermediate or central portion of the sole of the ski boot and cooperate with one another through the region of the walking or tread surface of the ski boot sole.

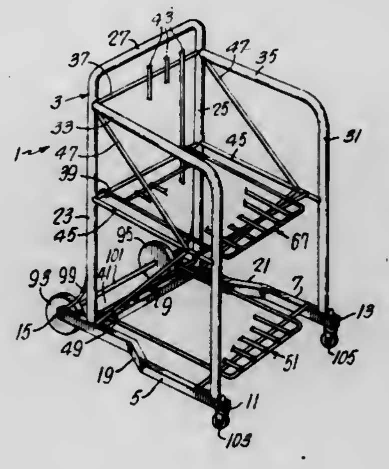
3,834,724
NESTABLE CAR ORDER CART

Antoine Trubiano, 36 Marien St., Montreal East 550, Quebec, Canada

Filed Feb. 9, 1973, Ser. No. 331,272

Int. Cl. B62b *3/02, 11/00*

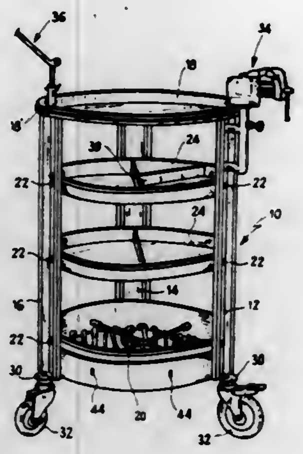
U.S. Cl. 280—33.99 H **4 Claims**



A nestable car order cart having an upright frame opening out toward the front. One, and preferably two, shelves are hingedly mounted at the back of the frame. The shelves can move between a raised position, permitting carts to be nested, and a horizontal position to carry goods. Means are provided on the bottom rear of the cart for camming the lower shelf of a second cart; into which the first cart is being nested, upwardly to the raised position.

3,834,725
TROLLEY ADAPTED TO HOLD OR TO EXHIBIT THINGS OR ARTICLES OF DIFFERENT KINDS

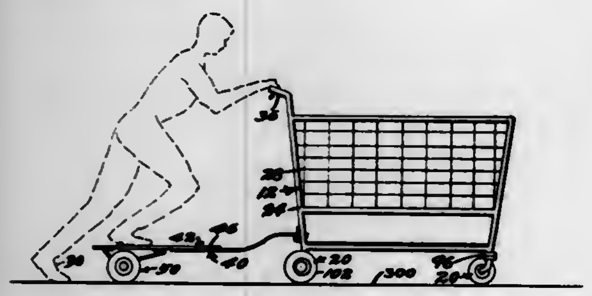
Biagio Luoni, Gallarate, Italy, assignor to USAG S.p.A., Gemonio, Varese, Italy
Filed Oct. 27, 1972, Ser. No. 301,449
Claims priority, application Italy, Mar. 18, 1972, 21330/72
Int. Cl. B62d *53/06*
U.S. Cl. 280—79.2 **9 Claims**



A tool-holder trolley including several vertically stacked tray-like horizontal containers held by three uprights, the upper and lower containers being fixed to the uprights and the intermediate containers being revolvable on bearings carried by the uprights. The uprights have roller wheels at their lower extremities.

3,834,726
STANDING OCCUPANT PROPELLED MERCHANDISE CARRIER

Martin J. Hobza, 3314 S. 5th St., Omaha, Nebr. 68108
Filed Dec. 13, 1971, Ser. No. 207,108
Int. Cl. B60d *3/00;* **B62k** *7/00*
U.S. Cl. 280—87.04 R **7 Claims**

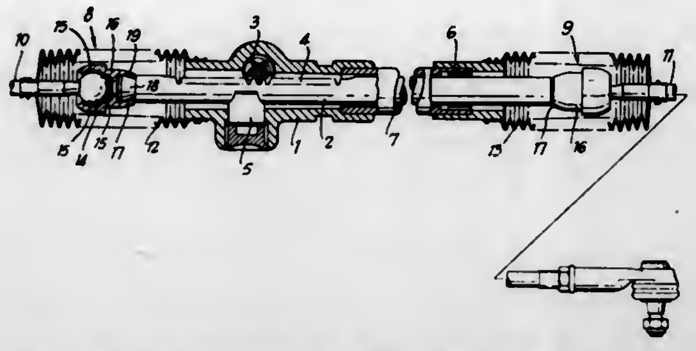


A standing occupant propelled merchandise cart comprising a forward container portion, wheel means supporting the forward container portion, handle means at the rear of the forward container portion and adapted to be gripped by a standing operator, an operator's riding platform having wheels under it and pivotally attached at its forward end to the forward portion whereby an operator riding on the platform can steer the forward portion, the rearward platform being suitable for propulsion in the manner of a scooter.

3,834,727
STEERING GEARS

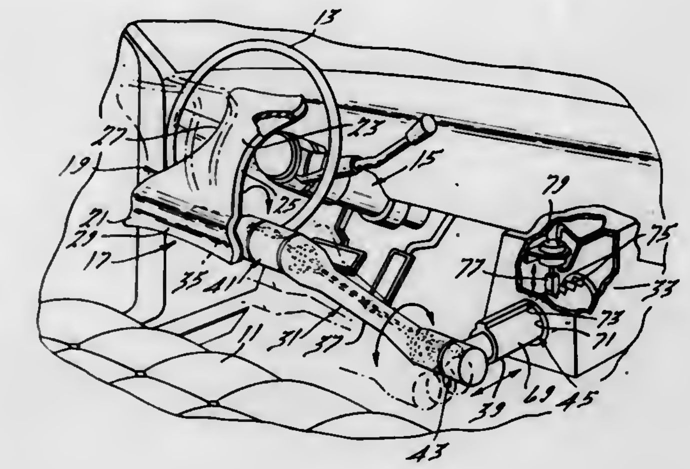
Frederick John Adams, Campton, England, assignor to Cam Gears Limited, Hertfordshire, England
Filed Mar. 21, 1972, Ser. No. 236,646
Claims priority, application Great Britain, Mar. 29, 1971, 8074/71
Int. Cl. B62d *3/12*
U.S. Cl. 280—96 **7 Claims**

A vehicle steering gear assembly of the type in which steering movement is imparted from a movable steering member through a tie rod member interconnected therewith by a universal joint; wherein one of the aforementioned members has an undercut part and that member is secured to the universal joint by deformation of a component part of the joint to form an interference fit with the undercut part of that member, preferably by inward deformation of a tubular component part of the joint over the undercut part of that member which the said tubular component part receives.



3,834,728
VEHICLE OCCUPANT RESTRAINING DEVICE

Carroll C. Anderson, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Oct. 8, 1971, Ser. No. 187,721
Int. Cl. B60r *21/02*
U.S. Cl. 280—150 B **2 Claims**

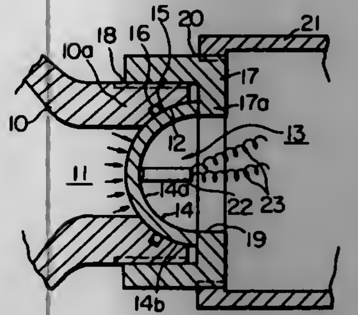


A device to restrain or limit the forward displacement of a passenger in an automobile vehicle seat. The device includes a padded member which may be adjustably positioned in front of the passenger so that upon forward displacement of the passenger the member is engageable with the waist and chest of the passenger. The pad has concavely contoured sides that permit substantially full accessibility of a driver-passenger to controls in front of the padded member. An adjustable articulated support connects the padded member to the body of the automotive vehicle.

3,834,729
SEALING UNIT FOR PRESSURIZED GAS GENERATOR OF AUTOMOTIVE SAFETY DEVICE

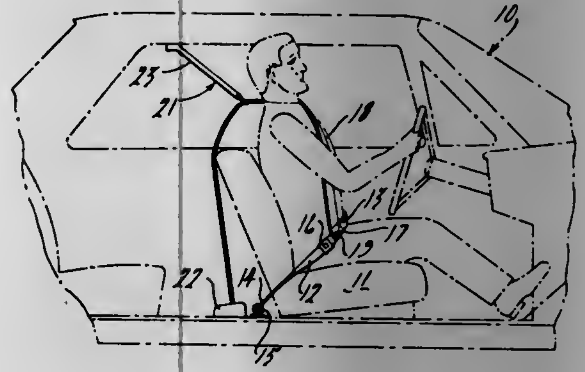
Takashi Oka, Tokyo; Tatsuhiro Arima, Yokohama City, and Tugio Noda, Kawagoe City, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama City, Japan
Filed Feb. 4, 1972, Ser. No. 223,502
Claims priority, application Japan, Sept. 23, 1971, 46-86285; Sept. 23, 1971, 46-86286
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **11 Claims**

A sealing unit for use in a pressurized gas generator of an automotive safety device for protecting a vehicle occupant from injury during a collision of a motor vehicle. The sealing unit includes a spherical segment formed in a neck portion of the pressurized gas generator, a semi-spherical hollow member having an inner surface and an outer surface facing the spherical segment, an impact responsive explosive charge mounted in a concave portion of the semi-spherical hollow member, and a cap member threadably engaged with a leading end of the neck portion of the pressurized gas generator, the cap member having a bottom wall formed with a bore which is aligned with a pressurized gas discharge outlet of the pressurized gas generator and which communicates with an inflatable confinement of the safety device.



3,834,730
SLING MEANS FOR SHOULDER HARNESS

Denis A. Kansier, Plymouth, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Oct. 2, 1973, Ser. No. 402,675
Int. Cl. B60R *21/10*
U.S. Cl. 280—150 SB **5 Claims**

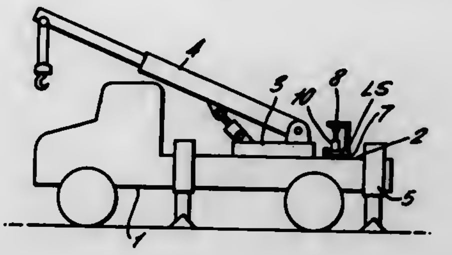


Sling means for supporting a shoulder harness from a roof rail of a vehicle body. The sling means includes a strap having a loop means at one end to which a ring assembly means is coupled. The improvement comprises a projecting means on the ring assembly means extending longitudinally of the strap and encompassed by a pocket means sewn between layers of the strap. The projecting means and pocket means coact to restrain the ring assembly means against twisting or rotating movement in the plane of the strap.

3,834,731
AUTOMATIC HORIZONTAL POSITIONING DEVICE FOR LOAD HANDLING VEHICLE

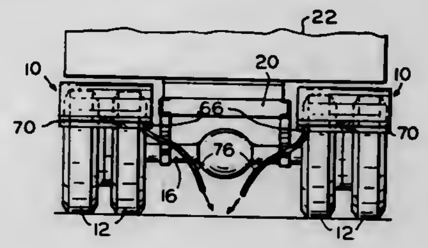
Takeshi Uehara, Sakura, Japan, assignor to Unic Corporation, Chiyoda-ku, Tokyo, Japan
Filed Oct. 19, 1972, Ser. No. 298,816
Claims priority, application Japan, Nov. 2, 1971, 46-86723
Int. Cl. B60s *9/10*
U.S. Cl. 280—150.5 **4 Claims**

An automatic horizontal positioning device for a load handling vehicle such as a truck crane, comprising sensing means for sensing tilting of the vehicle having a weight causing contacts of limit switches to close when the vehicle is tilted, magnet valves adapted to be operated in response to the sensing means to supply hydraulic pressure to head ends of vertical outriggers at the lowered portions of the vehicle, and pressure switches for changing over said magnet valves to shut off the hydraulic pressure to the head ends of the vertical outriggers when pressure in the head end chambers exceeds a predetermined value resulting from the abutment of the extended outriggers against the ground, whereby the vehicle body is always maintained in its horizontal position.



3,834,732
TIRE SPRAY COLLECTOR APPARATUS

Pete A. Schons, 2245 S. W. Marth St., Portland, Oreg. 97201
Filed July 2, 1973, Ser. No. 375,620
Int. Cl. B62b *9/16*
U.S. Cl. 280—154.5 R **12 Claims**

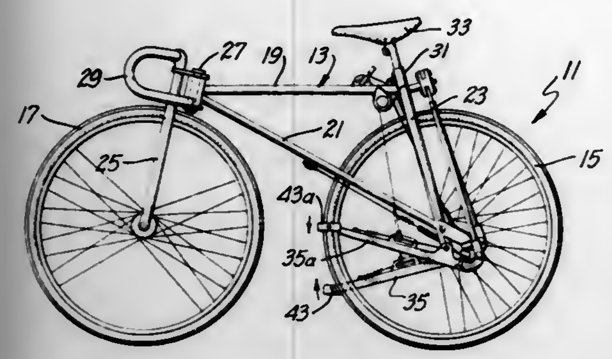


A tire spray collector apparatus for reducing the water spray at the side of a vehicle is described, including a shield member and an apertured collector member positioned below such shield member and above the tires of a truck, automobile or other wheeled vehicle. The collector member and shield member are attached together to form a closed spray collecting chamber that is sealed around the entire periphery of such members. As a result, water spray from the tires enters the chamber through the openings in the collector member and is prevented from leaving the chamber, except through drains provided at the opposite ends of the spray collector apparatus. Flexible hoses are connected to these drains and have their outlet ends positioned adjacent the ground to discharge the drain water inwardly of the wheels to prevent such drain water from producing further tire spray. In one embodiment, the collector member is in the form of a corrugated sheet having a plurality of upward opening longitudinal channels separated by longitudinal ridges which have a plurality of openings provided in the tops of such ridges so that water spray enters the collector chamber through said openings, is reflected from the shield member and flows along the bottoms of the channels to the discharge hoses. The tire spray collector apparatus does not extend over the side of the tires, so that it does not cause overheating of such tires, and also enables easy removal of the tires and installation of tire chains.

3,834,733
VELOCIPEDE

Trevor L. Harris, Costa Mesa, Calif., assignor to Harris Dynamics, Costa Mesa, Calif.
Filed Dec. 15, 1972, Ser. No. 315,497
Int. Cl. B62m *1/08*
U.S. Cl. 280—251 **9 Claims**

A velocipede comprising a frame, a drive wheel rotatably attached to the frame, first and second levers pivotally mounted on the frame for oscillation about first and second axes, respectively, and a power transmission for transmitting power resulting from oscillation of the levers to the drive wheel. The drive ratio between the levers and the drive wheel



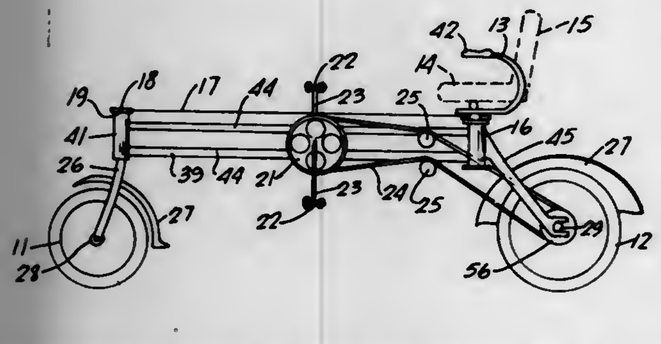
can be adjusted by the rider while the velocipede is being ridden by moving the location of the attachment of the transmission to the levers longitudinally along the levers.

3,834,734
BICYCLE

Pietro Chiappetti, Los Angeles, Calif., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Feb. 13, 1973, Ser. No. 332,237
Int. Cl. B62m *1/02*

U.S. Cl. 280—261 **2 Claims**



An improved bicycle in which the wheels are spaced considerably apart to increase riding comfort, with driving pedals mounted above the centerline of the bicycle driving wheel to permit the legs of the rider to rest at an acute angle to the horizontal plane. Steering means may be provided in proximity to the seat of the rider, utilizing a cable connection between the steering means and the front steering wheel, or alternately a rotatable steering shaft may extend from the front steering wheel to the position of the seated driver, with said rotatable shaft being geared to the fork of the front steering bicycle wheel so as to steer the bicycle wheel in response to rotation of the steering shaft.

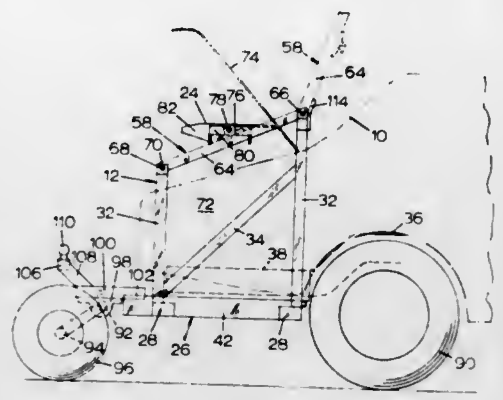
3,834,735
TRAILER HITCH MECHANISM

Charles M. Winter, 2580 W. Philadelphia St., York, Pa. 17404

Filed Dec. 14, 1972, Ser. No. 314,952
Int. Cl. B62d *53/00*

U.S. Cl. 280—423 R **14 Claims**

Hitch mechanism for attaching a fifth wheel type trailer to the rear portion of a passenger-type motor vehicle having a rear trunk, the hitch mechanism including frame means preferably detachably interconnectable to the rear portions of the chassis frame members of the motor vehicle and extending beyond the sides thereof to provide vertical frame means extending up along the exterior portions of the rear fenders and across the top of the trunk to support a fifth wheel hitch member adapted to receive the fifth wheel hitch pin on the front end of a fifth wheel trailer. When the trailer is disconnected from the hitch mechanism, the frame means extending across the top of the trunk is pivotally movable upwardly to permit the trunk cover to be raised to gain axcess to the interior of the trunk. Auxiliary supporting wheels are connected to the frame means to augment the support provided by the conventional rear wheels of the motor vehicle and, supplemental hitch means may be provided on the frame for purposes of connecting a conventional trailer thereto by normal hitch means.

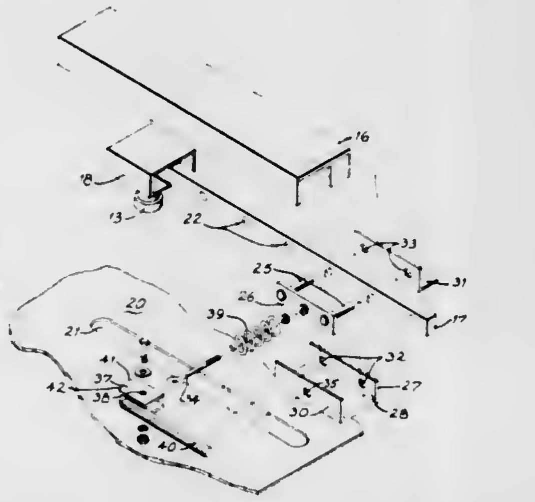


3,834,736
ADJUSTABLE KINGPIN ASSEMBLY FOR TRAILERS

Gilbert Edward Dodgson, 412 9th Ave. West, Polson, Mont. 59860

Filed July 27, 1973, Ser. No. 383,372
Int. Cl. B62d *53/08*

U.S. Cl. 280—407 **3 Claims**



An assembly is described herein for enabling the load distribution and overall length of a tractor trailer combination to be selectively varied. The assembly includes a king pin mounted to an elongated support bar. The support bar is slidably carried within a channel fixed to the trailer. The support bar includes longitudinally spaced apertures through which a pair of locking pins are received to enable the king pin to be selectively locked at any of several longitudinal positions. By thus adjusting the king pin, the user is able to adjust the weight distribution of the load between the trailer rear wheels and the tractor drive wheels. Additionally, such adjustments enable one to vary the overall length of the semi-truck.

3,834,737
DEVICE FOR TOWING ONE VEHICLE WITH ANOTHER

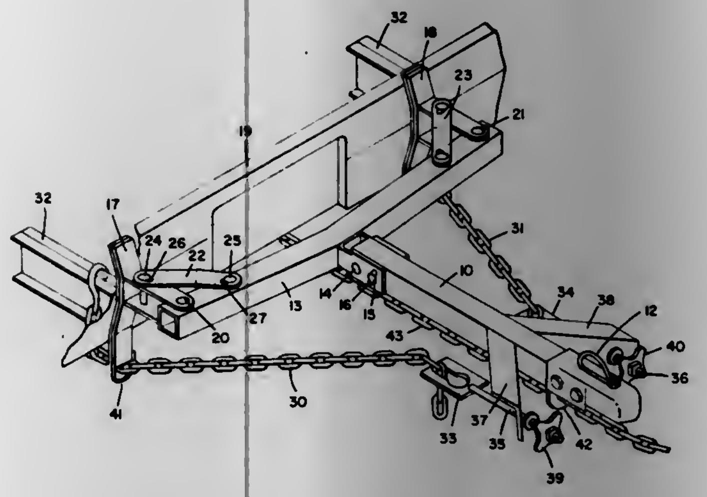
Edward John Elkins, Concord, Calif., assignor to Valley Tow-Rite, a division of Scott & Fetzer Co., Lodi, Calif.

Filed Mar. 19, 1973, Ser. No. 342,644
Int. Cl. B60d *1/14*

U.S. Cl. 280—502 **7 Claims**

A tow device having a rigid transverse frame capable of limited internal flexing motion and attachable to a towing vehicle is disclosed. A first foot is disposed at one side of the transverse frame and a second foot is disposed at the opposite side of the transverse frame, each foot abuttable against the

bumper of the vehicle to be towed. Chain guides are provided on the underside of each foot. Two chains are provided which attach to the frame of the vehicle to be towed, one chain passable through the chain guide on the underside of the first



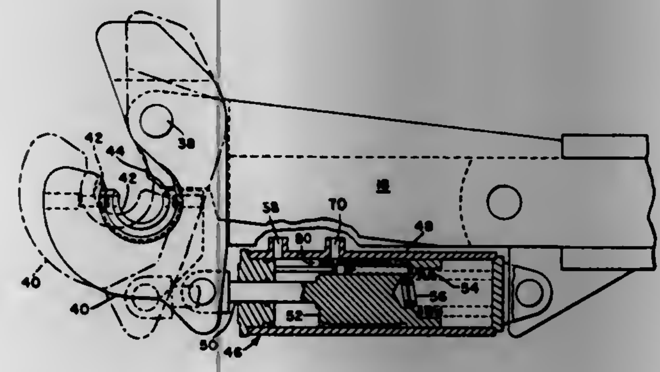
foot and the second chain passage through the chain guide on the underside of the second foot to attach to the transverse frame. Means are provided for tensioning the chains so that the first and the second feet are pressed against the bumper of the vehicle to be towed.

3,834,738
COMBINED DRAFT HOOK OPERATING AND DRAFT SENSING

James Allan Koch, Hudson, Iowa, assignor to Deere & Company, Moline, Ill.

Division of Ser. No. 222,557, Feb. 1, 1972, Pat. No. 3,731,745. This application May 4, 1973, Ser. No. 357,335
Int. Cl. B60d *1/04*

U.S. Cl. 280—504 **15 Claims**



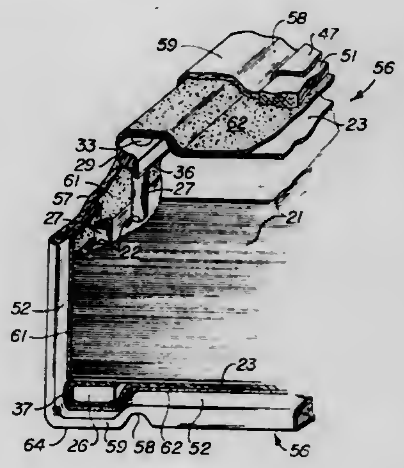
The lower draft links of a tractor three-point hitch include pivotal draft hooks which are power swung, by a pair of one-way hydraulic actuators, between open and closed positions for respectively receiving and retaining a hitch part of an implement. In the case of an earth-working implement, draft loads imposed on the hooks by the implement may vary during operation and cause variations in the pressure of the fluid in the actuators. A pressure responsive direction control valve is connected to the actuators and is shiftable in response to pressures above and below a preselected pressure for respectively directing fluid pressure to and exhausting fluid from a hydraulic lift cylinder for raising and lowering the draft links for adjusting the implement so as to maintain the preselected pressure in the actuators.

3,834,739
CASED BOOK USING END SHEETS BOUND WITH PLASTIC RETAINERS

William H. Abildgaard, and Charles T. Groswith, III, both of Los Altos, Calif., assignors to Velco-Bind, Inc., Sunnyvale, Calif.

Continuation-in-part of Ser. No. 146,648, May 25, 1971, Pat. No. 3,749,423. This application July 23, 1973, Ser. No. 381,418
Int. Cl. B42d *1/00*

U.S. Cl. 281—21 **17 Claims**



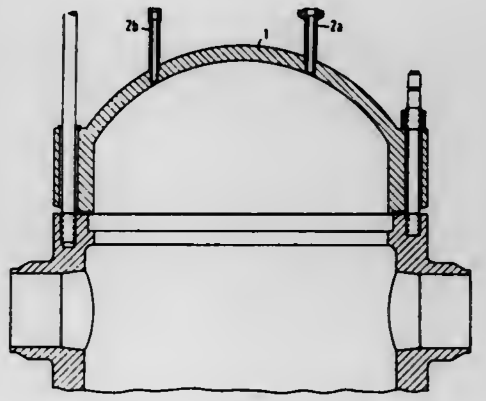
An end sheet, which may be reinforced with fabric, paper or other material, is bound along with the pages of the book and the corresponding end sheet for the opposite end of the book by means of plastic strip retainers as disclosed in U.S. Pat. No. 3,730,560. The end sheet is secured to the inside of the cover of the case by adhesive. In preferred forms of the invention, at least one portion of the end sheet extends from under the spine edge of the plastic strip and folds outside the outer surface of the strip. In this form, the cover lies flat when opened. In other preferred forms, the end sheet extends from under the plastic strip in both directions.

3,834,740
CONNECTING PIECE FOR PRESSURE VESSEL COVER OF NUCLEAR REACTORS

Erich Bazant; Horst Cerjak, and Manfred Scholz, all of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munchen, Germany

Filed Nov. 20, 1970, Ser. No. 91,302
Claims priority, application Germany, Nov. 22, 1969, 1958670
Int. Cl. F16l *9/14*

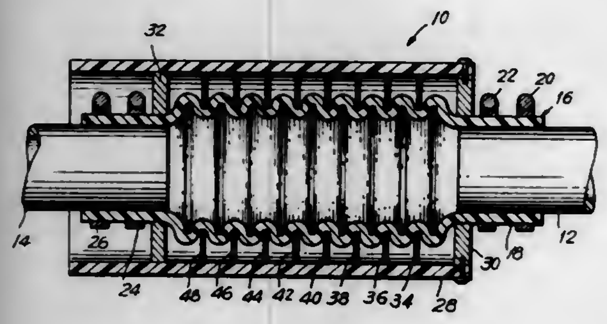
U.S. Cl. 285—55 **2 Claims**



A connecting piece extends into a port formed in a nuclear reactor pressure vessel cover having a plated layer on the inner surface thereof. The compound piece is made up of a compound tube provided with an austenitic steel inner liner tube at least in the vicinity of the port, the connecting tube extending within the port substantially to the inner surface of the pressure vessel cover and being secured to the plated layer by welding.

3,834,741
EXPANSION JOINT

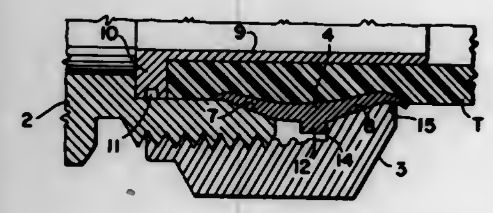
Frederick E. Drake, c/o Elastofab Company, Inc., Oak Ridge Road R. D. No. 3, Oak Ridge, N.J. 07438
Filed Apr. 26, 1973, Ser. No. 354,691
Int. Cl. F16l *21/00*
U.S. Cl. 285—226 **7 Claims**



An expansion joint for two pipes wherein one of said pipes can move relative to the other of said pipes. Said expansion joint includes a flexible sleeve having a first end, a second end and a corrugated portion there between. Clamping means secures said first end of said flexible sleeve to one pipe and additionally clamping means secures said second end of said flexible sleeve to the other pipe. Annular floating rings are provided with each ring surrounding a groove between two ridges in the corrugated portion of said flexible sleeve.

3,834,742
TUBE COUPLING

Norris J. McPhillips, Otsego, Mich., assignor to Parker-Hannifin Corporation, Cleveland, Ohio
Continuation-in-part of Ser. No. 112,964, Feb. 5, 1971, abandoned. This application Nov. 3, 1972, Ser. No. 303,480
Int. Cl. F16l *33/20*
U.S. Cl. 285—249 **5 Claims**

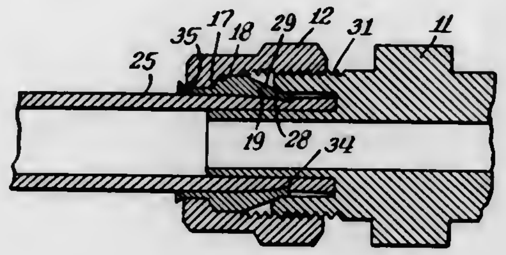


A coupling for elastomeric tube characterized in the provision of a reversible tube embracing sleeve which has a radially projecting collar or flange at its middle and which is tapered to relatively thin radial ends from said collar, said sleeve, when radially contracted into gripping and sealing engagement with the tube by engagement between cam surfaces of a nut and a body having screw threaded engagement with each other, being of arched configuration from its middle toward its end with its end portions of reversely curved configuration and having said collar in abutting engagement with a shoulder in the nut and axially spaced from the end of said body. The coupling herein is further characterized in that the body, nut, and uncontracted sleeve bores are of substantially equal diameter slightly larger than the tube diameter, and although the axially outer end portion of the sleeve is contracted to greater extent than the axially inner end portion of the sleeve the greatest sealing and gripping pressure is obtained at the axially inner end portion of the sleeve whereat it has camming engagement with the body cam surface and whereat it is contracted into engagement with the tube owing to the axial crowding action exerted on the tube while it is abutted against a stop shoulder in the body as the axially outer portion of the sleeve is contracted by the nut member and axially advanced with respect to the tube during the contraction of the axially inner end portion of the sleeve by engagement with the body cam surface. In one form of the invention the nut bore is flared out or terminates short of the axially outer end of the contracted sleeve so that the extreme axially outer end of the sleeve is not embedded in the tube and in another form of the invention the ends of the sleeve are tapered to relatively thin radial cross-section so that in the contracted condition of the sleeve the inner surfaces flare out without the axially outer end being embedded in the tube even though the extreme axially outer end portion of the sleeve is surrounded by the nut bore. In yet another form of the invention, the axially outer end of the sleeve is tapered to match the taper of the nut member cam surface thus to align the body, sleeve, and nut bores to facilitate axial insertion of the tube therewithin.

The coupling herein is further characterized in that the flange portion of a tube supporting nipple is capable of being secured in the body bore in concentric relation to the body, sleeve, and nut bores by expanding the flange portion so as to engage the body bore as by a knurling operation on the flange or by a staking operation on the axially outer end face of the flange portion. The present invention also contemplates the provision of a tube supporting nipple having frictional engagement in the body so as to retain the nipple in place during shipment, storage, and handling but which becomes a part of the tube-contracted sleeve assembly so that when the nut is unscrewed from the body, the tube together with the contracted sleeve therearound and the nipple therewithin may be axially withdrawn from the body bore.

3,834,743
TUBE COUPLING

Richard V. Strybel, Elk Grove Village, Ill., assignor to Imperial-Eastman Corporation, Chicago, Ill.
Filed Nov. 20, 1972, Ser. No. 308,144
Int. Cl. F16l *33/00*
U.S. Cl. 285—249 **8 Claims**

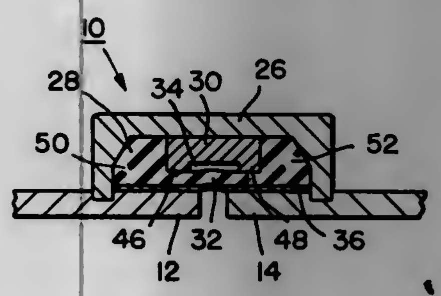


A tube coupling having an insert receivable within the end of the tube to be coupled and a clamping sleeve constricted about the tube end. The coupling includes cooperating structure on the nut and sleeve coordinated with the clamping force to permit withdrawal of the tube from the insert as an incident of threaded withdrawal of the nut from the body.

3,834,744
PIPE COUPLING

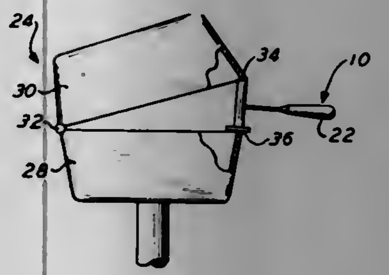
Morteza Masatchi, Rochester, N.Y., assignor to Garlock Inc., Palmyra, N.Y.
Filed June 19, 1972, Ser. No. 264,321
Int. Cl. F16l *21/06*
U.S. Cl. 285—373 **12 Claims**

A pipe coupling for use with a coupling shell for sealingly connecting together two adjoining pipe ends, said coupling including an elastomeric gasket overlying the pipe ends and the gap therebetween and a rigid back-up ring overlying the gasket and forming a cavity between the ring and gasket. Installation of the coupling shell compresses the gasket, and the central portion of the gasket over the gap, when forced to move, preferentially moves into the cavity and away from the gap. Several gasket-ring embodiments are described, and each one prevents the gasket from moving or being extruded into the gap between the pipe ends. The cavity is preferably formed as a groove in the I.D surface of the ring between two inwardly extending flanges; the flanges prevent all portions of the gasket except the underlying central portion from being able to move into and fill-up the cavity. The gasket has a cylindrical I.D. surface that can easily be provided with a corrosion resistant liner and that can easily slip over the adjoining pipe ends. The gasket-ring assembly can be used with conventional coupling shells and pipe ends, or the ring can be an integral part of a new coupling shell of this invention. The gasket also has recesses on its O.D. surface to prevent any alastomer from extending into the gaps between arcuate portions of the coupling shell.



3,834,745
PROPPING DEVICE FOR OUTDOOR STOVES

Richard H. Coates, 10 Fremont Ter., Livingston, N.J. 07039
Filed Oct. 2, 1972, Ser. No. 294,248
Int. Cl. E05c *17/54*
U.S. Cl. 292—339 **2 Claims**

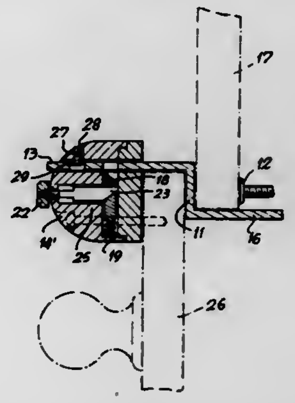


A propping device for supporting the hinged cover of a ceramic radiator-type cooking stove at a partially opened position. The device includes an oblongated propping body provided at one end thereof with a cradle portion adapted to receive the front rim of either the cover or of the underlying stove section. The opposite end of the propping body may adjoin a baseplate which engages the alternate rim of the stove; or this opposite end may include a second cradle portion for engaging the alternate rim. A handle extends outwardly from the propping body and terminates at a non-heat conducting portion, enabling manipulation of the device by a user. The propping body may be selectively adjustable in length, as to enable stove openings of desired dimensions.

3,834,746
DRAWER AND CABINET SAFETY LOCK

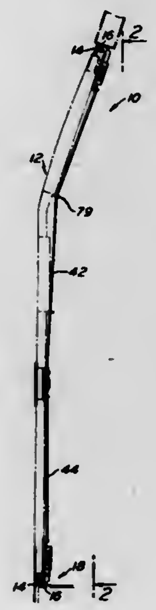
Alan W. Hinden, Brooklyn, N.Y., assignor to Promo-Pat Inc.
Filed Dec. 20, 1972, Ser. No. 316,730
Int. Cl. E05c *19/18*
U.S. Cl. 292—290 **7 Claims**

In a preferred embodiment, a drawer detachably-mountable locking device of simple construction and operation, for securing a closed drawer against opening by a child of younger years thereby avoiding safety hazards against a young child getting to dangerous items such as knives, scissors, drugs, poison cleaners, needles, and the like, a preferred device being a cabinate-structure clamp vise-clampable onto the flange over the open-drawer cabinate, with an extension extending forwardly beyond the front of the closed drawer, the extended portion including a key-receiving aperture, and a drawer-wedge locking element pressable against the front of the closed drawer, the extended portion including a key-receiving aperture, and a drawer-wedge locking element pressable against the front of the closed drawer and when in that position being key-projection-lockably insertable into the aperture thereby locking the drawer in the closed state, the inserted state being preferably turn-key-securable to prevent removal of the inserted locking key-projection.



3,834,747
MULTIPLE LATCH LOCK ASSEMBLY AND METHOD

Mike J. Slovensky, Jr., Twinsburg, Ohio, assignor to Cleveland Hardware & Forging Co.
Filed Mar. 24, 1972, Ser. No. 237,715
Int. Cl. E05c *1/12*
U.S. Cl. 292—38 **3 Claims**

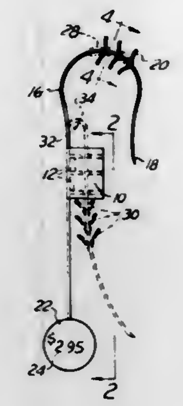


The specification and drawings disclose a multiple latch assembly particularly suited for use in contoured vehicle doors. The disclosed assembly includes a plurality of latch members each having an outwardly biased latch pin. Operatively connected to all of the latch pins is a common operating assembly including a case defining a cavity and a handle pivotally mounted between the sides of the cavity. A slide member is carried on the case and interconnects with the handle so that oscillation of the handle produces reciprocation of the slide member. Lengths of flexible actuating cable are connected between the slide member and each of the latch pins. Each length of cable is arranged so that movement of the slide member in one direction will produce simultaneous inward movement of all latch pins.

3,834,748
SELF-LOCKING PRICE TAG

Noble M. Lonnee, 2204 Woodview Dr., Riverview, Mich. 48197

Filed June 8, 1973, Ser. No. 368,308
Int. Cl. B65d *33/34*
U.S. Cl. 292—320 **1 Claim**



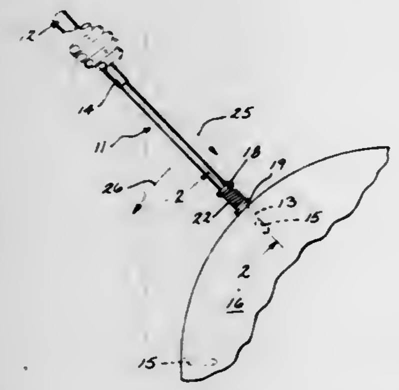
A self-locking price tag for attachment to articles of merchandise having a body with a plurality of transverse baffles. Each of the transverse baffles has an opening therethrough, all of which are in substantial alignment. An elongated member, fixed to the body, has on one end thereof a flat element on which to apply pricing information. The other end of the elongated member has a tip insertable through the openings in the transverse baffles so as to provide an attachment loop to receive merchandise. A plurality of outwardly and rearwardly disposed flexible barbs are provided on the elongated member adjacent the insertable tip.

The openings in the transverse baffles are adapted to pass the flexible barbs therethrough when a pull of sufficient magnitude is exerted on the insertable tip. This permits the attachment loop being formed in the elongated member to be reduced in size so as to provide a suitable griping engagement with the merchandise being tagged. The flexible barbs on the elongated member cannot be drawn in a reverse direction through the openings in the transverse baffles without damaging the tag, thus making it readily apparent whenever the pricing information on the merchandise has been switched.

3,834,749
TURNOVER BAR

Albert C. Phelps, 3219 W. Lisbon Ave., Milwaukee, Wis. 53208

Filed Apr. 23, 1973, Ser. No. 353,520
Int. Cl. B65g *7/00*
U.S. Cl. 294—15 **4 Claims**

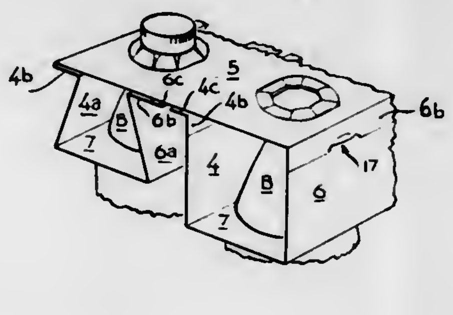


A turnover bar is disclosed having a hole engaging end portion. The bar is provided with self-removal mechanism including an external collar movable on the hole engaging portion of the bar. The collar is normally biased by an external spring at least to the end of the hole engaging portion of the bar. The collar is manually depressed against the bias of the spring in service to effect an engagement of the bar with a turnover hole provided in some portion of a drive mechanism. The biasing force of the spring is adequate to lift the bar and effect a removal of the bar from the hole after use lest the bar be forgotten.

3,834,750
CARRIERS FOR CONTAINERS

John H. Gauntlett, "Mayfield", 7 Kingsdene, Tadworth, Surrey, England

Filed Sept. 27, 1972, Ser. No. 292,668
Claims priority, application Great Britain, Oct. 1, 1971, 45927/71
Int. Cl. B65d *71/00*
U.S. Cl. 294—87.2 **8 Claims**



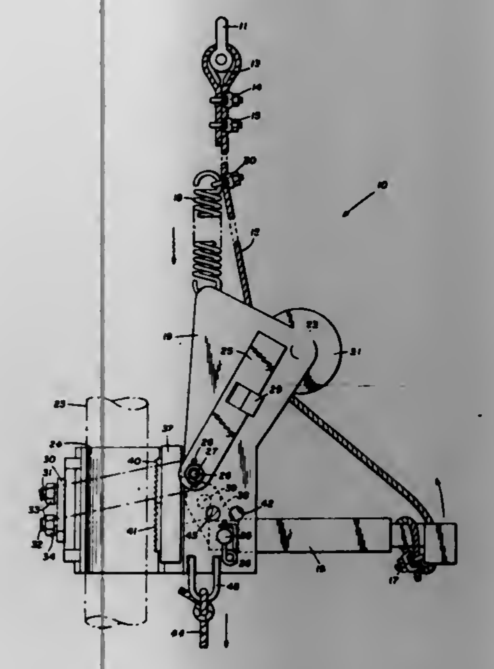
This disclosure relates to a carrier of foldable sheet material, such as cardboard, for carrying containers, such as bottles or the like, in one or more rows in which the carrier is a four-sided hollow tubular structure into which a part of the container extends and at least one of the carrier sides is deformable inwardly to exert a positive gripping action on such containers so that the containers are firmly held and the carrier is stressed to give a rigid structure. The disclosure also extends to a blank for forming such a carrier, the blank comprising a substantially rectangular piece of foldable material such as, for example, cardboard divided by longitudinally extending fold lines into four panels such that two of the panels which form carrier sidewalls have a third panel therebetween which forms one of the carrier upper and lower walls and the third and fourth panels forming the carrier upper and lower walls have one of the carrier side walls therebetween, a further longitudinally extending fold line formed in at least one of the sidewall panels intermediate the width thereof, openings in at least one of the upper and lower wall panels to allow a container part to pass therethrough and means on one longitudinal edge of the blank attachable to the other longitudinal edge of the blank or a part associated therewith to enable the blank to be folded to and secured in a hollow closed four-sided figure in cross-section.

3,834,751
TRANSFER ELEVATOR FOR INTEGRAL AND COLLAR TUBING

Wayne L. Brackin, Warren, Tex., assignor to Dresser Industries Inc., Dallas, Tex.

Filed Mar. 12, 1973, Ser. No. 340,158
Int. Cl. B66c *1/44*
U.S. Cl. 294—104 **3 Claims**

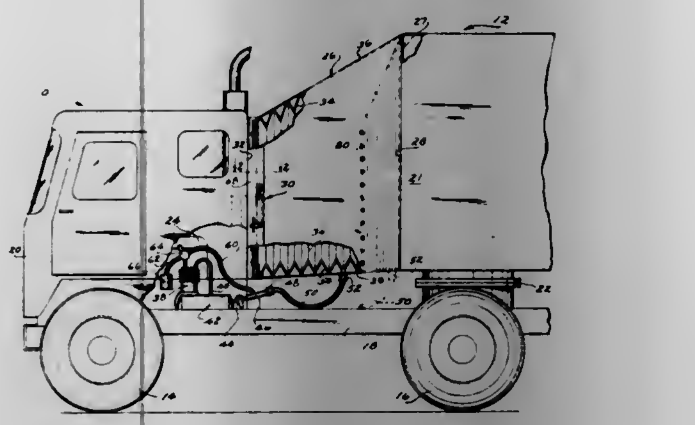
A transfer elevator for handling pipe. The pipe may or may not include collars. An elastic element such as a spring holds slips in a retracted position until the elevator reaches the desired setting location on the pipe. A force is applied downward on a rope attached to the elevator body thereby causing movement of a lever and the setting of the slips. The weight of the pipe maintains the slips in position firmly gripping the pipe until the pipe is set down and the weight is removed. The slips automatically unset and the elevator travels along the pipe to a desired position for removal.



3,834,752
VEHICLE SPACE CLOSING MEANS

Neal A. Cook, 4449 N. Maryland Ave., and Gerard Friedenfeld, 4215 N. Prospect Ave., both of Milwaukee, Wis. 53211

Filed Jan. 18, 1973, Ser. No. 324,787
Int. Cl. B62d *35/00*
U.S. Cl. 296—1 S **8 Claims**

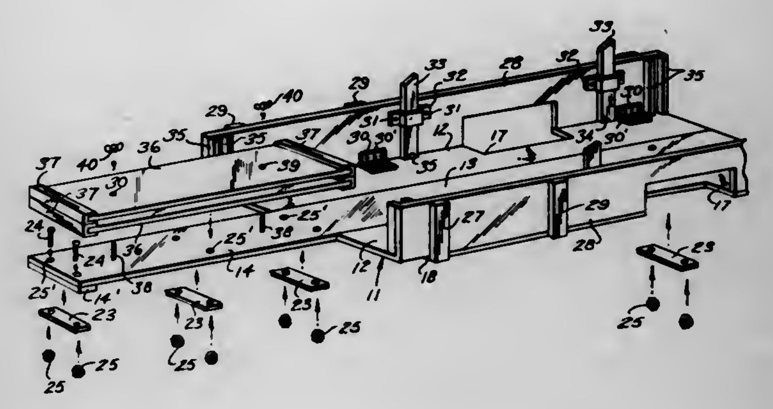


This disclosure relates to large motor trucks commonly known as semi-trailers and to an arrangement for closing or filling in the rather substantial space which necessarily exists between the tractor cab and the trailer body, as well as the space between two trailer bodies in the case of tandem trailers or "double-bottoms," as known in the trade. Closing in of such spaces has been shown in wind tunnel tests to effect a reduction in power necessary at high speeds substantially in excess of that which can be accomplished by smoothing or streamlining other parts of the combination. It is contemplated that the closing means may be in the form of a flexible enclosure or bag-like member which may be inflated by the exhaust gas from the tractor engine, in which case the bag would act as an effective silencer for the exhaust noise, although other means for inflating the bag may be utilized, or the bag may be used without inflation, within the scope of the invention.

3,834,753
COMBINATION BOAT AND UTILITY TRAILER STRUCTURE

Mary H. Heiter, and Carl B. Heiter, Jr., both of 8906 Western Hills Rd., Kansas City, Mo. 64114

Filed Mar. 12, 1973, Ser. No. 340,268
Int. Cl. B62d *21/12;* **B60p** *3/10*
U.S. Cl. 296—10 **3 Claims**

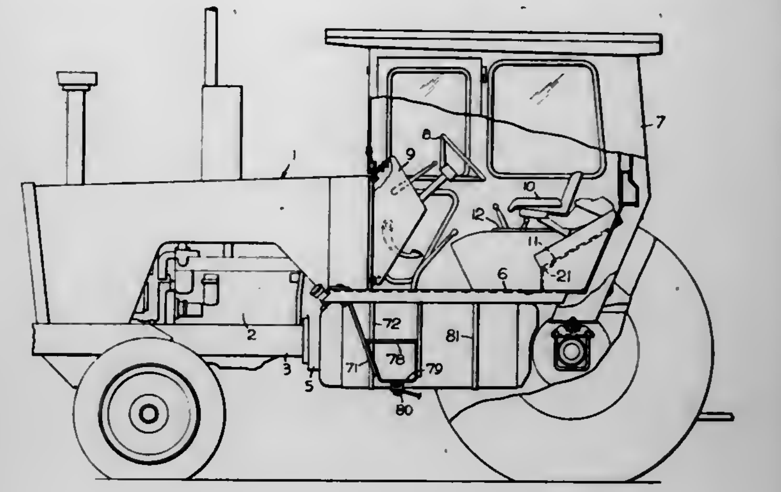


A trailer structure consisting primarily of a flat bed with a catwalk, the bed having hinged side boards for use when the device is used as a utility trailer, the ends of the side boards receiving removable panels, the side boards being supported by removable stakes.

3,834,754
ISOLATED TRACTOR PLATFORM

William J. Zajichek, New Berlin, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Jan. 29, 1973, Ser. No. 327,675
Int. Cl. B62d *23/00;* **B60j** *7/24*
U.S. Cl. 296—35 R **11 Claims**



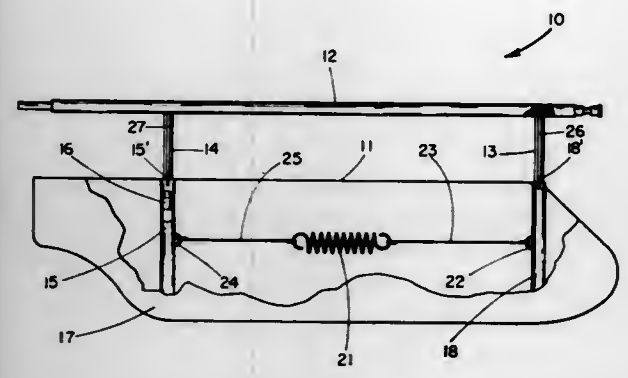
A resiliently mounted platform mounted on a tractor having cross beams carried on the chassis for resiliently supporting the platform.

3,834,755
AUTOMOBILE SUNSHINE SHADE

Carl J. Dexter, 130 Hideaway Ln., West Lafayette, Ind. 47906

Filed Mar. 9, 1973, Ser. No. 339,515
Int. Cl. B60j *3/02*
U.S. Cl. 296—97 G **3 Claims**

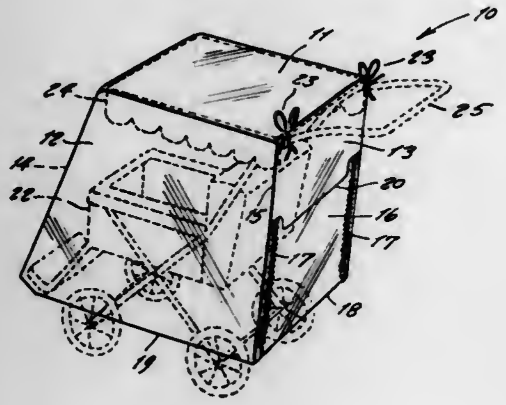
An automobile sunshine shade which is movable downwardly to extend the area of shade. In one embodiment, the shade includes a pair of hollow tubes which slidably receive a pair of stems fixedly mounted to the shade support rod. A spring urges the tubes to a position where the tubes bind on the stems thereby locking the shade in the desired position. In another embodiment, the shade includes a pair of



pivotally mounted links which are pivotally secured to the shade support rod. Each link is provided with friction means for locking the shade in the desired position.

3,834,756
RAINCOVER FOR STROLLER WITH CANOPY

Helga U. Grell, 80-76 Cypress Ave., Ridgewood, N.Y. 11227
Filed Feb. 6, 1973, Ser. No. 330,039
Int. Cl. B60j *9/00*
U.S. Cl. 296—136 **1 Claim**

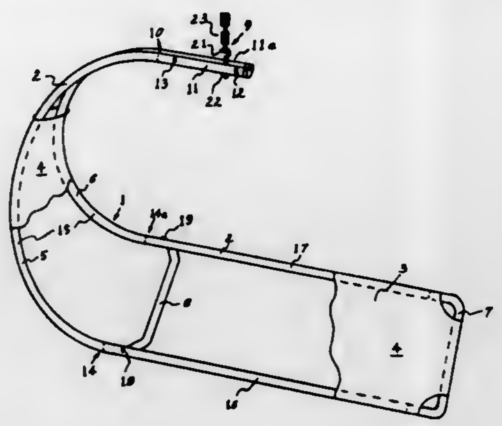


A protective cover for a child's stroller and which keeps the child from inclement weather and splashing from passing vehicles; the device being placable over or else be built into the canopy of a stroller, the device including transparent curtains depending downwardly around all sides of the stroller, thus forming an umbrella-like enclosure that is open from underneath.

3,834,757
SINGLE SUSPENSION LOUNGER

Michael R. Krupsky, 20 Corsi Rd., Broomfield, N.J. 07003
Filed Oct. 11, 1972, Ser. No. 294,883
Int. Cl. A63g *9/00*
U.S. Cl. 297—277 **1 Claim**

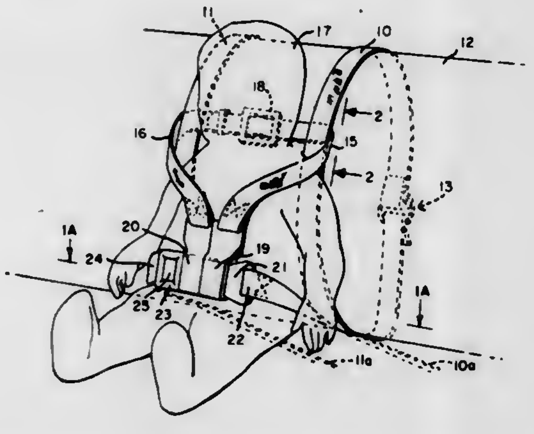
A vertically suspended curved rest lounger having upper auxiliary straight support portions being adjacent and joined to one another and extending from the upper end of two curved back rest members wherein said auxiliary straight support portions provide weight bearing struts to suspend the lounger at a single point for swinging, oscillating, and revolving, of the lounger in balance and within the trace of gravity lines from the single suspension point to two lower horizontally opposed auxiliary straight support portions extending from the lower end of the two curved back rest members, wherein said two lower horizontally opposed auxiliary portions are joined by a brace at their respective ends to provide a



space for the placing and joining of a flexible rest pad between the said curved back rests and said lower auxiliary portions thereby providing a rest area for humans.

3,834,758
SAFETY BELT FOR USE ON MOTOR VEHICLES

Frank A. Soule, P.O. Box 744, Los Gatos, Calif. 95030
Filed Mar. 1, 1973, Ser. No. 337,066
Int. Cl. A62b *35/00*
U.S. Cl. 297—389 **3 Claims**



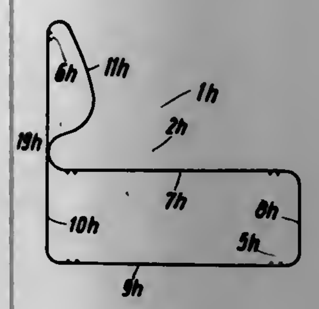
A safety belt vest for use on motor vehicles to restrain the vehicle occupants in the event of accident or abrupt stopping of the vehicle. This safety device is provided with two straps that pass completely around the back of the seat and these may be anchored to the frame of the vehicle. A lap strap is provided around the abdomen of the passenger and a shoulder harness is provided with loops for attaching it to the buckle of the lap strap so that the strap and shoulder harness may be quickly released by releasing the buckle of the strap. The inner surfaces of the back straps are provided with a plurality of spaced members for receiving the shoulder harness therebetween so that the vertical position of the shoulder harness may be adjusted whereby the safety device may be adjusted for use by children or adults.

3,834,759
FURNITURE

Verner Panton, Holeeholzweg 75, CH-4102 Binningen, Switzerland
Filed Dec. 21, 1972, Ser. No. 317,165
Claims priority, application Germany, Dec. 22, 1971, 2163691
Int. Cl. A47c *7/6, 7/14*
U.S. Cl. 297—445 **21 Claims**

A furniture piece with a supporting frame of bent or curved rod material, which supporting frame is composed of a plurality of substantially identical frame members closed in them-

selves and arranged in spaced relationship to each other and adjacent each other and made up of bent wire, and of transverse frame elements interconnecting the frame members, the frame members extending approximately over the entire length of the supporting frame.



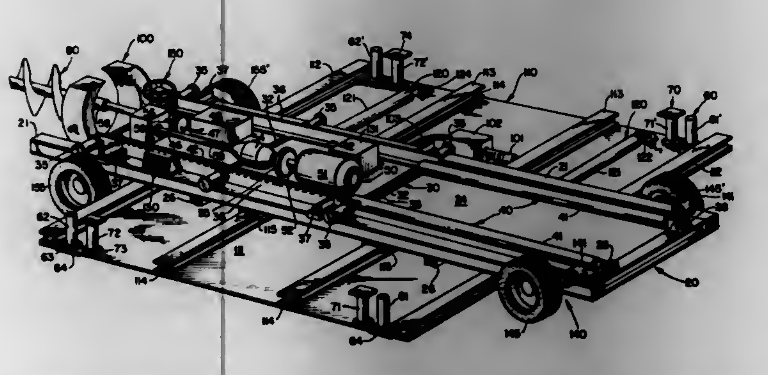
3,834,760
IN-SITU GENERATION OF ACID FOR IN-SITU LEACHING OF COPPER

Henry Rush Spedden, and Emil Edward Maloue, both of Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York, N.Y.
Filed July 18, 1973, Ser. No. 380,245
Int. Cl. E21b *43/28;* **E21c** *41/14*
U.S. Cl. 299—5 **6 Claims**

In-situ leaching of underground, copper-bearing ore deposits or waste dumps containing copper sulfide minerals is accomplished by introducing a hydraulic fluid containing particulate pyrite into the underground ore deposit or waste dumps under sufficient pressure to fracture the formation and to deposit the pyrite particles contained in the fluid in the fractures as a propping agent. An aqueous leach liquid and oxygen is then injected into the formation. The oxygen injected into the formation reacts with the pyrite propping agent in the presence of the aqueous leach liquid to rapidly produce ferric sulfate and sulfuric acid, which rapidly dissolves the copper sulfide minerals. The dissolution of the copper sulfide is accelerated by the in-situ generation of heat due to the oxygen reacting with the particulate pyrite, as well as by galvanic action set up at points of contact between the particulate pyrite and the metal sulfides in the underground ore deposit or waste dump.

3,834,761
DEEP-MINE AUGERING MACHINE

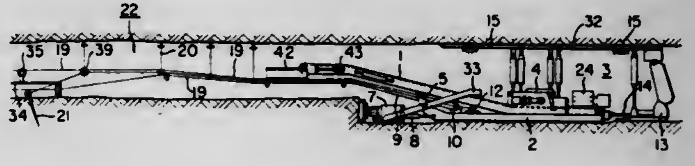
Lindsey W. Ray; William S. Bryant, both of Summersville, and William A. Ray, Cottle, all of W. Va., assignors to Lindsey W. Ray, Summerville and William A. Ray, Cottle, both of, W. Va.
Filed Oct. 6, 1972, Ser. No. 295,511
Int. Cl. E21c *27/22*
U.S. Cl. 299—10 **23 Claims**



An auger deep-mining machine for extracting minerals, such as coal, from relatively thin seams thereof and having an auger-rotating carriage which reciprocates, by means of sump jacks, toward and away from the coal face on a rigid, elongated sump frame which is equipped with steerable wheels for tramming and slides laterally upon a pair of rails attached to an underlying square anchor plate, having floor and roof jacks at each corner, under control of position jacks attached to the anchor plate. Because the wheels are selectively attachable at either an extended or retracted position, the machine is shiftable laterally by a leap-frogging procedure during which the anchor plate hangs from the sump frame. A dust collection means at the face end of the sump frame removes dust emerging from the hole being augered.

3,834,762
GATE ROAD DINTING EQUIPMENT

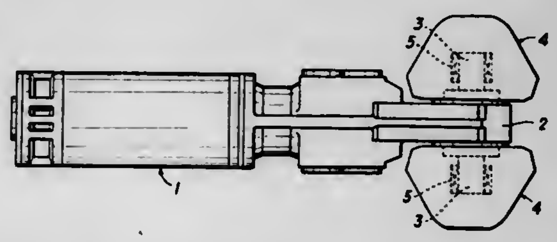
Shigeo Kakajima, Kushiro, Japan, assignor to Taiheiyo Coal Mining Co., Ltd., Tokyo, Japan
Filed Feb. 12, 1973, Ser. No. 331,479
Int. Cl. E21c *27/18*
U.S. Cl. 299—43 **1 Claim**



The present invention relates to gate road dinting equipment comprising a rapidly advancing coal mining face and a gate road conveyer consolidated in such a manner that a dinting machine of the ranging type is set in place on a skid with a charge conveyer fixed thereon for removing a floor by a cutting drum of the dinting machine and for adjusting the height of the charge conveyer properly, so that a proper excavation height can be maintained for a discharge conveyer and face equipment as well.

3,834,763
DIVIDED TOOL CUTTER HEAD HAVE TORQUE YIELDING COUPLING

Siegfried Sigott, Zeltweg, Austria, assignor to Vereinigte Osterreichische Eisen-und Stahlwerke-Alpine Montan Aktiengesellschaft, Vienna, Austria
Filed June 28, 1973, Ser. No. 374,386
Claims priority, application Austria, June 30, 1972, 5641/72
Int. Cl. E21c *27/24*
U.S. Cl. 299—85 **5 Claims**

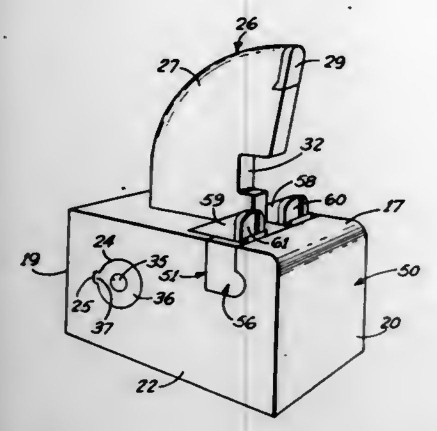


A cutting tool shaft is mounted in the free end portion of a jib arm and has a shaft end portion protruding from the free end portion of the jib arm. A cutting tool is carried by said shaft end portion. Torque-limiting clutch means connect said cutting tool to said shaft.

3,834,764
CORE BREAKING MEANS

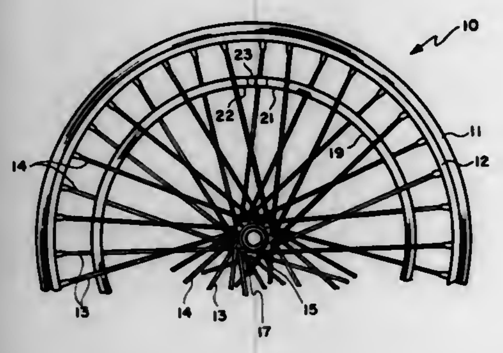
Claude B. Krekeler, Cincinnati, Ohio, assignor to The Cincinnati Mine Machinery Co., Cincinnati, Ohio
Filed Aug. 11, 1972, Ser. No. 279,816
Int. Cl. E21c *35/18*
U.S. Cl. 299—86 **80 Claims**

Core breaking means for use with mining machines and the like of the type having cutter bits and mounting means therefor. The core breaking means are mounted on the cutter bit mounting means and provide core cutting or breaking tips to one or both sides of the cutter bit. The core breaking means for each cutter bit mounting means may comprise a pair of separate elements, or they may comprise a single, integral, unitary structure. Finally, the core breaking means may constitute an integral part of the cutter bit.



3,834,765
DECORATIVE AND SAFETY ATTACHMENT FOR SPOKE WHEELS

Robert C. Trimble, 258 Main St., Northboro, Mass. 01532
Filed Jan. 21, 1974, Ser. No. 435,322
Int. Cl. B60b *7/00*
U.S. Cl. 301—37 R **10 Claims**

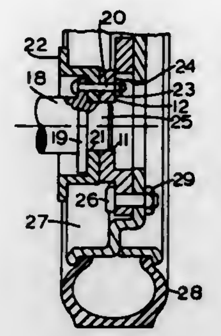


Decorative and safety wheel tubular member, particularly adapted for spoke wheels of bicycles, motorcycles, and the like, comprising a flexible member, preferably in the form of an extruded, flexible hollow length, having a light reflective outer surface and of a diameter to engage the inner portions of the spokes of the wheel and of a length to close on itself within the wheel and around the hub thereof, with means such as a plug or sleeve to hold the ends of the member together in abutting relationship, and the combination thereof with a spoke wheel. The tubular member is introduced between the spokes and is of a length that when its ends meet it is in contact with all of the spokes of the wheel. The tubular member is desirably formed with a reflective outer surface and with marks designating suitable length for smaller wheels.

3,834,766
WHEEL ADAPTER

John L. Thousand, Newport Beach, Calif., assignor to Revcon, Incorporated, Fountain Valley, Calif.
Filed Oct. 5, 1972, Ser. No. 295,290
Int. Cl. B60b *3/14*
U.S. Cl. 301—9 DN **4 Claims**

A wheel adapter mounting high weight capacity truck wheels and tires on automotive hubs and spindles. The adapter mounts on a standard automobile five stud hub with studs on a 5 inch diameter circle. Clamping force of the five studs with wheel bolts tightened to a predetermined relatively high uniform torque at the factory secures the adapter to the hub making possible utilization of a conventional truck wheel with five studs on an 8 inch bolt circle for maximum load carrying capacity. The wheel hub bolts on the 5 inch circle studs are so tightened that torque loads due to braking and acceleration are transmitted between the wheel and hub by friction rather than any material shear load on the hub bolts. The wheel adapter is installed with a center opening light press fit on a wheel hub and radial loads transmitted directly to the hub with the bolt pattern not required to assume any additional loading.

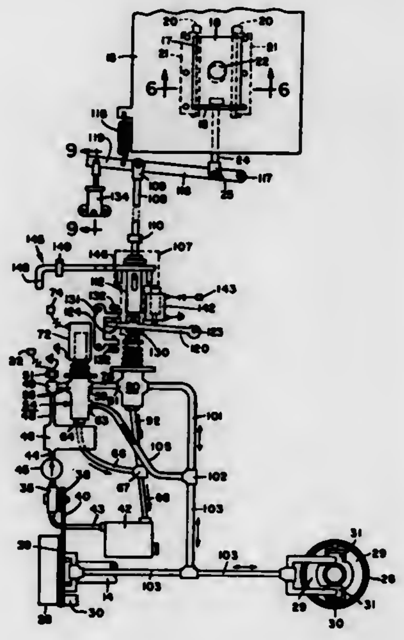


ERRATUM

For Class 302—60 see:
Patent No. 3,834,768

3,834,767
TRAILER AUXILIARY HYDRAULIC BRAKE SYSTEM

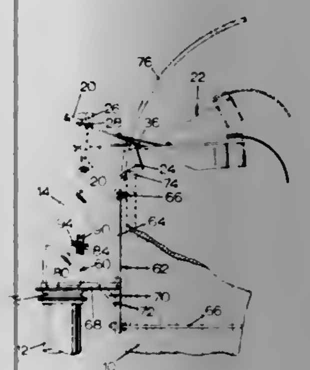
David John Bullinger, Cayuta Rd., Van Etten, N.Y. 14889
Filed Mar. 26, 1973, Ser. No. 345,086
Int. Cl. B60t *13/08*
U.S. Cl. 303—7 **6 Claims**



A trailer auxiliary hydraulic brake system completely independent of the conventional brake system and including a wheel-driven hydraulic pump, an accumulator, a main brake control valve, a back-up release valve and a fluid reservoir. An automatic actuation member, responsive to a longitudinally slidable connection between the tractor and trailer, controls the flow of pressurized hydraulic fluid to and from the trailer brakes. The trailer auxiliary system, in addition to automatically energizing the trailer brakes, also includes an assembly for manual actuation of the main brake control valve thus permitting emergency braking, pulsating braking and use of the system as a parking brake.

3,834,768
DISTRIBUTOR HEAD FOR SILO FILL PIPE

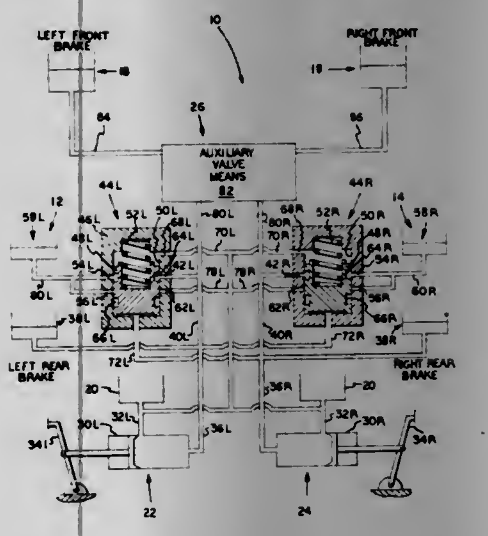
Henry S. Stoltzfus, Mount Joy, and John S. Stoltzfus, Lancaster, both of Pa., assignors to Lancaster Level-Flo Inc., Lancaster, Pa.
Continuation-in-part of Ser. No. 166,055, July 26, 1971, abandoned. This application Apr. 6, 1972, Ser. No. 241,511
Int. Cl. B65g *53/52, 53/42*
U.S. Cl. 302—60 **8 Claims**



A distributor head for attachment to the delivery end of a silo fill pipe and operable to spread and disperse a blown stream of silage material into a plurality of streams in a manner to spread the delivery evenly over substantially the entire cross-sectional area of a silo by means of curved deflector vanes and members attached to a base plate which is pivotally connected to bracket means on the outer end of a gooseneck shaped conduit of a silo fill pipe. The fill pipe also is provided with means to center the blown stream relative to said distributor head.

3,834,769
BRAKING SYSTEM FOR VEHICLES

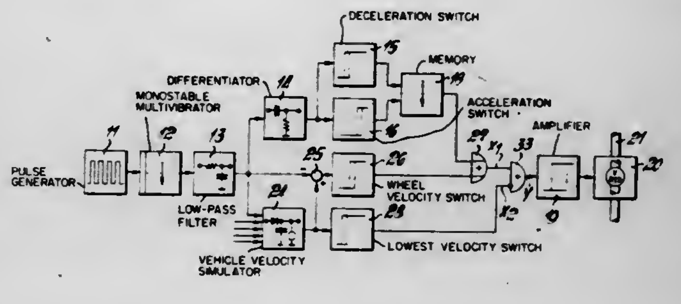
Jerome O. Just, Sturtevant, Wis., assignor to J. I. Case Company, Racine, Wis.
Filed Sept. 17, 1973, Ser. No. 398,199
Int. Cl. B60t *13/10*
U.S. Cl. 303—6 R **6 Claims**



A braking system for a heavy duty vehicle is disclosed herein. The braking system includes left and right rear brakes with individual hydraulic circuits for each brake and the circuits are arranged so that a first braking force for each of the brakes is produced when both circuits are pressurized and a second braking force that is substantially greater than the first braking force for each brake is developed when only one circuit is pressurized while the other circuit is connected to the reservoir. The braking system also incorporates left and right front brakes which are simultaneously actuated when both left and right rear brakes are actuated.

3,834,770
SAFETY ARRANGEMENT FOR PROTECTING AGAINST THE LOCKING OF WHEELS IN MOTOR VEHICLES

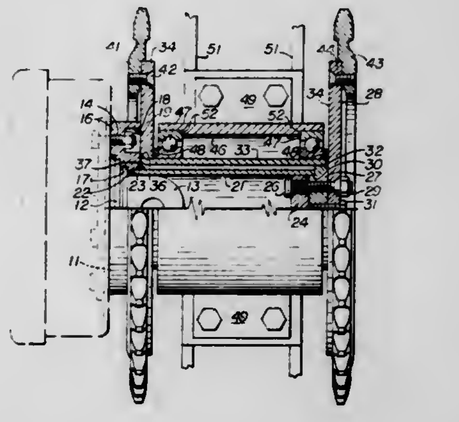
Helmut Fleischer; Eberhard Schnaibel, both of Stuttgart, and Helmut Domann, Leonberg, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Nov. 17, 1971, Ser. No. 199,580
Claims priority, application Germany, Nov. 18, 1970, 2056621
Int. Cl. B60t *8/08*
U.S. Cl. 303—21 P **10 Claims**



An arrangement for safely protecting against the stoppage of a wheel while driving on a road surface in a vehicle. A signal generator provides an electrical alternating current signal having a frequency proportional to the angular velocity of a wheel of the vehicle. A low pass filter connected to the output of the signal generator converts the alternating current signal into a first DC signal having a magnitude which varies in accordance with variations in the frequency of the alternating current signal. A pressure reducing valve connected in the braking line is used to regulate the intensity of the braking by being operated through an amplifier which, in turn, is connected to a comparator. An integrator in the comparator provides a second DC signal which depends on the angular velocity of a wheel of the vehicle. A threshold switch also within the comparator is connected to the integrator and receives the second DC signal.

3,834,771
TRACK LAYING ATTACHMENT TO WHEELS HAVING PROTRUDING HUBS

Harold S. Firstenberg, 131 Townsend St., Redwood City, Calif. 94107
Filed Nov. 7, 1973, Ser. No. 413,443
Int. Cl. B62d *55/04*
U.S. Cl. 305—25 **8 Claims**



The wheels of certain vehicles, particularly those having 4-wheel drive, have hubs protruding axially. A track laying attachment for such vehicle replaces the wheel. The attachment comprises an inner part and an outer part. The inner part has a socketed hub shaped to fit against and be attached to the drive face of the wheel. An inner sleeve is welded to the hub in axial alignment therewith and carries a plug at its outer end. The outer part is installed over the inner part. It has a second sleeve dimensioned to fit outside the inner sleeve and has at its inner end an inner disk which fits flush against the hub. At the outer end of second sleeve is provided a collar which fits into the inner sleeve and abuts the plug and is detachably connected to the plug to hold the two parts assembled. The outer part also has an outer disk detachably connected to the collar. Inner and outer drive sprockets are attached to the inner and outer disks. Supporting the second sleeve and spaced therefrom by bearings is an outer sleeve bearing housing which is secured to a frame. The frame has appropriate bogie wheels and idler wheels at the ends of the track. The track fits around the inner and outer sprockets as well as the idler and bogie wheels and supports the vehicle. As the driving face turns, the track is driven.

3,834,772

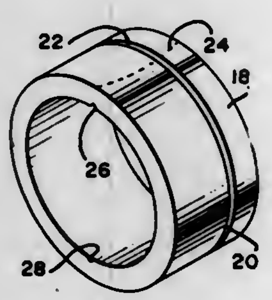
FRACTURED BEARING RACE

Willard L. Bowen, Harwinton, Conn., assignor to The Torrington Company, Torrington, Conn.

Filed June 8, 1972, Ser. No. 260,838

Int. Cl. F16c *33/00*

U.S. Cl. 308—196 **14 Claims**



This is a new bearing race formed by fracturing the bearing by applying a concentrated force at a plurality of longitudinally spaced apart points on the bearing race.

Preferably, three pressure applying members are used in the system to make the fractured race. One pressure applying member is located adjacent each longitudinal end of the bearing race to be fractured. The third pressure applying member is circumferentially spaced from the other two pressure applying members.

3,834,773

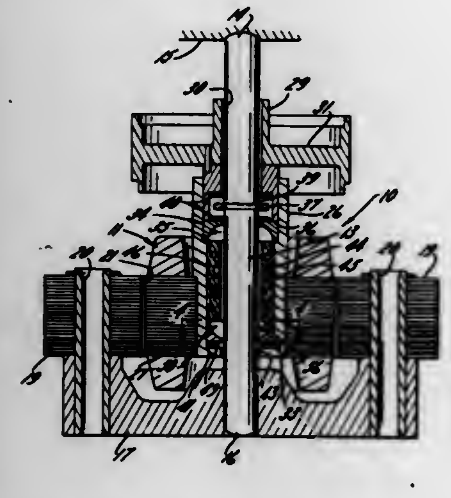
UNIT BEARING MOTOR

Gordon R. Anderson, Jr., Roscoe, Ill., assignor to Airtrol Corporation, Rockton, Ill.

Division of Ser. No. 241,703, April 6, 1972, Pat. No. 3,763,386. This application June 13, 1973, Ser. No. 369,565

Int. Cl. F16c *13/02*

U.S. Cl. 308—132 **2 Claims**



The rotor of a shaded-pole motor includes a central housing supported on a stationary shaft by two axially spaced sleeve bearings which are lubricated by an oil impregnated tubular liner telescoped into the housing and sandwiched between the inboard faces of the bearings. The bearings include a pair of slanted passageways extending through portions thereof from the inner walls of the bearings adjacent the shaft to the inboard faces so that the outer surface of the shaft is in communication with the liner. As the bearings rotate, oil bleeding along the shaft accumulates in the passageways and, by virtue of the centrifugal force generated by the rotating bearing, is slung through the passageways and back to the liner to prevent the oil from leaking out of the housing.

3,834,774

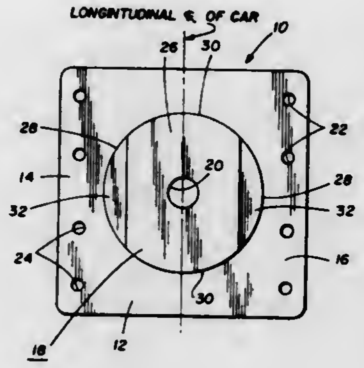
CENTER PLATE BEARING

David Elmer Fiegl, Depew, N.Y., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed June 27, 1973, Ser. No. 374,194

Int. Cl. B61f *5/16;* **F16c** *17/04, 17/12*

U.S. Cl. 308—137 **6 Claims**



A center plate for use with a railroad car body bolster center sill assembly having a wear indicator on the circular boss portion in the form of a longitudinal recess extending from front to rear on each circumferential side thereof. The recess is of a cross section to cause the inner edge to remain spaced from the circumferential edge during the complete indicated wear life of the center plate to prevent an increase in the load concentration factor during lateral roll action.

3,834,775

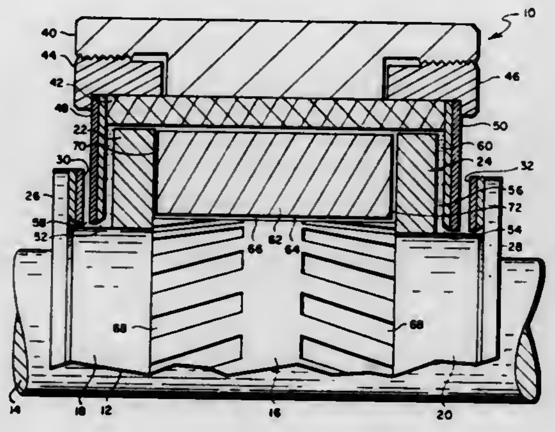
FERROHYDRODYNAMIC LOW-FRICTION BEARING WITH IMPROVED VOLUME COMPENSATION AND FLUID SEAL

Robert H. Tuffias, Los Angeles, and Harry D. Larson, Northridge, both of Calif., assignors to Litton Systems Inc., Beverly Hills, Calif.

Filed May 26, 1972, Ser. No. 257,434

Int. Cl. F16c *33/82*

U.S. Cl. 308—36.3 **13 Claims**



A self-contained, full film hydrodynamic bearing is provided having a ferrofluid (colloidal suspension of magnetic particles) with magnetic properties which facilitates retention of the fluid within the bearing where the bearing retains the ferrofluid over a wide temperature range and concomitantly compensates for ferrofluid expansion and contraction.

3,834,776

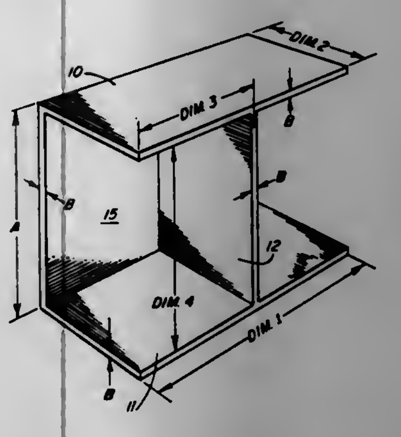
FURNITURE MODULE AND FURNITURE ITEMS RESULTING FROM MODULE COMBINATIONS

William S. Becker, Jr., 730 Linden Ave., Wilmette, Ill.

Filed June 22, 1972, Ser. No. 265,321

Int. Cl. F16b *12/00*

U.S. Cl. 312—108 **2 Claims**



This invention relates to a novel furniture module and to furniture items obtainable with the use of such modules. The basic module consists of a generally I-shaped unit provided with a backing wall. By proportioning the module portions as set forth in equations, various items of furniture may be obtained from combining any one of a number of modules. The individual modules may be in one piece of plastic or other moldable material or may be built up from flat panels of wood or plastic suitably united to provide a module structure. The various panels which are used to make a module when made from individual pieces may be cemented or may be attached in any other suitable fashion as by screws or by slip interlocking fit. Preferably, locking clips having a general shape of a T with a laterally extending piece may be provided for use in assembling modules to lock them in position. Various items of furniture such as tables, chairs, bookcases, cabinets and the like may be made by using the modules in different relations. An important feature of the new module resides in its susceptibility to interfitting a number of modules into a package whose dimensions are of the same order as a module.

3,834,777

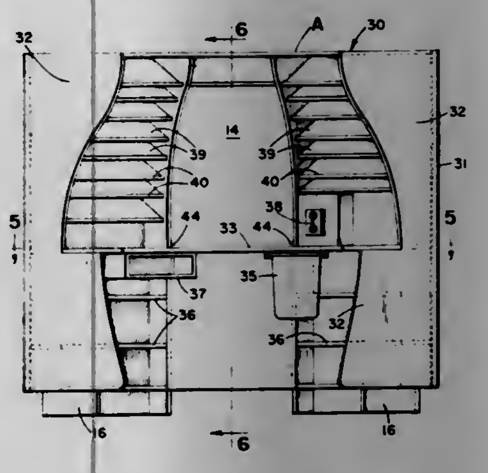
ARTICLE STORING AND DISPENSING MODULE

Earl S. Swensson, Nashville, Tenn., assignor to The University of Mississippi, University, Miss.

Filed Dec. 6, 1971, Ser. No. 205,192

Int. Cl. A47b *81/00;* **A61b** *19/02;* **A47b** *5/00*

U.S. Cl. 312—209 **4 Claims**



An article storing and dispensing module having an arcuate body portion and including a plurality of adjustable, vertically spaced, inwardly and downwardly inclined shelves with the upper shelves progressively extending further inwardly than the intermediate shelves to facilitate access thereto. A plurality of arcuate sections combined together form a generally circular body portion defining an interior central work area and having shelving, counters, and at least one dispensing window. Doors opening on the outside of the body portion permit the shelves to be easily filled. A canopy extends out from the top of the body portion above the dispensing window and has wall means extending downwardly therefrom to form a dispensing booth in front of the window.

3,834,778

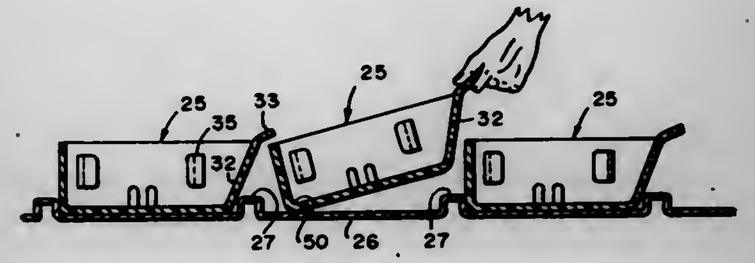
MEDICINE TRAY FOR CABINET DRAWER

Robert B. Morrison, North Muskegon, Mich., and Lewis C. Wyman, Norwalk, Conn., assignors to E. H. Sheldon and Company, Muskegon, Mich.

Continuation-in-part of Ser. No. 109,823, Jan. 26, 1971, Pat. No. 3,708,709. This application Dec. 6, 1972, Ser. No. 312,581

Int. Cl. A47b *88/00;* **B01l** *3/00*

U.S. Cl. 312—209 **1 Claim**



A plastic liner tray is removably carried in a nurse's cabinet cart and is provided with integral raised and spaced ribs supporting individual patient medicine trays and a hypodermic needle tray.

3,834,779

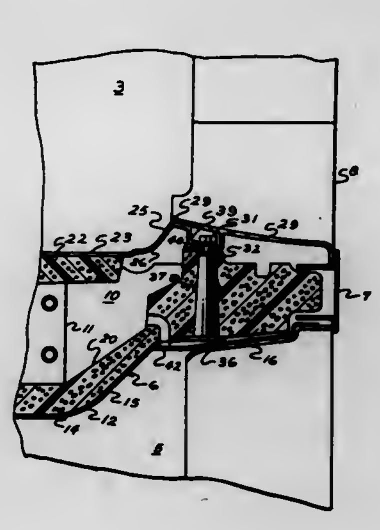
REFRIGERATOR CABINET

Roger C. Turner, and Michael L. Simms, both of Louisville, Ky., assignors to General Electric Company, Louisville, Ky.

Filed July 9, 1973, Ser. No. 377,329

Int. Cl. A47b *81/00;* **F25d** *11/00;* **B65d** *25/18*

U.S. Cl. 312—214 **6 Claims**

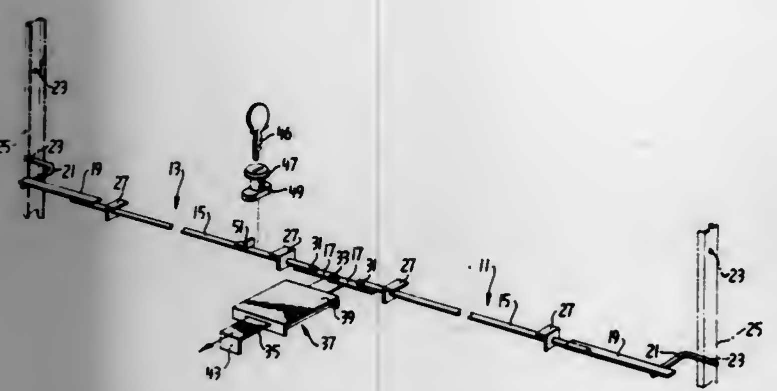


A refrigerator cabinet comprising a storage compartment, an evaporator chamber below the storage compartment including a recessed foamed plastic body supporting an evaporator and a removable plastic sheet member forming the cover for the evaporator chamber and the bottom wall of the storage compartment includes a breaker strip overlapping and securing the front edge of the sheet member and anchoring means embedded in the foamed plastic body for anchoring the breaker strip.

3,834,780
MECHANISM FOR SECURING AND LOCKING THE POSTING BOARD OF A MECHANIZED FILING CABINET

Amos E. McClellan, and Donald E. Daugherty, both of Marietta, Ohio, assignors to Sperry Rand Corporation, New York, N.Y.

Filed Oct. 11, 1972, Ser. No. 296,557
Int. Cl. F05b *65/46;* **E05b** *65/44*
U.S. Cl. 312—219 **5 Claims**

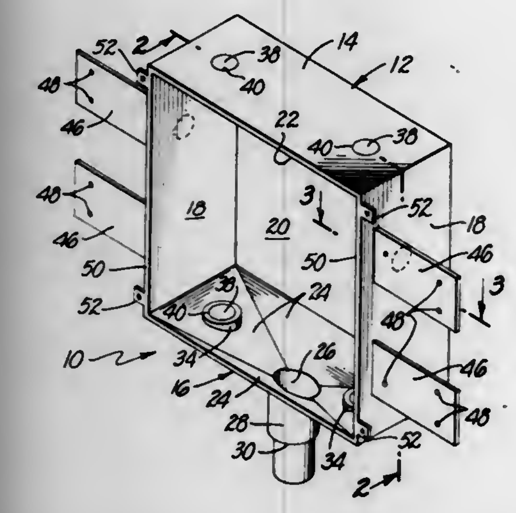


A mechanism suitable for securing and locking the posting board of a mechanized filing cabinet having a position adjustable posting board is disclosed. The posting board is maintained at a desired elevation by a pair of locking rods that normally project outwardly through apertures in the frame of the filing cabinet. When it is desired to change the position of the posting board, a release handle is moved outwardly. Movement of the release handle outwardly moves the locking rods inwardly and allows the posting board to be manually raised or lowered to a different elevation. Release of the handle allows the locking rods to move outwardly and project through apertures adjacent the new position. A key operated locking mechanism prevents the inward movement of the locking rods to prevent the position change of the posting board when desired. In addition, an alternate embodiment of the invention includes, for security purposes, a pair of additional shoot bolts operated by the locking rods. If desired, a combination lock mechanism can be utilized with the mechanism of the invention to further improve security.

3,834,781
WASHING MACHINE CONNECTION STRUCTURE

Duane D. Logsdon, 1719 Canyon Rd., Fullerton, Calif. 92631

Filed Nov. 29, 1972, Ser. No. 310,577
Int. Cl. A47b *77/06;* **A47f** *9/00*
U.S. Cl. 312—229 **4 Claims**

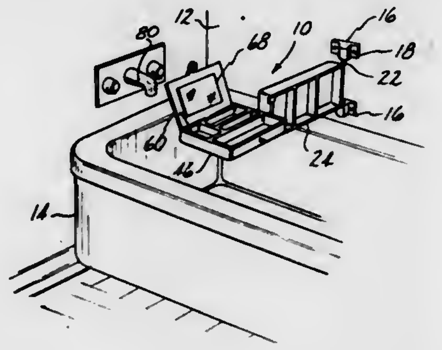


A washing machine connection structure can be manufactured so as to include a box-like cabinet having a front opening, a bottom shaped as a funnel so as to lead to a drain opening forming a part of the bottom, a pipe extension leading from this drain opening and internally extending outlet openings located above the bottom. The cabinet preferably carries means enabling it to be mounted in a wall between support members such as studs. When so mounted pipes may be inserted through the outlet opening and connected to the valves or faucets located within the cabinet. Water connections to a washing machine or the like may be made to such valves and a drain tube or hose from such machine may be inserted directly into the bottom so that waste water flowing through such a tube will flow through the drain opening.

3,834,782
TOILET ARTICLE CONTAINER

Albert N. Pampinella, 38228 Harper Ave., Mt. Clement, Mich.

Filed Aug. 9, 1972, Ser. No. 279,006
Int. Cl. A47b *67/02;* **A47f** *5/08*
U.S. Cl. 312—248 **10 Claims**



A rectangularly shaped container having a cover to permit access to its interior which, in turn, has partitions dividing the same into at least one section adapted to hold water, while the other sections thereof are adapted to store toilet articles and the like. A bracket support fixedly attached to a wall paralleling the longitudinal axis of a bathtub is provided with means for pivotally mounting a bracket adapted for movement between a first position wherein the bracket parallels the wall and a second position wherein the bracket extends outwardly from the wall and transversely of the longitudinal axis of the bathtub. The container is carried at the extended other end of the bracket in such a manner that the container is rotatable with respect to the bracket support so that the open face of the container may be rotated between a horizontal position permitting access therein and a vertical position permitting movement of the bracket member to a position parallel to the wall. Means are provided for selectively locking the container in a selected position.

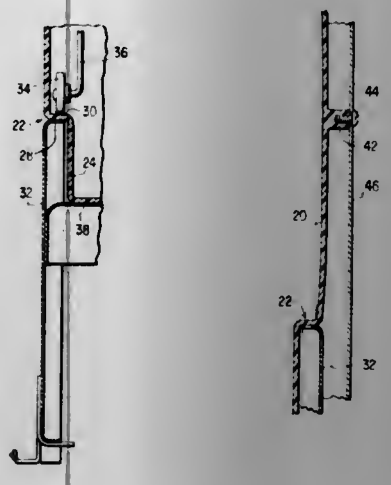
3,834,783
THERMAL GROWTH COMPENSATION AND MOUNTING FOR PLASTIC DISHWASHER TUB

Thomas E. Jenkins, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Dec. 29, 1972, Ser. No. 319,555
Int. Cl. A47b *96/00*
U.S. Cl. 312—253 **6 Claims**

The lower sidewalls of a unipartite, plastic dishwasher tub are formed with integral ledges or horizontal walls which perform a dual load support function, viz. that of supporting the tub on a base assembly and providing a lower dishwasher rack support track.

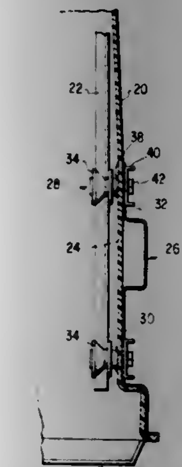
Compensation for thermal growth of the tub walls inwardly of the wash chamber is achieved by incorporating a deliberate, outward bow into the tub walls. This is accomplished, in the case of the lower, top and back walls by molding the same with an unstressed outward bow while the unstressed, planar sidewalls are deformed mechanically.



3,834,784
PLASTIC TUB WALL ALIGNMENT FOR DISHWASHING RACK MOUNTING

Richard L. Butsch, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Dec. 29, 1972, Ser. No. 319,199
Int. Cl. A47b *96/00*
U.S. Cl. 312—350 **4 Claims**



The sidewalls of a front loading, unipartite dishwasher tub molding are necessarily formed with a rearward draft to permit part removal from the forming mold core section.

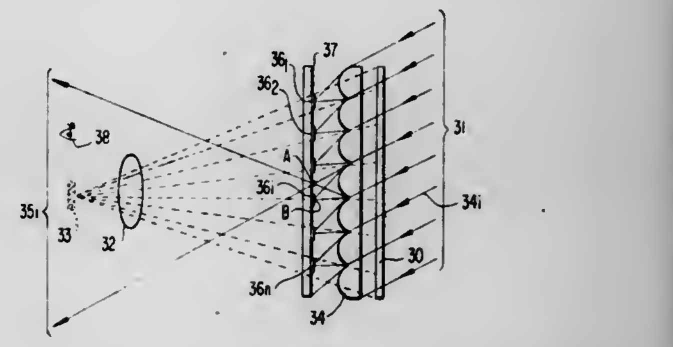
The disclosure is directed to a dishwasher assemblage wherein the forward portions of the rearwardly drafted sidewalls are deformed into parallelism by clamping the same into backing relation with the upright legs of a tub support frame whereby tandem roller pairs may be anchored to the upright legs for the cantilever support of parallel, dishwasher rack supporting tracks.

3,834,785
VERTICALLY DIVERGED HOLOGRAPHIC IMAGE FORMATION WITH ZERO-ORDER DIFFRACTION SUPPRESSION

Yoshiaki Kimura, Marsanori Kawai, Tokyo, Japan, assignor to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Jan. 24, 1973, Ser. No. 326,351
Claims priority, application Japan, Jan. 24, 1972, 47-8301; Mar. 15, 1972, 47-25756
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 **6 Claims**

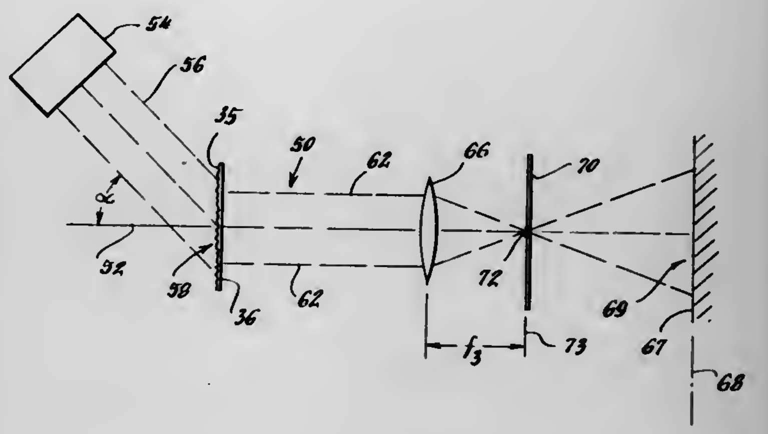
In a holographic image formation apparatus and method it has been known that the vertical components of image may be spread to achieve a wide vertical angle of observation without destroying the image nor impairing the three dimensional effect obtainable with a pair of eyes arranged horizontally with respect to each other. This has been done by the employment of a horizontally disposed cylindrical lens plate, usually near the plane of the recorded image, but optionally arranged elsewhere. Overlapping and loss of image clarity and contrast occurs in such a system due to the fact that the zero order of diffracted images and the first, or higher, orders partially superimpose one upon the other. In this invention a special mask is arranged beyond the lens plate which may be adjacent the recorded image to be reconstructed, in which the mask has opaque zones which correspond to the spacing of the individual cylindrical lens elements comprising a lens plate used for the vertical dispersion of the lines of images along the recorded image. According to this invention narrow opaque strips are disposed parallel to these cylindrical lens elements at a distance therefrom such that the elumination beam passing linearly through the recorded image tends to focus on the opaque strips whereas the first and higher order diffraction beams pass between such opaque strips, whether illuminated by monochromatic light or a series of color bands.



3,834,786
METHOD AND APPARATUS FOR RECORDING AND PROJECTING HOLOGRAMS

W. John Carlsen, New York, N.Y., assignor to General Telephone of Electronics Laboratories Incorporated, New York, N.Y.

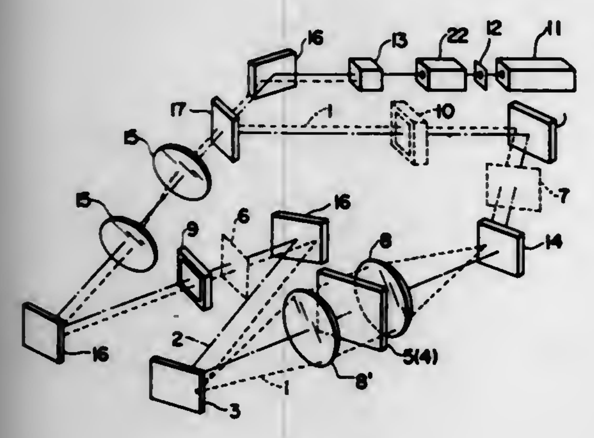
Filed May 1, 1972, Ser. No. 249,324
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 **3 Claims**



A method and apparatus for recording and projecting single color or multiple color encoded image-plane carrier holograms are described. An object is illuminated with a coherent collimated laser beam. The parallel spatially modulated rays are focused on a monochrome recording medium located in a recording plane with the rays maintained essentially parallel. A collimated reference beam, which is coherent with the object beam, is directed at the recording medium to form an image-plane hologram having a single discrete spatial carrier frequency in case of a single color laser or additional spatial carrier frequencies for as many colors as are in the laser. The processed image-plane hologram is projected by directing a generally collimated beam of incoherent white light upon the hologram to form separated wavefront reconstructions of parallel rays. A lens projects the parallel rays in a viewing plane after their convergence at a focal spot in a focal plane. A spatial filter located in the focal plane provides selection of desired color images and blocks undesired ghosts. A control for moving and adjustment of the spatial filter is provided to attain hue and saturation control as well as brightness of the projected image. An embodiment for recording of image-plane holograms of diffuse objects or diffusely illuminated objects as well as three-dimensional objects is described.

3,834,787
METHOD AND APPARATUS FOR MAKING HOLOGRAPHY MEMORY

Yoshitada Oshida, Tokyo, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Sept. 18, 1972, Ser. No. 289,650
Claims priority, application Japan, Sept. 18, 1971, 46-72675
Int. Cl. G02b ***27/00***
U.S. Cl. 350—3.5 **18 Claims**

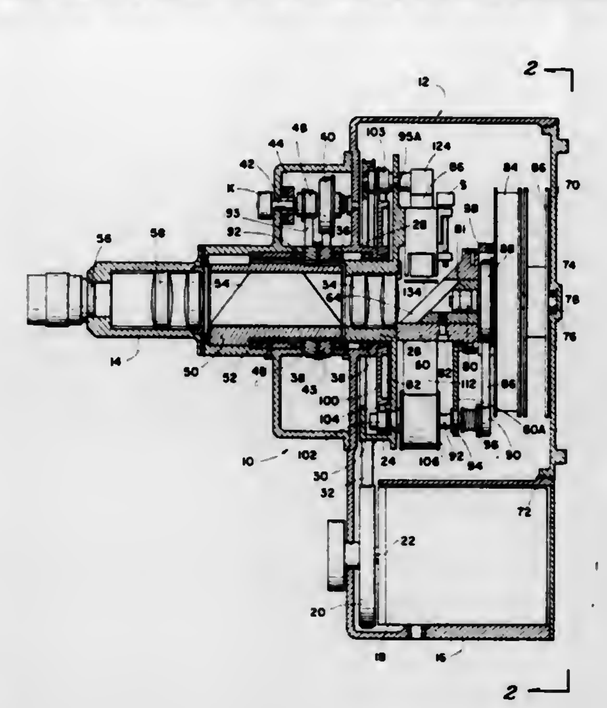


A holography memory, wherein a number of holograms are formed on a predetermined hologram recording medium by the use of reference light beam illuminated at a predetermined angle and an object light beam transmitted through a spatial modulator which causes a phase shift in the transmitted light, and wherein, in order to clearly produce all the reconstructed hologram images at the same position, means to control the quantities of exposure is provided in the optical path of the transmitted light of the spatial modulator, whereby changes in the transmission factor of the spatial modulator which occur when a light beam obliquely incident thereon is transmitted through the spatial modulator, so as to diminish noises generated in the reconstructed hologram images.

3,834,788
EPICYCLIC CAMERA

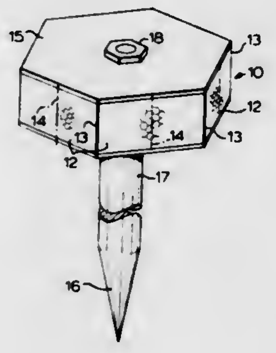
Rouel R. Campbell, 7064 E. 52nd, Tulsa, Okla. 74145
Filed Aug. 13, 1973, Ser. No. 387,957
Int. Cl. G03b ***41/00***
U.S. Cl. 352—84 **21 Claims**

A high speed motion picture camera wherein the film moves continuously during a filming operation, and having an optical system of novel design through which the light passes continuously; hence the epicyclic camera principle in which the film, the shutter and the image are in coordinated motion. The film supply reel is of a diameter substantially equal to the stationary gear whereby the supply reel does not rotate as the camera accelerates, and the film unwraps as it follows the path of a planet sprocket. The film take-up reel operates on the same principle as the supply reel, but the take-up reel is driven and the acceleration is reduced by one revolution for each revolution of the epicyclic. The film may be made to move at the same rate as the image during expsoure, or for taking substantially any number of pictures per revolution with good picture quality and superior picture steadiness.



3,834,789
REFLECTING DEVICE

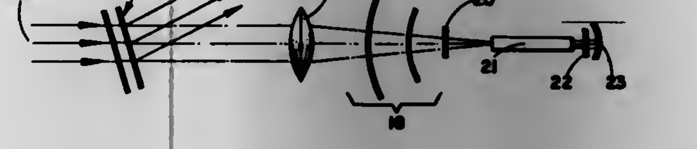
Peter E. Brudy, Willowdale, Ontario, Canada, assignor to Dominion Auto Accessories Limited, Toronto, Ontario, Canada
Filed Feb. 2, 1973, Ser. No. 329,185
Int. Cl. G02b ***5/12***
U.S. Cl. 350—97 **14 Claims**



A reflecting device having a plurality of angularly related faces providing 360° reflectivity. The device is made from a single blank of plastic material having opposed surfaces, one of which is relatively smooth and the other of which is formed with cube corner reflectors. The blank comprises sections which are integrally connected at their ends to one another with grooves extending from the surface having the reflector prisms. The blank is heated and folded to bring the side walls of the grooves into abutting relation where they are welded by ultrasonics and thereby adhered or joined to one another. The blank further includes integral smooth portions that are folded downwardly in a similar fashion and joined to the side edges of the sections to provide a completely enclosed evacuated construction. Provision may be made for passage of a fastening device through the reflecting device for holding the reflecting device on a roadway or the like.

3,834,790
CUMULATIVE OPTICAL FREQUENCY SHIFTER

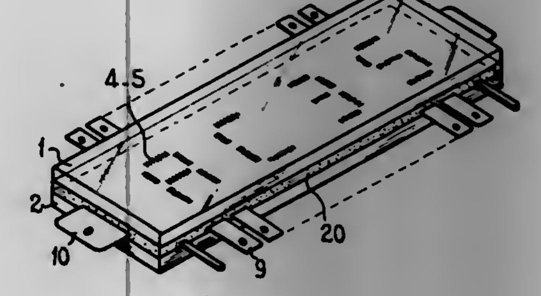
John A. Macken, Orange, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.
Filed June 28, 1972, Ser. No. 266,929
Int. Cl. G02b ***1/24***
U.S. Cl. 350—157 **17 Claims**



A means for obtaining large cumulative high optical frequency shifts at efficient microwave driving power levels utilizing Fabry-Perot interferometers.

3,834,791
LIQUID CRYSTAL DISPLAY DEVICES AND METHODS OF MANUFACTURING SUCH DEVICES

Pierre Lucien Raimbault, Courbevoie, France, assignor to L.C.C.-C.I.C.E. Compagnie Europeenne de Composants, Montreuil-Sous-Bois, France
Filed May 29, 1973, Ser. No. 364,281
Int. Cl. G02f ***1/16***
U.S. Cl. 350—160 LC **3 Claims**



Improvements in or relating to liquid crystal display devices, to enable simple, efficient and economical manufacture of such devices.

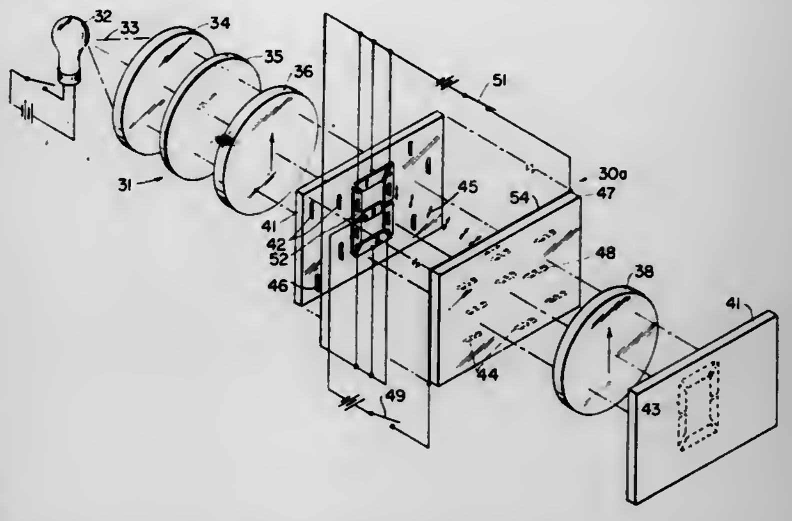
Tongues cut from a metal strip whose thickness is equivalent to that of the desired liquid crystal film, and inserted between the plates and boarded by a seal delimiting such film, are responsible both for determining the spacing between said plates and for providing connection of the electrodes within and outside said plates.

The invention applies to the field of data display equipment.

3,834,792
ALIGNMENT FILM FOR A LIQUID CRYSTAL DISPLAY CELL

John L. Janning, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
Continuation of Ser. No. 242,675, April 10, 1972, abandoned. This application Aug. 7, 1973, Ser. No. 386,472
Int. Cl. G02f ***1/16***
U.S. Cl. 350—160 LC **7 Claims**

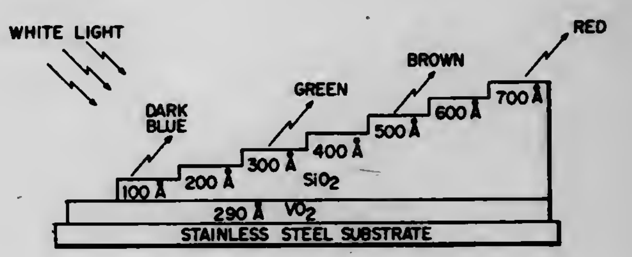
The present invention relates to a liquid crystal display cell having an alignment film therein. The present invention also relates to a method of aligning liquid crystal molecules in a selected direction in a liquid crystal display cell. An alignment film whose film growth is oriented in the same direction is deposited on an electrode film of a liquid crystal cell. The alignment film is used to align the molecules of a liquid crystal material. The film growth sympathetically aligns the molecules of liquid crystals in the direction of the film growth.



A liquid crystal display cell which has two such alignment films therein is used to form a polarizing liquid crystal display cell.

3,834,793
DICHROMIC MIRROR HAVING MULTILAYER THIN FILMS INCLUDING VANADIUM DIOXIDE

Lloyd T. McConnell, Dallas, and John R. Trimmier, Arlington, both of Tex., assignors to Advance Technology Center, Inc., Dallas, Tex.
Filed June 21, 1973, Ser. No. 372,378
Int. Cl. G02f ***1/28***
U.S. Cl. 350—160 R **7 Claims**

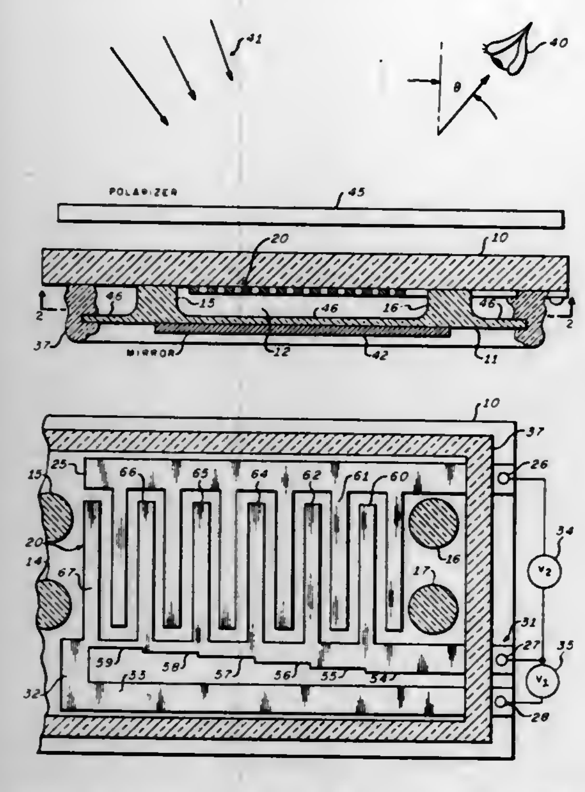


An optical effect device in the form of a multi-layer mirror, with at least one layer consisting of vanadium dioxide, and the layers being limited in thickness to about 2,000 Angstroms such that interference effects can provide essentially any desired color. Methods are disclosed for determining what two colors are achievable with a given mirror as the VO_2 is carried through its transition temperature, and methods are disclosed for optimizing the contrast in reflectance between the mirror in its hot and cold states.

3,834,794
LIQUID CRYSTAL ELECTRIC FIELD SENSING MEASUREMENT AND DISPLAY DEVICE

Richard A. Soref, Chestnut Hill, Mass., assignor to Beckman Instruments, Inc., Fullerton, Calif.
Filed June 28, 1973, Ser. No. 374,460
Int. Cl. G02f ***1/28***
U.S. Cl. 350—160 LC **10 Claims**

A flat panel, electric field controlled device is provided for the measurement and display of electrical parameters such as voltage, the voltage sensing effect being provided by a nematic liquid crystal medium having high positive dielectric anisotropy and placed in a thin flat-sided optically transparent cell. Optical transmission of the nematic liquid crystal medium is controlled by voltages applied to interdigital arrays of parallel electrode elements affixed on the inner surface of only one

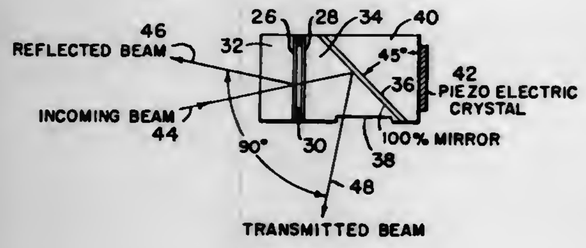


of the transparent parallel cell walls. Continuous relative changes in the respective potentials applied to the electrode arrays provide continuous analog movement of the borders between birefringent and non-birefringent areas formed in the liquid crystal medium.

3,834,795
DIRECT VISION LASER RANGE GATE SYSTEM

Allen M. Erickson; Robert L. Kaplow, both of Silver Spring, and W. Lawton King, Adelphi, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 2, 1973, Ser. No. 356,556
Int. Cl. G01c *3/08*
U.S. Cl. 350—161 **5 Claims**



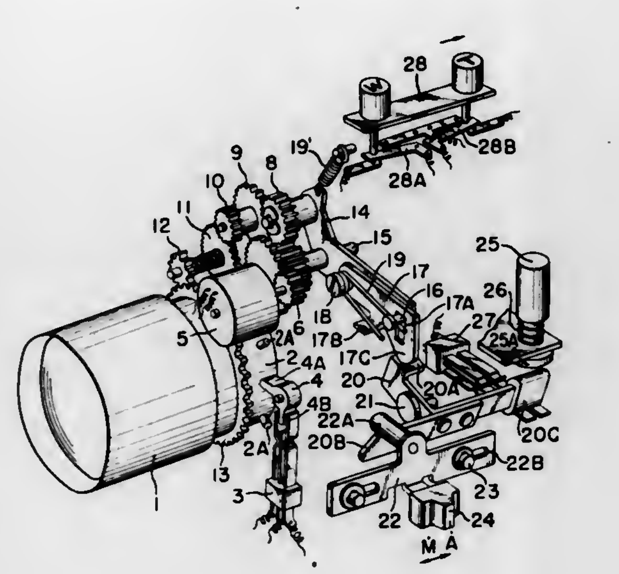
A range gate system to permit direct visual observation through visual obstructions having a laser which illuminates with a series of light pulses and develops a signal to initiate an electrical delay equal to the time required for the pulse to travel to and return from an obscured object. The delay activates a pulse generator to produce an electroacoustic shock wave which opens and closes a Fabry-Perot visual shutter for a period of nanoseconds to permit the object reflection to pass through to the observer's eyes.

3,834,796
AUTO ZOOM DEVICE FOR A MOTION PICTURE CAMERA

Yoshio Komine, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 6, 1973, Ser. No. 394,649
Claims priority, application Japan, Sept. 6, 1972, 42-89215
Int. Cl. G02b *15/00*
U.S. Cl. 350—187 **5 Claims**

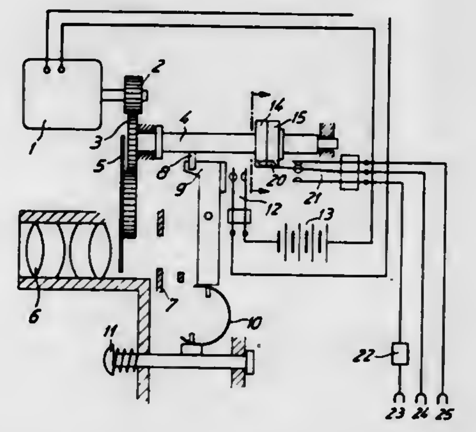
An auto zoom device for a motion-picture camera which can make a changeover from auto zoom by an electric motor to manual zoom. The auto zoom device comprises engaging-and-disengaging means provided between a rotating member driven by an electric motor and a zoom-lens tube rotating member driven by the first mentioned rotating member, a changeover member which permits a changeover between auto zoom and manual zoom, a rotating lever for shifting the engaging-and-disengaging means between an operative and inoperative positions in an interlocking relationship with the changeover member, and quick zoom-up operating means cooperable with the rotating lever independently of the changeover member, thereby permitting quick zoom-up in either state, auto zoom or manual zoom.



3,834,797
MOVIE CAMERA WITH SYNCHRON PULSE GENERATOR FOR A SOUND RECORDER

Johann Roth, Schwabhausen, and Werner Grimm, Emmering, both of Germany, assignors to Braun Aktiengesellschaft, Frankfurt, Germany

Filed Apr. 9, 1973, Ser. No. 349,475
Claims priority, application Germany, Apr. 8, 1972, 2217036
Int. Cl. G03b *31/00*
U.S. Cl. 352—12 **13 Claims**

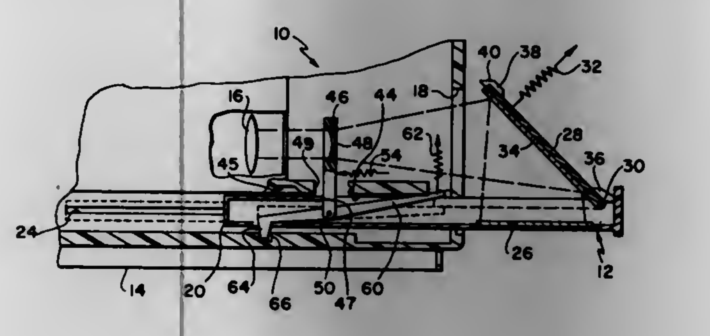


A movie camera having a synchron pulse generator adapted for delivering synchron pulses for controlling the synchronized operation of an associated sound recording device during the running of the movie camera, a releaser for controlling the operation of the movie camera, a switch coupled to the releaser for effecting delivery and interruption of the signals from the synchron pulse generator, a sensing device controlling the switch and being responsive to the acceleration or numbers of revolutions of the film advancing mechanism.

3,834,798
VIEWING SCREEN FOR MOTION PICTURE PROJECTORS

John J. Bundschuh, and William H. Goddard, both of 901 Elmgrove Rd., Rochester, N.Y. 14650

Filed Dec. 20, 1972, Ser. No. 316,777
Int. Cl. G03b *21/10*
U.S. Cl. 352—104 **9 Claims**



A slide-out viewing screen for a motion picture projector. A slidable frame is carried by the projector and a negative lens, mirror and rear projection viewing screen are mounted on the frame. The negative lens and the mirror are pivotably supported by the frame and are movable from a stored position to an operative position when the frame is moved from a stored position to a viewing position. Through an interaction between the mirror and the negative lens and the projector housing, the mirror and negative lens will be positioned in their stored position when the frame is in its stored position.

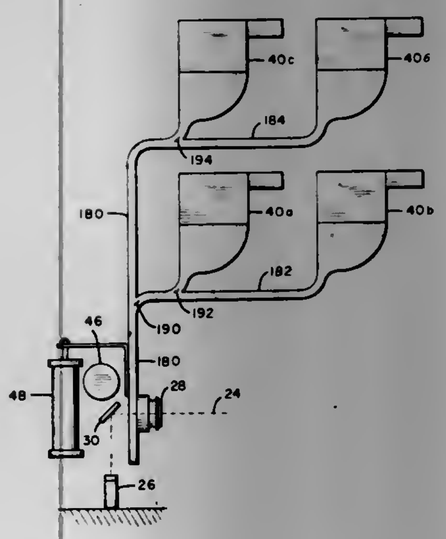
ERRATUM

For Class 352—84 see:
Patent No. 3,834,788

3,834,799
MICROFICHE STORAGE AND DISPLAY UNIT

Robert L. Blosser, Bountiful, and William D. Cranney, Granger, both of Utah, assignors to Sperry Rand Corporation, New York, N.Y.

Continuation of Ser. No. 71,534, Sept. 11, 1970, abandoned.
This application July 17, 1972, Ser. No. 272,233
Int. Cl. G03b *23/08;* **B65h** *29/24*
U.S. Cl. 353—27 **11 Claims**

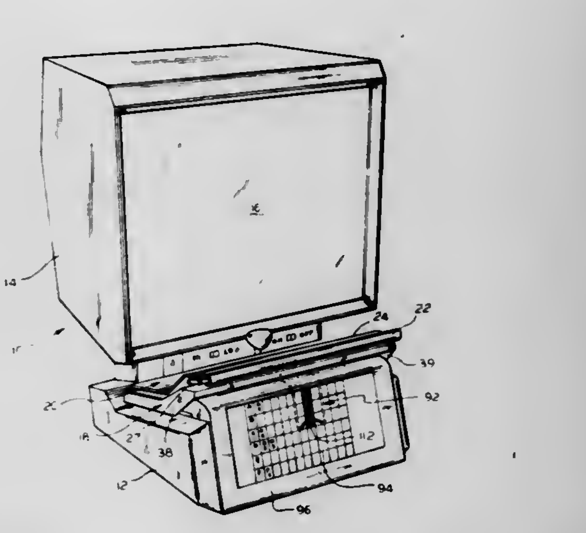


A fluidic system for transporting a selected one of a plurality of microfiche from a storage cassette into position in an X-Y positioner for projection upon a viewing screen and return to the storage cassette. Air jets position the microfiche in the X-Y positioner during the positioning operation.

3,834,800
PROJECTOR VIEWER WITH INDICATING DEVICE

Philip J. Brownscombe, Millington, N.J., assignor to Dietzen Corporation, Chicago, Ill.

Filed Apr. 30, 1973, Ser. No. 355,590
Int. Cl. G03b *23/08*
U.S. Cl. 353—27 **6 Claims**



A projector viewer adapted to read microfiche transparencies through a projection onto a screen with an indicator device embodying a transparent sheet with index markings. A longitudinally flexible, laterally rigid transparent strip is connected to a carriage assembly which bears the microfiche between glass plates. The strip moves behind the transparent sheet and bears position indicating means coordinating the index markings with the respective frames of the microfiche.

3,834,801
REFLECTIVE ELEMENTS

Jay G. Schreckendgust, Columbus, Ohio, assignor to A. E. Staley Manufacturing Company, Decatur, Ill.

Filed Sept. 21, 1970, Ser. No. 74,120
Int. Cl. G03b *21/00*
U.S. Cl. 353—20 **5 Claims**

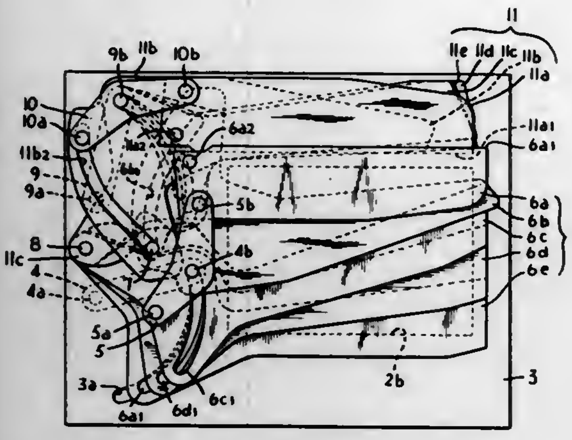
Projection of an image from a transparent photographic element onto a screen without deterioration or destruction of the transparent photographic element, by projecting a beam of light through a transparent photographic element bearing reflective image areas.

3,834,802
SHUTTER BLADE OPERATION MECHANISM FOR FOCAL PLANE SHUTTER

Kiyoshi Kitai, Tokyo; Eiichi Onda, Saitama; Mitsuo Koyama; Shinji Nagaoka, and Tadashi Nakagawa, all of Chiba, Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Filed May 14, 1973, Ser. No. 359,876
Claims priority, application Japan, May 16, 1972, 47-56318
Int. Cl. G03b *9/36, 9/44*
U.S. Cl. 354—246 **5 Claims**

A focal plane shutter having a set or group of shutter-opening shutter blades and a set or group of shutter-closing shutter blades each consisting of a plurality of shutter blades for opening a shutter exposure aperture and closing it. Driving mechanism is provided for each group with a driving main lever supported on one side of the exposure aperture. A shutter blade operating auxiliary lever is supported on a corresponding one of the driving main levers and one end of this auxiliary lever is rotatably connected with a slit-forming shutter blade and a slot guides the travel of this end of the auxiliary lever to operate the slit-forming blade in parallel motion to define a uniform rectangular slit as the aperture is opened and closed.

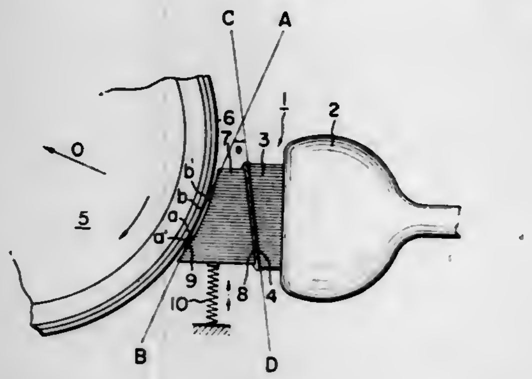


3,834,803

PHOTO-INFORMATION TRANSMISSION AND EXPOSURE DEVICE

Syusei Tsukada, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 2, 1973, Ser. No. 346,922
Int. Cl. G03b *27/10*
U.S. Cl. 355—1 **18 Claims**



A photo-information transmission and exposure device applicable to various types of electrophotographic copying apparatus using a photosensitive medium comprises a photo-information source, an optical fiber plate or bundle secured to the photo-information source, and a movable intermediate optical fiber plate or bundle disposed so as to transmit the photo-information passed from the photo-information source through the fixed optical fiber plate or bundle to the surface of the photosensitive medium to expose that surface to the photo-information. The intermediate optical fiber plate or bundle has its photo-information inlet and outlet faces opposed to the photo-information outlet face of the fixed optical fiber plate or bundle and the surface of the photosensitive medium, respectively.

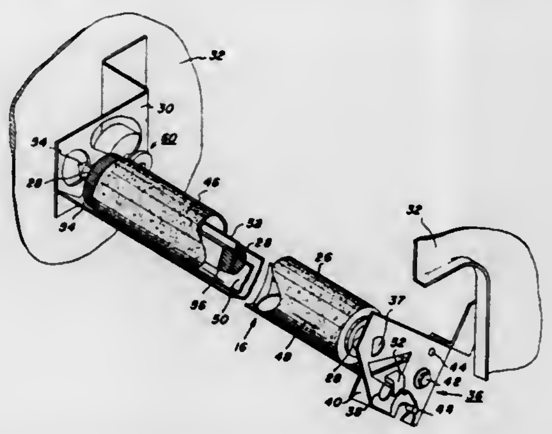
3,834,804

COPYING MACHINE WITH MEANS FOR MOUNTING CARRIER BEAD PICKOFF ROLLER THEREIN

Gopal C. Bhagat, Rochester, and George E. Vellard, Fairport, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 6, 1972, Ser. No. 312,404
Int. Cl. G03g *15/00*
U.S. Cl. 355—3 R **2 Claims**

An electrostatic copying machine having an endless belt mounted for movement around a closed path has a cylindrical roller rotatably mounted immediately adjacent the surface of the belt. Because it is important that the roller be capable of being removed and precisely replaced in its original position without contacting the surface of the belt, the roller is mounted so that it can be released and guided out of the machine, and then guided back into its original mounted position where it is again secured. A shaft extends through the roller, the shaft having a tapered portion on one end of the roller, the other end being supported by a removably mounted bracket. By removing the bracket, the roller is released, and can then be guided by the tapered portion into a receptacle beneath the roller. The roller and receptacle are then guided away from the belt through a trough which supports the receptacle. When replacing the roller the procedure is reversed, the brackets being precisely relocated via guide pins, thus precisely relocating the roller in its original mounted position.

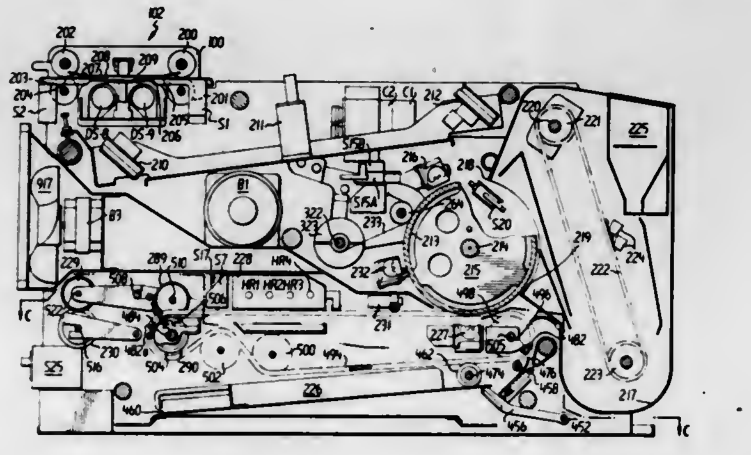


3,834,805

XEROGRAPHIC COPIER WITH ASYNCHRONOUS COPY FEED

B. Franklin Griffin, Jr., Lansdale, Pa., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Jan. 29, 1973, Ser. No. 327,405
Int. Cl. G03b *15/00*
U.S. Cl. 355—8 **9 Claims**



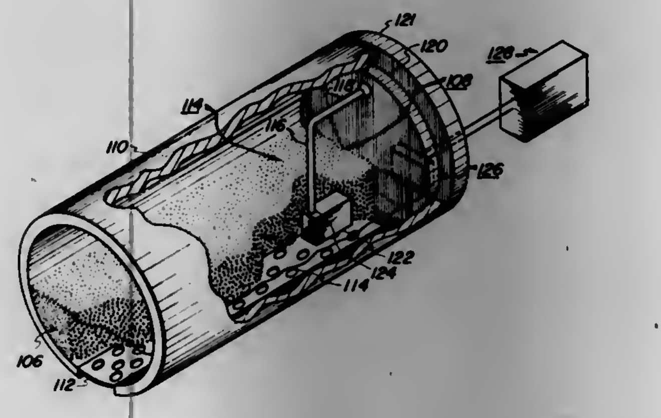
A xerographic copier is provided with a continuously rotating photoconductive drum surface, continuously operative document feed means capable of moving a document through a scanning station in either a forward or reverse direction so that multiple scans of the document may take place when multiple copies are to be made, and copy paper transport means which is normally at rest but is brought into motion during each copy cycle. The copy paper transport moves as the same linear speed as the drum surface so that a toner image on the drum may be transferred to the copy paper. However, since all document images are not placed on the drum at the same area, the time at which the copy paper transport begins moving is not synchronized with any particular point in the drum cycle but is instead synchronized with the document image formed on the drum surface. The original document actuates switches which in turn control the time at which the copy paper transport begins its movement. Since document movement is synchronized with drum surface movement, this provides synchronization between the copy paper feed and the image on the drum.

3,834,806

PARTICLE LEVEL INDICATOR

Charles A. Whited, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed May 7, 1973, Ser. No. 357,995
Int. Cl. G03g *15/08*
U.S. Cl. 355—3 DD **6 Claims**



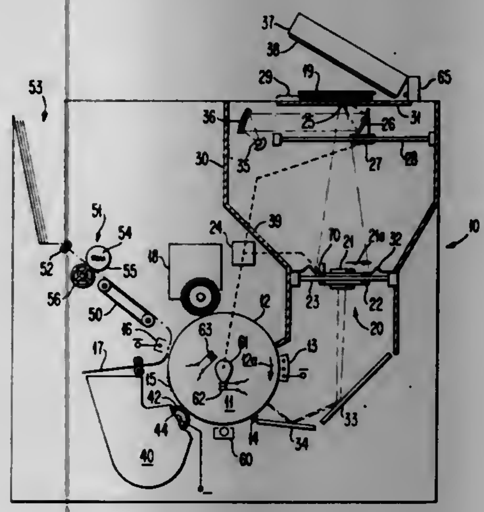
An apparatus arranged to indicate the level of particles remaining in a housing. The housing dispenses particles therefrom, and the apparatus senses when the particle level is diminished beneath a preselected level. In this manner, additional particles may be added to the housing when the apparatus indicates that the particles therein are depleted.

3,834,807

COPIER WITH LEADING EDGE IMAGE CONTROL

Sterritt Ray Fuller; Howard Everett Munzel, and Carl Allen Queener, all of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 14, 1974, Ser. No. 442,533
Int. Cl. G03g *15/00*
U.S. Cl. 355—3 R **4 Claims**



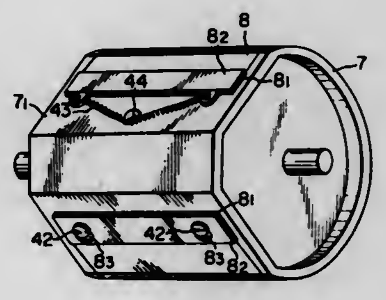
An image producing process of a document copier is controlled by means detecting a low average intensity of reflected light during initial stages of scan of an original being copied to produce a low density or light copy adjacent the leading edge of the copy sheet passing through the machine thereby minimizing paper feed difficulties associated with the passage of copy having a dense leading edge through a contact fuser.

3,834,808

ELECTRONIC PHOTOGRAPHIC COPYING MACHINE

Isao Takahashi, Yokohama; Motoharu Fujii, Tokyo; Kazuo Kawakubo, Tokyo; Masao Ariga, Tokyo, and Susumu Sugiura, Yamato, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 211,276, Dec. 23, 1973. This application July 23, 1973, Ser. No. 381,400
Int. Cl. G03g *15/00*
U.S. Cl. 355—3 R **1 Claim**



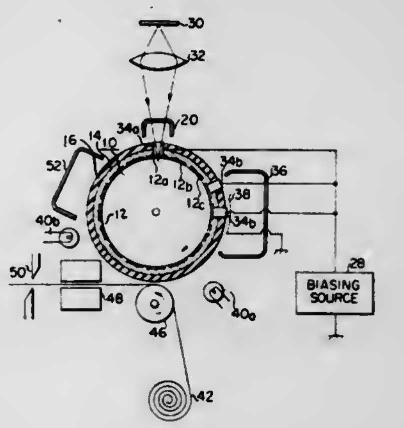
In an electrostatic photocopying machine, a drum having an axially extending notched portion, and a photosensitive sheet attached to the drum by a clamping device disposed in the notched portion of the drum. The clamping device includes an elastic member for resiliently holding the photosensitive sheet on the drum.

3,834,809

ELECTROPHOTOGRAPHIC SYSTEM

Michio Yoshizawa, and Masaru Ohnishi, both of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed July 26, 1973, Ser. No. 382,643
Claims priority, application Japan, Aug. 4, 1972, 47-78150
Int. Cl. G03g *15/00, 15/08*
U.S. Cl. 355—3 R **5 Claims**



A photosensitive member is composed of an electrode layer, a photoconductive layer responsive to visible light and an ultraviolet photoconductive, electrically insulating layer. The photoconductive layer is irradiated by visible light from an object to be reproduced simultaneously with the negative corona charging of the electrically insulating layer to form an electrostatic latent image on the latter. At the same time, a positive voltage is applied to the electrode layer. The application of this voltage can also be accomplished during dry development of the image.

3,834,810
ELECTROSTATIC LATENT IMAGE TRANSFERRING APPARATUS FOR USE IN ELECTROPHOTOGRAPHY

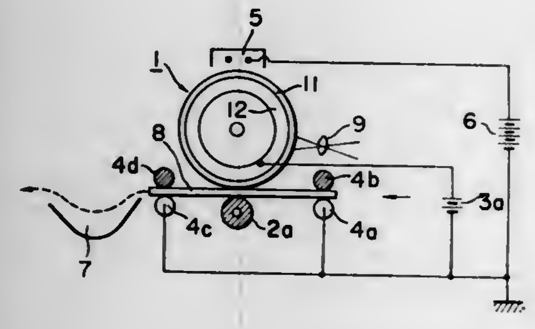
Junji Kurokawa; Toshio Watanabe, and Tomiaki Asami, all of Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Nov. 19, 1973, Ser. No. 416,732

Claims priority, application Japan, Nov. 21, 1972, 47-116212

Int. Cl. G03g *15/22*

U.S. Cl. 355—3 R **6 Claims**



An electrophotographic apparatus for transferring electrostatic latent images comprising a photosensitive drum consisting of a layer of photosensitive material on a conductive body; an insulating roller normally disposed in contact with said photosensitive drum for the purpose of transferring an electrostatic latent image formed on said layer of photosensitive material to an interposable electrostatic transfer paper consisting of a conductive paper support with an image receiving dielectric layer thereon; at least one set of paper feed rollers disposed in front of and one set disposed to the rear of said insulating roller (the rollers disposed on the side of said dielectric layer consisting of an insulating material while the rollers disposed on the side of said paper support consist of a conductive material) for feeding the electrostatic transfer paper in between said insulating roller and photosensitive drum; and a low-voltage DC power source having one terminal with the same polarity as that of the electric charge to be impressed on the photosensitive layer by corona discharge, and electrically connected with said conductive body of the photosensitive drum, while the other terminal has the opposite polarity and is electrically connected with said conductive feed rollers, said conductive feed rollers being grounded through the chassis of the apparatus and said photosensitive drum being insulated relative to the chassis of the apparatus.

3,834,811
GRAPHIC ARTS CAMERA

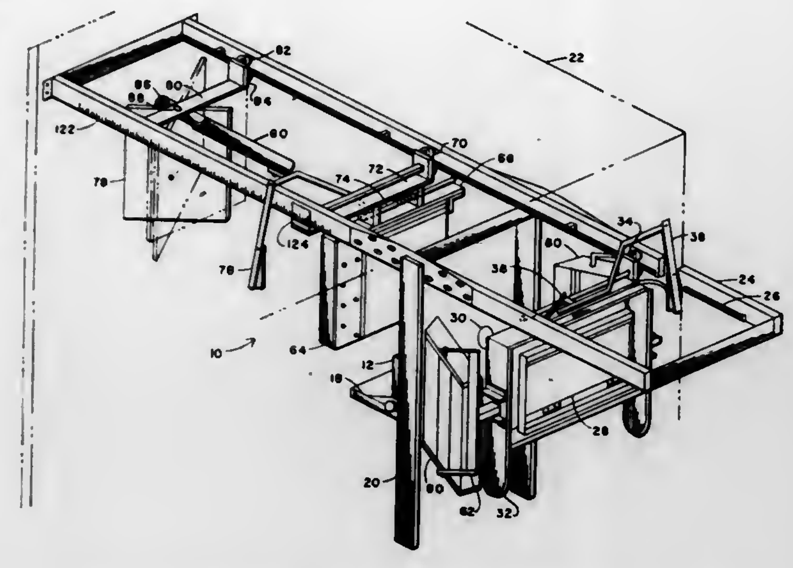
Paul Rathburn, Miami, Fla., assignor to Craft Camera Corp., Opa Locka, Fla.

Filed June 20, 1973, Ser. No. 371,669

Int. Cl. G03b *27/32, 27/60, 27/70*

U.S. Cl. 355—18 **8 Claims**

A graphic arts camera constructed according to the present invention includes a copyboard, lens with bellows, a film holder and a light image reflector disposed in vertically extending parallel planes and spaced longitudinally apart. The film holder and the light image reflector are pivotally mounted on frames having rollers engaging a pair of overhead tracks for traveling thereon. The film holder is adapted to be adjustably positioned from its parallel wrong reading position with respect to the copyboard and lens to an angular right reading position thereto in conjunction with the light image reflector also adjustably positioned angularly with respect thereto for reflecting the light image of the subject copy from the copyboard through the lens on the film mounted on the film holder for a right reading shot. The copyboard is also provided with a drop down door for loading film when being used for back lighting or projection.



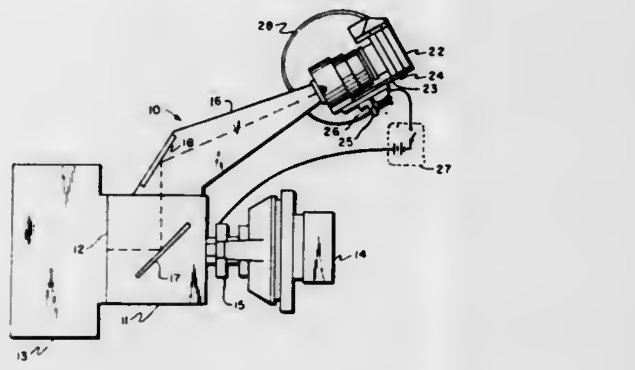
3,834,812
OSCILLOSCOPE CAMERA 35MM FILM RECORDER ADAPTER

James R. Adamson, Jr., Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 23, 1973, Ser. No. 418,802

Int. Cl. G01d *9/42*

U.S. Cl. 355—46 **1 Claim**



A camera adapter for mounting a 25mm camera on an oscilloscope camera hood. An arm member secures the 35mm camera thereon with a sleeve-like member securing the adapter to the oscilloscope camera viewing hood. A ball detent retainer permits the camera mounted on the arm to be swung aside for viewing, or locked into picture-taking position. The 35mm camera is actuated by a cable release and a rotary solenoid which is synchronized with the electronic shutter of the scope camera.

3,834,813
DIAZO PRINTING SYSTEM

Russell P. White, Jr., Carrollton, Tex., assignor to Haggar Company, Dallas, Tex.

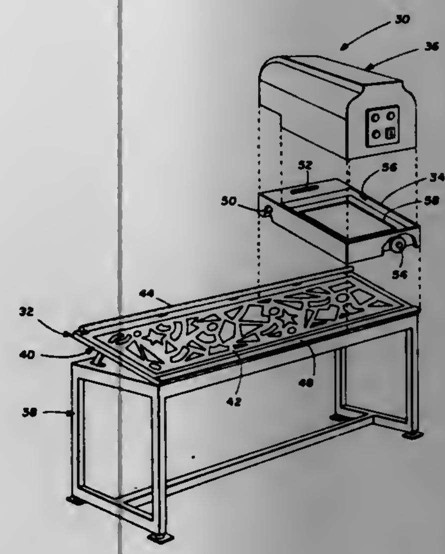
Division of Ser. No. 80,829, Oct. 15, 1970. This application June 5, 1972, Ser. No. 260,007

Int. Cl. G03b *27/48*

U.S. Cl. 355—50 **1 Claim**

A diazo printing system comprises a source of ultraviolet radiation and an optical system including lenses that are transparent to ultraviolet radiation. The optical system directs radiation generated by the source through an intermediate, and focuses an enlarged or reduced image of the intermediate

on a diazo layer. In accordance with the preferred embodiment of the invention, the diazo printing system is employed in a garment layout system that further includes a system for recording the image of an array of miniature garment patterns and thereby forming an optically enlargeable intermediate. The intermediate is employed in the diazo printing system to form a full size reproduction of the miniature patterns and the full size reproduction is employed in the cutting of cloth.



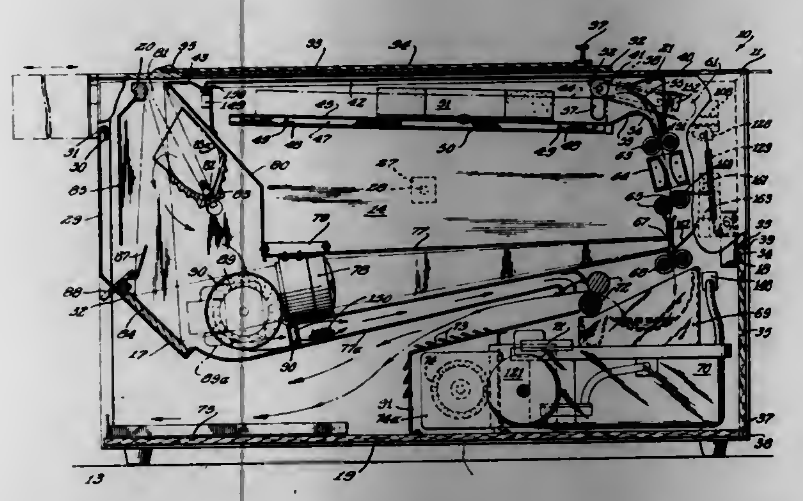
3,834,814
BOOK COPIER

David F. Wolff, Glenn Ellyn; Herman O. De Boer, Wheaton; Emil Tiger, Highland Park, and James G. McCarthy, Park Ridge, all of Ill., assignors to Sunbeam Business Equipment Co., Addison, Ill.

Filed Mar. 27, 1969, Ser. No. 810,968

Int. Cl. G03b *27/70*

U.S. Cl. 355—51 **32 Claims**



A book copier including a cabinet having an upwardly opening exposure aperture with illuminating means within the cabinet trained into the aperture and an optical system for scanning the aperture and transmitting an image therefrom to a copy element, has a carriage reciprocably mounted thereon to transport an original to be scanned across the aperture, and means for driving the carriage reciprocably comprising a coupling rack reciprocable with the carriage and respective driving gears alternatively operable on the rack to drive it and thereby the carriage in respective opposite direction. An electrically operated means controlled by the copy element synchronizes operations and the driving means with movements of the copy element past an exposure aperture. A multiple copy selector is arranged to be manually set to control the driving means for repeating reciprocations of the carriage for production of multiple copies and the carriage cycles the selector means by a trip arm on the carriage operating a selector cycling lever system.

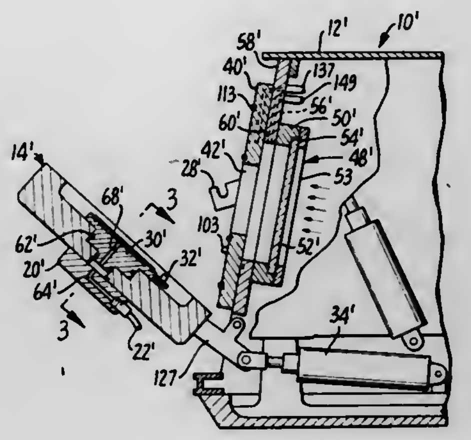
3,834,815
PHOTOCOPYING APPARATUS WITH VACUUM MEANS

Alfred L. Greig, Cupertino, Calif., assignor to IPT Corporation, Sunnyvale, Calif.

Filed July 6, 1973, Ser. No. 367,852

Int. Cl. G03b *27/20*

U.S. Cl. 355—91 **1 Claim**



A device for duplicating a high resolution master transparency onto a photosensitive copy sheet wherein both are placed in a spaced apart relation within a vacuum chamber while the pressure within the chamber is reduced to a very low level significantly less than that of atmospheric pressure. The master transparency and the photocopy sheet are then mechanically urged together followed by a light exposure of the photocopy sheet through the master transparency. Air bubbles do not form between the master transparency and the photocopy sheet wjth the result of much better copies being made. The photocopy sheet and the master transparency are made ready for exposure in a very short period of time.

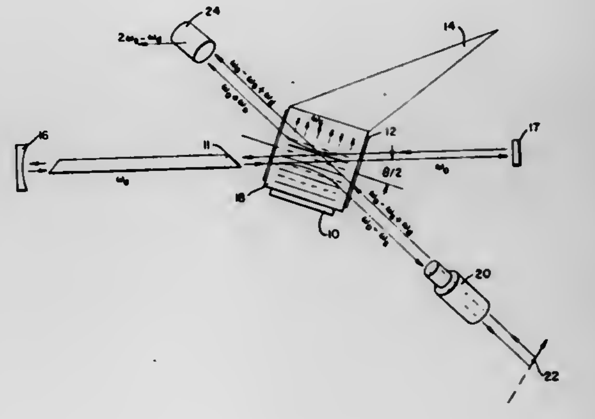
3,834,816
COLINEAR HETERODYNE FREQUENCY MODULATOR

Melvin E. Pedinoff, Canoga Park, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Division of Ser. No. 97,003, Dec. 10, 1970, Pat. No. 3,735,279, which is a continuation of Ser. No. 646,867, June 19, 1967, abandoned. This application Nov. 14, 1972, Ser. No. 306,476

Int. Cl. G01p *3/36*

U.S. Cl. 356—28 **9 Claims**



An apparatus to produce Brillouin scattering by means of two oppositely directed colinear optical beams, frequency-translated and of varying power level, in a time sequence suitable for processing doppler-shifted radar target echoes by means of a simplified optical heterodyne detection system.

3,834,817
METHOD AND APPARATUS FOR RECOGNIZING COLORS

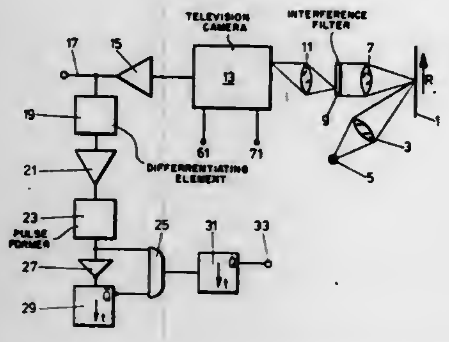
Antonius Vinnemann, Stuttgart, and Joachim Merz, Leinfelden, both of Germany, assignors to Firma Franz Morat GmbH, Stuttgart, Germany

Filed Aug. 9, 1972, Ser. No. 279,025

Claims priority, application Germany, Aug. 18, 1971, 2141364

Int. Cl. G01j *3/42, 3/48*

U.S. Cl. 356—83 **28 Claims**



A method of scanning and/or distinguishing colors comprising opto-electrically scanning the colors, generating electrical signals the time variation of which correspond to the spectral intensity distribution of the colors and distinguishing the colors by automatically determining the position of the maxima of the electrical signals.

3,834,818
CONTINUOUS MEASUREMENT OF THE FINENESS OF A PULVERULENT MATERIAL

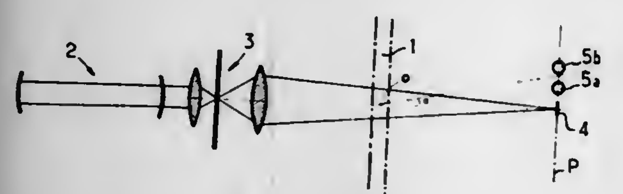
Jean Paul Meric, Paris, France, assignor to Centre D'Etudes Et De Recherches De L'Industrie Des Liants Hydrauliques, Paris, France

Filed Mar. 26, 1973, Ser. No. 345,199

Claims priority, application France, Mar. 29, 1972, 72.11018

Int. Cl. G01n *15/02, 21/00, 1/00*

U.S. Cl. 356—102 **13 Claims**



In order to measure the degree of fineness of a pulverulent material, the pulverulent material is placed in suspension in a gaseous fluid and a converging laser beam from an optical source is passed through the fluid. The luminous flux of the diffracted light is measured by two or more photoelectric cells in the focal plane of the optical system, the cells being at different distances from the optical axis. The fineness of the material is calculated on the basis of the result of these measurements.

3,834,819
THICKNESS MEASURING

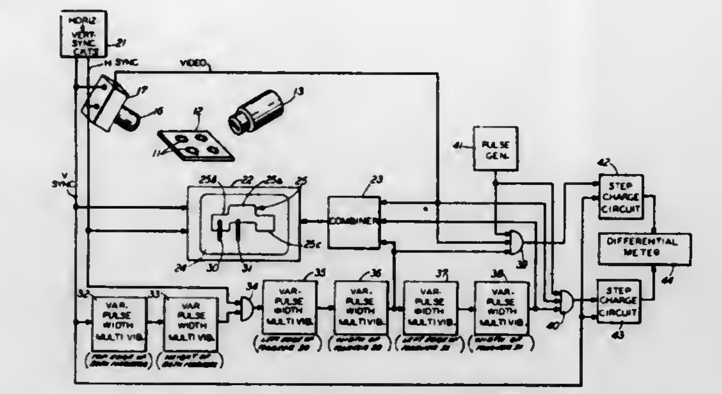
Liber J. Montone, Reading, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed July 5, 1973, Ser. No. 376,640

Int. Cl. H04n *7/02;* **G01b** *9/04*

U.S. Cl. 356—156 **15 Claims**

The thickness of an object is measured with great accuracy by scanning with a television camera a light-section microscope image of the object and its support, electronically generating markers which extend at least partially into the televised images of support and object, respectively, and determining the difference in the number of scanning lines by which the respective markers so extend into the image. This difference represents the object thickness.



3,834,820
OPTICAL GAUGE

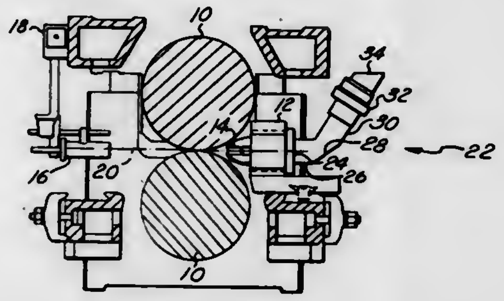
Nils Erik Bock, Smedjebacken, Sweden, assignor to Morgardshammar AB, Smedjebacken, Sweden

Filed Feb. 5, 1973, Ser. No. 329,837

Claims priority, application Sweden, Feb. 7, 1972, 1380/72

Int. Cl. G01b *9/08*

U.S. Cl. 356—164 **11 Claims**



An optical gauge for use in measuring the setting of grooved rolls of a rolling mill receives a light beam through a space between the rolls from a light source located on the other side of the rolls and conducts the light through a bent optical path to a ground glass display located in a convenient position for viewing. A manually movable rule mechanism cooperates with a scale on the ground glass to permit measurements of the spacing of the rolls as imaged on the display, and the movable rule mechanism is rotatable with respect to the image to be measured, to enable measurements to be made in various directions without relocating the image from its convenient viewing position.

3,834,821
MULTIPLE PHOTOMETER ASSEMBLY

Andres Ferrari, Dover; Leo J. Blumle, Milton, and Laurence C. Bonar, Brighton, all of Mass., assignors to Damon Corporation, Needham Heights, Mass.

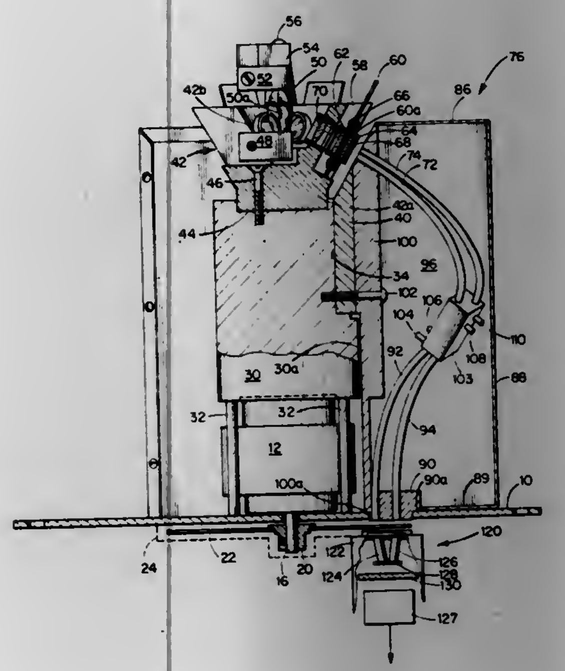
Filed Jan. 12, 1971, Ser. No. 105,822

Int. Cl. G01j *3/46*

U.S. Cl. 356—181 **24 Claims**

A novel photometer assembly which may be used in the ultra-violet region of the spectrum is disclosed. The assembly includes a single energy source and chopper assembly both of which service multiple photometer modules and therefore multiple optical paths. The photometer modules which are preferably of the double beam type including a reference and a sample beam, include fiber optical elements conducting radiation to and receiving radiation from a novel cuvette in which liquid samples may be received. The reference channel

includes a cuvette with a reference fluid therein or may be simply a continuous fiber optical element. The radiation from each channel is chopped by a common chopper disk and supplied to a detector. A photometer module for differential photometry is described. Energy from the single source passes through the two channels and then is chopped at different frequencies before being recombined to fall on a single detector at a single location.



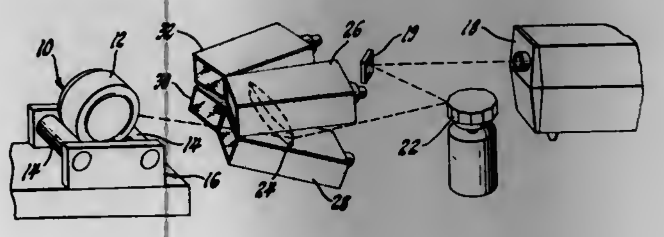
3,834,822
METHOD AND APPARATUS FOR SURFACE DEFECT DETECTION USING DETECTION OF NON-SYMMETRICAL PATTERNS OF NON-SPECULARLY REFLECTED LIGHT

Thomas T. Stapleton, Bloomfield Hills, and Reed A. Farrar, Southfield, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 29, 1973, Ser. No. 345,959

Int. Cl. G01n *21/16, 21/48*

U.S. Cl. 356—200 **5 Claims**



A cylindrical metal object to be inspected for surface defects is rotated about its axis and a collimated laser beam is axially scanned across the object surface in a plane normal to the surface. A plurality of photoelectric detectors are symmetrically arranged on each side of the scanning plant to detect light non-specularly reflected from the object. Defects causing an unsymmetrical reflection to the detectors are sensed by summing the outputs of symmetrically disposed pairs of detectors and comparing the summed outputs to determine significant differences in the summed outputs and producing a defect signal when such differences occur.

3,834,823
MARKING BOARDS AND ERASABLE INK COMPOSITIONS THEREFOR

Daniel E. Seregely, Los Angeles, and Bernard G. Kidda, Marina del Ray, both of Calif., assignors to The Gillette Company, Santa Monica, Calif.

Filed May 25, 1972, Ser. No. 256,818

Int. Cl. B43k *29/00;* **C09d** *11/16*

U.S. Cl. 401—198 **15 Claims**

An ink composition for writing instruments having a porous writing point, which will write satisfactorily on relatively smooth, hard surfaces (e.g., solid plastic surfaces) and which can easily be erased from said smooth, hard surfaces by merely wiping with a dry cloth or paper tissue. The ink composition contains, as essential ingredients, water, a water soluble dye, a silicone surfactant, and a release agent in which the water soluble dye is insoluble. The ink composition may also contain a wax to prevent dusting. An erasing system including a marking board having a smooth, hard, non-porous surface of plastic and a porous point pen having an ink therein which will deposit uniform, legible traces, markings or lines on said plastic surface and which can be removed therefrom with a dry cloth or paper tissue.

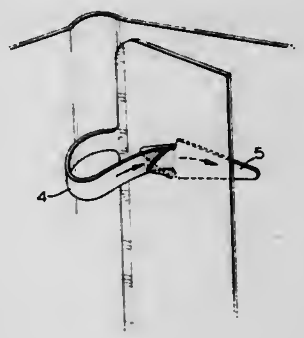
3,834,824
RETAINING MEANS

Gerhard Jahn, Apt. 1907 655 Broadview Ave., Toronto, Ontario, Canada

Filed Sept. 18, 1972, Ser. No. 289,820

Int. Cl. B42f *13/02*

U.S. Cl. 402—13 **12 Claims**



The invention is a retaining means used to retain discrete articles thereon and in particular is adaptable to be used as a loose leaf binder to retain paper in a simple and inexpensive manner, and comprises a backing and fastening means, each fastening means comprising a thin narrow bendable strap and a tab on one end thereof forming a continuation of the plane of the adjacent strap and of a width at the juncture with the strap to define therewith at least one locking shoulder, the tab and strap having an appreciable measure of stiffness to resist buckling under force applied to the edges thereof substantially in the plane thereof, the backing having a tab receiving and co-operating slot through which the tab can be inserted to lock the at least one shoulder behind the backing to resist withdrawal until sufficient force is exerted to buckle the tab out of its planar configuration when the strap is pulled in the reverse direction.

3,834,825
CHAIN ANCHORING MEANS FOR A BICYCLE LOCK OR THE LIKE

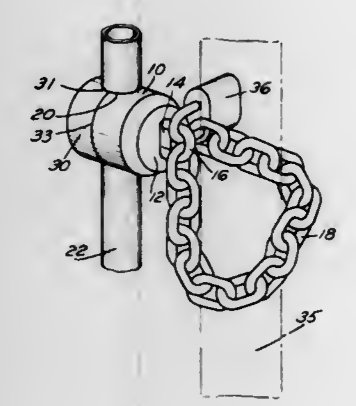
Normand A. Dubois, 39 Samoset Ave., Providence, R.I., and Gary R. Skeen, Warwick, R.I., assignors to said Dubois, by said Skeen

Filed Mar. 13, 1973, Ser. No. 340,751

Int. Cl. F16g *15/00*

U.S. Cl. 403—378 **8 Claims**

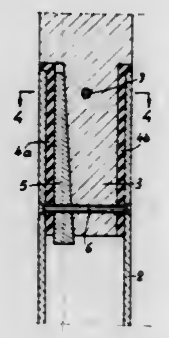
A link chain secured to a first base member. A second base member is provided, the two members defining an opening through which a bar, such as that of a bicycle frame, extends. When the members are clamped to the bar, the chain is locked thereto. The chain can then be used to lock the bicycle wheel or lock the frame to a stanchion. The chain is anchored to the base member by providing the latter with a central oblong opening therethrough adapted to receive the end link of the chain. On its rear side, the member is provided with a recess into which the end link extends. A second oblong recess extends in from the first recess at right angles to the chain opening. A steel pin can be loosely positioned in the second oblong recess. The end link is passed inwardly through the oblong



opening as far as it will go and then the steel pin is passed through the link and dropped into the oblong recess. The base members are then secured to each other with the bar clamped therebetween, in which position the bar prevents the end link from moving inwardly and the steel pin prevents outward movement thereof. In another form, the first base member is adapted to be mounted to a wall surface whereby the second base member is no longer necessary, although the structure and operation of the first base member remains basically the same. In this second form, the object is to attach one end of a chain securely to a wall surface.

3,834,826
JOINT ASSEMBLY FOR STRIKING TOOL

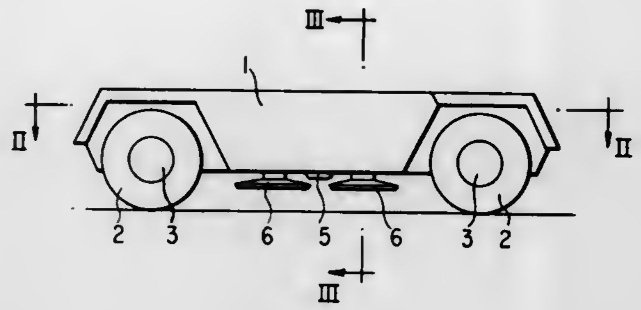
Ludger Simond, Les Bassons, Chamonix-Mont-Blanc, France
Filed June 11, 1973, Ser. No. 368,705
Int. Cl. B25g *3/28*
U.S. Cl. 403—374 **2 Claims**



This tool, notably in the case of an ice ax comprising a tool head formed with a depending shank and a metal tubular handle of substantially elliptic or oval cross-sectional configuration receiving said shank in its upper portion, comprises between said shank and said tubular handle upper portion a pair of half sockets associated with a wedge member; driving this wedge member between one of said half-sockets and the shank permits of locking the assembly, this locking action being reinforced by two rivets axially spaced along the handle axis and extending at right angles to each other.

3,834,827
VEHICLE MOUNTED VIBRATORY COMPACTOR

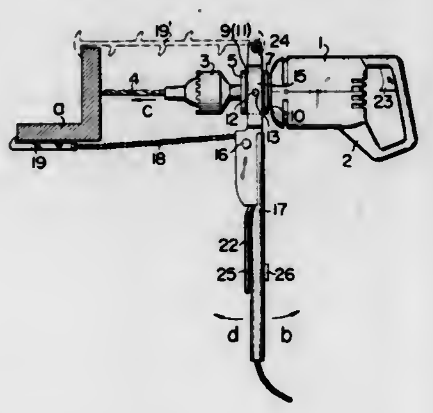
Albert Linz, Julweg 40, Hoffnungsthal/Cologne, Germany
Filed Sept. 8, 1971, Ser. No. 178,567
Claims priority, application Germany, Sept. 23, 1970, 2046840
Int. Cl. E01c *19/34*
U.S. Cl. 404—133 **24 Claims**



A vehicle mounted vibratory compactor employing a pair of vibrating elements that extend laterally across the entire width of the vehicle and are mounted, as a unit, in a rigid support frame. The frame is designed as a parallelogram with parallel control arms for resisting the bending forces applied thereto by the action of the vibrating elements compressing materials, such as soils of all types, and the reactive forces of the materials. The frame is movable vertically within guides defined on the vehicle so that the vibrating elements can be elevated sufficiently to avoid contacting road obstacles as the vehicle is moved to the work site, and lowered variable amounts to alter the amplitude of the movement of the vibrating elements. The magnitude of the compression forces exerted by the vibrating elements is varied considerably by the utilization of diverse combinations of springs, reciprocal plates, pressure limit valves, pneumatic servomechanisms, pistons, and the like, which determine the natural frequency of the compactor system and thus control the resonant frequencies at which the maximum compressive forces are produced. The vibrating elements, which may assume the form of plates, rollers, beams or shoes, may be fabricated from a plurality of simplified components. If desired, "sheepsfoot" projections may be formed on the bottom surface of the vibrating elements.

3,834,828
ELECTRIC DRILL HOLDER

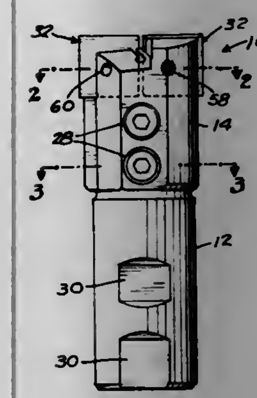
Yukio Kikuchi, No. 15-10, 5-chome, Tateishi, Katsushika-ku, Tokyo, Japan
Filed Feb. 16, 1973, Ser. No. 333,349
Claims priority, application Japan, Feb. 19, 1972, 47-17584
Int. Cl. B23b *45/14*
U.S. Cl. 408—92 **6 Claims**



Disclosed is an electric drill holder which provides a lever function in association with the electric drill, thus enabling one to apply a multiplied force to the drill bit in operation.

3,834,829
TOOL HOLDER FOR INDEXABLE CUTTING INSERTS

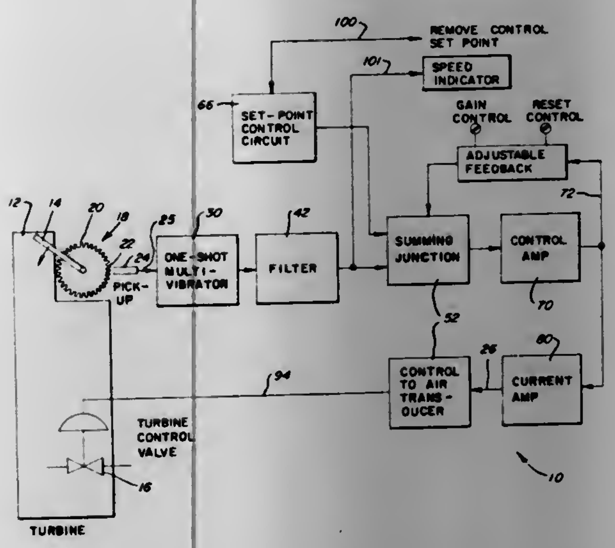
Gerald Kirk Munro, Detroit, Mich., assignor to Gorham Tool Company, Detroit, Mich.
Filed Aug. 20, 1973, Ser. No. 389,709
Int. Cl. B23b *29/034*
U.S. Cl. 408—179 **12 Claims**



A tool holder having two diametrically opposed indexable cutting inserts mounted thereon. Each insert is retained on the holder in a pocket, the radially inner end wall of which is formed as a radially flexible blade. Two screws are associated with each insert, one for displacing the insert and flexing the blade radially inwardly and the other for flexing the blade and displacing the insert radially outwardly.

3,834,830
ELECTRONIC SPEED GOVERNOR FOR A TURBINE

Allan W. Johncock, Texas City, Tex., assignor to Standard Oil Company, Chicago, Ill.
Filed Mar. 9, 1973, Ser. No. 339,533
Int. Cl. F01b *25/06*
U.S. Cl. 415—30 **11 Claims**

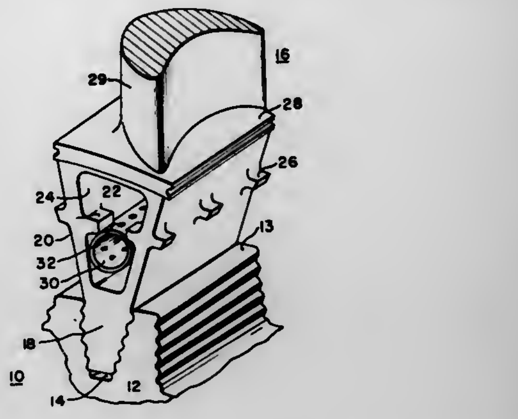


An improved electronic speed governor for a turbine wherein the speed of the turbine is controlled by the output of a pneumatic transducer and wherein the pneumatic transducer includes a hollow housing having enclosed therein the entire circuitry for the electronic speed governor.

3,834,831
BLADE SHANK COOLING ARRANGEMENT

Ernest L. Mitchell, Springfield, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 23, 1973, Ser. No. 325,968
Int. Cl. F01d *5/18*
U.S. Cl. 416—95 **7 Claims**

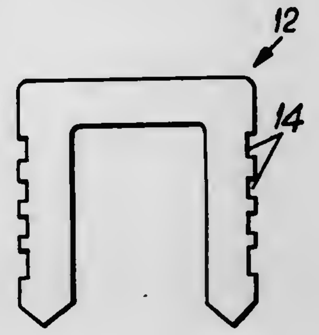
In a gas turbine engine, an arrangement for cooling turbine blade shanks for gas turbines, wherein a perforated chamber is arranged to cause a cooling fluid to impinge with a predetermined pattern upon inner wall surfaces of a cavity in a shank portion of a turbine blade and/or the outer walls of adjacent



blade shanks. The cooling fluid may escape through radially directed passageways within the turbine blade or through a space between the adjacent blade platforms.

3,834,832
FIBRE REINFORCED COMPOSITE STRUCTURES

Frederick Paul Mallinder, Southport, and Clifford George Hannah, Alvaston, both of England, assignors to Rolls-Royce (1971) Limited, London, England
Filed Dec. 14, 1972, Ser. No. 315,194
Claims priority, application Great Britain, Dec. 21, 1971, 59488/71
Int. Cl. F01d *5/14*
U.S. Cl. 416—230 **9 Claims**

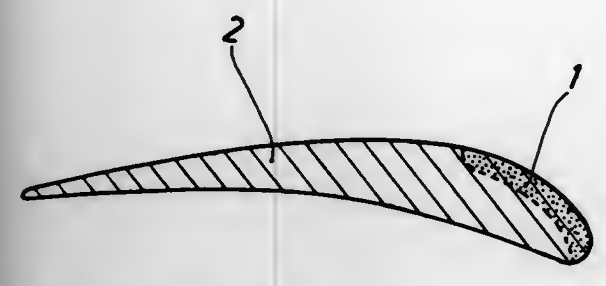


A fibre reinforced composite structure has two or more layers of fibre reinforced material, the layers being bonded together to provide resistance to delamination by fastening devices which extend transversely of the fibres from the fibre reinforced layers. The fastening devices may be stitches of glass, carbon or boron, metal pins or staples. The metal pins or staples may be etched or notched to increase the surface area. The composite structure is particularly suitable for use as a fan blade for the fan of a by pass type gas turbine engine.

3,834,833
BLADE CONSTRUCTION FOR AXIAL-FLOW TURBO-MACHINES AND METHOD OF PROTECTING TURBO-MACHINE BLADES AGAINST STRESS CORROSION CRACKING

Guy Faber, Oberrohrdorf, and Carlo Maggi, Baden, both of Switzerland, assignors to Brown, Boveri & Company Ltd., Baden, Switzerland
Filed Feb. 16, 1973, Ser. No. 333,156
Claims priority, application Switzerland, Feb. 18, 1972, 2373/72
Int. Cl. F01d *5/28*
U.S. Cl. 416—241 **2 Claims**

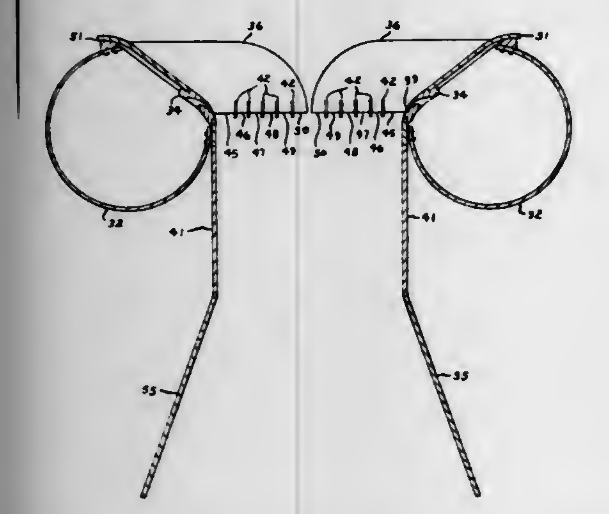
A steel blade for an axial-flow turbo-machine is disclosed which has a hardened leading edge portion. In accordance with the invention, the hardened edge portion is imparted with a permanent compressive prestress in the direction of the longitudinal axis of the blade. This protects the blade against stress corrosion cracking.



3,834,834
COMPACT HIGH THRUST AUGMENTATION EJECTOR SYSTEM

Brian P. Quinn, Dayton, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 7, 1973, Ser. No. 338,726
Int. Cl. F04f *5/46, 5/44*
U.S. Cl. 417—179 **3 Claims**



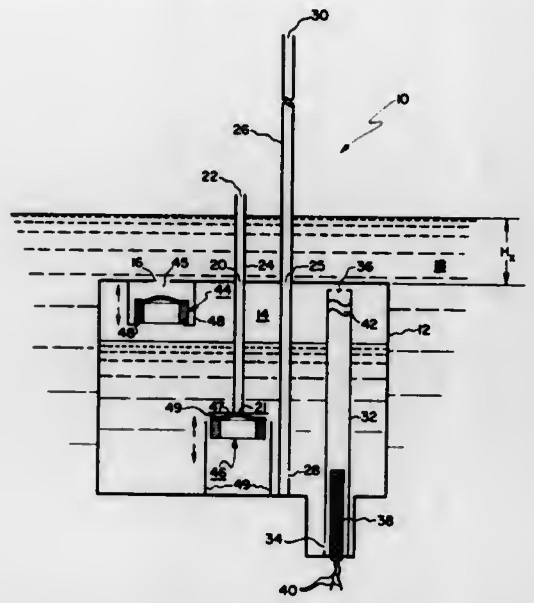
A thrust augmentation system having thrust augmentation channels with the reservoir length absorbed in the inlet length and with a plurality of root nozzles positioned at the inlet to mixing duct transition region together with a plurality of hypermixing nozzles extending substantially across the width of the ejector duct.

3,834,835
DOUBLE VALVE VAPOR PUSH PUMP

Heinz Jaster, Schenectady; Philip G. Kosky, and Fred W. Staub, both of Scotia, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 29, 1972, Ser. No. 310,437
Int. Cl. F04b *19/24;* **F04f** *1/18*
U.S. Cl. 417—209 **4 Claims**

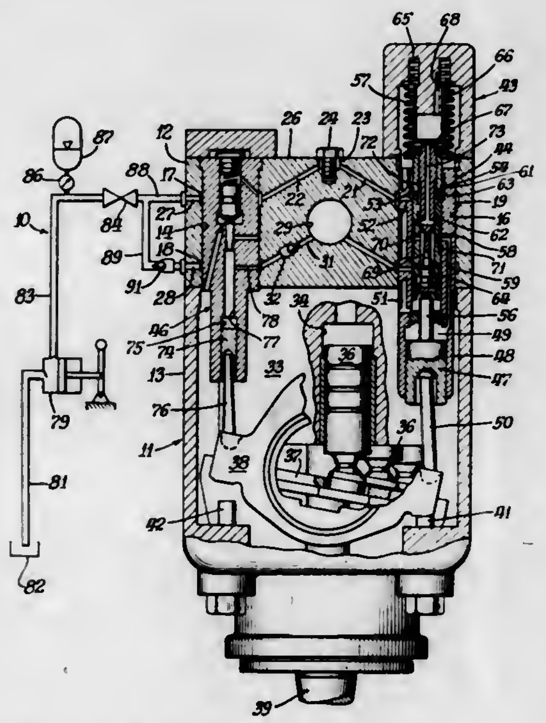
Disclosed is a vapor push pump having a housing adapted to be immersed in a liquid to be pumped. Within the housing a chamber is defined; the chamber communicates with the liquid outside the housing via a port provided in the housing. A heater in the chamber vaporizes some of the liquid admitted to the chamber through said port. Vapor pressure in the chamber forces (pushes) the liquid through a liquid delivery conduit, passing through the housing, to a location outside the housing and above the level of the liquid in which the housing is immersed. A buoyant first valve body moves and closes, or opens, said port, as a function of the head of liquid outside the housing, the weight of the first valve body, the level of liquid in the chamber and the vapor pressure in the chamber and surface tension. Also provided is a vapor vent conduit passing through said housing to vent vapor in the chamber to a location outside the housing and above the external liquid level. A buoyant second valve body within the chamber moves to close or open the vapor vent conduit as a function of the weight of the second valve body, the level of liquid in the chamber and the vapor pressure in the chamber and surface tension. Also, the first valve body is caused to open abruptly when the second valve body operates to vent the vapor pressure from the chamber.



3,834,836
OVERRIDE CONTROL FOR A VARIABLE DISPLACEMENT PUMP

Allyn J. Hein, Joliet, and Vergil P. Hendrickson, Decatur, both of Ill., assignors to Caterpillar Tractor, Peoria, Ill.

Filed Mar. 1, 1973, Ser. No. 336,941
Int. Cl. F04b *1/26*
U.S. Cl. 417—222 **2 Claims**

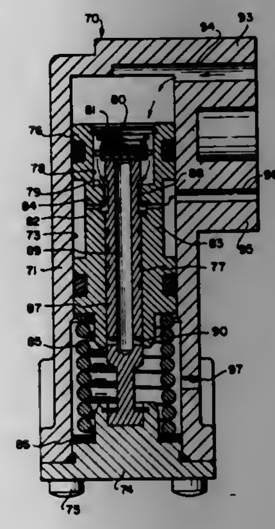


An override control, for a variable displacement pump having an actuator system which shifts the pump between a maximum displacement condition and a minimum displacement condition with the actuator system having a control device responsive to a primary source of pressurized fluid which is dependent upon operation of a prime mover drivingly connected to the pump, including a passage in communication with the actuator system and a secondary source of pressurized fluid selectively connectable to the passage and operable independently of the prime mover to override the control device causing the actuator system to shift the pump to one of the extreme displacement conditions.

3,834,837
AIR COMPRESSOR WITH GOVERNOR

Claude H. Nickell, Dearborn, Mich., assignor to Winfred D. Weldon, Detroit; Manuel Pinko and Adam Pianga, both of Dearborn, all of, Mich., part interest to each

Filed Feb. 27, 1973, Ser. No. 336,299
Int. Cl. F04b *49/08*
U.S. Cl. 417—298 **2 Claims**

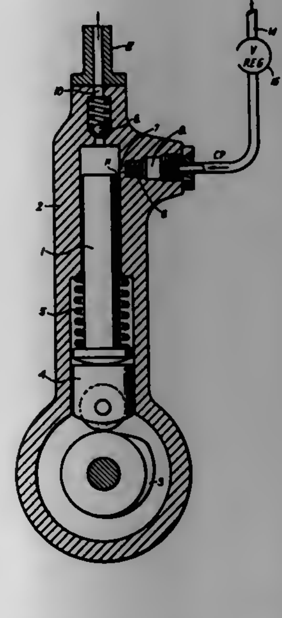


An air compressor apparatus for maintaining the air pressure in a reservoir within predetermined upper and lower limits. The air compressor is driven continuously but the compressing of air is intermittently cycled on and off automatically in response to pressure in the reservoir by means of a governor which is directly attached to the compressor. The governor includes apparatus for unloading the suction side of the compressor in direct response to fluid pressure in the pressure side of the compressor.

3,834,838
METHOD OF AN APPARATUS FOR FILLING A FUEL INJECTION PUMP

Jaromir Indra, Brno, Czechoslovakia, assignor to Vysoke uceni technicke v Brne, Brno, Czechoslovakia

Filed Mar. 22, 1972, Ser. No. 237,141
Claims priority, application Czechoslovakia, Mar. 24, 1971, 2128-71
Int. Cl. F04b *7/04, 39/10*
U.S. Cl. 417—490 **2 Claims**

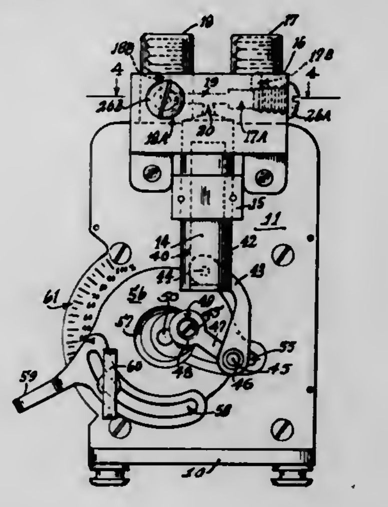


Method of and apparatus for filling a piston fuel injection pump of internal combustion engines with fuel. The fuel is fed through a side filling channel into a space over the piston which is under negative gauge pressure during the movement of said piston to its lower dead center, as well as during its movement toward its upper dead center until the filling channel is covered by the edge of the piston at the moment when there is still negative gauge pressure in the area above the piston. During the subsequent displacement of the piston to the upper dead center, the negative pressure in said space disappears and the fuel starts being discharged into the delivery conduit. The volume of fuel flowing through the filling channel is adjustable by varying the entering pressure of the fuel.

3,834,839
METERING PUMP

Frank Krebs, Glenview, and Frederick N. Zimmermann, Deerfield, both of Ill.

Filed Aug. 30, 1971, Ser. No. 175,842
Int. Cl. F04b *39/08*
U.S. Cl. 417—505 **8 Claims**

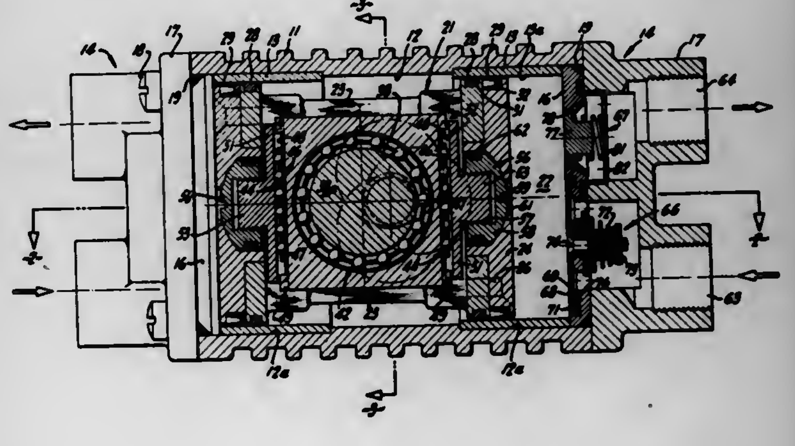


A precision metering pump of the positive-displacement type in which a variable-stroke drive means including a swivel lever permits adjustment of the volumetric displacement with a high degree of accuracy and constancy between zero and a maximum while the pump is in operation. The pump is self-priming and particularly useful in chemical processing and control operations by reason of construction of the cylinder and piston of highly corrosion-resistant ceramic and plastic materials, and provision of sensitively adjustable magnetic valve means eliminating metallic springs and parts subject to chemical action in a flow line.

3,834,840
COMPACT RECIPROCATING PISTON MACHINE

Ezra Dale Hartley, 2700 Jalmia Dr., Los Angeles, Calif. 90046

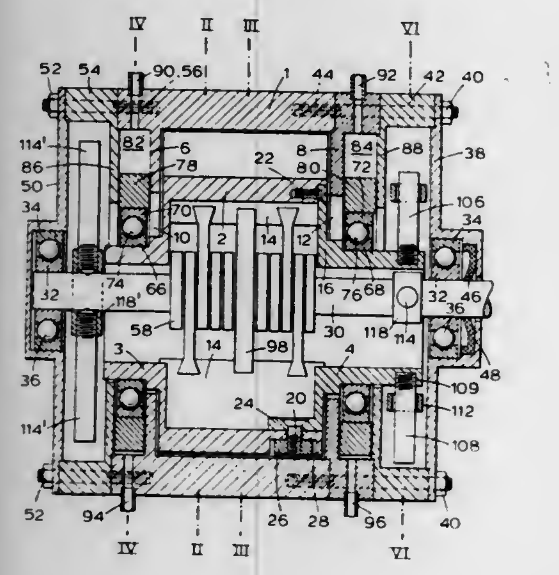
Filed June 7, 1972, Ser. No. 260,480
Int. Cl. F04b *25/00*
U.S. Cl. 417—535 **8 Claims**



Reciprocating piston machine in which a yoke member reciprocates within a piston in a direction normal to the direction of piston movement. Roller bearings are provided between the yoke member and piston, and means is provided for preloading the bearings and adjusting the position of the piston. A reversible sealing ring utilizes the pressure differential across the piston to enhance the seal in one direction, and each end of a double-ended piston can be operated in either a vacuum or a pressure mode.

3,834,841
SYMMETRICAL ROTARY PUMP FOR A VARIABLE SPEED HYDROSTATIC TRANSMISSION

Fabrizio Falciai; Riccardo Falciai; Giuseppe Falciai, and Renzo Falciai, all of via Martelli 4, 50129, Florence, Italy
Continuation-in-part of Ser. No. 47,012, June 17, 1970, abandoned. This application Dec. 2, 1971, Ser. No. 204,281
Int. Cl. F01c *21/16;* **F03c** *3/00;* **F04c** *15/04*
U.S. Cl. 418—26 **4 Claims**

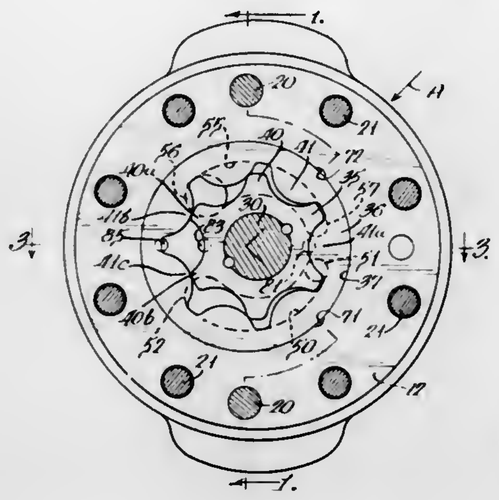


A symmetrical rotary pump is provided which includes a housing and a hollow cylindrical rotor mounted rotatably within the housing. The rotor has a main portion and an extension portion at each end thereof, both the extension portions being rotatably received in mounting means, so that the rotor is supported at both ends. The mounting means are movable radially of the axis of the rotor so as to move the rotor in a radial direction and hence change the eccentricity of the rotor. An input shaft extends longitudinally through the housing and through the interior of the rotor, and a plurality of vanes are freely pivoted on the input shaft, the vanes extending slidably through the main portion of the rotor. Transmission means connect the shaft and the rotor, and fluid is supplied to and removed from the pump by appropriate conduits.

3,834,842
HYDRAULIC POWER TRANSLATING DEVICE

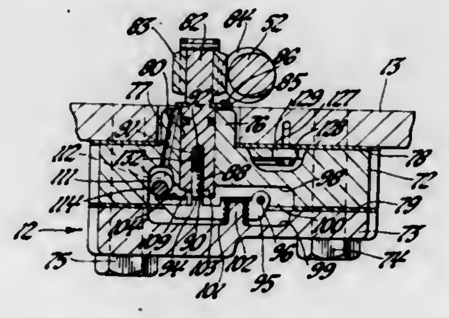
Donald R. Dorff, Union Grove, and Joseph A. Santi, Racine, both of Wis., assignors to Hydraulic Products Incorporated, Sturtevant, Wis.
Filed Dec. 6, 1971, Ser. No. 205,164
Int. Cl. F04c *29/00, 17/06*
U.S. Cl. 418—75 **10 Claims**

A hydraulic power translating device of the gerotor type having inner and outer rotatable partially meshing gear elements with a pressure fluid passage surrounding a major part of the exterior periphery of the outer gear element to obtain radial balance of the outer gear element upon start up in motor operation and with a plurality of recesses formed in the case of the device and at the cross-over areas which operate as fluid accumulators of limited capacity to reduce the noise of operation of the device as well as torque variations and to compensate for tolerance and natural frequency variations in the mechanical structure and to also axially balance the gear elements.



3,834,843
ROTARY ENGINE OIL METERING PUMP

Donald D. Stoltman, Henrietta, and Ernest R. Stettner, Spencerport, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.
Filed Feb. 28, 1973, Ser. No. 336,883
Int. Cl. F04c *29/02;* **F04b** *19/02*
U.S. Cl. 418—84 **2 Claims**



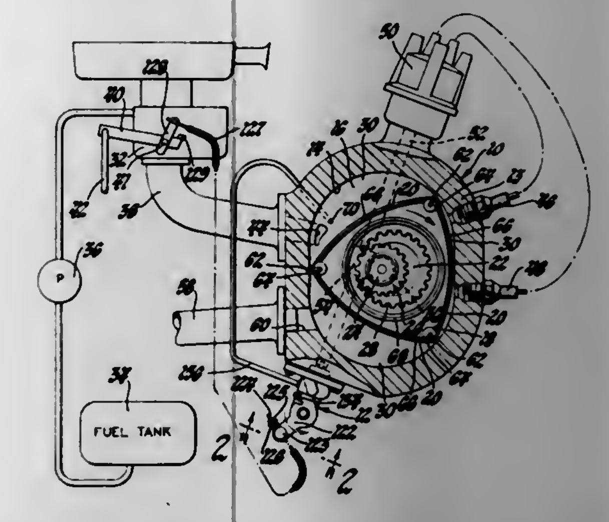
An internal combustion rotary engine is provided with an oil metering pump having an engine driven pump shaft with a chamber and an axial plunger that is biased under the control of a cam on the pump shaft and also an engine throttle controlled cam to have a stroke that increases with increasing engine throttle opening to effect oil metering at a rate that increases with increasing engine speed and increasing throttle opening.

3,834,844
ROTARY ENGINE OIL METERING PUMP

Robert E. Morgan, Grand Rapids, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Mar. 8, 1973, Ser. No. 339,393
Int. Cl. F04c *29/02*
U.S. Cl. 418—84 **3 Claims**

An internal combustion rotary engine is provided with an oil metering pump having an engine driven shaft with a chamber and an axial plunger that is spring biased to expand the chamber and is moved to contract the chamber by a follower that rotates with the pump shaft and operates against an engine throttle controlled roller to provide a plunger stroke that increases with increasing engine throttle opening and with the follower also having a timing port for periodically connecting an oil inlet port to the chamber during chamber expansion and

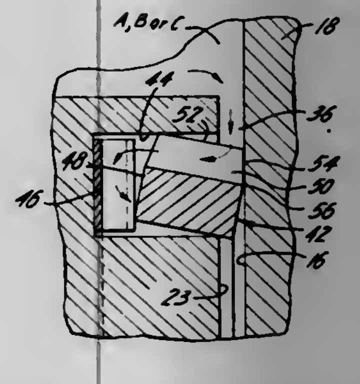
then connecting the chamber during contraction to an outlet port to effect oil metering for rotor seal lubrication at a rate



which increases with increasing engine speed and increasing throttle opening.

3,834,845
SIDE GAS SEAL MEANS FOR ROTARY MECHANISMS

Charles A. Siler, Menomonee Falls, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed May 2, 1973, Ser. No. 356,462
Int. Cl. F01c *19/00;* **F04c** *15/00, 27/00*
U.S. Cl. 418—142 **5 Claims**

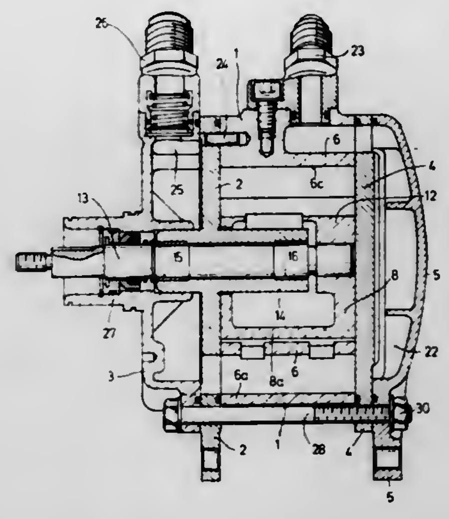


The improved side gas seal comprises a seal strip disposed in a groove in the rotor face adjacent each of the flank portions of the rotor. The seal strip is resiliently biased in a direction outwardly of the groove by a spring means. The radially outer surface of the seal strip is provided with at least one recess for communicating the interstices between the rotor face and housing wall with the space between the bottom of the groove and the anti-seal side of the seal strip to thereby pass pressurized gas to the space behind the seal strip. This pressurized gas provides a force supplementing the force of the spring means acting against the seal strip and assists in urging the seal strip outwardly of the groove and into sealing abutment against the adjacent housing wall surface.

3,834,846
ROTOR SUPPORTING ARRANGEMENT FOR A COMPRESSOR

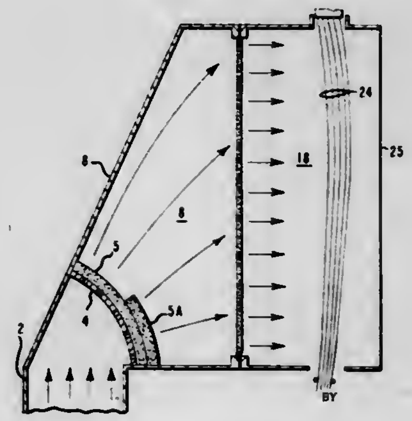
Ernst Linder, Muhlacker; Gerhard Adalbert, and Jurgen Hess, both of Markgroningen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed May 11, 1973, Ser. No. 359,560
Claims priority, application Germany, May 12, 1972, 2223087
Int. Cl. F01c *1/00*
U.S. Cl. 418—255 **10 Claims**

A stationary pintle projects from one side of a housing into a housing cavity, and has two axially spaced bearing supporting a rotor which has a pot-shaped portion including an endless wall surrounding the pintle and closed by a bottom part to which a drive shaft portion of the rotor is secured. The bearings are either provided between the endless wall and the outer surface of the pintle, or between the drive shaft portion and the inner surface of a tubular pintle. Preferably, the center of gravity of the rotor is located between the bearings.



3,834,847
OPEN CELL FOAM DEVICE FOR GAS DISTRIBUTION IN FILAMENT QUENCHING CHIMNEYS

Eldon Lawrence Fletcher, Kingston, Ontario, Canada, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Jan. 16, 1970, Ser. No. 3,314
Int. Cl. B29c *25/00*
U.S. Cl. 425—72 **1 Claim**

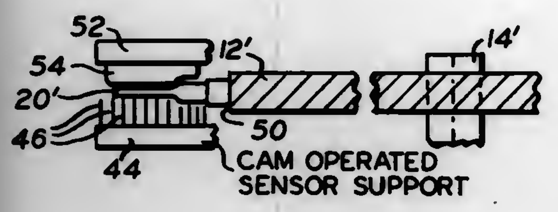


A chimney used for quenching synthetic filaments after they are extruded is divided into a plenum chamber and a quenching chamber by means of a porous open-celled polyurethane foam rather than a conventional screen assembly to improve quench medium distribution into the quench chamber.

3,834,848
MOLDING APPARATUS WITH CORE ROD OBSTRUCTION SENSORS

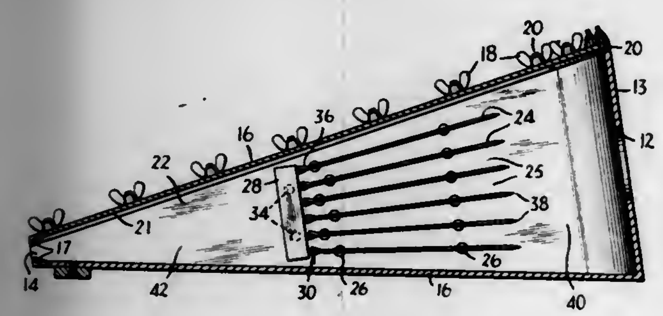
John J. Farrell, Green Brook, N.J., assignor to Farrell Patent Company, Dunellen, N.J.
Filed Apr. 24, 1973, Ser. No. 353,962
Int. Cl. B29c *17/07;* **B29d** *1/00*
U.S. Cl. 425—136 **13 Claims**

Molding machines commonly have polygonal indexing heads with straight side faces from which core rods extend. Molded articles are stripped from the core rods at a stripping station; and sensing means beyond the stripping station detect any residual molding material that may not have been stripped. Upon detecting such material, the sensing means cause the machine to stop before a mold at the next station closes on the residue on the core rod. This invention moves the sensing devices toward and from the axis of rotation of the indexing head to compensate for the fact that the head is not round and to thereby operate over a greater length of the core rod.



3,834,849
FIBER-ALIGNING EXTRUSION NOZZLE

Michael K. Supran, Hillsdale; Kantilal G. Parekh, Saddle Brook, and Leonids Berzins, Hamburg, all of N.J., assignors to Thomas J. Lipton, Inc., Englewood Cliffs, N.J.
Filed Dec. 13, 1972, Ser. No. 314,691
Int. Cl. B29c *1/00*; A22c *7/00*
U.S. Cl. 425—206 **12 Claims**

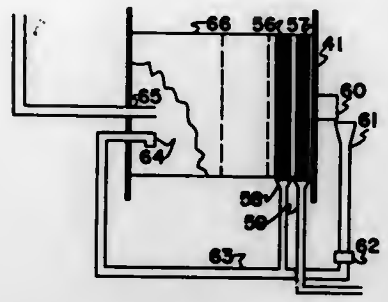


A fiber-aligning extrusion nozzle for extrudable, fiber containing compositions comprises a housing having an inlet and an outlet. One or more partition members are mounted within the housing between the inlet and the outlet, generally parallel to the axis of flow, dividing the housing longitudinally into passages that have closely spaced sides. The edge of each partition member adjacent the outlet of the housing is serrated to provide a plurality of teeth, adjacent teeth being inclined in opposite directions outwardly from the partition member. The partition members cause the formation of discrete streams of composition during extrusion and assist in aligning the fibers in the composition generally parallel to the axis of flow. The teeth disrupt at least the surface of the discrete streams causing them to recombine as a unitary mass at the outlet, while retaining the fibers therein in generally axial alignment. The edge of each partition member adjacent the inlet of the housing is sharpened to facilitate movement of the composition through the nozzle.

3,834,850
APPARATUS FOR AGGLOMERATING POWDERS

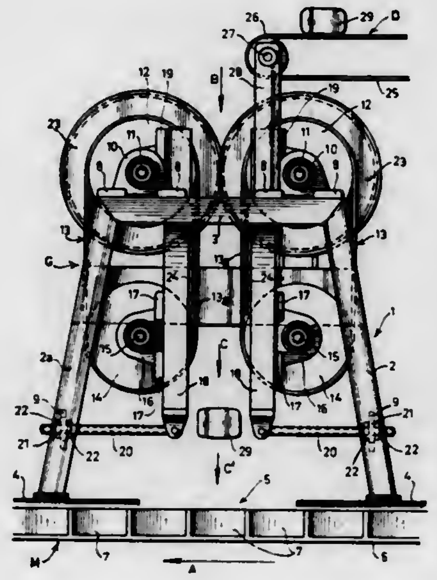
Robert B. Takewell, Borger, Tex.; Paul W. Brandon, Havre De Grace, Md., and Paul R. Odom, Macon, Ga., assignors to J. M. Huber Corporation, Locust, N.J.
Division of Ser. No. 186,113, Oct. 4, 1971. This application Mar. 11, 1974, Ser. No. 450,036
Int. Cl. B29b *1/03*, *1/06*; B01j *2/12*
U.S. Cl. 425—222 **1 Claim**

A method and apparatus for agglomerating powders and non-flowing fine particle minerals such as clay, silicas, and silicates involving adding a slightly moist material to a rotating drum and spraying certain liquids into a critical area of the bed of the material in the drum.



3,834,851
ENDLESS BELT GUIDING MEANS FOR FEEDING MATERIAL INTO A SERIES OF MOLDS

Hendrik Sinnema, Sneek, Netherlands, assignor to W. Hubert & Co. Machinefabriek N.V., Sneek, Netherlands
Filed May 31, 1972, Ser. No. 258,359
Claims priority, application Netherlands, June 1, 1971, 7107479
Int. Cl. B29b *5/00*
U.S. Cl. 425—261 **5 Claims**

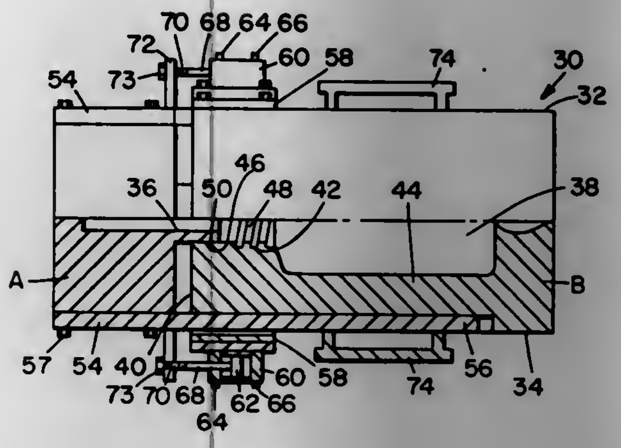


Apparatus for the manufacturing of molded products from pre-formed clods of kneadable material in which the preformed clods are transported to a molding station, whereat molds are supplied in succession at a lower level. A stationary guide is disposed above the molds for receiving a clod and vertically guiding the same for discharge at a pre-determined velocity into a waiting mold where the clod substantially fills the mold of it own accord.

3,834,852
APPARATUS FOR FORMING BLOW MOLDED CONTAINER OF ORIENTED THERMOPLASTIC POLYMERS

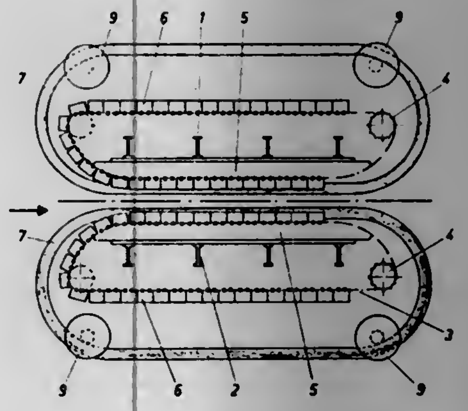
John N. Hall, Newark, Del., assignor to Hercules Incorporated, Wilmington, Del.
Filed July 16, 1973, Ser. No. 379,299
Int. Cl. B29d *23/03*
U.S. Cl. 425—326 B **1 Claim**

In a continuously operated blow molding machine utilizing a pair of molding units, each mold unit having two mold halves, said mold units being closed at a backward position and movable to a forward position so as to orient a preformed tube in the forward position, the tube being blown into a container, said mold unit opening and moving to the backward position without any interference with the other mold unit. Each mold half consists of a neck forming and a body forming component slidably connected to each other by a sliding guide means for forcing axially the tube inside of the mold cavity so as to relieve longitudinal orienting stresses and provide fully formed threads in the threaded neck portion of the container.



3,834,853
DEVICE FOR MAKING SHEETS

Jean Francois Bequet, Brussels; Paul Dubois, Braine-1 Alleud, and Roger Van Asbroeck, Neerijse, all of Belgium, assignors to Solvay & Cie, Brussels, Belgium
Filed Apr. 25, 1972, Ser. No. 247,271
Claims priority, application Belgium, May 10, 1971, 766911
Int. Cl. B28b *3/12*
U.S. Cl. 425—336 **11 Claims**

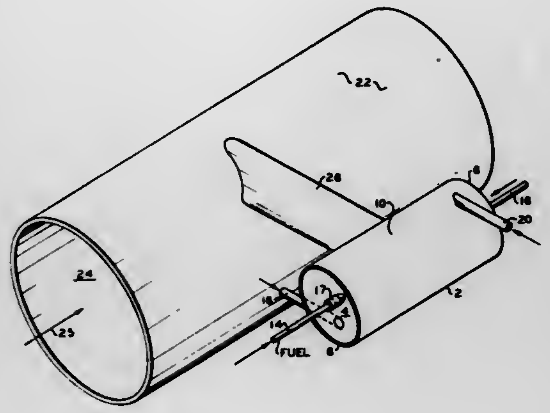


Device for continuous longitudinal corrugation of sheets of thermoplastic material including two sets of interdigitated endless bands which follow a rectilinear path in the zone where the sheets are cooled, the bands being guided at least over the portions thereof which contact the sheets by supports which act on that face of the band which is not in contact with the sheets.

3,834,854
METHOD AND APPARATUS FOR CHARGING A BURNER

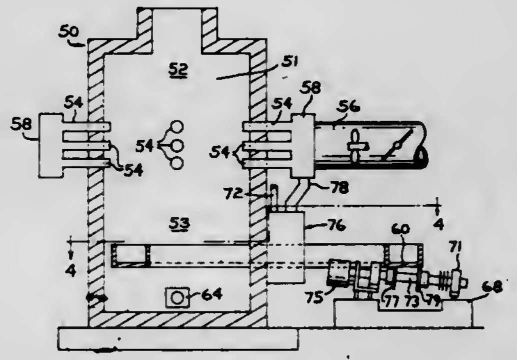
John W. Vanderveen, Bartlesville, Okla., assignor to Philips Petroleum Company, Bartlesville, Okla.
Filed Nov. 2, 1972, Ser. No. 303,204
Int. Cl. F23m *3/12*
U.S. Cl. 431—9 **12 Claims**

Apparatus and method for mixing fuel and combustion-supporting gas streams at an attitude for causing the mixture to rotate in a first direction and passing the rotating mixture into a burner at an attitude for causing the mixture to rotate in the first direction within the burner for decreasing the pressure drop of the fluids passing into the burner.



3,834,855
METHOD FOR DISPOSAL OF LIQUID WASTE

John D. Hummell, Brice, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.
Division of Ser. No. 145,342, May 20, 1971, Pat. No. 3,748,081, which is a continuation-in-part of Ser. No. 19,833, March 16, 1970, abandoned. This application June 28, 1973, Ser. No. 374,710
Int. Cl. F23d *11/44*
U.S. Cl. 431—11 **17 Claims**

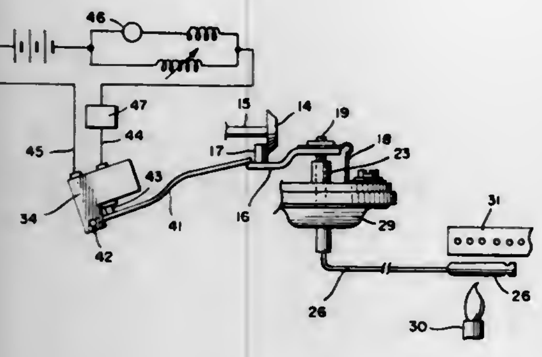


Disposal apparatus for burning liquid fuel waste comprises a vaporizing surface disposed below a combustion zone and adapted to receive the liquid fuel. The vaporizing surface can be a movable channel extending outside of the apparatus. In operation, the fuel is introduced into the apparatus in liquid form and then vaporized and burned.

3,834,856
PILOT RECLAMATION SYSTEM FOR GAS-FIRES FORCED DRAFT HEATER

Larry S. James, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.
Filed Aug. 30, 1973, Ser. No. 393,123
Int. Cl. F23n *5/00*
U.S. Cl. 431—30 **9 Claims**

A pilot reclamation system energizes the combustion air blower of a heater before the pilot flame is completely extinguished from lack of oxygen so that the oxygen supply for the pilot flame is replenished. Sensing means for sensing the temperature of the pilot light is operatively connected to switch means for energizing the combustion air blower. The temperature sensing means includes plunger means which move the switch means to close a circuit for the blower motor when the temperature of the pilot light falls below a predetermined level. When the oxygen supply to the pilot light is replenished and the temperature of the pilot light rises above a predetermined level, the temperature sensing means allows the switch to move to the open position.



3,834,857
FLUID FUEL BURNERS

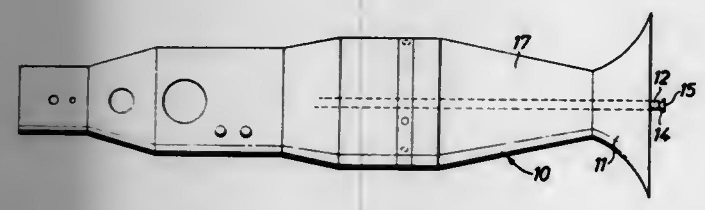
Maurice Hemingway, Mirfield, and Trevor Ward, Dewsbury, both of England, assignors to Hotwork Limited, Dewsbury, Yorkshire, England

Filed Dec. 14, 1972, Ser. No. 314,981

Claims priority, Great Britain, Dec. 15, 1971, 58276/71

Int. Cl. F23r *1/00*

U.S. Cl. 431—158 **5 Claims**



A burner casing defines a combustion chamber and a flared outlet nozzle. A compressed air tube extends through the combustion chamber and the outlet nozzle and terminates, at a point beyond the outlet nozzle, in a compressed air outlet orifice. An air spreader valve is mounted adjustably within the compressed air outlet orifice of the tube. Air fed to the combustion chamber to support combustion therein is fed preferably through an adjustable guide vane assembly. The hot gaseous products of combustion within the combustion chamber flow through the outlet nozzle with a spinning action and coact with an annular curtain of compressed air from the compressed air outlet orifice to emerge from the burner as a divergent stream.

3,834,858
FUEL BURNER

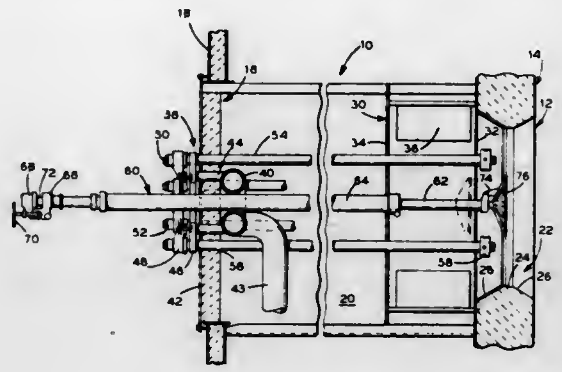
Brett C. Krippene; Merle M. Clark, both of Barberton, and Apostol Triffon, Stow, all of Ohio, assignors to The Babcock & Wilcox Company, New York, N.Y.

Filed Mar. 22, 1973, Ser. No. 343,984

Int. Cl. F23c *5/10;* **F23g** *9/00*

U.S. Cl. 431—279 **9 Claims**

An improved burner apparatus including a plurality of conduits discharging a gaseous fuel along an outwardly divergent path and the means for changing the location of said path.



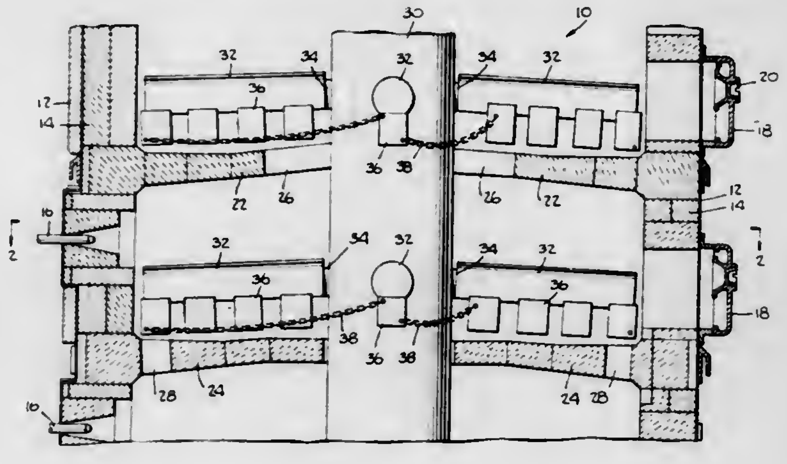
3,834,859
RABBLING MEANS AND METHOD FOR A FURNACE HEARTH

Charles F. von Dreusche, Jr., Ramsey, N.J., assignor to Nichols Engineering & Research Corporation, Belle Mead, N.J.

Filed May 21, 1973, Ser. No. 362,335

Int. Cl. F27b *9/16, 1/02*

U.S. Cl. 432—18 **7 Claims**



Method and Apparatus for distributing solid material over a furnace hearth in a multiple hearth furnace having a plurality of vertically spaced hearths, a rotatable center shaft extending up through the center of the furnace and passing through each hearth, a plurality of spaced rabble arms secured to the center shaft extending radially outwardly over each hearth, a chain disposed between rabble arms associated with the uppermost of the hearths for moving the material being processed when the center shaft is rotated, alternate hearths having drop holes disposed towards the center shaft and the other hearths having drop holes disposed towards the outer periphery thereof so that when the center shaft is rotated the material being processed is moved across the hearth to its drop hole and drops down to the next lower hearth.

3,834,860
APPARATUS FOR HEATING AND CALCINING OF POWDER AND/OR PULVERIZED MATERIALS

Yoshiharu Fukuda, and Yoshihiko Ueda, both of Tokyo, Japan, assignors to Onoda Cement Co. Ltd., Onoda-shi, Yamaguchi-ken, Japan

Filed Sept. 20, 1972, Ser. No. 290,766

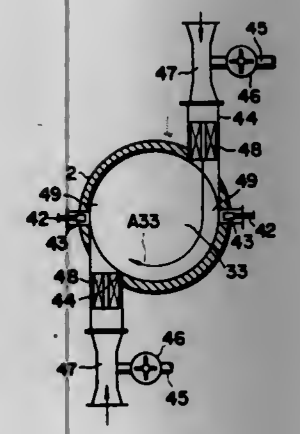
Claims priority, application Japan, Mar. 8, 1972, 47-23798

Int. Cl. F27b *15/00*

U.S. Cl. 432—58 **8 Claims**

An apparatus for preheating or calcining of powder and/or pulverized materials in which a cylindrical combusion furnace comprises a precombustion chamber and a main combustion chamber. Air inlet pipes are connected tangentially to said respective chambers in order that the air for use in combusting blown in said chambers from said air inlet pipes does a circling movement of the air stream.

The precombustion chamber is provided with a fuel spraying burner, and material feeding devices are set in combustion air inlet pipes which lead to said main combustion chamber in order to separate powder and/or pulverized materials from the fuel gas in said combustion chamber by means of the centrifugal power and, further, to heat and calcine said material directly by a high temperatured combustion gas so as to obtain a calcining efficiency without incurring a damage to the wall of said furnace by heat.



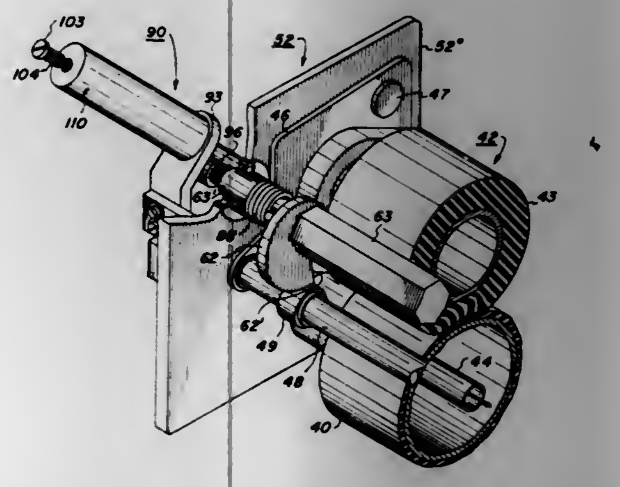
3,834,861
PRESSURE HEATED FUSER ASSEMBLY

Alan F. McCarroll, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Mar. 21, 1973, Ser. No. 343,610

Int. Cl. G03g *5/00*

U.S. Cl. 432—60 **1 Claim**



An electrostatographic type reproduction machine having a fuser for fixing developed images on the copy material, the fuser having cooperating heated and pressure rollers. The pressure roller is supported for movement away from the other roller to permit the rollers to be separated and the fuser unloaded. For this purpose, the pressure roller is carried in a pivotable frame driveable by cams into physical contact with the heated roller. A spring type return driver which is loaded on movement of the pressure roller into contact with the heated roller, serves when unlatched, to rapidly drive the fuser rollers apart. To reduce noise and shock on the fuser and related parts occasioned by release of the latch and unwinding of the spring drive, an adjustable pneumatic dampener is provide to retard separating movement of the fuser rollers.

3,834,862
APPARATUS FOR PRODUCING PELLETS OF EXPANDED CLAY

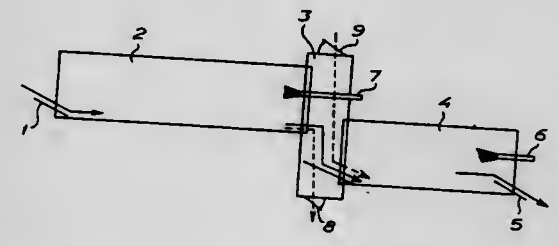
Karl Rudolf Eliasson, Roskildevagen 17 A, S-217 46 Malmo, Sweden

Filed May 14, 1973, Ser. No. 359,830

Claims priority, application Sweden, May 15, 1972, 006318/72

Int. Cl. F27b *7/02*

U.S. Cl. 432—106 **2 Claims**



An apparatus for producing pellets of expanded burnt clay comprises two rotary kilns, a drying kiln and a burning kiln which are arranged in such a way that they do not merge into each other centrally; the longitudinal axes thereof are offset vertically in an intermediate transition housing. The transition housing is provided with means for discharging material therefrom and supplying material thereto.

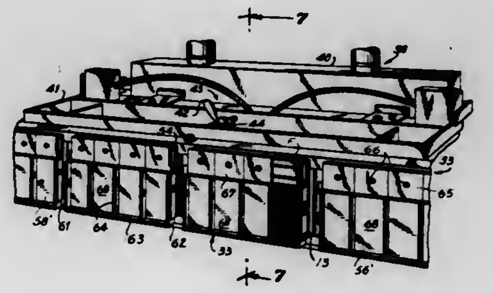
3,834,863
BRUSH FABRICATING APPARATUS

Gerhart Weiss, Flushing, N.Y., assignor to Baker Brush Co., Inc., New York, N.Y.

Continuation-in-part of Ser. No. 309,347, Nov. 24, 1972. This application Jan. 4, 1974, Ser. No. 430,788

Int. Cl. A46d *3/08*

U.S. Cl. 432—121 **4 Claims**



The present invention is directed to an apparatus for making brushes of the type in which a metallic ferrule, previously filled with bristles formed of thermoplastic material, is subjected to a heating step which fuses the exposed ends of the bristles internally of the ferrule into an integrated mass, the heating step at the same time preferably resulting in the formation of a connection between the molten material and the ferrule.

The apparatus includes a conveyor progressively moving from a loading zone to a heating zone and is characterized by the provision of magnetic means for supporting the ferrules, and cam means interposed between the loading and heating zones which engage the supported ferrules and accurately position the same a predetermined selected distance from the heating units, thus automatically to assure that the bristles are exposed to a precisely measured quantity of heat.

3,834,864
REGENERATOR CONSTRUCTION

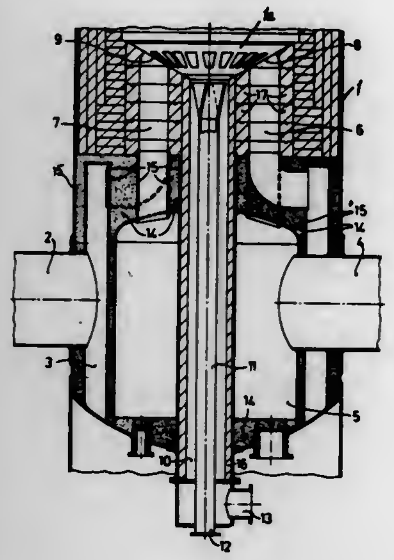
Wilhelm Jakobi, and Bernd Voges, both of Essen, Germany, assignors to Heinrich Koppers GmbH, Essen, Germany

Filed Mar. 19, 1973, Ser. No. 342,808

Claims priority, application Germany, Mar. 29, 1972, 2215347

Int. Cl. F23b *5/00*

U.S. Cl. 432—222 **9 Claims**



An upright regenerator column has in its lower end portion a burner unit comprising an outlet unit formed with an annular series of apertures which communicate with the regions in the interior of the column above and below the unit and a distributor unit located at the lower end portion spaced from the outlet unit and having at least one distributor chamber each for a fuel-fluid and a combustion-supporting fluid, as well as conduits which communicate these chambers with respective ones of the apertures. The walls of the distributor unit are wholly or in part of a metallic jacket provided with a lining of tamped refractory material.

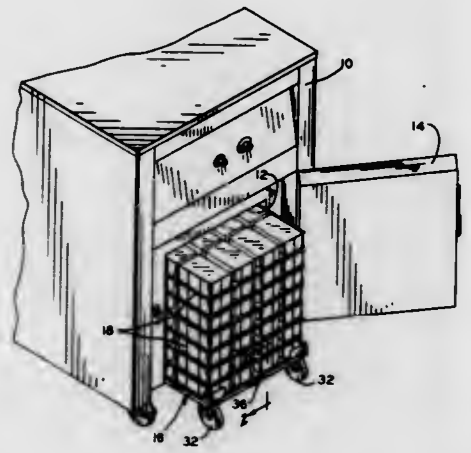
3,834,865
DOLLY STRUCTURE

Robert E. Lee, Huntington, Ind., assignor to Lincoln Manufacturing Company, Inc., Fort Wayne, Ind.

Filed Mar. 7, 1973, Ser. No. 338,885

Int. Cl. F27b *9/26*

U.S. Cl. 432—241 **6 Claims**



A dolly structure, especially a portable dolly structure adapted to be rolled into and out of an oven enclosure to form the bottom thereof and adapted to support trays which carry sealed food packets which are heated in the oven enclosure and which are thereafter moved to a serving location while still carried on the dolly structure.

CHEMICAL

3,834,866
OXIDATION DYE COMPOSITIONS CONTAINING 5-AMINOGUAIACOLS AS COUPLERS

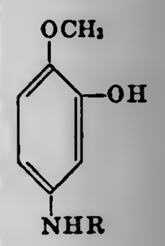
Franz Pum, Glen Ellyn, Ill., assignor to Alberto-Culver Company, Melrose Park, Ill.

No Drawing. Filed Apr. 4, 1972, Ser. No. 241,086

Int. Cl. D06p *1/32, 3/08*

U.S. Cl. 8—11 **12 Claims**

The synthesis of 5-aminoguaiacol derivatives of the formula



wherein R is alkyl, acetyl, carbamylmethyl or β-hydroxyethyl, wherein the alkyl radical contains 1 to 4 carbon atoms, is described, as well as aqueous dye solutions for human hair containing said 5-aminoguaiacol derivatives and dye bases derived from o- and p-phenylenediamines and from o- and p-aminophenols.

3,834,867
PROCESS FOR INCREASING THE AFFINITY FOR ANIONIC DYES OF HIGH MOLECULAR WEIGHT ORGANIC COMPOUNDS CONTAINING ALKYLATABLE GROUPS

Max Matter, Basel, Giuseppe Raspanti, Neu-Allschwil, Basel-Land, and Hermann Ulshoefer, Therwil, Basel-Land, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

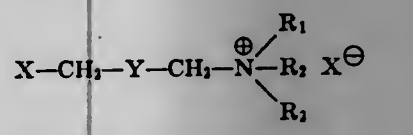
No Drawing. Filed Mar. 10, 1972, Ser. No. 233,708

Claims priority, application Switzerland, Mar. 15, 1971, 3,752/71

Int. Cl. D06m *13/46*

U.S. Cl. 8—115.5 **16 Claims**

Process for increasing the affinity for anionic dyes of undyed water-insoluble high molecular weight organic compounds containing groups which can be alkylated, which process comprises reacting the high molecular weight compound with an ammonium salt of the formula:



$$X—CH_2—Y—CH_2—\overset{\oplus}{N}(R_1)(R_2)(R_3)\ X^{\ominus} \qquad I$$

in which X signifies chlorine or bromine,

Y signifies a radical of formula —CH=CH— or a phenylene radical which is unsubstituted or substituted by up to a total of 2 alkyl groups which may be methyl or ethyl,

R_1, R_2 and R_3, independently signify hydrocarbon radicals consisting of aromatic and/or saturated aliphatic units, or

two of R_1, R_2 and R_3 jointly with the N atom form a heterocyclic ring, which is selected from heterocyclic rings containing one nitrogen atom, two nitrogen atoms and one nitrogen atom and one oxygen atom, and the other signifies a hydrocarbon radical as defined above or a further bond when the ring is unsaturated,

the total number of carbon atoms in R_1, R_2 and R_3 not being greater than 20, and the N atom not being bound directly to more than one aromatic radical.

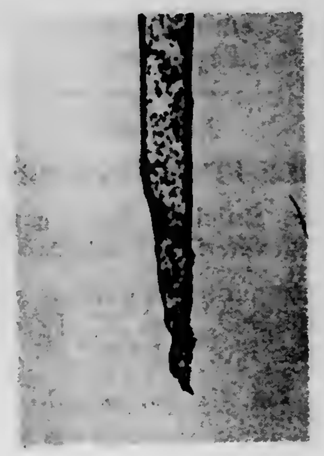
3,834,868
PROCESS OF MANUFACTURING POLYESTER FIBER ARTICLE HAVING HIGH PILLING RESISTANCE

Yoshio Tatsuoka, Tsutomu Igarashi, Osamu Yoshida, and Takayoshi Miyachi, Otsu, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Dec. 2, 1971, Ser. No. 204,163

Int. Cl. D06m *11/02, 11/04, 13/30*

U.S. Cl. 8—130.1 **14 Claims**



A polyester fiber article having a high pilling resistance is prepared by applying a treating agent containing a substance corrosive to the polyester fiber such as zinc chloride or zinc bromide or zinc nitrate, or sulfuric acid, perchloric acid or benzene sulfonic acid in a fine particle size not exceeding 110μ onto the surface of the polyester fiber article so as to selectively deposit the particles on fluffs and outside fibers only of the article, and heating the article so as to selectively corrode the fluffs and the outside fibers. The resulting article contains fluffs having a pointed end and a periphery on which a plurality of recesses are formed.

3,834,869
SYSTEM FOR DISPERSING FIBERS IN SUSPENSION INCLUDING AIR LAYING WEB, CONDITIONING FIBERS IN WEB, DISPERSING WEB IN LIQUID

Bernard Ancelle, Lyon, and Pierre Lejuene, Grenoble, France, assignors to Creusot-Loire, Paris, France

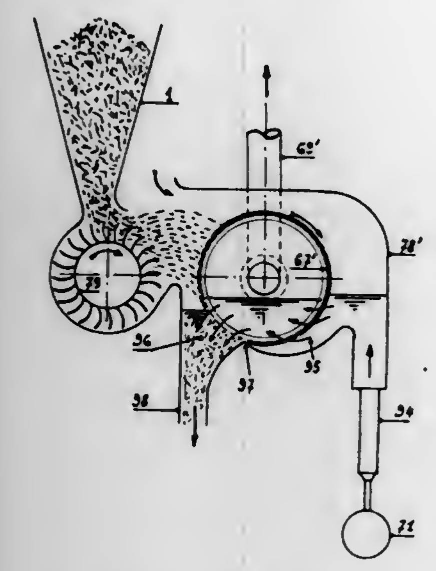
Filed July 20, 1972, Ser. No. 273,628

Claims priority, application France, Aug. 4, 1971, 7129475

Int. Cl. D06c *1/00;* **D21c** *9/06*

U.S. Cl. 8—151 **19 Claims**

A method and apparatus for improved dispersion of fibres or particles into a liquid suspension comprises the steps of first finely dispersing the fibres or particles in a gas or vapour current depositing the dispersed fibres or particles on a moving foraminous support and submerging the support with deposited fibers or particles in a liquid bath. The dispersing step may include mechanical dispersion followed by entrainment of the dispersed fibres or particles in the gaseous stream. The moving support may be a single foraminous screen, double foraminous screens, or a perforated cylinder.



3,834,870

TEXTILE FINISHING PROCESS

Charles R. Tucker, Raleigh, N.C., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 108,969, Jan. 22, 1971. This application Oct. 31, 1972, Ser. No. 302,443

Int. Cl. D06p *5/00*

U.S. Cl. 8—168 **6 Claims**

Fastness properties of acid-dyed polypropylene yarns are improved by applying to the surface of the yarn, following completion of dyeing, a water-insoluble fatty acid ester.

3,834,871

DURABLE PRESS TEXTILE MATERIALS BY ANHYDROUS SOLVENT FINISHING PROCESS

Jimmy M. Thompson, Salisbury, N.C., assignor to Proctor Chemical Company, Inc., Salisbury, N.C.

No Drawing. Filed Jan. 5, 1972, Ser. No. 215,626

Int. Cl. D06m *13/12, 13/34*

U.S. Cl. 8—187 **11 Claims**

Anhydrous solvent finishing processes to impart durable press properties to cellulosic textile materials, e.g., flat goods or finished garments made of 100% cotton fiber or cotton/synthetic fiber blends, involve impregnating textile material with an anhydrous mixture of methylolated carbamate, organic solvent and organic aminoplast cross-linking catalyst, removing solvent, exposing the solvent-depleted textile material to water vapor to give a moisture regain of 8 to 15% and then heat curing at about 120° to 200° C. The anhydrous organic solvent mixture may include a soluble fire-retardant so that the resulting fabric acquires both durable press and fire retardancy properties.

3,834,872

TABLETOP STEAM STERILIZER

Larry James Joslyn, Walworth, N.Y., assignor to Sybron Corporation, Rochester, N.Y.

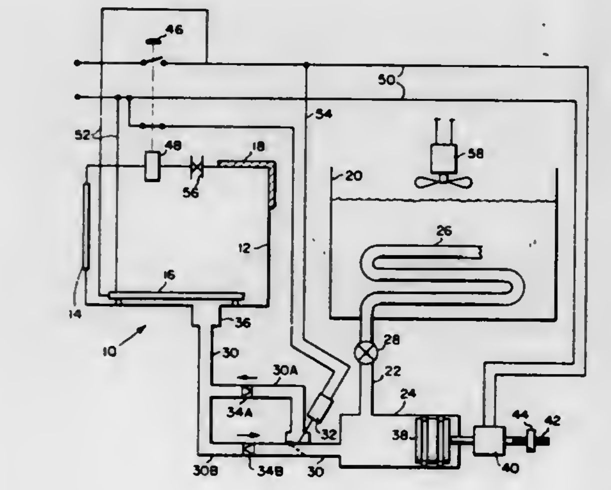
Filed July 3, 1972, Ser. No. 268,747

Int. Cl. A61l *3/00, 3/02*

U.S. Cl. 21—94 **3 Claims**

A tabletop steam sterilizer having an automatic refill means for introducing a measured amount of water into the sterilizer at the start of each sterilizing cycle. The refill means include a water container having a known volume, and the container is completely emptied into the sterilizer at the start of each cycle and refilled at the end of the cycle partly with condensed steam and partly with water from a separate reservoir.

In one embodiment, the container is a plunger chamber wherein a solenoid operated plunger is used to inject water into the sterilizing chamber. At the end of the sterilizing cycle, steam exhausts through the plunger chamber into a water reservoir. The pressure of steam in the plunger chamber forces the plunger back in a return stroke and heats the chamber. Subsequent cooling of the plunger chamber creates a partial vacuum which draws water back into the plunger chamber from the reservoir to fill the chamber for the next cycle of operation.



In another embodiment, the container gravity feeds into the sterilizing chamber. At the end of the sterilizing cycle, steam is exhausted through an ejector having its outlet in the container and its suction leg in a water reservoir, so that water is pulled from the reservoir to condense the steam. This fills the container to overflowing so that the container is filled for the next cycle, the overflow being directed to the reservoir.

3,834,873

DIFFERENTIAL THERMAL DETECTION AND DIFFERENTIAL FLOW MICROCALORIMETRY

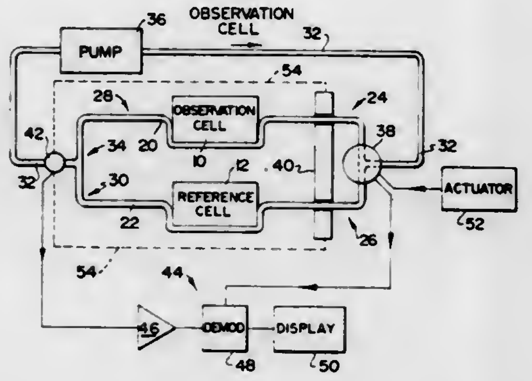
Patrick Picker, Sherbrooke, Quebec, Canada, assignor to Universite de Sherbrooke, Sherbrooke, Quebec, Canada

Filed Jan. 10, 1972, Ser. No. 216,543

Claims priority, application Canada, Dec. 29, 1971, 131,357

Int. Cl. G01k *17/02, 17/04;* **G01n** *33/00*

U.S. Cl. 23—230 R **16 Claims**



Differential detection in which a reference cell is used for comparison purposes with an observation cell in which a phenomenon takes place. Detection is obtained by means of a single thermo-electric sensor. The sensor is mounted to a common conduit of heat exchange liquid flow circuit which uses two branch circuits, one associated with each cell. A flow chopping element at the inlet ends of the branch circuits provides complementary periodic flow heat exchange liquid segments in the branch circuits. These segments are then fed into a common return circuit where the sensor is installed.

A differential flow microcalorimeter using counter flow heat exchangers through which a liquid is circulated in complementary periodic flow segments. The segments are combined in a common return tube where instantaneous temperature variations are detected and then analysed.

3,834,874

DETECTION OF MALARIAL PARASITES IN BLOOD

Stanley Gottlieb, Philadelphia, and John A. Geating, Abington, Pa., assignors to General Electric Company

No Drawing. Filed Oct. 18, 1972, Ser. No. 298,549

Int. Cl. C03c *17/00;* **G01n** *1/30, 33/16*

U.S. Cl. 23—230 B **2 Claims**

Pre-stained microscope slides having a surface covered with a dried mixture of Methylene Blue NN (also known as New Methylene Blue N) and Cresyl Violet Acetate, disclosed in a copending application as useful for observing normal blood constituents, are employed to observe samples of blood from patients suffering from Falciparum Malaria. Trophozoites and gametocytes are rendered readily observable and identifiable; personnel experienced in malarial-oriented hematology found the parasites in such preparations at least as readily observable as in the conventional Wright-stained preparation.

3,834,875

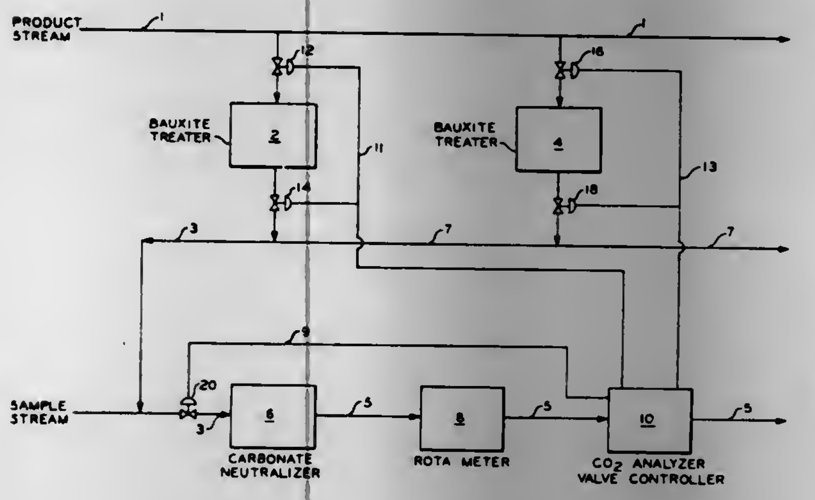
HYDROGEN FLUORIDE VAPOR DETECTING SYSTEM

Otis E. Ririe, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Jan. 2, 1973, Ser. No. 320,502

Int. Cl. G01n *31/08*

U.S. Cl. 23—232 C **7 Claims**



A process for the detection of hydrogen fluoride which comprises the steps of neutralizing the hydrogen fluoride content of a hydrogen fluoride-containing stream in an inorganic carbonate whereby carbon dioxide is released in proportions related to the hydrogen fluoride content of the stream, passing a resulting carbon dioxide enriched stream essentially free of hydrogen fluoride into a chromatographic gas analysis apparatus, and detecting the presence of the carbon dioxide enrichment resulting from the HF neutralization.

3,834,876

DEVICE FOR USE WITH A LIQUID TRANSFER APPLIANCE IN CHEMICAL ANALYSIS

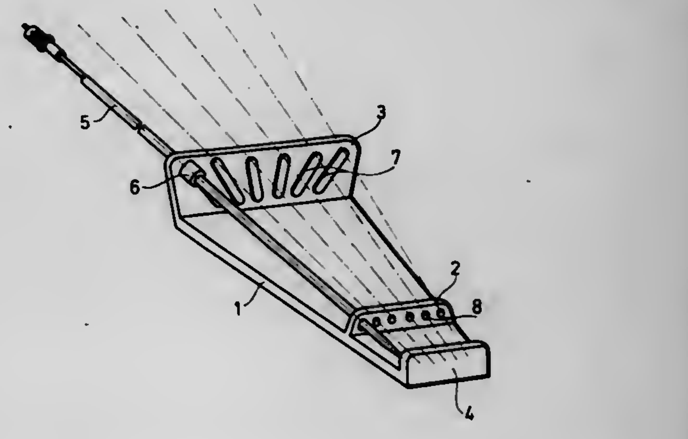
Ferenc Körmendy, Ferenc Németh, István Murányi, and Gizella Balás, Budapest, Hungary, assignors to Labor Muszeripari Muvek, Esztergom, Hungary

Filed Oct. 11, 1973, Ser. No. 405,599

Claims priority, application Great Britain, Sept. 14, 1973, 43,202/73

Int. Cl. G01n *1/12*

U.S. Cl. 23—259 **5 Claims**



A device for facilitating the titration of liquids with the aid of capillary cage-type liquid transfer appliances, comprises a base plate with three unequally spaced upstanding flanges. The middle flange has bores for the capillary cage stems. The flange nearer the middle flange is an abutment for the stem ends. The third flange has slots diverging from the base plate. Thus the middle flange serves as a pivot for the stems, and the slots guide the pivoting of the stems so that the transverse stem spacing may be increased for charging the cages with liquid and decreased when the cages are rotated for mixing.

3,834,877

METHOD FOR STARTING AND STOPPING A MULTISTAGE LIQUID-LIQUID EXTRACTION SYSTEM

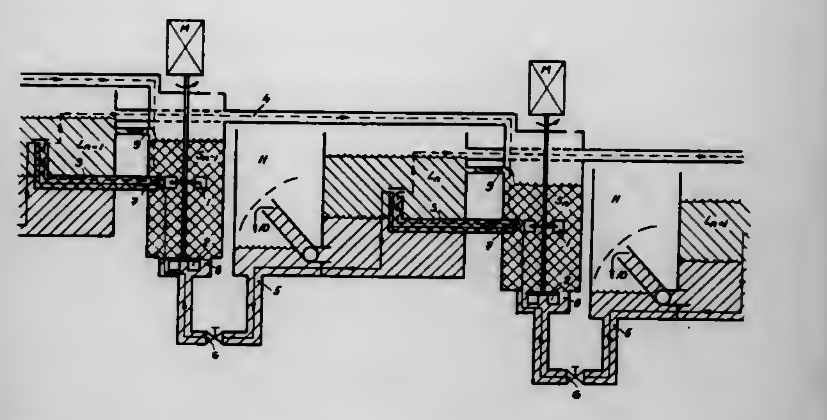
Heikki Ahonen, Oulu, Finland, assignor to Kemiro Oy, Helsinki, Finland

Filed Dec. 8, 1972, Ser. No. 313,244

Claims priority, application Finland, Dec. 10, 1971, 3,526/71

Int. Cl. B01d *11/04*

U.S. Cl. 23—293 R **2 Claims**



An extraction apparatus of the type described in our U.S. patent application Ser. No. 178,729 is stopped by closing the connection between the mixing space and its auxiliary space and mixing is discontinued, so that the dispersion cannot flow back into the auxiliary space; after the heavy and the lightweight phases have separated from each other in the mixing zone, the heavy phase in the lower part of the mixing zone is allowed to flow by its own weight into the auxiliary space by opening the connection between the mixing space and its auxiliary space, the level in which is kept considerably lower than the liquid level in the mixing zone during the operation, then the connection between the auxiliary space and the mixing zone is reclosed; and the extraction is started by first starting the mixing in the mixing zone while the connection between the mixing zone and the auxiliary space is carefully opened, and finally the feeding of heavy phase from the settling zone into the auxiliary space is started after the surface level of the heavy phase in the auxiliary space has lowered sufficiently.

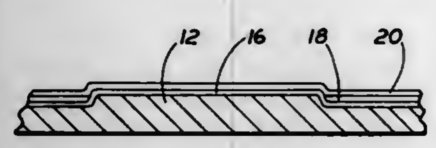
3,834,878
STAINLESS STEEL

Philip Vansteenkiste, Lodewijk, Belgium, assignor to N.V. Bekaert S.A., Zwevegem, Belgium
No Drawing. Filed June 26, 1972, Ser. No. 266,048
Claims priority, application Great Britain, June 24, 1971, 29,694/71
Int. Cl. B32b *15/18;* **C22c** *39/14, 39/20*
U.S. Cl. 29—180 S **6 Claims**

This invention relates to a stainless steel material in wire-shaped form suitable for use in the production of steel wool by shaving, which has an elongated grain in the longitudinal direction.

3,834,879
PLATED COINS

Jimmy K. Chin, 931 Race St., Philadelphia, Pa. 19107
Filed May 11, 1973, Ser. No. 358,621
Int. Cl. A44c *21/00;* **B32b** *15/00*
U.S. Cl. 29—191 **6 Claims**



A method of plating coins to give them a decorative finish. The coins are formed from metal and have pictorial material on at least one face thereof. The method comprises applying a first decorative metal coating to the entire coin, masking the pictorial material and applying a second decorative metal coating over the coin. The mask is then removed, and the coin is left with a first decorative metal on the pictorial portion and a second decorative metal on the remainder of the coin. The invention also encompasses the coins produced by the method.

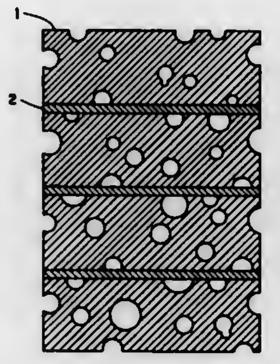
3,834,880
CHROMIUM ALLOY COATED FERROUS METAL PRODUCTS

Clifford Alfred Vessey, Harrogate, England
Continuation-in-part of abandoned applications Ser. No. 707,292, Feb. 21, 1968, Ser. No. 788,039, Dec. 30, 1968, and Ser. No. 797,269, Feb. 6, 1969. This application Dec. 1, 1971, Ser. No. 203,566
Claims priority, application Great Britain, Feb. 27, 1967, 9,239/67; Apr. 25, 1967, 19,024/67; July 5, 1967, 31,043/67; Jan. 12, 1968, 1,938/68; Feb. 9, 1968, 6,646/68; May 20, 1968, 24,029/68
Int. Cl. B32b *15/00*
U.S. Cl. 29—191.2 **16 Claims**

A ferrous metal substrate having compacted on to the surface thereof particles of an iron-chromium alloy containing a total of from 2 to 20% by weight based on the total weight of the alloy of aluminum and/or silicon is particularly suitable for being subjected to a heat treatment to produce a chromised product. Chromised products obtained from the substrate according to the invention are suitable for reduction by cold rolling.

3,834,881
FOAMED METAL ARTICLE

Leonard M. Niebylski, Birmingham, Mich., assignor to Ethyl Corporation, Richmond, Va.
Filed Nov. 24, 1971, Ser. No. 201,909
Int. Cl. B32b *15/00*
U.S. Cl. 29—197.5 **8 Claims**



A laminated structure of foamed metal layers with a load distributing sheet material interposed between the foamed metal to prevent catastrophic shear.

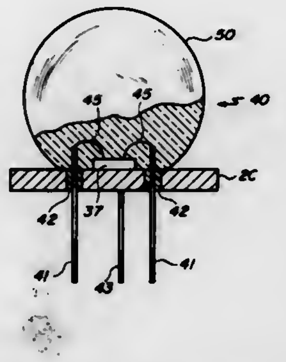
3,834,882
ANTI-ICING GASOLINE COMPOSITION

Bruce Hollis Garth, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wlimington, Del.
No Drawing. Filed Oct. 6, 1972, Ser. No. 295,657
Int. Cl. C10l *1/18*
U.S. Cl. 44—66 **9 Claims**

Gasoline composition having a major fraction of gasoline and, as an anti-icing agent, an effective amount of an additive comprising, by weight, about 0–30% rosin acid and about 70–100% of a mixture comprising 30–70% dimer acid and 30–70% trimer acid, for example, an additive consisting essentially of 12% of rosin acid and 88% of a mixture comprising 43% linoleic acid dimer acid and 57% linoleic acid trimer acid.

3,834,883
ENCAPSULATION FOR LIGHT-EMITTING DIODES

Richard M. Klein, Framingham, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.
Filed Nov. 20, 1972, Ser. No. 308,228
Int. Cl. C03c *3/00, 27/00*
U.S. Cl. 65—32 **16 Claims**

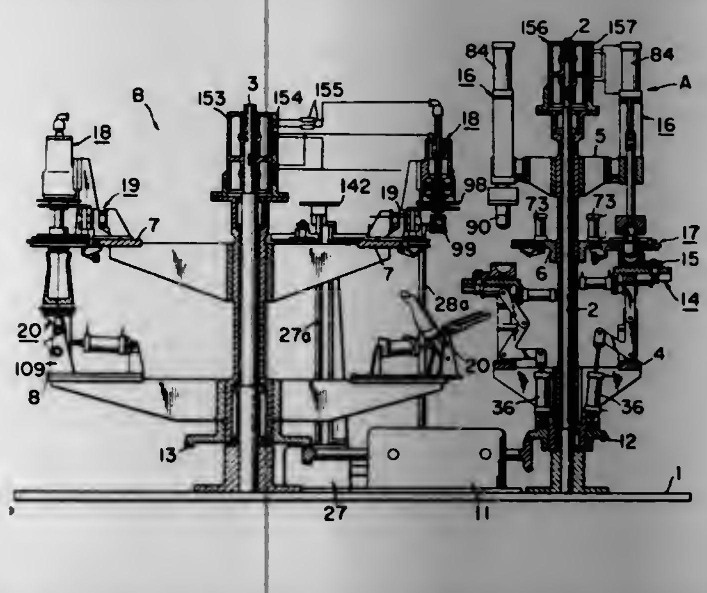


An optical semiconductor device including an electrouminescent diode mounted on a support so that radiation from the diode is emitted away from the support. A glass dome is mounted on the support and covers the diode so as to be in intimate contact with the diode. The radiation emitted from the diode passes through the glass dome so as to improve the external emission efficiency of the device.

The optical semiconductor device is made by mounting the electroluminescent diode on a support and then forming a glass dome over the diode with the glass dome being in intimate contact with and fused to the diode, the glass dome being formed of a translucent partially devetrified phase-separated chalcogenide glass from the As-Br-S system. The translucent chalcogenide glass is prepared in evacuated sealed ampoules and after being applied to the diode the glass is heat treated to enhance the phase-separation process.

3,834,884
APPARATUS FOR BLOW-MOLDING HOLLOW GLASSWARE IN GLASS RETAINING UNIT

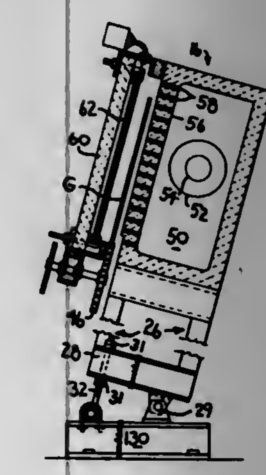
Takaaki Kurokawa, Chigasaki, Junji Yamada, Yokohama, Susumu Hoshika, Tokyo-to, and Yukio Jujo, Sagamihara, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki-shi, Japan
Filed Aug. 28, 1972, Ser. No. 284,073
Claims priority, application Japan, Sept. 6, 1971, 46/68,115
Int. Cl. C03b *9/00*
U.S. Cl. 65—229 **15 Claims**



In a process and apparatus for blow-molding a hollow glassware, a glass gob received in a gob tray is preliminarily formed into a concaved flat gob with the periphery thereof retained by a glass-retaining unit, which unit, as it supports the gob, is then conveyed to a secondary forming section of the apparatus wherein the flat gob supported from the glass-retaining unit is subjected to a blow-molding operation in the course of travel through the secondary forming section of the apparatus.

3,834,885
METHOD OF CONVEYING GLASS SHEETS THROUGH A FURNACE

Robert G. Frank, Murrysville, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Continuation of abandoned application Ser. No. 157,475, June 28, 1971. This application May 9, 1973, Ser. No. 358,782
Int. Cl. C03b *25/04, 27/00*
U.S. Cl. 65—106 **8 Claims**



This invention relates to treating glass sheets, and particularly relates to press bending glass sheets by a movable press bending apparatus that engages a glass sheet heated to its deformation temperature and moves with the glass sheet to transfer the sheet while it is being shaped by pressure engagement from a first conveyor to a second conveyor. Means is provided to tilt the conveyors to provide gaseous support in an oblique plane for different thicknesses of glass sheets processed.

3,834,886
POTASSIUM PHOSPHATE FERTILIZER PROCESS

Robert L. Somerville, Rte. 1, Box 256, Old Amwell Road, Neshanic, N.J. 08853
No Drawing. Continuation of application Ser. No. 340,683, Mar. 13, 1973, which is a continuation of application Ser. No. 263,449, June 16, 1972, which in turn is a continuation of application Ser. No. 34,607, May 4, 1970, all now abandoned. This application Nov. 14, 1973, Ser. No. 415,493
Int. Cl. C05b *7/00*
U.S. Cl. 71—34 **2 Claims**

A process for preparing high analysis potassium phosphate fertilizer which comprises mixing a heated solution or slurry of mono- and diammonium phosphate with a heated slurry of potassium chloride in phosphoric acid, controlling the pH level of the mixture and then cooling to precipitate a complex material consisting primarily of monopotassium phosphate precipitates.

3,834,887
STUNTING PLANTS EMPLOYING 4-OXO-α-PHENYL-2,5 - CYCLOHEXADIENE-$\Delta^{1,\alpha}$-ACETONITRILE, O-(ALKYLCARBAMYL)OXIMES

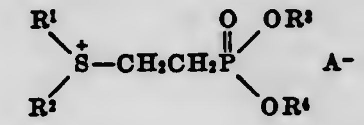
William D. Dixon, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Original application Nov. 24, 1971, Ser. No. 201,958, now abandoned. Divided and this application Sept. 24, 1973, Ser. No. 400,110
Int. Cl. A01n *9/20*
U.S. Cl. 71—76 **5 Claims**

Certain 4 - oxo - α-phenyl-2,5-cyclohexadiene-$\Delta^{1,\alpha}$-acetonitrile, O-(alkylcarbamoyl)oximes are preperad by reacting a phenylcyanomethylene quinone oxime with either an alkyl isocyanate or a dialkyl carbamoyl chloride.

3,834,888
PLANT GROWTH REGULATING COMPOSITIONS COMPRISING 2 - (S,S-DIHYDROCARBYL) SULPHONIUM ETHANE PHOSPHONIC ACID COMPOUNDS AS ACTIVE COMPONENT

Edwin Francis George, Basingstoke, and Alan John Davidson, Wokingham, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Original application Jan. 25, 1971, Ser. No. 109,569, now Patent No. 3,711,493. Divided and this application July 20, 1972, Ser. No. 273,426
Claims priority, application Great Britain, June 10, 1970, 29,123/70
Int. Cl. A01n *9/36*
U.S. Cl. 71—87 **4 Claims**

Process and compositions for regulating plant growth using, as the active agent, a compound of the formula



$$\begin{matrix} R^1 & & & O \quad OR^3 & \\ & \overset{+}{S}{-}CH_2CH_2 & & \overset{\|}{P} & A^- \\ R^2 & & & \quad OR^4 & \end{matrix}$$

wherein R^1 and R^2 are selected from the group consisting of lower alkyl radicals, benzyl radicals and the tetramethylene radical, R^3 and R^4 are selected from hydrogen atoms, lower alkyl radicals, chloroethyl radicals, phenyl radicals and o-hydroxyphenyl radicals, and A^- represents a non-phytotoxic anion. The compound can be used, for example, to promote the ripening of tomatoes or the loosening of fruit.

3,834,889

HERBICIDAL COMPOSITION AND METHOD EMPLOYING PYRIDAZONE DERIVATIVES

Cuno Ebner, Reinach, and Max Schuler, Arlesheim, Basel-Land, Switzerland, assignors to Fidelity Union Trust Company, executive trustee under Sandoz Trust of May 4, 1955

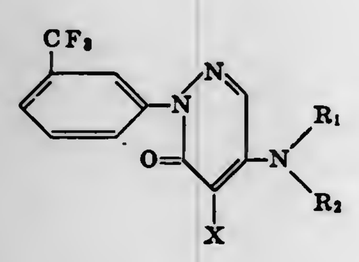
No Drawing. Application Dec. 4, 1969, Ser. No. 882,294, now Patent No. 3,644,355, which is a continuation-in-part of abandoned application Ser. No. 691,249, Dec. 18, 1967. Divided and this application Sept. 13, 1971, Ser. No. 180,178

Claims priority, application Switzerland, Jan. 2, 1967, 52/67

Int. Cl. A01n *9/22*

U.S. Cl. 71—92 **7 Claims**

Compounds of formula:



in which X signifies chlorine or bromine, R_1 signifies hydrogen or methyl and R_2 signifies methyl or, when R_1 signifies hydrogen, R_2 may also signify ethyl, are disclosed as possessing selective herbicidal activity in cotton and carrots.

3,834,890

HERBICIDAL COMPOSITIONS AND METHODS EMPLOYING MONO, DI AND TRIPYRIDINE COMPLEXES OF ORGANO TIN COMPOUNDS

Holger Meyer, Bromma, Sweden, assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Original application Nov. 21, 1966, Ser. No. 595,599, now Patent No. 3,661,911. Divided and this application Dec. 1, 1971, Ser. No. 203,864

Int. Cl. A01n *9/22*

U.S. Cl. 71—94 **2 Claims**

Herbicidal compositions containing as the active ingredient the mono, di and tripyridine complexes of organo tin compounds are disclosed, as well as a method for their use. Exemplifying this class are compositions containing dibromopropyltriphenyltin dipyridine complex.

3,834,891

HERBICIDAL COMPOSITIONS

Robert F. Husted, Florissant, and Rodney O. Radke, St. Charles, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Dec. 20, 1971, Ser. No. 210,110

Int. Cl. A01n *9/24*

U.S. Cl. 71—109 **9 Claims**

Herbicidal compositions comprising 3'-(N-orthochlorobenzyl-N-methylcarbamoyloxy) propionanilide with a substituted phenoxyacetic acid selected from the group consisting of 2,4-dichlorophenoxyacetic acid and 2-chloro-4-methylphenoxyacetic acid or their esters.

3,834,892

HERBICIDAL METHODS AND COMPOSITIONS USING 1' - VARIABLE - 1',1' - DIHALO-HALOBENZENEAZOMETHANES

Malcolm W. Moon and Victor L. Rizzo, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Apr. 28, 1971, Ser. No. 138,269

Int. Cl. A01n *9/24*

U.S. Cl. 71—121 **23 Claims**

Some new 1'-variable - 1',1' - dihalo-halobenzeneazomethanes have been synthesized and found to be active against both arthropod pests and weeds. The 1',1'-halogens may be bromine, chlorine, or fluorine, independently. The benzene ring has two and, variably, up to five substituents; for example, halogen atoms (at least one), alkyl groups, alkoxy groups, and haloalkyl groups. The 1'-variable group may have as many as 12 carbon atoms. Methods for use in controlling weeds are described. Representative formulations for use as herbicides are also described.

3,834,893

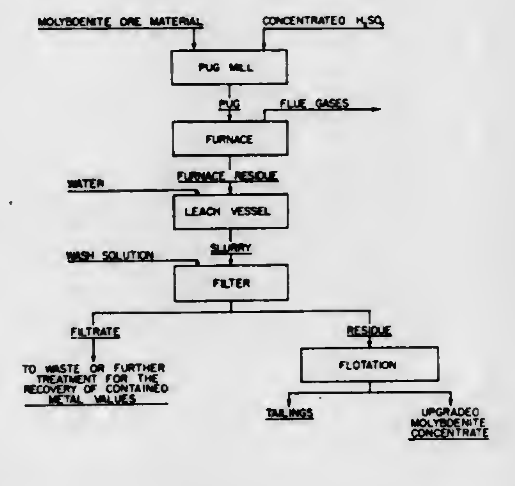
COMBINED CHEMICAL TREATMENT AND FLOTATION PROCESS FOR RECOVERING RELATIVELY HIGH GRADE MOLYBDENITE FROM OFF GRADE OR LOW GRADE ORE MATERIALS

Paul B. Queneau and John D. Prater, Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York, N.Y.

Filed Mar. 26, 1969, Ser. No. 810,449

Int. Cl. C22b *1/06, 1/08, 3/00*

U.S. Cl. 75—2 **9 Claims**



An off grade or low grade molybdenite ore material containing insoluble non-sulfide gangue as well as other impurities is treated by a combination of chemical and flotation steps to produce a molybdenite concentrate of commercially acceptable grade. The ore material, usually a molybdenite flotation concentrate, is subjected to roasting in the presence of concentrated sulfuric acid and is thereafter leached to remove soluble impurities, such as copper, iron, lead, and phosphorous. This treatment deactivates the insoluble non-sulfide mineral gangue, and makes it possible to selectively recover, by a subsequent flotation step, a molybdenite froth concentrate of commercially acceptable grade. Chlorine gas may be substituted for sulfuric acid during the roasting procedure, but with less satisfactory results.

3,834,894

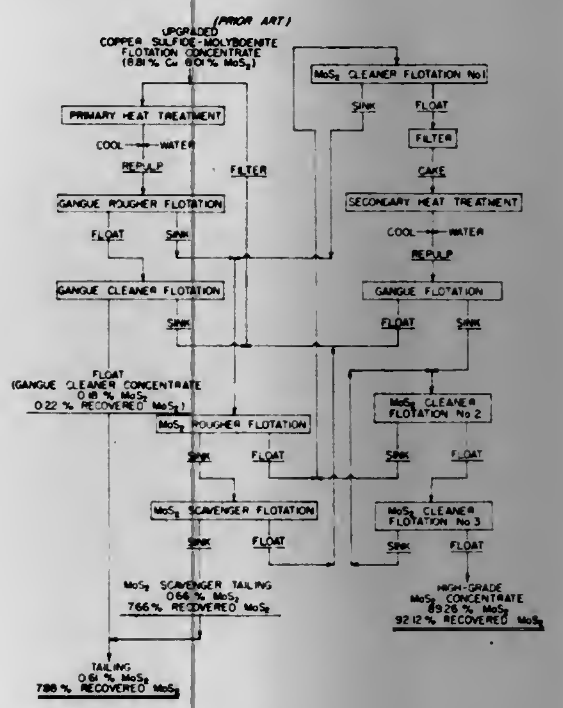
PROCESS FOR RECOVERING MOLYBDENUM VALUES FROM MOLYBDENITE ORE MATERIALS

Henry Rush Spedden and Arthur W. Last, Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York, N.Y.

Filed Apr. 10, 1969, Ser. No. 814,918

Int. Cl. B03d *1/00*

U.S. Cl. 75—2 **5 Claims**


(PRIOR ART)
UPGRADED COPPER SULFIDE-MOLYBDENITE FLOTATION CONCENTRATE (6.81% Cu 60.1% MoS₂)
PRIMARY HEAT TREATMENT
COOL
WATER
REPULP
FILTER
GANGUE ROUGHER FLOTATION
FLOAT
SINK
GANGUE CLEANER FLOTATION
SINK
FLOAT (GANGUE CLEANER CONCENTRATE 0.18% MoS₂ 0.22% RECOVERED MoS₂)
MoS₂ ROUGHER FLOTATION
SINK
FLOAT
MoS₂ SCAVENGER FLOTATION
SINK
FLOAT
MoS₂ SCAVENGER TAILING 0.66% MoS₂ 7.66% RECOVERED MoS₂
TAILING 0.61% MoS₂ 7.88% RECOVERED MoS₂
MoS₂ CLEANER FLOTATION No 1
SINK
FLOAT
FILTER
CAKE
SECONDARY HEAT TREATMENT
COOL
WATER
REPULP
GANGUE FLOTATION
FLOAT
SINK
MoS₂ CLEANER FLOTATION No 2
SINK
FLOAT
MoS₂ CLEANER FLOTATION No 3
SINK
FLOAT
HIGH-GRADE MoS₂ CONCENTRATE 89.26% MoS₂ 92.12% RECOVERED MoS₂

An improvement in the processing of molybdenite ore materials, usually molybdenite-bearing copper sulfide concentrates, for the recovery of the molybdenum values contained therein. Instead of the conventional flotation circuit, wherein middlings are recirculated and molybdenite values therein recovered in a relatively high grade molybdenite concentrate as a final product meeting established specifications as to MoS_2 content, and normally also as to chemical grade, at least a part of the middlings are drawn off as a relatively low grade molybdenite intermediate product and are treated separately for the recovery of the contained molybdenum values. Recovery of molybdenum values in terms of both high grade concentrate and the low grade intermediate product is significantly higher than is recovery of molybdenum values in terms of the conventional high grade concentrate based on the customary recirculation of middlings.

3,834,895

METHOD OF RECLAIMING IRON FROM FERROUS DUST

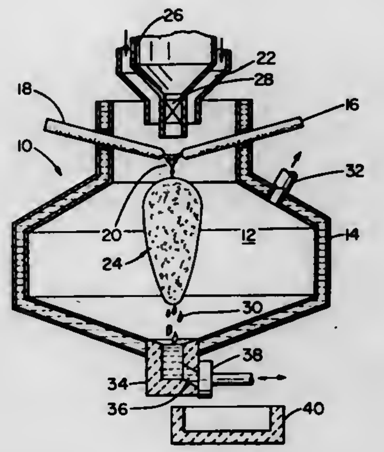
John F. Cachat, Cleveland, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed Apr. 11, 1973, Ser. No. 350,207

Int. Cl. C21c *5/52*

U.S. Cl. 75—11 **7 Claims**

Iron bearing particulate waste material is introduced into a plasma-arc furnace and heated in the furnace to separate the iron from the particulate material and to melt the iron. The molten iron is collected in a trough in the bottom of the plasma-arc furnace and is discharged from the furnace directly into an ingot mold or steel making furnace.



3,834,896

RECOVERY OF GOLD

Judith A. Eisele, Verdi, and Harold J. Heinen, Reno, Nev., assignors to the United States of America as represented by the Secretary of the Interior

No Drawing. Filed June 21, 1972, Ser. No. 265,011

Int. Cl. B01j *1/22;* **C01g** *7/00;* **C22b** *11/00*

U.S. Cl. 75—112 **4 Claims**

Gold is recovered from its ores by treating the ores at elevated temperature with gaseous chlorine in the presence of (1) a promoter comprising a compound of iron, aluminum or gallium and (2) activated carbon, whereby the complex $AuMeCl_6$, where Me is iron, aluminum or gallium, is formed and is adsorbed on the activated carbon. The gold-laden activated carbon is then separated from the gangue by froth flotation and the gold recovered from the carbon by conventional means.

3,834,897

LOW-CARBON, HIGH-STRENGTH STRUCTURAL STEEL WITH GOOD WELDABILITY

Harri P. Nevalainen, Imatra, Finland, assignor to Ovako Oy, Helsinki, Finland

Continuation-in-part of application Ser. No. 129,572, Mar. 30, 1971. This application Feb. 13, 1973, Ser. No. 331,743

Int. Cl. C22c *37/10, 39/14*

U.S. Cl. 75—124 **5 Claims**

High strength structural steels having good weldability contain 0.04% to 0.08% carbon, from 0.6% to 2.0% manganese, from 0.1% to 0.5% silicon, from 2% to 5%

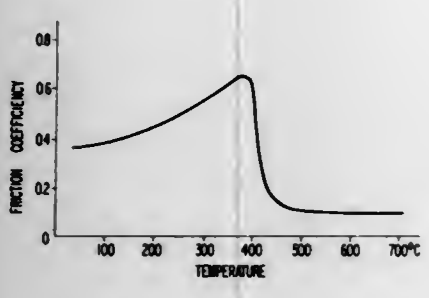
chromium, from 0.01% to 0.05% metallic aluminum, from 0.03% to 0.1% niobium, the balance, apart from incidental impurities, being iron.

3,834,898

VALVE SEAT MATERIAL FOR INTERNAL COMBUSTION ENGINES AND SIMILAR MATERIAL

Kenya Motoyoshi, Itami, and Makoto Osawa, Tokyo, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, and Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 3, 1971, Ser. No. 177,719
Claims priority, application Japan, Sept. 3, 1970, 45/77,402; Nov. 11, 1970, 45/98,655
Int. Cl. C22c *37/14, 39/20*
U.S. Cl. 75—126 R **1 Claim**



A valve seat material for an internal combustion engine, which comprises an iron base alloy matrix having dispersed therein a member selected from the group consisting of Pb and a Pb compound and glass.

3,834,899

METHOD OF MANUFACTURING LOW-CARBON FERROCHROMIUM

Isao Tanabe, Tokyo, Japan, assignor to Japan Metals and Chemicals Co., Ltd., Tokyo, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 98,888, Dec. 16, 1970. This application Apr. 6, 1972, Ser. No. 241,827
Claims priority, application Japan, Feb. 9, 1970, 45/11,360
Int. Cl. C22c *33/00*
U.S. Cl. 75—130.5 **2 Claims**

A method of manufacturing low-carbon ferrochromium is disclosed.

(a) A mixture of chrome ore and lime is heated to a temperature of about between 900–1250° C. until a burnt material having a CO_2-content of less than 0.1% by weight is obtained.

(b) 30–60 parts by weight of the burnt material of (a) are then subjected to smelting in an electric furnace to obtain a slag.

(c) The remaining 70–40 parts of the burnt material of (a) are then admixed with the theoretically calculated amount of silicochromium having a Si content of about between 38–54% by weight. At least 80% by weight of the silicochromium is admixed with the remaining 70–40 parts of the burnt material of (a) in molten state while the remainder of the silicochromium is admixed in unheated state.

(d) The mixture of (c) is then reacted with the smelted slag of (b).

3,834,900

STRIP CASTING ALUMINUM ALLOY

Albert Joseph Klein, Arlington Heights, Ill., assignor to American Can Company, Greenwich, Conn.

No Drawing. Filed Oct. 16, 1972, Ser. No. 297,828
Int. Cl. C22c *21/02*
U.S. Cl. 75—142 **6 Claims**

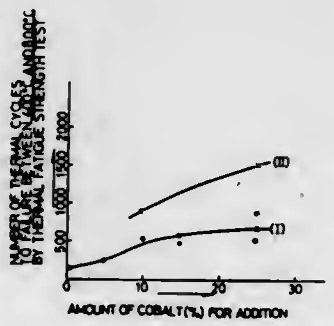
An aluminum alloy comprising, by weight, 2.4 to 3.2% magnesium, 0.6 to 0.8% iron, 0.2 to 0.3% silicon, 0.2 to 0.3% copper, 0.2 to 0.3% manganese, 0.005 to 0.025% titanium, and 0.005 to 0.025% boron, and less than 0.01% chromium, the balance being aluminum, is especially useful since it can be formed by strip casting. The alloy possesses a combination of strength and formability well suited for aluminum can ends and drawn and ironed can bodies.

3,834,901

ALLOY COMPOSED OF IRON, NICKEL, CHROMIUM AND COBALT

Masahiko Kamiya and Michiyoshi Naya, Yokohama, and Sadaoki Hisamatsu, Fujisawa, Japan, assignors to Isuzu Motors Limited, Tokyo, Japan

Continuation-in-part of abandoned application Ser. No. 28,731, Apr. 15, 1970. This application Nov. 6, 1972, Ser. No. 303,926
Claims priority, application Japan, Apr. 23, 1969, 44/31,649
Int. Cl. C22c *39/20*
U.S. Cl. 75—128 B **2 Claims**



An alloy composed of iron, nickel, chromium and cobalt, resistant to thermal fatigue, cracking and corrosion, comprising by weight percent

Carbon	0.05–1.0
Silicon	0.1–3.0
Manganese	0.1–3.0
Nickel	1.0–19
Chromium	26–35
Molybdenum	0.1–3.0
Tungsten	0.1–6.0
Niobium	0.1–0.45
Nitrogen	0.03–0.3
Cobalt	9–30
Boron	0.005–0.15

Balance of iron except for incidental impurities.

3,834,902

PHOTOGRAPHIC MATERIAL CONTAINING A MESYLATE COMPOUND AS HARDENER AND ANTIFOGGANT

Charles J. Wright, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Sept. 29, 1972, Ser. No. 293,696
Int. Cl. G03c *1/00, 1/30, 1/34, 1/40, 1/68;* **G03g** *5/00*
U.S. Cl. 96—1.8 **10 Claims**

Photographic elements are disclosed containing a hydrophilic colloid layer hardened with a compound having the structural formula:

$$CH_3SO_2OCH_2CH_2SO_2(ASO_2)_mCH_2CH_2OSO_2CH_3$$

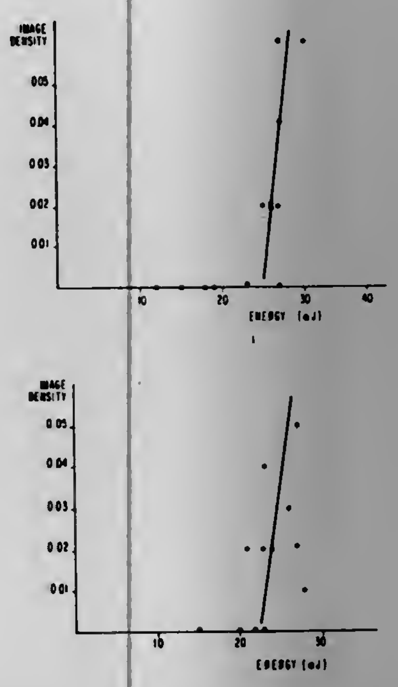
wherein A contains no more than nine atoms linking the sulfonyl groups and is an alkylene or oxaalkylene group having up to three oxygen atoms and *m* is 0 or 1. The hardener also serves as an antifoggant in photographic applications.

3,834,903

IMAGEWISE EXPOSING A METAL HALIDE LAYER WITH LASER TO FORM PERMANENT METAL IMAGE

Eiichi Inoue and Hiroshi Kokado, Tokyo, Isamu Shimzu, Yokohama, and Shuichi Ohtsuka, Tokyo, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed June 9, 1972, Ser. No. 261,466
Claims priority, application Japan, June 10, 1971, 46/41,186
Int. Cl. G03c *5/04*
U.S. Cl. 96—27 E **6 Claims**



A recording process which comprises imagewise exposing a crystal layer of metal halides to an energy having an intensity which satisfies the equation

$$D=KI^n$$

in which D is the optical density, K is a constant equal to 6×10^{-5}, I is the intensity of the exposing energy, and *n* is a number of 1 or greater is disclosed.

3,834,904

COPYING PROCESS UTILIZING A TRANSPARENT COMPOSITE FILTER WITH ELEMENTARY ZONES

Seiji Matsumoto and Satoru Honjo, Asaka, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Minami-Ashigara-machi, Kanagawa, Japan

Continuation-in-part of abandoned application Ser. No. 691,825, Dec. 19, 1967. This application Dec. 4, 1972, Ser. No. 312,203
Int. Cl. G03c *5/04*
U.S. Cl. 96—27 E **10 Claims**

A method of copying which comprises optically combining an original to be copied with a transparent composite filter having therein two or more minute, elementary zones, each of which has substantially the same effective absorption factor defined in the specification in the sensitive region of a light sensitive copying material to be employed, differing in the spectral absorption characteristics in the same region, a pattern of one of said zones being not congruent with another pattern of said other zones, then subjecting to image exposure a light sensitive material having a sensitivity at least in a part of the visible region of the spectrum through the resulting combination, and thereby converting the difference of colors on said original into that of patterns on said filter to thus reproduce an image of the original.

3,834,905

METHOD OF MAKING ELLIPTICALLY OR RECTANGULARLY GRADED PHOTOPRINTING MASTERS

John Alton Dodd, Jr., Haddonfield, N.J., and Raymond Fujio Okamoto, Glenside, Pa., assignors to RCA Corporation

Filed May 23, 1973, Ser. No. 363,298
Int. Cl. G03c *5/09*
U.S. Cl. 96—27 E **12 Claims**

A method is provided for making a graded photoprinting master. The photoprinting master is photographically produced from a first master by contact printing the first master upon a photosensitive layer including varying the degree of exposure of the photosensitive layer by exposing the first master to light passing through means for varying exposure in a circular manner and through means for varying exposure in a linear manner.

3,834,906

LIGHT ACTIVATING IMAGING PROCESS

Alan R. Monahan, East Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

No Drawing. Continuation of abandoned application Ser. No. 816,104, Apr. 14, 1969. This application Apr. 18, 1972, Ser. No. 245,276
Int. Cl. G03c *5/00*
U.S. Cl. 96—35.1 **6 Claims**

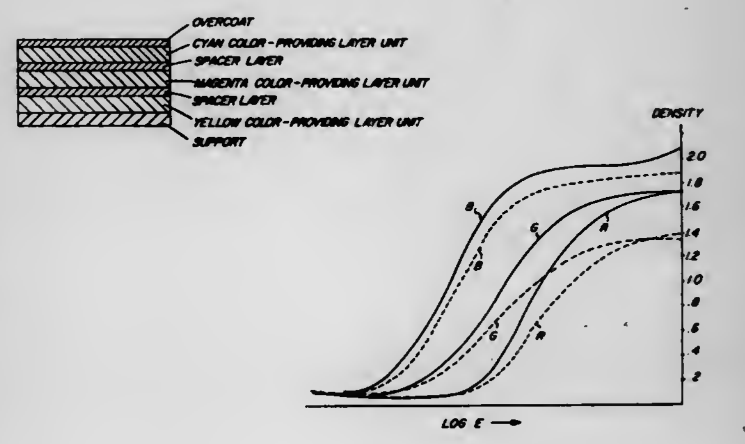
There is disclosed an imaging system whereby alkyl esters of polyvinylaryl sulfonic acids are selectively insolubilized upon exposure to actinic radiation.

3,834,907

PHOTOGRAPHIC ELEMENTS CONTAINING COLOR-PROVIDING LAYER UNITS FOR AMPLIFICATION PROCESSES

Vernon L. Bissonette, Brockport, N.Y.
(% Eastman Kodak Company, Rochester, N.Y. 14650)

Continuation-in-part of applications Ser. No. 150,741, June 7, 1971, now abandoned, and Ser. No. 189,289, Oct. 14, 1971. This application May 23, 1972, Ser. No. 256,072
Int. Cl. G03c *1/30, 1/40*
U.S. Cl. 96—74 **50 Claims**


OVERCOAT
CYAN COLOR-PROVIDING LAYER UNIT
SPACER LAYER
MAGENTA COLOR-PROVIDING LAYER UNIT
SPACER LAYER
YELLOW COLOR-PROVIDING LAYER UNIT
SUPPORT
DENSITY
LOG E →

Photographic elements are disclosed which comprise a support having thereon at least one dye image-providing layer unit which contains a light-sensitive silver salt and a stoichiometric excess of an image dye-providing color coupler. In one aspect, the photographic elements of this invention are multicolor photographic elements wherein at least two distinct colors are produced in two separate layer units of the element. In another aspect, multicolor photographic elements are disclosed which comprise at least two image dye-providing layer units containing a silver halide emulsion in a concentration of up to 30 mg./ft.² of silver and an image dye-providing color coupler in at least a 40 percent stoichiometric excess based on silver.

3,834,908

COLOR SILVER HALIDE PHOTOGRAPHIC MATERIALS CONTAINING BIS-PYRAZOLONE COLOR COUPLERS

Hiroshi Hara, Yukio Yokota, Hiroyuki Amano, and Tokio Nishimura, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed July 10, 1973, Ser. No. 377,991

Claims priority, application Japan, July 11, 1972, 47/69,409

Int. Cl. G03c *1/40*

U.S. Cl. 96—100 **2 Claims**

A silver halide color photographic material capable of providing stable magenta images containing a bis-3-ureido-5- pyrazolone prepared by the reaction of a 3-ureido-5-pyrazolone with a compound having an aldehyde group.

3,834,909

METHOD OF MANUFACTURING LITHOPRINTING PLATE

Noriyuki Usui, Tetsuo Tanaka, Fumiaki Arai, and Morikazu Shinozaki, Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

No Drawing. Filed Feb. 7, 1973, Ser. No. 330,286

Claims priority, application Japan, Feb. 8, 1972, 47/13,325

Int. Cl. G03g *9/04, 13/10, 13/22*

U.S. Cl. 96—1 LY **4 Claims**

Process for producing a lithoprinting plate in which a latent electrostatic image is produced on a photoconductive plate on which the photoconductive surface layer has a contact angle with water of from 135° to 180° at 20° C. and 65% relative humidity, developing the image with a liquid developer, applying an electric charge and etching.

3,834,910

PENCIL LEAD

Atsuhiko Mukai and Yoshio Mori, Sagamihara, Japan, assignors to Teijin Limited, Osaka, Japan

No Drawing. Filed Nov. 6, 1972, Ser. No. 303,872

Claims priority, application Japan, Nov. 13, 1971, 46/90,772

Int. Cl. C09d *13/00*

U.S. Cl. 106—19 **2 Claims**

A pencil lead which consists essentially of a powdery coloring agent bonded by an uncured epoxy resin of the 2,2 - bis(4' - hydroxyphenyl)propane/epichlorohydrine which is solid at room temperature.

3,834,911

GLASS COMPOSITION AND METHOD OF MAKING

Joseph J. Hammel, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed May 31, 1972, Ser. No. 258,149

Int. Cl. C03c *3/22*

U.S. Cl. 106—39.7 **5 Claims**

Novel thermally crystallizable glass compositions which are relatively non-volatile and have good melting and forming characteristics containing: 64–74 percent SiO_2, 15–23 percent Al_2O_3, 3.3–4.8 percent Li_2O, 2.0–5.0 percent TiO_2, 0.6–1.6 percent ZrO_2, 1.0–2.1 percent BaO, 0.10–0.30 percent F^- and 0–0.5 percent MgO, and glass-ceramic articles made therefrom are disclosed. The glass-ceramics have coefficients of thermal expansion of below $2.0\times10^{-7}/°$ C. over the temperature range of 0 to 300° C. and have well nucleated, smooth surfaces, making the glass-ceramics particularly useful as cooking surfaces for stove tops and the like.

3,834,912

LEAD BORATE CONTAINING PHOTOTROPIC GLASS

Georg Gliemeroth, Mainz-Mombach, Germany, assignor to Jenaer Glaswerke Schott & Gen.

Continuation-in-part of abandoned application Ser. No. 685,596, Nov. 24, 1967. This application Feb. 24, 1971, Ser. No. 118,513

Claims priority, application Germany, Dec. 24, 1966, J 32,618

Int. Cl. C03c *3/14, 3/26, 3/30*

U.S. Cl. 106—47 R **5 Claims**

Phototropic glass compositions are disclosed, the phototropic properties of which are due to the presence in the composition of silver halide or mixed silver and silver halide crystals. The oxide forming glass composition has oxide bonds which are weaker than the bonding in a silicate base glass where SiO_2 is the principal glass forming component. The glass composition, i.e., the base glass into which the silver halide is incorporated, can consist entirely of boric oxide as glass former, but preferably has the following composition:

	Weight percent
Boric oxide	13.5–100
Alkaline earth metal oxide	0–40
Alkali metal oxide	0–21
Silica	0–10
Zirconium oxide, aluminum oxide and/or zinc oxide	0–25
Lead oxide (when boric oxide content is up to 48 weight percent)	29–73

3,834,913

ABNORMAL DISPERSION GLASS EXHIBITING THE ABNORMAL PARTIAL DISPERSION IN THE INFRARED REGION

Yoshiyuki Asahara, Kawasaki, and Tetsuro Izumitani, Tokyo, Japan, assignors to Hoya Glass Works, Ltd., Tokyo, Japan

Filed July 10, 1972, Ser. No. 270,403

Claims priority, application Japan, July 8, 1971, 46/50,505

Int. Cl. C03c *3/04, 3/10, 3/30*

U.S. Cl. 106—53 **2 Claims**

This invention provides an abnormal dispersion glass exhibiting the abnormal partial dispersion in the infrared region. This abnormal dispersion glass has a small Abbe number and favorable acid resistance, and is composed of B_2O_3 54 to 60 mol. percent, PbO 7 to 12 mol. percent, Al_2O_3 8 to 14 mol. percent, CaO 8 to 15 mol. percent, ZrO_2 0 to 1.5 mol. percent, TiO_2 1.5 to 4.0 mol. percent and SiO_2 4 to 11 mol. percent.

3,834,914

REFRACTORY RAMMING MIX

Joseph E. Neely, Los Gatos, and Nicholas Cassens, Jr., Pleasanton, Calif., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

No Drawing. Filed Mar. 7, 1973, Ser. No. 338,934

Int. Cl. C04b *35/04, 35/12*

U.S. Cl. 106—59 **13 Claims**

A sodium silicate bonded, MgO-containing, prepared refractory ramming mix is made from prereacted chrome-periclase or periclase-chrome grain, a soluble boron compound, a water retention agent, sodium silicate, and water. Chrome ore may be substituted for the prereacted grain, and the composition may contain up to 10% periclase grain. The boron compound and water retention agent are mixed dry with the refractory grain, and water subsequently added. After the water is distributed throughout the boron compound and water retention agent coating the grain, sodium silicate is added. The particular method of mixing produces a product which can be stored for relatively long periods of time without setting.

3,834,915

FINE GRAIN TRANSLUCENT ALUMINA

Joseph J. Cleveland, Wysox, and Carl W. Fritsch, Jr., Dushore, Pa., assignors to GTE Sylvania Incorporated

No Drawing. Filed July 24, 1972, Ser. No. 274,240

Int. Cl. C04b *35/10;* **H01j** *61/30*

U.S. Cl. 106—73.4 **3 Claims**

A translucent alumina composition exhibiting color stability, a high degree of light transmission, thermal shock resistance and a relatively fine grain size is disclosed. The composition consists essentially of from about 99.8 to about 99.95% aluminum oxide, from about 0.025 to about 0.10% magnesium oxide and from about 0.025 to about 0.10% ytterbium oxide. An improvement to the process for making translucent alumina is also disclosed. By adding from about 0.025 to about 0.1% of ytterbium oxide, the firing temperature of the composite in hydrogen can be lowered appreciably to the range of from about 1620° C. to about 1680° C. and results in an average grain size of about 10 microns. The foregoing translucent alumina composition when formed in tubular shapes is particularly suited for arc discharge lamps.

3,834,916

FIBER-REINFORCED CEMENT COMPOSITE

Clyde E. Kesler, Champaign, Ill., assignor to United States Steel Corporation

Filed Mar. 23, 1972, Ser. No. 237,300

Int. Cl. C04b *7/12*

U.S. Cl. 106—99 **1 Claim**

A reinforced composite having either a castable concrete matrix mass or a castable mortar matrix mass is disclosed. The matrix mass has about 300 lbs. to about 900 lbs. per cubic yard of hydraulic cement; about 220 lbs. to about 450 lbs. per cubic yard of water; about 0.1 to about 10.0% by volume per cubic yard of a plurality of discontinuous reinforcing filaments; about 40 lbs. to about 450 lbs. per cubic yard of finely divided pozzolan type material; and aggregate in a sufficient amount by volume to provide a total of 1 cubic yard of matrix mass.

3,834,917

PRODUCTION OF SYNTHETIC ANHYDRITE

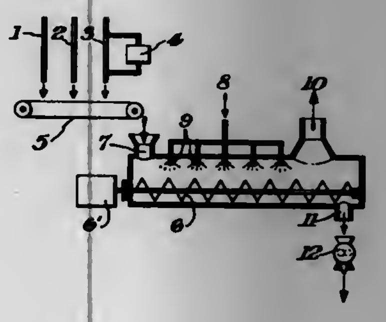
Bernhard Spreckelmeyer, Leverkusen, Friedrich Hinsche, Leverkusen-Bayerwerk, and Werner Schabacher, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Jan. 26, 1973, Ser. No. 326,755

Claims priority, application Germany, Feb. 3, 1972, P 22 05 028.8

Int. Cl. C04b *11/00*

U.S. Cl. 106—109 **7 Claims**



Treatment of the kiln residue which is formed during hydrogen fluoride production by the reaction of fluorspar with concentrated sulphuric acid in a hot furnace by the steps of adding a neutralizing agent to the kiln residue while at an elevated temperature, evaporation cooling the mixture to a temperature of 80 to 150° C. and grinding the cooled kiln residue after water vapour removal to obtain a pneumatically transferable, free-flowing synthetic anhydrite.

3,834,918

RAW BATCH FOR FORMING POROUS ARCHITECTURAL STRUCTURES AND METHOD OF PREPARING SAME

Shinobu Uogaeshi, 723–5, Gojyono-machi, Kashiwara, Nara, Japan

Filed June 19, 1973, Ser. No. 371,474

Claims priority, application Japan, June 30, 1972, 47/65,022

Int. Cl. C08h *17/68*

U.S. Cl. 106—122 **2 Claims**

A raw batch containing fine bubbles homogeneously dispersed therein, said batch being suitably used for the formation of porous architectural structures, said batch comprising a homogeneous mixture of 100 parts by weight of a hydraulic substance, 0.0001–0.1 part by weight of a blowing agent, 0.001–1.0 part by weight of a foam stabilizer and 70–200 parts of water, and a method for production thereof.

3,834,919

SOLID DEFOAMER FOR STARCH

Edward T. Parker, Inkster, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Filed June 27, 1973, Ser. No. 373,995

The portion of the term of the patent subsequent to Apr. 30, 1991, has been disclaimed

Int. Cl. C08b *27/04, 27/42*

U.S. Cl. 106—214 **3 Claims**

A solid, particulate defoamer consisting of a diatomaceous earth and a surface active mixture of conjugated polyoxyethylene - polyoxypropylene compounds when added during manufacture of starch controls the amount of foam produced when using aqueous slurries of the starch as a surface sizing agent for various grades of paper, or as a binder for pigmented coatings for papers and other cellulosic fibrous products.

3,834,920

OIL BASED COATING COMPOSITION

Henry J. Rose, 5 Logan Terrace, Danville, Ill. 61832

No Drawing. Filed Mar. 9, 1972, Ser. No. 233,315

Int. Cl. C08h *9/00, 17/28, 17/34*

U.S. Cl. 106—267 **3 Claims**

Sausages, such as frankfurters and bolognas, formed in synthetic casings are more easily peeled when the casings are provided with an internal coating of a coating composition comprising a food grade mineral oil in admixture with an acetylated fatty monoglyceride and about 5–30% of an alkoxylated type surfactant which is poorly soluble in mineral oil. The coating composition is preferably applied to the interior of the casing as a lubricant during the shirring of the casing on a conventional shirring machine. Other methods of internal coating which are well known in the art may likewise be used for application of the coating solution.

3,834,921
LOW SURFACE AREA PIGMENTS

Robert Kenneth Mays, Havre De Grace, and Lowell Edwin Hackbarth, Bel Air, Md., assignors to J. M. Huber Corporation, Locust, N.J.

No Drawing. Filed Oct. 7, 1971, Ser. No. 187,580

Int. Cl. C09c *1/28;* **C08h** *17/04*
U.S. Cl. 106—288 B **1 Claim**

An improved functional filler and extender pigment in alkyl ketene dimer sized alkaline paper, method of manufacturing said pigment, and method of addition.

3,834,922
PRODUCTION OF CHLORINE-CONTAINING COPPER PHTHALOCYANINES

Edward E. Jaffe, Union, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application Nov. 11, 1971, Ser. No. 197,978, now Patent No. 3,770,765. Divided and this application July 2, 1973, Ser. No. 375,942

Int. Cl. C08h *17/14*
U.S. Cl. 106—288 Q **2 Claims**

Chlorine-containing pigmentary copper phthalocyanines are prepared via the phthalonitrile synthesis using as the solvent a member from a specified group of organic sulfones. The product may be used as such or as a stabilizer for chlorine-free copper phthalocyanine pigment.

3,834,923
TITANIUM DIOXIDE PIGMENTS AND FILLERS

Jonathan Howard Hodgkin, Burwood, Victoria, David Geoffrey Hawthorne, South Oakleigh, Victoria, Jean Drummond Swift, Olinda, Victoria, and David Henry Solomon, Glen Waverley, Victoria, Australia, assignors to Commonwealth Scientific and Industrial Research Organization

No Drawing. Filed Feb. 8, 1972, Ser. No. 224,606

Claims priority, application Australia, Feb. 10, 1971, 3,979/71, 3,981/71, 3,983/71, 3,985/71

Int. Cl. C09c *1/36*
U.S. Cl. 106—300 **9 Claims**

A method of modifying the surface properties of titanium dioxide pigments and fillers by forming on the particles a surface coating of an aluminium compound, the coating having a significant number of acidic sites with pKa values of less than 2.8.

3,834,924
PROCESS FOR MANUFACTURING SURFACE MODIFIED INORGANIC PIGMENTS

Thomas A. Grillo, Macon, Ga., assignor to J. M. Huber Corporation, Locust, N.J.

Filed June 8, 1972, Ser. No. 263,729

Int. Cl. C08h *17/04;* **C09c** *1/28*
U.S. Cl. 106—308 N **7 Claims**

An improved process for producing surface modified, finely divided inorganic pigments, is disclosed. The process includes the addition of an organosilane to a high solids content aqueous dispersion of an inorganic pigment in a mixing zone or apparatus, such as a screw pump or extruder, to yield a thick, flowable plastic-type mass suitable for extrusion and drying. Inorganic pigments that may be advantageously surface modified include hydrated or anhydrous silicas, metal silicates, sodium alumino silicates, finely divided particulate clays, and the like. The organosilanes comprise amino organosilanes such as aminopropyltriethoxysilane, etc. The process of the invention eliminates the need for filtration, common to prior known techniques, the loss of silanes in the filtrate and otherwise streamlines the production operation.

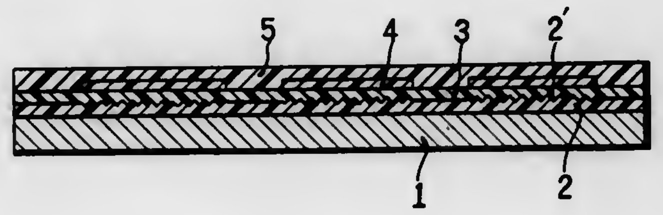
3,834,925
TRANSFER MATERIAL

Kozo Matsumura and Sigeki Ito, Otokuni, Japan, assignors to Nissha Printing Co., Ltd., Kyoto Prefecture, Japan

Continuation-in-part of abandoned application Ser. No. 118,297, Feb. 24, 1971. This application Aug. 18, 1972, Ser. No. 281,964

Claims priority, application Japan, Mar. 20, 1970, 45/23,790, 45/27,037

Int. Cl. B41m *3/12, 3/06*
U.S. Cl. 117—3.4 **13 Claims**



A transfer material comprising: a base sheet member; a matting layer disposed upon said base sheet member; a stripping layer disposed upon said matting layer; a design print disposed upon said stripping layer; and an adhesive ink layer covering said design print at the printed area and the remaining portion of said stripping layer at the unprinted area. The solvent included in said design print or said adhesive ink layer migrates to the boundary between said matting layer and said stripping layer and makes a latent image of said design print which may be developed by releasing said base sheet member and said matting layer owing to the difference of dullness of the transferred surface between the printed area and the unprinted area.

3,834,926
METHOD OF MAKING A COLOR PICTURE TUBE

Santokh S. Labana, Dearborn Heights, Amos Golovoy, Westland, and Yun Feng Chang, Plymouth, Mich., assignors to Ford Motor Company, Dearborn, Mich.

No Drawing. Filed May 17, 1972, Ser. No. 254,201

Int. Cl. B44d *1/094;* **H01j** *9/20*
U.S. Cl. 117—17 **9 Claims**

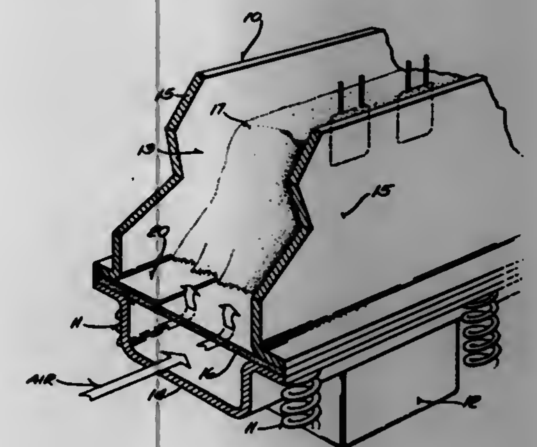
In manufacturing a color picture tube, a plurality of color phosphor dots are placed on a face plate of the tube. A shadow mask used with the tube is made with a plurality of apertures arranged in a predetermined pattern. Each of these apertures have a predetermined size. The predetermined size of each aperture is reduced to a smaller size when the mask is used in placing the phosphor dots on the face plate. The size of each of the apertures is returned to its original, predetermined size when the mask is used for operating the color tube. This disclosure teaches an improvement in the method of reducing and, thereafter, returning the size of the apertures to the predetermined size. The improvement includes applying a powder coating composition to the shadow mask.

3,834,927
FLUIDIZED BED COATING METHOD

Gordon A. Putney, New Berlin, Wis., assignor to Koerper Engineering Associates, Inc., Milwaukee, Wis.

Continuation-in-part of abandoned application Ser. No. 163,312, July 16, 1971. This application July 27, 1973, Ser. No. 383,381

Int. Cl. B44d *1/095*
U.S. Cl. 117—21 **5 Claims**



A bed of heat fusible plastic material in pulverulent or particulate form is fluidized by simultaneously vibrating it and aerating the same from the bottom. Aerating gas is constrained to enter the bottom of the bed at a localized influx zone that is smaller in area than the upper free surface of the bed. The influx zone is situated to effect continuous migration of the pulverulent or particulate material along a generally circular path, a portion or component of which extends horizontally through the upper strata of the bed, to thereby prevent the formation of geysers and define a smooth upper free surface for the bed.

3,834,928
PROCESS FOR PRODUCING PHOTOGRAPHIC MATERIAL

Sumitaka Tatsuta and Wataru Ueno, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Dec. 28, 1971, Ser. No. 213,182

Claims priority, application Japan, Dec. 28, 1970, 46/120,542

Int. Cl. B41m *5/14;* **G03c** *1/78*
U.S. Cl. 117—34 **8 Claims**

A process for production of a photographic material which comprises the steps of first undercoating an aqueous gelatin solution or a dispersion of gelatin in an organic solvent onto a stretched high molecular weight film having roughened surface, then heat-treating the resultant film at a temperature in the range of from $T_g-40°$ C. to $T_g+40°$ C., thereafter applying to the film an emulsion or suspension containing gelatin as a binder. (T_g being a glass transition temperature of the film-composing resin used.)

3,834,929
COLOR DEVELOPER SHEET FOR PRESSURE SENSITIVE RECORDING PAPER

Takao Hayashi and Hajime Kato, Fujinomiya, and Sadao Ishige, Minami Ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Dec. 16, 1971, Ser. No. 208,894

Claims priority, application Japan, Dec. 26, 1970, 45/118,978

Int. Cl. B41m *5/22*
U.S. Cl. 117—36.2 **7 Claims**

A color developer sheet for pressure sensitive recording paper comprising a color developer layer containing a metallic compound of a phenol compound, said phenol compound pKa below 8.

3,834,930
METHOD OF DEVELOPING ELECTROSTATOGRAPHIC IMAGES

Alan B. Amidon, Joseph Mammino, and Robert M. Ferguson, Penfield, N.Y., assignors to Xerox Corporation, Stamford, Conn.

No Drawing. Application Dec. 18, 1970, Ser. No. 99,646, which is a continuation-in-part of abandoned application Ser. No. 839,801, July 1, 1969. Divided and this application Sept. 25, 1972, Ser. No. 292,002

Int. Cl. G03g *9/04, 13/10*
U.S. Cl. 117—37 LE **5 Claims**

A method of development of an electrostatic latent image is given wherein a chemically stable, nonaqueous, ambipolar, liquid developer comprising an oleaginous vehicle, solid colorant particles, a dispersant soluble in the liquid developer which is capable of substantially suppressing background deposits, and a fixing agent miscible with the liquid which penetrates the copy paper is employed to develop an electrostatic latent image by presenting the developer to the image bearing surface by an applicator having a substantially uniformly patterned surface of raised portions and depressed portions which contain the developer.

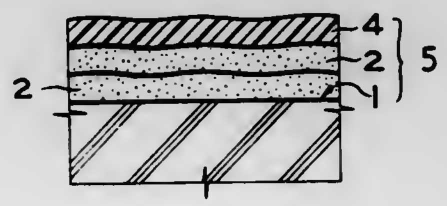
3,834,931
DECORATIVE LAYER AND A METHOD OF PRODUCING THE SAME

Takatsugu Iwai, Tokyo, and Hiroshi Takeda, Kyoto, Japan, assignors to Kajima Kensetsu Kabushiki Kaisha, Tokyo, and Daichi Kogyo Seiyaku Kabushiki Kaisha, Kyoto, Japan

Filed June 20, 1972, Ser. No. 264,615

Claims priority, application Japan, June 25, 1971, 46/46,685

Int. Cl. B32b *13/04;* **B44d** *1/16*
U.S. Cl. 117—45 **22 Claims**



A decorative layer and a method for producing the same, in which a mortar composition comprising in admixture hydraulic cement, aggregate, synthetic resin emulsion and water is directly applied onto the surface of a mineral, wood or metal substratum, and then a surface layer consisting of synthetic resin and organic solvent therefor is formed on the surface of mortar layer thus applied, either one or both of said surface layer and said mortar composition containing inorganic pigment.

3,834,932
METHOD OF FORMING PLASTIC SANDWICH STRUCTURES

Karl Brandl, Ruschlikon, Switzerland, assignor to Lonza Ltd. Switzerland

No Drawing. Filed Aug. 5, 1971, Ser. No. 169,528

Claims priority, application Switzerland, Aug. 28, 1970, 12,901/70

Int. Cl. B32b *27/08, 27/36*
U.S. Cl. 117—47 **9 Claims**

Method of improving the processability and adhesion characteristics of foamed plastics used as core material for plastic sandwich structures, wherein the core of foamed plastic is coated with a coating material of reinforced, unsaturated polyester resin which contains styrene as cross-linking component, a hardener and an accelerator. In accordance with the invention and prior to applying the coating material to the core, an accumulation of accelerator is provided in the contact zone between the core and the coating material for promoting cold-hardening of the coating material. The hardening of the coating material in the contact zone is thus accelerated.

3,834,933
METHOD OF MAKING A METAL COATED ARTICLE WITH A PROTECTIVE FILM

Pieter Voogel, Middelweg 144, Wassenaar, Netherlands

No Drawing. Filed Oct. 26, 1971, Ser. No. 192,616

Claims priority, application Netherlands, Oct. 29, 1970, 7015901

Int. Cl. C23c *1/00;* **B44d** *1/14*

U.S. Cl. 117—71 M **3 Claims**

The method of forming a protective film on hot-dip metal coated articles, and more particularly articles coated with zinc, but those coated with a metal of the group consisting of tin, lead, aluminum and alloys thereof too, by hot-dip coating an article in a pot comprising a molten metal, directing a spray of paint directly against the solidified metallic coating while the latter is still hot from the hot-dip treatment, said paint comprising flowing agents not showing any boiling phenomenon at the temperature the articles have at the time of applying the paint.

3,834,934
ADHESION OF FIBROUS MATERIAL TO RUBBER

Raymond Broisman, Linden, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Application Mar. 22, 1971, Ser. No. 127,026, now abandoned, which is a division of application Ser. No. 848,690, Aug. 8, 1969, now Patent No. 3,644,256, dated Feb. 22, 1972. Divided and this application Feb. 1, 1973, Ser. No. 328,584

Int. Cl. B32b *25/08*

U.S. Cl. 117—76 T **4 Claims**

A composition comprising an aqueous dispersion of

(A) 50–95 parts of a resorcinol-formaldehyde-latex adhesive composition,
(B) 5–50 parts of an aqueous dispersion of 10–70% of the reaction product of
  (1) a composition derived by reacting a triallyl cyanurate composition having 0.05% to 3.0% ring-bound chlorine, with 6–10 moles of resorcinol per mole of cyanurate; and
  (2) 0.2 to 0.6 mole of formaldehyde per mole of resorcinol in (1).

These compositions are useful in bonding rubber to reinforcing fibers.

3,834,935
ETHOXYLATED POLYBUTYLENE GLYCOLS AS FIBER LUBRICANTS

Richard H. Symm and Benny G. Barron, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed May 1, 1972, Ser. No. 248,959

Int. Cl. C10m *3/14*

U.S. Cl. 117—138.8 B **5 Claims**

Valuable fiber lubricants are compounds of the formula

$$Y[(C_4H_8O)_n—(C_2H_4O)_m—H]_x$$

wherein Y is the residue formed by the removal of x atoms of active hydrogen from an initiator compound YH_x, x is an integer 1–5, n is an integer at least 2, such that the total oxybutylene content, nx moles, is about 6–50 and m is an integer, at least 1, such that the total oxyethylene content, mx moles, is about 2–200 or more, n and m being so chosen that the oxyethylene content constitutes about 20–75% by weight of the total oxyalkylene content. They are especially useful as lubricants for synthetic fibers, such as polyester, polyamide and acrylic fibers.

3,834,936
DRESSING LEATHER

Walter Schroer, Cologne, Johannes Eimer, Leverkusen, and Gunter Mertens, Opladen, Germany, assignors to Bayer Aktiengeselschaft, Leverkusen, Germany

No Drawing. Filed July 24, 1972, Ser. No. 274,153

Claims priority, application Germany, July 29, 1971, P 21 38 016.5

Int. Cl. B44d *1/32;* **C09d** *3/72*

U.S. Cl. 117—142 **2 Claims**

A process is provided for dressing leather and artificial leather using solutions in organic solvents of combinations of

(1) Polyurethanes with terminal hydroxyl groups in the molecular weight range of 5000 to 40,000 prepared by reacting linear or slightly branched polyesters in the molecular weight range of 500 to 5000 which have terminal hydroxyl groups with 3-isocyanato-3,5,5-trimethyl-cyclohexylisocyanate,
(2a) 15 to 100% by weight, based on polyurethane, of vinyl chloride copolymers in the molecular weight range of 25,000 to 150,000 consisting of 70 to 99.5% by weight of vinyl chloride units, 0 to 30% by weight of vinyl alcohol units and/or 0 to 30% by weight of vinyl acetate units and/or 0 to 30% by weight of units corresponding to the copolymerization of α,β-unsaturated mono- or dicarboxylic acids or their esters or semi-esters and 0 to 30% by weight, based on polyurethane, of nitrocellulose which may contain plasticizer, or
(2b) 30 to 130% by weight, based on polyurethane, of nitrocellulose which may contain plasticizer and optionally 0 to 15% by weight, based on polyurethane, of vinyl chloride copolymers of the type mentioned under 2a and
(3) 0 to 30% by weight, based on polyurethane, of polyisocyanates.

3,834,937
METHOD OF PREPARING FLAME-RESISTANT PAPER HAVING A HIGH DELAMINATION RESISTANCE

Akira Karimori, Risaku Kodama, and Akio Kato, Fuji, Japan, assignors to Kabushiki Kaisha Kohjin, Tokyo, Japan

No Drawing. Filed Aug. 14, 1972, Ser. No. 280,409

Int. Cl. D21h *1/40*

U.S. Cl. 117—155 UA **10 Claims**

This invention relates to a method of preparing flame-resistant paper having a high delamination resistance characterized by impregnating paper with an oil-in-water dispersion comprising, a synthetic resin, a flame retardant, such as guanidine salts or water-soluble salts of guanylurea, at least one non-ionic surface active agent and, if desired, an alkylketene dimer.

3,834,938
FLAMEPROOF MOISTURE-RESISTANT COATINGS FOR ELECTRICAL COMPONENTS

Lawrence G. Bockstie, Jr., Bradford, Pa., assignor to Corning Glass Works, Corning, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 75,695, Sept. 25, 1970. This application May 26, 1972, Ser. No. 257,325

Int. Cl. C09d *3/28*

U.S. Cl. 117—201 **9 Claims**

Electrical components having protective coatings which are both flameproof and highly moisture-resistant, and compositions for producing those coatings, are described. The coatings consist essentially of a monomethyl polysiloxane resin together with selected refractory fillers and suspension agents. Optional minor constituents include other silicone resins, tetraalkyl orthosilicates and pigments. The flameproof and moisture-resistant qualities of the coatings are due to their unique combination of refractory, hydrophobic and poromeric properties.

3,834,939
METHOD OF FORMING DOPED SILICON OXIDE LAYERS ON SUBSTRATES AND PAINT-ON COMPOSITIONS USEFUL IN SUCH METHODS

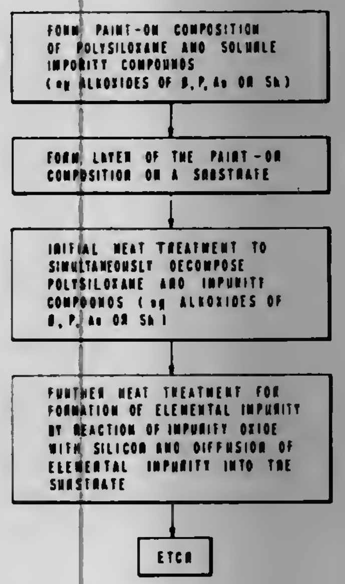
Klaus D. Beyer, Poughkeepsie, and Reginald F. Lever, Putnam Valley, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of abandoned application Ser. No. 12,573, Feb. 19, 1970. This application Aug. 4, 1972, Ser. No. 277,958

Int. Cl. B44d *1/18*

U.S. Cl. 117—201 **1 Claim**

Methods of forming impurity doped silicon oxide layers on semiconductor substrates by first forming a paint-on composition comprising a siloxane and a soluble impurity compound, such as alkoxides containing the suitable impurities such as B, P, As and Sb. A substrate coated with the paint-on composition is heat-treated in an oxidative atmosphere in order to change the coating to a layer containing silicon dioxide doped with an oxide of one or more of the impurity elements. A reactive siloxane polymer of a particular structure may be added to the paint-on composition to improve its pertinent characteristics. The impurity oxide contained in the silicon dioxide serves as a concentrated dopant source for diffusion. Thus, in the interface layer between silicon and the mixture of the impurity oxide and silicon oxide the silicon reacts with the respective oxide to form elemental impurities and SiO_2.


FORM PAINT-ON COMPOSITION OF POLYSILOXANE AND SOLUBLE IMPURITY COMPOUNDS (eg ALKOXIDES OF B, P, As OR Sb)
FORM LAYER OF THE PAINT-ON COMPOSITION ON A SUBSTRATE
INITIAL HEAT TREATMENT TO SIMULTANEOUSLY DECOMPOSE POLYSILOXANE AND IMPURITY COMPOUNDS (eg ALKOXIDES OF B, P, As OR Sb)
FURTHER HEAT TREATMENT FOR FORMATION OF ELEMENTAL IMPURITY BY REACTION OF IMPURITY OXIDE WITH SILICON AND DIFFUSION OF ELEMENTAL IMPURITY INTO THE SUBSTRATE
ETCH

Under siloxanes we understand a class of compounds distinguished by covalent linkage of silicon-oxygen-silicon with the other electrovalence requirements satisfied by organic and/or inorganic substituents. The term polysiloxanes refers to multiple units of the basic siloxane unit which combine to form a backbone structure of molecules having various molecular weights.

3,834,940
METHOD OF REFINING AN ENZYMATICALLY PRODUCED FRUCTOSE CONTAINING SOULTION

Khaja Khaleeluddin and Robert Fredric Sutthoff, Clinton, and William Junior Nelson, Camanche, Iowa, assignors to Standard Brands Incorporated, New York, N.Y.

No Drawing. Original application Jan. 28, 1971, Ser. No. 110,748, now abandoned. Divided and this application Oct. 30, 1972, Ser. No. 302,142

Int. Cl. C13d *3/14;* **C13k** *1/00, 9/00*

U.S. Cl. 127—46 A **4 Claims**

An enzymatically produced fructose-containing solution is refined by sequentially treating the solution with activated carbon, maintaining the solution at an acidic pH and contacting the solution with a strong acid cation exchange resin in the hydrogen form and then with a weak base anion exchange resin in the free base form.

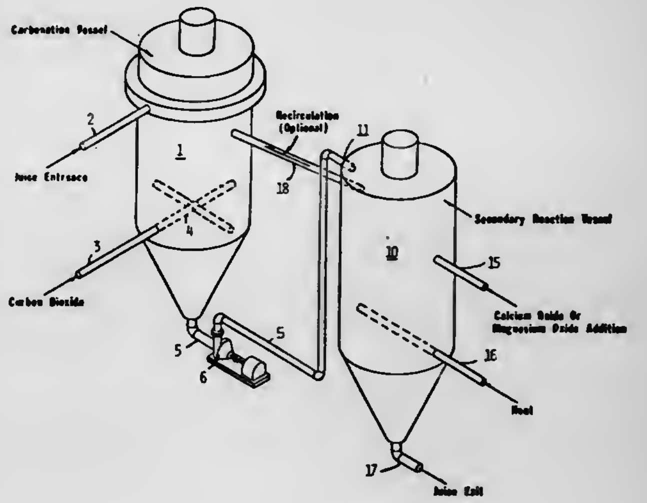
3,834,941
PROCESS FOR THE PURIFICATION OF SUGAR-BEET JUICE AND THE REDUCTION OF LIME SALTS THEREIN

Karlheinz W. R. Schoenrock, Chia-Lung Hsieh, and Hugh G. Rounds, Ogden, Utah, assignors to The Amalgamated Sugar Company, Ogden, Utah

Filed May 17, 1972, Ser. No. 254,215

Int. Cl. C13d *3/00*

U.S. Cl. 127—50 **6 Claims**



Methods of purifying a raw sugar juice involving alkalizing the juice, over-carbonating the juice to reduce the alkalinity to below about 0.065% CaO equivalent and thereafter re-alkalizing with an alkaline earth metal oxide.

3,834,942
SEALED GALVANIC BATTERY CELL AND METHOD FOR ITS MANUFACTURE

Werner Tietze, Hagen, Germany, assignor to Varta Aktiengesellschaft

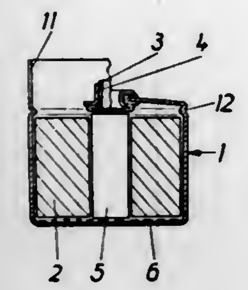
Filed June 28, 1971, Ser. No. 157,556

Claims priority, application Germany, June 26, 1970, P 20 31 714.0

Int. Cl. H01m *35/04*

U.S. Cl. 136—14 **9 Claims**

In a sealed galvanic battery cell, such as an accumulator cell, the electrode set is accommodated in a can or the like tubular container which, with respect to its originally straight axial length, protrudes over the inserted electrode set. The protruding top portion of the container is plastically deformed toward the axis so as to form an end cover integral with the main portion of the container. An annular contact rivet is gas-and-liquid tightly inserted into a central opening of the end cover. The cell is produced by first inserting the electrode set into the container, placing the annular rivet onto a mandrel portion axially protruding from the set, and then deforming the top portion of the container toward the center into engagement with the annular rivet which contains electrically insulating and sealing means.



3,834,943

ELECTROLYTE-ELECTRODE UNIT FOR SOLID-ELECTROLYTE FUEL CELL AND PROCESS FOR THE MANUFACTURE THEREOF

Paul Van den Berghe, Satigny, and Helmut Tannenberger, Geneva, Switzerland, assignors to Compagnie Francaise de Raffinage, Paris, France

No Drawing. Filed June 16, 1972, Ser. No. 263,600

Claims priority, application Switzerland, June 18, 1971, 8,911/71

Int. Cl. H01m *27/00*

U.S. Cl. 136—86 D **11 Claims**

Method and apparatus to improve a fuel cell operating in the range of 800 to 1100° C., the gas-impermeable solid electrolyte preferably being formed of stabilized zirconia with a suitable metal anode and a cathode formed of at least one layer of doped indium oxide affixed to the electrolyte. The improvement consisting of having the doped indium oxide layer formed with dendrites whose principal axes are at least approximately perpendicular to the surface of the electrolyte with the axes forming trunks having a diameter of between 500 and 10,000 A., so that said doped indium oxide layer is permeable to gas and the thickness is at most equal to 0.02 cm. The improvement also includes the method of obtaining such a doped indium oxide layer with dendrites by utilizing an electron beam to vaporize a target of the doped indium oxide and condense the latter on the electrolyte which has been heated to at least 300° C. under total gas pressure of between 10^{-6} and 10^{-2} mm. Hg, containing an oxygen partial pressure of at least 10^{-6} mm. Hg. A further improvement of the foregoing includes the use of a chromite layer between the electrolyte and the indium oxide layer to prevent the diffusion of the one into the other.

3,834,944

MULTI-CELL METAL-FLUID BATTERY

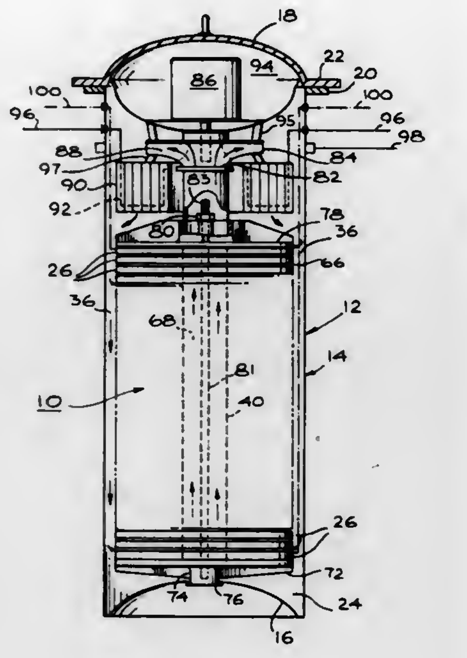
Edward Dennison, Waterford, Conn., assignor to Yardney International Corp., Los Angeles, Calif.

Filed Sept. 10, 1973, Ser. No. 396,010

Int. Cl. H01m *29/04*

U.S. Cl. 136—86 A **9 Claims**

An improved, multi-cell metal-fluid battery comprises a container having a sidewall and endwalls defining a hollow interior within which are stacked a plurality of cells electrically connected in series, each cell containing a pair of electrodes and electrolyte activated upon contact with a fluid. Fluid flow control means are provided which distribute moisture to the electrolyte and an oxygen-containing gas to the cells to sustain the reaction in the cells. The fluid flow control means include means of separating each of the cells in the stack to provide a transverse fluid flow passageway therebetween, circulation means such as a blower activated by a motor, means spacing the stack of cells inwardly of the sidewall to define a peripheral fluid flow passageway, central openings in the cells defining a return passageway, fluid supply means and fluid cooling means such as a cooling core.



3,834,945

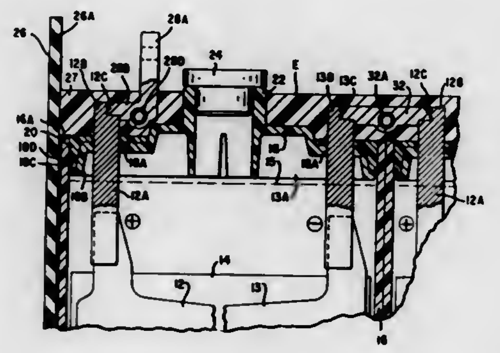
WATER-COOLED INDUSTRIAL BATTERY

Henry E. Jensen, Lafayette Hill, Pa., assignor to Eltra Corporation, Toledo, Ohio

Filed Feb. 5, 1973, Ser. No. 329,878

Int. Cl. H01m *11/00*

U.S. Cl. 136—161 **1 Claim**



An industrial vehicular motive power battery is disclosed which incorporates means for circulating cooling or heating fluids in the intercell connectors of the battery cells, the intercell connectors are then encapsulated with a suitable resin to obviate leakage under adverse atmospheric conditions and contamination when higher battery voltages are utilized. The resin encapsulation also protects personnel from such higher voltages when seated on the battery to operate the vehicle.

3,834,946

METHOD OF MAKING A STORAGE BATTERY

Robert F. Amlie, Milwaukee, and Eugene Yehuda Weissman, Glendale, Wis., assignors to Globe-Union Inc.

No Drawing. Filed July 12, 1972, Ser. No. 271,169

Int. Cl. H01m *1/00*

U.S. Cl. 136—176 **5 Claims**

A charged storage battery having good shelf life and activation performance characteristics upon the addition of electrolyte is made by forming the battery in the usual manner in forming electrolyte, permitting the formed plates to stand in the forming acid while boosting the plates with an electrical charge, removing the electrolyte from the formed storage battery, and filling the battery with water. The water can be left in the storage battery and the battery stored or shipped in this manner. In a preferred manner, the water is removed from the battery after standing in it for approximately 5 minutes to 1 hour, the negative plates are passivated by introducing oxygen into the storage battery, and then the battery is sealed, stored and/or shipped.

3,834,947

TWO-STAGE PROCESS OF SURFACE-HARDENING WORKPIECES OF HARDENABLE FERROUS ALLOYS

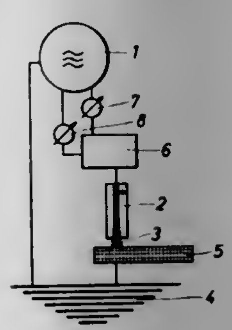
Karl Swoboda, Vienna, and Alfred Kulmburg and Rupert Blöch, Kapfenberg, Austria, assignors to Gebr. Bohler & Co. Aktiengesellschaft, Kapfenberg, Austria

Filed Sept. 21, 1971, Ser. No. 182,420

Claims priority, application Austria, Sept. 21, 1970, A 8,499/70

Int. Cl. B23k *9/00;* **C21d** *7/04*

U.S. Cl. 148—12 **2 Claims**



An electric circuit is operated at a stabilized, high frequency. A cold plasma is produced, which closes said circuit. Energy is supplied by said plasma at a uniform rate to succesive adjoining elemental surface areas of a workpiece of a hardenable ferrous alloy to form in said elemental surface areas metastable austenitic portions having constant cross-sectional shapes and constant properties.

3,834,948

DUCTILE, WELDABLE HIGH-STRENGTH-STEEL WIRE AND METHOD FOR PRODUCING SAME

Kenneth G. Brickner, O'Hara Township, Allegheny County, and Edward B. Stanley, Washington Township, Westmoreland County, Pa., assignors to United States Steel Corporation

No Drawing. Filed Oct. 13, 1971, Ser. No. 189,003

Int. Cl. C21d *1/58, 7/02, 9/52*

U.S. Cl. 148—2 **4 Claims**

A ductile, weldable, high-strength steel wire containing 0.12 to 0.30% C, 0.30 to 1.60% Mn, and 0.0005 to 0.003% B, balance Fe is produced by employing cold reductions of from about 1 to 60%, austenitizing with the range A_3 to 1900° F., and then quenching in oil. The processing variables employed are balanced with the composition and the final diameter of the wire in accord with two equations, to achieve a superior combination of high strength and ductility.

3,834,949

HOT ROLLED FLAT STEEL ARTICLE FOR CRYOGENIC SERVICE AND METHOD FOR PRODUCING SAME

William E. Heitmann, Dolton, and Thomas G. Oakwood, Park Forest South, Ill., assignors to Inland Steel Company, Chicago, Il.

No Drawing. Filed Feb. 14, 1973, Ser. No. 332,413

Int. Cl. C21d *7/14;* **C22c** *39/36*

U.S. Cl. 148—12 **11 Claims**

A hot rolled, flat steel article including 2.0–3.0 wt. percent nickel, 0.4–1.0 wt. percent manganese, 3.0–3.5 wt. percent nickel plus manganese, 0.2–0.8 silicon, 0.01–0.02 columbium and 0.02–0.03 vanadium. Processing includes a hot roll finishing temperature below 1700° F., a finishing deformation of at least 30%, and normalizing. Finishing above 1700° F. or a deformation less than 30% is followed by two normalizing operations. The resulting article has strength and toughness rendering it useful at low temperatures in the range —150° F. to —250° F.

3,834,950

FERROUS ALLOYS

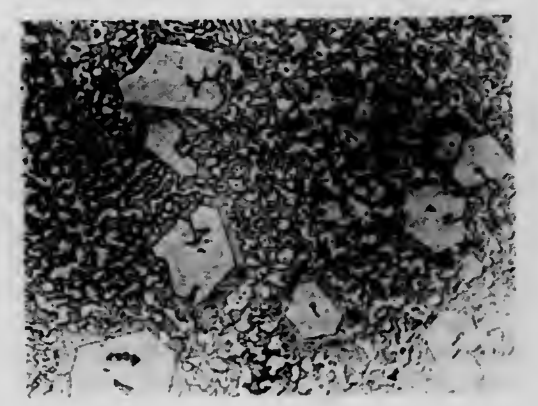
Michel Joseph Feltz, 14e Rue Hotteux, Ayeneux, Belgium

Filed June 27, 1972, Ser. No. 266,703

Claims priority, application Luxembourg, June 29, 1971, 63,431

Int. Cl. C22c *39/14, 39/20*

U.S. Cl. 148—31 **8 Claims**



A heat treated cast ferrous alloy characterized by high chromium and carbon content and having a metallographic structure evidencing a high content of hard eutectic and hypereutectic chromium carbides and a martensitic solid solution free of secondary carbides. The metallographic structure is obtained by the selection of alloying elements in the proper proportion and heat treatment.

3,834,951

TRIP STEEL FOR SPRINGS

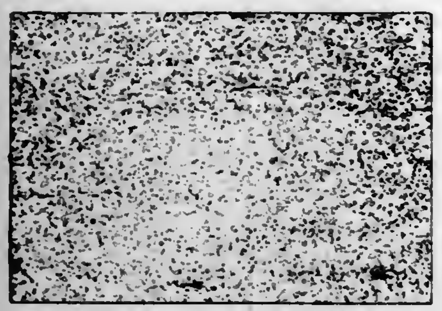
Klas-Erik Jakenberg, Hagfors, Sweden, assignor to Uddeholms Aktiebolag, Hagfors, Sweden

Continuation of abandoned application Ser. No. 737,779, June 17, 1968. This application Aug. 31, 1971, Ser. No. 176,710

Int. Cl. C21d *9/02*

U.S. Cl. 148—36 **1 Claim**

This invention relates to elastic elements, primarily springs on which the required standards of fatigue resistance and/or flatness, etc. are of a high order. More specifically, this invention relates to springs which are produced from a steel alloy, the composition of which is such



that in a temperature range between 500 and 700° C. the steel may have a matrix that is primarily ferritic.

3,834,952

METHOD OF MANUFACTURING COLD-ROLLED NONORIENTED ELECTRO-6 MAGNETIC STEEL SHEET AND PRODUCT ELECTROMAGNETIC STEEL SHEET

Izumi Matsushita, Kiyoshi Tanada, and Osamu Honjo, Himji, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Mar. 29, 1971, Ser. No. 128,673

Claims priority, application Japan, Mar. 30, 1970, 45/26,295

Int. Cl. H01f *1/04*

U.S. Cl. 148—112 **20 Claims**

In the method of manufacturing a cold-rolled nonoriented electromagnetic steel sheet comprising Si in an amount of 1.0–4.0% by weight, acid soluble Al in an amount of 0.1–3.0% by weight and the rest being iron, comprising the ordinary production steps of decarburization, at least one cold-rolling step, and a final heat-treatment subsequent to the final cold-rolling step (including skin pass or temper rolling), the improvement which comprises the decarburization treatment being carried out in the production steps before the final cold-rolling step, the inner oxidized layer present in the surface part of the steel being removed after the decarburization treatment but before the final cold-rolling step; all the heat-treatments after the removal of the inner oxidized layer being carried out in a non-oxidizing atmosphere which contains water and hydrogen in such amounts that the ratio of the partial pressure of steam formed during the heat-treatment steps to the partial pressure of hydrogen is less than 0.05 to avoid the re-forming of an inner oxidized layer.

3,834,953

SEMICONDUCTOR DEVICES CONTAINING AS IMPURITIES As AND P OR B AND THE METHOD OF MANUFACTURING THE SAME

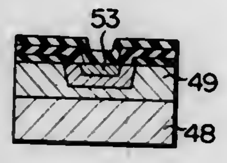
Masakatsu Nakamura, Toshio Yonezawa, and Taketoshi Kato, Yokohama, Masaharu Watanabe, Kawasaki, and Minoru Akatsuka, Yokohama, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Continuation of abandoned application Ser. No. 78,819, Oct. 7, 1970. This application May 23, 1973, Ser. No. 363,132

Claims priority, application Japan, Feb. 7, 1970, 45/10,376; Mar. 2, 1970, 45/17,103; Mar. 13, 1970, 45/20,826; Mar. 28, 1970, 45/25,627

Int. Cl. H01l *7/44*

U.S. Cl. 148—186 **8 Claims**



A semiconductor device comprising a high impurity concentration region, the impurity consisting of arsenic and at least one impurity other than arsenic. The number of atoms of the arsenic is smaller than that of the other impurity.

3,834,954

PROCESS FOR THE PRODUCTION OF A WATER-BEARING EXPLOSIVE COMPOSITION

Eirik Samuelsen, Lierbyen, Norway, assignor to Dyno Industrier A.S., Oslo, Norway

No Drawing. Filed Mar. 2, 1972, Ser. No. 231,376

Claims priority, application Norway, Mar. 10, 1971, 907

Int. Cl. C06b *1/04*

U.S. Cl. 149—2 **11 Claims**

A process for the production of a water-bearing explosive composition, wherein a previously prepared, thickened solution or dispersion substantially comprising the oxidizing components of the explosive composition, is mixed with the combustible or oxygen consuming components of the explosive composition, characterized therein that also the oxygen consuming components are used in the form of a viscous or thickened solution or dispersion having nearly the same consistency as the oxidizing component mixture.

3,834,955

COATED AMMONIUM NITRATE

Richard Fox, Rosanna, Victoria, Keith Neill, Kew, Victoria, and Howard Tankey, Box Hill North, Victoria, Australia, assignors to ICI Australia Limited, Melbourne, Victoria, Australia

No Drawing. Filed Feb. 26, 1973, Ser. No. 336,075

Claims priority, application Australia, Mar. 10, 1972, 8,241/72

Int. Cl. C06b *19/02*

U.S. Cl. 149—7 **13 Claims**

An explosive composition of matter comprising a major proportion of at least one inorganic oxygen releasing salt characterized in that the said salt is coated with an essentially complete coating of material comprising a hydrocarbon substance having hydrophobic or water repellent characteristics.

3,834,956

SOLID PROPELLANT COMPOSITION CONTAINING LEAD AND LEAD COMPOUNDS

Dale F. Mellow, Salt Lake City, Utah, and Richard Winer, New Castle, Del., assignors to Hercules Incorporated, Wilmington, Del.

Filed Aug. 8, 1967, Ser. No. 661,495

Int. Cl. C06b *1/07*

U.S. Cl. 149—19.1 **11 Claims**

The use of lead and compounds thereof in high energy propellant formulations results in propellant systems having very high density-impulse and very high efficiency. This is achieved by adjusting the composition of the formulations such that the exhaust temperatures of the propellant are maintained above the vaporization temperature of the lead.

3,834,957

SOLVENT PROCESS FOR PRODUCTION OF COMPOSITE PROPELLANTS USING HEXANE AND HMX

John P. McDevitt, Accokeek, and Marguerite S. Chang, Forest Heights, Md., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed May 14, 1970, Ser. No. 48,770

Int. Cl. C06d *5/06*

U.S. Cl. 149—19.4 **10 Claims**

A "solvent" process for the large scale production of the composite propellants employing HMX as an oxidant whereby a mixture of HMX and n-hexane is intimately mixed with a binder mixture and the n-hexane subsequently removed from the propellant mixture by vacuum evaporation.

3,834,958

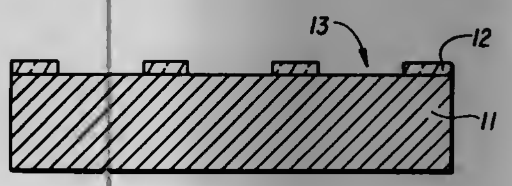
METHOD FOR ISOLATION OF CIRCUIT REGIONS IN MONOLITHIC INTEGRATED CIRCUIT STRUCTURE

Kenneth E. Bean, Richardson, and Paul S. Gleim, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Original application Feb. 17, 1969, Ser. No. 799,721, now Patent No. 3,624,467. Divided and this application Dec. 17, 1970, Ser. No. 99,289

Int. Cl. H01l *7/50*

U.S. Cl. 156—8 **4 Claims**



Polycrystalline silicon having a needle-like oriented grain structure is found to have anisotropic electrical and thermal properties. A monolithic integrated circuit structure having a plurality of monocrystalline silicon islands is fabricated in a polycrystalline silicon matrix having such a grain structure, with the grain direction oriented to provide maximum electrical resistivity between the monocrystalline islands, and maximum thermal conductivity toward a header or other heat sink. In one embodiment, the monocrystalline islands and polycrystalline matrix are grown by vapor deposition of silicon on a monocrystalline substrate provided with a suitable masking pattern, whereby the polycrystalline material grows on the mask concurrently with the growth of monocrystalline silicon on the unmasked areas of the substrate.

3,834,959

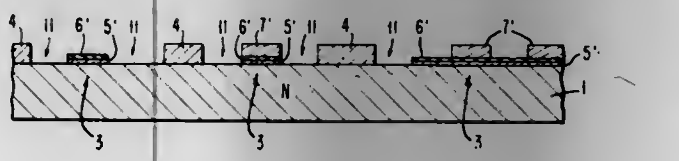
PROCESS FOR THE FORMATION OF SELF-ALIGNED SILICON AND ALUMINUM GATES

Robert H. Dennard, Croton-on-Hudson, and Dominic P. Spampinato, Ozone Park, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1972, Ser. No. 267,879

Int. Cl. H01l *7/50*

U.S. Cl. 156—11 **22 Claims**



A process for the simultaneous formation of self-aligned silicon gates and aluminum gates having self-aligned channel regions on the same wafer is disclosed. Basically, the process consists of the deposition of successive layers of silicon nitride and polycrystalline silicon over thick and thin silicon dioxide regions which are disposed on the surface of a semiconductor wafer. Polysilicon gates are delineated in the thin oxide regions. Subsequently, a chemically vapor deposited silicon dioxide layer is formed over the surface of the exposed silicon nitride layer and over the polycrystalline silicon gate regions. At this point, the CVD oxide is delineated to form an oxide mask which will permit the removal of silicon nitride down to the thin oxide at certain regions where diffusion windows are to be formed in exposed thin oxide regions which are subsequently removed by a dip etch. While the exposed thin oxide regions are masked by either silicon nitride portions or polycrystalline silicon gate regions, the masking regions of CVD oxide which protected the silicon nitride layer are simultaneously removed by the dip etch which opens the diffusion windows in the thin oxide regions. After a diffusion step which includes deposition of a phosphorous dopant in the diffusion windows from the vaporous phase and a drive-in step, a thermal oxidation step is carried out which covers the diffused window regions and the polysilicon gates and thick oxide regions leaving the exposed nitride portions unaffected. In a subsequent masking step, diffusion contact windows and silicon gates contact windows are opened. Then, metallization is deposited everywhere and delineated to form metal gates and contacts to both diffusions and silicon gates. Metal is delineated and formed in each of the exposed silicon nitride regions one of which is a self-aligned channel region for a metal gate field-effect transistor. Other metal gates for a charge coupled device are positioned by virtue of the presence of adjacent polysilicon gates and are insulated from the substrate by a thin oxide and nitride layer and from the silicon gates by a layer of thermally grown silicon dioxide on the surface of the silicon gates. The resulting structure includes a metal gate field-effect transistor, a self-aligned silicon gate field-effect transistor, and a charge coupled device on the same wafer. By using an additional masking step over that required for the formation of silicon self-aligned gates alone, metal gates which are either self-aligned by virtue of adjacent polysilicon gates or by virtue of the presence of a self-aligned channel are thus obtained. In addition, a random access charge coupled device which incorporates a metal transfer gate and a polysilicon storage plate is also disclosed. The structure results from the above described fabrication process and is structurally unique in that the metal gate is disposed immediately adjacent to a diffusion region which itself is disposed under a thick oxide layer. In addition, the polycrystalline silicon storage plate is spaced from the metal gate by a layer of thermally grown silicon dioxide.

3,834,960

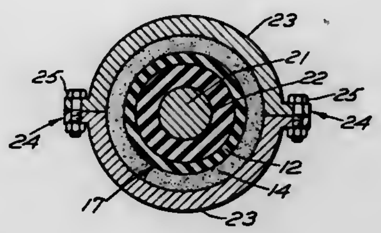
METHOD OF MAKING FUSIBLE AND ELECTRICAL CONDUCTIVE COATING

Winslow W. Prentice, Pawcatuck, and Markay H. Malootian, Quaker Hill, Conn., assignors to the United States of America as represented by the Secretary of the Navy

Filed Aug. 31, 1973, Ser. No. 393,534

Int. Cl. H01b *13/06, 13/22*

U.S. Cl. 156—53 **2 Claims**

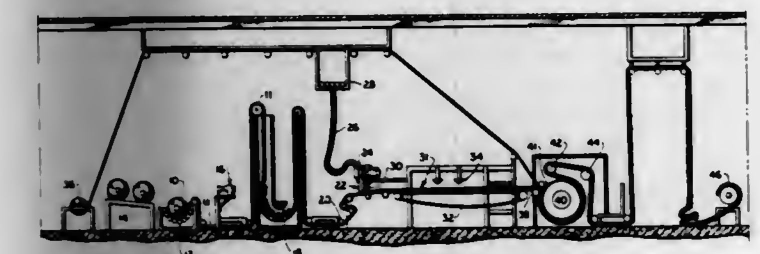


A conductive material formed on the surface of a polyethylene film comprises a homogeneous mixture of polyethylene powder, nickel powder, silver flake and polyethylene oxide of a high molecular weight. The conductive material is bonded by means of fusion to the polyethylene film to form a coating which is then bonded to the outer surface of a polyethylene cable.

3,834,961

METHOD OF PROMOTING SEPARATION BETWEEN A HEATED CURING SURFACE AND A BACKING MATERIAL

C. Edward Terry, Rockmart, Ga., assignor to Textile Rubber and Chemical Company, Inc., Dalton, Ga.
Continuation-in-part of application Ser. No. 197,022, Nov. 9, 1971, now Patent No. 3,806,385, which is a continuation-in-part of application Ser. No. 112,472, Feb. 3, 1971, now Patent No. 3,705,834, which in turn is a continuation-in-part of application Ser. No. 111,860, Feb. 2, 1971, now Patent No. 3,700,515. This application Jan. 24, 1973, Ser. No. 326,232
The portion of the term of the patent subsequent to Oct. 24, 1989, has been disclaimed
Int. Cl. D05c *15/00*
U.S. Cl. 156—72 **9 Claims**

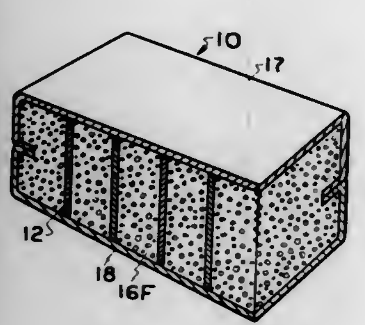


A urethane carpet backing material is cured on the heated surface of at least one heated drum. The surface of the drum is provided with a nonstick release agent to prevent or minimize any tendency of the carpet material to stick or adhere to the heated surface, and to permit the carpet material to be readily separated from the drum without damaging the urethane backing material or the surface of the drum. In the preferred embodiment, the urethane backing material serves as an adhesive between a tufted primary backing and a secondary backing. In an optional embodiment, the urethane backing material serves as an integral adhesive and secondary backing. When serving as an integral adhesive and secondary backing, foam cells in the urethane may be crushed to produce a relatively hard back for the carpet product or the cells may remain in the urethane to produce a relatively soft and cushioned back for the carpet product.

3,834,962

REINFORCED FOAMED-PANEL STRUCTURE

William P. Strumbos, 85 Middleville Road, Northport, N.Y. 11768
Filed Feb. 18, 1972, Ser. No. 227,397
The portion of the term of the patent subsequent to Feb. 22, 1989, has been disclaimed
Int. Cl. B32b *31/06, 31/12*
U.S. Cl. 156—79 **8 Claims**

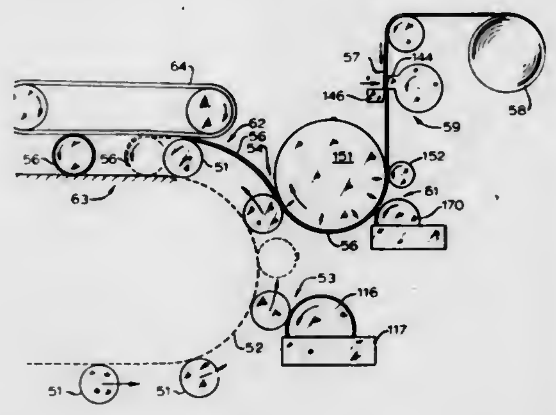


In the art of constructing reinforced foamed-panel structures, a method for treating the reinforcing elements of the panel structure during the manufacturing process with a self-contained force-generating foamable substance such that the elements can be shipped in an unexpanded state and a panel can be produced subsequently when required by activating the foamable substance. The force-generating substance is a stable, but potentially reactive, foamable material coated on selected portions of the reinforcing elements with the foamable reactants of the material isolated from one another by impermeable barrier means. These barrier means are ruptured or dissolved by suitable means to trigger the foaming reaction that provides the force to deploy the reinforcing elements such that a foamed panel having suitably located reinforcing means is produced. Because the foamable means for producing the panel are self-contained and can be remotely activated, structures can be made using the panel as a foamed-in-place core and in which, also, the foaming of the panel locks the components of the structure together and, if desired, to the components of other structure such that the need for other fastening means is thereby rendered unnecessary.

3,834,963

METHOD FOR APPLYING LABELS TO CONTAINERS

Wolfgang Hoffman, Modesto, Calif., assignor to B & H Manufacturing Company, Inc., Modesto, Calif.
Continuation-in-part of application Ser. No. 5,187, Jan. 23, 1970, now Patent No. 3,765,991. This application Feb. 14, 1972, Ser. No. 226,064
Int. Cl. B65c *3/08, 3/12*
U.S. Cl. 156—215 **8 Claims**



Method and apparatus for continuous high speed application of labels to containers wherein the adhesive is applied to a predetermined location upon each of a succession of contains moved past a vacuum drum applying the leading edge of a label to each container at such location. The labels are successively cut from a strip by means ensuring continuous label movement and have an adhesive applied to a trailing edge thereof before application to containers. The containers are then moved to a discharge station where the labels are wrapped about the containers.

3,834,964

PROCESSING OF A MULTIPLICITY OF WEBS TO ENHANCE THE MANUFACTURE OF MULTICOMPONENT LAMINATES

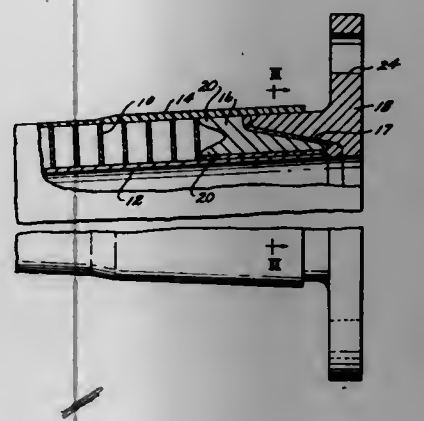
Elmer Paul Blasing, Jr., Cincinnati, Ohio, assignor to Formica Corporation, Cincinnati, Ohio
No Drawing. Filed Oct. 17, 1972, Ser. No. 298,212
Int. Cl. B32b *31/18;* **C09j** *5/00*
U.S. Cl. 156—269 **9 Claims**

In the production of heat and pressure consolidated laminates which are impregnated with an impregnating resinous material and then formulated into packs ready for consolidation, a plurality of the same or different webs are simultaneously impregnated with said material and then preferably dried prior to formulation into said packs.

3,834,965

METHOD OF MAKING A LIGHTWEIGHT DUCT

David L. Seiwert, West Chester, and Thomas L. Hampton, Loveland, Ohio, assignors to General Electric Company
Original application Jan. 29, 1969, Ser. No. 794,952, now Patent No. 3,757,827. Divided and this application Oct. 18, 1972, Ser. No. 298,634
Int. Cl. C09j *5/00;* **F16l** *9/14*
U.S. Cl. 156—294 **4 Claims**

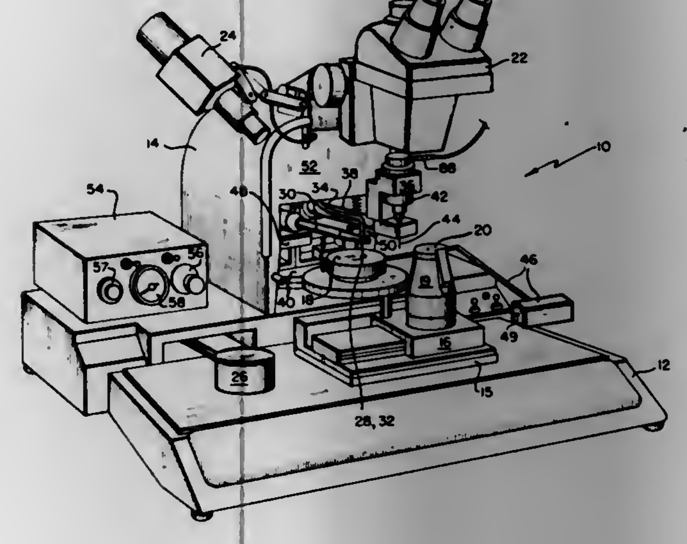


A lightweight composite duct having inner and outer shells with a cellular core therebetween is provided with a mounting ring. The mounting ring is bonded to a split, wedge ring which, in turn, is bonded to the thin-walled inner shell of the duct. In fabrication, the inner shell is telescoped over a mandrel. The mounting ring is telescoped over the inner shell and defines a V-shaped groove. A strip of adhesive material is wrapped about the split, wedge ring, and the wedge ring is then forced into the V-shaped groove. A woven mesh material in the adhesive strip provides accurate spacing between the split, wedge ring and the shell and between the split, wedge ring and the mounting ring as the split, wedge ring flexes radially to provide essentially uniform adhesive thickness regardless of tolerance variations in the mounting ring and the inner shell. Thereafter, a honeycomb core is bonded to the inner shell, and an outer shell is bonded to the core and the mounting ring.

3,834,966

ADHESIVE BONDING SYSTEM

James E. Kelly, Melrose, Mass., assignor to Mech-El Industries, Inc., Woburn, Mass.
Filed Dec. 26, 1972, Ser. No. 318,207
Int. Cl. B32b *31/00*
U.S. Cl. 156—379 **8 Claims**

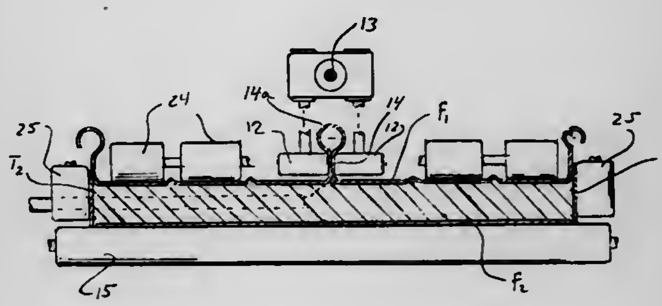


This invention pertains to an adhesive bonding system for bonding miniature objects to a substrate utilizing an adhesive dispenser capable of dispensing minute quantities of adhesive; a vacuum powered tool to pick up and place the objects to be bonded on the adhesive; means to move the adhesive dispenser and the vacuum powered pickup and place tool sequentially into the work area; means to operate the adhesive dispenser and the vacuum powered pickup and place tool independently; an optical system for positive viewing and control of the dispensing of adhesive; and the pickup and placement of the objects to be bonded by an operator. Utilizing one of a series of interchangeable adhesive dispenser cartridges, this system permits the precisely controlled dispensing of minute quantities ranging from .001 inches in diameter and .0005 inches in thickness to .250 inches in diameter to .200 inches in thickness, of various adhesives, solder pastes, epoxies, and the like of varying viscosities at precise locations on a substrate. A novel dispenser cartridge for the smallest size units ranging from .001 inches in diameter and .0005 inches in thickness to .020 inches in diameter and .020 inches in thickness is also disclosed. This adhesive bonding system is used for bonding semiconductors and the other components to substrates or electrical leads in the manufacture of hybrid circuits, but is easily adaptable to other applications.

3,834,967

APPARATUS FOR FORMING FOAMED PANELS

William E. Lowery, Orinda, and Roger G. Jennings, Oakland, Calif., assignors to Control Building Systems, Inc.
Filed Apr. 30, 1971, Ser. No. 145,255
Int. Cl. B29b *5/04*
U.S. Cl. 156—356 **16 Claims**



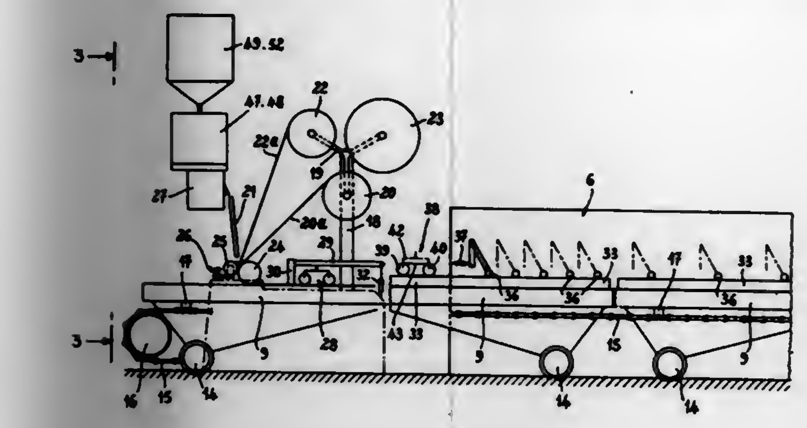
A continuous method for forming laminated panels, especially those having a foamed core of urethane, wherein a pair of panel facings are fed horizontally and in a relatively straight line while supported in spaced relation, one of said panels being driven and the other panel facing being connected to and correspondingly moved by the first, a setable mixture of foaming components being dispensed between said facings in a zig-zag pattern, and apparatus for carrying out the method to produce panels having a substantially uniform cell structure and minimum density gradients and being relatively free of voids.

3,834,968

INSTALLATION FOR MANUFACTURING STRATIFIED ISOTHERMAL PANELS

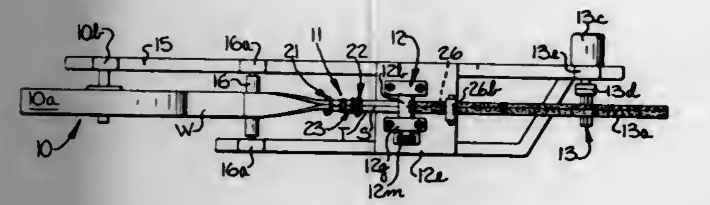
Paul Lamberet, Vonnas, Ain, France
Filed Apr. 28, 1972, Ser. No. 248,538
Int. Cl. B32b *31/10*
U.S. Cl. 156—389 **8 Claims**

An installation for manufacturing isothermal panels of stratified material, notably for refrigerator vans, bodies of vehicles and the like, of the type comprising a core of rigid expanded material such as polyurethane sandwiched between two sheets of stratified material such as polyester. The installation comprises a pair of tracks, i.e. an outward track and a return track, along which successive adjacent tables are caused to travel past stations for depositing a resin mixture, a reinforcing textile, web, and an expanded sheet, for curing the resin, and possibly for covering the opposite face of the panel with a resin mixture and a reinforcing textile web.



3,834,969
APPARATUS FOR FORMING A STRETCHABLE TUBULAR PACKAGING MATERIAL

Brendan L. Doll, Patterson, N.C., assignor to Cellu Products Company
Filed Feb. 3, 1972, Ser. No. 223,246
Int. Cl. B23d *25/02;* **B29d** *23/00;* **B32b** *31/00*
U.S. Cl. 156—466 **7 Claims**

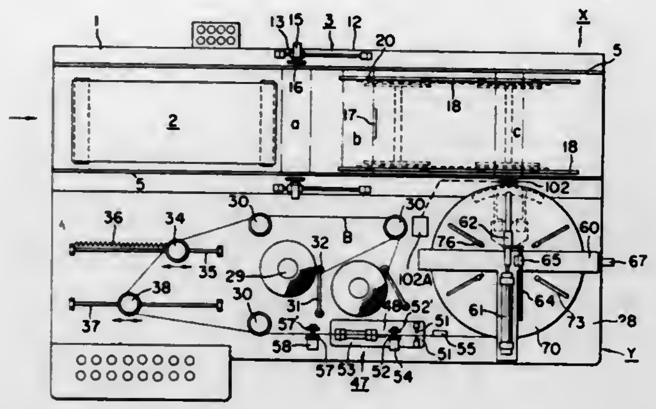


Apparatus for producing resilient, readily stretchable tubes for receiving and packaging articles therein, including means for curving or bowing a sheet or web of flexible foam material to bring opposing side edges thereof into substantially collinear relationship. Means is provided for uniting the thus positioned side edges to form a tube from the web, and slitting means is provided for slitting the foam material in a pattern of spaced apart rows of spaced incisions so arranged that the tube may be stretched radially to receive therein an article of greater cross-sectional area than the initial internal cross-sectional area of the tube, and the tube then will recover into substantial conformance to the size and shape of the article therein.

3,834,970
ADHESIVE TAPE STICKING MACHINE

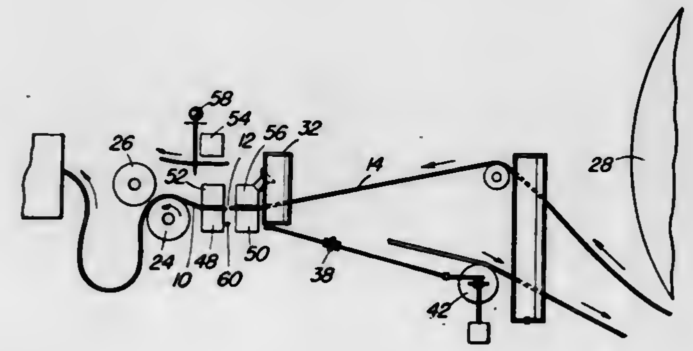
Shigeru Mitsuoka, Tokyo, Tadasaburoh Kaneko, Saitama-ken, and Tetsuo Igarashi, Funabashi, Japan, assignors to Lion Fat & Oil Co., Ltd., Tokyo, Japan
Filed July 3, 1972, Ser. No. 268,868
Claims priority, application Japan, July 2, 1971, 46/48,919, 46/48,920
Int. Cl. B31b *1/86*
U.S. Cl. 156—489 **4 Claims**

An adhesive tape sticking machine comprising an intermittent conveying device for an article and a device for sticking a segment of said adhesive tape on said article. The sticking device is provided with an adhesive tape holding reel and a turntable capable of intermittent rotation in concert with the intermittent movement of the article. The turntable has a tape-holding mechanism on its circumference as well as press arms disposed on both sides thereof in movable fashion. A cutter cuts the adhesive tape held to said tape-holding mechanism into pieces of prescribed length, and an actuating mechanism works to thrust out said press arms toward both ends of the cut piece of adhesive tape held in abeyance facing the standing article so as to press and stick said piece to the article.



3,834,971
APPARATUS FOR BUTT WELDING THERMOPLASTICS SHEETS AND FILMS

David Emil Johnson, Macedon, N.Y., assignor to Mobil Oil Corporation
Filed Sept. 21, 1972, Ser. No. 291,133
Int. Cl. G03d *15/04*
U.S. Cl. 156—507 **5 Claims**

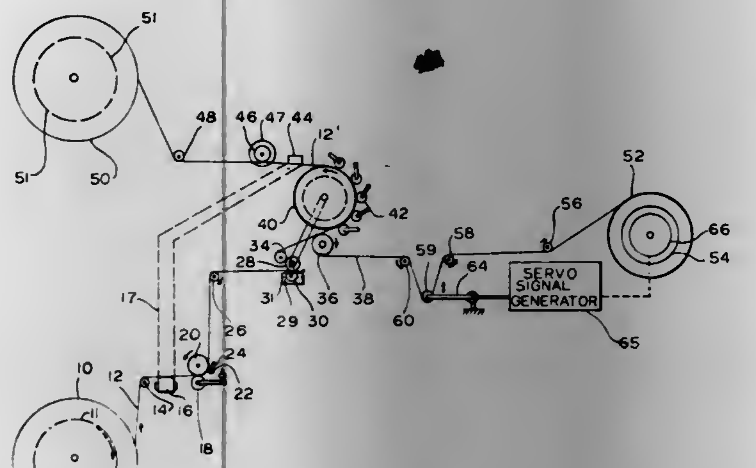


Improvements in the process and apparatus of application Ser. No. 236,766 filed Mar. 21, 1972. There is described a technique for butt welding a trailing end of one roll of thermoplastic film or sheet material to the leading edge of another roll of such material by vertically superimposing the trailing and leading portions of the two rolls, aligning the lateral edges of such portions over a significant distance sufficient to insure angular alignment of the two rolls at the butt weld. Severing the two portions along a coincident transverse line, heating the severed portions to an extent sufficient to weld such together, and bringing the heated transverse edges of the two portions together while maintaining lateral edge alignment of said portions, whereby butt welding such into a continuous sheet.

3,834,972
MEANS FOR SECURING A MAGNETIC TAPE TO MOTION PICTURE FILM

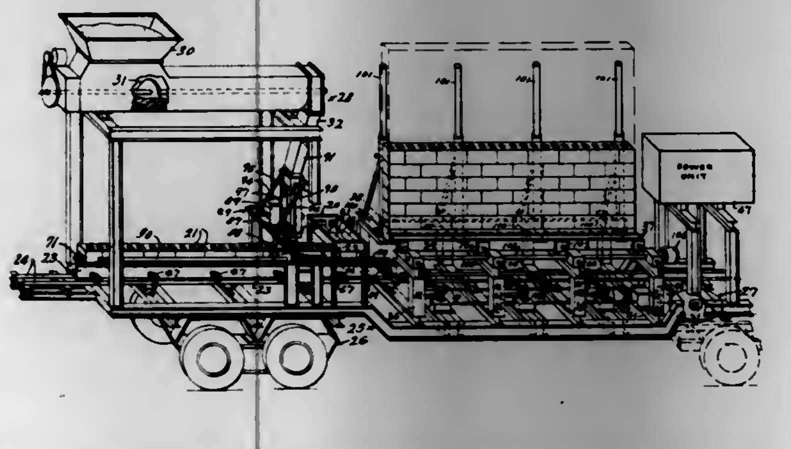
Robert Sava, Yonkers, N.Y., assignor to Thaddeus E. Owens, Brooklyn, N.Y.
Filed Feb. 16, 1973, Ser. No. 333,009
Int. Cl. B32b *31/00;* **B65c** *11/04*
U.S. Cl. 156—517 **8 Claims**

A process and apparatus for automatically and continuously applying a thin, narrow magnetic tape to a thicker, wider plastic motion picture film comprising moving the film at a prescribed speed before a milling cutter which cuts a groove in a margin of the film and a bead of an adhesive binder is continuously applied to the groove. A magnetic tape, under proper tension and speed, is applied continuously to the adhesive coated groove. Calendering rollers apply progressive greater pressure to the tape to secure it in place and the composite film and tape are buffed and wound on a takeup reel.



3,834,973
APPARATUS FOR FABRICATING MODULAR WALL SECTIONS

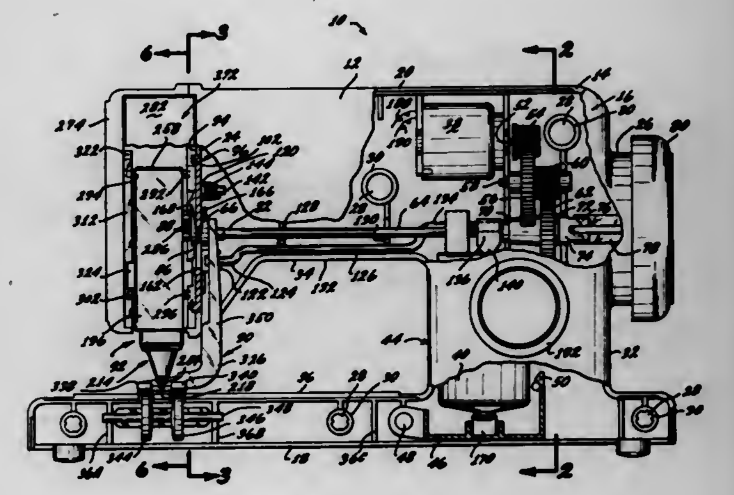
Jack A. C. Kummerow, Toledo, Ohio, assignor to S. A. Storer & Sons Company, Toledo, Ohio
Filed Jan. 2, 1973, Ser. No. 320,074
Int. Cl. B32b *31/04;* **E04g** *21/22*
U.S. Cl. 156—558 **12 Claims**



An apparatus and method for automatically fabricating modular sections of masonry type walls. The apparatus and method constitute improvements over those disclosed and claimed in Storer U.S. Pat. No. 3,585,092 of June 15, 1971. The specific apparatus has means for feeding concrete blocks in selected sequence onto a lineally movable course shuttle and for applying head and bed mortar to the blocks of the course and to the course. Clamp and pressure mechanisms set the head mortar to provide courses of uniform length, in sequence. Each course is then elevated as a unit against the underside of a previously assembled course. Means are provided to enable blocks of different wall thickness to be assembled and to assemble and set the joints of both half-bond and stack-bond wall modules and to leave voids for windows and doors where desired. The method comprises a sequence of steps by which the courses are assembled, mortar is applied, the course is made uniform in length and then is elevated into contact with the underside of a previous course, thus building the wall section from the top down.

3,834,974
SEWING MACHINE TOY

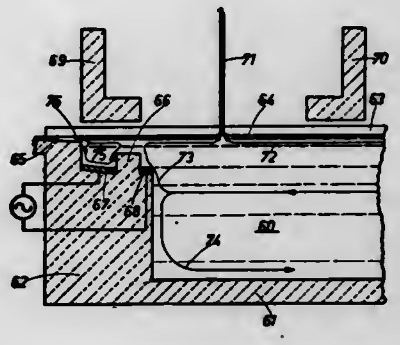
Ralph Dunn, Los Angeles, Ian F. Ayton, Palos Verdes Estates, Albert Cane, Los Angeles, Harold B. Collins, Hawthorne, J. Stephen Lewis, Pacific Palisades, Joseph P. Morris, Huntington Beach, and Wallace H. Shapero, El Toro, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Jan. 29, 1973, Ser. No. 327,268
Int. Cl. B65c *11/04*
U.S. Cl. 156—578 **5 Claims**



Cloth seams are bonded together by soaking a solid-phase, liquid-dispersed bonding agent into the seam and then coagulating the solid-phase. Coagulation may be accelerated by an acidic coagulating agent. In one embodiment of the invention, a cartridge carries a bonding agent having a basic pH in one chamber and an acidic coagulating agent in another chamber. The cartridge is removably mounted on a cartridge reciprocating crank in a sewing machine having a base plate and a presser foot which feeds the seam across the plate under the reciprocating cartridge. The presser foot is carried by a crank and a special pivot arrangement which causes the feeding-end of the foot to move in a cloth-feeding path. In a second embodiment, a hand-held instrument reciprocates a pair of cartridges into engagement with the cloth.

3,834,975
CONTROL OF CURRENTS IN GLASS DRAWING KILN

Edgar Brichard, Jumet, Belgium, assignor to Glaverbel S.A., Watermael-Boitsford, Belgium
Filed Feb. 24, 1972, Ser. No. 228,963
Claims priority, application Luxembourg, Feb. 24, 1971, 62,648; Great Britain, Jan. 24, 1972, 3,278/72
Int. Cl. C03b *15/04*
U.S. Cl. 161—1 **52 Claims**



In a glass drawing kiln containing a mass of molten glass from which a glass ribbon is drawn, the uniformity of the temperature of the glass feeding the ribbon is improved by locally heating the glass in one region of the kiln adjacent, but spaced from, a kiln wall to produce a rising current of heated glass which forms a barrier across which glass adjacent such wall is prevented from flowing and which supplies glass having an increased temperature to the ribbon.

3,834,976

METHOD OF MAKING ARTIFICIAL BRANCH ASSEMBLIES AND RESULTING ARTIFICIAL BRANCH ASSEMBLY

Alan Mottel, Yonkers, N.Y., assignor to Consolidated Novelty Co., Inc., Paterson, N.J.
Filed Sept. 7, 1973, Ser. No. 395,140
Int. Cl. A47g *33/06*
U.S. Cl. 161—22 **8 Claims**

A method of making artificial branch assemblies utilizes two elongated stiff wires, each of which is in a plastic sheath. First, one of the ensheathed wires is placed into a horizontal mode in a jig. A number of branches are spaced along the sheathed wire in the jig, each branch being centered on and at right angles to the sheathed wire. The second sheathed wire is placed over the branches so that the branches are sandwiched between them. Then, a number of temporary clamps hold the sheathed wires to one another so that the branches remain in place. Finally the wires are twisted along their long axes to form an artificial branch assembly.

3,834,977

SHOCK-PROOF NYLON CARPET SYSTEM

Ronald Edward Rothwell, Colonial Heights, Va., Cipriano Cipriani, Morristown, N.J., and Julian Lee Rush, Richmond, Va., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Mar. 29, 1972, Ser. No. 239,378
Int. Cl. D03d *27/00*
U.S. Cl. 161—67 **8 Claims**

A shock-proof carpet system having a face yarn of textured nylon containing up to about twelve weight percent of an internal additive selected from ethylene oxide condensation products, a primary backing of jute or spunbonded synthetic material, a tuft-locking latex made electrically conductive by the additive of up to about ten weight percent of an antistatic material, and a standard secondary backing.

3,834,978

NON-WOVEN PRODUCT

Stanley M. Nisenson and David L. Green, Brooklyn, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Continuation of abandoned application Ser. No. 881,268, Dec. 1, 1969. This application June 12, 1972, Ser. No. 261,770
Int. Cl. B32b *5/06*
U.S. Cl. 161—81 **2 Claims**

A non-woven nylon article, particularly useful as a carpet backing for either tufted and/or needle-punched carpets, in its preferred form comprising a non-woven nylon mat and an open filament yarn base bonded by a combination of needle-punching and selective heat treatment, and a binder, as described hereinafter.

3,834,979

LAMINAR REINFORCEMENT ELEMENT AND METHOD FOR REINFORCING TEXTILE GARMENTS

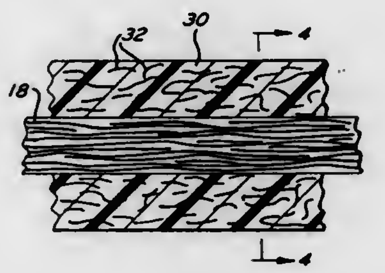
Gary L. Rossell, Philadelphia, Paul C. Fleischer, Jr., Lafayette Hill, and Maurice I. Seifer, Levittown, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.
No Drawing. Continuation-in-part of application Ser. No. 805,359, Mar. 7, 1969, now Patent No. 3,722,000. This application Mar. 3, 1970, Ser. No. 16,242
Int. Cl. B32b *7/10, 27/30*
U.S. Cl. 161—146 **1 Claim**

The present invention is concerned with the provision of a laminar material or element comprising a thermoplastic film and a layer of a thin fibrous tissue. This element is employed for the reinforcement of garments in areas subject to severe wear such as the seat of the pants or the knee areas of slacks and the elbow areas of shirts and blouses. For such reinforcement the laminar article or element is placed on the area of the garment to be reinforced with the paper layer exposed and the element then pressed such as by a heated iron or the type of press that is used in laundries and drycleaning establishments while being subjected to heat to cause the thermoplastic film to adhere to the surface of the garment without excessive penetration of the interstices of the yarns of the garment by the mass of the film.

3,834,980

GLASS-FILLED THERMOPLASTIC PELLETS SUITABLE FOR BLENDING WITH THERMOPLASTIC

Norman T. Hall, Santa Ana, Calif., assignor to Liquid Nitrogen Processing Corporation, Malvern, Pa.
Application Mar. 27, 1970, Ser. No. 23,213, now Patent No. 3,702,356, which is a continuation-in-part of application Ser. No. 833,983, June 17, 1969, now Patent No. 3,608,033. Divided and this application July 19, 1972, Ser. No. 273,068
The portion of the term of the patent subsequent to Jan. 9, 1990, has been disclaimed
Int. Cl. B32b *5/02*
U.S. Cl. 161—176 **1 Claim**



The process consists of feeding an extruded mixture of silane coupling agent, and molten thermoplastic (with or without glass fibers) to a cross-head die, coating continuous glass roving with said mixture in said cross-head die, solidifying said molten thermoplastic while said thermoplastic is coated on said roving, and pelletizing the solidified material. Such pellets may be blended with thermoplastic, and thereafter molded to yield an article having high tensile strength.

3,834,981

CERAMIC AND GLASS-CERAMIC ARTICLES PRODUCED FROM BETA-SPODUMENE

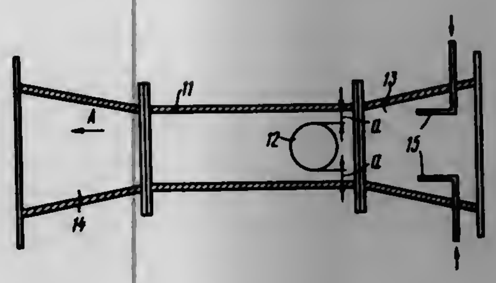
David G. Grossman, Painted Post, and Hermann L. Rittler, Horseheads, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed Oct. 27, 1972, Ser. No. 301,361
Int. Cl. B32b *17/06;* **C03c** *15/00*
U.S. Cl. 161—192 **9 Claims**

Low-expansion ceramic and glass-ceramic articles manufactured from beta-spodumene Li_2O_3—Al_2O_3—SiO_2 compositions using a $H^+ \rightleftarrows Li^+$ ion-exchange process which produces a hydroxy-aluminosilicate phase convertible by appropriate heat treatment to desirable aluminosilicate phases are described. The low-expansion ceramic and glass-ceramic articles are useful for certain high-temperature applications where the reactivity of lithium aluminosilicates precludes their use.

3,834,982

METHOD AND APPARATUS UTILIZING THE EFFECTS OF CAVITATION IN THE TREATMENT OF FIBROUS SUSPENSIONS

Rem Alexandrovich Solonitsyn, ulitsa Andreya Malyshko 45, kv. 31, Kiev, U.S.S.R.; Ivan Elizarovich Vjukov, Grazhdansky prospekt 98, korpus 2, kv. 129; Leonid Alexeevich Gorbachev, ulitsa 3, Internatsionala 3, kv. 141; and Anatoly Mikhailovich Belonogov, ulitsa Bela Kuna 23, kv. 171, all of Leningrad, U.S.S.R.; and Gennady Afanasievich Vorobiev, Chuksin tupik 4, kv. 10; and Alexandr Vasilievich Efimov, ulitsa Starogo Gaya 6, korpus 1, kv. 58, both of Moscow, U.S.S.R.
Filed Sept. 1, 1972, Ser. No. 285,860
Int. Cl. D21b *1/00*
U.S. Cl. 162—1 **19 Claims**



Suspensions of fibrous materials are treated by positioning a non-streamlined solid cylindrical body, crosswise in a reactor such that the cylinder is disposed in a hydrodynamic flow of the suspension to produce a two dimensional plane contraction of the flow. This causes cavitation forces to be established in the thus contracted flow and these forces act on the suspension to effect any one or more of various treatments such as resination, beating, bleaching, washing, etc.

3,834,983

PROCESS OF FORMING WET LAID TUFTED NONWOVEN FIBROUS WEB FROM A VISCOUS FIBROUS DISPERSION AND PRODUCT

Bernard W. Conway, Holyoke, Mass., and James Moran, Simsbury, Conn., assignors to C. H. Dexter & Sons, Inc., Windsor Locks, Conn.
Filed Mar. 15, 1973, Ser. No. 341,699
Int. Cl. D21h *3/12, 3/40*
U.S. Cl. 162—168 **9 Claims**

A tufted nonwoven waterlaid web material exhibiting high loft, bulk and absorbency is comprised of a substantially planar web body portion of randomly arranged water dispersible fibers and a multitude of separate, spaced fiber tufts of high concentration arrayed on at least one surface. The tufts are composed of a plurality of closely associated, substantially aligned fibers anchored within but extending from the web body portion in the form of weft-like fiber bundles. The nonwoven web material is produced by a wet papermaking process that includes the steps of providing an aqueous fiber dispersing medium having a controlled fluid viscosity of about 3 centipoises and more dispersing within the viscous medium select fibers having a denier of at least 1 d.p.f. at a fiber concentration of at least about .02 percent by weight and depositing the fibers within said dispersion on an apertured fiber collecting element wherein the average hole area of the apertures is about 3×10^{-4} sq. in. and more to form the tufted nonwoven fibrous web with the tufts formed by bundles of substantially aligned fibers extending through the apertures.

3,834,984

METHOD OF INCORPORATING WATER SOLUBLE EPOXYPROPYL STARCH INTO PAPER

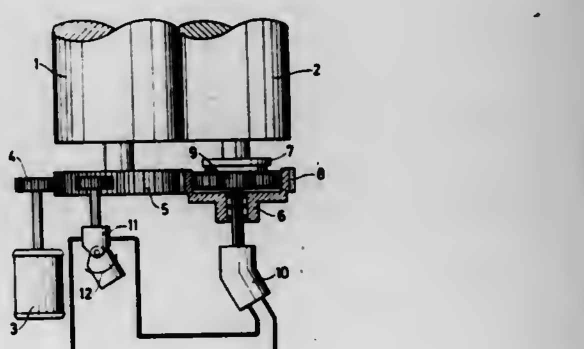
Robert E. Wing, Peoria, and William M. Doane, Morton, Ill., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Original application Dec. 21, 1971, Ser. No. 210,549, now Patent No. 3,795,671. Divided and this application Aug. 9, 1973, Ser. No. 386,921
Int. Cl. D21l *3/28*
U.S. Cl. 162—175 **2 Claims**

A process is disclosed for preparing paper having incorporated therein an epoxypropyl starch. At epoxypropyl D.S. of up to .09 the compounds are water soluble and increase both wet and dry strength of paper at a 1-percent level of addition.

3,834,985

SPEED REGULATING DEVICE INCLUDING PLANETARY GEARING AND A HYDRAULIC UNIT OR VARIABLE VOLUME

Lars Gullberg, Vasa, Finland, assignor to Oy Wartsila Ab, Helsinki, Finland
Filed Nov. 28, 1972, Ser. No. 310,078
Claims priority, application Finland, Nov. 30, 1971, 3,412/71
Int. Cl. D21g *9/00;* **F16h** *47/04*
U.S. Cl. 162—280 **6 Claims**

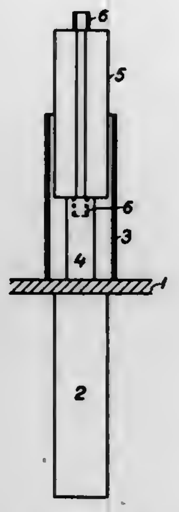


A device for use in regulating the difference in speeds between two rotating elements, for instance a pair of rolls forming a crepe nip in a papermaking machine, includes a planetary gearing connected to one of the rotating elements so that a member carrying the planet wheels of the gearing rotates at a speed which has a constant ratio with respect to the rotating speed of the rotating element. In the planetary gearing there is a toothed annulus engaging and surrounding the planet wheels, and this annulus is arranged to rotate at a constant speed ratio with respect to the other one of the rotating elements. A hydraulic pump and motor arrangement is connected to the device so that the flow produced by the pump is dependent on the rotating speed of the last mentioned rotating element, and so that the motor determines the speed of the sun wheel of the planetary gearing. The rotating speed of the sun wheel can be regulated by changing the piston displacement volume in either the pump or the motor, or in both of them. Changes in the speed of the sun wheel cause corresponding changes in the speed of the rotating element connected to the planet wheel carrier.

3,834,986
CONTROL ROD FOR NUCLEAR REACTORS

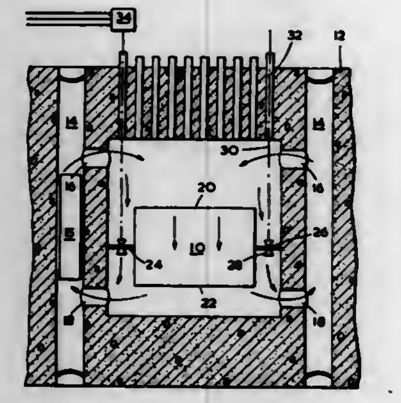
Antti Suvanto, Vasteras, Sweden, assignor to Aktiebolaget Asea-Atom, Vasteras, Sweden
Filed Aug. 24, 1972, Ser. No. 283,487
Claims priority, application Sweden, Oct. 11, 1971, 12,820/71
Int. Cl. G21c *19/10*
U.S. Cl. 176—33 1 Claim

In order to provide more efficient use of control rods for nuclear reactors, they are provided with attachment means at both ends for attachment to a movable holder such as a movable shaft. Thus the rods may be reversed when one end is spent, while the other end still has useful life.



3,834,987
FLUID-COOLED NUCLEAR REACTOR

Reginald Kenneth Cook, % British Nuclear Design & Construction Limited, Cambridge Road, and Piotr Stanislaw Burylo, % The English Electric Company Limited, both of Whetstone, Leicester LE8 3LH, England
Filed Dec. 21, 1970, Ser. No. 100,055
Claims priority, application Great Britain, Dec. 23, 1969, 62,548/69
Int. Cl. G21c *7/32, 15/02*
U.S. Cl. 176—59 5 Claims



To achieve a rapid reduction in heat output from a fluid-cooled nuclear reactor which has associated therewith a direct-cycle gas turbine, provision is made for permitting a proportion of the cool coolant fluid fed to the upstream side of the reactor core to by-pass the core and mix with, and thus reduce the temperature of, heated coolant emergent from the downstream side of the core. The invention improve the accessibility of fluid control equipment and, where the gas turbine is disposed in a pod defined in the wall thickness of the reactor pressure vessel, avoids interference with the pressure vessel stressing system.

3,834,988
METHOD OF MAKING GLUCOSE ISOMERASE AND USING SAME TO CONVERT GLUCOSE TO FRUCTOSE

Kenneth K. Shieh, St. Louis County, Howard A. Lee, Rock Hill, and Brendan J. Donnelly, St. Louis County, Mo., assignors to Anheuser-Busch, Incorporated, St. Louis, Mo.
No Drawing. Filed Oct. 10, 1972, Ser. No. 296,000
Int. Cl. C07g *7/02*
U.S. Cl. 195—66 R 24 Claims

This disclosure relates to the use of microorganisms of the genus *Actinoplanes*, and particularly to the species *Actinoplanes missouriensis*, to produce glucose isomerase in large quantity even in the absence of xylose in the growth medium. The preferred growth medium is neutralized corn steep liquor which has had the sludge removed.

3,834,989
MICROBIOLOGICAL PROCESS

David E. F. Harrison, Faversham, England, assignor to Shell Oil Company, Houston, Tex.
Filed Feb. 3, 1972, Ser. No. 223,348
Claims priority, application Great Britain, Feb. 19, 1971, 5,003/71
Int. Cl. C12b *1/00*
U.S. Cl. 195—28 R 5 Claims

Micro-organisms are produced by inoculating with micro-organisms a sterile liquid growth medium containing assimilable sources of nitrogen and essential mineral salts, allowing the micro-organisms to grow, and then adding fresh sterile growth medium containing a sterilizing concentration of a microbiocide which, at the lower concentrations produced by admixture of the fresh medium with the inoculated medium, is metabolizable by the micro-organisms.

3,834,990
ISOLATION OF ENZYMES AND ENZYME INHIBITORS

Eugen Werle and Hans Fritz, Munich, Germany, assignors to Farbenfabriken Bayer Aktiengeselischaft, Leverkusen, Germany
Continuation of abandoned application Ser. No. 840,808, July 10, 1969. This application Feb. 24, 1972, Ser. No. 229,198
Claims priority, application Germany, July 15, 1968, P 17 68 934.8
Int. Cl. C07g *7/02*
U.S. Cl. 195—68 7 Claims

A process is provided for the enrichment of polypeptides such as enzymes or enzyme inhibitors by linking a polypeptide in a covalent linkage to a carrier to form an addition product of resinous nature into which addition product basic groups are introduced to render the product electrostatically nearly neutral. The resulting addition product in water is contacted with a solution of the substance to be enriched and capable of complexing with the fixed polypeptide and the complex is then washed, caused to dissociate and the complex-forming substance isolated.

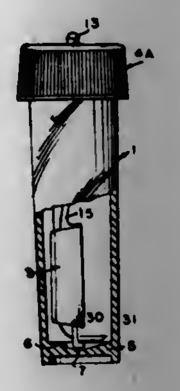
3,834,991
COLORIMETRIC ASSAY FOR LYSOZYME

Robert E. Megraw, St. Louis, Mo., and Judith C. Woodson, Randolph, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.
No Drawing. Filed May 23, 1972, Ser. No. 256,073
Int. Cl. C12k *1/04*
U.S. Cl. 195—103.5 R 13 Claims

A suspension of dyed *Micrococcus lysodeikticus* cells is used as the substrate in a novel, colorimetric assay for lysozyme in body fluids. To obtain the substrate, dried *Micrococcus lysodeikticus* cells are treated with a reactive dye, and all unreacted dye is removed upon repeated washing with water. A buffered, aqueous suspension of the dyed cells is incubated with a fluid test sample containing an unknown quantity of lysozyme. Cell lysis yields a solution of dyed fragments of *Micrococcus lysodeikticus* cells, the absorbance of which provides a measure of lysozyme concentration in the test sample.

3,834,992
CULTURE KIT

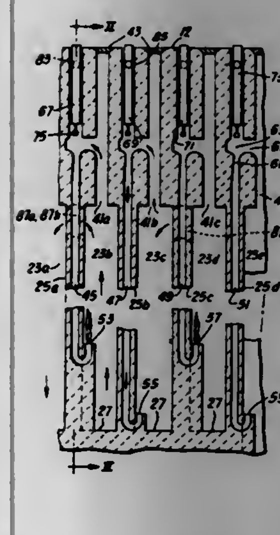
Ernest Bohnke, 15111 SE. Caruthers, Portland, Oreg. 97233, and Henning B. Jorgensen, Rte. 3, Box 186, Sherwood, Oreg. 97140
Filed Aug. 21, 1972, Ser. No. 282,280
Int. Cl. C12b *1/00*
U.S. Cl. 195—139 3 Claims



A culture kit including a vial externally threaded at its top end and thereat provided with an annular valve seat for a valve disc mold-united with the top end of a stem whose bottom end is similarly united with the top end of a holder for a culture medium, such as agar, or the like. The holder is in the form of a cup-like member provided at its bottom end with means for centering engagement with the inner bottom wall of the vial. An internally threaded closure cap for the vial is provided for advancement on the threads of the vial to seal the interior thereof and the culture contents of the spoon.

3,834,993
COMBUSTION SYSTEM FOR COKE OVEN

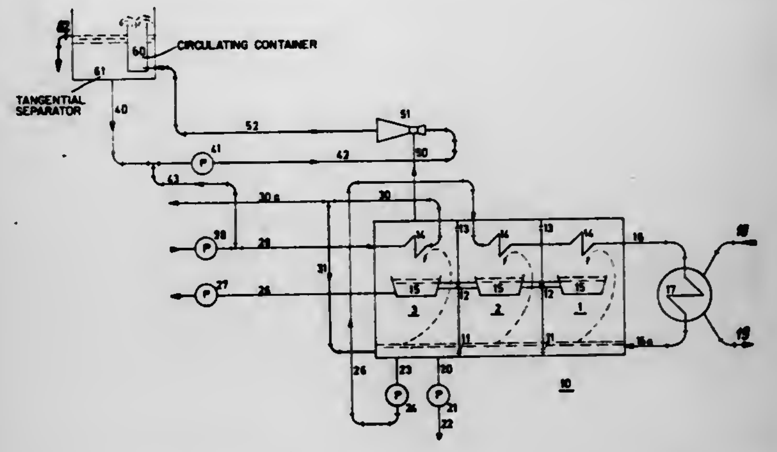
Joseph Van Ackeren, Upper St. Clair, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.
Filed Sept. 5, 1972, Ser. No. 286,129
Int. Cl. C10b *1/06, 5/02*
U.S. Cl. 202—139 5 Claims



A pair of fuel and/or air conduits, located just below the top pavement of a coke oven battery, carry fuel gas and air for decarburizing the gas riser ducts, and these gases flow downward through a conduit to a calibrated nozzle. The fuel gases flow through a venturi throat into conduits that terminate near the base of the respective flue where combustion occurs. Air is forced into the "off" gas header to provide a decarbonizing condition for burning out any carbon previously deposited in the gas riser of the companion flue during the "on" burning cycle.

3,834,994
MULTI-STAGE EVAPORATOR

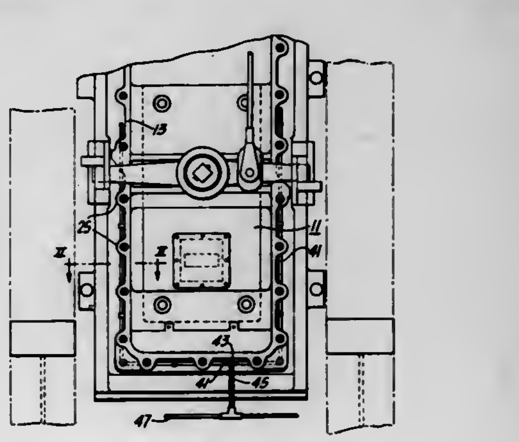
Klaus Dieter Peter, Varrel, Germany, assignor to Fried. Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany
Filed Nov. 1, 1971, Ser. No. 194,148
Claims priority, application Germany, Nov. 6, 1970, P 20 54 587.3
Int. Cl. B01d *3/06;* **C02b** *1/06, 1/10*
U.S. Cl. 202—174 1 Claim



An evaporator with a plurality of evaporating chambers between which a pressure and temperature drop exists, which is equipped with devices for conveying a liquid through the evaporating chambers for evaporation of a part of the liquid in each chamber, with condensers of which each communicates with one of said evaporating chambers, with means for withdrawing the obtained distillate from said condensers, and with withdrawing means for withdrawing inert gases from the evaporator, said withdrawing means including a liquid jet ejector and a water pressure pump and a separating device for separating inert gas, said jet ejector and said water pressure pump and said separating device being arranged in communication with each other in a closed circuit adapted to receive cooling water and to discharge warmed-up water.

3,834,995
APPARATUS FOR APPLYING THRUST TO THE KNIFE EDGE OF A COKE OVEN DOOR

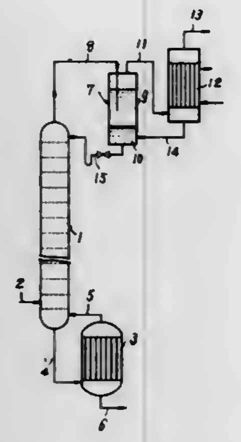
Joseph Van Ackeren, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.
Filed Mar. 9, 1973, Ser. No. 339,598
Int. Cl. C10b *25/06, 25/16*
U.S. Cl. 202—248 4 Claims



Fluid pressure, such as air, is applied to a plurality of pistons having rods that coact with and urge a flexible knife edge into ultimate sealing contact with the door jamb of a coke oven chamber. Each door is provided with a fluid header connected to cylinders in which the pistons operate, and the fluid header of each door connects to a main header extending along the coke oven battery.

3,834,996
INHIBITING POLYMERIZATION OF OXYGEN CONTAINING TETRAFLUOROETHYLENE

Hiroshi Aiso, Kawanishi, and Tatsuya Hirose and Kazuhisa Kato, Setsu, Japan, assignors to Daikin Kogyo Kabushiki Kaisha, Osaka-shi, Japan
Filed Nov. 22, 1971, Ser. No. 200,856
Claims priority, application Japan, Nov. 26, 1970, 45/104,642
Int. Cl. F25j *3/00*
U.S. Cl. 203—9 4 Claims



A method for rectifying oxygen-containing tetrafluoroethylene is characterized by contacting effluent tetrafluoroethylene vapor from a rectification tower with a liquid terpene in a condensing line to produce condensed tetrafluoroethylene saturated with terpene and refluxing the condensed tetrafluoroethylene saturated with terpene; and an apparatus for rectifying oxygen-containing tetrafluoroethylene comprises a rectification tower, a condensing line for contacting effluent tetrafluoroethylene vapor from the rectification tower with liquid terpene to produce condensed tetrafluoroethylene saturated with terpene and a line for refluxing the condensed tetrafluoroethylene saturated with terpene to the top of the rectification tower.

3,834,997
METHOD FOR THE SEPARATION OF ORTHO- AND PARA-DIHYDROXY BENZENE ISOMERS

Martin B. Hocking, Victoria, British Columbia, and Donald J. Intihar, Sarnia, Ontario, Canada, assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed July 14, 1972, Ser. No. 271,822
Int. Cl. C10g *1/24*
U.S. Cl. 203—87 6 Claims

A sublimation technique is utilized through the application of a vacuum and heat to obtain yields of the separate ortho- and para-dihydroxy isomers higher than those obtained by other recovery methods while at the same time being a method which is environmentally more attractive.

3,834,998
METHOD OF PRODUCING ALUMINUM PLANOGRAPHIC PRINTING PLATES

Masaru Watanabe and Azusa Ohashi, Odawara-shi, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara-shi, Kanagawa, Japan
No Drawing. Filed Oct. 18, 1972, Ser. No. 298,751
Claims priority, application Japan, Oct. 21, 1971, 46/83,482
Int. Cl. C23b *9/02*
U.S. Cl. 204—33 16 Claims

A process of producing aluminum containing supports, which comprises etching a grained aluminum surface with a basic or acidic etching solution within the range of 0.5 to 30 g./m.^{2} and then subjecting the etched surface to anodic oxidation.

3,834,999
ELECTROLYTIC PRODUCTION OF GLASSY LAYERS ON METALS

Rudolf J. Hradcovsky and Otto R. Kozak, Long Beach, N.Y., assignors to Atlas Technology Corporation, Long Beach, N.Y.
No Drawing. Filed Apr. 15, 1971, Ser. No. 134,431
Int. Cl. C23b *4/02, 11/02*
U.S. Cl. 204—56 R 23 Claims

Metals and alloys are coated with glassy, adherent, corrosion-resistant, protective layers by electrolytic anodization at high voltage in suitable baths. The metals and alloys which can be coated include those which exhibit electrolytic rectification at both low and high voltages and those which exhibit rectification at high voltages only. The anodization baths contain anions such as tungstate, phosphate, arsenate, stannate, stibnate, molybdate, borate, chromate and dichromate, alone or in combination and carbonate, in combination only. Selection of the operating conditions makes it possible to produce coatings which are smooth or which have extended surfaces. The process involves coagulation of colloids at the surface of the metals. Either direct or alternating current may be used.

3,835,000
ELECTROLYTIC PROCESS FOR PRODUCING N-PHOSPHONOMETHYL GLYCINE

Harry W. Frazier, Creve Coeur, Lowell R. Smith, Chesterfield, and John H. Wagenknecht, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation-in-part of application Ser. No. 317,498, Dec. 21, 1972. This application Aug. 6, 1973, Ser. No. 385,932
Int. Cl. C07b *3/00*
U.S. Cl. 204—78 19 Claims

This disclosure relates to an electrolytic process for producing N-phosphonomethyl glycine compounds by the electrolysis of N-organo-N-phosphonomethylamino acetic acid compounds. In accordance with this disclosure, a solution of an N-organo-N-phosphonomethylamino acetic acid compound is subjected to an electromotive force or electric current in an electrolytic cell to be electrolytically oxidized to an N-phosphonomethyl glycine. The N-phosphonomethyl glycines produced are useful as post-emergent herbicides.

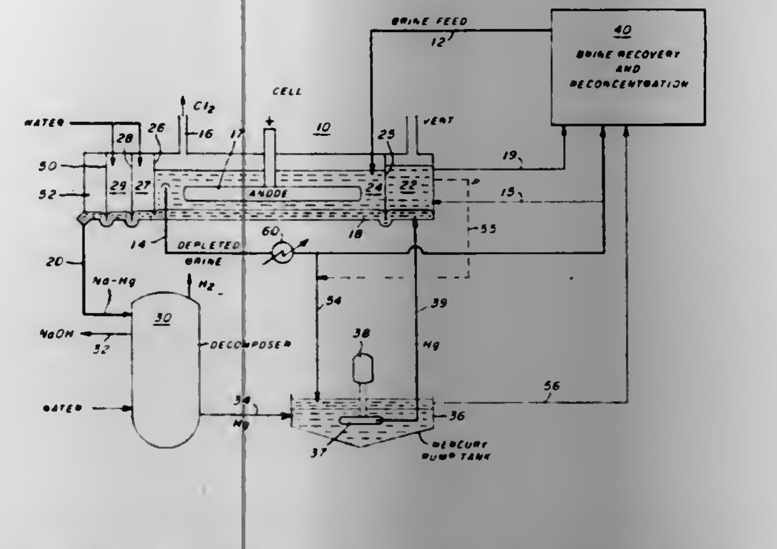
3,835,001
ION EXCHANGE REMOVAL OF DICHROMATES FROM ELECTROLYTICALLY PRODUCED ALKALI METAL CHLORATE-CHLORIDE SOLUTIONS

Thomas Francis O'Brien, Swarthmore, Pa., assignor to Penn-Olin Chemical Company, Wilmington, Del.
Filed Apr. 30, 1973, Ser. No. 355,370
Int. Cl. C01b *11/26*
U.S. Cl. 204—95 6 Claims

In an electrolytic process in which alkali metal chlorate is produced from alkali metal chloride solution, dichromates (utilized for cathodic protection during electrolysis) are removed from an effluent stream of chlorate-enriched solution by passing the stream through an ion exchange resin to effect an improvement in process efficiency. When the ion exchange resin becomes exhausted the bed is regenerated with high pH sodium chloride brine. The ion exchange system is especially adapted to remove dichromates from the recycle stream of the evaporatively concentrated alkali metal chlorate solution whereby the recycle stream can be combined with the electrolytic process effluent for evaporative concentration.

3,835,002
BRINE ELECTROLYSIS EMPLOYING MERCURY CATHODE

Fred S. Williams and William G. Stock, Port Lavaca, Tex., assignors to Aluminum Company of America, Pittsburgh, Pa.
Filed June 13, 1973, Ser. No. 369,561
Int. Cl. C07d *1/08*
U.S. Cl. 204—99 6 Claims



The use of a concentrated brine of a defined concentration level as the cover for certain mercury portions in operating an electrolytic cell for the decomposition of brine where the mercury serves as the cathode, substantially reduces mercury vapor pollution. The depleted brine exiting the cell serves as the concentrated brine.

ERRATUM

For Class 204—159 see:
Patent No. 3,835,085

3,835,003
PHOTOPOLYMERIZATION OF OXETANES

Sheldon I. Schlesinger, Hightstown, N.J., assignor to American Can Company, Greenwich, Conn.
No Drawing. Continuation-in-part of application Ser. No. 753,869, Aug. 20, 1968, now Patent No. 3,708,296, dated Jan. 2, 1973. This application Oct. 19, 1972, Ser. No. 298,848
Int. Cl. B01j *1/10;* **C08g** *1/00*
U.S. Cl. 204—159.11 14 Claims

Polymerization of polymerizable compositions comprising monomers which may be oxetanes or mixtures thereof with monomeric or prepolymeric epoxides is effected by mixing such compositions with radiation-sensitive aromatic diazonium salts which decompose upon application of energy such as electromagnetic radiation to release Lewis Acid to initiate polymerization of said monomers.

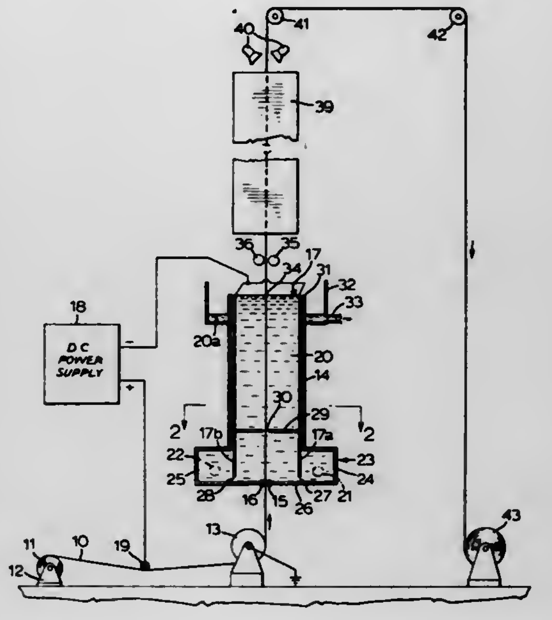
3,835,004
ACCELERATION OF CROSSLINKING IN BY POLYOLEFINS APPLIED RADIATION IN A GASEOUS ATMOSPHERE OF FLUORINE-CONTAINING MONOMER AND ACETYLENE

Tsutomu Kagiya, Kyoto, and Hiroshi Mitsui and Fumio Hosoi, Takasaki, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan
No Drawing. Filed July 17, 1972, Ser. No. 272,151
Claims priority, application Japan, Feb. 5, 1971, 46/9,595; July 19, 1971, 46/53,731; Aug. 19, 1971, 46/63,203; Sept. 9, 1971, 46/69,839
Int. Cl. B01j *1/10, 1/12*
U.S. Cl. 204—159.17 18 Claims

An olefine polymer is advantageously cross-linked by means of an ionizing radiation in the presence of an ethylenically unsaturated halocarbon and a monomer selected from acetylene and 1,3-butadiene. Thus, an olefine polymer is provided with improved mechanical, chemical, thermal properties and the like.

3,835,005
ELECTROCOATING PROCESS AND APPARATUS

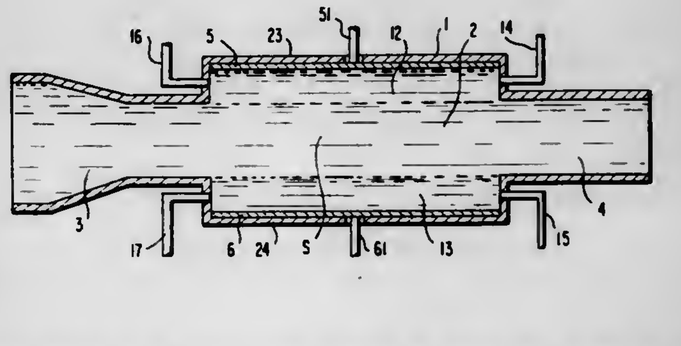
Michael Alan Dudley, Beaconsfield, Quebec, and Pierre Leon Claessens, Sainte Eustache, Quebec, Canada, assignors to Canada Wire and Cable Limited, Toronto, Ontario, Canada
Filed Oct. 27, 1972, Ser. No. 301,617
Int. Cl. B01k *5/02;* **C23b** *13/00*
U.S. Cl. 204—181 23 Claims



A continuous electrocoating process for electrocoating substrates such as wire or strip in which substrate is coated in a cell through which bath liquid is continuously circulated includes the steps of contacting the substrate entering the cell with freshly introduced bath liquid at relatively high velocity, coating the substrate in the bath, and causing flow of coating liquid at the bath surface radially outwardly of the emerging substrate to remove accumulated gas bubbles from the coating, then wiping the wet coated substrate to remove excess clinging bath material, and then curing and coating.

3,835,006
METHOD OF REMOVING IONIC SUBSTANCES FROM A PULP

Hideo Fujita, Masami Ishitobi, and Hiroyoshi Suga, Amagasaki, and Fukuo Itohara, Michiharu Matsushita, and Hiroshi Yamamoto, Shizuoka, Japan, assignors to Dainichi-Nippon Cables, Ltd., Amagasaki-shi, Hyogo, and Tomoegawa Paper Manufacturing Co., Ltd., Tokyo, Japan
Filed July 10, 1972, Ser. No. 270,406
Claims priority, application Japan, July 10, 1971, 46/51,323; Apr. 19, 1972, 42/39,370
Int. Cl. B01d *13/02;* **B01k** *5/00*
U.S. Cl. 204—180 R 27 Claims



A method of removing ionic substances from a pulp which is particularly useful in preparing an electrically insulating paper, which comprises continuously passing a pulp slurry comprising a dispersion of pulp in a liquid medium at a concentration of 0.05% to 6.0% by weight between oppositely charged facing electrodes to which an electric potential is applied to remove ionic substances remaining in the pulp, the pulp slurry having an electric conductivity of at least

$$10\ \mu\mho\text{./cm.}$$

during passing between the electrodes.

3,835,007

PROCESS FOR BONDING COPPER OR IRON TO TITANIUM OR TANTALUM

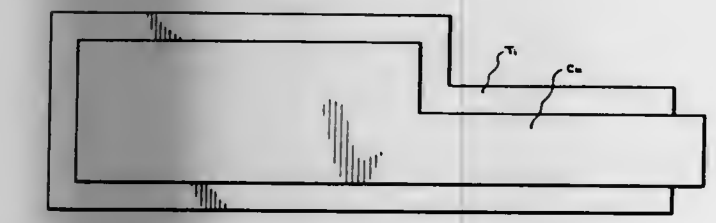
Alain Ferat, Robert Masotti, and Hubert Chavanel, Lyon, France, assignors to Rhone-Progil, Paris, France

Filed Dec. 13, 1972, Ser. No. 314,858

Claims priority, application France, Dec. 24, 1971, 7147874

Int. Cl. C23c *15/00*

U.S. Cl. 204—192 **7 Claims**



Copper or iron are securely bonded to titanium or tantalum substrate metal by initially subjecting the substrate metal to ionic bombardment in which the substrate metal performs the role of a cathode and then to cathode sputtering in which the substrate metal performs the role of an anode, and the copper or iron the role of a cathode. Thereafter, the bonded copper or iron is supplemented by additional deposits by conventional means such as electrodeposition, etc. Superior industrial products resulting from the process are useful as anodes in electrolysis cells and as heat exchangers.

3,835,008

AUTOMATIC CONTROLLED-CURRENT COULOMETRIC ENVIRONMENTAL MONITOR

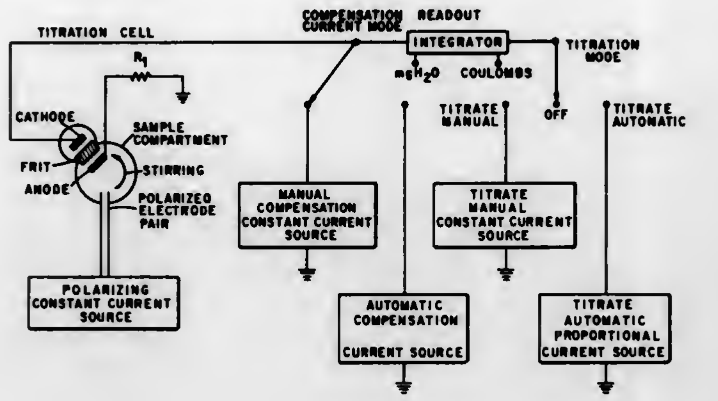
Dale J. Fisher and Theodore R. Mueller, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 6, 1972, Ser. No. 312,540

Int. Cl. G01n *27/42, 27/44*

U.S. Cl. 204—195 T **2 Claims**

An automatic, controlled-current coulometric titrator having several unique features, i.e., (1) an automatic titration mode, and (2) an automatic compensation current mode, enables, the standardization and calibration of methods of analysis used in pollution control and has found recent utility in sample analyses for traces of water.


TITRATION CELL
R1
CATHODE
SAMPLE COMPARTMENT
FRIT
STIRRING
ANODE
POLARIZED ELECTRODE PAIR
POLARIZING CONSTANT CURRENT SOURCE
COMPENSATION CURRENT MODE
READOUT
INTEGRATOR
TITRATION MODE
mgH2O
COULOMBS
MANUAL COMPENSATION CONSTANT CURRENT SOURCE
TITRATE MANUAL
OFF
TITRATE AUTOMATIC
TITRATE MANUAL CONSTANT CURRENT SOURCE
AUTOMATIC COMPENSATION CURRENT SOURCE
TITRATE AUTOMATIC PROPORTIONAL CURRENT SOURCE

3,835,009

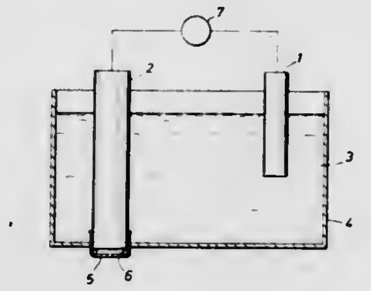
Fe-1173 ELECTRO-CHEMICAL SENSOR AND ACTIVATING METHOD THEREFOR

Gabriel G. Barna, Richardson, and Raymond J. Jasinski, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed July 30, 1973, Ser. No. 383,941

Int. Cl. G01n *27/36, 27/46*

U.S. Cl. 204—195 G **8 Claims**



The disclosure relates to electro-chemical sensors for sensing gaseous nitrogen dioxide in the presence of carbon monoxide, oxygen, nitrogen, sulfur dioxide, nitric oxide and methane and in chemically compatible mixtures of these gases as well as capable of sensing gaseous materials which are more strongly oxidizing than NO_2, the sensor being formed from an activated non-porous Fe-1173 glass. Air oxidizing the Fe-1173 glass for 3 minutes at 300° C. activates the glass for improved sensing of gaseous nitrogen dioxide.

3,835,010

ION-SENSITIVE ELECTRODE BASED ON NEUTRAL CARRIER COMPLEX

Robert J. Levins, Richmond, Va., assignor to Philip Morris Corporation, New York, N.Y.

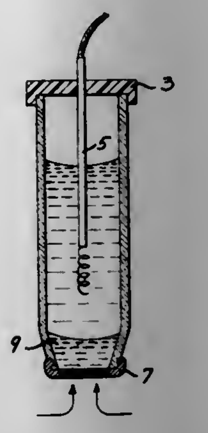
Continuation-in-part of abandoned application Ser. No. 179,941, Sept. 13, 1971. This application June 21, 1972, Ser. No. 264,769

Int. Cl. G01n *27/46*

U.S. Cl. 204—195 L **8 Claims**

An electrode is provided which is remarkably sensitive to and is selective toward barium ions and strontium ions present in a test solution containing other common cations such as, for example, Ca^{++}, Mg^{++}, Na^+, H^+ and Li^+. This electrode comprises a region containing an ion-

exchange material which is a neutral carrier complex that is extremely selective toward these cations. This electrode is employed in conjunction with a conventional electrode such as a calomel electrode or a silver-silver chloride electrode to measure the activity of said ions in solutions.



3,835,011

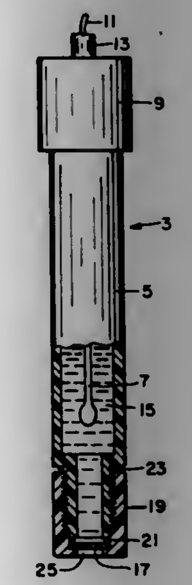
POTASSIUM ION SENSITIVE ELECTRODE

George Baum, Corning, and Merill Lynn, Big Flats, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed June 23, 1972, Ser. No. 265,771

Int. Cl. G01n *27/30, 27/46*

U.S. Cl. 204—195 M **10 Claims**



Electrode for measuring the concentration of potassium ions in aqueous solution wherein the sensing portion is a polyvinyl chloride membrane containing a potassium tetraphenylborate dissolved in an organic solvent which also plasticizes the PVC. A preferred electrode measures the concentration of potassium ions in the presence of varying amounts of sodium ions. Methods of preparing and using the electrodes are disclosed.

3,835,012

PROTECTIVE SHIELD FOR OXYGEN SENSOR

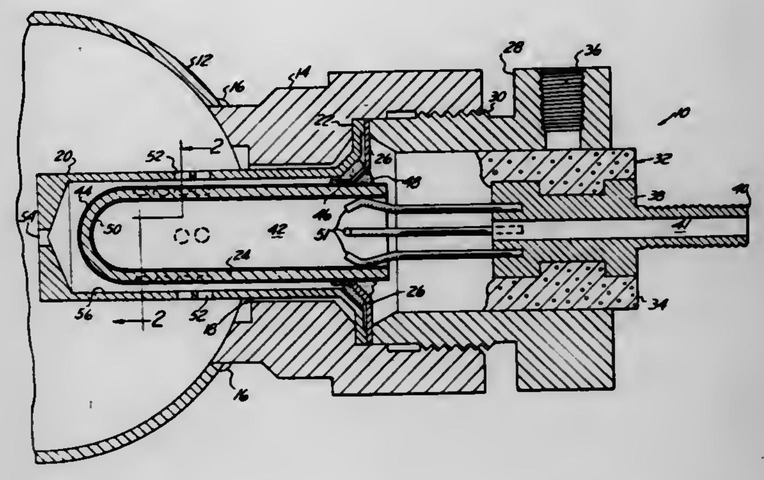
Thomas J. Hemak, Madison Heights, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Aug. 28, 1972, Ser. No. 284,386

Int. Cl. G01n *27/46*

U.S. Cl. 204—195 S **1 Claim**

A heat distributive protective shield for a zirconium dioxide oxygen sensor, particularly for internal combustion engine exhaust systems, is illustrated. The shield is arranged in surrounding relationship with respect to the zirconium dioxide sensor body and is provided with a plurality of spaced perforations which are arranged to distribute the exhaust gas heating to the sensor body to provide uniform thermal stressing of the zirconium dioxide material. To this end, the distribution of the perforations provides a greater number of perforations in proximity to any bodies which would constitute a heat sink and a lower number of perforations remote from any heat sink material. The perforations may be arranged to provide for a swirling gas flow between the shield and the zirconium dioxide sensor body in order to prevent particulates from impinging upon the sensor surface.



3,835,013

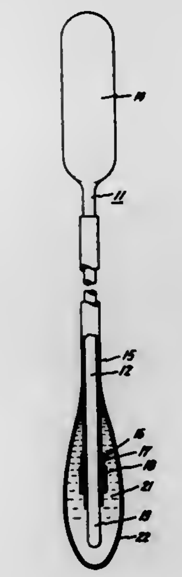
OXYGEN SENSOR AND ELECTRODE DEVICE THEREFOR

Willard T. Grubb and Lawrence H. King, Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 1, 1973, Ser. No. 328,755

Int. Cl. G01n *27/46*

U.S. Cl. 204—195 P **7 Claims**

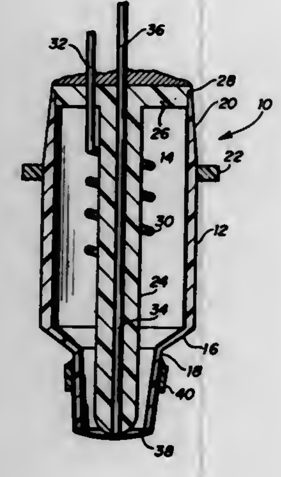


An oxygen sensor is described which has an electrode device with a first electrode and a reference electrode, and an aqueous buffered solution of an electrolyte containing a halide salt which contacts the noble metal portion of the first electrode and the silver halide layer of the reference electrode of the electrode device.

The electrode device has a chemically-biased oxygen-sensing electrode with a closed-end tube, the tube having a portion of a noble metal selected from the class consisting of palladium and palladium alloys, a reservoir for hydrogen connected to the opposite end of the tube, and a hydrogen gas source contained within at least the reservoir; a layer of electrical insulation covering at least partially the tube leaving the noble metal portion at least partially exposed, and a reference electrode insulated electrically from the noble metal portion, the reference electrode consisting of silver with at least a partial layer of silver halide thereon.

3,835,014
ELECTRODE HOUSING AND HOLDER

Robert A. Huffhines, Jr., Duncanville, Tex., assignor to Tex-a-dyne, Dallas, Tex.
Filed Feb. 5, 1973, Ser. No. 329,373
Int. Cl. G01n *27/28, 27/30*
U.S. Cl. 204—195 P **10 Claims**

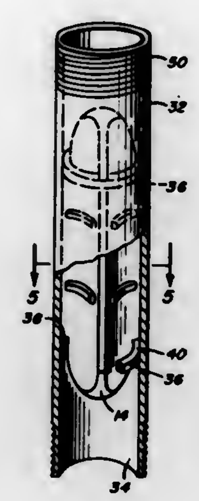


The anode and cathode of an electrode are supported in a housing having a main body contiguous with a tapered section. The tapered section is contiguous with the main body at a shoulder and tapers from the inner diameter of the shoulder to a second smaller diameter at an open end. Opposite from the tapered section, the main body includes a tapered neck section with a mounting ring at the end of the taper on the main body. At the open end of the tapered section a membrane encloses the housing chamber, this membrane extends over the tapered section and is held in place by a membrane sleeve having an internal taper for mating with the external taper of the tapered section. The membrane sleeve includes a chamfered end for folding the membrane material against the tapered section of the housing. A chemical weld between the membrane sleeve and the tapered section holds the assembly in place. A holder for the electrode housing includes a chamber having a tapered section for mating with the tapered neck section of the housing and has a coupling for engaging a shroud for protecting the electrode. The shroud includes a shoulder in an internal chamber for engaging the mounting ring of the housing.

3,835,015
SYSTEM STABILIZER

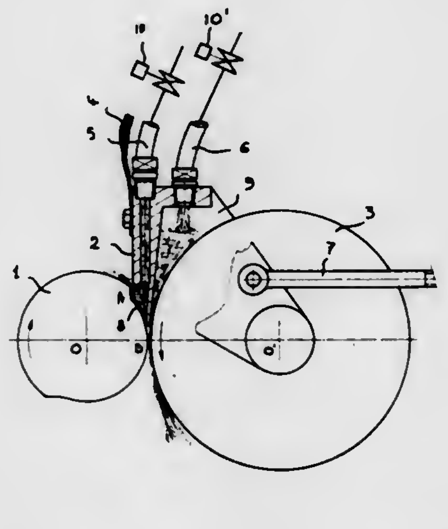
Wildon A. Gary, 305 NW. 7th Ave., Mineral Wells, Tex. 76067
Filed Nov. 15, 1972, Ser. No. 305,091
Int. Cl. C23f *13/00*
U.S. Cl. 204—197 **26 Claims**

A fluid stabilizer rod consists of an alloy of copper, zinc, nickel and tin adapted to be installed in a fluid conduit and to have a fluid flowing thereover. The rod is generally elongated and triangular in cross-section with each side thereof defining a lengthwise extending concave arcuate surface.



3,835,016
ELECTROCHEMICAL GRINDING METHODS AND APPARATUS

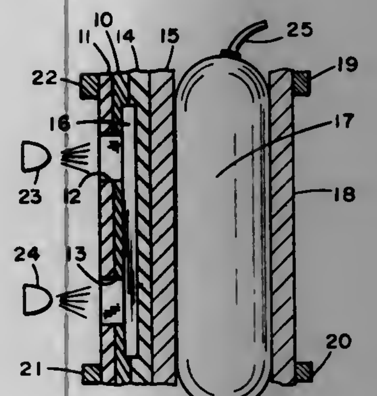
Henri M. Bourdolle, Serge R. Lacroix, Jean E. Fleury, Gilbert Peuillot, and Jean Pinot, Billancourt, France, assignors to Regie Nationale des Usines Renault, Billancourt, and Automobiles Peugeot, Paris, France
Filed July 5, 1972, Ser. No. 269,076
Claims priority, application France, July 26, 1971, 7127282
Int. Cl. B23p *1/02, 1/10, 1/12*
U.S. Cl. 204—224 M **5 Claims**



A device for electrochemical grinding by removing material from the surface of a conducting workpiece, comprising a conformator tool including two separate members, a first member for a quick attack of a rough shaped workpiece, comprising a support, one front-end of which is shaped as the compliment of the sectional contour to be obtained along the outer periphery of the workpiece, which operates during a first step of the operation; a high electrolyte flow output supply; a high-density current electricity source; and the second member is an electrolytic grinder operating at the rear part of the support, for grinding the workpiece to the desired final shape, the rear part of the support constituting a damming bulk for the electrolyte.

3,835,017
REUSABLE SHIELDS FOR SELECTIVE ELECTRODEPOSITION

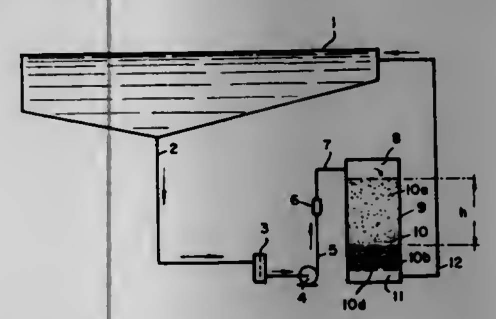
Pat F. Mentone, St. Paul, Thomas I. Myers, West St. Paul, Gary D. Jensen, St. Paul, and Robert E. Miettunen, Minneapolis, Minn., assignors to Buckbee-Mears Company, St. Paul, Minn.
Filed Dec. 22, 1972, Ser. No. 317,372
Int. Cl. C23b *5/48;* **B23p** *1/02*
U.S. Cl. 204—224 R **6 Claims**



A device for selectively shielding portions of lead frames so that a metal can be selectively electro-deposited in predetermined regions of lead frames or the like.

3,835,018
APPARATUS FOR THE TREATMENT BY METALLIC IONS OF AQUEOUS LIQUIDS

Lorenzo Puig Casanovas and Jean Leon Justin Vellas, Toulouse, France, assignors to Societe d'Etudes et de Diffusion de Procedes et Brevets S.A., Geneva, Switzerland
Original application Oct. 28, 1970, Ser. No. 84,861. Divided and this application Jan. 19, 1972, Ser. No. 219,092
Claims priority, application France, Oct. 28, 1969, 6936971
Int. Cl. B01k *3/00*
U.S. Cl. 204—228 **5 Claims**

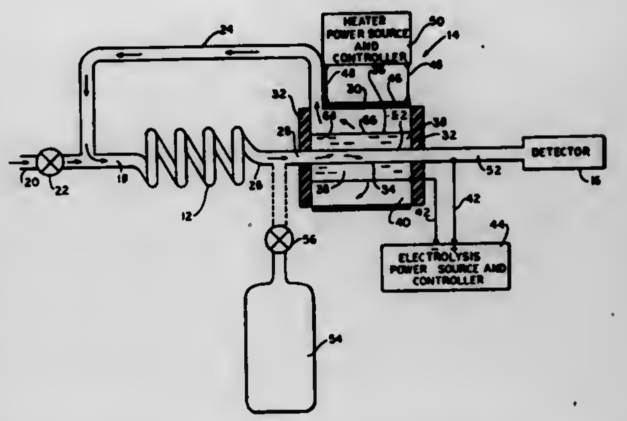


A device for liquid purification includes a vat provided with metallic electrodes and connected to a circulating pump and to a filter containing at least one filtering layer of low granulometry built up from accumulation of flocculates. The device is particularly suited for water treatment.

3,835,019
COMBINED ELECTROLYTIC HYDROGEN GAS SEPARATOR AND GENERATOR FOR GAS CHROMATOGRAPHIC SYSTEMS

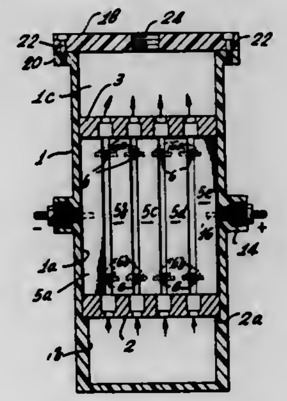
James E. Lovelock, Bowerchalke, England, assignor to California Institute of Technology, Pasadena, Calif.
Original application Feb. 2, 1970, Ser. No. 7,922, now Patent No. 3,690,835. Divided and this application Apr. 12, 1972, Ser. No. 243,500
Claims priority, application Great Britain, Mar. 6, 1969, 12,003/69
Int. Cl. C22d *3/02*
U.S. Cl. 204—246 **10 Claims**

A combined hydrogen gas separator and generator device comprising a pair of this palladium film membrane electrodes separated by an aqueous hydroxide electrolyte. On application of an electrolytic current to the films heated to a temperature of at least 150° C., hydrogen is selectively transferred through the first film, across the body of electrolyte as protonic hydrogen and is regenerated as diatomic hydrogen on the outside surface of the second film. The impurities in the hydrogen inlet stream collect at the outside surface of the first film. The concentrated impurities can be sent to a detector for analysis. The regenerated hydrogen can be recycled to operate a separator unit such as a gas chromatographic column.


HEATER POWER SOURCE AND CONTROLLER
DETECTOR
ELECTROLYSIS POWER SOURCE AND CONTROLLER
14
20
22
12
32
36
34

3,835,020
ELECTRICAL TERMINATION MEANS AND ELECTRODE SPACING MEANS FOR MAINTAINING A UNIFORM ELECTRODE GAP

Frank X. Galneder, 5639 E. Pittman St., Simi Valley, Calif. 93063
Filed Feb. 9, 1973, Ser. No. 331,303
Int. Cl. B01k *3/00, 3/08*
U.S. Cl. 204—268 **12 Claims**



An electrolytic cell comprising a non-conductive chamber, housing a plurality of graphite electrodes, having been subjected to a pretreament, including submersion in a metallic chloride solution, and arranged, vertically, as a unit, between two baffle plates in said chamber, each of said electrodes constituting an oppositely located anode and cathode, said electrolytic cell being provided with automatically adjusting means, consisting of external pressure means coacting with non-conducting spacing means between individual electrode pairs, for the maintenance of a constant predetermined individual spacing between any two of said electrodes in the chamber.

3,835,021
SOLID WASTE DISPOSAL PROCESS

William K. Lorenz, Ridley Park, Pa., Edward C. Sebesta, Houston, Tex., and Charles L. McClellan, Birmingham, Ala., assignors to Sun Oil Company of Pennsylvania, Philadelphia, Pa.
No Drawing. Filed Mar. 12, 1973, Ser. No. 340,407
Int. Cl. C02c *3/00, 5/10*
U.S. Cl. 208—13 **5 Claims**

In the process of disposing refinery waste sludge materials, the improvement which comprises dewatering and deoiling refinery sludges by filtering through a filter press at a temperature of from about 100° F. to about 200° F., washing of the filter cake with hot water, and subjecting the solid filter cake thus obtained to soil biodegradation.

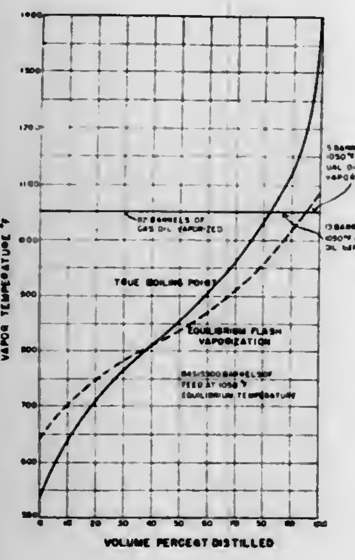
3,835,022
ARCTIC DIESEL FUEL

James A. Frayer, Pittsburgh, and Harry C. Stauffer, Cheswick, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed Jan. 16, 1973, Ser. No. 324,147
Int. Cl. C10l *1/08*
U.S. Cl. 208—15 **3 Claims**

Kerosene and naphthenic petroleum oil fractions are blended to provide an arctic diesel fuel having a cloud point of at least as low as —45° F., a pour point of at least as low as —50° F., a cetane index of at least 40 and a distillation end point of at least 625° F.

3,835,023
GASOLINE PREPARED FROM CRACKING HYDRODESULFURIZED RESIDUAL OIL

Millard C. Bryson, Conway, Joel D. McKinney, Indiana, Robert A. Titmus, Pittsburgh, and Frederick K. White, Allison Park, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Jan. 10, 1972, Ser. No. 216,448
The portion of the term of the patent subsequent to Nov. 27, 1990, has been disclaimed
Int. Cl. C10l *1/04;* **C10g** *11/04*
U.S. Cl. 208—16 **14 Claims**



A gasoline is produced by zeolitic riser cracking of a distillate gas oil boiling below 1050° F. together with an amount less than 25 volume percent of hydrodesulfurized crude oil residue boiling above 1050° F. The proportion in the gasoline of the cracked products of the hydrodesulfurized residue oil constituting an increased volumetric gasoline yield and elevating the octane value of the lowest octane 100° F. boiling range fraction of the cracked products in the gasoline derived exclusively from the distillate gas oil boiling range hydrocarbons.

3,835,024
METHOD FOR MANUFACTURING PITCH

Kozo Ueda, Kyoto, Jitsumi Kimoto, Takarazuka, and Mitsuru Moritake, Suita, Japan, assignors to Osaka Gas Company, Limited, Osaka-shi, Japan
No Drawing. Continuation-in-part of application Ser. No. 126,356, Mar. 19, 1971, now Patent No. 3,692,663. This application Sept. 11, 1972, Ser. No. 287,828
Int. Cl. C10c *3/02*
U.S. Cl. 208—22 **8 Claims**

A method for manufacturing pitch which comprises heating a starting tar to a temperature of 320 to 470° C. under an increased pressure of at least one kg./cm.² gauge to produce gas, oil and pitch and separating the resultant pitch by distillation from the oil, said starting tar being at least one species selected from the group consisting of

(a) coal tar having a flash point of 30 to 140° C. and absolute viscosity of 20 to 1000 centipoises at 50° C. and containing 5 to 30% by weight of 0 to 270° C. fraction, and
(b) oil gas tar having a flash point of 20 to 130° C. and absolute viscosity of 10 to 500 centipoises at 50° C. and containing 10 to 35% by weight of 0 to 270° C. fraction.

3,835,025
PROCESS FOR THE PRODUCTION OF HIGH PURITY NORMAL PARAFFINS

Max Kunert, Neu-Wulmstorf, and Lothar Sandhack, Rheurdt, Germany, assignors to Deutsche Texaco Aktiengesellschaft, Hamburg, Germany
No Drawing. Filed Apr. 25, 1973, Ser. No. 354,283
Claims priority, application Germany, Apr. 27, 1972, P 22 20 621.9
Int. Cl. C07b *21/00;* **C10g** *43/04*
U.S. Cl. 208—25 **10 Claims**

High purity n-paraffins are produced in a urea dewaxing process incorporating a repulping step wherein the repulping of a powdery adduct is conducted at a temperature above the adduct forming temperature but below the adduct decomposition temperature followed by cooling the mixture to the adduct forming temperature.

3,835,026
METHOD OF PREPARING HYDROCRACKING CATALYSTS AND PROCESS

Sinji Takase, Kawasaki, and Tomonori Shioiri, Yokohama, Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan
No Drawing. Filed Nov. 10, 1971, Ser. No. 197,365
Claims priority, application Japan, Nov. 14, 1970, 45/99,809
Int. Cl. C10g *13/02*
U.S. Cl. 208—111 **4 Claims**

Method of preparing hydrocracking catalysts which comprises utilizing crystalline aluminosilicate of the zeolite type with openings from about 5 to 15 A. in their largest dimension to support at least one metal of the platinum group or a compound of such metal in the proportion from about 0.01 to 20% by weight based on the metal, and thereafter halogenating the resulting aluminosilicate composition with one or more halogenated hydrocarbons containing fluorine and/or chlorine at a temperature from 0° C. to 400° C. to a halogen content from about 0.05 to 15% by weight based on the weight of the substrate, and process for hydrocracking hydrocarbons which comprises contacting such hydrocarbons with said catalyst in the presence of a hydrogen-containing gas at a pressure from normal to 200 kg./cm.² and a temperature from 150° C. to 600° C.

3,835,027
HYDROGENATIVE CONVERSION PROCESSES AND CATALYST FOR USE THEREIN

John W. Ward, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
No Drawing. Filed Apr. 17, 1972, Ser. No. 244,947
Int. Cl. C10g *13/02, 31/14*
U.S. Cl. 208—111 **10 Claims**

Hydrocarbon conversion methods employing unique catalyst compositions exhibiting improved conversion characteristics particularly as regards denitrogenation and/or cracking selectivity to predetermined boiling range products involve the use of a catalytic combination of zeolitic aluminosilicates, alumina, and at least one of the metals, oxides and sulfides of Periodic Groups VI and VIII, prepared by the method including the steps of thermally activating at least a major portion of the alumina at a temperature of at least about 600° F. prior to combination with both the aluminosilicate and the hydrogenation component, forming an aggregate from an intimate admixture of the alumina, aluminosilicate and hydrogenation component and thermally activating the resultant aggregate. Midbarrel hydrocracking processes of higher selectivity and superior denitrogenation methods are described.

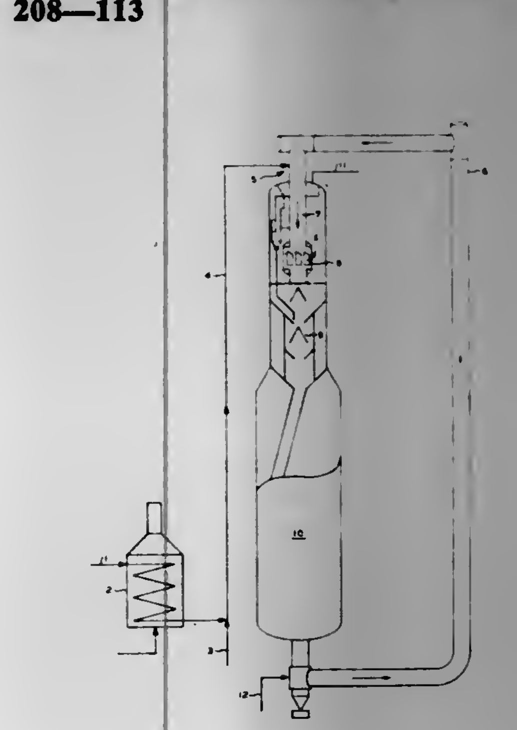
3,835,028
HYDROCRACKING PROCESS WITH REJUVENATED CATALYST

John W. Ward, Yorba Linda, and Danford E. Clark, Fountain Valley, Calif., assignors to Union Oil Company of California, Los Angeles, Calif.
No Drawing. Original application Oct. 29, 1970, Ser. No. 85,241, now Patent No. 3,692,692, dated Sept. 19, 1972. Divided and this application Aug. 10, 1972, Ser. No. 279,712
Int. Cl. C10g *13/02;* **B01j** *11/02*
U.S. Cl. 208—111 **9 Claims**

Siliceous zeolite catalysts comprising zeolitic mono- and/or divalent metal cations and a non-zeolitic Group VIII metal hydrogenating component supported thereon, which catalysts have undergone damage by thermal and/or hydrothermal stresses resulting in a maldistribution of the metal components, are rejuvenated in activity by a sequential treatment with an aqueous ammonium salt to exchange out at least a portion of the zeolitic mono- and/or divalent metal ions, and with aqueous ammonia to effect a redistribution of the Group VIII metal. The treatments may be performed in either order.

3,835,029
DOWNFLOW CONCURRENT CATALYTIC CRACKING

Lewis G. Larson, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Apr. 24, 1972, Ser. No. 246,657
Int. Cl. B01j *9/20;* **C10g** *11/00*
U.S. Cl. 208—113 **1 Claim**



In a downflow cocurrent catalytic cracking operation, products of increased value are obtained by introducing the cracking stock, as a vapor, into contact with a zeolite-type catalyst and steam and employing a contact time within the range of from about 0.2 to about 5 seconds.

3,835,030
CRYSTALLINE ALUMINO-SILICATE CATALYSTS FOR CATALYTIC CRACKING

William Judson Mattox and William Floyd Arey, Jr., Baton Rouge, La., assignors to Esso Research and Engineering Company
No Drawing. Continuation of application Ser. No. 469,895, July 6, 1965, which is a continuation-in-part of application Ser. No. 168,548, Jan. 24, 1962, both now abandoned. This application Oct. 16, 1972, Ser. No. 297,761
Int. Cl. B01j *9/20;* **C01b** *33/28;* **C10g** *11/18*
U.S. Cl. 208—120 **18 Claims**

Hydrocarbon oils are catalytically cracked with a catalyst comprising a crystalline alumino-silicate which has been base exchanged with both (1) hydogen ions and/or ions capable of conversion to hydrogen ions, and (2) cations of metals selected from Group IB through Group VIII of the Periodic Table.

3,835,031
CATALYTIC CRACKING WITH REDUCED EMISSION OF SULFUR OXIDES

Ralph J. Bertolacini, Chesterton, and Gerald M. Lehmann, Highland, Ind., and Eugene G. Wollaston, Chicago, Ill., assignors to Standard Oil Company, Chicago, Ill.
No Drawing. Filed May 23, 1973, Ser. No. 363,082
Int. Cl. B01j *11/68;* **C01b** *17/56*
U.S. Cl. 208—120 **10 Claims**

A cyclic fluidized catalytic cracking process is operated with a catalyst comprising molecular sieve in a silica-alumina matrix, impregnated with one or more Group IIA metal oxides to provide from about 0.25 to about 5.0 wt. percent of Group IIA metal or metals. The emission of sulfur oxides in the regenerator stack gases is decreased by at least about 50%.

3,835,032
CATALYTIC CRACKING WITH SILVER-RARE EARTH OR COPPER-RARE EARTH EXCHANGED Y-TYPE ZEOLITE

Geoffrey E. Dolbear, Columbia, and John S. Magee, Cooksville, Md., assignors to W. R. Grace & Co., New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 166,243, July 26, 1971. This application Mar. 26, 1973, Ser. No. 344,963
Int. Cl. C10g *11/02*
U.S. Cl. 208—120 **6 Claims**

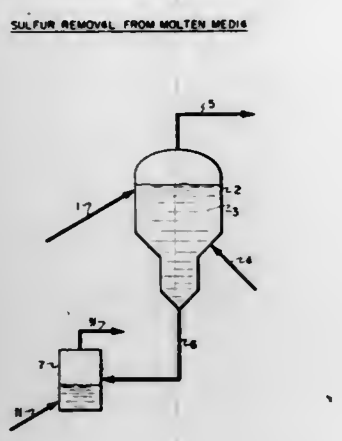
A silver-rare earth or copper-rare earth exchanged zeolite cracking catalyst capable of producing high octane gasoline of increased aromatic content. Silver or copper ions in combination with rare earth ions are exchanged into a synthetic Y-type zeolite using a combination of exchange and calcination steps. The exchanged zeolite is advantageously combined with a major portion of inorganic oxide matrix to produce a catalyst suitable for use in standard commercial fluid and moving bed cat-cracking units.

3,835,033
SULFUR REMOVAL FROM MOLTEN MEDIA

John J. Dugan and Keith C. Yao, Sarnia, Ontario, Canada, assignors to Esso Research and Engineering Company
Filed Aug. 14, 1972, Ser. No. 280,184
Int. Cl. C10g *9/34*
U.S. Cl. 208—125 **24 Claims**

Sulfur is recovered from a molten salt mixture containing metal sulfides by contacting the metal sulfides with steam in a molten salt mixture containing a glass-forming oxide in combination with an alkali or alkaline earth metal oxide or hydroxide, including mixtures thereof, at a temperature in the range of from above about the melting point of said molten salt media to about 2000° F.

The sulfur is recovered from the molten media as an essentially dry, highly concentrated, hydrogen sulfide stream. Preferably, the mole ratio of the alkali and/or alkaline earth metal oxide and/or hydroxide expressed as the oxide thereof to the glass-forming oxide is maintained in the range of below about 3 in order to significantly increase the rate of desulfurization of the molten media. In a preferred embodiment, the alkali or alkaline earth metal sulfides are present in the molten media due to contacting a carbonaceous material with a gaseous stream containing oxygen at elevated temperatures in order to gasify the carbonaceous materials to carbon oxides and to convert the sulfur present in the carbonaceous materials to alkali or alkaline earth metal sulfur oxides. The sulfur oxides predominantly in the molten media in the form of alkali or alkaline earth metal sulfates and sulfites are then reduced, for example, by carbon to their alkali or alkaline earth metal sulfide form. The carbonaceous materials such as coke or coal may be introduced into the molten-media or formed in situ during the cracking of a hydrocarbon feedstock in the molten media.



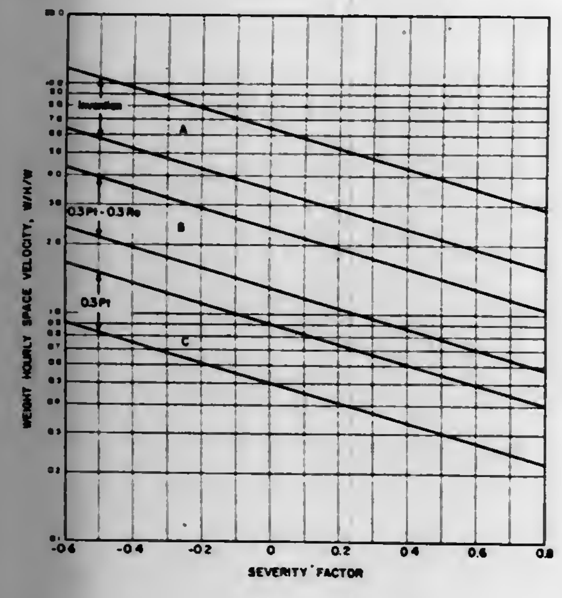
3,835,034
HIGH SEVERITY REFORMING PROCESS WITH A PLATINUM-IRIDIUM CATALYST

John H. Sinfelt, Berkeley Heights, and Allan E. Barnett, Westfield, N.J., assignors to Esso Research and Engineering Company

Continuation-in-part of application Ser. No. 194,461, Nov. 1, 1971, which is a continuation-in-part of application Ser. No. 883,601, Dec. 9, 1969, now abandoned. This application Apr. 12, 1973, Ser. No. 350,386

Int. Cl. C10g *35/06;* **B01j** *11/78*

U.S. Cl. 208—139 **8 Claims**



Naptha feed stocks are converted to high octane products at high severity conditions utilizing a catalyst comprising alumina in association with 0.15 to 0.75 weight percent platinum, 0.15 to 0.45 weight percent iridium and 0.3 to 2.0 weight percent chlorine, each based on total catalyst, the surface area of the platinum and iridium on the alumina being at least about 200 square meters per gram of platinum and iridium as determined by carbon monoxide chemisorption techniques. The catalyst should contain less than about two atoms of sulfur per atom of platinum and iridium and be substantially free of alkali and alkaline earth metal constituents.

3,835,035
METHOD OF PURIFYING LUBRICATING OILS

Morton Fainman, 11200 Homedale St., Los Angeles, Calif. 90049, and Charles Strouse McAuley, 9579 Casanes Ave., Downey, Calif. 90240

No Drawing Filed July 30, 1973, Ser. No. 383,706

Int. Cl. C10m *11/00*

U.S. Cl. 208—181 **30 Claims**

A method of purifying used lubricating oils comprising the following steps:

1. Admixing the used lubricating oil with a mutually soluble predominantly hydrocarbon liquid diluent which preferably has a boiling range within the temperature region of about 100° F. to about 550° F.;
2. Admixing the diluted lubricating oil with a water miscible alcohol and water mixture containing a small amount of an acid, and
3. Centrifuging to remove sludge and metal compounds from the oil and to separate the diluted oil phase from the alcohol-water phase to provide a purified organic layer having a low ash content.

3,835,036
DRYCLEANING COMPOSITIONS

Herman Roy Jackson, 1981 San Marco Blvd., Jacksonville, Fla. 32207

No Drawing. Original application July 30, 1971, Ser. No. 167,863, now Patent No. 3,766,075. Divided and this application July 20, 1973, Ser. No. 381,199

Int. Cl. C10g *29/00, 33/04*

U.S. Cl. 208—249 **3 Claims**

Residual moisture and sulfur and other residual reducing agent impurities contained in drycleaning solvents are removed by adding to the solvents an unsubstituted aromatic hydrocarbon or a halogen or alkyl substituted aromatic hydrocarbon and dried cellulosic material on which has been precipitated a fine deposit of lead dichromate. The same materials may also be added to petroleum products in order to remove sulfur impurities therefrom.

3,835,037
PURIFICATION OF AROMATIC HYDROCARBONS

John Anthony Fairweather and Ronald James Dalton, Stockton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed July 17, 1972, Ser. No. 272,497

Int. Cl. C10g *25/04;* **C07c** *7/02*

U.S. Cl. 208—260 **4 Claims**

The aromatics-containing product obtained after reforming of naphtha and subsequent solvent extraction is treated with a clay e.g. bentonite at relatively low temperatures to remove olefinic impurities.

3,835,038
ACTIVATED SEWAGE PLANT AND PROCESS

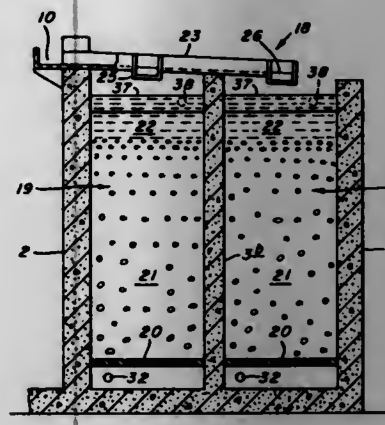
Donald F. Heaney, Pittsburgh, Pa., assignor to Dravo Corporation, Pittsburgh, Pa.

Original application Jan. 12, 1970, Ser. No. 2,103, now Patent No. 3,713,543. Divided and this application Oct. 27, 1972, Ser. No. 301,321

Int. Cl. B01d *23/24;* **C02c** *1/06*

U.S. Cl. 210—4 **2 Claims**

There is disclosed an activated sewage disposal plant of the compact or so-called "packaged" type and a method of processing sewage wherein a fast filter is provided through which the effluent liquid from the primary processing is passed, provision being made for backwashing the fast-flow filter from time to time with the backwash being collected in a well or vessel from which it is recycled at a controlled rate to the raw sewage. The entire plant can be embodied in a compact package unit, one common type of which comprises two concentric tanks, the outer one of which is divided into several compartments.



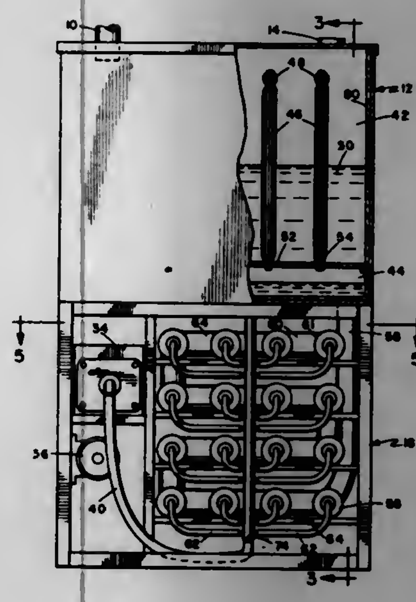
3,835,039
WASTE WATER TREATMENT SYSTEM

David Ciambrone, El Cajon, Calif., assignor to Cubic Corporation, San Francisco, Calif.

Filed Dec. 22, 1972, Ser. No. 317,729

Int. Cl. C02c *1/04*

U.S. Cl. 210—17 **17 Claims**



A system for treating waste water by feeding the waste water into an aerobic treatment separator, which separator utilizes a plurality of fibers bunched into groups providing recesses for aerobic bacteria with the ends of the fibers fitting into openings in the bottom of the separator, for providing filtering of the water passing through the separator and subject to aerobic treatment. The waste water from the separator is then treated by ozone in conduits which ozone and air gas under pressure moves the filtered waste water and treats and kills bacteria in the waste water through the conduits to a surge tube with the waste water and ozone moving in the same direction. The treated water is then filtered for discharge.

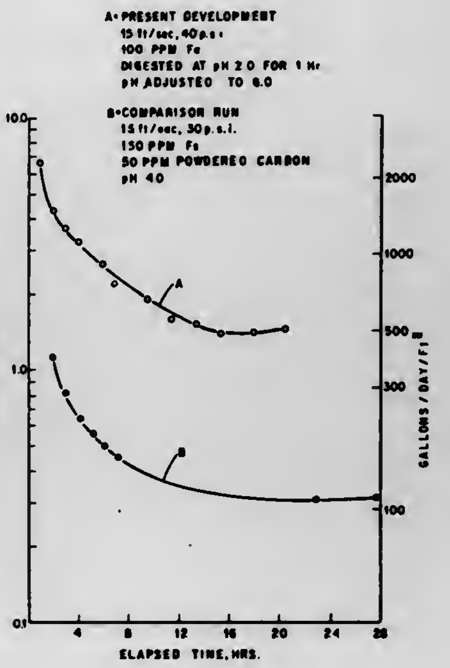
3,835,040
CROSS-FLOW FILTRATION PROCESS

Harvey A. Mahlman, Knoxville, and Warren G. Sisson, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 4, 1973, Ser. No. 347,755

Int. Cl. C02c *5/06*

U.S. Cl. 210—23 **5 Claims**



A process is provided for removing the organic and phosphate content of an aqueous feed containing same which comprises adding an effective amount of at least one additive selected from the group consisting essentially of a salt which hydrolyzes to a hydrous oxide, adjusting the pH of said feed to a value below 3.5, digesting said feed in air at a temperature in the range 32° to 100° F., increasing the pH of the digested feed to a value in the range 5.5 to 7.5, and then filtering the digested feed.

3,835,041
PROCESSES FOR THE PURIFICATION OF WASTE EFFLUENTS

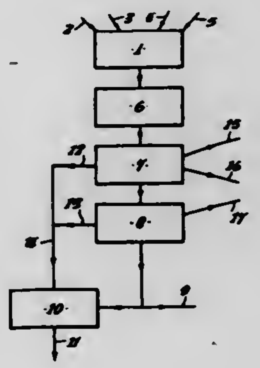
Roy Arthur Grant, Poole, England, assignor to Tasman Vaccine Laboratory Limited, Upper Hutt, New Zealand

Continuation-in-part of application Ser. No. 841,430, July 14, 1969, now Patent No. 3,697,419. This application July 3, 1972, Ser. No. 268,299

The portion of the term of the patent subsequent to Mar. 30, 1988, has been disclaimed

Int. Cl. B01d *15/04*

U.S. Cl. 210—27 **2 Claims**



A process is disclosed for removing protein from waste effluents containing same using ion exchange methods.

The ion exchange resin is a cross linked regenerated cellulose matrix modified by the introduction of groups capable of cation exchange or groups capable of anion exchange.

3,835,042
REMOVAL AND RECOVERY OF CHROMIUM FROM POLLUTED WATERS

Jean Marc Lalancette and Bernard Coupal, Sherbrooke, Quebec, Canada, assignors to Universite de Sherbrooke, Sherbrooke, Quebec, Canada

No Drawing. Continuation-in-part of abandoned application Ser. No. 269,862, July 7, 1972. This application Sept. 26, 1973, Ser. No. 400,832

Int. Cl. C02c *5/02*

U.S. Cl. 210—28 **5 Claims**

Chromium polluted solutions are treated by a process which avoids the necessity of reducing chromium VI to chromium III. The process involves forming a chromium sulfide complex by adding a water-soluble ferric salt to the chromium polluted solution and insolubilizing the complex formed by treatment with a compound which when dissolved in water forms sulfide ions and separating the insoluble precipitate by filtration through a bed of peat moss. The peat moss containing the insoluble chromium iron sulfide complex is oxidized under heat to recover the chromium as chromium oxide. If other metals such as cadmium, copper, lead, mercury, iron and zinc are present in the polluted solution they will also be recovered in the form of their oxides except the mercury which will be recovered as such by pyrolysis of the flue gases.

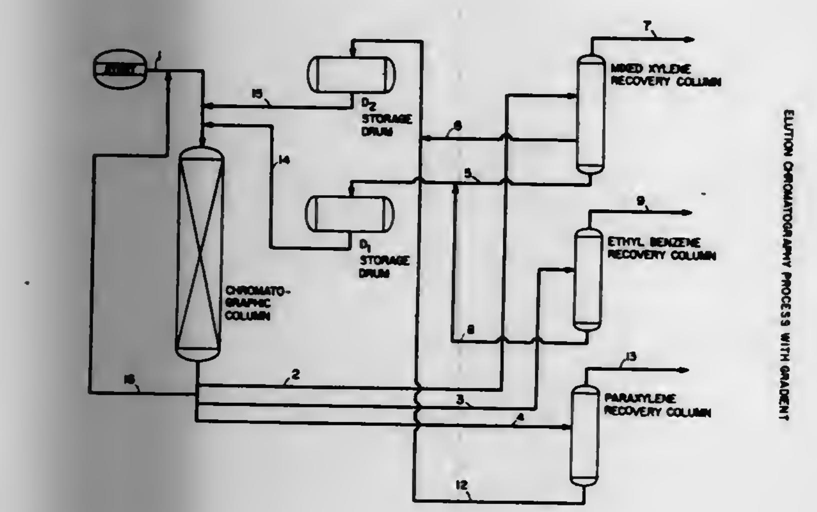
3,835,043
MINIMIZING ELUTION VOLUMES IN LIQUID CHROMATOGRAPHIC SEPARATIONS

Paul R. Geissler, Edison, and Frank J. Healy, Morristown, N.J., assignors to Esso Research and Engineering Company

Filed Dec. 21, 1972, Ser. No. 317,118

Int. Cl. B01d *15/08*

U.S. Cl. 210—31 C **9 Claims**


7
MIXED XYLENE RECOVERY COLUMN
15
D_2 STORAGE DRUM
6
14
5
D_1 STORAGE DRUM
9
ETHYL BENZENE RECOVERY COLUMN
CHROMATO-GRAPHIC COLUMN
8
16
2
13
3
4
PARAXYLENE RECOVERY COLUMN
12
ELUTION CHROMATOGRAPHY PROCESS WITH GRADIENT

In a liquid chromatography commercial process for the separation of two or more components contained in admixture in a feedstream including the steps of (a) contacting the feedstream mixture containing the components to be separated with a bed of crystalline aluminosilicate adsorbent at conditions to effect the selective retention of two or more of the components by said adsorbent, (b) passing through said bed an eluent selected from the group consisting of aromatics and substituted aromatics, (c) recovering from said bed a stream or streams containing at least a portion of the less selectively adsorbed components, and (d) recovering a stream substantially enhanced in concentration of said selectively adsorbed components relative to other components of feedstream wherein the improvement comprises increasing the strength of the eluting agent in the liquid carrier during the operation of the steps (a) and (b) above to thereby effect the desired separation under conditions that cause low elution volume to feed ratios. The improved liquid chromatography process is particularly applicable to the separation of paraxylene and ethylbenzene from a C_8 aromatic isomer mixture containing ethylbenzene.

3,835,044
PROCESS FOR SEPARATING NEPTUNIUM FROM THORIUM

Wallace W. Schulz, Richland, Wash., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Oct. 16, 1972, Ser. No. 298,135

Int. Cl. C02b *1/56*

U.S. Cl. 210—37 **8 Claims**

A process is disclosed for separating neptunium from thorium in aqueous solution which comprises contacting the aqueous solution with a weak-base anion exchange resin whereby the neptunium is preferentially adsorbed on the weak-base anion exchange resin to a greater extent than for the strong-base (quaternary group) resins hitherto used. The process is particularly useful in separating and recovering neptunium from atomic energy plant feed solutions comprising neptunium, uranium, thorium, protactinium, niobium, ruthenium, rhodium and zirconium. The preferred weak-base anion exchange resins are of the macroreticular type such as those disclosed in British Pat. 932,125.

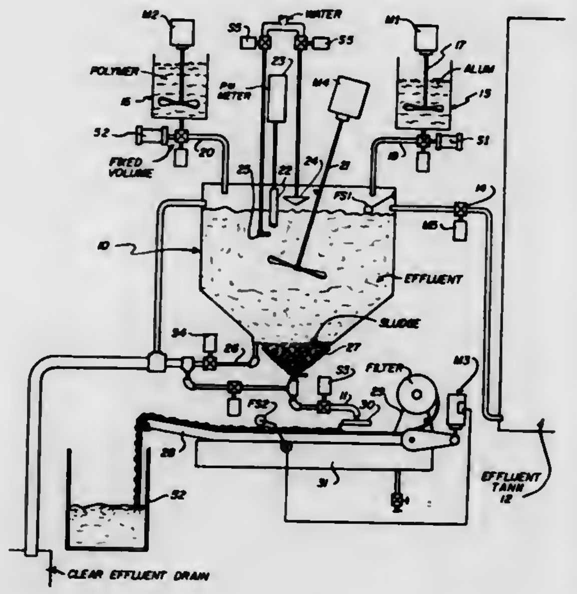
3,835,045
METHOD OF FLOCCULATING

Vahan A. Hussissian, 512 E. Lake Shore Drive, Barrington, Ill. 60010

Filed Aug. 24, 1972, Ser. No. 283,272

Int. Cl. B01d *21/01;* **C02b** *1/20*

U.S. Cl. 210—49 **7 Claims**



A flocculating method and apparatus wherein wash water is delivered into a flocculating tank, either directly or from a holding tank. Flocculating chemicals are proportioned into the flocculating tank and mixed with the wash water, until the pH thereof reaches a pre-established level. At this time, the wash water is permitted to settle for a fixed period of time, to permit the flocculated ink residue to settle to the bottom of the flocculating tank. Thereafter, the clear effluent is drained off, and then the sludge is discharged by gravity onto a filter table where it is de-watered through a roll-fed web of filter paper. The web of filter paper with the de-watered sludge on it is conveyed into disposal means, such as a disposal bin.

3,835,046
DEWATERING OF AQUEOUS SUSPENSIONS

Alfred J. Restaino, Wilmington, Del., assignor to ICI America Inc., Wilmington, Del.

No Drawing. Filed Feb. 14, 1972, Ser. No. 226,280

Int. Cl. B01d *21/01*

U.S. Cl. 210—54 **19 Claims**

A process is provided for dewatering aqueous suspensions of solid materials which comprises mixing into such a suspension a water-soluble, cationic polymer of N-vinyl imidazole or salt thereof, the amount of N-vinyl imidazole polymer employed being sufficient to condition the suspension for dewatering and separating water from the conditioned suspension.

3,835,047
METHOD FOR TREATING SOLUTIONS CONTAINING CYANOHYDRINS

Pierre Colin, Saint-Avold, France, assignor to Produits Chimiques Ugine Kuhlman, Paris, France

No Drawing. Filed Feb. 10, 1972, Ser. No. 225,290
Claims priority, application France, Feb. 11, 1971, 7104553

Int. Cl. C02b *1/38*

U.S. Cl. 210—63 **9 Claims**

The instant invention relates to a method for treating aqueous solutions containing cyanohydrins for the purpose of rendering the solutions non-toxic, which comprises reacting the cyanohydrins contained in solution with hydrogen peroxide to form biodegradable oxamide.

The instant invention also relates to a method for treating solutions containing at least a metallic salt of hydrocyanic acid, hereinafter referred as cyanide, for the purpose of rendering said solutions non-toxic, which comprises reacting the cyanides contained in the solutions with carbonyl compounds to convert the cyanides to the corresponding cyanohydrins, reacting said cyanohydrins in solution with hydrogen peroxide to form biodegradable oxamide.

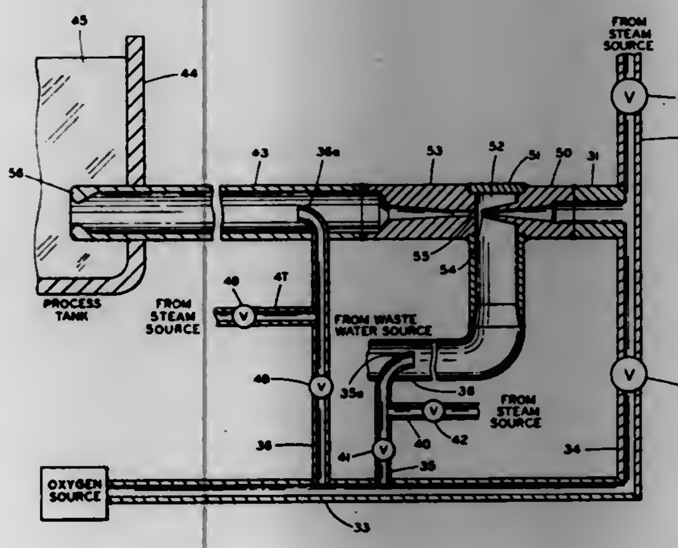
3,835,048
METHOD OF DISSOLVING GASES IN LIQUIDS

Fredrick L. Walter, 2304 Oak Lane, Rolling Meadows, Ill. 60008

Filed Aug. 2, 1972, Ser. No. 277,352

Int. Cl. B01f *3/04*

U.S. Cl. 210—63 **13 Claims**



A gas is dissolved in a liquid by mixing the gas with condensable vapor such as steam and introducing the vapor and gas to the liquid where the vapor condenses to permit dispersed bubbles of the gas to dissolve in the liquid. In another embodiment gas, condensable vapor, and some liquid are mixed, the pressure of the mixture is increased to facilitate dissolution of the gas in the liquid, and the mixture is introduced into more liquid.

3,835,049
OIL SPILL CONTROL

Jack A. King, Tulsa, Okla., assignor to Cities Service Oil Company, Tulsa, Okla.

No Drawing. Continuation-in-part of abandoned application Ser. No. 167,805, June 30, 1971. This application Aug. 23, 1973, Ser. No. 390,835

Int. Cl. C02b *9/02*

U.S. Cl. 210—63 **6 Claims**

Hydrocarbon oil floating on the surface of water is recovered by admixing with the hydrogen oil in the presence of oxygen one to fifty parts by weight of a drying oil per one hundred parts by weight of the hydrocarbon oil, wherein at least one of ten carbon-to-carbon bonds of the drying oil are double bonds and wherein the drying oil contains at least one carbonyl moiety per molecule, to coagulate the admixture, and removing the admixture from the surface of the water.

3,835,050
GREASE COMPOSITIONS HAVING HIGH TRACTIVE COEFFICIENTS

Richard L. Green, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed May 13, 1971, Ser. No. 143,237

Int. Cl. C10m *7/02, 7/12, 7/30*

U.S. Cl. 252—28 **11 Claims**

Greases having high coefficients of traction are prepared by thickening tractive fluids comprising synthetic cyclic hydrocarbons having a coefficient of traction in excess of about 0.06 with an organic or inorganic thickener such as silica or polyurea. The greases are useful as lubricating agents and as power transmitting fluids in tractive drives.

3,835,051
CYANOETHOXYLATED FATTY ACID METAL SOAP THICKENED GREASES

Harold E. Kenney, Jenkintown, Edward T. Donahue, Philadelphia, and Gerhard Maerker, Oreland, Pa., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Original application July 25, 1972, Ser. No. 275,011. Divided and this application Aug. 24, 1973, Ser. No. 391,181

Int. Cl. C10m *5/20, 7/24, 7/30*

U.S. Cl. 252—33.6 **16 Claims**

Monohydroxy fatty acids are cyanoethylated and the resulting cyanoethoxy derivative is treated with the desired alkali, alkaline earth metal or other metallic base to form a soap which is dispersed in a petroleum oil base or a synthetic base oil of the diester type to form a grease.

3,835,052
EMULSION FOR HOT ROLLING ALUMINUM PRODUCTS

Ewell E. McDole, Danville, Calif., and Frank L. Howard, Bountiful, Utah, assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

No Drawing. Continuation-in-part of abandoned application Ser. No. 199,040, Nov. 15, 1971. This application May 10, 1973, Ser. No. 358,844

Int. Cl. C10m *1/22*

U.S. Cl. 252—49.5 **6 Claims**

This invention relates to the addition of polybutene and saturated fatty alcohols to a neat oil composition comprising hydrocarbon base oils, lubricity agents, emulsifiers and the like. When mixed with water, the neat oil with additives provides an emulsion which minimizes pickup in the hot rolling of aluminum products and provides a rolled product having substantially improved surface characteristics.

3,835,053

LUBRICATING COMPOSITIONS

Dale J. Meier, Midland, Mich., and David J. St. Clair, Bethalto, Ill., assignors to Shell Oil Company
No Drawing. Filed Nov. 13, 1972, Ser. No. 306,086
Int. Cl. C10m *1/18*
U.S. Cl. 252—59 **7 Claims**

Lubricating oil compositions for internal combustion engines contain as a thickener and viscosity index improving agent a minor but effective amount of a hydrogenated isoprene homopolymer having been produced by solution polymerization with a lithium-hydrocarbyl initiator and having a 1,4-content prior to hydrogenation of at least 85% and an average molecular weight between about 40,000 and 225,000, said polymer having been hydrogenated sufficiently to reduce at least about 80% of its double bonds. The compositions have excellent shear stability and can be formulated to pass multi-grade engine oil classifications.

3,835,054

METHOD FOR PREPARATION OF THERMAL INSULATION BOARD

Edward W. Olewinski, Stickney, and Linda J. Pluta, North Riverside, Ill., assignors to Nalco Chemical Company, Chicago, Ill.
No Drawing. Filed July 10, 1972, Ser. No. 270,365
Int. Cl. C04b *43/02;* **F16l** *59/00*
U.S. Cl. 252—62 **3 Claims**

A method or procedure for the preparation of thermal insulation board wherein a ceramic fiber such as Fiberfrax is slurried with silica sol and sequentially with a source of alumina. The solution is adjusted to a slightly acid-neutral pH of 5–7 and the slurry is flocculated with a minor amount of an anionic polymer consisting of a latex of acrylamide/acrylic acid. The flocculated mix is subsequently vacuum formed and dried under conventional procedures.

3,835,055

ELECTROLYTES FOR LOW SERIES-RESISTANCE, ALUMINUM ELECTROLYTIC CAPACITORS

Bernard Francois Gustave Chesnot, Louveciennes, France, assignor to Les Condensateurs Sic-Safco, Columbes, France
No Drawing. Continuation-in-part of application Ser. No. 139,236, Apr. 30, 1971, which is a continuation of application Ser. No. 770,433, Oct. 24, 1968, both now abandoned. This application Oct. 12, 1972, Ser. No. 296,903
Claims priority, application France, Oct. 27, 1967, 126,113
Int. Cl. H01g *9/02*
U.S. Cl. 252—62.2 **9 Claims**

An aqueous electrolyte for aluminum-anode capacitors is comprised mainly of an acid such as maleic acid, a maleate of an aliphatic amine such as triethylamine, orthophosphoric acid, a solvent such as dimethylformamide, and optionally a small quantity of boric acid. Such an electrolyte offers high electrical conductivity and for all practical purposes a sufficiently high maximum build-up voltage, the capacitors which utilize such electrolyte being usable over a wide temperature range.

3,835,056

FUNCTIONAL FLUID COMPOSITIONS

Richard F. Heinze and John F. Herber, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Oct. 31, 1966, Ser. No. 590,511
Int. Cl. C09k *3/02*
U.S. Cl. 252—78 **11 Claims**

Functional fluid compositions comprising an aromatic compound selected from polyphenyl ethers, polyphenyl thioethers, dihalogenated diphenyl ethers, halogenated phenoxypyridines or mixtures thereof and a halogenated compound selected from halobenzenes, perhalodienes and perhalocyclodienes having not less than 4 nor more than 8 carbon atoms or mixtures thereof which compositions are particularly useful as hydraulic fluids.

3,835,057

ANTI-BACTERIAL DETERGENT BAR

Wai Ming Cheng, Ellesmere Port, James Francis Davies, Bromborough, and Brian Anthony Pethica, Altringham, England, assignors to Lever Brothers Company, New York, N.Y.
No Drawing. Continuation of abandoned application Ser. No. 744,686, July 15, 1968. This application Oct. 6, 1971, Ser. No. 187,207
Int. Cl. C11d *3/48, 9/50*
U.S. Cl. 252—107 **3 Claims**

An improved anti-bacterial detergent bar is obtained by incorporating an anti-bacterial compound in the mixture from which the bar is formed in a potentiator. Anti-bacterial compounds to which the improvement can be applied have a minimum inhibitory concentration against Staph. aureus of less than 5 p.p.m., a solubility in water of less than 1,000 p.p.m. at 20° C. and a melting point of at least 70° C. The potentiator is a solvent capable of dissolving at 25° C. at least 25% of its own weight of the anti-bacterial compound.

3,835,058

PROCESS OF PREPARING BAR SOAP COMPOSITIONS AND PRODUCTS THEREOF

Ronald E. White, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Continuation of abandoned application Ser. No. 99,883, Dec. 21, 1970. This application Jan. 23, 1973, Ser. No. 326,230
Int. Cl. C11d *9/32, 17/02*
U.S. Cl. 252—121 **20 Claims**

A process of preparing aerated free fatty acid-containing soap compositions having uniform texture, appearance and density which comprises subjecting an admixture of soap and free fatty acid, the free fatty acid comprising from about 0.75% to about 15% of the mixture, to high-intensity shearing. The sheared soap mixture is processed into bars in known manner by cooling, extruding, cutting and stamping. The resulting soap bars are characterized by desirable lathering and feel characteristics and are uniform in surface texture, color and density.

3,835,059

METHOD OF GENERATING ICE NUCLEI SMOKE PARTICLES FOR WEATHER MODIFICATION AND APPARATUS THEREFOR

Norihiko Fukuta, Englewood, Colo., and Young H. Paik, Seoul, Korea, assignors to the United States of America as represented by the Secretary of the Interior
Filed Sept. 5, 1972, Ser. No. 285,995
Int. Cl. A01g *15/00;* **C09k** *3/30*
U.S. Cl. 252—305 **6 Claims**

Ice-nuclei smoke particles are produced through contact of an organic ice-nuclei compound with superheated steam under pressure followed by internal adiabatic and isentropic expansion using a supersonic nozzle.

3,835,060

DEMULSIFICATION COMPOSITIONS CONTAINING ALKYL ETHER SULFATES

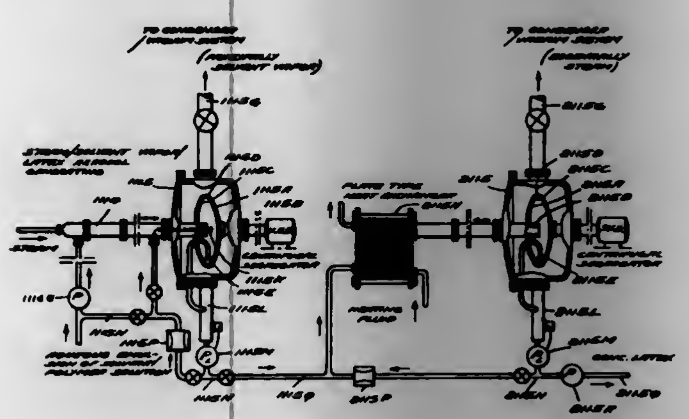
Jim Maddox, Jr., Margaret J. Zimmerman, and Ray Tuggle, Houston, Tex., assignors to Texaco Inc., New York, N.Y.
Filed Aug. 21, 1972, Ser. No. 282,201
Int. Cl. B01d *17/04*
U.S. Cl. 252—332 **9 Claims**

Oil and water emulsions may be broken faster and more effectively by using a combination of certain alkyl ether sulfates and conventional demulsifiers than with either of the above types of compounds alone.

3,835,061

HIGH POLYMER LATICES AND METHODS AND MEANS FOR PRODUCING SAME

Oliver W. Burke, Jr., 506 Intracoastal Drive, Fort Lauderdale, Fla. 33304
Application Dec. 18, 1968, Ser. No. 784,596, now Patent No. 3,644,263, which is a continuation-in-part of applications Ser. No. 621,997, Mar. 7, 1967, now Patent No. 3,503,917, Ser. No. 691,823, Dec. 19, 1967, now abandoned, and Ser. No. 767,790, Oct. 15, 1968, now Patent No. 3,622,127. Divided and this application Sept. 3, 1971, Ser. No. 177,823
Int. Cl. B01d; B01f; B01j *13/00*
U.S. Cl. 252—359 A **14 Claims**



The preparation of aqueous latices from solvent dispersions of elastomers and other high polymer compositions has presented problems including excessive viscosity during processing and foaming and coagulation, which have produced losses and increased costs. Herein combinations of steps and apparatus are disclosed which reduce or eliminate various of these problems, especially coagulum; enable the preparation of latices of high solids content; enable preparation of high solids content latices of grafted or filler extended or filler-reinforced elastomers; enable preparation of high solids latices of low molecular weight polymer which are then modified to materially increase the molecular weight of the polymer; and enable the preparation of improved stable latices both dilute and of high solids content, which are useful for example for adhesive and film forming purposes. The process in common with that of related copending applications is characterized, *inter alia*, by the establishment of a flow of steam as a continuous phase into which an emulsion of a cement of the polymer is dispersed as an aerosol of latex droplets in a solvent-vapor continuum, followed by coalescence of the latex droplets and separation of the resulting coalesced liquid phase from the resulting solvent-vapor phase. In one embodiment of the present disclosure an unstable emulsion is prepared employing only a limited quantity of emulsifier, so that the homogenizing thereof produces an emulsion the dispersed phase of which is only temporarily of precursor latex particle size. This unstable emulsion is converted to a stable latex by provisions for dispersing the same as the aerosol before coalescence of over 5% of the dispersed polymer phase of the emulsion into droplets of greater than precursor latex particle size (or for stabilizing the same by the addition of a secondary emulsifier to the same before such condition is reached without further reducing the size of the cement droplets of the dispersed phase), so that the latex in the aerosol and separated therefrom is kept free of coagulum during the coalescing of the latex droplets and the separation and further treatment, e. g. stripping and concentrating, with or without correlated further additions of emulsifier to stabilize the latex for storage or use.

The separation of the gaseous and liquid latex phases is preferably effected with the aid of partially concentrated liquid latex; and in certain embodiments herein disclosed a mixture of such partially concentrated latex commingled with water vapor generated therefrom is added to and commingled with the aerosol before or after at least a part of the aerosol has been coalesced, and the combined liquid phases and combined gas phases of the resulting mixture are thereafter separated. Also in certain embodiments of the invention a liquid flow of secondary emulsifier may be added to the uncoalesced or partially coalesced aerosol, or to the mixture thereof with the partially concentrated latex, prior to the separation of the gaseous and liquid phases thereof.

3,835,062

ELECTROCHEMICAL DEVICE ELECTROLYTE FOR CHEMICAL ANALYSIS

Conrad J. Feren and Robert W. Squires, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
Original application June 21, 1972, Ser. No. 265,085, now Patent No. 3,748,245. Divided and this application Mar. 28, 1973, Ser. No. 345,638
Int. Cl. G01n *27/26;* **H01m** *11/00*
U.S. Cl. 252—408 **2 Claims**

A high boiling electrolyte for use in a high temperature heat sterilizable electrolytic cell is disclosed. The electrolyte comprises sodium hydroxide, propionic acid and glycerol and has a boiling point of at least 135° C.

3,835,063

REGENERATION OF HALOGEN PROMOTED BIMETALLIC REFORMING CATALYST

Francis E. Davis, Jr., Woodbury, Walter R. Derr, Ashland, and Earle F. Ginter, Woodbury, N.J., assignors to Mobil Oil Corporation
Filed Mar. 27, 1970, Ser. No. 23,160
Int. Cl. B01j *11/18, 11/80;* **C10g** *35/06*
U.S. Cl. 252—415 **3 Claims**

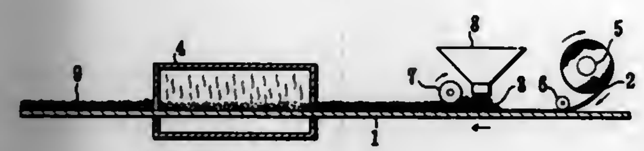
A halogenated reforming catalyst comprising platinum which has become deactivated with carbonaceous deposits during on-stream reforming is regenerated by the combination of (1) removing carbonaceous material by burning with an oxygen containing gas under conditions to avoid heat damage to the catalyst, (2) heating the catalyst with air to a temperature of about 900° F., (3) selectively chlorinating each catalyst bed with a moisture saturated air stream to a predetermined chloride level, (4) reducing the chlorided catalyst with hydrogen rich gas for a period of time in the range of 1 to 4 hours, (5) adding sulfur to each catalyst bed theoretically sufficient to sulfide the platinum component of the catalyst and (6) initiating on-stream reforming of naphtha in the presence of added hydrogen sulfide.

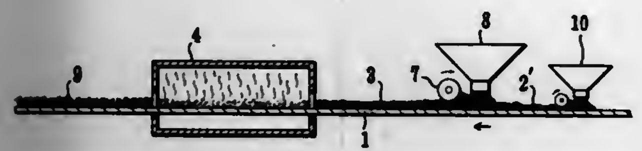
3,835,064

PROCESS FOR MANUFACTURING AN ACTIVATED CARBON

Takeshi Shinomiya, 6–2, 3-chome, Okuda; Yoshio Tarui, 8–10, 3-chome, Nakajima; and Shuhji Enomoto, 5–1, 1-chome, Shimoshinkita-machi, all of Toyama-shi, Toyama-ken, Japan
Filed Sept. 23, 1971, Ser. No. 183,087
Int. Cl. C01b *31/08*
U.S. Cl. 252—423 **3 Claims**

This invention solves two problems in the manufacture of activated carbon by activation with chemicals, namely, (a) the corrosion of the equipment with the chemicals used, and (b) improving the recovery efficiency of the chemicals, as well as making it posible to use phosphoric acid on an industrial scale. This is accomplished by placing on the conveyer system a heated plate which moves with the conveyer system. On this plate is a film or sheet of a corrosion inhibiting organic substance, which is placed there to prevent corrosion and the waste of chemicals. Then, carbonaceous organic raw materials and acti-





vating chemicals are placed on said organic substance. The mixture is placed in a furnace and activated.

3,835,065
PROCESS FOR THE PREPARATION OF CATALYSTS FOR THE POLYMERISATION AND COPOLYMERISATION OF ETHYLENE

Paolo Colombo, Saronno, and Marco Galliverti, Legnano, Italy, assignors to Societá Italiana Resine S.I.R. S.p.A., Milan, Italy
No Drawing. Filed Nov. 27, 1972, Ser. No. 309,848
Claims priority, application Italy, Dec. 27, 1971, 32,956/71
Int. Cl. C08f *1/42*
U.S. Cl. 252—429 C **11 Claims**

Ethylene polymerisation and copolymerisation catalysts comprise an organometallic compound and the product of a treatment of a sulphite of calcium, magnesium, manganese or zinc with a liquid halogen containing compound of a transition metal, the sulphite having been obtained by bubbling sulphur dioxide through a solution or suspension of an oxide, hydroxide or salt of the metal with subsequent slow elimination of excess of the sulphur dioxide before recovery and drying of the sulphite.

3,835,066
CATALYTIC MIXTURE

Ronald F. Davies, Elkton, Md., and George J. Benvegno, Aston, Pa., assignors to Colonial Metals, Inc., Elkton, Md.
No Drawing. Filed Apr. 5, 1973, Ser. No. 348,075
Int. Cl. B01j *11/08*
U.S. Cl. 252—429 R **18 Claims**

A catalytic mixture includes a platinum-based compound, such as chloroplatinic acid or ammonium chloroplatinite, mixed with other constituents, including water. The acid could be mixed with various amounts of sodium citrate or with aluminum oxide, dextrose and triethanolamine. The ammonium chloroplatinite could be mixed with dimethyl formamide.

Each of these mixtures can be deposited onto pads used in catalytic heaters, for example, and heated to precipitate the platinum onto the pads.

3,835,067
METHOD FOR INTERCALATING CHROMIUM TRIOXIDE (CrO_3) IN GRAPHITE

Bernd Schneider, Beverly, Mass., assignor to Ventron Corporation, Beverly, Mass.
No Drawing. Filed Feb. 20, 1973, Ser. No. 333,739
Int. Cl. B01j *11/06*
U.S. Cl. 252—447 **3 Claims**

The invention provides a method for intercalating graphite in chromium trioxide (CrO_3) on a commercial scale. The method involves heating a layer of a mixture of particles of graphite and chromium trioxide at a temperature above 180° C. but below 250° C. until the intercalation is complete as shown by the change in color from brownish black to bluish black. It is essential that the thickness of the layer of the mixture shall not be greater than about three eighths of an inch and, preferably, about one quarter inch.

3,835,068
CATALYST PREPARATION

Kennard Dungan West, Morton, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.
No Drawing. Filed July 25, 1972, Ser. No. 274,898
Int. Cl. B01j *11/40*
U.S. Cl. 252—455 Z **19 Claims**

By firing a powdered blend of one or more metals or alloys thereof with an expandible crystalline siliceous zeolite, catalytic structures are prepared which promote reduction of NO_x to less noxious vapor form. The obtained catalytic structures comprising a catalytic metal or alloy thereof intimately associated with or in a low density ceramic matrix are useful in treatment of exhaust gas from internal combustion engines containing noxious oxides of nitrogen (NO_x) particularly NO.

3,835,069
RUTHENIUM CATALYST SYSTEM

Haren S. Gandhi, Dearborn Heights, Joseph T. Kummer, Ann Arbor, and Mordecai Shelef, Southfield, Mich., assignors to Ford Motor Company, Dearborn, Mich.
No Drawing. Filed Dec. 26, 1972, Ser. No. 318,338
Int. Cl. B01j *11/08*
U.S. Cl. 252—462 **3 Claims**

A process is taught for producing a ruthenium catalyst. A ruthenate is presynthesized, ground into a fine powder, dispersed in a gamma alumina containing medium and applied as a slurry to a catalytic support. The ruthenate slurry is dried on the support and calcined. The product produced in this manner is desirable for use in the catalytic conversion in a reducing atmosphere of oxides of nitrogen. The ruthenium catalyst of the product produced by this method is resistant to volatilization when exposed to an oxidizing ambient.

3,835,070
HARD SURFACE CLEANERS

Charles A. Beck, Painesville, Ohio, assignor to Diamond Shamrock Corporation, Cleveland, Ohio
No Drawing. Filed Apr. 17, 1972, Ser. No. 244,926
Int. Cl. C11d *3/065*
U.S. Cl. 252—526 **7 Claims**

A predominantly aqueous hard surface cleaner particularly useful in household applications contains methylene chloride, a monoalkyl ether of ethylene glycol, a lower alkanol, an alkaline inorganic builder and a sulfated or sulfonated anionic surfactant.

3,835,071
RUG SHAMPOO COMPOSITIONS

William E. Allen, Laurel Springs, N.J., and Bob G. Gower, Park Forest, Ill., assignors to Atlantic Richfield Company, Philadelphia, Pa.
No Drawing. Continuation of abandoned application Ser. No. 877,414, Nov. 17, 1969. This application Mar. 24, 1972, Ser. No. 237,979
Int. Cl. C11d *1/10, 1/14*
U.S. Cl. 252—545 **11 Claims**

Rug shampoo compositions which dry to an easily removable brittle residue on the rug or upholstery after shampooing and avoid rapid resoiling are obtained by incorporating into rug shampoo compositions of a water-soluble, metal, ammonium or amine salt of a styrene-maleic anhydride polymer or its half-ester in amount sufficient to embrittle the shampoo residue left on the rug after shampooing. The conventional rug shampoo detergents, such as sodium or magnesium lauryl sulfate, or, if desired, conventional foam builders are employed in the rug shampoo formulations.

3,835,072
PHENOLIC RESIN ION EXCHANGE FIBERS

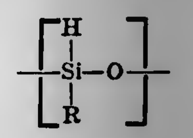
James Economy, Eggertsville, and Luis C. Wohrer, Lewiston, N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.
No Drawing. Filed Oct. 2, 1972, Ser. No. 293,876
Int. Cl. C08g *5/18*
U.S. Cl. 260—2.1 C **10 Claims**

An ion exchange fiber comprising a cured infusible phenolic resin having primary, secondary, tertiary or quaternary amine groups.

3,835,073
SUSPENSION POLYMERIZATION PROCESS

David Everitt Thimas, Cwmbran, Wales, assignor to Monsanto Limited, London, England
No Drawing. Filed Dec. 3, 1973, Ser. No. 421,208
Claims priority, application Great Britain, Dec. 14, 1972, 57,661/72
Int. Cl. C08j *1/26*
U.S. Cl. 260—2.5 B **11 Claims**

The process of the invention comprises polymerizing a vinylaromatic monomer in an aqueous suspension system in the presence of a suspending agent, a suspension polymerization catalyst and an alkyl hydrogen polysiloxane comprising the repeating unit



$$\left[-\overset{H}{\underset{R}{\overset{|}{\underset{|}{Si}}}}-O-\right]$$

where R is an alkyl group having 1 to 4 carbon atoms.

3,835,074
JOINT CEMENT COMPOSITIONS

Armand J. Desmarais, New Castle, Del., assignor to Hercules Incorporated, Wilmington, Del.
No Drawing. Filed Apr. 26, 1973, Ser. No. 354,713
Int. Cl. C08f *37/16, 45/18*
U.S. Cl. 260—17 **3 Claims**

Joint cements suitable for use with plaster wallboard are disclosed wherein the asbestos customarily used to impart water binding properties and pseudoplasticity is replaced by a water-insoluble, fibrous hydroxyethyl cellulose.

3,835,075
BUTADIENE RESINS AND PROCESS FOR PREPARATION

Stephen P. Boutsicaris, Akron, and Robert A. Hayes, Cuyahoga Falls, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio
Continuation of application Ser. No. 158,031, June 29, 1971, which is a continuation-in-part of application Ser. No. 121,589, Mar. 5, 1971, which is a continuation of application Ser. No. 818,971, Apr. 24, 1969, which in turn is a continuation-in-part of application Ser. No. 715,521, Mar. 25, 1968, all now abandoned. This application Apr. 26, 1973, Ser. No. 354,563
Int. Cl. C08c *11/10;* **C08d** *3/08, 9/06*
U.S. Cl. 260—17.4 BB **41 Claims**

This invention involves a process for preparing hard, tough, heat-resistant plastics by the peroxide curing of butadiene polymers having a dilute solution viscosity of 0.19–0.7 and having a high vinyl content and a narrow molecular weight distribution, using a peroxide which gives free radicals of the structure $R_2(CH_3)CO\cdot$. Although the peroxide curing of butadiene polymers generally results in products having elastomeric properties and being swellable in benzene, the process of this invention permits very rapid curing without crazing or cracking to give rigid, heat-resistant polymers. The butadiene polymers have at least 40%, preferably at least 70% by weight butadiene therein, advantageously having at least 80% in the vinyl-type of repeating units, the average molecular weight being at least 12,500 with a molecular weight distribution such that at least 50% and preferably at least 90% is above 10,000 molecular weight and at least 95% is above 2,000. The proportion of peroxide used, preferably dicumyl peroxide, is 0.5–6, preferably 1–5 parts per 100 parts of polymer, and the curing temperature is at least 250° F. (120° C.), preferably 300–350° F. (150–180° C.). This process lends itself to liquid compounding for the incorporation of the peroxide and any modifiers, and for mixing with filler.

3,835,076
AQUEOUS SEALER COMPOSITION OF AN EPOXY ESTER RESIN OF A MALEINIZED DRYING OIL FATTY ACID AND AN EPOXY RESIN AND AN ACRYLIC-EPOXY ESTER GRAFT COPOLYMER

Jeffery J. Jeffery, Davison, and Aloysius N. Walus, Flint, Mich., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Nov. 30, 1972, Ser. No. 310,951
Int. Cl. C08g *45/08;* **C09d** *3/52, 3/58*
U.S. Cl. 260—23 EP **12 Claims**

The aqueous sealer composition contains a polymeric binder in an aqueous medium in which the polymeric binder comprises the following components:

(A) an epoxy ester resin of a maleinized drying oil fatty acid such as maleinized linseed oil fatty acids and an epoxy hydroxy polyether resin; and
(B) an acrylic-epoxy ester graft copolymer that has a backbone of methyl methacrylate, styrene, ethyl acrylate, acrylonitrile or mixtures thereof, contains 1–7% of methacrylic acid or acrylic acid which has been reacted with an alkylene imine and the polymeric side-chain segments of the graft copolymer are epoxy esters of an epoxy resin and an aliphatic dicarboxylic acid;

the novel composition forms a high quality coating composition and is particularly useful as a sealer composition for automobile and truck bodies over which finishes of acrylic lacquers, acrylic enamels, acrylic dispersion lacquers or enamels and acrylic powders can be applied.

3,835,077
POLYURETHANE-TAR COMPOSITION

Kenjiro Mori, Takarazuka, Yasuzi Takemoto, Sakai, and Shigueaqui Ikebe, Toyonaka, Japan, assignors to Sumitomo Chemical Company, Limited
No Drawing. Filed Oct. 4, 1972, Ser. No. 294,947
Int. Cl. C08g *51/52*
U.S. Cl. 260—28 **8 Claims**

A composition containing a urethane prepolymer, a hardener and cresol tar which is the distillation residue having a boiling point of not lower than 200° C. in the preparation of cresols using cymene, the composition being useful as a water-proof material for building materials.

3,835,078
METHOD OF REMOVING FLOOR POLISH COMPRISING COPOLYMER CONTAINING α,β-ETHYLENICALLY UNSATURATED CARBOXYLIC ACID AND POLYVALENT METAL COMPOUND

Richard E. Zdanowski, Fort Washington, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.
No Drawing. Continuation-in-part of application Ser. No. 640,852, May 24, 1967, which is a division of application Ser. No. 532,897, Mar. 9, 1966, now Patent No. 3,328,325, which in turn is a continuation-in-part of abandoned applications Ser. No. 238,007 and Ser. No. 238,008, both Nov. 15, 1962. This application Oct. 1, 1971, Ser. No. 185,821
The portion of the term of the patent subsequent to Mar. 7, 1984, has been disclaimed
Int. Cl. C08f *29/12, 29/36, 45/52*
U.S. Cl. 260—28.5 A **8 Claims**

This invention is concerned with the removal of a floor polish film deposited on a floor from an aqueous dispersion having a pH of about 7 to 11, and containing water, a wax, a water insoluble addition polymer obtained by the emulsion polymerization of monoethylenically unsaturated monomers, including an α,β-ethylenically unsaturated carboxylic acid, and a dispersing agent in a proportion from 0.5 to 20% by weight, based on the total weight of polymer and wax, any content of a member selected from the group consisting of wax-soluble resins and gums and alkali-soluble resins being not over 50% by weight, based on the weight of the polymer, any alkali-soluble resin, if present, preferably being selected from the group consisting of shellac, Manila gum, Loba gum, and alkali-soluble alkyds or polyesters, the proportions of polymer and wax being about 10 to 95 parts by weight of the polymer to 5 to 90 parts by weight of the wax. The composition also contains (1) about 1% to 50% by weight, based on the weight of the polymer, of a polyvalent metal compound dissociable in the composition to form polyvalent metal-containing ions, and (2) from 0 to 100% by weight, based on the weight of organic film-forming material, of a pigment or filler, the total solids of the composition being from about 8% to 45% by weight. It also concerns a method of coating substrates therewith and of removing the coating from the substrates; also the coated substrates. The invention is particularly concerned with the removal of such coating films with alkaline removing compositions, particularly those containing aqueous ammonia, by applying the cleaning solution to the film coating, and removing the coating from the substrate.

3,835,079

HOT MELT COMPOSITIONS COMPRISING STYRENE-ISOBUTYLENE COPOLYMER, WAX, AND A PRIMARY RESIN

Frank Scardiglia, Arlington Heights, and Takeo Hokama, Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.

No Drawing. Application Oct. 29, 1970, Ser. No. 85,297, now Patent No. 3,757,000, which is a continuation-in-part of abandoned application Ser. No. 728,332, May 10, 1968. Divided and this application Jan. 22, 1973, Ser. No. 325,500

Int. Cl. C08f *45/52*
U.S. Cl. 260—28.5 A **13 Claims**

A solid, homogeneous and essentially random copolymer of styrene and isobutylene having a number average molecular weight of from about 1000 to about 4000, a heterogeneity index of from about 1.50 to about 2.25 and a styrene content of from about 40 to about 90 weight percent with its higher molecular weight fractions having a higher styrene content than the average styrene content of the copolymer.

3,835,080

PROCESS FOR THE PREPARATION OF AQUEOUS POLYOXYMETHYLENE DISPERSIONS

Karlheinz Burg, Langenhain, Taunus, Hans Dieter Hermann, Neuenhain, Taunus, and Helmut Schlaf, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed May 3, 1972, Ser. No. 250,073

Claims priority, application Germany, May 4, 1971, P 21 21 887.1

Int. Cl. B29c *1/04;* **C08g** *1/14, 1/22;* **D06m** *15/30*
U.S. Cl. 260—29.2 R **2 Claims**

Polyoxymethylenes are dispersed in water by suspending polyoxymethylene particles in water and then comminuting the particles of the suspension, the polyoxymethylene thus being directly dispersed. For the direct dispersion there are used polyoxymethylenes having hydrophilic groups, for example, carboxylate groups. Aqueous polyoxymethylene dispersions thus prepared are suitable for the preparation of coatings, in particular for paper and textiles.

3,835,081

TEXTILE ADHESIVE FROM POLYURETHANE

Kenneth H. Remley, Warren Township, Somerset, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed July 26, 1972, Ser. No. 275,392

Int. Cl. B32b *7/14, 23/08, 27/40;* **C08g** *22/16*
U.S. Cl. 260—29.2 TN **6 Claims**

Polyurethane textile adhesive compositions which furnish films of superior wet strength are obtained by forming an isocyanate prepolymer by reacting polypropylene glycol, 2,2-bis(hydroxymethyl)propionic acid and tolylene diisocyanate wherein the diisocyanate to total glycol molar ratio is between 1.6:1 and 1.8:1 and the reaction is terminated before completion of the reaction, i.e., the reaction is terminated when the unreacted isocyanate ("free NCO") content of the reaction mixture is reduced to from 6.19 to 7.4%.

3,835,082

AQUEOUS ALKALINE SOLUTION OF AN ALDEHYDE CONJOINT CONDENSATE OF RESORCINOL AND SATURATED RESORCINOL POLYMER

Robert Lee Wright, Akron, Ohio, assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 159,453, July 2, 1971, which is a continuation-in-part of application Ser. No. 59,720, July 30, 1970, both now abandoned. This application Jan. 26, 1972, Ser. No. 221,027

Int. Cl. C08g *51/24*
U.S. Cl. 260—29.3 **31 Claims**

Aqueous alkaline solutions of an aldehyde conjoint condensate of a mixture of resorcinol and a saturated resorcinol polymer which are adhesives or adhesive adjuvants for bonding fiber to rubber. The resorcinol polymer comprising alkylene bridged resorcinol units resulting from introducing olefinic unsaturated radicals of 3–10 carbon atoms into the nucleus of the resorcinol. Aqueous compositions containing the condensate and rubber latex are also disclosed.

3,835,083

MELAMINE-FORMALDEHYDE RESIN SOLUTIONS

Arie Tinkelenberg, Sittard, Netherlands, assignor to Stamicarbon B.V., Heerlen, Netherlands

No Drawing. Filed Feb. 5, 1973, Ser. No. 329,333

Claims priority, application Netherlands, Feb. 5, 1972, 7201532; July 28, 1972, 7210402

Int. Cl. C08g *9/30, 51/24*
U.S. Cl. 260—29.4 R **18 Claims**

A process for preparing stable melamine-formaldehyde resin solutions having improved properties is disclosed, wherein an aqueous solution of a water-soluble silicate if present before, during or after the condensation reaction of the melamine and formaldehyde.

The resulting resin solutions are suitable for a variety of end uses wherein melamine-formaldehyde resins have been previously used, including the impregnation of paper to be used in laminates.

3,835,084

POLY-N-VINYL LACTAM-POLYETHYLENEIMINE FLOCCULATING COMPOSITION

Julian L. Azorlosa, Bakersfield, Calif., and Earl P. Williams, Pen Argyl, Pa., assignors to GAF Corporation, New York, N.Y.

Continuation-in-part of abandoned application Ser. No. 834,797, June 19, 1969. This application Mar. 30, 1972, Ser. No. 239,531

Int. Cl. C08f *45/24*
U.S. Cl. 260—29.6 NR **15 Claims**

Solids dispersed or suspended in aqueous systems are flocculated or precipitated by adding to said system a flocculating amount of a blend, either in dry form or in an aqueous solution, containing a polymeric mixture of from 2 to 4 parts by weight of a polyvinyl lactam, e.g. polyvinyl pyrrolidone, having a K-value of about 80 to 140, and 1 part by weight of polyethylene imine having a viscosity of about 20 to 5,000 centipoises.

3,835,085

PHOTOCURABLE RAPID DRYING WATER BASE PAINT MADE FROM A POLYENE-POLYTHIOL SYSTEM

Joseph Francis Wrzesinski, Baltimore, Md., assignor to W. R. Grace & Co.

No Drawing. Filed July 31, 1972, Ser. No. 276,286

Int. Cl. C08d *1/00;* **C08f** *1/00*
U.S. Cl. 204—159.23 **7 Claims**

A water based paint useful for protecting and decorating surfaces which can be dried within about 1–30 minutes after being applied to a surface to produce a flat, smooth, gloss, or semigloss finish. This paint can be applied to metal or wooden surfaces as a single finishing coat without first applying a primer coat.

3,835,086

POLYMERIC DISPERSIONS OF PRESSURE-SENSITIVE ADHESIVES AND PROCESS

Eduard Bergmeister, Peter Ludwig, Hubert Wiest, and Klaus Hafener, Burghausen, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Germany

No Drawing. Filed June 13, 1972, Ser. No. 262,327

Claims priority, application Germany, Aug. 13, 1971, P 21 40 721.6

Int. Cl. C08f *45/28, 47/20;* **C09j** *3/14*
U.S. Cl. 260—33.6 UA **6 Claims**

A polymeric dispersion of a pressure-sensitive adhesive consisting essentially of (A) from 30% to 80% by weight of saturated hydrocarbons boiling between 40° C. and 250° C. with up to 20% by volume of aromatic hydrocarbons and (B) from 20% to 70% by weight of a polymer dispersed therein having a polymeric content based on the monomers consisting essentially of (1) from 40% to 70% by weight, based on the dried weight of said polymer, of vinyl acetate, (2) from 10% to 50% by weight, based on the dried weight of said polymer, of ethylene, (3) from 0.1% to 5% by weight, based on the dried weight of said polymer, of a monomer having at least two olefinic double bonds and from 5 to 20 carbon atoms, and (4) from 0 to 40% by weight, based on the dried weight of said polymer, of a monomer having one olefinic double bond selected from the group consisting of acrylic acid esters of alkanols having 3 to 18 carbon atoms, and vinyl esters of alkanoic acids having 3 to 18 carbon atoms; as well as the process of preparation and the use of the same in preparing pressure-sensitive adhesive coatings.

3,835,087

REFLEX-REFLECTING COMPOSITIONS CONTAINING GLASS BEADS AND NON-METALLIC FLAKE PIGMENTS

Charles E. Searight, Steven H. Brasfield, Sr., and Thomas E. McCraney, Jackson, Miss., assignors to Ferro Corp., Cleveland, Ohio

No Drawing. Continuation of abandoned application Ser. No. 138,831, Apr. 29, 1971. This application Dec. 1, 1972, Ser. No. 311,095

Int. Cl. C08g *51/28*
U.S. Cl. 260—33.6 R **6 Claims**

Coating compositions which provide reflex-reflecting properties comprising (a) a binding vehicle, (b) transparent glass beads and (c) non-metallic flake pigment particles having a reflective mirror-like finish.

3,835,088

MgO-CONTAINING RESIN COMPOSITION AS THICKENING AGENT

Youichi Takamiya, Saitama, Kiichiro Sasaguri, Tokyo, Hiroshi Sano and Katsumi Okina, Fukushima, and Sunao Kawachi, Saitama, Japan, assignors to Shin Nihon Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jan. 18, 1973, Ser. No. 324,707

Claims priority, application Japan, Jan. 18, 1972, 47/6,645

Int. Cl. C08f *45/28;* **C08g** *51/28*
U.S. Cl. 260—33.6 UA **14 Claims**

A slurry-like, dope-like, or paste-like resin composition for increasing the viscosity of unsaturated polyester resins showing improved thickening properties comprising (a) magnesium oxide having an iodine number of 10–50 mg./g. and/or magnesium hydroxide having an iodine number of 5–50 mg./g., (b) a liquid monomer having polymerizable double bonds, and (c) a thermoplastic addition polymer soluble in the above monomer or (d) a thermoplastic condensation polymer soluble in the above monomer.

3,835,089

POLYLACTONE-MODIFIED LINEAR POLYESTERS AND MOLDING COMPOSITIONS CONTAINING THE SAME

Daniel W. Fox and Allen D. Wambach, Pittsfield, Mass., assignors to General Electric Company

No Drawing. Filed June 23, 1972, Ser. No. 265,672

Int. Cl. C08g *51/04*
U.S. Cl. 260—40 R **31 Claims**

Thermoplastic compositions comprising (a) a poly(1, 4-butylene terephthalate) resin and (b) a linear aliphatic polyester resin of the general formula

$$-\left(O-\left(CR^1R^2\right)_m-CO\right)_n-$$

wherein R^1 and R^2 are hydrogen or alkyl, m is 2–5 and n is from 25 to 1500. The composition of resins (a) and (b) can be reinforced with fillers and/or rendered flame retardant.

3,835,090

DENTAL RESTORATIVE CEMENT COMPOSITIONS

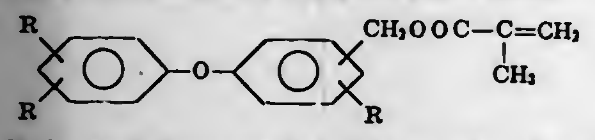
Robert Johns Gander, Whitehouse, and Richard McCrea Potts, East Brunswick, N.J., assignors to Johnson & Johnson

No Drawing. Filed Feb. 3, 1972, Ser. No. 223,284

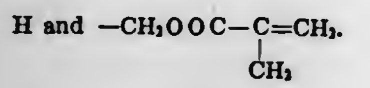
Int. Cl. A61k *5/02;* **C08g** *51/04*
U.S. Cl. 260—42.15 **25 Claims**

Improved dental restorative cements are prepared by utilizing as a binder for inorganic filler materials, such as silane-treated crystalline quartz, either alone or together with other monomers, trimethacrylate and triacrylate esters of the aliphatic triols glycerol, trimethylolethane, trimethylolpropane, and trimethylolbutane.

The preferred restorative cements with respect to appearance are obtained by using finely divided crystalline quartz as a filler and a binder resin having an index of refraction in the range of 1.525 to 1.565. Binder resins having refractive indexes within this range can be obtained by including in the monomer mix together with the aliphatic triol at least one monomer of the gorup consisting of 1,3 - bis[2,3 - di(methacryloxy)-propoxy]-benzene (RGTMA), 2,2 - bis[4 - (3 - methacryloxy - 2-hydroxypropoxy)-phenyl]-propane (BIS-GMA), 1,3-bis(3-methacryloxy - 2-hydroxypropoxy)-benzene (RGDMA), 2,2-bis[4 - (2 - methacryloxyethoxy)-phenyl]-propane (SR–348), di(2 - methacryloxyethyl) diphenyl silane, di(2-methacryloxy-methylethoxy) diphenyl silane, and methacrylate ester (CMDPO–25 Methacrylate) in which a methacryloxy group or groups are attached to diphenyl oxide nuclei through single methylene bridges, the monomers being represented by the general formula:



where R in each instance is at least one of the group consisting of



$$\text{H and } -CH_2OOC-\underset{\displaystyle CH_3}{\underset{|}{C}}=CH_2.$$

3,835,091

FLAME RESISTANT REINFORCED POLYOLEFIN MIXTURE

Gunther Roos, Kelkheim, Taunus, Robert Kaussen, Kriftel, and Ulrich van Spankeren, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Mar. 1, 1973, Ser. No. 336,903

Claims priority, application Germany, Mar. 7, 1972, P 22 10 914.4

Int. Cl. C08f *45/04, 45/58*
U.S. Cl. 260—42.45 **4 Claims**

Flame resistant, reinforced polyolefin mixtures containing, in addition to polyolefin, talcum, antimony trioxide and tetrabromophthalic anhydride or an addition product of 3 moles of hexachloro-cyclopentadiene per mole of trisacryloyl-perhydrotriazine.

3,835,092

POLYURETHANE PLASTIC COMPOSITIONS CONTAINING FLAME RETARDANTS

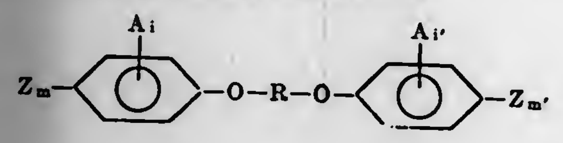
Arnold L. Anderson, Alma, Mich., assignor to Michigan Chemical Corporation, St. Louis, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 260,240, June 6, 1972. This application Feb. 8, 1973, Ser. No. 330,787

The portion of the term of the patent subsequent to May 14, 1991, has been disclaimed

Int. Cl. C08g *51/60*
U.S. Cl. 260—45.9 R **14 Claims**

Plastic compositions containing polyurethanes and bisphenoxy compounds having the formula



wherein Z is bromine or chlorine, *m* and *m′* are integers having a value of 1–5, *i* and *i′* are integers having a value of 0–2, R is herein defined and A is cyano, nitro, lower alkoxy, lower alkyl, fluorine, dialkylamino, phenyl, halo-phenyl, benzyl or halo-benzyl.

3,835,093

POLYSTYRENE PLASTIC COMPOSITIONS CONTAINING HALOGENATED ARYL FLAME RETARDANTS

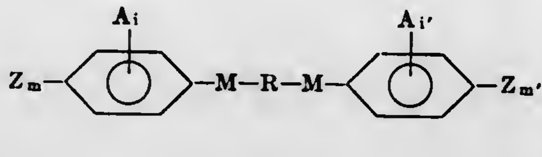
Arnold L. Anderson, Alma, Mich., assignor to Michigan Chemical Corporation, St. Louis, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 260,240, June 6, 1972. This application Feb. 8, 1973, Ser. No. 330,821

The portion of the term of the patent subsequent to July 16, 1991, has been disclaimed

Int. Cl. C08f *45/60*
U.S. Cl. 260—45.9 R **29 Claims**

Plastic compositions containing polystyrenes and halogenated aryl compounds having the formula



wherein Z is bromine or chlorine, *m* and *m′* are integers having a value of 1–5, *i* and *i′* are integers having a value of 0–2, R is herein defined, M and M′ are each independent and are from the group oxygen, nitrogen or sulfur with the proviso that M and M′ cannot concurrently be oxygen in both cases, and A is chlorine, cyano, nitro, lower alkoxy, lower alkyl, fluorine, dialkylamino, phenyl, halophenyl, benzyl, or halo-benzyl.

3,835,094

POLYOLEFIN PLASTIC COMPOSITIONS CONTAINING BIS-PHENOXY FLAME RETARDANT

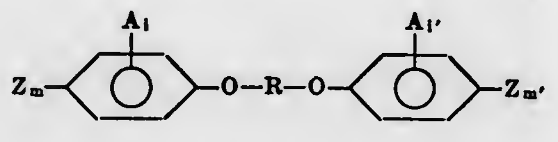
Arnold L. Anderson, Alma, Mich., assignor to Michigan Chemical Corporation, St. Louis, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 260,240, June 6, 1972. This application Feb. 8, 1973, Ser. No. 330,826

The portion of the term of the patent subsequent to May 14, 1991, has been disclaimed

Int. Cl. C08f *45/60*
U.S. Cl. 260—45.9 R **14 Claims**

Plastic compositions containing polyolefins and bisphenoxy compounds having the formula



wherein Z is bromine or chlorine, *m* and *m′* are integers having a value of 1–5, *i* and *i′* are integers having a value of 0–2, R is herein defined and A is cyano, nitro, lower alkoxy, lower alkyl, fluorine, dialkylamino, phenyl, halophenyl, benzyl or halo-benzyl.

3,835,095

STABILIZATION OF ORGANIC SUBSTANCES THAT ARE LIABLE TO PEROXIDIC DECOMPOSITION

Cornelis R. H. I. de Jonge, De Steege, William J. Mijs, Rozendaal, and Hendrik J. Hageman, Dieren, Netherlands, assignors to Akzo N.V., Arnhem, Netherlands

No Drawing. Filed Feb. 7, 1972, Ser. No. 224,287

Claims priority, application Netherlands, Feb. 15, 1971, 7102009

Int. Cl. C08f *45/58*
U.S. Cl. 260—45.85 S **9 Claims**

An improvement in the stabilization of organic substances that are liable to peroxidic decomposition wherein a 2,4,6-trisubstituted phenol is used as the stabilizer. The stabilizer is an o-phenylphenol which has a substituted or non-substituted alkyl-, aralkyl-, alkoxy- or aralkoxy group in the p-position or is in this position bonded to a like radical by means of an alkylidene group, an alkylidene dioxy group or a sulfur atom and has an isopropyl, tert.-butyl, cyclohexyl or phenyl group in the other o-position or is in this position bonded by an alkylidene group or a sulfur atom to a like radical to form a 2,2′-alkylidene bis (6-phenylphenol) or a 2,2′-thiobis(6-phenylphenol).

3,835,096

LIGHT DEGRADABLE THERMOPLASTIC MOLDING COMPOSITION BASED ON POLYACETALS

Harald Cherdron, Naurod, Taunus, Edgar Fischer, Frankfurt am Main, and Karl Friedrich Mück, Wiesbaden, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Sept. 14, 1972, Ser. No. 289,182

Claims priority, application Germany, Sept. 16, 1971, P 21 46 374.1

Int. Cl. C08g *1/02*
U.S. Cl. 260—67 FP **7 Claims**

Polyacetals, i.e. homopolymers of formaldehyde or of trioxane or copolymers of trioxane with monofunctionally reacting compounds such as cyclic ethers or cyclic acetals and possibly polyfunctionally reacting compounds can be protected by addition of stabilizers against the action of heat and oxygen. They can, however, be degraded by the action of ultra-violet light if they contain light sensitizers, for example anthrone. The polyacetals are suitable for the manufacture of shaped articles, especially sheets.

3,835,097

LIGHT DEGRADABLE THERMOPLASTIC MOLDING COMPOSITION BASED ON POLYACETALS

Edgar Fischer, Frankfurt am Main, and Karl Friedrich Muck, Wiesbaden, Germany (both % Farbwerke Hoechst A.G., Frankfurt am Main, Germany)

No Drawing. Filed Sept. 14, 1972, Ser. No. 289,183

Claims priority, application Germany, Dec. 4, 1971, P 21 60 223.3

Int. Cl. C08f *1/02*
U.S. Cl. 260—67 FP **4 Claims**

Polyacetals, i.e. homopolymers of formaldehyde or of trioxane or copolymers of trioxane with monofunctionally reacting compounds such as cyclic ethers or cyclic acetals and possibly polyfunctionally reacting compounds can be protected by addition of stabilizers against the action of heat and oxygen. They can, however, be degraded by the action of ultra-violet light if they contain light sensitizers. The polyacetals are suitable for the manufacture of packing material, especially sheets.

3,835,098

PROCESS FOR IMPROVING THERMOPLASTIC ELASTOMERIC COMPOSITIONS

Morton Brown, Guenther Kurt Hoeschele, and William Kenneth Witsiepe, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 120,376, Mar. 2, 1971. This application Mar. 1, 1973, Ser. No. 337,014

Claims priority, application Canada, Dec. 9, 1971, 129,803

Int. Cl. C08g *17/14, 23/20*
U.S. Cl. 260—75 N **12 Claims**

A process for preparing a thermoplastic elastomeric copolyester composition having improved elastomeric, physical and stability properties which comprises comingling and reacting an effective amount of at least one polycarbodiimide selected from substantially linear polycarbodiimides having an average of at least two carbodiimide groups per molecule with at least one elastomeric segmented copolyester polymer comprising (1) 5–90 weight percent long chain ester units derived from at least one long chain glycol having a molecular weight of about 400–6000 and at least one low molecular weight dicarboxylic acid having a molecular weight less than about 300, and (2) 10–95 weight percent short chain ester units derived from at least one low molecular weight diol having a molecular weight of less than about 250 and at least one low molecular weight dicarboxylic acid having a molecular weight of less than about 300.

3,835,099

PHOSPHOROUS ACID AND ESTER CATALYZED FORMATION OF AMINEDIOL MODIFIED POLYESTERS

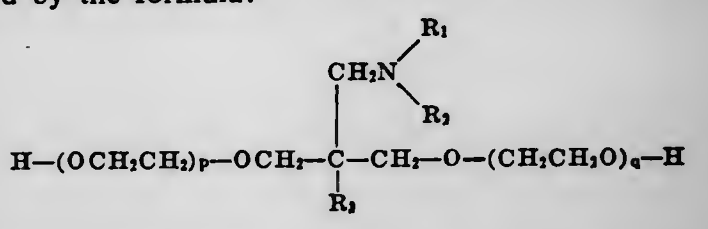
Hideaki Munakata, Kazuo Watanabe, Yoshikazu Arimatsu, and Masakazu Tanaka, Otsu, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka-shi, Osaka-fu, Japan

No Drawing. Continuation of abandoned application Ser. No. 140,269, May 4, 1971. This application July 5, 1973, Ser. No. 376,715

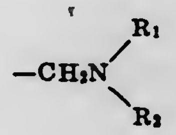
Claims priority, application Japan, May 26, 1970, 45/45,378

Int. Cl. C08g *17/013*
U.S. Cl. 260—75 N **6 Claims**

In the production of a polyester improved in dyeability with acid dyes by the reaction between a carboxylic acid and a glycol of which the whole or part is the one represented by the formula:



wherein R_1 and R_2 are each a lower alkyl group or, when taken together, they represent a lower alkylene group, R_3 is a lower alkyl group or a group of the formula:



in which R_1 and R_2 are each as defined above and *p* and *q* are each zero or a positive integer not more than 10, an improved process which is characterized in that the reaction is carried out in the presence of at least one of phosphorous acid compounds and hypophosphorous acid, whereby (1) the rate of polymerization is elevated, (2) the sublimation of the starting carboxylic acid is prevented, (3) the molecular weight of the polyester is increased and (4) the polyester obtained is colorless and transparent.

3,835,100

METHOD FOR ANIONIC POLYMERIZATION OF ALPHA-PYRROLIDONE OR ALPHA-PIPERIDONE WITH QUATERNARY AMMONIUM SALTS

Hikaru Sekiguchi, Panayota Rapacoulia, and Bernard Coutin, Paris, France, assignors to Agence Nationale de Valorisation de la Recherche (Anvar), Courbevoie, France

No Drawing. Filed Feb. 14, 1972, Ser. No. 226,314

Int. Cl. C08g *20/18*

U.S. Cl. 260—78 P **9 Claims**

The invention proposes new catalysts consisting of quaternary ammonium salts of lactams or other organic compounds having one or more hydrogen atoms of acidic nature and having pK values ranging from about 14 to about 30, which catalysts are obtained by reacting quaternary ammonium alkoxides with corresponding lactams or weak acids, as well as a new process for polymerizing omega-lactams, in particular alpha-pyrrolidone and alpha-piperidone, in presence of the above catalysts.

3,835,101

MELT BLENDS OF CARBOXYLIC ACID TERMINATED, LOW MOLECULAR WEIGHT POLYAMIDE AND POLYVALENT METAL COMPOUNDS

Hendrikus J. Oswald, Morristown, and Krishnan Thiruvillakkat, East Orange, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Apr. 13, 1972, Ser. No. 243,861

Int. Cl. C08g *20/38*

U.S. Cl. 260—78 SC **11 Claims**

Process for obtaining a melt shapable polyamide having substantially increased solution and melt viscosities by melt reacting an essentially non-melt-shapable, low molecular weight polyamide with suitable polyvalent metal compounds capable of reacting with at least about 80 percent of the acid groups of the polymer.

3,835,102

ELECTROCONDUCTIVE HIGH POLYMER COMPOSITION

Isao Shinohara, Eishun Tsuchida, and Katsuhiro Mizoguchi, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo-to, Japan

No Drawing. Filed Aug. 2, 1972, Ser. No. 277,177

Claims priority, application Japan, Aug. 4, 1971, 46/58,256

Int. Cl. C08f *27/04, 27/08*

U.S. Cl. 260—78.4 N **28 Claims**

A high polymer composition comprising a salt constituted from an integral type of polycationic polymer containing in its principal repeating unit quaternized nitrogen atoms and aromatic groups, an anion radical of a tetracyano compound and a neutral tetracyano compound in appropriate amounts such that the electroconductivity is greater than 10^{-5} mho/cm. For practical uses, it has very excellent chemical, physical and electrical properties.

3,835,103

FLAME-RETARDANT POLYMERS

Gedalela Waldner, Rechovot, and Jacob Alter, Tel-Aviv, Israel, assignors to Atomic Energy Commission of the State of Israel, Tel-Aviv, Israel

No Drawing. Filed Jan. 19, 1973, Ser. No. 325,006

Claims priority, application Israel, Jan. 21, 1972, 38,610

Int. Cl. C08f *19/18*

U.S. Cl. 260—80.6 **1 Claim**

Flame-retardant polymers of 70–80% by weight styrene, 1–3% by weight vinylidene chloride or vinyl bromide and the balance of acrylonitrile.

3,835,104

CURABLE, AMORPHOUS, OLEFINIC TERPOLYMERS FROM ALPHAMONO OLEFINS AND POLYENES

Sebastiano Cesca, Sergio Arrighetti, and Walter Marconi, San Donato Milanese, Italy, assignors to Snam Progetti S.p.A., Milan, Italy

No Drawing. Original application Sept. 5, 1969, Ser. No. 855,771, now Patent No. 3,652,514. Divided and this application Mar. 20, 1972, Ser. No. 236,249

Claims priority, application Italy, Sept. 5, 1968, 20,868/68, Patent 843,706

The portion of the term of the patent subsequent to Mar. 28, 1989, has been disclaimed

Int. Cl. C08f *15/40*

U.S. Cl. 260—80.78 **10 Claims**

A curable amorphous olefinic terpolymer of two different alpha-olefins having up to 10 carbons atoms and a polycyclic polyene, such as 4,7 endomethylene-4, 7-dihydroindene, which contains an endomethylene group ortho-condensed with a hydrocarbon ring, the two carbon atoms common to two rings being part of a conjugated diene system the double bonds of which are in the ring other than that containing the endomethylene group, is disclosed.

3,835,105

METHOD FOR THE POLYMERIZATION OF VINYL CHLORIDE/VINYL ESTER COPOLYMERS AND THE HIGH BULK DENSITY COPOLYMERS OF THE PROCESS

Kurt Fendel and Johann Bauer, Burghausen, and F. Johannes Kohl, Munich, Germany, assignors to Wacker-Chemie GmbH, Munich, Germany

No Drawing. Filed Feb. 7, 1973, Ser. No. 330,315

Claims priority, application Germany, Feb. 11, 1972, P 22 06 593.6

Int. Cl. C08f *1/11, 1/60, 1/78*

U.S. Cl. 260—87.1 **10 Claims**

A method of suspension polymerization of vinyl chloride/vinyl ester copolymers comprising polymerizing a monomer mixture containing at least 50% of vinyl chloride in an aqueous suspension at a pH of under 7 in the presence of 0.001% to 3% by weight, based on the monomers, of a monomer-soluble free-radical-forming polymerization catalyst, from 0.01% to 2% by weight based on the monomers, of water-soluble cellulose ethers as protective colloids, and from 2% to 20% by weight, based on the monomers, of an organic solvent having from 3 to 8 carbon atoms selected from the group consisting of alkyl alkanoates, alkanones and alkanediones and recovering a copolymer powder having a higher bulk density and improved flow properties.

3,835,106

METHOD OF CONTROLLING A POLYMER PREPARATION PROCESS

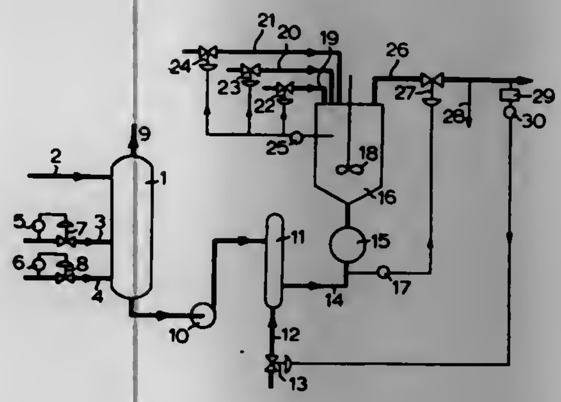
Dirk Klaassen and Luciano J. Spadon, Geleen, and Meindert Tiessens, Beek, Netherlands, assignors to Stamicarbon N.V., Geleen, Netherlands

Continuation of abandoned application Ser. No. 21,457, Mar. 20, 1970. This application Apr. 19, 1972, Ser. No. 245,584

Claims priority, application Netherlands, Mar. 20, 1969, 6904266

Int. Cl. C08f *3/02, 3/06, 1/80*

U.S. Cl. 260—94.9 P **7 Claims**



A method of process control for the continuous preparation of a polymer is described in which one or more monomers, hydrogen, and one or more catalysts are brought together in a reactor wherein a polymer of uniform properties is achieved by controlling the hydrogen feed in relation to the monomer to hydrogen ratio in the reactor effluent stream.

3,835,107

PRODUCTION OF LOW MOLECULAR WEIGHT WAXY POLYETHYLENES

Kurt Stark, Heidelberg, Hans Gropper, Ludwigshafen, and Friedrich Urban and Helmut Pfannmueller, Limburgerhof, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Continuation of abandoned application Ser. No. 79,300, Oct. 8, 1970. This application Sept. 25, 1972, Ser. No. 291,671

Int. Cl. C08f *1/60, 3/04*

U.S. Cl. 260—94.9 R **5 Claims**

A process for the production of waxy, low molecular weight polyethylenes in which ethylene is polymerized under the action of a polymerization initiator which forms free radicals and in the presence of a polymerization regulator at elevated temperature and at superatmospheric pressure. It is a characteristic of the process according to the invention that as the free radical-forming polymerization initiator there are jointly used:

(1) a specific amount of an organic peroxide having a half-life temperature of from 60° to 112° C.; and
(2) a specific amount of oxygen. High yields can be obtained by the process and a product can be obtained which has particularly good oil-binding properties.

3,835,108

PROCESS FOR PREPARING THE RELEASING HORMONE OF LUTEINIZING HORMONE (LH) AND OF FOLLICLE STIMULATING HORMONE (FSH), SALTS AND COMPOSITIONS THEREOF, AND INTERMEDIATES THEREFOR

Hans U. Immer and Verner R. Nelson, St. Laurent, Montreal, Quebec, and Manfred K. Götz, Hudson, Quebec, Canada, assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Feb. 15, 1972, Ser. No. 226,508

Int. Cl. C07c *103/52*

U.S. Cl. 260—112.5 **41 Claims**

A process for preparing the LH- and FSH-releasing hormone of the formula I

$$\text{H-Pyr-His-Trp-Ser-Tyr-Gly-Leu-Arg-Pro-Gly-NH}_2$$

which comprises the following steps: Condensing N-(5-oxo-L-prolyl)-L-histidine hydrazide by means of the azide method with L-tryptophan benzyl ester and treating the resulting compound with hydrazine hydrate to obtain N-[N-(5-oxo-L-prolyl) - L-histidyl]-L-tryptophan hydrazide (II); treating N-[O-benzyl-N-carboxy-L-tyrosyl]glycine N-benzyl ester with ethyl chloroformate to obtain the corresponding mixed anhydride which is reacted with *t*-butyl carbazate to obtain the corresponding 2-carboxyhydrazide *t*-butyl ester which is hydrogenolyzed to N-L-tyrosylglycine 2-carboxyhydrazide *t*-butyl ester, and condensing the latter with N-carboxy-L-seryl N-benzyl ester 2,4-dinitrophenyl ester followed by hydrogenolysis of the reaction product to obtain N-(N-L-seryl-L-tyrosyl) glycine 2-carboxyhydrazide *t*-butyl ester (III); condensing N-carboxy-L-proline N-benzyl ester with glycine ethyl ester in the presence of dicyclohexylcarbodiimide, treating the resulting product with ammonia and then hydrogenolyzing, to obtain 2-[(L-prolyl)amino]acetamide, which is condensed with N-carboxy-N^G-nitro-L-arginine N-*t*-butyl ester in the presence of dicyclohexylcarbodiimide and N-hydroxysuccinimide to obtain N-[N-(N-carboxy-N^G-nitro-L-arginyl)-L-prolyl]glycinamide N-*t*-butyl-ester (IV); or alternatively condensing L-proline methyl ester with N-carboxy-N^G-nitro-arginine N-*t*-butyl ester in the presence of dicyclohexylcarbodiimide, condensing the resulting product with glycine ethyl ester in the presence of dicyclohexylcarbodiimide, and treating the resulting product with ammonia to obtain the same compound IV as above; treating said compound IV with acid and then with N-carboxy-L-leucine N-benzyl ester 2,4,5-trichlorophenyl ester and hydrogenolyzing the resulting product in acetic acid, to obtain N-[N-[N-(N-L-leucyl)-L-arginyl]-L-prolyl]glycinamide diacetate (V); condensing compound II with compound III by means of the azide method to obtain the hexapeptide N-[N-[N-[N-[N-(5-oxo-L-prolyl)-L-histidyl]-L-tryptophyl]-L - seryl]-L-tyrosyl]glycine 2-carboxyhydrazide *t*-butyl ester, or condensing N-[N-(5-oxo-L-prolyl)-L-histidyl]-L-tryptophan with compound III in the presence of dicyclohexylcarbodiimide to obtain the same hexapeptide as above, and deprotecting and converting the latter to its trifluoroacetate salt (VI); and condensing compound V with compound VI by means of the azide method, to obtain the decapeptide of formula I which is isolated as the salt and optionally converted to other pharmaceutically acceptable salts.

3,835,109
VINYLOXYCARBONYL GROUP AS AN AMINO PROTECTING GROUP IN THE SYNTHESES OF PEPTIDES

Roy A. Olofson and Yasushi Stephan Yamamoto, State College, Pa., assignors to Research Corporation, New York, N.Y.

No Drawing. Original application Aug. 21, 1969, Ser. No. 852,096, now Patent No. 3,711,458. Divided and this application Aug. 9, 1972, Ser. No. 279,247

Int. Cl. C07c *103/52;* **C07g** *7/00*

U.S. Cl. 260—112.5 **1 Claim**

Temporary blocking, in peptide synthesis, of a free amino group by acylating same and, after peptide condensation, splitting off the acyl group introduced, wherein the free amino group is acylated with a vinyloxycarbonyl group. The vinyloxycarbonyl group may be removed from a product peptide with bromine or another halogen followed by alcohol, with a mild acid or by mercuric ion induced hydrolysis.

3,835,110
VASOPRESSIN PEPTIDES HAVING PSYCHO-PHARMACOLOGICAL ACTIVITY

Hendrik Marie Greven, Heesch, and David de Wied, Bilthoven, Netherlands, assignors to Akzona Incorporated, Asheville, N.C.

No Drawing. Filed Jan. 29, 1973, Ser. No. 327,260

Claims priority, application Netherlands, Feb. 8, 1972, 7201604

Int. Cl. A61k *27/00;* **C07c** *103/52*

U.S. Cl. 260—112.5 **4 Claims**

The invention is dealing with psychopharmacologically active peptides of the formula:

H-L-Cys-L-Tyr-L-Phe-L-Glu(X)-L-Asp(X)-OH

in which X represents a hydroxy or amino group, or the dimers (via S—S bridge) formed from these pentapeptides by oxidation, as well as the functional derivatives thereof.

These substances can be used as anti-depressant agents and more particularly for the treatment of certain mental disorders, whereby a stimulation of the mental performance is desired, such as in certain types of neurosis and in old-age infirmities (senility).

3,835,111
SLOW-SET PECTIN AND PROCESS FOR PREPARING SAME

Robert M. Ehrlich, Sherman Oaks, and Raymond E. Cox, Laguna Beach, Calif., assignors to General Foods Corporation, White Plains, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 6,923, Jan. 29, 1970. This application Aug. 3, 1973, Ser. No. 385,389

Int. Cl. A23l *1/04;* **C08b** *19/02*

U.S. Cl. 260—209.5 **9 Claims**

An improved slow-set pectin is prepared by contacting pectin with an ammoniacal alcohol solution at low temperature. The pectin so obtained has less sensitivity to alkaline earth metal ions and has a setting temperature of about 120° F. or less.

3,835,112
HEPARIN ESTERS

Jean Mardiguian and Pierre Fournier, Paris, France, assignors to Societe a Responsabilite Limitee dite: Societe d'Etude et d'Exploitation de Marques Mar-Pha, Paris, France

Filed June 7, 1971, Ser. No. 150,293

Claims priority, application Great Britain, June 8, 1970, 27,687/70

Int. Cl. C08b *19/03*

U.S. Cl. 260—211 R **10 Claims**

Partial hydrolysable esters of heparin and an organic, non-toxic, physiologically tolerated acid. Said esters can be used, *inter alia,* as anti-coagulants having a delayed effect, hypo-lipemic agents, and hypocholesterolemic agents.

3,835,113
PREPARATION OF VISCOSE

Noel I. Burke and Harold R. Coleman, Danville, Ill., assignors to Tee-Pak, Inc., Chicago, Ill.

No Drawing. Filed Dec. 26, 1972, Ser. No. 318,065

Int. Cl. C08b *9/00*

U.S. Cl. 260—216 **5 Claims**

An improvement in a process for preparing cellulose xanthate comprises reacting alkali cellulose crumb at a temperature of from 25–35° C. for a period of time from 40–75 minutes and at an initial reactor pressure from about 100–700 mm. mercury absolute with a mixture of carbon disulfide and carbonyl sulfide, the proportion of carbonyl sulfide being from 2.5–10 mole percent for the mixture and a total mole proportion of from 1–1.5 moles per kilogram of alkali cellulose crumb. The cellulose xanthate can be produced in substantially less time than conventional processes and the resulting viscose has a much lower viscosity than conventional viscose.

3,835,114
OXIDIZED CATIONIC STARCH

Walter G. Hunt, Bridgeton, and Ray J. Belz, Mehlville, Mo., assignors to Anheuser-Busch, Incorporated, St. Louis, Mo.

No Drawing. Filed Feb. 26, 1973, Ser. No. 335,518

Int. Cl. C08b *19/06*

U.S. Cl. 260—233.3 R **6 Claims**

A gelatinized, oxidized starch amine butene halide, having a carboxyl content equivalent to a degree of substitution of about 0.0036 to about 0.0108 and a degree of substitution of amine butene halide of about 0.15 to about 0.25, is prepared by gelatinizing an oxidized starch and reacting the gelatinized starch with an amine butene halide.

This disclosure covers the use of a cationic oxidized starch in the flocculation and dewatering of municipal raw primary sludge. From 0.016 to 0.1895% (based on the dry weight of the sludge) of the treated starch of 35 to 60 fluidity and 1.75 to 2.25% oxidation is added to the municipal sludge and contacted with the sewage for a period of 3 to 5 minutes before being dewatered to a moisture content below about 70% moisture, which is the moisture level at which the solids will adequately sustain combustion. The starch has from 0.15 to 0.25 degree substitution of an amine butene halide, specifically, 1-chloro-4-butenyl-trimethylammonium chloride.

3,835,115
α-(SUBSTITUTED SULFONAMIDO)ARYL-METHYLPENICILLINS

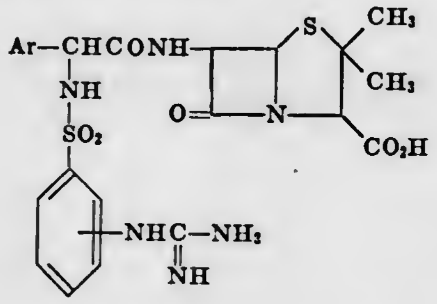
Kenneth Richardson, North Stonington, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed July 17, 1972, Ser. No. 272,171

Int. Cl. C07d *99/16*

U.S. Cl. 260—239.1 **7 Claims**

Compounds of the formula:



or the pharmaceutically acceptable basic salts thereof, wherein Ar is phenyl, 4-hydroxyphenyl or thienyl as anti-microbial agents.

3,835,116
VINYL HALIDE PLASTISOL COMPOSITIONS CONTAINING A CARBOXYLIC POLYMER

Leslie B. Lydick, Lorain, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed June 25, 1973, Ser. No. 373,093

Int. Cl. C08b *25/00;* **C08f** *29/24, 29/50, 45/40*

U.S. Cl. 260—17.4 SG **18 Claims**

There is disclosed new compositions comprising a vinyl halide plastisol, free of water, having incorporated therein a carboxylic polymer, and a suitable neutralizing agent, said polymer being one obtained by copolymerizing a carboxylic monomer, such as acrylic acid, with certain proportions of a polyalkenyl polyether of a polyhydric alcohol containing more than one alkenyl ether grouping per molecule, the parent polyhydric alcohol containing at least four carbon atoms and at least three hydroxyl groups. These compositions have a high yield and little or no dilatancy. The process for making such compositions is likewise covered.

3,835,117
RUBBERIZED COAL TAR PITCH EMULSION

John P. Walaschek, Fort Lauderdale, Fla., assignor to Walaschek and Associates, Incorporated, Fort Lauderdale, Fla.

Filed Mar. 5, 1973, Ser. No. 337,930

Int. Cl. C08f *45/52*

U.S. Cl. 260—28.5 AS **4 Claims**

Improved rubberized coal tar emulsion compositions especially suitable for sealing bituminous pavement compositions, such as asphalt pavement compositions. A composition according to the invention comprises a major portion of a prepared coal tar pitch emulsion and water, having admixed therewith a small amount of an acrylonitrile/butadiene copolymer latex having an extraordinarily small particle size. Preferred compositions additionally include a silicone resin. The compositions further include an appropriate aggregate filler material such as sand. Compositions according to the invention are characterized by a thixotropic nature and the ability to maintain an aggregate in matrix like suspension. A film cast from such compositions applied as a sealing coat to an asphalt pavement is characterized by long life, uniform filler distribution, and excellent bonding characteristics.

3,835,118
SPONGE IRON FRICTION MATERIAL

Seong Kwan Rhee, Southfield, Mich., and John P. Kwolek, Troy, N.Y., assignors to The Bendix Corporation, South Bend, Ind.

Filed May 14, 1973, Ser. No. 360,255

Int. Cl. C08g *51/08*

U.S. Cl. 260—38 **7 Claims**

A semi-metallic friction material for use in a vehicle brake as a friction lining or pad. The semi-metallic friction material utilizes the abrasive surface produced in coarse sponge iron to provide a high coefficient of friction and good wear resistance up to 250°F to compliment the coefficient of friction and wear resistance capable of being produced by the interaction of metallic and ceramic powders, steel fibers, rubber particles and graphite above 250°F.

3,835,119
POLY (PHOSPHINE OXIDE DERIVATIVE) WITH AMMONIUM POLYPHOSPHATE AS A FLAME RETARDANT COMPOSITION FOR POLYMERS

Joseph Adrian Hoffman, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn.

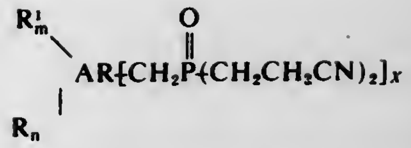
Filed June 28, 1973, Ser. No. 374,728

Int. Cl. C08g *45/56, 51/60;* **C09k** *3/28*

U.S. Cl. 260—45.75 R **16 Claims**

Flame-retardant compositions comprising (a) a poly (phosphine oxide derivative) having the formula

(A)



$$\underset{R_n}{\overset{R^1_m}{AR}}\left[CH_2\overset{O}{\overset{\|}{P}}(CH_2CH_2CN)_2\right]_x$$

wherein R and R¹ are individually, methyl, ethyl or methoxy radicals, AR is benzene, napthalene or anthracene and when AR is benzene, *n* and *m* are individually whole integers of 0–2, inclusive, *x* is a whole integer of 2–6, inclusive and R and R¹ can combine to form a saturated, six-membered hydrocarbon ring in conjunction with two adjacent carbon atoms of the benzene ring, when AR is napthalene, *n* and *m* are individually, whole integers of 0–3, inclusive, and *x* is a whole integer of 2–4, and when AR is anthracene, *n* and *m* are, individually, whole integers of 0–4, inclusive, and *x* is a whole integer of 2–6, inclusive, and (b) ammonium polyphosphate and flame-retardant polymers containing the same, are disclosed.

3,835,120
POLYIMIDES OF CONJUGATED AZO DIAMINES

Hartwig C. Bach, and Helmut E. Hinderer, both of Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 779,244, Nov. 26, 1968, abandoned. This application Oct. 15, 1973, Ser. No. 406,449

Int. Cl. C08g *20/32*

U.S. Cl. 260—47 CP **7 Claims**

A class of ordered fiber and film forming aromatic polyamide acids and corresponding polyimides derived from symmetrical conjugated and pseudo-conjugated aromatic azo diamines have been found to possess excellent thermal, mechanical and electrical properties useful in fibers, films and other shaped articles.

3,835,121
THEIC-HYDANTOIN-ESTER RESINS FOR WIRE COATINGS

Jerome A. Preston, Angola, Ind., assignor to Essex International Inc., Fort Wayne, Ind.

Continuation-in-part of Ser. No. 275,922, July 18, 1972, Pat. No. 3,779,991, which is a continuation-in-part of Ser. No. 58,173, July 24, 1970, Pat. No. 3,681,282. This application Oct. 3, 1973, Ser. No. 402,977

Int. Cl. C08g *22/08*

U.S. Cl. 260—77.5 NC **10 Claims**

Resin composition useful as a wire coating comprising the reaction product of a reactive hydantoin based compound, a polycarboxylic acid, and tris (2-hydroxyethyl) isocyanurate. The resin provides a low cost, cured enamel for electrical conductors. Preferably, the resin composition includes another polyhydric alcohol such as ethylene glycol to impart flexibility.

3,835,122
NOVEL POLYSTYRENE PRODUCT HAVING RAPID-POST-IRRADIATION DECAY OF CONDUCTIVITY AND PROCESS OF MAKING SAME

William W. Parkinson, Jr., Kingston; Minton J. Kelly, Oak Ridge; Bernard J. Sturm, Oak Ridge, and William J. Martin, Oak Ridge, all of Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Apr. 25, 1973, Ser. No. 354,265

Int. Cl. C08f *27/04*

U.S. Cl. 260—78.5 T **10 Claims**

The described invention relates to a process for modifying the post-irradiation conductivity of polystyrene comprising forming a copolymer between styrene monomer and no more than 3 weight percent, based on the weight of styrene monomer, of a monomer containing polar groups, said monomer being selected from the group consisting of reactive carboxylic acids and esters, reactive acid anhydrides, or vinyl esters; mixing the resultant copolymer with an aqueous emulsion, rendering the emulsion slightly basic by addition of an alkali metal hydroxide; separating the copolymer from the emulsion; and drying the separated copolymer.

3,835,123
PROCESS FOR PREPARING INTERPOLYMERS OF CARBON MONOXIDE AND ETHYLENICALLY UNSATURATED COMPOUNDS

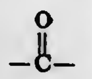
Kenzie Nozaki, St. Louis, Mo., assignor to Shell Oil Company, Houston, Tex.

Filed Mar. 26, 1973, Ser. No. 344,679

Int. Cl. C08f *1/64, 13/04*

U.S. Cl. 260—94.9 B **7 Claims**

High molecular weight, crystalline interpolymers of carbon monoxide with one or more unsaturated compounds such as aliphatic monoolefins are prepared by reacting carbon monoxide with said unsaturated compounds in the presence of catalyst consisting essentially of $HPd(CN)_3$. Novel high molecular weight, crystalline interpolymers of carbon monoxide and unsaturated monoolefins, particularly ethylene, having alternating



$$-\overset{O}{\overset{\|}{C}}-$$

and $-C_2H_4-$ units, are described.

3,835,124
METHOD FOR THE PRODUCTION OF CAPROLACTAM AND ITS PRECURSORS BY FORMATION AND NITROSATION OF THE CYCLOPENTAMETHYLENE, KETENE-SO_2 ADDUCT AND PRODUCTS OBTAINED THEREBY

Luigi Giuffre, Milan; Giancarlo Sioli, Como, and Roberto Mattone, Seveso, all of Italy, assignors to Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A., Milan, Italy

Filed Jan. 22, 1973, Ser. No. 325,563

Claims priority, application Italy, Jan. 27, 1972, 19882/72

Int. Cl. C07d *41/06*

U.S. Cl. 260—239.3 A **10 Claims**

A method for the preparation of omega lactams is disclosed, more particularly epsilon caprolactam or a precursor thereof (such as cyclohexanone oxime), using as the starting material a cyclomethylene ketene, with the simultaneous formation of side products such as cyclohexanecarboxylic acid, wherein an adduct is preliminarly formed between cyclomethylene ketene and sulphur dioxide. The adduct is then reacted with a nitrosating agent so as to obtain, under the appropriate reaction conditions, the expected lactam, more specifically epsilon caprolactam.

3,835,125
BENZOTRIAZOCINE DERIVATIVES

Minoru Shindo, Tokyo; Morio Kakimoto, Yono; Hiroyuki Nagano, Ageo, and Yasuo Fujimura, Tokyo, all of Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

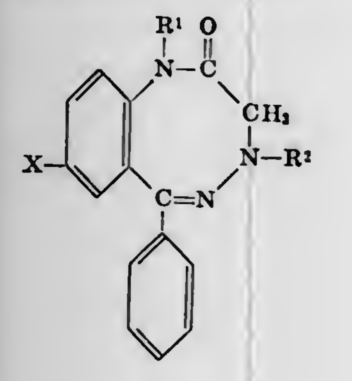
Filed Feb. 7, 1973, Ser. No. 330,240

Claims priority, application Japan, Feb. 18, 1972, 47-16382

Int. Cl. C07d *55/54*

U.S. Cl. 260—239.3 B **8 Claims**

Benzotriazocine derivatives represented by the formula



wherein X, represents a hydrogen atom, a halogen atom or an alkyl group, R¹ represents a dialkylaminoalkyl group or an aralkyl group, and R² represents a hydrogen atom or a halogenoacetyl group having useful pharmaceutical activities on the central nervous system, and processes for preparing the benzotriazocine derivatives are disclosed.

3,835,126
STYRYL-PYRAZOLINE COMPOUNDS

Helmut Mengler, Frankfurt/Main; Gunter Rosch, Altenhain/Taunus; Erich Schinzel, Hofheim/Taunus, and Otto Smerz, Kelkheim/Taunus, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Continuation-in-part of Ser. No. 816,388, April 15, 1969, abandoned. This application Aug. 3, 1971, Ser. No. 168,768

Claims priority, application Switzerland, Apr. 19, 1968, 5801/68

Int. Cl. C07d *49/22*

U.S. Cl. 260—239.9 **5 Claims**

1,5-Diaryl-3-styryl pyrazolines, which are obtained by condensation of a distyryl ketone and an aliphatic 4-hydrazinophenyl sulfone, are useful as optical brighteners, especially in admixture with known 1,3-diaryl pyrazoline brighteners.

3,835,127
20-HYDROCARBYL-6-KETO-STEROIDS

Andor Furst; Andre Furlenmeier, both of Basle; Albert Langemann, Binningen; Guy Waldvogel, Riehen, all of Switzerland; Peter Hocks, Berlin, Germany; Ulrich Kerb, Berlin, Germany, and Rudolf Wiechert, Berlin, Germany, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 571,187, Aug. 9, 1966,. This application Feb. 29, 1968, Ser. No. 709,239

Int. Cl. C07c *173/00*

U.S. Cl. 260—239.55 **21 Claims**

This invention is directed to 2,3-substituted-20-hydrocarbyl 6-keto-steroids which are useful as metamorphosis hormones and are additionally useful as intermediates for the production of other insect hormones. Accordingly, the compounds may be employed in the control of insect population.

3,835,128
CINNAMANILIDES

Peretz Bracha, Omer, and Arie Waitman, Tel Aviv, both of Israel, assignors to Makhteshim Chemical Works Ltd., Beer-Sheva, Israel

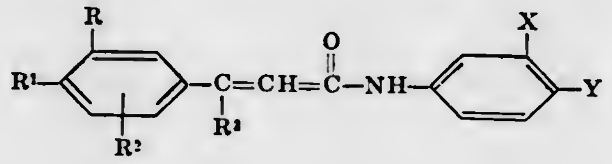
Filed June 8, 1972, Ser. No. 260,900

Claims priority, application Great Britain, June 15, 1971, 28033/71

Int. Cl. C07c *103/22*

U.S. Cl. 260—240 J **5 Claims**

Cinnamanilides of the general formula



wherein R and R¹, which may be identical or different, each designates a member of the group consisting of chlorine, bromine, nitro, cyano, alkyl of one to four carbon atoms, alkoxy of one to four carbon atoms and wherein R and R¹ can form together a group $-O-CH_2-O-$ or $-O-CH_2-CH_2-O-$, R² designates a member of the group consisting of hydrogen, chlorine, bromine, alkyl of one to four carbon atoms and alkoxy of one to four carbon atoms, R³ designates a member of the group consisting of hydrogen, chlorine and bromine, and X and Y each designate chlorine or bromine, and a process for preparing same.

3,835,129
CEPHALOSPORIN C RECOVERY

Gene M. Wild, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Nov. 15, 1971, Ser. No. 198,986

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 C **7 Claims**

Cephalosporin C is recovered directly from aqueous media by reacting Cephalosporin C therein with certain alkanoic acid anhydrides, e.g., a haloalkanoic acid anhydride or mixed haloalkanoic-alkanoic acid anhydride, at pH 7 to 11, at 0° to 30°C., treating the acylated mixture with quinoline, lowering the pH, stirring, and separating the N-acylated Cephalosporin C quinoline salt hydrate from the aqueous medium.

3,835,130
2-THIA-CEPHAM AND CEPHEM-4-CARBOXYLIC ACIDS

Robert Burns Woodward, Cambridge, Mass., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 29, 1971, Ser. No. 193,993

Claims priority, application Switzerland, Nov. 3, 1970, 16231/70

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 C **4 Claims**

The invention concerns 7-amino-2-thiacepham-4-carboxylic acid and 7-amino-2-thiaceph-3-em-4-carboxylic acid compounds and their N-acyl derivatives. These compounds, particularly the latter ones have antibacterial properties. The invention also concerns process for the manufacture of such compounds and intermediates and starting materials useful in such process.

3,835,131
2-ACYL-5-NITROTHIAZOLE DERIVATIVES

Peter Strehlke, Berlin, Germany, assignor to Schering Aktiengesellschaft, Berlin and Bergkamen, Germany

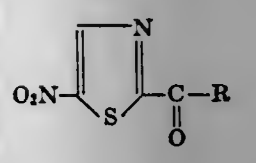
Filed June 23, 1972, Ser. No. 265,467

Claims priority, application Germany, June 24, 1971, 2131888

Int. Cl. C07d *91/32*

U.S. Cl. 260—243 B **17 Claims**

This invention relates to 2-acyl-5-nitrothiazole derivatives of the formula



wherein R is amino, piperazine, mono- or bis(hydroxyalkyl)amino or mono- or bis(aminoalkyl)amino, each of which can be unsubsituted or substituted on the oxygen or nitrogen atom by lower alkyl; phenylamino; di-, tri-, tetra-, penta-, hexa-, or heptamethylenimino; morpholino; thiomorpholino; hydroxy or OX wherein X is halogen.

3,835,132
MORPHOLINO-PIPERAZINYL PYRIMIDINES

John B. Carr; George R. Haynes; James R. Albert, all of Modesto, and K. Kodama, Alamo, all of Calif., assignors to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 111,635, Feb. 1, 1972, abandoned. This application Sept. 21, 1973, Ser. No. 399,783

Int. Cl. C07d *87/40*

U.S. Cl. 260—247.5 D **3 Claims**

2-morpholino-4-(ethylamino)-6-(1-piperazinyl) pyrimidine and its dihydro(middle halide) salts, useful as anti-inflammatory agents.

3,835,133
HEXAHYDRO-1,3,5-TRIAZINE-2,4-DIONES

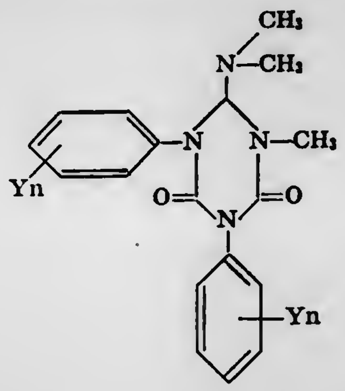
Karl Seckinger, Riegal/Baden, Germany, assignor to Sandoz Ltd., Basle, Switzerland

Continuation-in-part of Ser. No. 207,597, Dec. 13, 1971, abandoned. This application Mar. 15, 1971, Ser. No. 341,405

Int. Cl. C07d *55/18*

U.S. Cl. 260—248 NS **11 Claims**

The present invention concerns novel hexahydro-1,3,5-triazine-2,4-diones of the general formula:



I

wherein each Y is alkyl, trifluoroalkyl, fluorine, chlorine, bromine, alkoxy, aryloxy or nitro and *n* is o, 1, 2 or 3.

The compounds exhibit a herbicidal effect.

3,835,134
POLYCHLOROISOCYANURIC ACIDS PREPARED FROM A MONOALKALI METAL CYANURATE

Henry W. Schiessl, Northford; Duane L. Sawhill, Orange, and Sudhir K. Bhutani, West Haven, all of Conn., assignors to Olin Corporation, New Haven, Conn.

Filed Apr. 20, 1973, Ser. No. 353,097

Int. Cl. C07d *55/42*

U.S. Cl. 260—248 C **19 Claims**

Polychloroisocyanuric acids are produced by the reaction of monoalkali metal cyanurate with hypochlorous acid and a chlorine-containing compound selected from the group consisting of chlorine and chlorine octahydrate where the molar ratio of chlorine-containing compound to monoalkali metal cyanurate is at least 1:1. Where an excess of chlorine-containing compound is used, this excess is employed to remove any gaseous by-products such as nitrogen trichloride, which may be formed during the reaction. This excess containing gaseous by-products is reacted with an alkali metal compound to convert the chlorine present to an alkali metal hypochlorite, which is further reaction to form hypochlorous acid. The hypochlorous acid can be used in the chlorination reaction. Reaction conditions include a temperature range of from −5° to 45°C. and a pH of 3 to 4.5.

3,835,135
POLYCHLOROISOCYANURIC ACIDS PREPARED FROM A MONOALKALI METAL CYANURATE

Duane L. Sawhill, Orange, Conn., assignor to Olin Corporation, New Haven, Conn.

Filed Apr. 20, 1973, Ser. No. 353,098

Int. Cl. C07d *55/42*

U.S. Cl. 260—248 C **20 Claims**

Polychloroisocyanuric acids are produced by the reaction of monoalkali metal cyanurate with an alkali metal hypochlorite and a chlorine-containing compound selected from the group consisting of chlorine and chlorine octahydrate, where the molar ratio of chlorine-containing compound to the alkali metal hypochlorite and monoalkali metal cyanurate combined is at least 1:1. Where an excess of chlorine-containing compound is used, this excess is employed to remove any gaseous by-products such as nitrogen trichloride, which may be formed during the reaction. This excess containing gaseous by-products is reacted with an alkali metal compound to convert the chlorine present to an alkali metal hypochlorite, which is used in the chlorination reaction. Reaction conditions include a temperature range of from −5° to 45°C. and a pH of 3 to 4.5.

3,835,136

RECOVERY OF CHLORINE AND CYANURIC ACID VALUES FROM POLYCHLOROISOCYANURIC ACID AND SALTS THEREOF

Louis C. Hirdler, Lake Charles, La.; Henry W. Schiessl, Northford, and David F. Doonan, Guilford, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Filed May 22, 1973, Ser. No. 362,694
Int. Cl. C07d ***55/36***

U.S. Cl. 260—248 A **14 Claims**

A process is described for recovering chlorine and cyanuric acid values from aqueous solutions containing a chlorinated s-triazine compound selected from the group consisting of polychloroisocyanuric acids, alkali metal salts thereof and mixtures thereof. The aqueous solution of chlorinated s-triazine compound is reacted with a mineral acid to form chlorine and cyanuric acid. An inert gas is preferably passed simultaneously through the aqueous solution to remove chlorine as it forms. The chlorine-depleted aqueous slurry containing solid cyanuric acid is separated, for example, by filtration to recover cyanuric acid.

The resulting solids-free mother liquor, which contains some dissolved cyanuric acid is contacted with an adsorbent, such as activated carbon, which adsorbs the cyanuric acid from the liquid. The liquid, substantially free of chlorine and cyanuric acid values, is conveyed to waste.

Cyanuric acid adhering to the adsorbent is removed from the adsorbent with an alkali metal hydroxide or carbonate solution.

Recovered cyanuric acid values may be used in the preparation of additional polychloroisocyanuric acid or alkali metal salts thereof.

3,835,137

FIBRINOLYTIC TETRAZOLO(1,5-C)QUINAZOLINES

Eugene R. Wagner, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Oct. 13, 1972, Ser. No. 297,465
Int. Cl. C07d ***51/48***

U.S. Cl. 260—256.4 F **2 Claims**

Tetrazoloquinazoline compounds such as 5-[4-(dimethylamino)phenyl]5,6-dihydro-tetrazolo(1,5-c)-quinazoline are prepared by the reaction of 5-(2-amino-phenyl)tetrazole with a 4-dialkylaminobenzaldehyde. The compounds are useful as fibrinolytic agents.

3,835,138

BRONCHODILATOR 5,6-DIHYDRO-TETRAZOLO(1,5-C) QUINAZOLINES

Eugene R. Wagner, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Oct. 13, 1972, Ser. No. 297,467
Int. Cl. C07d ***51/48***

U.S. Cl. 260—256.4 F **6 Claims**

Tetrazoloquinazoline compounds such as 5,6-dihydro-5-ethyl-8,9-dimethoxy-5-methyl-tetrazolo(1,5-c)-quinazoline are prepared by the reaction of a 5-(2-aminophenyl)tetrazole with a ketone or aldehyde. The compounds are useful as bronchodilator agents.

3,835,139

N-SUBSTITUTED ACRIDONE CARBOXYLIC ACIDS AND DERIVATIVES

Jurg R. Pfister, Los Altos; Ian T. Harrison, and John H. Fried, both of Palo Alto, all of Calif., assignors to Syntex, (U.S.A.) Inc., Palo Alto, Calif.

Filed July 19, 1972, Ser. No. 273,291
Int. Cl. C07d ***37/20***

U.S. Cl. 260—279 R **12 Claims**

Compositions containing and methods employing, as the essential ingredient, acridone carboxylic acid compounds which are useful in the treatment of allergic conditions. Methods for preparing thses compounds and compositions are also disclosed. N-methylacridone-2-carboxylic acid and 7-methoxyacridone-2-carboxylic acid are illustrated as representative of the class.

3,835,140

PROCESS FOR THE PREPARATION OF DEHYDROBERBINIUM SALTS

Kwang Yuen Zee-Cheng, Overland Park, Kans., and Chia-Chung Cheng, Kansas City, Mo., assignors to The United States of America as represented by the Secretary of the Department of Health, Education and Welfare, Washington, D.C.

Filed Jan. 30, 1973, Ser. No. 328,074
Int. Cl. C07d ***39/12***

U.S. Cl. 260—283 SY **12 Claims**

A process for the synthesis of coralyne salts and related dehydroberbinium salts. The process includes a phenylacetyl chloride and phenylethylamine condensation, followed by cyclization, aromatization and formation of a dehydroberbinium sulfoacetate, which may thereafter be converted into other dehydroberbinium salts. The coralyne salts have antineoplastic activity.

3,835,141

QUINALYTHIOHYDROXIMIC ACIDS AND THEIR DERIVATIVES

Charles Malen, Fresnes; Bernard Danree, St. Germain en Laye, and Xavier Pascaud, Paris, all of France, assignors to Science Union Et Cie, Societe Francaise De Recherche Medicale, Suresnes, France

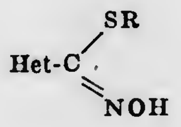
Filed Mar. 30, 1972, Ser. No. 239,778

Claims priority, application Great Britain, Apr. 15, 1971, 9502/71

Int. Cl. C07d ***35/28;*** **C07c** ***33/38***

U.S. Cl. 260—283 S **11 Claims**

Thiohydroximic acid compounds of the formula:



$$\text{Het-C}(\text{SR})=\text{NOH}$$

wherein Het is pyridyl, pyrazinyl, quinolyl, isoquinolyl, or these radicals substituted by halogen, lower alkyl or lower alkoxy, and R is hydrogen, lower alkyl, aryl or aryl-lower-alkyl, provided that R never by hydrogen when Het is 4-pyridyl.

These compounds possess gastric antisecretory, antiulcerous, gastrointestinal motility increasing, central nervous system stimulating and vasodilatory properties.

3,835,142

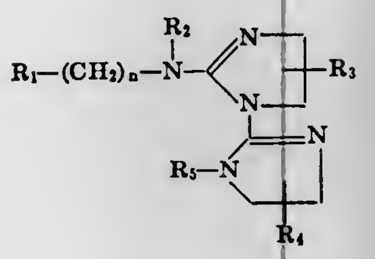
1-(2-IMIDAZOLIN-2-YL)-2-(1,2,3,4-TETRAHYDRO-2-ISOQUINOLYL)-2-IMIDAZOLINES

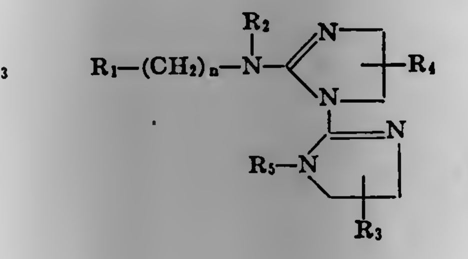
Raymond R. Wittekind, Morristown, and John Shavel, Jr., Mendham, both of N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation-in-part of Ser. No. 6,639, Jan. 28, 1970, Pat. No. 3,666,767. This application May 15, 1972, Ser. No. 253,222
Int. Cl. C07d ***35/36***

U.S. Cl. 260—286 R **2 Claims**

The present invention relates to 2-amino-1-(2-imidazolin-2-yl)-2-imidazolines, the free base of which has the following structural formulas:





wherein

R_1 is hydrogen, lower alkyl, cycloalkyl, aryl, substituted aryl, heterocyclic, substituted heterocyclic or aryloxy;
R_2 is hydrogen, lower alkyl, aryl and substituted aryl;
or R_1 and R_2 taken together with the nitrogen atom to which they are attached form a heterocyclic ring;
R_3 and R_4 are hydrogen, lower alkyl, aryl, or substituted aryl;
R_5 is hydrogen, lower alkyl, aryl or substituted aryl;
n is an integer from 0 to 10.

The compounds of this invention are useful as antiarrhythmic agents as well as antibacterial agents.

3,835,143

CERTAIN 2(1H) PYRIDINETHIONES

Bruce E. Witzel; Tsung-Ying Shen, both of Westfield; Patricia M. Graham, Mountainside; Robert L. Clark, Woodbridge, and Arsenio A. Pessolano, Colonia, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 45,547, June 11, 1970, Pat. No. 3,721,676, which is a continuation-in-part of Ser. No. 876,058, Nov. 12, 1969, abandoned. This application Jan. 25, 1972, Ser. No. 220,720
Int. Cl. C07d ***31/50***

U.S. Cl. 260—294.8 T **2 Claims**

Novel secondary and tertiary aminopyridones useful as antiinflammatory, analgesic and antipyretic agents.

3,835,144

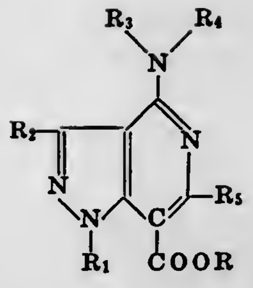
AMINO DERIVATIVES OF (4,3-C PYRAZOLOPYRIDINE CABROXYLIC ACIDS AND ESTERS

Theodor Denzel, Nurnberg, and Hans Hoehn, Tegernheim, both of Germany, assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed June 16, 1972, Ser. No. 263,566
Int. Cl. C07d ***31/36***

U.S. Cl. 260—295.5 B **6 Claims**

New amino derivatives of pyrazolo[4,3-c]pyridine-7-carboxylic acids and esters have the general formula



They are useful as ataractic, analgesic and anti-inflammatory agents. In addition, the new compounds increase the intracellular concentration of adenosine-3′,5′-cyclic monophosphate.

3,835,145

2- AND 3-PYRIDYLISOTHIOCYANATES

William B. Dickinson, Albany, and Marcia P. Vaupotic, Troy, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed Sept. 11, 1972, Ser. No. 287,620
Int. Cl. C07d ***31/50***

U.S. Cl. 260—294.8 E **6 Claims**

N-(2-and 3-Pyridyl)-1-polymethyleneiminothiocarboxamides useful as anthelmintic agents and prepared by reaction of certain 2- or 3-pyridylisothiocyanates, which are also useful as anthelmintic agents, with an appropriate polymethyleneimine.

3,835,146

SUBSTITUTED FUSARIC ACID DERIVATIVES

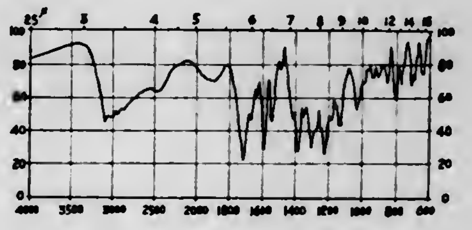
Tetsuji Miyano; Kunio Suzuki, and Hiroshi Fukatsu, all of Nagoya, Japan, assignors to Banyu Pharmaceutical Co. Ltd., Tokyo and Hiroyoshi Hidaka, Minami-ku, Nagoya-shi, both of, Japan

Filed May 30, 1972, Ser. No. 257,834

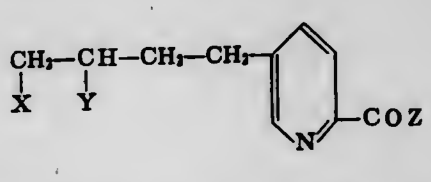
Claims priority, application Japan, May 28, 1971, 46-36220; Oct. 1, 1971, 46-76237

Int. Cl. C07d ***31/36***

U.S. Cl. 260—295 R **13 Claims**



Halo-fusaric acid derivatives of the formula:



wherein X represents halogen or hydrogen, Y represents halogen, and Z represents — OM or an amine, wherein M represents hydrogen or a salt or ester residue thereof which are characterized by significant activity in inhibiting the formation of dopamine-β-hydroxylase and in the treatment of hypertension, and which are further characterized by relatively low toxicity, are prepared by reacting dehydrofusaric acid with a halogen or a hydrogen halide. Alternatively, these compounds can be produced by reacting halo-fusaric acid with an acyloxhalomethyl ester.

3,835,147
3-PYRIDYLMETHYL ESTER OF 5-BENZOFURAZANYLCARBAMATE-1-OXIDE

Edward E. Kilbourn, Chalfont, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Apr. 18, 1973, Ser. No. 352,854
Int. Cl. C07d *31/36*

U.S. Cl. 260—295.5 B **2 Claims**

Novel 3-pyridylmethyl N-heterocyclic-carbamates. They are useful rodenticides.

3,835,148
AQUEOUS POLYSTYRENE CONTAINING DISPERSIONS AS ANTI-STATICS FOR THE PERMANENT FINISHING OF FIBRE MATERIALS

Josef Oxe, Arlesheim, and Rudolf Keller, Riehen, both of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

Filed Feb. 15, 1972, Ser. No. 226,511
Claims priority, application Switzerland, Feb. 16, 1971, 2248/71
Int. Cl. C08f *45/44*

U.S. Cl. 260—29.6 MN **8 Claims**

Disclosed is an aqueous acid solution or suspension of a preparation as well as the production thereof for the permanent finishing of fibre materials, especially dyed carpets, to render them antistatic, dirt-repellent and, optionally, antimicrobial, which aqueous preparation contains:

a. 10 to 20 per cent by weight of at least one antistatic agent,
b. 3 to 35 per cent by weight of a stabilised, aqueous non-film-forming dispersion of polystyrene,
c. 1 to 6 per cent by weight of at least one acid, especially o-phosphoric acid, and
d. 0 to 5 per cent by weight of further components, such as an antimicrobic agent and a solubility-promoting agent.

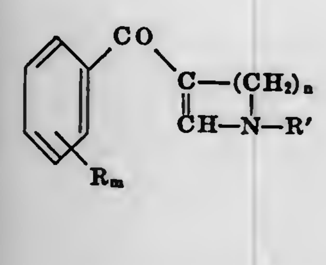
3,835,149
3-AROYL-ALKENYLENEIMINES

Harris Burt Renfroe, New City, N.Y., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 203,479, Nov. 30, 1971, abandoned. This application July 7, 1972, Ser. No. 269,901
Int. Cl. C07d *29/38, 27/14;* A61k *27/00*

U.S. Cl. 260—297 R **6 Claims**

3-Aroyl-lower alkenyleneimines, e.g. those of the formula



R = H, alkyl, free, etherified or esterified OH, CF_3 or an amino
R' = H, alkyl or acyl
m = 1 or 2 n = 2–4

or carbonyl or amino derivatives thereof are anti-inflammatory agents.

3,835,150
DERIVATIVES OF 3-ISOTHIAZOLONES WITH ACTIVE HALOGEN COMPOUNDS

Sheldon N. Lewis, Willow Grove, and George Allen Miller, Glenside, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 57,367, July 22, 1970, Pat. No. 3,706,757, which is a continuation-in-part of Ser. No. 647,586, June 21, 1967, Pat. No. 3,544,580. This application May 12, 1972, Ser. No. 254,810
Int. Cl. C07d *91/12, 91/10*

U.S. Cl. 260—302 A **3 Claims**

Disclosed herein is a novel group of compounds which are properly designated as 3-isothiazole derivatives being obtained, for the most part, by reacting a substituted 3-hydroxyisothiazole with an active halogen compound. These compounds and compositions thereof exhibit biocidal characteristics and are exceptionally effective in the control of living organisms.

3,835,151
DIPHENYLHYDANTOIN DERIVATIVE

Herbert John Havera, Edwardsburg, Mich., and Wallace Glenn Strycker, Goshen, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Apr. 16, 1973, Ser. No. 351,319
Int. Cl. C07d *49/36*

U.S. Cl. 260—309.5 **2 Claims**

N-(2-diethylamino)ethyl-α-(5,5-diphenylhydantoin-3-yl)acetamide and nontoxic salts thereof exhibit antiarrhythmic activity in mammals.

3,835,152
3-CYANO-9-BENZOYL-1,2,3,4-TETRAHYDRO CARBAZOLE

Ernest John Alexander, East Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

Filed Nov. 17, 1972, Ser. No. 307,477
Int. Cl. C07d *27/68*

U.S. Cl. 260—315 **1 Claim**

Novel 3-Z-9-benzoyl-1,2,3,4-tetrahydrocarbazoles, wherein Z is $CONR_5R_6$, CONHOH, CN, or $COCH_2X$, where X is chloro or bromo, having antimicrobial and/or anti-inflammatory activity are disclosed. Compounds wherein Z is $CONR_5R_6$ and CONHOH are prepared from the corresponding 3-carboxylic acids by conversion to the corresponding acid chlorides and subsequent reaction with the appropriate amines and hydroxylamine respectively; compounds where Z is CN are prepared by the dehydration of the corresponding compounds where Z is $CONH_2$; and the compounds where Z is $COCH_2X$ are prepared by reacting hydrogen chloride or bromide with the corresponding compounds where Z is $COCHN_2$ which in turn is prepared from the corresponding 3-carboxylic acid chloride by reaction with diazomethane.

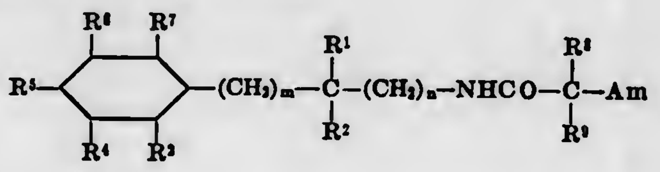
3,835,153
N-(PHENYLALKYL)-ACYLAMIDE DERIVATIVES

Ulf Henrik Anders Lindberg, Sodertalje, Sweden, assignor to Aktiebolaget Astra, Sodertalje, Sweden

Division of Ser. No. 838,313, July 1, 1969, Pat. No. 3,692,784. This application Mar. 20, 1972, Ser. No. 236,527The portion of the term of this patent subsequent to Oct. 19, 1989, has been disclaimed.
Int. Cl. C07d *27/04*

U.S. Cl. 260—326.43 **2 Claims**

Compounds of the formula



wherein R^1 and R^2 may be the same or different and selected from the class consisting of alkyl groups of one to three carbon atoms, including isopropyl, R^3, R^4, R^5, R^6 and R^7 may be the same or different and each selected from the class consisting of a hydrogen atom, straight and branched alkyl groups of one to three carbon atoms, straight and branched alkoxy groups of one to three carbon atoms and halogen atoms, at least two of R^3, R^4, R^5, R^6 and R^7 being hydrogen and at least one of R^3 and R^7 being hydrogen when m is 0; R^8 and R^9 may be the same or different and each selected from the class consisting of a hydrogen atom and straight and branched alkyl groups of one to three carbon atoms, or when R^8 is hydrogen R^9 may together with Am form a heterocyclic ring containing a nitrogen atom; Am is an amino group selected from the class consisting of pyrrolidino, piperidino, morpholino and monoalkylamino and dialkylamino groups in which the alkyl radicals are straight or branched and contain one to four carbon atoms; *m* and *n* is 0 or 1, at least one of *m* and *n* being 0; and therapeutically acceptable salts thereof, processes for their preparation, pharmaceutical preparations containing such compounds and their use as local anesthetics.

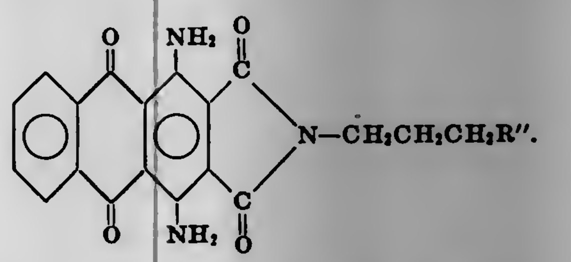
3,835,154
BLUE DISPERSE 1,4-DIAMINOANTHRAQUINONE-2,3-DICARBOXIMIDE DYES

Donald Edward Putzig, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed July 25, 1972, Ser. No. 275,039
Int. Cl. C07d *27/52*

U.S. Cl. 260—326 C **8 Claims**

Greenish-blue to blue disperse diaminoanthraquinonedicarboximide dyes having good application and fastness properties on water swellable cellulosic or synthetic fibers or blends or mixtures thereof, for example, cotton fabrics and polyester/cotton blend fabrics, said dyes having the formula



wherein R is Ophenyl, O(p-$C_{1\text{-}8}$ alkylphenyl), OCH(phenyl)$_2$, N($C_{1\text{-}8}$ alkyl)phenyl or N(phenyl)$_2$.

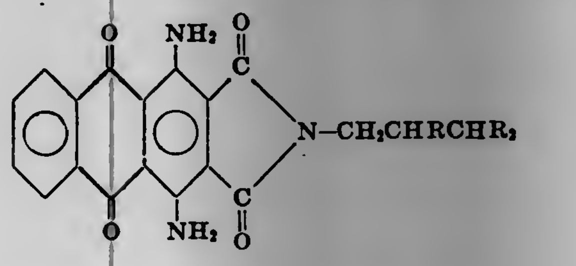
3,835,155
BLUE DISPERSE 1,4-DIAMINOANTHRAQUINONE-2,3-DICARBOXIMIDE DYES

John Blackwell, Kennett Square, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed July 25, 1972, Ser. No. 275,040
Int. Cl. C07d *27/52*

U.S. Cl. 260—326 C **3 Claims**

Greenish-blue to blue disperse diaminoanthraquinonedicarboximide dyes having good application and fastness properties on water swellable cellulosic or synthetic fibers or blends or mixtures thereof, for example, cotton fabrics and polyester/cotton blend fabrics, said dyes having the formula



wherein one R is H and the other two are phenyl.

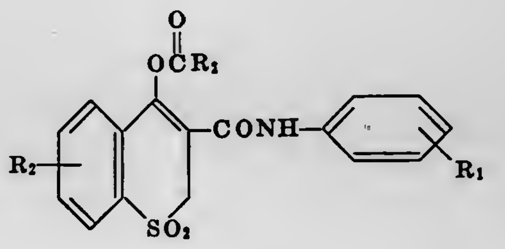
3,835,156
ACYL DERIVATIVES OF 4-HYDROXY-2H-1-BENZOTHIOPYRAN-3-CARBOXAMIDE 1,1-DIOXIDE

Harold Zinnes, Rockaway, and Neil A. Lindo, Chatham, both of N.J., assignors to Warner-Lambert Company, Morris Plaines, N.J.

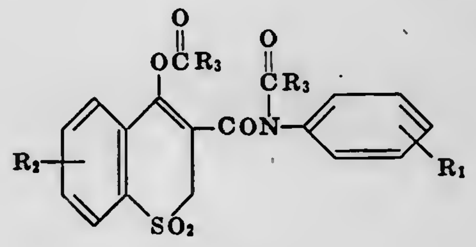
Filed Mar. 23, 1973, Ser. No. 344,380
Int. Cl. A61k *27/00;* C07d *65/08*

U.S. Cl. 260—327 TH **3 Claims**

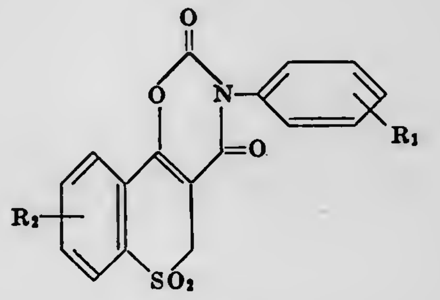
Acyl derivatives of 4-hydroxy-2H-1-benzothiopyran-3-carboxamide 1,1-dioxide having the following structural formulas are disclosed:



II



III



IV

wherein R_1 and R_2 are hydrogen, alkyl, aryl, aralkyl, alkoxy, halogen, cyano, nitro, trifluoromethyl, and the like.

These compounds are useful as anti-inflammatory agents.

3,835,157
HETEROCYCLIC SUBSTITUTED XANTHONE CARBOXYLIC ACID COMPOUNDS

Jurg R. Pfister, Los Altos; Ian T. Harrison, and John H. Fried, both of Palo Alto, all of Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed May 17, 1972, Ser. No. 254,232
Int. Cl. A61k *27/00*

U.S. Cl. 260—332.2 A **17 Claims**

Compounds containing and methods employing, as the essential ingredient, heterocyclic substituted xanthone carboxylic acid compounds which are useful in the treatment of allergic conditions. Methods for preparing these compounds and compositions and intermediates therein are also disclosed. 7-(3-Tetrahydrofuryl)-xanthone-2-carboxylic acid is illustrated as representative of the class.

3,835,158

HETEROCYCLIC SUBSTITUTED XANTHONE CARBOXYLIC ACID COMPOUNDS

Jurg R. Pfister, Los Altos; Ian T. Harrison, and John H. Fried, both of Palo Alto, all of Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed May 17, 1972, Ser. No. 254,233

Int. Cl. C07d *63/12*

U.S. Cl. 260—332.2 A **19 Claims**

Compounds containing and methods employing, as the essential ingredient, heterocyclic substituted xanthone carboxylic acid compounds which are useful in the treatment of allergic conditions. Methods for preparing these compounds and compositions and intermediates therein are also disclosed. 7-(2-Tetrahydrofuryl)-xanthone-2-carboxylic acid is illustrated as representative of the class.

3,835,159

DERIVATIVES OF DIBENZODIOXEPINE

Henry Najer, and Jean-Francois Giudicelli, both of Paris, France, assignors to Synthelabo, Paris, France

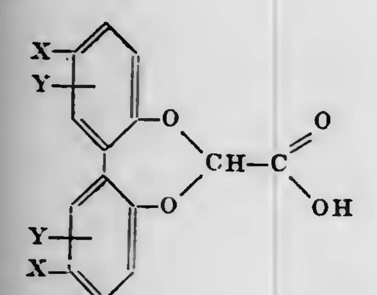
Filed July 21, 1972, Ser. No. 274,049

Claims priority, application France, July 23, 1971, 71.26967

Int. Cl. C07d *17/00*

U.S. Cl. 260—340.3 **6 Claims**

The acids of the formula:



in which X is halogen, trihaloalkyl, or thiotrihaloalkyl and Y is hydrogen, halogen, trihaloalkyl, or thiotrihaloalkyl, and their salts and esters are useful in reducing the lipid content of the blood.

3,835,160

3'-KETO-2',3'-SECO-1'-(2')-YNE STEROIDAL DERIVATIVES, METHODS FOR THEIR MANUFACTURE, AND COMPOUNDS PRODUCED THEREBY

Masato Tanabe, Palo Alto, Calif., assignor to Schering Corporation, Bloomfield, N.J.

Continuation-in-part of Ser. No. 644,761, June 6, 1967, abandoned. This application June 20, 1967, Ser. No. 647,315

Int. Cl. C07d *13/04*

U.S. Cl. 260—340.9 **10 Claims**

Described herein are novel 3'-keto-2',3'-seco-1'(2')-yne steroidal structures and processes for their preparation and, in particular, the preferred embodiment thereof, i.e., 5-keto-4,5-seco-3-ynes of the estrane, androstane, and pregnane series having physiological activity and being particularly useful as intermediates in preparing pharmacologically active 6- and/or 10-substituted steroids.

There are described three process aspects, the preferred modes of which are as follows:

1. The first preferred process comprises the preparation of 5-keto-4,5-seco-3-yne steroids from 3-keto-4-dehydro steroids having a tertiary carbon at C-3, via the 3-hydrocarbonsulfonylhydrazono-4,5-oxido derivative thereof which undergoes fission and rearrangement in situ to form the 5-keto-4,5-seco-3-yne structure;
2. The second preferred process comprises reacting any 6- and/or 10- unsubstituted-5-keto-4,5-seco-3-yne in an alkylating medium with a hydrocarbon sulfonate or, preferably, a hydrocarbon halide to form a 6- and/or 10-hydrocarbon substituted-5-keto-4,5-seco-3-yne; and
3. The third preferred process comprises treating a 5-keto-4,5-seco-3-yne with an alkali metal borohydride to form a 5-hydroxy-4,5-seco-3-yne.

Also described in detail (including examples) are two methods whereby the preferred 5-keto-4,5-seco-3-ynes of this invention are converted to pharmacologically valuable 6- and/or 10- hydrocarbon substituted-3-keto-4-dehydro steroids, e.g.,

1. by reaction with mercuric acetate and sulfuric acid in acetic acid; or
2. by reaction with mercuric oxide and trifluoroacetic acid followed by treatment of the thereby formed 3,5-diketo-4,5-seco steroid with potassium t-butoxide in t-butanol.

3,835,161

3-SUBSTITUTED-4-HYDROXY-COUMARINS

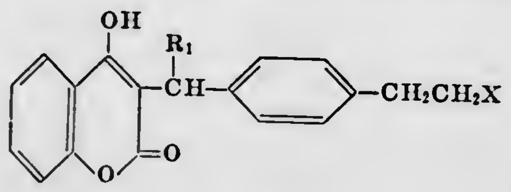
Jean Marie De Muylder, Brussels, Belgium, assignor to Societe D'Etudes Et De Realisations Scientifiques en abrege "S.E.RES.C.I. s.p.r.L., Brussels, Belgium

Filed Oct. 24, 1972, Ser. No. 300,084

Int. Cl. C07d *7/26*

U.S. Cl. 260—343.2 R **10 Claims**

New 3-substituted-4-hydroxy-coumarins of the formula:



wherein R_1 represents a lower alkyl radical containing 1 to 3 carbon atoms and X represents chlorine, bromine or iodine; pharmaceutical compositions containing such compounds and a process for making the compounds are disclosed.

3,835,162

SYNTHESIS OF CITRACONIC ANHYDRIDE

Bryce E. Tate, Niantic, and Rudolph G. Berg, Groton, both of Conn., assignors to Pfizer Inc., New York, N.Y.

Filed Oct. 25, 1972, Ser. No. 300,458

Int. Cl. C07c *55/04*

U.S. Cl. 260—346.8 R **4 Claims**

Citraconic anhydride can be prepared in high yield by reacting with an excess of formaldehyde at least one compound selected from the group consisting of succinic anhydride, and di-lower alkyl esters of succinic acid, in the vapor phase at a temperature of about 280–410°C. in the presence of a catalyst selected from the group consisting of thorium sulfate, potassium diacid phosphate, or lithium carbonate on an alundum support, or lithium phosphate. Itaconic acid is conveniently prepared by hydrolyzing the citraconic anhydride to citranconic acid, and then isomerizing the acid to yield itaconic acid.

3,835,163

TETRAHYDROFURAN POLYCARBOXYLIC ACIDS

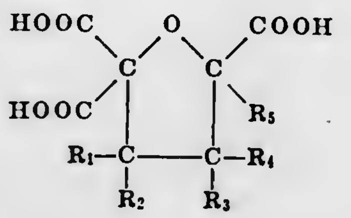
John N. Rapko, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Aug. 2, 1973, Ser. No. 385,131

Int. Cl. C07d *5/04*

U.S. Cl. 260—347.3 **11 Claims**

Salts of tetrahydrofuran polycarboxylic acids represented by the formula



wherein R_1, R_2, R_3, R_4 and R_5 are hydrogen or carboxylic acid groups, at least one of R_1, R_2, R_3 and R_4 being a carboxylic acid group when R_5 is a carboxylic acid group are useful as complexing agents and/or detergency builders. The ester forms of such compounds, as well as the acids are useful as intermediates for production of the salts.

3,835,164

N-ALKOXYCARBONYL-N'-ACYL-N''12-ACYLAMIDOPHENYL-GUANIDINES

Arno Widdig, Blecher; Engelbert Kuhle, Bergisch-Glad-Bach; Helmut Kaspers, Leverkusen, and Ferdinand Grewe, Burscheld, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

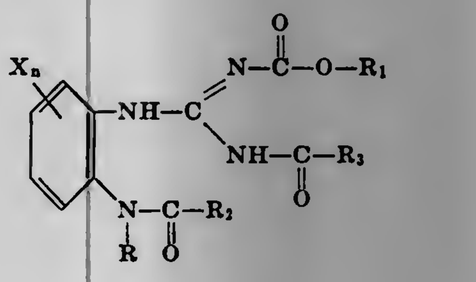
Filed Nov. 2, 1972, Ser. No. 303,301

Claims priority, application Germany, Nov. 19, 1971, 2157368

Int. Cl. C07d *5/26*

U.S. Cl. 260—347.4 **7 Claims**

N-alkoxycarbonyl-N'-acyl-N''-2-acylamidophenylguanidines of the formula



(I)

in which

X is halogen, lower alkyl or lower alkoxy,

n is 0, 1 or 2,

R is hydrogen or lower alkyl,

R_1 is alkyl of 1–6 carbon atoms,

R_2 is hydrogen, alkyl with 1–18 carbon atoms optionally substituted by halogen, cyano, lower alkoxy, lower alkoxycarbonyl, phenoxy, halophenoxy, alkylphenoxy or alkoxyphenoxy; cycloalkyl of 5–8 carbon atoms; aralkyl optionally substituted by halogen, lower alkyl or lower alkoxy; aryl optionally substituted by halogen, lower alkyl or lower alkoxy; or furyl; and

R_3 is hydrogen, alkyl with 1–18 carbon atoms optionally substituted by halogen, cyano, lower alkoxy, lower alkoxycarbonyl, phenoxy, halophenoxy, alkylphenoxy or alkoxyphenoxy; alkenyl or alkynyl of 2–12 carbon atoms; cycloalkyl of 5–8 carbon atoms; aralkyl optionally substituted by halogen, lower alkyl or lower alkoxy; aryl optionally substituted by halogen, lower alkyl or lower alkoxy; or furyl,

which possess fungicidal properties.

3,835,165

NITROFURYL-ALPHA-HALO-HYDRAZONES

Graham Arton Howarth, Wilmslow, and William Hoyle, Bramhall, both of England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 15,209, Feb. 27, 1970, Pat. No. 3,682,953. This application June 15, 1972, Ser. No. 263,047

Int. Cl. C07d *5/30*

U.S. Cl. 260—347.5 **4 Claims**

5-Amino-4-cyano-3-(5-nitro-2-furyl)-pyrazoles, substituted in 1-position of the pyrazole moiety by alkyl, hydroxyalkyl or carbalkoxy, and pharmaceutically acceptable acid addition salts thereof, have antimicrobial properties; compositions containing these compounds and methods for the treatment of microbial infections and protecting organic material against microbial attack; a typical embodiment is 5-amino-4-cyano-1-methyl-3-(5-nitro-2-furyl)-pyrazole.

3,835,166

2,2-DIALKYLEPOXIDES

Robert Malone Gipson; Ernest Leon Yeakey, and William Jennings Peppel, all of Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

Filed June 16, 1972, Ser. No. 263,678

Int. Cl. C07d *1/12*

U.S. Cl. 260—348 R **3 Claims**

Particular 2,2-dialkylepoxide compositions are provided which are characterized by their novel structure, their liquidity at room temperature and by their unique applicability to a variety of uses.

3,835,167

ANTHRONE CARBOXYLIC ACIDS AND DERIVATIVES

Jurg R. Pfister, Los Altos, Calif., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Dec. 18, 1972, Ser. No. 315,858

Int. Cl. C07c *63/44*

U.S. Cl. 260—351 **10 Claims**

Compositions containing and methods employing, as the essential ingredient, anthrone carboxylic acid compounds which are useful in the treatment of allergic conditions. Methods for preparing these compounds and compositions are also disclosed. anthrone-2-carboxylic acid and 7-methoxyanthrone-2-carboxylic acid are illustrated as representative of the class.

3,835,168

QUINONE DERIVATIVES AND COMPOSITIONS CONTAINING THE SAME

Hideo Kano, Osaka; Masaru Ogata, Kobe, and Hisajiro Yukinaga, Kusatasu, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

Filed Jan. 25, 1972, Ser. No. 220,708

Claims priority, application Japan, Feb. 9, 1971, 46-5389; Feb. 9, 1971, 46-5390; Feb. 9, 1971, 46-5393; Mar. 31, 1971, 46-19410

Int. Cl. C07c *119/14*

U.S. Cl. 260—396 R **11 Claims**

Novel quinone derivatives having plant-growth regulating activity and being prepared by light irradiation or catalytic reduction from isoxazole derivatives, and compositions containing the said quinone derivatives.

3,835,169

LANOLIN DERIVATIVES ESSENTIALLY COMPRISING ESTERS OF LANOLIN ALCOHOL WITH LACTIC ACID

Elise Kraft, 2109 Broadway, New York, N.Y. 10023, and Mitchell L. Schlossman, 20 Lake Shore Dr., Rockway, N.J. 07866

Filed June 23, 1971, Ser. No. 156,023

Int. Cl. C11b *11/00;* **C07c** *69/68;* **A61k** *7/00*

U.S. Cl. 260—397.2 **2 Claims**

Lanolin derivatives essentially comprising esters of lanolin alcohol with lactic acid and higher fatty acids are provided. The derivatives are prepared by direct reaction of lanolin alcohol with the higher fatty acid.

The lanolin derivatives disclosed are especially adapted for use as essential or advantageous ingredients of various cosmetic compositions.

3,835,170

HYPOTENSIVE AGENT, OUDENONE, ITS SALTS AND PROCESSES FOR PRODUCTION AND PREPARATION THEREOF

Hamao Umezawa, Tokyo; Osamu Tanabe, Kyoto, and Tomio Takeuchi, Tokyo, all of Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai, Tokyo, Japan

Filed Jan. 15, 1971, Ser. No. 106,746

Claims priority, application Japan, Feb. 3, 1970, 45-8984; May 12, 1970, 45-39772

Int. Cl. C07c *49/32*

U.S. Cl. 260—438.1 **2 Claims**

A hypotensive compound designated oudenone and metal salts of oudenone, oudenone being produced by a process which comprises cultivating a strain of a mushroom in an aqueous nutrient medium until substantial amount of oudenone is accumulated in said medium and then recovering oudenone from said medium and metal salts of oudenone being produced by adding inorganic or organic metal compound to oudenone solution.

3,835,171

PHENOXY ACETALS AND THEIR UTILITY AS HERBICIDES

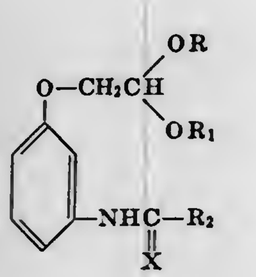
Eugene G. Teach, El Cerrito, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

Division of Ser. No. 124,541, March 15, 1973, Pat. No. 3,780,104. This application Aug. 3, 1973, Ser. No. 385,514

Int. Cl. C07c *155/02, 155/04, 155/08*

U.S. Cl. 260—455 A **5 Claims**

Meta-phenoxy acetals having the formula



in which X is oxygen or sulfur, R and R_1 are independently lower alkyl, R and R_1 taken together are ethylene or trimethylene, R_2 is alkyl, monocyclohexylamino, monoalkylamino, monoalkenylamino, dialkylamino, alkoxy, alkylthio, haloalkyl, substituted-phenyl wherein said substituents are methyl, monochloro or dichloro. The compounds are useful as herbicides.

3,835,172

PROCESS FOR THE MANUFACTURE OF AROMATIC ISOCYANATES USING OXYETHYLATE CATALYSTS

Otto Arndt, Hofheim/Taunus; Gunther Semler, Kelkheim/Taunus, and Georg Schaeffer, Frankfurt/Main, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Continuation-in-part of Ser. No. 842,351, July 16, 1969, abandoned. This application Jan. 12, 1972, Ser. No. 217,384

Claims priority, application Germany, July 25, 1968, 1793021

Int. Cl. C07c *119/04*

U.S. Cl. 260—453 PH **11 Claims**

Improved process for the preparation of aromatic isocyanates by reaction of phosgene with primary aromatic amines or their salts in a suspension in an inert solvent, in which the reaction is carried out in the presence of catalytic amounts of a compound containing at least 6 polyethylene oxide groups in one chain. By the addition of said compound the required amount of phosgene is reduced, the reaction proceeds faster and the isocyanates are obtained in higher yields.

3,835,173

NEW PROPANAL DERIVATIVES

Odd Kristiansen, Reinach/BL, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

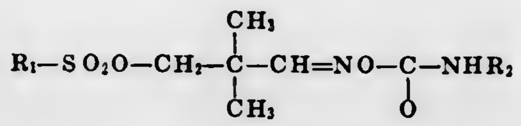
Division of Ser. No. 198,420, Nov. 12, 1971, Pat. No. 3,718,683. This application Jan. 10, 1973, Ser. No. 322,591

Claims priority, application Switzerland, Nov. 20, 1970, 17206/70; Sept. 24, 1971, 13991/71

Int. Cl. C07c *131/00*

U.S. Cl. 260—456 A **2 Claims**

2,2-Dimethyl-propanal-carbamoyloximes of the formula



$$R_1-SO_2O-CH_2-\overset{CH_3}{\underset{CH_3}{\overset{|}{\underset{|}{C}}}}-CH=NO-\underset{O}{\underset{|}{C}}-NHR_2$$

wherein R_1 represents C_1–C_4 alkyl, C_2–C_4 alkenyl or phenyl and R_2 represents C_1–C_4 alkyl, processes for their production and their use for pest control.

3,835,174

NEW PROPANAL DERIVATIVES

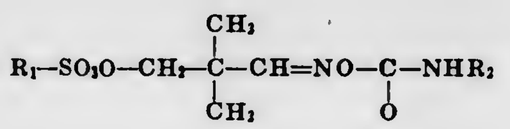
Odd Kristiansen, Reinach/Bl., Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jan. 10, 1973, Ser. No. 322,597

Int. Cl. C07c *131/00*

U.S. Cl. 260—456 A **4 Claims**

2,2-Dimethyl-propanal-carbamoyloximes of the formula



$$R_1-SO_2O-CH_2-\overset{CH_3}{\underset{CH_3}{\overset{|}{\underset{|}{C}}}}-CH=NO-\underset{O}{\underset{|}{C}}-NHR_2$$

wherein R_1 represents C_1–C_4 alkyl, C_2–C_4 alkenyl or phenyl and R_2 represents C_1–C_4 alkyl, processes for their production and their use for pest control.

3,835,175

9-FLUORENYLMETHANOL HALOFORMATES, CARBONATES AND THIOCARBONATES

Louis A. Carpino, and Grace Y. Han, both of Amherst, Mass., assignors to Research Corporation, New York, N.Y.

Filed Mar. 15, 1971, Ser. No. 124,479

Int. Cl. C07c *69/00, 103/50, 103/52*

U.S. Cl. 260—463 **2 Claims**

The invention disclosed herein is generally concerned with novel 9-fluorenylmethyloxycarbonyl compounds and their reactions. More particularly, it is concerned with these novel compounds and their utility in the preparation of peptides, especially as blocking reagents for protection of free amino or carboxyl groups in amino acids or peptides. The compounds are also useful for separating racemic mixtures into their optical isomers.

3,835,176

ALPHA-CYANOBENZYL CYCLOPROPANECARBOXYLATES

Takashi Matsuo, Amagasaki; Nobushige Itaya, Ikeda; Yositosi Okuno; Toshio Mizutani, both of Toyonaka; Nobuo Ohno, Ikeda, and Shigeyoshi Kitamura, Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

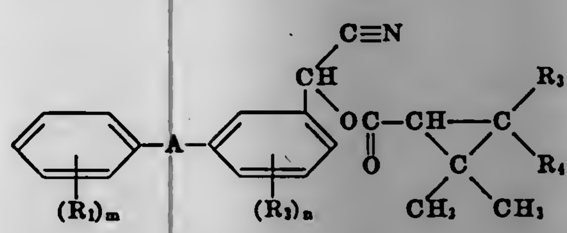
Filed June 26, 1972, Ser. No. 266,362

Claims priority, application Japan, June 29, 1971, 46-47808

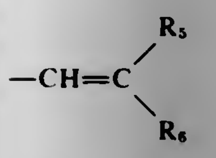
Int. Cl. C07c *121/66*

U.S. Cl. 260—465 D **7 Claims**

α-Cyanobenzyl cyclopropanecarboxylates of the formula,



wherein A is oxygen atom or methylene group, R_1 and R_2 are respectively hydrogen atom, a halogen atom or a lower alkyl group, R_3 is hydrogen atom or methyl group, R_4 is hydrogen atom, methyl group, phenyl group or



$$-CH=C{<}^{R_5}_{R_6}$$

in which R_5 is hydrogen atom or methyl group, and R_6 is hydrogen atom, methyl group, methoxycarbonyl group, or methoxymethyl group, or R_5 and R_6 are combined each other at the ends to form a polymethylene group, provided that R_4 is methyl group when R_3 is methyl group, and *m* and *n* are respectively an integer of 1 to 3, which are useful for controlling insects and mites.

3,835,177

PROCESS FOR THE PREPARATION OF BENZONITRILE

Hartwig C. Bach, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 92,165, Nov. 23, 1970, Pat. No. 3,719,701. This application Oct. 12, 1972, Ser. No. 297,106

Int. Cl. C07c *121/02*

U.S. Cl. 260—465 R **4 Claims**

Benzonitrile is prepared by the catalytic oxidation of benzylamine in the liquid phase at temperatures between about −5°C, and about 150°C. where molecular oxygen is the oxidant and a cupric ion-nitrogen base complex is the catalyst.

3,835,178

PROCESS FOR THE PRODUCTION OF MIXTURES CONSISTING OF BENZYL CYANIDE AND β-PHENYLETHYLAMINE

Hans-Jurgen Arpe, Fischbach/Taunus, and Ernst Ingo Leupold, Hofheim/Taunus, both of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Filed Oct. 20, 1972, Ser. No. 299,211

Claims priority, application Germany, Oct. 22, 1971, 2152646

Int. Cl. C07c *121/02, 121/52, 87/28*

U.S. Cl. 260—465 R **10 Claims**

Process for the production of mixtures consisting of benzyl cyanide and β-phenylethylamine on the basis of cyclohexylideneacetonitrile in the presence of a two phase catalyst.

3,835,179

NOVEL 15-SUBSTITUTED PROSTANOIC ACIDS AND ESTERS

Robert Eugene Schaub, Upper Saddle River, and Martin Joseph Weiss, Oradell, both of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed July 24, 1972, Ser. No. 274,558

Int. Cl. C07c *101/30, 101/34*

U.S. Cl. 260—468 D **10 Claims**

This disclosure describes compounds of the class of 15-substituted-9-keto(or 9-hydroxy)prostanoic acids and the esters and cationic salts thereof, useful as inhibitors of gastric acid secretion.

3,835,180

15 ALKOXY PGE COMPOUNDS

Frank H. Lincoln, Jr., Portage; John F. Pike, and Gilbert A. Youngdale, both of Kalamazoo, all of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation of Ser. No. 140,251, May 4, 1971, abandoned. This application Jan. 26, 1973, Ser. No. 327,036

Int. Cl. C07c *61/36, 69/74*

U.S. Cl. 260—468 D **7 Claims**

Prostaglandin-type compounds with an alkoxy group replacing the hydroxyl at the C-15 position are disclosed. These are useful for the same pharmacological purposes as the unsubstituted prostaglandins.

3,835,181

PGA

Philip F. Beal, III, and John E. Pike, both of Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 157,713, June 28, 1971, Pat. No. 3,759,965, which is a continuation-in-part of Ser. No. 82,121, Oct. 16, 1970, abandoned, which is a continuation-in-part of Ser. No. 520,876, Jan. 17, 1966, abandoned, which is a continuation-in-part of Ser. No. 480,107, Aug. 16, 1965, abandoned. This application Apr. 4, 1973, Ser. No. 347,783

Int. Cl. C07c *61/36, 69/74*

U.S. Cl. 260—468 D **6 Claims**

This invention is a group of novel prostanoic acid derivatives, namely prostaglandin A_2 (PGA_2), prostaglandin A_3 (PGA_3), and 13,14-dihydroprostaglandin A_1 (13,14-dihydro-PGA_1), and the salts, esters, formates and alkanoates of those. These novel compounds are useful as antisecretory agents, vasodepressors, oxytocic agents, and abortifacients. These novel compounds are also useful to manage cases of renal disfunction and to regulate the menstrual cycle in women.

3,835,182

DEHYDROABIETIC ACID AND ETHYLENE REACTION PRODUCTS

Walter H. Schuller, Lake City, Fla., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Sept. 13, 1972, Ser. No. 288,807

Int. Cl. C07c *63/46*

U.S. Cl. 260—468.5 **4 Claims**

New compositions of matter are prepared by reacting ethylene with dehydroabietic acid (or disproportionated rosin) in the presence of palladium (II) acetate to give mixed dimeric dibasic acids.

3,835,183
SULFONATED AROMATIC PRODUCT AND METHOD OF MANUFACTURING THE SAME

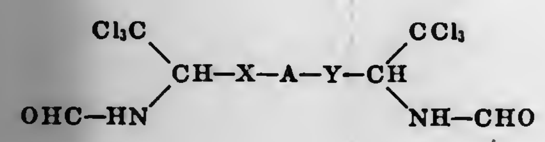
David B. Carpenter, Ashland, Ky., and Jane W. Mittendorf, Fort Lee, N.J., assignors to Ashland Oil, Inc., Ashland, Ky.
Continuation of Ser. No. 696,551, Jan. 9, 1968, abandoned. This application Dec. 13, 1971, Ser. No. 207,676
Int. Cl. C07c *143/74*
U.S. Cl. 260—505 C **8 Claims**

A normally pumpable, sulfonated aromatic product, highly useful as a material for the production of activated carbon, and the method of manufacturing this product, including reacting a highly aromatic hydrocarbonaceous material containing in excess of about 50 percent by volume of aromatic hydrocarbons and preferably in excess of 75 percent aromatic hydrocarbons, such as coal tars and pitches and preferably condensed nuclear hydrocarbons obtained as a bottoms product of the hydrodealkylation of coal tars, catalytically cracked light cycle oils, reformer products, and the like, with a spent alkylation acid, containing at least 50 percent and preferably at least 75 percent by volume of sulfuric acid, preferably obtained as a by-product of the reaction of isoparaffins, such as isobutane and/or isopentane, with an alkylating reactant, particularly an olefin such as propylene, various butylenes, various amylenes and other higher boiling olefins, to produce normally liquid paraffins as high octane blending stock for gasolines, at ambient pressures and at a temperature from ambient temperature to about 275°F and above the melting point of the hydrocarbonaceous feed, where the hydrocarbon feed is a normally semi-solid material at ambient temperatures whereby a sulfonated product is obtained which can be readily handled and shipped at temperatures above 175°F without solidifying; but which will, when carbonized and activated, produce a superior activated carbon material. In one form of the invention, the hydrocarbonaceous aromatic feed material is prepared by subjecting coal or the like to carbonization in the absence of oxygen at a temperature of about 600° to 2400°F and a pressure of about 10 to 100 psig., separating gases and solid coke from a liquid product of the carbonization and thereafter subjecting the liquid to sulfonation as outlined above. The normally pumpable, sulfonated aromatic product of the present invention is also valuable in the production of activated carbon pellets or briquettes by mixing ground carbonaceous materials such as coal, lignite, nutshells, fruit pits, wood and charcoal, etc. with the sulfonated aromatic product of the present invention and thereafter carbonizing and activating the formed pellets or briquettes.

3,835,184
FORMAMIDE DERIVATIVES

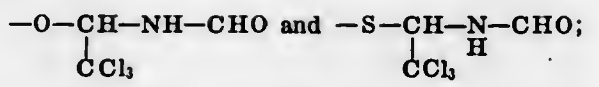
Walter Ost; Klaus Thomas, and Dietrich Jerchel, all of Ingelheim/Rhine, Germany, assignors to C. H. Boehringer Sohn, Ingelheim/Rhein, Germany
Division of Ser. No. 55,270, July 15, 1970, Pat. No. 3,702,344. This application May 23, 1972, Ser. No. 256,115
Int. Cl. C07c *103/38*
U.S. Cl. 260—562 A **5 Claims**

Compounds of the formula



wherein X and Y are each oxygen, sulfur, —SO— or —SO_2—; and A is

a. straight or branched alkylene of 2 to 10 carbon atoms, whose carbon chain is interrupted by phenylene, or by phenylene having substituents attached thereto, said substituents being selected from the group consisting of 1 to 2 chlorine or bromine atoms, or



$$-\mathrm{O}-\underset{\mathrm{CCl_3}}{\mathrm{CH}}-\mathrm{NH}-\mathrm{CHO} \text{ and } -\mathrm{S}-\underset{\mathrm{CCl_3}}{\mathrm{CH}}-\underset{\mathrm{H}}{\mathrm{N}}-\mathrm{CHO};$$

or

b. phenylene, or phenylene having 1 to 4 halogen, 1 to 2 lower alkyl or 1 to 2 lower alkoxy substituents attached thereto;

the compounds are useful as biocidal agents, especially as systemic fungicidal agents against all types of phytopathogenic fungi, such as mildew, plant rust and Fusaria.

3,835,185
PRODUCTION OF PROPIONIC ACID

Heinz Hohenschutz, Mannheim; Dieter Franz, Ludwigshafen; Horst Buelow, Ludwigshafen, and Guenter Dinkhauser, Ludwigshafen, all of, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhine, Germany
Filed June 26, 1972, Ser. No. 266,262
Int. Cl. C07c *51/14, 53/22*
U.S. Cl. 260—533 A **6 Claims**

A process for the production of propionic acid which comprises the reaction of ethylene with carbon monoxide and water in the presence of a nickel carbonyl complex at a temperature of from 250° to 320°C in the liquid phase and at a pressure of from 100 to 300 atmospheres in a vertical cylindrical reaction zone, a gaseous zone being maintained at the upper end of the reaction zone and a bottom zone being maintained at the lower end of the reaction zone which is not in communication with said reaction zone over the entire cross section.

3,835,186
PROCESS FOR PREPARATION OF AROMATIC CARBOXYLIC ACID CHLORIDE

Kazutoshi Funabashi, and Kanji Harada, both of Tokyo, Japan, assignors to Teigjin Limited, Osaka, Japan
Filed Mar. 6, 1973, Ser. No. 338,422
Int. Cl. C07c *63/14*
U.S. Cl. 260—544 M **9 Claims**

A process for the preparation of aromatic acid chlorides characterized by reacting a polyester comprising an aromatic dibasic acid as the main acid component with at least one kind of trichloromethylbenzene selected from the group consisting of benzene having at least one trichloromethyl radical and benzene having at least one trichloromethyl radical and at least one nucleus-substituted chlorine atom in the presence of at least one catalyst selected from the group consisting of iron, aluminum, their oxides, their sulphides and their salts to produce an acid chloride of said aromatic dibasic acid and an aromatic acid chloride formed by conversion of all the trichloromethyl radicals in said trichloromethylbenzene to chlorocarbonyl radicals.

3,835,187
PROCESS FOR PREPARING AROMATIC ACID CHLORIDES

Ian Fraser Dyson, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Feb. 11, 1972, Ser. No. 225,617
Int. Cl. C07c *63/14*
U.S. Cl. 260—544 M **12 Claims**

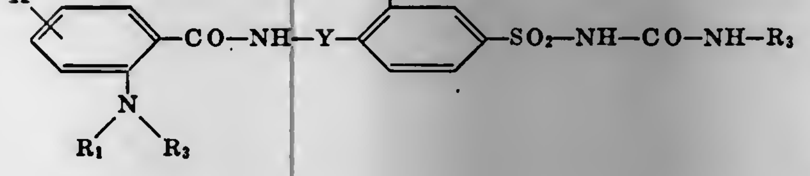
Aromatic acid chlorides can be prepared in high quality and yield by a process comprising (1) reacting an aromatic compound bearing at least one trichloromethyl group with more than 1 and up to 1.25 molar equivalents of water or a lower monohydric alcohol per trichloromethyl group to convert the aromatic compound to an intermediate reaction product in

which all trichloromethyl groups are converted to carbonyl-containing groups and (2) reacting the intermediate product from (1) with an aromatic compound bearing at least one trichloromethyl group in an amount which provides up to just enough CCl_3 groups to reconvert the carbonyl-containing groups other than COCl to COCl groups.

3,835,188
BENZENESULFONYL-UREAS AND PROCESS FOR THEIR PREPARATION

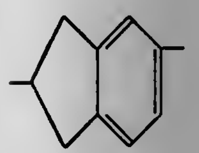
Rudi Weyer, Frankfurt/Main; Volker Hitzel, Lorsbach/Taunus; Walter Aumuller, Kelkheim/Taunus, and Ruth Heerdt, Mannheim, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany
Filed June 20, 1973, Ser. No. 371,663
Claims priority, application Germany, June 22, 1972, 2230543
Int. Cl. C07c *127/12*
U.S. Cl. 260—553 DA **6 Claims**

Sulfonyl-ureas of the formula



in which

X represents hydrogen, chlorine, bromine, methoxy or methyl, Y represents —$CH(CH_3)$—CH_2—, —CH_2—$CH(CH_3)$—or preferably —CH_2—CH_2—, Z represents hydrogen or together with Y and the phenylene radical the radical

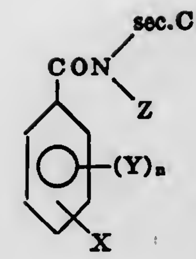


R_1 represents hydrogen, lower molecular alkyl, acyl, phenyl, R_2 is hydrogen, lower molecular alkyl, R_3 is alkyl having 3 to 6 carbon atoms, cycloalkyl, alkylcycloalkyl, cycloalkylalkyl, cycloalkenyl, alkylcycloalkenyl having each 5 to 9 carbon atoms, cyclohexenylmethyl, chlorocyclohexyl, bicycloheptenylmethyl, bicycloheptylmethyl, bicycloheptenyl, bicycloheptyl, nortricyclyl, adamantyl, benzyl, phenylethyl, which as substance or in the form of their salts have pypoglycemic properties and which are distinguished by a strong and continuous lowering of the blood sugar level; processes for preparing them as well as pharmaceutical preparations containing the sulfonyl-ureas as an active substance.

3,835,189
N-ALKYL-N-SEC. BUTYLBENZAMIDES

Emilio Arsura, S. Donato Milanese; Agostino Baruffini; Franco Gialdi, both of Pavia; Giovanni Pellegrini, Milan; Riccardo Ponci, Pavia, and Pietro Scrivani, Milan, all of Italy, assignors to Montedison S.p.A., Milan, Italy
Filed Nov. 8, 1968, Ser. No. 774,475
Claims priority, application Italy, Nov. 9, 1967, 22494/67; Oct. 8, 1968, 22207/68
Int. Cl. C07c *103/22*
U.S. Cl. 260—558 D **10 Claims**

Described are compounds of the formula:



wherein:

$X = Cl, Br, I, CH_3$;
$Y = H, Cl, Br, I, F, CH_3$;
$n = 1$ or 2,
Z = alkyl having from 1 to 5 carbon atoms, for $n = 2$, X and Y CH_3. These compounds are useful as selective herbicides.

3,835,190
CHEMICAL COMPOUND, N, N'-DIBENZYLETHYLENEDIAMINODIMETHYLTETRA CYCLINE

Elena Nikolaevna Lazareva, Nakhimovsky prospect, 1, korp. 1, kv. 72; Olga Petrovna Belozerova, Prospekt Mira, 124, korp. 15, kv. 72; Tamara Ivanovna Efimova, 1 Nikolo-Schepovsky per., 6, kv. 10; Ljudmila Vladimirovna Sitnikova, Ul. Tekhachevskogo, 32, kv. 48, and Alexandra Pavlovna Krjuchkova, Avtomotornaya ul., 4, kv. 42, all of Moscow, U.S.S.R.
Filed Oct. 31, 1968, Ser. No. 772,410
Int. Cl. C07c *103/19*
U.S. Cl. 260—559 **1 Claim**

A compound, N, N'-dibenzylethylenediaminodimethylditetracycline is prepared by reacting tetracycline base with formaldehyde and N, N'-dibenzylethylenediamine with heating in an organic solvent. The instant compound is the active ingredient for a medical preparation used in the treatment of trachoma, infectious conjunctivities and other infectious eye diseases.

3,835,191
ALDIMINES AND KETIMINES CONTAINING HYDROXYMETHYL GROUPS AND PREPARATION THEREOF

Kuno Wagner, and Manfred Hajek, both of Leverkusen, Germany, assignors to Bayer Aktiengesellschaft
Filed Nov. 26, 1969, Ser. No. 880,420
Claims priority, application Germany, Dec. 14, 1968, 1814832
Int. Cl. C07c *119/00*
U.S. Cl. 260—566 R **11 Claims**

Novel aldimines and ketimines which contain hydroxy methyl groups are provided. These new compounds are prepared by reacting Schiff's bases which have active hydrogen atoms in α-position to the C=N–group with formaldehyde or formaldehyde yielding compounds. The new compounds can, e.g., be used as plasticizing chain lengthening agents for the preparation of polyurethane plastics.

3,835,192
PRECURSOR OF SESQUITERPINE DERIVATIVES OF THE EREMOPHILANE GROUP

Leendert Maarten Van Der Linde, Huizen; Jan Gerardus Witteveen, Naarden, and Harmannus Boelens, Huizen, all of Netherlands, assignors to N. V. Chemische Fabriek Naarden
Filed June 21, 1971, Ser. No. 154,960
Claims priority, application Netherlands, June 19, 1970, 7009040
Int. Cl. C07c *49/44*
U.S. Cl. 260—586 R **1 Claim**

Sesquiterpene derivatives of the eremophilane group e.g., a-vetivone and nootkatone which are useful aroma chemicals are prepared from 5,6-dimethyl-8-isopropyl-tricyclo [$4.4.0.0^{8.10}$] 1-decene-3-one.

3,835,193

PROCESS FOR PRODUCING ACROLEIN OR METHACROLEIN

Keisho Yamada; Sumio Umemura; Kyoji Odan; Mikio Hidaka, and Kazuo Eukuda, all of Ube, Japan, assignors to UBE Industries Ltd., Yamaguchioken, Japan

Filed Dec. 1, 1970, Ser. No. 94,214

Claims priority, application Japan, Dec. 23, 1969, 44-103003

Int. Cl. C07c *45/02*

U.S. Cl. 260—604 R **4 Claims**

A process for the production of acrolein or methacrolein in which propylene or isobutylene is contacted with oxygen or oxygen-containing gas in a vapor phase in the presence of a specified catalyst. The catalyst comprises (a) bismuth antimonate and (b) at least one molybdic acid salt of the following metals; barium, silver, zinc, cadmium, calcium and lead.

3,835,194

PROCESS FOR THE PREPARATION OF TETRAKIS (HYDROXYMETHYL) PHOSPHONIUM OXALATE

Julian Jacob Leavitt, Plainfield, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Filed Oct. 18, 1973, Ser. No. 407,709

Int. Cl. C07f *9/28*

U.S. Cl. 260—606.5 F **3 Claims**

Tetrakis(hydroxymethyl)phosphonium oxalate is prepared by reacting formaldehyde with phosphine and oxalic acid with vigorous agitation without the use of a catalyst. The product is useful as a flame retardant for cellulose fabrics.

3,835,195

ETHER SULPHONES

Albert Menet, La Mulatiere, France, assignor to Rhone-Poulenc S.A., Paris, France

Filed Feb. 1, 1973, Ser. No. 328,611

Claims priority, application France, Feb. 2, 1972, 72.3484

Int. Cl. C07c *147/04, 147/06*

U.S. Cl. 260—607 A **4 Claims**

Sulphones of formula $RSO_2\,CH_2—C(CH_3)=CH—CH_2OR_1$ I and $RSO_2CH_2—CH=C(CH_3)—CH_2OR_1$ II wherein R and R_1 are optionally substituted alkyl or aryl, are intermediates in the preparation of compounds with a saturated or unsaturated isoprene chain.

3,835,196

PROCESS FOR PREPARING THIOBISPHENOLS

Tamotsu Fujisawa; Takakazu Kojima, and Kazumi Hata, all of Tokyo, Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan

Continuation of Ser. No. 85,767, Oct. 30, 1970, abandoned. This application Nov. 7, 1972, Ser. No. 304,470

Claims priority, application Japan, Nov. 12, 1969, 44-90073

Int. Cl. C07c *149/36, 149/38*

U.S. Cl. 260—608 **5 Claims**

A new process for the production of 4,4′-mono- and/or poly-thiobis(2,6-dialkylphenol) is described. 2,6-Dialkylphenol reacts with sulfur powder in the presence of an alkali hydroxide or alkali metal in a solvent under heating. The process yields 4,4′-mono- and/or poly-thiobis(2,6-dialkylphenol) economically and in a high yield. These compounds are useful as an antioxidants.

3,835,197

PREPARATION OF POLYCYCLIC COMPOUNDS

Herman S. Bloch, Skokie, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Nov. 29, 1972, Ser. No. 310,498

Int. Cl. C07c *13/28*

U.S. Cl. 260—666 PY **10 Claims**

Polycyclic dienic compounds may be prepared by the thermal reaction of a conjugated cyclic diene such as 1,3-cyclopentadiene with a non-conjugated cyclic diene such as 1,4-cyclohexadiene.

3,835,198

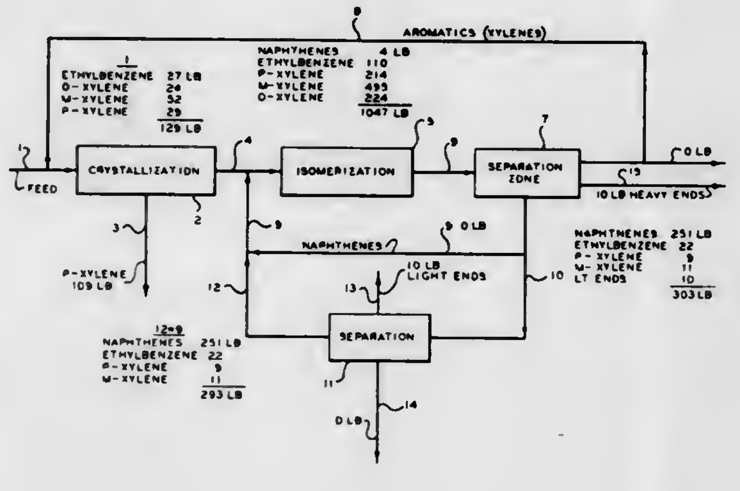
PRODUCTION OF PARAXYLENE

John W. Myers, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 29, 1968, Ser. No. 756,144

Int. Cl. C07c *7/02, 15/08*

U.S. Cl. 260—674 A **10 Claims**



Improved separation and a high yield of p-xylene from a p-xylene-containing isomerizate by fractional crystallization are obtained by removing napthenes, and optionally paraffins and light and heavy ends, from the isomerizate, and recycling the naphthenes to the isomerization zone.

3,835,199

DEHYDROGENATION PROCESS AND CATALYST

Andrew K. Schwartz, Jr., Houston, and Tony Rabago, Jr., Pearland, both of Tex., assignors to Petro-Tex Chemical Corporation, Houston, Tex.

Filed Apr. 24, 1972, Ser. No. 246,683

Int. Cl. C07c *3/28*

U.S. Cl. 260—683.3 **7 Claims**

An improved dehydrogenation process for the production of diolefins by the dehydrogenation of aliphatic hydrocarbons by contacting the hydrocarbon compound with a catalyst containing chromic oxide, alumina, and a sulfur containing compound such as sulfuric acid and sulfates of zinc magnesium and cobalt.

3,835,200

COMPOSITION OF A POLYPHENYLENE ETHER, A RUBBER STYRENE GRAFT COPOLYMER AND NORMALLY RIGID BLOCK COPOLYMER OF A VINYL AROMATIC COMPOUND AND A CONJUGATED DIENE

Gim F. Lee, Jr., Albany, N.Y., assignor to General Electric Company, Pittsfield, Mass.

Filed Aug. 23, 1972, Ser. No. 283,092

Int. Cl. C08g *15/00;* **C08f** *19/00*

U.S. Cl. 260—876 B **12 Claims**

There are provided compositions comprising a polyphenylene ether, a graft copolymer of a diene rubber with a styrene monomer and a normally rigid block copolymer of a vinyl aromatic compound and a conjugated diene. The addition of the normally rigid block copolymer resin to polyphenylene ethers in combination with graft copolymers of a diene rubber and a styrene monomer provides unexpected improvements in toughness in parts molded from the composition. Such properties are improved without substantially impairing glass or surface appearance.

3,835,201

THERMOPLASTIC BLEND OF COPOLYMER RUBBER AND POLYOLEFIN PLASTIC

William K. Fischer, Woodbury, Conn., assignor to Uniroyal, Inc., New York, N.Y.

Filed Aug. 29, 1972, Ser. No. 284,521

Int. Cl. C08f *37/18*

U.S. Cl. 260—897 A **21 Claims**

A blend having the properties of a thermoplastic elastomer, including low permanent set, is provided by blending (A) a monoolefin copolymer rubber (e.g., 80 parts of EPM or EPDM) having high zero shear viscosity, with (B) a polyolefin resin (e.g., 20 parts of polypropylene). The blend is useful for making molded or extruded articles (e.g., gaskets, hose) which have good physical properties without requiring vulcanization.

3,835,202

TRITHIOPYROPHOSPHATES

John Scotchford Elliott; Gerald John Joseph Jayne, and Patrick James Folliard, all of London, England, assignors to Edwin Cooper & Company Limited, London, England

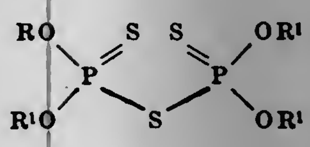
Filed May 11, 1972, Ser. No. 252,254

Claims priority, application Great Britain, May 12, 1971, 14496/71

Int. Cl. C07f *9/16;* **C10m** *1/48*

U.S. Cl. 260—933 **8 Claims**

A process for preparing a trithiopyrophosphate or mixture thereof of the general formula:



wherein R is a primary alkyl group and each R^1 is the same or different and is a primary alkyl group, an aryl group, an alkaryl group or an aralkyl group, comprises heating a dithiophosphoric acid at a temperature of at least 120°C. until the acid value has fallen to a level of from 10 to 70 mg.KOH/g. and thereafter neutralising the reaction mixture. Also described are lubricating compositions containing the trithiopyrophosphates as antioxidants and load-carrying additives.

3,835,203

PHOSPHORIC-CARBOXYLIC ACID ANHYDRIDES

Leonard S. Silbert, and Dolores A. Konen, all of Philadelphia, Pa., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

No Drawing. Division of Ser. No. 88,490, Nov. 10, 1970,. This application June 29, 1972, Ser. No. 267,315

Int. Cl. C07f *9/08*

U.S. Cl. 260—935 **6 Claims**

Peroxy acids are prepared by perhydrolysis with highly concentrated hydrogen peroxide of a mixed anhydride of an appropriate carboxylic acid such as a diethyl phosphoric-carboxylic acid anhydride. Although perhydrolysis is usually effected by catalysis with methanesulfonic acid, catalysis was not required in at least one case. Both aliphatic and aromatic peroxy acids containing either electron-donating or electron-accepting groups can be prepared indicating that the process of the invention is general in scope and is utilizable with compounds having a broad range of carbon chain lengths. Yields of peroxy acids above 70 percent are easily obtained.

3,835,204

HYDROXYALKYLPHOSPHONATE CARBAMATES

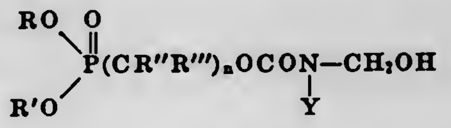
Edward D. Weil, Hastings-on-Hudson, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

Filed June 28, 1971, Ser. No. 157,699

Int. Cl. C07f *9/40*

U.S. Cl. 260—938 **3 Claims**

The present invention provides a process for flame retarding textiles, paper and other flammable, solid substrates by applying to the substrate at least one novel hydroxyalkylphosphonate carbamate corresponding to the formula:



$$(RO)(R'O)\overset{O}{\overset{\|}{P}}(CR''R''')_nOCO\underset{\underset{Y}{|}}{N}—CH_2OH$$

where *n* is an integer having a value of from 1 to about 4, R and R′ can be the same or different and are selected from the group consisting of C_1–C_4 alkyl, allyl and haloalkyl groups, Y is H or CH_2OH and R″ and R‴ can be the same or different and are selected from the group consisting of H and C_1–C_4 alkyl groups, whereupon the thus applied carbamate is cured so as to form an insoluble, fire retardant finish.

3,835,205

ALKOXYIMINO CARBAMOYLOXY PHOSPHORUS COMPOUNDS

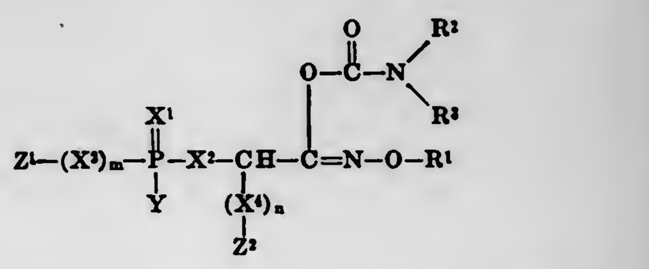
Leonard J. Stach, Riverside, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill.

Filed Dec. 1, 1972, Ser. No. 311,079

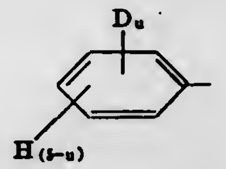
Int. Cl. A01n *9/36;* **C07f** *9/16, 9/40*

U.S. Cl. 260—938 **6 Claims**

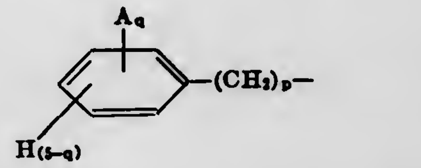
This invention discloses new compounds of the formula



wherein R^1 is alkyl; R^2 is selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl and cycloalkyl; R^3 is selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, cycloalkyl and

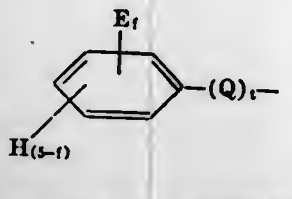


wherein D is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, haloalkyl, nitro and dialkylamino; and *u* is an integer from 0 to 3; X^1, X^2, X^3 and X^4 are independently selected from the group consisting of oxygen and sulfur; *m* and *n* are each integers from 0 to 1; Z^1 is selected from the group consisting of alkyl, alkenyl and



wherein A is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, haloalkyl, halogen, nitro, alkylsulfoxide, alkylsulfone and dialkylamino; and *q* and *p* are each integers from 0 to 3; Z^2 is selected fro the group consisting of hydrogen and Z^1, provided that when Z^2 is hydrogen then *n* is zero; and

Y is selected from the group consisting of alkyl alkenyl, alkoxy, alkenyloxy, alkylthio, amino, alkylamino, dialkylamino and



wherein E is selcted from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, alkylsulfoxide, alkylsulfone and dialkylamino; *f* is an integer from 0 to 3; Q is selected from the group consisting of oxygen, sulfur, alkylene, alkyleneoxy and alkylenethio; and *t* is an integer from 0 to 1. The above compounds are useful as insecticides and acaricides.

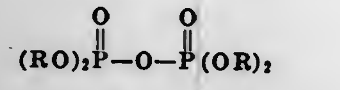
3,835,206
PROCESS FOR HYDROLYZING PYROPHOSPHATES

Philip M. Pivawer, Hamden, Conn., assignor to Olin Corporation, New Haven, Conn.

Filed Dec. 20, 1972, Ser. No. 316,854
Int. Cl. C07f *9/08*

U.S. Cl. 260—983 **12 Claims**

The use of a tertiary amine to speed up the hydrolysis of pyrophosphates of the formula



$$(RO)_2\overset{\overset{\displaystyle O}{\|}}{P}-O-\overset{\overset{\displaystyle O}{\|}}{P}(OR)_2$$

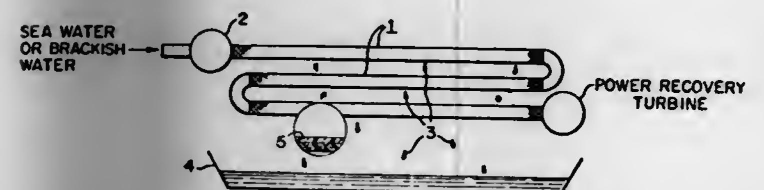
wherein R is an alkyl or haloalkyl radical.

3,835,207
A METHOD FOR FORMING REVERSE OSMOSIS MEMBRANES COMPOSED OF POLYAMIC ACID SALTS

Lawrence W. Frost, and Luciano C. Scala, both of Murrysville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 3, 1972, Ser. No. 249,997
Int. Cl. B29d *27/04;* **C08g** *20/40*

U.S. Cl. 264—41 **28 Claims**



A polymeric membrane is prepared by reacting a suitable derivative of a tri or tetracarboxylic acid with a diamine to form a polyamic acid, forming a film from the polyamic acid, imidizing the polyamic acid film to form a polyamide-imide film, treating the polyamide-imide film to open the imide rings, to form a permselective membrane comprising water insoluble polyamic acid salt polymers.

3,835,208
METHOD FOR PRODUCING AN INTEGRAL SKIN · PHENOLIC FOAM

Serge Iginai Koutitonsky, Montreal, Quebec, Canada, assignor to Esso Research and Engineering Company, Linden, N.J.

Filed June 9, 1972, Ser. No. 261,418
Int. Cl. B29d *27/04*

U.S. Cl. 264—45 **6 Claims**

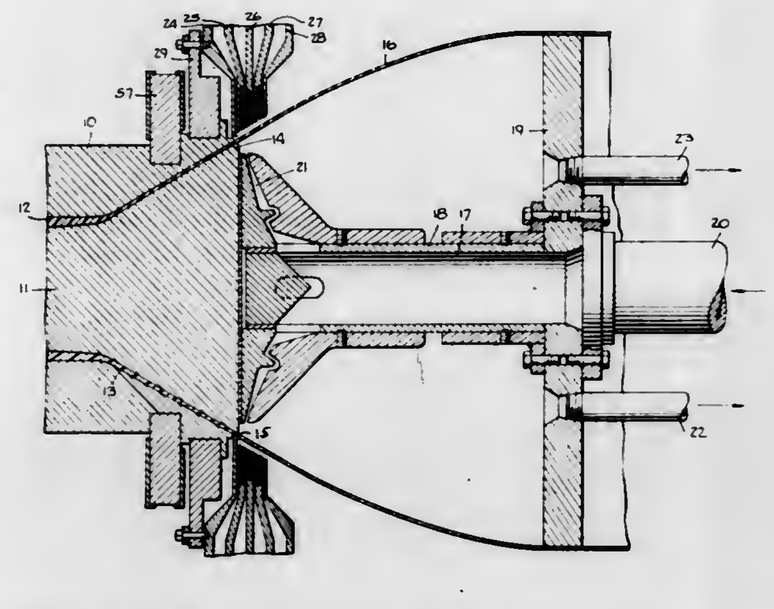
A phenolic foam element having an integral skin of hard, unfoamed thermoset resin is prepared by foaming and curing a phenol aldehyde resin between mold confining members coated with a surface active agent in an amount sufficient that the resin in contact with the mold during foaming collapses, thereby forming the skin. This integral skin protects the foam against abrasion and indentation and eliminates the need for protective coatings, of paper, and the like, on the foam.

3,835,209
PROCESS OF EXTRUDING A FOAMED EXTRUDATE AND CONTROLLING THE THICKNESS THEREOF

James A. Karabedian, Garden City, N.Y., assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Nov. 9, 1971, Ser. No. 197,131
Int. Cl. B29c *25/00;* **B29d** *27/00, 23/04*

U.S. Cl. 264—51 **6 Claims**



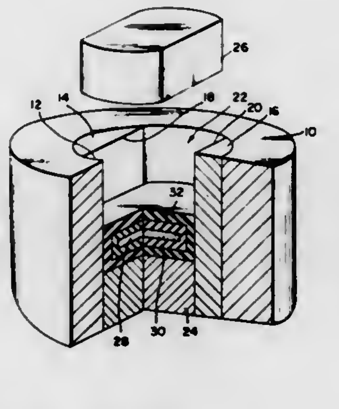
Caliper in the cross direction of webs of extruded foam plastic produced by longitudinal slitting of a tubular extrusion is controlled by differentially cooling the extrusion circumferentially about its axis as it is extruded. This can be accomplished by locating a plurality of independently controllable air cooling ducts around and following the die orifice.

3,835,210
METHOD OF FORMING POWDER COMPACTS

Milton E. Kirkpatrick, Palos Verdes Peninsula, and Ralph A. Mendelson, Westminster, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Continuation of Ser. No. 167,614, July 30, 1971, abandoned, which is a division of Ser. No. 848,641, Aug. 8, 1969, Pat. No. 3,650,646, which is a division of Ser. No. 707,813, Feb. 23, 1968, Pat. No. 3,496,425, which is a continuation-in-part of Ser. No. 509,970, Nov. 26, 1965, abandoned. This application Apr. 16, 1973, Ser. No. 351,485
Int. Cl. C04b *35/00*

U.S. Cl. 264—61 **5 Claims**



A mass of powder particles is enclosed within a soft elastomeric container and placed in a die cavity with a hard elastomeric sealing member placed between the soft elastomeric container and a movable die punch. Pressure applied to the die is transmitted substantially isostatically by the soft elastomeric container to the powder particles, while the hard elastomeric member provides a seal for preventing extrusion of the soft elastomeric material.

3,835,211
SILICON NITRIDE PRODUCTS

Roger Frank Coe, and Roland John Lumby, both of Birmingham, England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England

Continuation-in-part of Ser. No. 868,237, Oct. 21, 1969, abandoned. This application Apr. 6, 1972, Ser. No. 241,750
Claims priority, application Great Britain, Dec. 11, 1968, 58885/68
Int. Cl. C04b *35/58;* **C01b** *21/06*

U.S. Cl. 264—66 **4 Claims**

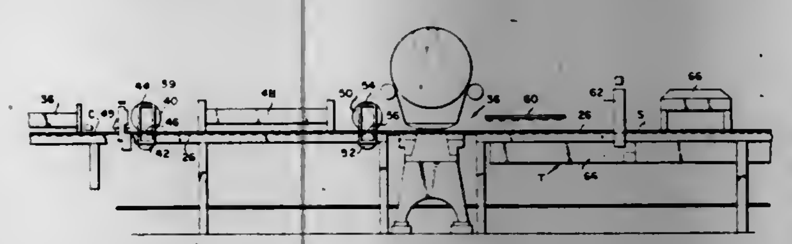
A method of manufacturing silicon nitride products is of the kind in which silicon nitride powder is pressed at an elevated temperature to form the product, the pressing being continued until the product is fully densified. The method is characterised in that the fully densified product is then heated further at a temperature sufficient to convert α-phase silicon nitride to β-phase silicon nitride.

3,835,212
METHOD FOR PRODUCING RESINOUS SHEET-LIKE PRODUCTS

Anthony N. Piacente, Lawrenceville, N.J., assignor to Congoleum Industries, Inc., Kearny, N.J.

Division of Ser. No. 40,269, May 25, 1970, Pat. No. 3,700,366. This application Oct. 29, 1971, Ser. No. 194,010
Int. Cl. B29d *7/14*

U.S. Cl. 264—76 **2 Claims**



A method for continuously molding a resinous sheet-like product which comprises feeding a mono-layer of plastic chips onto a preheated endless, polished, smooth surface belt. The chips are deposited on the belt from a vibrator feeder in substantially abutting contact and are laterally compacted. The chips and belt are further heated to cause the chips to adhere to the belt and the belt and chips are passed through the nip of a pair of compression rolls so as to consolidate the chips into a sheet. The sheet is further heated, calendared and burnished subsequently stripped from the belt and cut into tiles.

3,835,213
CO-EXTRACTION AND SEPARATE RECOVERY OF URANIUM AND THORIUM FROM ACID SOLUTIONS

Gordon Malcolm Ritcey, and Bernard Henry Lucas, both of Ottawa, Ontario, Canada, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

Filed Oct. 1, 1971, Ser. No. 185,578
Int. Cl. B01d *11/00;* **C01g** *56/00*

U.S. Cl. 423—9 **4 Claims**

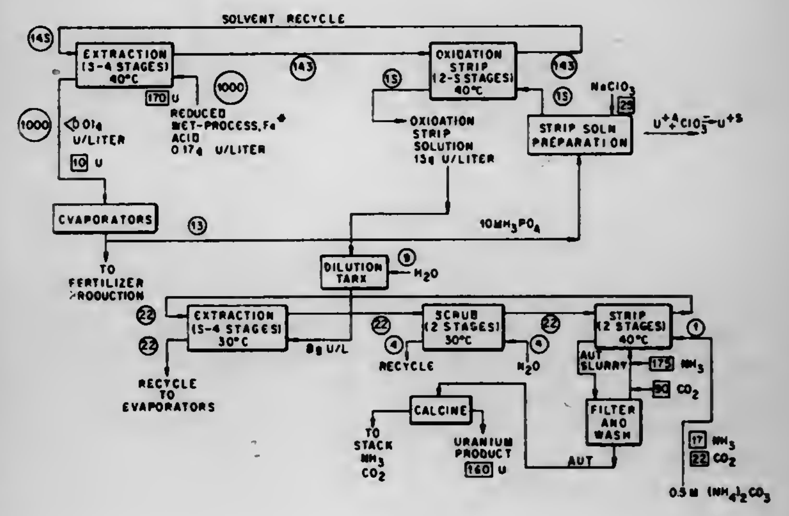
A process is described for separating uranium and thorium from an aqueous acid solution containing them together with rare earth elements. The process comprises contacting the solution with a water-immiscible organic solution of a high molecular weight primary or secondary amine whereby the uranium and thorium values are co-extracted and separating the resulting uranium and thorium loaded amine solution from the aqueous solution. The uranium and thorium are then easily separated from the loaded amine solution either by selective stripping or co-stripping and selective extraction.

3,835,214
OXIDATIVE STRIPPING PROCESS FOR THE RECOVERY OF URANIUM FROM WET-PROCESS PHOSPHORIC ACID

Fred J. Hurst, and David J. Crouse, both of Oak Ridge, Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Aug. 15, 1972, Ser. No. 280,922
Int. Cl. B01d *11/00;* **C01g** *56/00*

U.S. Cl. 423—10 **1 Claim**



A process for the recovery of uranium from a wet-process type phosphoric acid solution is effected by adjusting said solution with sufficient ferrous ion to insure that the uranium is in the uranous form, contacting the adjusted solution with an organic phase consisting essentially of a mono and disubstituted phenyl ester of orthophosphoric acid dissolved in an inert diluent to effect transfer of the uranium into the organic phase, stripping the uranium from the organic phase with a 6–12 M phosphoric acid solution containing an oxidizing agent to produce a uranyl phosphate strip solution more highly concentrated in uranium than the wet-process feed solution.

3,835,215
MANUFACTURE OF PHOSPHORIC ACID

Byron Marquis, Old Greenwich, Conn., and Robert Somerville, Neshanic, N.J., assignors to Singmaster & Breyer, New York, N.Y.

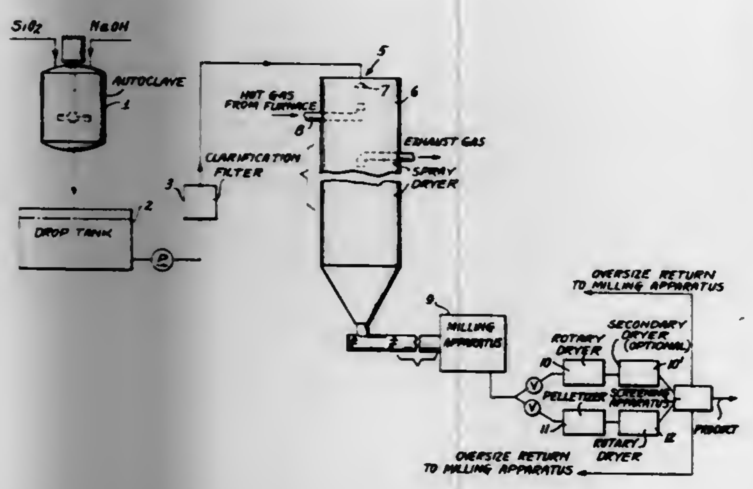
Continuation of Ser. No. 812,648, April 2, 1969, abandoned. This application Sept. 18, 1972, Ser. No. 289,795
Int. Cl. C01f *1/00;* **C22b** *3/00;* **C01f** *5/00, 11/00;* **C22b** *29/00*

U.S. Cl. 423—167 **1 Claim**

A process for producing phosphoric acid from phosphate ore by multi-stage digestion of disintegrated ore with sulfuric acid and phosphoric acid, is shown. The sulfuric acid is added to weak phosphoric acid recycled in the process and the mixture is cooled in a first vacuum cooler before it enters the rock digestion zone. Conditions are maintained which favor formation of large rhombic crystals of gypsum over other forms of calcium sulfate. The slurry formed is circulated to maintain a substantially uniform temperature with less than 5℃ temperature drop at the surface of a second evaporation cooler. The formed crystals are separated and washed and at least a part of the resulting weak phosphoric acid is recycled.

3,835,216
METHODS FOR PRODUCTION OF ALKALI METAL POLYSILICATES

Guillermo Almagro, Aberdeen; Orlando L. Bertorelli; Robert K. Mays, both of Havre de Grace; Lloyd E. Williams, Bel Air, all of Md., and Howard F. Zimmerman, Jr., Athens, Tenn., assignors to J. M. Huber Corporation, Locust, N.J.
Filed Oct. 28, 1971, Ser. No. 193,471
Int. Cl. C01b *33/32*
U.S. Cl. 423—332 **3 Claims**



A method for producing alkali metal polysilicates is disclosed. Polysilicates, produced by hydrothermally reacting an aqueous dispersion of finely divided silica and an alkali metal hydroxide are spray dried and the solid product is fractured and pulverized. The fractured mass is then pelletized employing the solubility of the polysilicates to form a free-flowing product having a continuous, even surface. Pelletization may be effected with or without the use of water and/or binders.

3,835,217
PROCESS FOR THE RECOVERY OR DISSOLVED MERCURY SALTS FROM AQUEOUS SOLUTIONS

Lyle H. Dunsmoor, Point Pleasant, W. Va., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Continuation-in-part of Ser. No. 105,959, Dec. 21, 1970, abandoned. This application June 1, 1972, Ser. No. 258,741
Int. Cl. C01d *3/16*
U.S. Cl. 423—499 **4 Claims**

A process for the recovery of mercury sulfide from an aqueous solution comprising intermixing with said solution a flocculating compound of the formula:

Rn Xy

wherein R is a metal selected from magnesium, manganese, cobalt, nickel, copper, zinc, cadmium, aluminum and calcium, and X is an anion and *n* and *y* are integers sufficient to satisfy the valence requirements; preferably at a solution pH of at least about 7 and a temperature of at least about 150°F. for a time sufficient such that preferably less than 25 parts per billion mercury is left in solution.

3,835,218
CATALYTIC DECOMPOSITION OF AMMONIUM BISULFATE TO FORM AMMONIUM AND SULFUR DIOXIDE BISULFITE

Charles B. Root, Morristown, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
Filed Aug. 12, 1971, Ser. No. 176,388
Int. Cl. C01b *17/50;* **C01c** *1/22*
U.S. Cl. 423—519 **6 Claims**

A process for recovering ammonium bisulfite and sulfur dioxide from ammonium bisulfate by heating in the presence of specific catalysts.

3,835,219
METHOD FOR THE PREPARATION OF FIBROUS SOLUBLE CALCIUM SULFATE ANHYDRITE

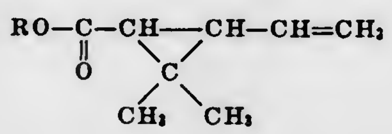
Karlis L. Jaunarajs, Somerville, and Julie C. Yang, Somerset, both of N.J., assignors to Johns Manville Corporation, New York, N.Y.
Filed Aug. 16, 1972, Ser. No. 281,268
Int. Cl. C01f *11/46*
U.S. Cl. 423—555 **5 Claims**

A process is described for the formation of fibrous soluble calcium sulfate anhydrite, the fibers thereof having specified dimensions. In the process an aqueous suspension of gypsum is first formed and converted to the fibrous soluble anhydrite by reaction in the presence of saturated steam at 140°C to 200°C for up to 3.0 hours.

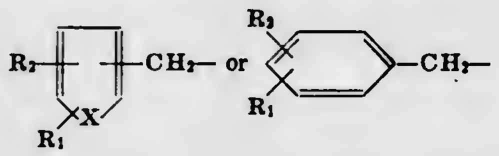
3,835,220
INSECTICIDAL COMPOSITION COMPRISING VINYLCYCLOPROPANECARBOXYLATES

Masanao Matsui, Tokyo, and Yositosi Okuno, Toyonaka, both of Japan, assignors to Sumitomo Chemical Company Limited, Osaka, Japan
Division of Ser. No. 124,951, March 16, 1971, Pat. No. 3,758,504. This application Apr. 23, 1973, Ser. No. 353,358
Claims priority, application Japan, Mar. 19, 1970, 45-23731
Int. Cl. A01n *9/12, 9/28, 17/04*
U.S. Cl. 424—17 **3 Claims**

Vinylcyclopropanecarboxylates having an excellent insecticidal activity and a property harmless to mammals and cattle, of the formula,



wherein R is 2-propargyl-3-methyl-2-cyclopentene-1-one-4-yl,



wherein R_1 is allyl, propargyl, benzyl, thenyl, furylmethyl or phenoxy, R_2 is hydrogen, or R_1 and R_2 are bonded at respective ends to form a polymethylene group having 3 to 4 carbon atoms, and X is oxygen or sulfur.

3,835,221
ORALLY ADMINISTRABLE DRUG DOSAGE FORM HAVING DELAYED ACTION

Werner Fulberth, Kelkheim, Taunus, and Erika Neitzer, Frankfurt am Main, both of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany
Filed Mar. 4, 1971, Ser. No. 121,173
Claims priority, application Germany, Mar. 5, 1970, 2010416
Int. Cl. A61k *27/12*
U.S. Cl. 424—20 **6 Claims**

Process for the manufacture of an orally administrable, delayed-action drug dosage form having the form of small globules which are provided with a release-delaying coating, wherein the active substance is applied onto small inert, essentially round globules, the globules so coated are provided with a release-delaying coating which is suitable as dialysis membrane and which contains as film former polyvinyl acetate, preferably in admixture with ethyl cellulose, and filling the globules so obtained in dosage units.

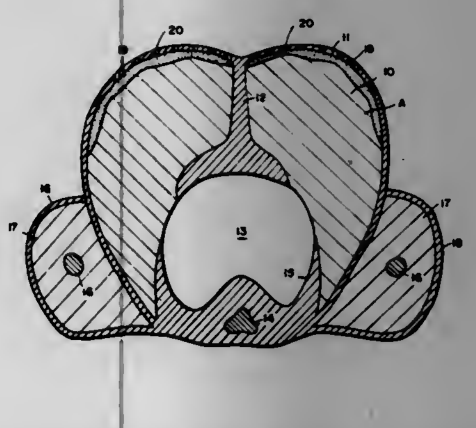
3,835,222
PROCESS FOR PRODUCING POTATO CHIPS

Lawrence W. Wisdom, and Barney W. Hilton, both of Dallas, Tex., assignors to Frito-Lay, Inc., Dallas, Tex.
Filed Sept. 18, 1968, Ser. No. 760,736
Int. Cl. A23l *1/12*
U.S. Cl. 426—49 **9 Claims**

Fried chips comprising potato solids are made by blanching pieces of raw potatoes containing in excess of 0.2 percent reducing sugar to gel starch contained therein, drying said pieces to a moisture content of about 25 to 60 percent forming a dough comrpising at least about 60 percent by weight of potato solids from said pieces, mixing said dough with yeast and allowing said mixture to ferment for a time sufficient to lower the sugar content below about 0.27 percent by weight of original raw potatoes, forming said dough into chips, drying said chips to a moisture content of from 6–20 percent by weight and frying said chips.

3,835,223
SELF-BASTING POULTRY PRODUCT AND METHOD OF PREPARATION

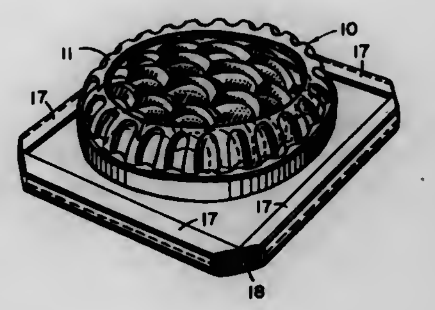
Donald V. Schwall, Glen Ellyn; Alan B. Rogers, Palos Park, both of Ill., and Dennis Corbin, Evansville, Ill., assignors to Armour and Company, Chicago, Ill.
Continuation of Ser. No. 13,478, Feb. 24, 1970, abandoned, which is a continuation-in-part of Ser. No. 740,874, June 28, 1968, Pat. No. 3,528,820, which is a continuation-in-part of Ser. No. 685,074, Nov. 22, 1967, Pat. No. 3,563,763, which is a continuation-in-part of Ser. No. 573,305, Nov. 18, 1966, Pat. No. 3,366,491, which is a continuation-in-part of Ser. No. 492,319, Oct. 1, 1965, abandoned. This application Dec. 21, 1972, Ser. No. 317,299
Int. Cl. A22c *21/00*
U.S. Cl. 426—92 **4 Claims**



Edible fat for basting the skin of poultry during cooking is injected over the breast muscle of a dressed raw poultry carcass through a hollow needle which is moved under the skin to distribute fat across the breast muscle.

3,835,224
TEAR STRIP SEALING STRUCTURE FOR BLISTER PACKAGES

Leo Peters, 750 Plymouth Rd. S.E., Grand Rapids, Mich. 49506
Filed Mar. 20, 1972, Ser. No. 236,463
Int. Cl. B65b *25/06;* **B65d** *83/00*
U.S. Cl. 426—130 **3 Claims**



A blister-type package having extended edges that serve as tear-opening guidelines for outside-applied tape that bonds said edges together, and a method for sealing and unsealing the packages.

3,835,225
CHEMICAL MODIFICATION OF RICE

James E. Rutledge, Baton Rouge, La., assignor to Research Corporation, New York, N.Y.
Filed July 20, 1972, Ser. No. 273,533
Int. Cl. A23l *1/10, 3/34*
U.S. Cl. 426—208 **7 Claims**

The heat processability of edible rice grains are enhanced by treating the rice grain with a cross-linking agent of the type capable of cross-linking starch, and then subjecting the rice grain to cross-linking conditions for a time sufficient to enhance the heat resistance and improve the swelling properties of the grain.

3,835,226
PRODUCTION OF EDIBLE GRANULES

Walter Rostagno, Corseaux, Switzerland
Filed Nov. 26, 1971, Ser. No. 202,485
Claims priority, application Switzerland, Dec. 4, 1970, 17951/70
Int. Cl. A23g *3/00*
U.S. Cl. 426—213 **10 Claims**

Expanded, edible granules are prepared by depositing drops of a syrup containing a sugar and at least one expanding agent on a bed of powered edible material and heating the drops, whilst in contact with the bed, to produce expansion and drying. The granules may for example be incorporated in chocolate or confectionery articles.

ELECTRICAL

3,835,227

AN ELECTROSLAG REMELTING SYSTEM WITH EQUALIZED PLURAL ELECTRODE REMELTING

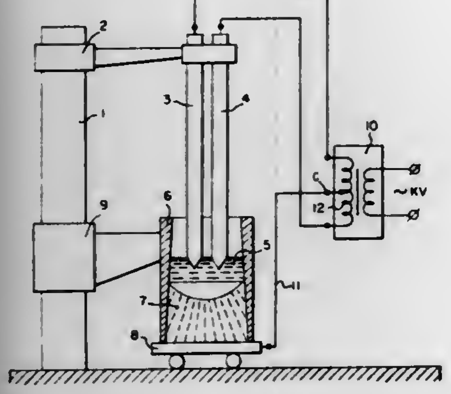
Boris Evgenievich Paton; Vladimir Konstantinovich Lebedev; Boris Izrailevich Medovar; Jury Vadimovich Latash; Oleg Petrovich Bondarenko; Vitaly Mikhailovich Baglai; Mikhail Nikolaevich Sidorenko, all of Kiev; Semen Abramovich Leibenzon; Gary Petrovich Kaganovsky, both of Zaporozhie; Andrei Pavlovich Altgauzen, Moscow; Leonid Evgenievich Nikolsky, Moscow; Zoya Alexandrovna Gorynina, Moscow; Ljudmila Andreevna Safronova, Moscow; Leonid Savvich Katsevich, Moscow; Lev Avramovich Volokhonsky, Moscow; Alexandr Alexandrovich Nikulin, Moscow; Vladimir Dmitrievich Artemiev, Moscow; Vladimir Mikhailovich Edemsky, Moscow, and Georgy Alexandrovich Voronin, Moscow, all of U.S.S.R., assignors to Institut Elektrosvarki IM. E. O. Patona, Kiev, U.S.S.R.

Division of Ser. No. 87,044, Nov. 5, 1970, abandoned, Continuation-in-part of Ser. No. 76,205, Sept. 28, 1970, Pat. No. 3,709,283, Continuation of Ser. No. 676,873, Oct. 20, 1967, abandoned. This application Oct. 19, 1972, Ser. No. 298,879

Claims priority, application U.S.S.R., Dec. 24, 1966, 1118607; Dec. 24, 1966, 1118608The portion of the term of this patent subsequent to Jan. 9, 1990, has been disclaimed.

Int. Cl. H05b *3/60*

U.S. Cl. 13—9 **22 Claims**



In an electroslag remelting installation, a pair of consumable electrodes are immersed into a molten slag bath contained in a mold, which can be cooled by various arrangements of cooling liquid. AC electrical power is applied between the electrodes to cause current flow through the electrodes and through the molten slag bath and part of the molten metal pool, thereby heating and causing the electrodes to melt to form an ingot. As the electrodes melt, they are simultaneously fed together into the slag bath. A conductor, connected between the bottom plate of the mold which can include a weld lug and either a center tap on the secondary winding of the transformer supplying AC power to the electrodes or to a center tap on a choke coil connected in parallel with the secondary winding, provides an equalizing circuit which automatically adjusts the melting of the electrodes to keep them at equal immersion depths in the slag bath. Flexible electrical lines and connectors are grouped in close arrangement and in parallel paths where possible to avoid inductance losses.

3,835,228

METHOD FOR ELECTROSLAG REMELTING WITH EQUALIZED PLURAL ELECTRODE REMELTING

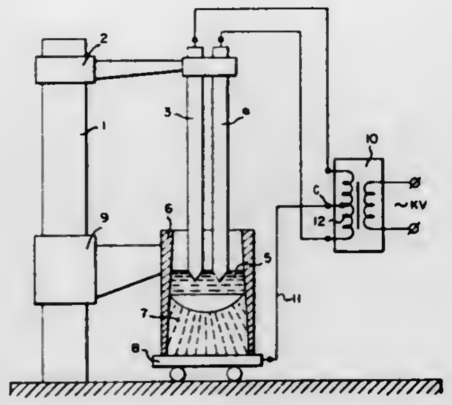
Boris Evgenievich Paton; Vladimir Konstantinovich Lebedev; Boris Izrailevich Medovar; Jury Vadimovich Latash; Oleg Petrovich Bondarenko; Vitaly Mikhailovich Baglai; Mikhail Nikolaevich Sidorenko, all of Kiev; Semen Abramovich Leibenzon; Gary Petrovich Kaganovsky, both of Zaporozhie; Andrei Pavlovich Altgauzen, Moscow; Leonid Evgenievich Nikolsky, Moscow; Zoya Alexandrovna Gorynina, Moscow; Ljudmila Andreevna Safronova, Moscow; Leonid Savvich Katsevich, Moscow; Lev Avramovich Volokhonsky, Moscow; Alexandr Alexandrovich Nikulin, Moscow; Vladimir Dmitrievich Artemiev, Moscow; Vladimir Mikhailovich Edemsky, Moskovskaya, and Georgy Alexandrovich Voronin, Moscow, all of U.S.S.R., assignors to Institut Elektrosvarki IM. E. O. Patona, Kiev, U.S.S.R.

Division of Ser. No. 87,044, Nov. 5, 1970, , which is a continuation-in-part of Ser. No. 76,205, Sept. 28, 1970, Pat. No. 3,709,283, which is a continuation of Ser. No. 676,873, Oct. 20, 1967, abandoned. This application Oct. 19, 1972, Ser. No. 298,950

Claims priority, application U.S.S.R., Dec. 24, 1966, 1118607; Dec. 24, 1966, 1118608The portion of the term of this patent subsequent to Jan. 9, 1990, has been disclaimed.

Int. Cl. H05b *3/60*

U.S. Cl. 13—9 **7 Claims**



In an electroslag remelting installation, a pair of consumable electrodes are immersed into a molten slag bath contained in a mold, which can be cooled by various arrangements of cooling liquid. AC electrical power is applied between the electrodes to cause current flow through the electrodes and through the molten slag bath and part of the molten metal pool, thereby heating and causing the electrodes to melt to form an ingot. As the electrodes melt, they are simultaneously fed together into the slag bath. A conductor, connected between the bottom plate of the mold and either a center tap on the secondary winding of the transformer supply AC power to the electrodes or to a center tap on a choke coil connected in parallel with the secondary winding, provides an equalizing circuit which automatically adjusts the melting of the electrodes to keep them at equal immersion depths in the slag bath. Electrical lines and connectors are grouped in close arrangement and in parallel paths where possible to avoid inductance losses.

3,835,229

SYSTEM FOR ELECTROSLAG REMELTING AND WITH MEANS TO EQUALIZE PLURAL ELECTRODE REMELTING

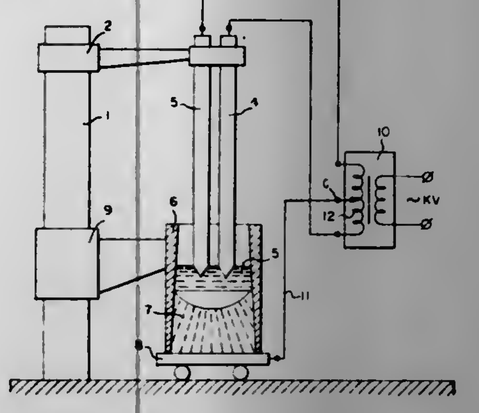
Boris Evgenievich Paton; Vladimir Konstantinovich Lebedev; Boris Izrailevich Medovar; Jury Vadimovich Latash; Oleg Petrovich Bondarenko; Vitaly Mikhailovich Baglai; Mikhail Nikolaevich Sidorenko, all of Kiev; Semen Abramovich Leibenzon; Gary Petrovich Kaganovsky, both of Zaporozhie; Andrei Pavlovich Altgauzen, Moscow; Leonid Evgenievich Nikolsky, Moscow; Zoya Alexandrovna Gorynina, Moscow; Ljudmila Andreevna Safronova, Moscow; Leonid Savvich Katsevich, Moscow; Lev Avramovich Volokhonsky, Moscow; Alexandr Alexandrovich Nikulin, Moscow; Vladimir Dmitrievich Artemiev, Moscow; Vladimir Mikhailovich Edemsky, Moskovskaya Obl., and Georgy Alexandrovich Voronin, Moscow, all of U.S.S.R., assignors to Institut Elektrosvarki Im. E.O. Patona, Kiev, U.S.S.R.

Continuation of Ser. No. 87,044, Nov. 5, 1970, , which is a continuation-in-part of Ser. No. 76,205, Sept. 28, 1970, Pat. No. 3,709,283, which is a continuation of Ser. No. 676,873, Oct. 20, 1967, abandoned. This application June 22, 1973, Ser. No. 372,655

Claims priority, application U.S.S.R., Dec. 24, 1966, 1118607; Dec. 24, 1966, 1118608The portion of the term of this patent subsequent to Jan. 9, 1990, has been disclaimed.

Int. Cl. H05b *3/60*

U.S. Cl. 13—9 **15 Claims**



In an electroslag remelting installation, a pair of consumable electrodes are immersed into a molten slag bath contained in a mold, which can be cooled by various arrangements of cooling liquid. AC electrical power is applied between the electrodes to cause current flow through the electrodes and through the molten slag bath and part of the molten metal pool, thereby heating and causing the electrodes to melt to form an ingot. As the electrodes melt, they are simultaneously fed together into the slag bath. A conductor, connected between the bottom plate of the mold and either a center tap on the secondary winding of the transformer supplying AC power to the electrodes or to a center tap on a choke coil connected in parallel with the secondary winding, provides an equalizing circuit which automatically adjusts the melting of the electrodes to keep them at equal immersion depths in the slag bath. Electrical lines and connectors are grouped in close arrangement and in parallel paths where possible to avoid inductance losses.

3,835,230

D.C. ARC FURNACE FOR STEELMAKING

Alexander Yordanov Valchev; Emil Pantaleev Ninov; Vasil Georgieu Peev; Velyu Todorov Velev; Georgi Alexandrov Visokomogilski, and Yordan Ivanov Krestenyakov, all of Sofia, Bulgaria, assignors to Nipkti po Cherna Metalurgia, Sofia, Bulgaria

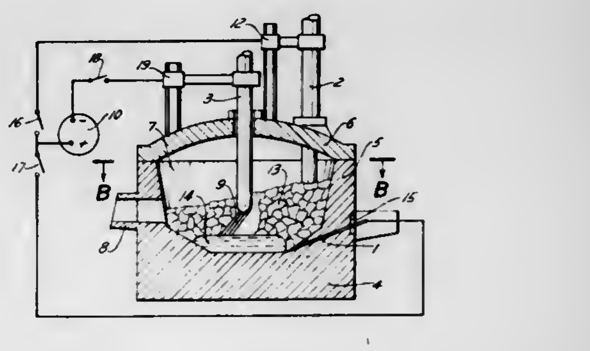
Filed Aug. 1, 1973, Ser. No. 384,575

Claims priority, application Bulgaria, Aug. 29, 1972, 20391

Int. Cl. H05b *7/00*

U.S. Cl. 13—9 **8 Claims**

A system for producing steel comprises a d-c arc furnace having at least one water-cooled anode connectable to the d-c source and effective after melting has progressed to generate an arc between the melt and a cathode juxtaposed therewith. A melting diode is connectable to the d-c source initially and is pressed against the mass to be melted for the initial melting and is movable to follow the decrease in level of this mass as the melting progresses. Switches disconnect the melting anode and connect the process anode to the source.



3,835,231

TILTING FURNACE

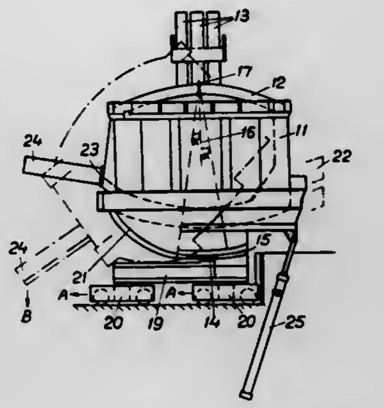
Jan Marchner, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Nov. 9, 1972, Ser. No. 304,894

Claims priority, application Sweden, Nov. 9, 1971, 14265/71

Int. Cl. F27b *14/02*

U.S. Cl. 13—10 **4 Claims**



A tilting furnace has non-tiltable electrodes through its roof. The bottom portion of the furnace has supporting rolls arranged on both sides of a vertical line through the center of gravity of the furnace when the furnace is in upright position, and cradle beams at the sides of the supporting rolls. For deslagging without moving the electrodes, the furnace may be rotated through small angles around a stationary fulcrum near the roof with the supporting rolls rolling on a base. Beyond these small angles, the electrodes are withdrawn and the furnace may move laterally onto the cradle beams to roll further over on the base.

3,835,232

CHARGING MEANS

Jan Marchner, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

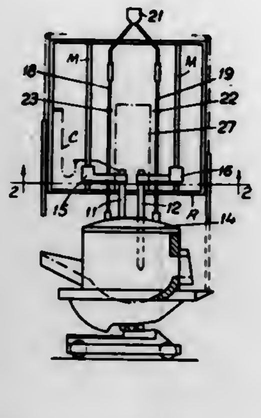
Filed Nov. 22, 1972, Ser. No. 308,712

Claims priority, application Sweden, Dec. 1, 1971, 15362/71

Int. Cl. F27b *14/02;* **H05b** *7/00*

U.S. Cl. 13—10 **4 Claims**

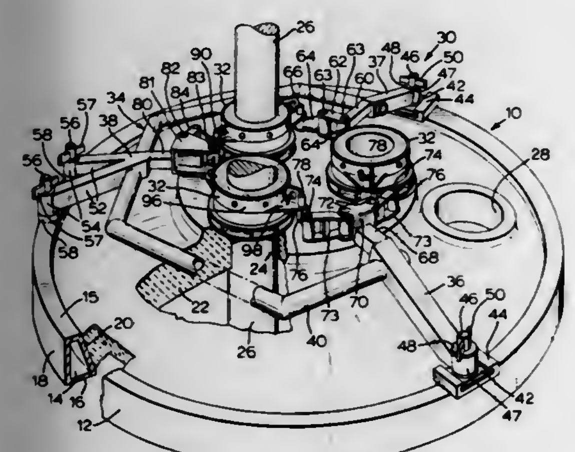
A tilting arc furnace has a roof through which liftable electrodes are passed and to which furnace material charging tubes are applied, both the electrodes and the charging tubes requiring to be removed free from the roof to permit tilting of the furnace. The electrodes have lifting arms and the tubes pass through the arms and above the arms have carriers which during the lifting action of the arms, are engaged by the arms so that the tubes are simultaneously lifted, both the electrodes and tubes lifting free from the furnace roof for tilting of the furnace.



3,835,233
ELECTRODE SEALS FOR ELECTRIC-ARC FURNACES

Otto E. Prenn, Sherwood Park, Alberta, Canada, assignor to The Steel Company of Canada, Limited, Hamilton, Ontario, Canada

Filed Dec. 7, 1973, Ser. No. 422,839
Int. Cl. H05b *7/10*
U.S. Cl. 13—17 **11 Claims**

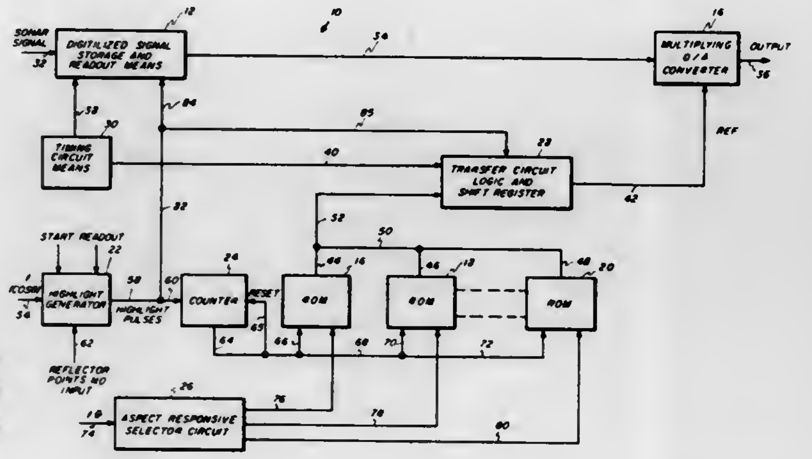


This invention provides a seal assembly for use with an electric arc furnace in which a refractory roof covers the furnace proper, and in which at least one electrode passes through the roof. The electrode is supported independently of the roof. The seal assembly includes a main seal ring which closely encircles the electrode, supporting structure capable of carrying the weight of the main ring seal and resting on the periphery of the refractory roof, in order to avoid putting extra weight on the central portion thereof. The supporting structure includes certain pivoting link members which permit lateral mobility of the main ring seal with respect to the refractory roof, and there is also included an adjustable sealing means adapted to close the gap between the main ring seal and the refractory roof. This structure permits the roof to move to some extent in the vertical direction due to thermal expansion, etc., without affecting the main ring seal, and further permits the electrode to undergo certain lateral movements (horizontal) without placing any resultant stress on the roof.

3,835,234
SONAR ECHO SIMULATOR

Francis J. Murphree, Panama City, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 9, 1973, Ser. No. 386,918
Int. Cl. G09b *9/06*
U.S. Cl. 35—10.4 **4 Claims**

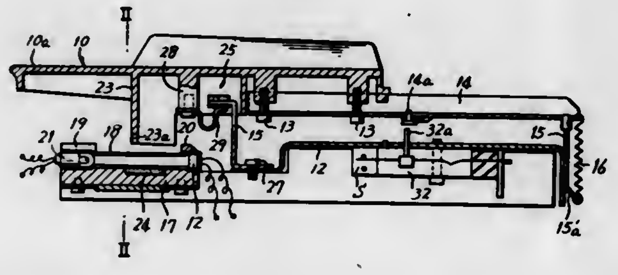

SONAR SIGNAL
DIGITILIZED SIGNAL STORAGE AND READOUT MEANS
MULTIPLYING D/A CONVERTER
OUTPUT
REF
TIMING CIRCUIT MEANS
TRANSFER CIRCUIT LOGIC AND SHIFT REGISTER
START READOUT
HIGHLIGHT GENERATOR
HIGHLIGHT PULSES
COUNTER
RESET
ROM
ROM
ROM
REFLECTOR POINTS NO INPUT
ASPECT RESPONSIVE SELECTOR CIRCUIT

An electrical system for generating simulated sonar echoes wherein each simulated echo is the composite of a number of spaced, possibly overlapping echoes from the target highlights, and wherein the amplitude and the spacing of the individual echoes is a function of the target nature and target aspect relative to the illuminating sonar. The system employs a digitized signal storage and readout circuit to time sample the input sonar signal and provide output signals through a multiplying digital to analog (D/A) converter, and a plurality of read only memories (ROM's). Each ROM is different in that each ROM has target data stored at different addresses therein and also the data stored in each ROM is different in accordance with the potential aspect angle of the target. Also each ROM has the data for the same highlight stored at the same address, but the amplitude of a particular highlight is a variable quantity, including zero, depending upon the azimuth sector over which the ROM is used. The ROM's are employed in conjunction with a highlight generator, counter means and an aspect angle responsive selector circuit to provide, via ROM address and ROM selection, suitable data to the multiplying D/A converter to provide the simulated echo desired.

3,835,235
KEYBOARD TYPE ELECTRONIC MUSICAL INSTRUMENT

Hiroshi Amano, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

Filed Nov. 29, 1973, Ser. No. 420,135
Claims priority, application Japan, Dec. 2, 1972, 47-121047; Dec. 2, 1972, 47-121048
Int. Cl. G10h *1/00*
U.S. Cl. 84—1.01 **11 Claims**

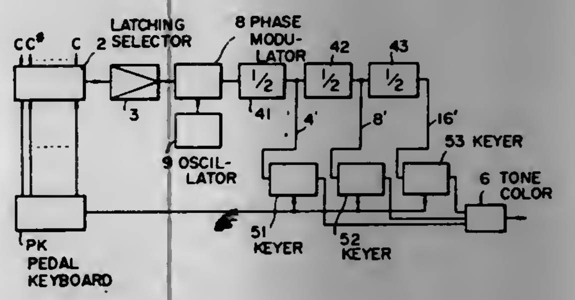


A keyboard type electronic musical instrument, which is capable of producing such musical effects as tremolo and glide, is disclosed. A flexible hollow tube is provided below each key together with a light source and a light-sensitive variable resistor provided at opposite open ends of the tube, so that the tube forms a passage through which the light travels from the light source to the light-sensitive variable resistor, the tube being adapted to be deformed by depressing the associated key to an extra extent or driving it toward left or right from its lower set position to thereby vary the quantity of light from the light source incident on the light-sensitive variable resistor. The light-sensitive variable resistor serves to produce a signal corresponding to the quantity of light incident on it, the signal being used to produce tremolo or other musical effects.

3,835,236
APPARATUS FOR PRODUCING BASE TONES IN AN ELECTRONIC MUSICAL INSTRUMENT

Takeshi Adachi, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-ken, Japan

Filed Aug. 29, 1973, Ser. No. 392,401
Claims priority, application Japan, Aug. 30, 1972, 47-101224[U]; Aug. 30, 1972, 47-101225[U]; Aug. 30, 1972, 47-101226[U]; Aug. 30, 1972, 47-101227[U]; Aug. 30, 1972, 47-101228[U] Aug. 30, 1972, 47-101229[U]; Aug. 30, 1972, 47-101230[U] Aug. 30, 1972, 47-101231[U]
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.24 **12 Claims**



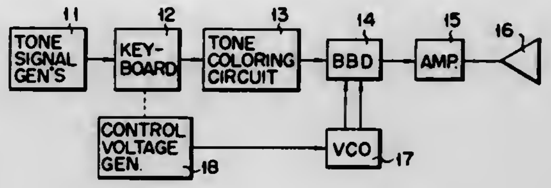
An apparatus for producing base tones in an electronic musical instrument adapted to produce base tones by successively frequency dividing a base tone signal selected by a single tone selection circuit by ½ frequency dividers to obtain a plurality of foot-register signals and providing these foot-register signals with desired envelope and tone-color. The base tone to be obtained is provided with a "sway" effect either by phase-modulating a base tone signal by a modulating signal of about 1 Hz, by phase-modulating each foot-register signal in the same phase or in different phases by a modulating signal of about 1 Hz, or by phase-modulating the output signal of a tone-color circuit by a modulating signal of about 1 Hz. In one form of the inventive apparatus, the base tone signal is fed to two separate systems. In this case, the phase modulation is carried out in one of the systems and not in the other. The phase modulation may also be carried out in both systems in which case modulating signals differing in phase by 180° from each other are used for the phase modulation.

3,835,237
ELECTRONIC MUSICAL INSTRUMENT WITH KEY-DEPENDENT TIME-VARIABLE DELAYING DEVICE

Takeshi Adachi, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Sept. 17, 1973, Ser. No. 397,748
Claims priority, application Japan, Sept. 19, 1972, 47-93858; Sept. 19, 1972, 47-93861
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.24 **10 Claims**

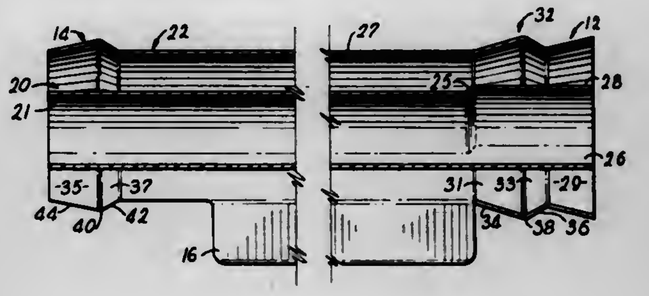
An electronic musical instrument includes in a tone signal path a signal delaying device constituted by a bucket brigade device to which is supplied transfer clock pulses which determine of the delay time. A keyboard is provided with a control voltage generator generating a control voltage representing the depressed key or keys. The control voltage is supplied to the clock pulse generator for determining the frequency of the transfer clock pulses generated thereby.

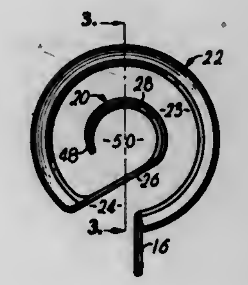


3,835,238
SPIRAL CONDUCTOR COVER

Edward L. West, Sturgeon, Mo., assignor to A. B. Chance Company, Centralia, Mo.

Filed June 18, 1973, Ser. No. 370,860
Int. Cl. H02g *1/02;* **H01b** *17/00*
U.S. Cl. 174—5 R **4 Claims**





An improved electrical conductor cover is provided which is operable to be positioned in enclosing relationship to portions of highly energized conductors in order to protect linemen or other working in the vicinity thereof. The cover is fabricated from an elongated, continuous sheet of electrically insulative synthetic plastic material and is shaped to present a generally spiral cross section with inner and outer spirals of substantially equal length. Both the inner and outer spirals are configured to telescopically engage and interconnect with a complementary adjacent conductor cover or other piece of cover-up equipment such as insulator covers of varying types, without the need of separate connection structures. By virtue of the fact that the inner spiral extends the entire length of the cover and interconnects with a similar member of another conductor cover or other piece of cover-up equipment, a conductor received therein is completely encased in an insulative sleeve of plastic material without gaps along the length thereof, and consequently the cover is capable of effectively insulating conductors energized to very high levels.

3,835,239

CURRENT FEEDING ARRANGEMENT FOR ELECTRICAL APPARATUS HAVING LOW TEMPERATURE COOLED CONDUCTORS

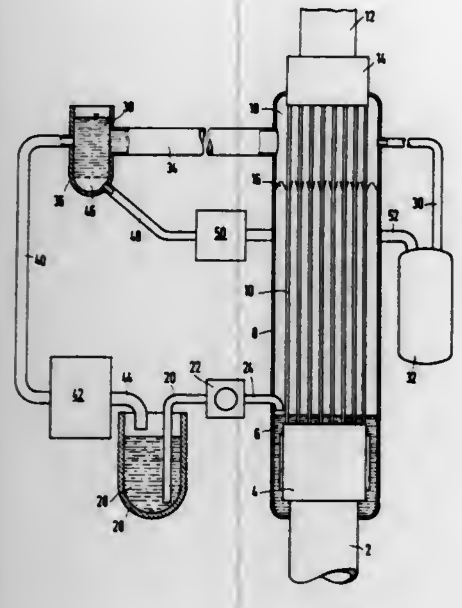
Fritz Schmidt, Erlangen; Gunther Matthaus, Spardorf, and Peter Massek, Forchheim, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Dec. 13, 1972, Ser. No. 314,564

Claims priority, application Germany, Dec. 27, 1971, 2164706

Int. Cl. H01v *11/00*

U.S. Cl. 174—15 BH **8 Claims**



A current feeding arrangement for a superconductor, having a cooled standard conductor connected to it. The invention is comprised of adding an electronegative gas, a vaporous radical or Freon to the gaseous cooling medium, which increases the dielectric strength of the gaseous cooling medium making the current feeding arrangement suitable for high voltages.

3,835,240

FLUID COOLED ELECTRICAL CABLE

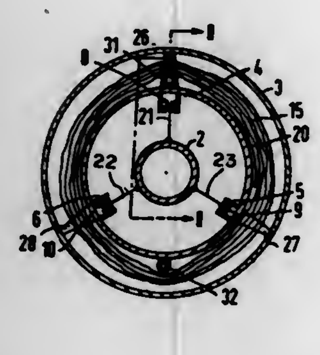
Gunther Matthaus, Hohe Warte, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Sept. 20, 1973, Ser. No. 399,353

Claims priority, application Germany, Sept. 28, 1972, 2247716

Int. Cl. H01v *11/00*

U.S. Cl. 174—15 C **11 Claims**



A fluid cooled electrical cable, of the type including an electrical conductor immersed in a low-temperature cooling medium, an inner tube in which the electrical conductor and cooling medium are disposed, a radiation shield disposed about the inner tube, an outer tube concentrically disposed about the inner tube and spaced apart therefrom, and superinsulation disposed about the radiation shield and the inner tube within the outer tube and in which the inner tube is suspended in the outer tube by means of suspension wires attached thereto. The improvement comprises the provision of axially displaceable mounting means, fastened to the radially inner surface of the outer tube and coupled to the suspension wires for restraining the inner tube from circumferential movement about its longitudinal axis with respect to the outer tube. The mounting means is configured as a plurality of spaced apart, elongated, slotted tracks fastened to the inner surface of the outer tube, and a plurality of rollers mounted on at least one transverse axle disposed therein to which the suspension wires are coupled. The assembly permits the axial displacement of the inner tube with respect to the outer tube but restrains circumferential movement of the inner tube.

3,835,241

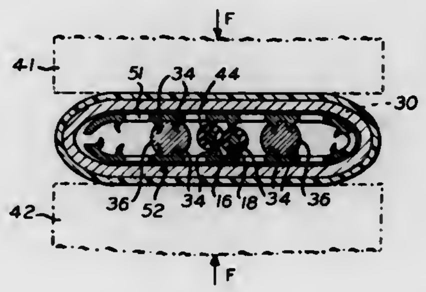
ADAPTOR FOR MODIFYING CONNECTOR TO ACCOMMODATE SMALLER CONDUCTORS

Joseph B. Masterson, Carteret, and John D. Lawler, Bayonne, both of N.J., assignors to General Cable Corporation, New York, N.Y.

Filed June 30, 1972, Ser. No. 268,147

Int. Cl. H02g *15/08*

U.S. Cl. 174—87 **9 Claims**



Communication cables are connected together by inserting end portions of insulated conductors into connectors having inwardly projecting tangs, and the connectors are then compressed to grip the wires and force the tangs to cut through the insulation and part way through the wires to hold the wires firmly in the connector and in an electrical circuit with each other. Such standard connectors could not be used with wires smaller than No. 26 AWG. This invention places an adaptor in the connector as a stop to limit the flattening of the connector against the wires, and to prevent the connector sleeve from closing tight enough to cut through wires as small as No. 28 AWG. The range of wire sizes that the connector can be used for is thereby extended.

3,835,242

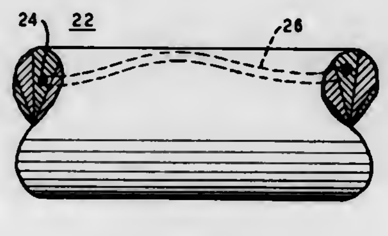
MULTI-FILAMENT COMPOSITE SUPERCONDUCTOR WITH TRANSPOSITION OF FILAMENTS

Philip R. Critchlow, 1843 Edgewood, St. Bruno, Quebec, Canada, and Bruce A. Zeitlin, 234 Henry Ct., North Plainfield, N.J. 07060

Filed Sept. 6, 1972, Ser. No. 286,625

Int. Cl. H01v *11/08*

U.S. Cl. 174—126 CP **9 Claims**



A multi-filament superconducting composite composed of a plurality of segments that is intrinsically stable. The individual segments are multi-filament composites that have been twisted after assembly and mechanical working and thereafter subsequently deformed. The deformed segments can be triangular or rectangular and are assembled into a second composite. After assembly the second composite is once again twisted. This second twisting transposes the filaments within the segments, thereby producing a superconductor that is resistant to flux jumps induced by self-field losses.

3,835,243

CIRCUITRY FOR REDUCING EFFECTS OF NOISE ON COLOR IMAGE

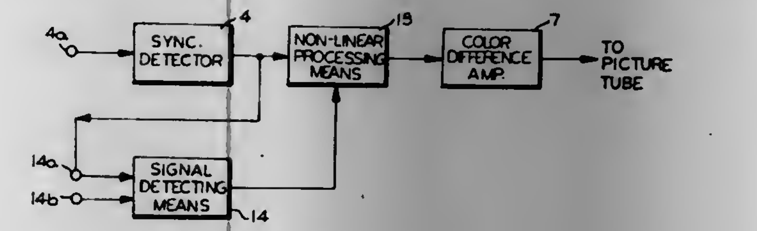
Yoshitomi Nagaoka, Osaka, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Apr. 3, 1973, Ser. No. 347,372

Claims priority, application Japan, Apr. 7, 1972, 47-35474; July 10, 1972, 47-69322; July 10, 1972, 47-69323; Oct. 19, 1972, 47-105102; Oct. 19, 1972, 47-105103

Int. Cl. H04n *9/12*

U.S. Cl. 178—5.4 R **7 Claims**



A picture quality improving apparatus for a color television receiver. A signal detecting means for detecting a specific portion of the color-difference signal which reproduces a high-saturation color on the screen is connected to a nonlinear processing means coupled to the signal detecting means. The processing means reduces the amplitude of the color-difference signal in response to the output signal of the signal detecting means in order to eliminate noise disturbances, decreases in the sharpness and luminance errors appearing in a high-saturation color portion of a picture.

3,835,244

WIRED BROADCASTING SYSTEMS

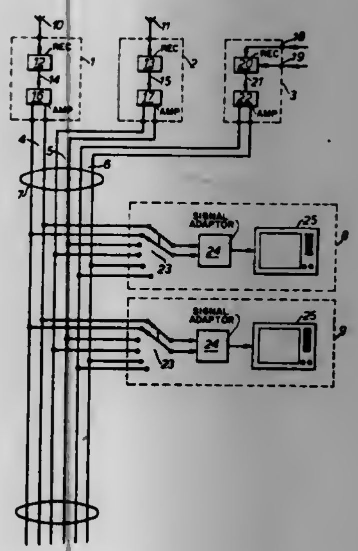
Daniel Henry Smart, Morden, England, assignor to Communications Patents Limited, London, England

Filed Dec. 2, 1971, Ser. No. 204,144

Claims priority, application Great Britain, Dec. 2, 1970, 57310/70

Int. Cl. H04n *7/10*

U.S. Cl. 178—5.6 **6 Claims**



A wired television broadcasting system using television receivers designed for aerial reception has specific frequencies for vision and sound carriers to place the beat therebetween at a frequency rejected by the adjacent channel sound rejection characteristics of the television receivers.

3,835,245

INFORMATION MODIFICATION IN IMAGE ANALYSIS SYSTEMS EMPLOYING LINE SCANNING

Leon Andre Pieters, Cambridge, England, assignor to Image Analysing Computers Limited, Melbourn, Royston, England

Filed Aug. 7, 1972, Ser. No. 278,279

Claims priority, application Great Britain, Aug. 7, 1971, 37226/71

Int. Cl. H04n *7/18*

U.S. Cl. 178—6.8 **47 Claims**

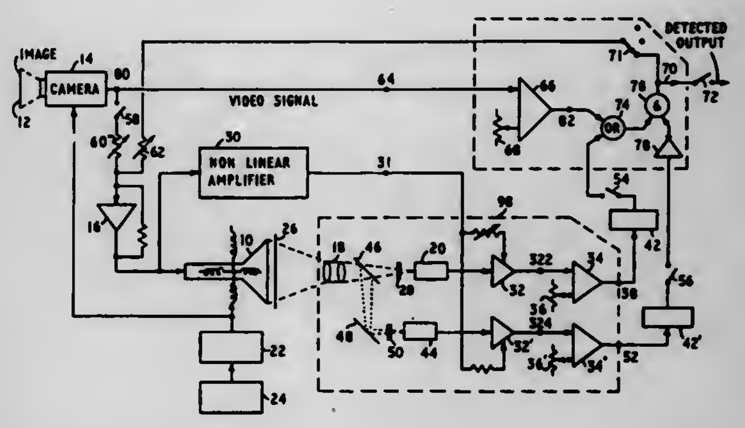


Image analysis apparatus and methods of operating same, having a surface on which outlines or areas can be delineated by hand, using either a light pen or conventional drawing instrument such as a pencil and near or on which a representation of a field under analysis is generated, a scanner for generating a video signal relating to the delineated outline or area in synchronism with the scanning of the field under analysis and circuit means for combining the video signal pulses obtained from scanning the field with pulses obtained from the video signal relating to the delineation.

3,835,246

TELEVISION DISPLAY SYSTEM FOR ELECTROMAGNETIC BEAM APPARATUS

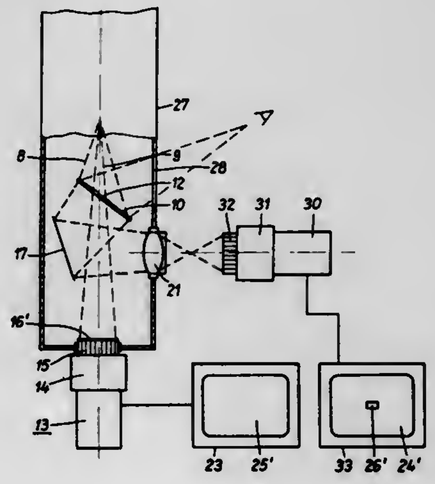
Karl-Heinz Muller; Volker Rindfleisch; Moriz Von Rauch; Dieter Willasch, and Georg Dollmeier, all of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Jan. 18, 1973, Ser. No. 324,798

Claims priority, application Germany, Jan. 28, 1972, 2204654

Int. Cl. H01j *37/26*; **H04n** *7/18*

U.S. Cl. 178—6.8 **4 Claims**



An electromagnetic particle beam device, such as an electron microscope, includes a fluorescent screen mounted in the focal plane of the beam for providing a direct image a television camera arranged behind a window in the flourescent screen separately picks up and enlarges the part of the image which falls in the area of the window to permit simultaneous viewing of an overall picture and an electronically enlarged section of the picture.

3,835,247
FIELD ILLUMINATION FOR IMAGE ANALYSIS

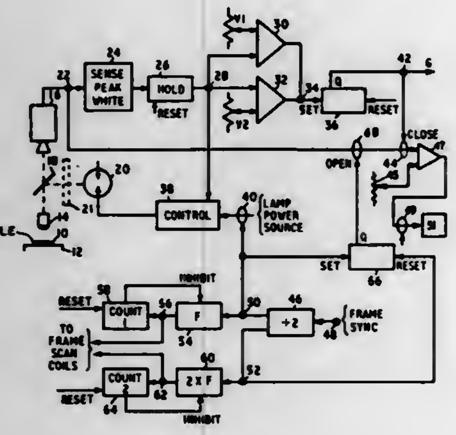
Michael Richard Soames, Fulbourn, England, assignor to Image Analysing Computers Limited, Melbourn, Royston, England

Filed May 11, 1972, Ser. No. 252,237

Claims priority, application Great Britain, May 11, 1971, 14230/71; May 27, 1971, 17687/71

Int. Cl. H04n *1/02*

U.S. Cl. 178—7.2 **13 Claims**



The invention provides methods and apparatus whereby feature information in each of a number of successive images may be analysed. In particular continuous relative movement between the specimen and image device is provided for thereby eliminating the settlement times characteristic of systems employing intermittent relative movement between specimen and imaging device.

The invention envisages the use of a gas discharge tube light source and proposes the insertion of a light diffusing device between the light source and specimen to reduce errors due to movement of the shading pattern caused by movement of the arc from flash to flash.

The invention also provides means for sensing the light output and/or illumination level of the field to control the light output from the light source to maintain this substantially constant during an analysis.

The high speed of operation achieved by the invention is due to the synchronism of a flashing light source with the continuous relative movement between specimen and imaging device.

The specimen may for example be mounted on a microscope stage the latter being moved relative to the optics of the microscope to present different areas for analysis. Alternatively the specimen may comprise small objects located on a conveyor belt and presented in succession to an imaging device.

3,835,248
KEYED AGC CIRCUIT

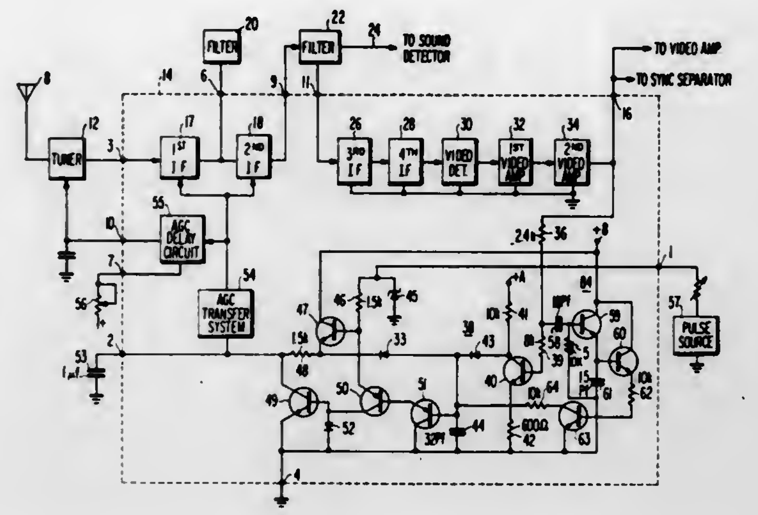
Jack Rudolph Harford, Flemington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 5, 1973, Ser. No. 338,109

Int. Cl. H04n *5/52*

U.S. Cl. 178—7.3 R **19 Claims**

A keyed automatic gain control (AGC) circuit for a television receiver rapidly responds to changes in the level of a received television signal by using a sample and hold arrangement wherein the time for sampling the amplitude of the synchronizing pulses is less than the shortest pulse width of any of the synchronizing pulses of the television signal. The value of an AGC current supplied by the AGC circuit is dependent upon the amplitude and polarity of the synchronizing pulse components with respect to a reference level and is substantially independent of the width of the synchronizing pulse components.



Included in the circuit are means for providing impulse noise protection both when the flyback and synchronizing pulses are in time coincidence and when they are not in time coincidence. Furthermore, a non-keyed component of AGC current is provided to prevent sync stripping during non-synchronized operation.

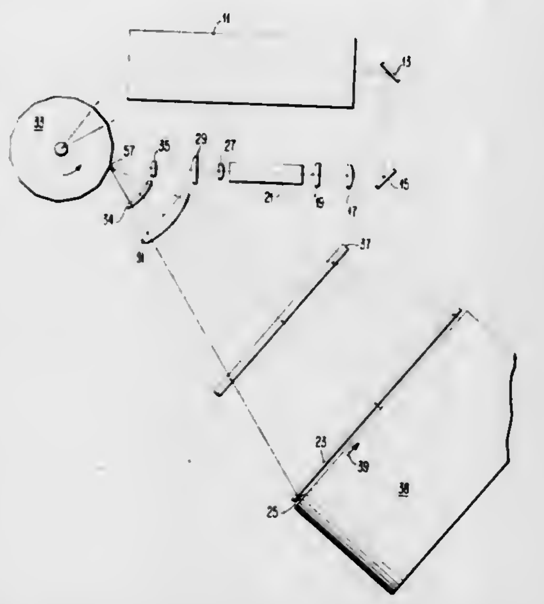
3,835,249
SCANNING LIGHT SYNCHRONIZATION SYSTEM

Anthony J. Dattilo, and Donald W. Zegafuse, Jr., both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1972, Ser. No. 317,976

Int. Cl. H04n *3/08*

U.S. Cl. 178—7.6 **12 Claims**



A scanning light synchronization system generates a real time clock, the output signal of which indicates the precise position of a scanning light beam. A collimated light beam is diverted by a multi-faceted rotating mirror in a scanning direction. The scanning light beam is split along two paths by a light diverter: a utilization path and a synchronization path. That portion of the light beam traversing the synchronization path scans an optical grating. That portion of the light beam passing through the grating is thereafter reflected from the surface of an elliptical mirror to a light detection device. The elliptical mirror is positioned so that its first optical foci is located at the diversion point of the scanning mirror and its second optical foci is located at the light detector. The light detector provides an output signal indicating the real time position of the scanning beam traversing the utilization path. This output signal is utilized with stored information to modulate the scanning beam so that the light beam traversing the utilization path creates an image on a light receptive surface. The output of the light detection device is also utilized in conjunction with light reflected from a document surface placed in the utilization path to effect the clocking of information signals obtained from such reflected light.

3,835,250
EXPLOSION-PROOF CATHODE-RAY TUBES

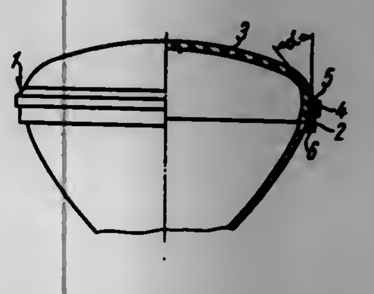
Alexei Yakovlevich Kaljuko, ulitsa Leschinskaya, 12; Fridrikh Levikovich Simkhovich, ulitsa Rechitskoe shosse, 15, kv. 40; Nina Fedorovna Cherednik, ulitsa Kirova, 134, kv. 54; Ljudmila Dmitrievna Pravednaya, prospekt Lenina, 14, kv. 29; Alexei Mikhailovich Kasakov, prospekt Lenina, 59, kv. 126; Alexandr Mikhailovich Saposhkov, ulitsa Pobedy, 18a, kv. 6, and Anri Iosifovich Lischinsky, ulitsa 50 let BSSR, dom 23, kv. 51, all of Gomel, U.S.S.R.

Continuation of Ser. No. 325,127, Jan. 19, 1973, abandoned, which is a continuation of Ser. No. 187,274, Oct. 7, 1971, abandoned. This application Nov. 6, 1973, Ser. No. 413,331

Claims priority, application U.S.S.R., Oct. 27, 1970, 1481151; Dec. 19, 1970, 1496301

Int. Cl. H01j *31/08;* **H01k** *1/28*

U.S. Cl. 178—7.8 **4 Claims**



An explosion-proof cathode-ray tube has an anti-explosion device made as an annular frame which is mounted onto the tube envelope at a critical zone thereof so that there is a gap therebetween which is filled with a self-expanding filler. The frame is provided with a flange, contacting the envelope at the side of the tube screen along the whole of its perimeter, and having a recess facing the surface of the envelope that corresponds to the critical zone of the envelope. The recess has a special profile designed in a manner ensuring a counterbalancing of axial tensions occuring in the tube envelope in its critical zone.

3,835,251
CATHODE RAY TUBE DISPLAY ASSEMBLY HAVING DIVERSE OPTICAL MEANS THEREIN

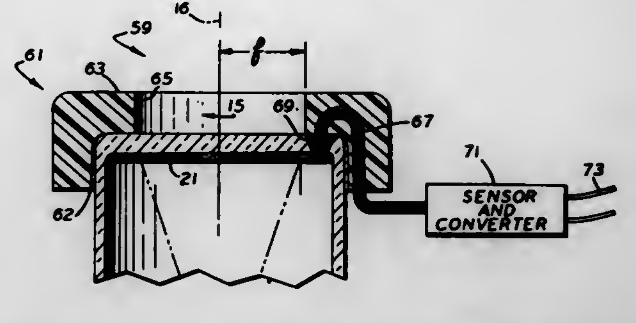
Alfred D. Johnson, Seneca Falls, N.Y., assignor to Sylvania Electric Products Inc., Stamford, Conn.

Continuation of Ser. No. 195,341, Nov. 3, 1971, abandoned, which is a division of Ser. No. 34,023, May 4, 1970, Pat. No. 3,668,387. This application June 22, 1973, Ser. No. 372,853

Int. Cl. H01j *29/89, 29/18*

U.S. Cl. 178—7.85 **3 Claims**

A cathode ray tube display assembly having a faceplate panel wherein at least one optical insert of low-attenuation optical material is disposed through the faceplate in substantially the peripheral region thereof to provide at least one defined light channel therethrough. The insert, being covered by the peripheral portion of the screen, provides means for channeling a discrete portion of excited screen luminescence through the faceplate.



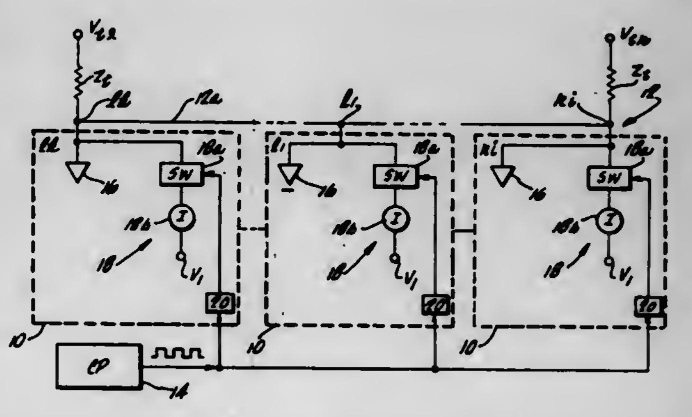
3,835,252
SIGNAL TRANSMISSION SYSTEM OVER BIDIRECTIONAL TRANSMISSION LINE

Constantine S. Ananiades, Pasadena, and Kenneth D. Krossa, Sierra Madre, both of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Continuation of Ser. No. 774,645, Nov. 12, 1968, abandoned. This application July 20, 1973, Ser. No. 381,263

Int. Cl. H04l *15/00*

U.S. Cl. 178—68 **11 Claims**



A signal transmission and receiving system. A transmission line is bidirectional along its length. An impedance element terminates each end of the transmission line. Line drivers each have an output circuit connected at a respective point on the transmission line. Each line driver has a first state presenting an open circuit and a second state for applying a current signal on the transmission line. A receiver has an input connected to the transmission line and responds to the presence or absence of a voltage signal exceeding a predetermined threshold caused by any one of the line drivers for forming corresponding output signals. Each line driver is characterized in the second state for changing the current on the transmission line so as to change in a predetermined direction the voltage level, if any, on the transmission line caused by current from another line driver.

3,835,253
TELEVISION COMMUNICATION SYSTEM WITH TIME DELAY COMPENSATION

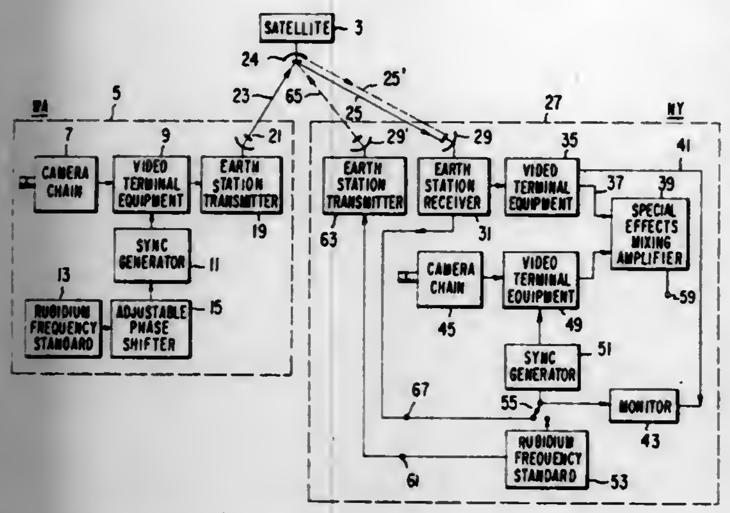
Donald Spencer Bond, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed July 10, 1972, Ser. No. 270,246

Int. Cl. H04n *5/04, 7/14*

U.S. Cl. 178—69.5 DC **5 Claims**

A television station which receives remotely originated signals via relay satellite can time its local sync and burst signal generators with a standard reference frequency which it itself sends to the relay satellite and receives back from the relay satellite. This permits locally originated signals timed by the local sync and burst signal generators to be synchronized with the remotely originated signals to good approximation, despite time delay variations of the remotely originated signals caused by variations of the relay satellite orbit, permitting an adjustable delay line to then be used to compensate remnant delay variations. Consequently, cross fading or other special-



effects mixing between locally and remotely originated programs is facilitated.

3,835,254
ULTRASONIC TRANSMITTING AND RECEIVING DEVICE

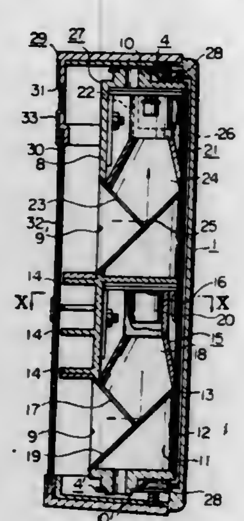
Hiroshi Ohasi, Neyagawa; Shinsuke Okamoto, Nishinomiya; Hiromitsu Inoue, Kyoto; Hirokazu Mori, Osaka, and Mineo Okamoto, Hikone, all of Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

Filed Apr. 24, 1972, Ser. No. 246,537

Claims priority, application Japan, May 31, 1971, 46-45494

Int. Cl. H04m ***1/00***

U.S. Cl. 179—1 E **2 Claims**



An ultrasonic transmitting and receiving device wherein horns are substantially vertically fitted to a holding frame so that opening side of the respective horns will be directed downward. Each horn is provided in its throat section with an ultrasonic oscillator and in its opening with a reflector diagonally opposing the oscillator.

3,835,255
MATRIX DECODERS FOR QUADRAPHONIC SOUND SYSTEM

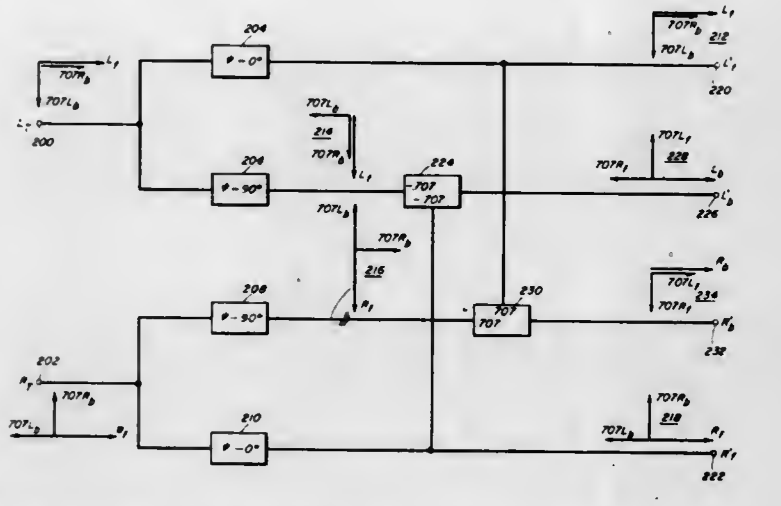
Benjamin B. Bauer, Stamford, Conn., assignor to Columbia Broadcasting System, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 185,050, Sept. 30, 1971, Pat. No. 3,813,494, which is a division of Ser. Nos. 44,224, June 8, 1970, abandoned, and Ser. No. 118,271, Feb. 24, 1971, Pat. No. 3,784,744, and Ser. No. 124,135, March 15, 1971,. This application Mar. 7, 1973, Ser. No. 338,691

Int. Cl. H04h ***5/00***

U.S. Cl. 179—1 GQ **25 Claims**

In a multi-channel sound system, decoding apparatus for deriving from two composite signals transduced from a two-track record medium a plurality (e.g., four) of separate sound signals contained in the composite signals for presentation on respective loudspeakers to give the listener the illusion of sound coming from a corresponding number of separate sources. Typically, the two composite signals respectively contain signal components intended for presentation on loudspeakers positioned at the left front and right front corners of a listening area, and both composite signals contain signals intended for presentation on loudspeakers positioned at the left back and right back corners of the listening area, with the left back and right back signals in one composite signal in substantially quadrature relationship with corresponding signals in the other. The decoder includes all-pass phase-shifting networks designed to transmit all frequencies in the frequency range of interest which are operative to shift the phase of one of the composite signals relative to the other by an angle to cause corresponding signals in the relatively phase-shifted composite signals to be either in phase or in phase opposition and networks for combining the relatively phase-shifted composite signals to derive the four separate sound signals.



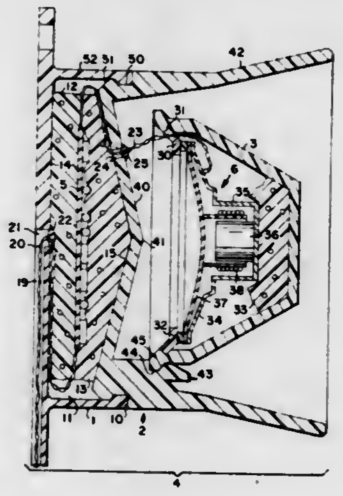
3,835,256
LOUDSPEAKER ENCLOSURE

Horst K. Wieder, 211 Lowell St., Watertown, Wis. 53094

Filed July 9, 1973, Ser. No. 377,761

Int. Cl. H04r ***1/28***

U.S. Cl. 179—1 E **8 Claims**



Enclosure and mounting for a loudspeaker is combined with enclosure and mounting for a printed circuit board associated with the loudspeaker. Mounting means for both the loudspeaker and printed circuit board are resilient. All parts of the combination enclosure and the mounting means interact in such fashion that the device is devoid of fasteners such as screws, rivets, adhesive or the like.

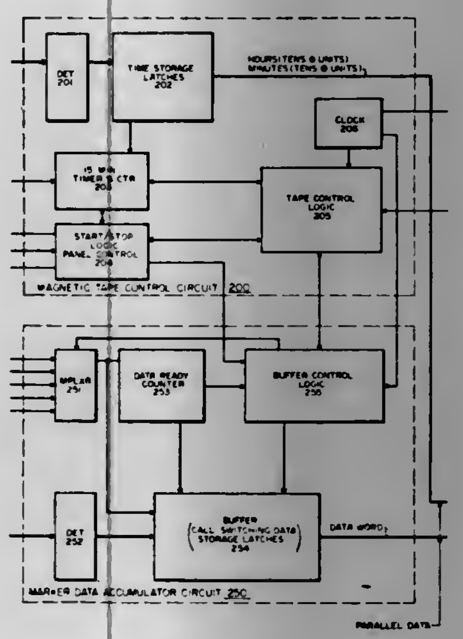
3,835,257
METHOD OF RECORDING DATA INCLUDING SAMPLING RATE

Donald W. McLaughlin, Bolingbrook, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 13, 1972, Ser. No. 314,888

Int. Cl. H04m ***15/04***

U.S. Cl. 179—8 A **11 Claims**


TIME STORAGE LATCHES
HOURS (TENS & UNITS) MINUTES (TENS & UNITS)
CLOCK
TAPE CONTROL LOGIC
MAGNETIC TAPE CONTROL CIRCUIT 200
DATA READY COUNTER
BUFFER CONTROL LOGIC
BUFFER (CALL SWITCHING DATA STORAGE LATCHES)
DATA WORD
MARKER DATA ACCUMULATOR CIRCUIT 250
PARALLEL DATA

Traffic supervisory equipment for use in a telephone communication system adapted to record call switching data. Included is circuitry that causes the rate of sampling of data to be recorded as well as the sampled data itself.

3,835,258
RING TRIP CIRCUIT

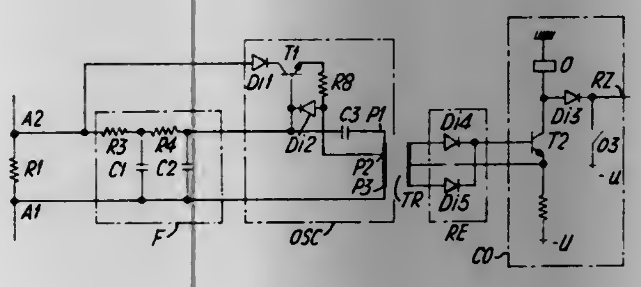
Gerhard Marcel Le Cardonnel, Neuilly-sur-Seine, France, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Feb. 1, 1973, Ser. No. 328,706

Claims priority, application France, Feb. 17, 1972, 72.05290

Int. Cl. H04m ***3/02***

U.S. Cl. 179—18 HB **4 Claims**



An electronic circuit is disclosed for detecting when a telephone handset is lifted in response to ringing tone and for providing a voltage which operates a relay to interrupt the transmission of ringing current. The circuit includes an oscillator controlled by the d.c. potential difference across a resistor in series with a wire carrying ringing current to the telephone line. The oscillator is coupled through transformer windings to the circuits to be controlled.

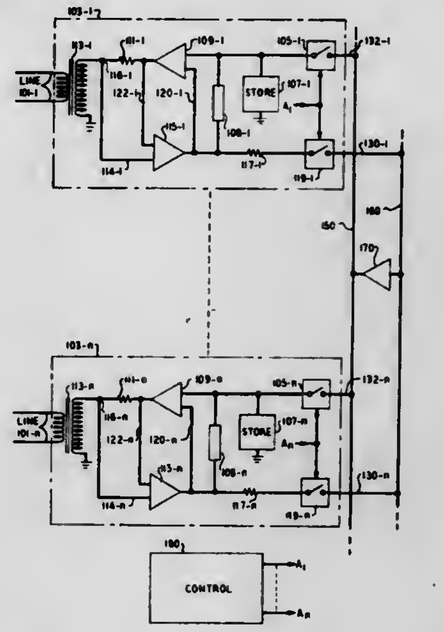
3,835,259
TIME DIVISION CONFERENCE HYBRID CIRCUIT

David Gordon Medill, Denver, and Patrick Alban Vachon, Arvada, both of Colo., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Mar. 22, 1973, Ser. No. 343,824

Int. Cl. H04j ***3/02***

U.S. Cl. 179—18 BC **5 Claims**



In a time division communication system a conference connection among a plurality of stations is established utilizing station associated hybrid circuits connected to an incoming common bus and an outgoing common bus in an assigned conference time slot. It is required that each station receive the outgoing signals of the other conferenced stations but not its own outgoing signal while only the station's own outgoing signal is applied to the outgoing bus in the assigned time slot. Each hybrid circuit stores the sum of the conferenced signals received from the incoming bus in the assigned time slot. The associated station's own outgoing signal in the stored conference signal is canceled by a signal derived from the station outgoing signal in a first difference amplifier so that only the signals from the other conferenced stations are applied to the associated station. The other conferenced station outgoing signals appearing at the associated station are prevented from returning to the outgoing bus through cancellation of said other station signals by a signal derived from the first amplifier output in a second difference amplifier whereby only the associated station's own outgoing signal is applied to the outgoing bus in the assigned time slot. A portion of the associated path outgoing signal from the second amplifier is applied to the hybrid storage capacitor in the interval between successive distinct time slots so that the storage capacitor includes the instantaneous value of the associated path outgoing signal for improved cancellation.

3,835,260
COMMUNICATION SWITCHING SYSTEM, WITH MARKER, REGISTER, AND OTHER SUBSYSTEMS COORDINATED BY A STORED PROGRAM CENTRAL PROCESSOR

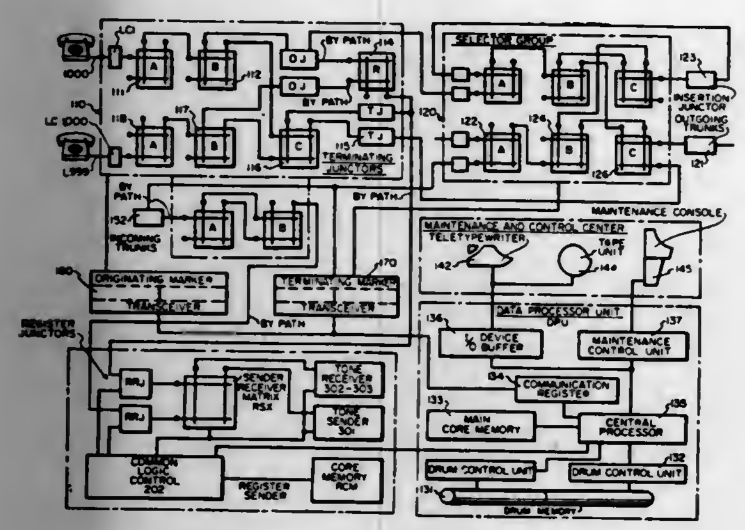
Kenneth E. Prescher, Lombard; Ronald E. Schauer, Hanover Park, and Frank B. Sikorski, Des Plaines, all of Ill., assignors to GTE Automatic Electric Laboratories, Inc., North Lake, Ill.

Continuation-in-part of Ser. No. 130,133, April 1, 1971, abandoned. This application Mar. 19, 1973, Ser. No. 342,323

Int. Cl. H04q ***3/54***

U.S. Cl. 179—18 ES **13 Claims**

A stored program computer is used for functions such as digit analysis and routing control where flexibility is important, while a wired logic time division multiplex register-sender subsystem is used to receive dialing and other call signals and to control outpulsing which require relatively fixed functions of a repetitive nature. A reed relay switching network is controlled by wired logic markers which perform path selection functions as well as supplying operating potentials for the network relays. The originating marker also performs the function of scanning the lines for originating calls, identifying the calling line and selecting a path through the network to a register junctor. Direct data communication is provided between the originating marker and the data processor computer for sending an originating message identifying the calling line and the register junctor. There is also a direct communication path from the computer to the terminating markers to send them messages identifying terminals to be connected to complete a call. The data processor includes a separate drum memory system with its own processing logic circuits for performing functions such as translations and providing an extended memory for some programs for the computer. The data processor computer communicates with the register-sender subsystem by direct access to the register-sender memory on a random basis, arranged so as not to interfere with the cyclical access by the register-sender subsystem.



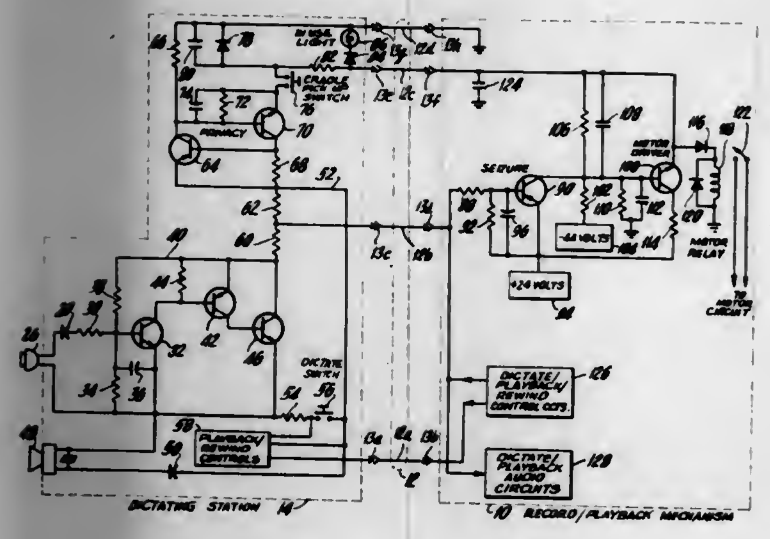
3,835,261
PRIVACY AND SEIZURE CONTROL CIRCUIT FOR A REMOTE STATION DICTATING SYSTEM

Bjorn J. Matz, Forest Hills, N.Y., assignor to Dictaphone Corporation, Rye, N.Y.

Filed Jan. 10, 1973, Ser. No. 322,530

Int. Cl. H04m *11/10*

U.S. Cl. 179—100.1 DR **8 Claims**



Each one of a plurality of remote dictating stations in a recording system includes a first semiconductor switch which is biased to become conductive ("on") when it is connected to a first bias source in a central record/playback unit by the closing of a cradle switch when the dictator phone of that station is lifted from its cradle. The turning on of the first semiconductor switch turns on a semiconductor seizure switch which in turn activates a semiconductor motor driver switch. The semiconductor motor driver switch, when activated, energizes a relay which controls the motor of the record/playback unit. When the semiconductor seizure switch becomes conductive, a bias voltage is fed back to the activated remote dictating station to switch on a second semiconductor switch in that dictating station which supplies a bias voltage to maintain the first semiconductor switch in its conductive state. Simultaneously the turning on of the motor driver switch produces a second bias voltage which is opposite in polarity to the voltage from the first bias source and which effectively prevents the first bias source from making the first semiconductor switch in any other remote dictating station conductive and thereby blocks the activation of any other remote dictating station and the seizing of control of the record/playback unit.

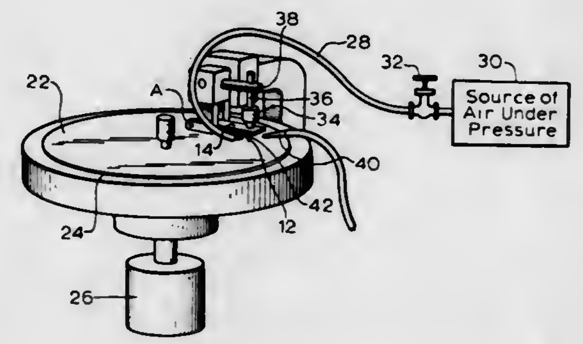
3,835,262
VIDEO DISC CUTTING USING PRESSURIZED AIR TO CONTROL DEPTH OF GROOVES

Scott N. Moritz, Villa Park; Eugene Polley, Lombard, and Werner H. Puls, Northbrook, all of Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed June 4, 1973, Ser. No. 366,812

Int. Cl. G11b *3/72*

U.S. Cl. 179—100.4 C **4 Claims**



A method and apparatus for controlling the depth to which grooves are cut in a master video recording disc. Pressurized air is directed toward the surface of the disc in order to lift and maintain a cutting stylus assembly at a predetermined height above the surface of the disc, thereby assuring that the grooves will be cut to a predetermined reference depth.

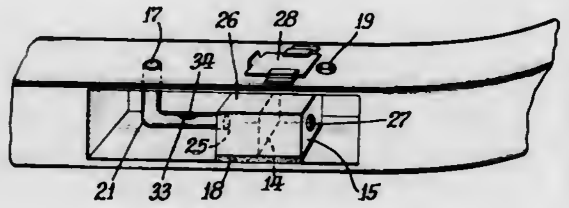
3,835,263
MICROPHONE ASSEMBLY OPERABLE IN DIRECTIONAL AND NON-DIRECTIONAL MODES

Mead Clifford Killion, Elk Grove Village, Ill., assignor to Industrial Research Products, Inc., Elk Grove Village, Ill.

Filed Feb. 5, 1973, Ser. No. 329,673

Int. Cl. H04r *25/00*

U.S. Cl. 179—107 FD **15 Claims**



A microphone assembly being selectively operable in directional and non-directional modes; and, having similar response characteristics relative to frequency whether operating in one or the other mode.

3,835,264
SEMICONDUCTOR TRANSDUCER COMPRISING AN ELECTRET

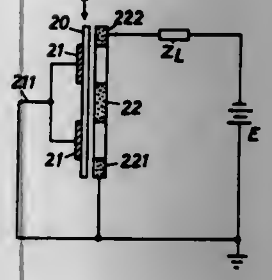
Sune Lambert Overby, Stockholm, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Sept. 28, 1972, Ser. No. 293,123

Claims priority, application Sweden, Oct. 13, 1971, 12992/71

Int. Cl. H04r *23/02*

U.S. Cl. 179—111 E **4 Claims**



The invention relates to an electromechanical transducer comprising an electret one side of which faces a control surface of a semiconductor element and the other side of which faces a a movable control electrode to the semiconductor element. The control surface of the semiconductor element is, according to a first plane geometrical pattern, divided into a surface part responsive to an external field and into another surface part not responsive to an external field while the surface of the movable control electrode is divided into an electrically conducting surface part and into an electrically nonconducting surface part according to a second plane geometrical pattern which substantially corresponds to said first plane geometrical pattern. The control electrode is movable in parallel in relation to the field responsive control surface in order to vary the degree of overlapping between said first and second plane geometrical patterns and thereby generate a change in the inherent resistance of the semiconductor element.

3,835,265
VIBRATING MEMBER FOR ACOUSTIC TRANSDUCER

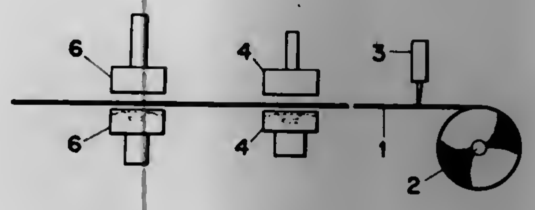
Tadashi Itagaki, Tokorozawa, Japan, assignor to Pioneer Electronic Corporation, Tokyo and Tokorozawa Electronics Corporation, Saitama, Pref., Japan

Filed Nov. 3, 1972, Ser. No. 303,544

Claims priority, application Japan, Nov. 8, 1971, 46-103200

Int. Cl. H04r *7/02*

U.S. Cl. 179—181 R **8 Claims**



A vibrating member for an acoustic transducer made of a transparent or translucent thin film and bearing a marking thereon, by which possible overlap of two or more vibrating members can be readily determined visually, and a method for producing the vibrating member comprising a marking step, a heating step and a punching step.

3,835,266
HOLLOW CARBONACEOUS MICROSPHERES SUITABLE FOR USE IN CARBON MICROPHONES

Masaaki Nakao, Urawa; Zenya Shiiki, and Yasuo Amagi, both of Tokyo, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 29, 1971, Ser. No. 213,751

Claims priority, application Japan, Dec. 29, 1970, 45-120975

Int. Cl. H04r *21/02*

U.S. Cl. 179—190 **3 Claims**

Hollow carbon microspheres suitable for use in a carbon microphone.

A process for producing hollow carbon microspheres for use in carbon microphones.

A carbon microphone containing hollow carbon microspheres.

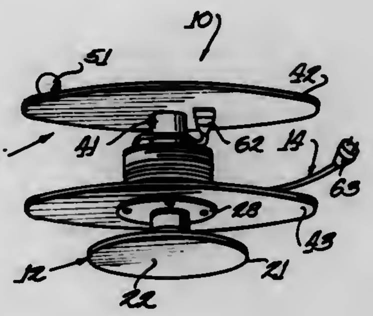
3,835,267
REEL FOR ELECTRIC EXTENSION CORDS

Floyd L. Sharpe, 10416 McPherson, Indianapolis, Ind. 46280

Filed Dec. 4, 1973, Ser. No. 421,656

Int. Cl. H02g *11/00*

U.S. Cl. 191—12.4 **2 Claims**



A reel for electric extension cords for storing a length of electric cord thereabout with any desired length of cord being unrolled therefrom with the remaining length of the cord retained rolled about the reel, the reel including a base having a shaft projecting upwardly therefrom and supporting for rotation at the top end of the shaft a spool mounted for rotation about the axis of the hub of the spool and having a top disc and bottom disc defining opposite ends of the spool, an electric receptacle mounted in the outer disc and having one end of an electrical cord attached thereto with the length of the cord being wound about the hub of the spool and terminating in an opposite end adapted to be plugged into a suitable power source, and a handle rotatably mounted to the top disc member adjacent an edge thereof and adapted for use in rotating the spool about its axis to unwind the electric cord from the hub of the spool and also to rewind the electric cord onto the spool hub.

3,835,268
CONDUCTOR RAIL MOUNTINGS

Patrick Bommart, Rueil Malmaison, France, assignor to Acieries De Gennevilliers Anciens Etablissements C. Delachaux, Louis Roche, Gennevilliers, France

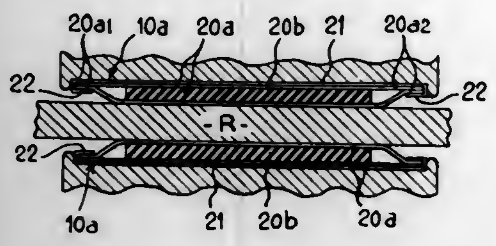
Filed Mar. 16, 1973, Ser. No. 340,780

Claims priority, application France, Mar. 17, 1972, 72.9437

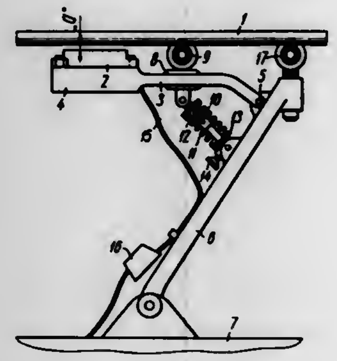
Int. Cl. B60m *1/30*

U.S. Cl. 191—32 **11 Claims**

A conductor rail mounting comprising a conductor rail member clamped to a support member with the interposition of at least one cushion having a filling of resilient material and a cover for contacting at least one of the said members, the cover being formed from a material having a coefficient of friction substantially lower than that of the filling.



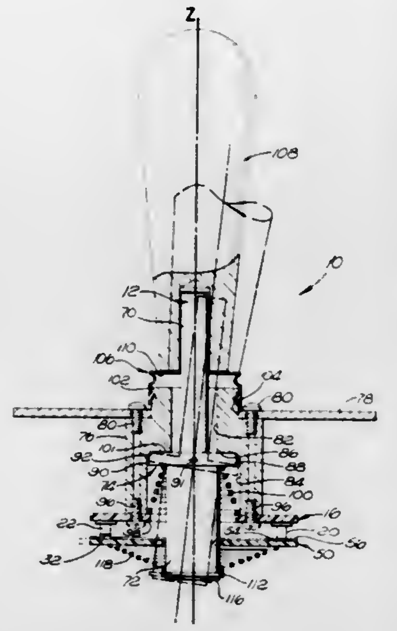
3,835,269
DEICING DEVICE
Igor Anatolievich Levin, Petrozavodskaya ulitsa 15, korpus 1,kv.113., Moscow; Konstantin Ivanovich Skobelev, Teatralny pereulok,40,kv.50.; Lev Iosifovich Levkovich, ulitsa Tekucheva 143,kv.48., and Boris Andreevich Pavljuk, ulitsa Vorovskogo,46,kv.37., all of Rostov-na-Donu, U.S.S.R.
Filed May 7, 1973, Ser. No. 358,123
Int. Cl. B60l *5/02*
U.S. Cl. 191–62 **20 Claims**



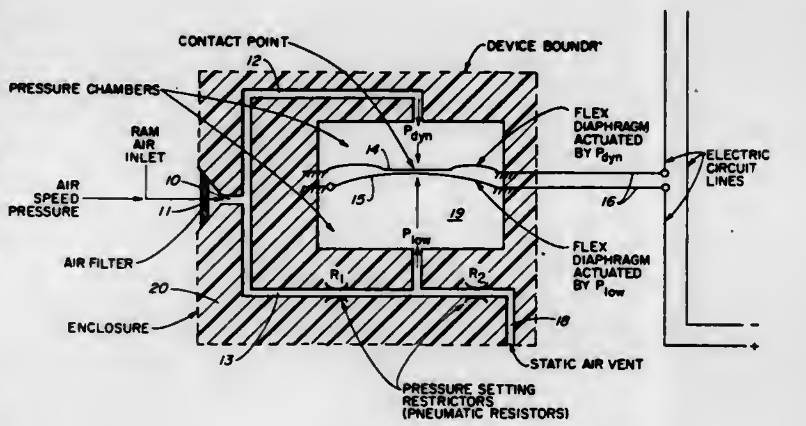
A device for deicing the surface of a wire, mainly the contact wire of electric transport facilities, comprising an appliance for generating electromagnetic field pulses acting on said wire; said appliance is installed in close proximity to the wire and secured relative to it on a support installed on a movable transport vehicle. The appliance for generating electromagnetic field pulses is constituted by an electromagnetic inductor made in the form of wire turns accommodated in a dielectric casing and connected to a power supply system. There is an approximately uniform gap "a" between said wire turns of the electromagnetic inductor and the wire to be deiced. The support for fastening said electromagnetic inductor is mounted on the current collector of the transport vehicle and is provided with various types of holders to which the electromagnetic inductor is directly secured. The wire turns of the electromagnetic inductor may be either circular or elliptical in shape with the larger axis of the ellipse directed either along or across the wire to be deiced.

3,835,270
JOY STICK CONTROL MECHANISM WITH MOVABLE PRINTED CIRCUIT SWITCH ASSEMBLY CONTROLLING MOTOR INPUT POWER POLARITY
Webster J. Dufresne, Costa Mesa, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed June 4, 1973, Ser. No. 366,705
Int. Cl. H01h *19/58, 21/78*
U.S. Cl. 200—6 A **23 Claims**

A control mechanism is disclosed embodying a pivot shaft which controls the supply of power to an electric motor, such as utilized for rotating revolving searchlights. A universal pivotal mounting arrangement is provided for the pivot shaft which does not require a conventional ball and socket joint. When the shaft is pivoted in one direction, it shifts a free-floating printed circuit board to energize the motor. When the shaft is pivoted in the opposite direction, the printed circuit board effects reversal of the polarity of the input power to the motor. In the preferred embodiment, the pivot shaft is pivotal about perpendicularly extending axes to control two electric motors simultaneously whereby a searchlight may be rotated both vertically and horizontally at the same time.

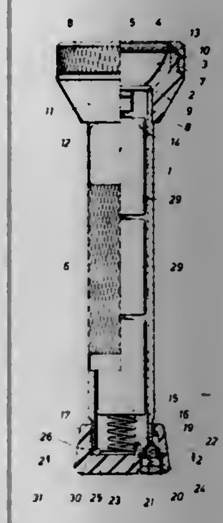


3,835,271
ENVIRONMENTAL FLUIDIC SWITCHING DEVICE WITH PLURAL DIAPHRAGMS
Abram J. Garrett, Canoga Park, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Aug. 20, 1973, Ser. No. 389,859
Int. Cl. H01h *35/34*
U.S. Cl. 200—83 Y **6 Claims**



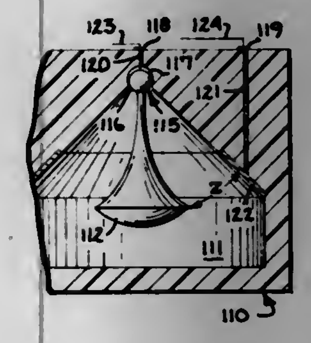
A fluidic switching device operating directly on ram air pressure differences to perform an electrical switching function. Operation is based upon the actuation of a micro switch by fluidic signal pressure acting against a flexible diaphragm and plate. The arrangement is self-compensating for altitude changes.

3,835,272
ROTARY SCREW SWITCH
Edward M. Wisenbaker, 4814 Beau Ln., Houston, Tex. 77039
Filed Apr. 19, 1973, Ser. No. 352,528
Int. Cl. H01h *3/40;* **F21v** *23/04*
U.S. Cl. 200—60 **6 Claims**



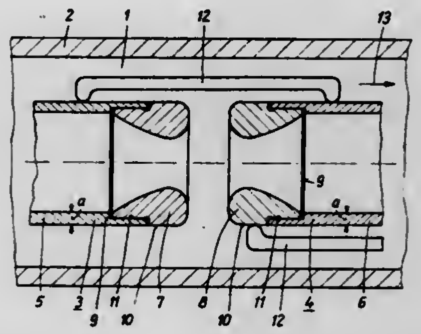
A flashlight is described having a switch which employs two existing components of conventional flashlights in such a manner as to eliminate a separate thumb switch, but which retains the function of the separate switch. The switch employs the threaded end cap of the flashlight which is tightened to make contact between the barrel of the flashlight and loosened to break the circuit. The tube or barrel of the flashlight serves as one conduit and a spring used to bias the batteries is the other. The circuit is closed by bringing the barrel into contact with a portion of the spring. The switch has other application than to flashlights.

3,835,273
PENDULUM-TYPE INERTIA SENSOR SWITCH
Eugene Stolarik, Minneapolis, Minn., assignor to Control Techniques Corporation, Minneapolis, Minn.
Filed Feb. 2, 1973, Ser. No. 329,062
Int. Cl. H01h *35/14*
U.S. Cl. 200—61.48 **9 Claims**



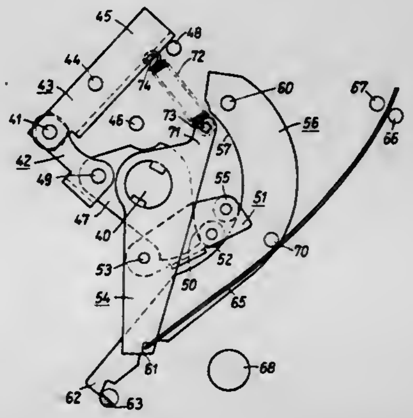
A multi-directional crash sensor for triggering air bag safety devices on a vehicle, having different response thresholds to accelerations from different directions. A pendulum having one electrical contact is pivoted within a housing for motion in any direction in response to acceleration. A second contact is positioned around the pendulum and is configured so that the angular displacement from the pendulum's nominal position to the second contact is different for different directions of motion of the pendulum. A non-conductive membrane having a predetermined puncture resistance may be placed over the contact and the pendulum may be provided with sharp protrusions for piercing the membrane to make electrical contact only when accelerations of predetermined magnitude occur.

3,835,274
CONTACT SYSTEM FOR A HIGH-VOLTAGE CIRCUIT BREAKER
Heiner Marin, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
Filed June 4, 1973, Ser. No. 366,541
Claims priority, application Germany, June 20, 1972, 2230927
Int. Cl. H01h *33/82*
U.S. Cl. 200—148 R **4 Claims**



A contact system for a high-voltage circuit breaker of the compressed-gas type or the like defines a gap across which an arc is drawn when the breaker is switched to the open position. The contact system includes at least one hollow, nozzle-shaped contact piece which defines one end of the gap when the breaker is switched to the open position. The contact piece includes an electrically conductive tubular member made of cold work-hardened copper. A nozzle-shaped body made of arc-resistant graphite is cold press-fitted into the tubular member at an end portion thereof so as to be held in surrounding engagement thereby in a friction-tight manner.

3,835,275
ELECTRIC POWER CIRCUIT BREAKER EQUIPPED WITH A LATCHING MECHANISM WHEREIN RESTORING FORCES ARE PROVIDED AS A FUNCTION OF SWITCHING SHAFT POSITION
Bernhard Preuss, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
Filed Apr. 18, 1973, Ser. No. 352,202
Claims priority, application Germany, Apr. 19, 1972, 2219892
Int. Cl. H01h *3/38*
U.S. Cl. 200—153 SC **8 Claims**



An electric power circuit breaker is disclosed wherein the latching mechanism as well as other parts which affect the motion of the contacts are returned by restoring forces to their initial position after the breaker is opened. The restoring forces are made ready in dependence on the position of the switching shaft of the breaker and are smaller in the closed position of the switching shaft than in the open position thereof. The invention is suited particularly for low-voltage power circuit breakers for high rated currents wherein the economic configuration of the required springs is of importance.

3,835,276
ELECTRIC SWITCHES

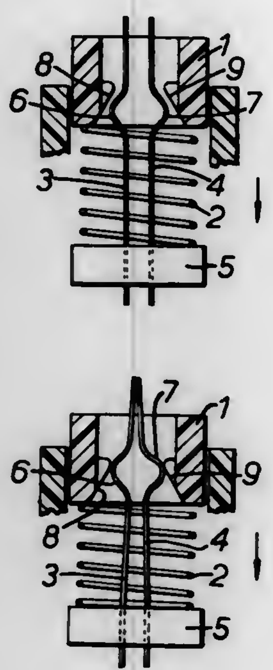
John Rosslyn Field, Fareham, England, assignor to Plessey Handel Und Investments A.G., Zug, Switzerland

Filed Jan. 18, 1973, Ser. No. 324,795

Claims priority, application Great Britain, Jan. 19, 1972, 2684/72

Int. Cl. H01h *13/52*

U.S. Cl. 200—160 **1 Claim**



A push-button switch comprises a springy wire which constitutes a switch contact and is so shaped and arranged that in response to the depression of the push-button which is spring-biased a cam deflects the switch contact whereby the contact makes momentary contact with another switch contact to provide contacts closure. Thereafter during the depression of the push-button the first mentioned switch contact disengages from the other wire contact and the cam is shaped so that as the push-button restores to its unoperated position under the action of its biasing spring the springy wire switch contact is deflected without the momentary switching action being repeated.

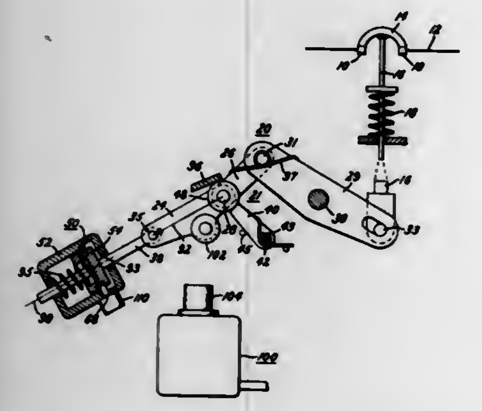
3,835,277
CIRCUIT BREAKER OPERATING MECHANISM WITH HIGH-SPEED LOW-ENERGY TRIPPING MEANS

Klaus M. Skreiner, Media, Pa., assignor to General Electric Company, Philadelphia, Pa.

Filed Sept. 14, 1973, Ser. No. 397,242

Int. Cl. H01h *9/20*

U.S. Cl. 200–318 **4 Claims**



A circuit breaker operating mechanism comprises two toggle links pivotally interconnected at a knee. One of the toggle links is coupled to a contact-actuating member, and the other is pivotally supported on a pivot pin spaced from the knee. Latching means normally holds the pivot pin in a fixed position but is releasable to release said pivot pin and thus render the toggle links incapable of holding the contact-actuating member in its closed position. The latching means comprises a piston, a cylinder in which the piston is reciprocable, means for mounting said pivot pin on the piston, and a ring latch around the outer periphery of the piston normally latching the piston to the cylinder. The ring latch is operable to release the piston from latching relationship with the cylinder, thus releasing the pivot pin and initiating circuit-breaker opening.

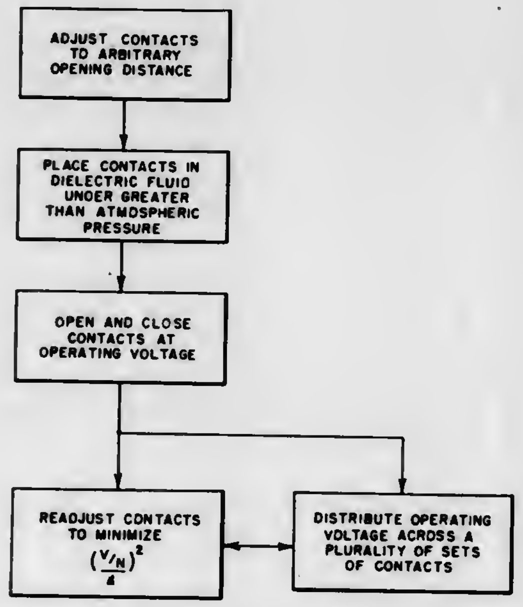
3,835,278
METHOD OF REDUCING SOLID ARCING PRODUCT BUILD-UP BETWEEN ELECTRICAL CONTACTS IN PRESSURIZED FLUID AMBIENTS

Walter E. Pocock, Baltimore, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Continuation-in-part of Ser. No. 316,778, Dec. 20, 1972. This application June 5, 1973, Ser. No. 367,254

Int. Cl. H01h *1/34*

U.S. Cl. 200—249 **6 Claims**


ADJUST CONTACTS TO ARBITRARY OPENING DISTANCE
PLACE CONTACTS IN DIELECTRIC FLUID UNDER GREATER THAN ATMOSPHERIC PRESSURE
OPEN AND CLOSE CONTACTS AT OPERATING VOLTAGE
READJUST CONTACTS TO MINIMIZE $\frac{(V/N)^2}{d}$
DISTRIBUTE OPERATING VOLTAGE ACROSS A PLURALITY OF SETS OF CONTACTS

A method of substantially reducing the build-up of solid arcing products between contacts for making and breaking electrical circuits including the steps of adjusting the contacts to an arbitrary opening distance at which arcing will occur, placing the contacts in the dielectric fluid under greater than atmospheric pressure, opening and closing the contacts at a fixed operating circuit voltage to determine if the solid arcing product build-up forms, and readjusting the contact opening distance to minimize the value of the parameter $(V/N)2/d$ where V is the operating circuit voltage, N is the number of sets (or pairs) of serially connected contacts and *d* is the distance between the contacts when in the fully open position. The value of the parameter may be further reduced by distributing V across a plurality of sets (or pairs) of such contacts connected in series and provided to be simultaneously actuated.

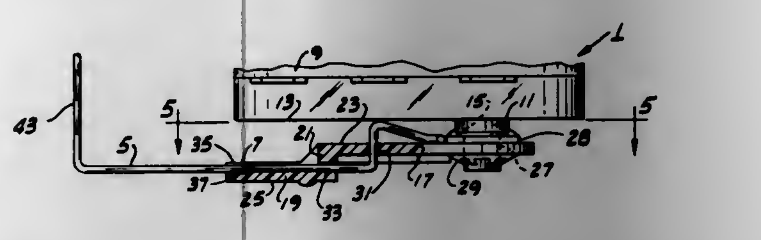
3,835,279
ELECTRICAL SWITCH WITH ADJUSTABLE ACTUATING ARM

Gordon C. Andreas, St. Louis, Mo., assignor to UMC Industries, Inc., St. Louis, Mo.

Filed June 26, 1973, Ser. No. 373,788

Int. Cl. H01h *3/06*

U.S. Cl. 200—332 **7 Claims**



An electrical switch provided with a pivotally mounted primary actuating arm and an auxiliary arm conjointly movable with the primary arm for actuating the switch and also adjustably movable relative to the primary arm, and means engageable with the auxiliary arm to provide preselected adjusted positions beween which the auxiliary is adjustably movable.

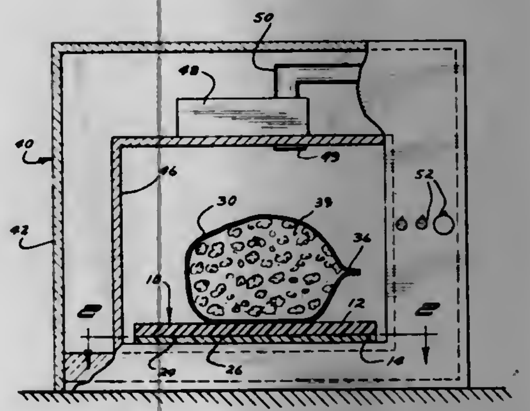
3,835,280
COMPOSITE MICROWAVE ENERGY PERTURBATING DEVICE

Larry D. Gades; Lawrence C. Brandberg, and Roger A. Gorman, all of Minneapolis, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed Feb. 1, 1973, Ser. No. 328,585

Int. Cl. H05b *9/06*

U.S. Cl. 219—10.55 **5 Claims**



For the purpose of concentrating microwave energy to a central point or other desired location in a microwave oven, a composite signal perturbating device is placed in the oven. It consists of a sheet of a low loss dielectrical material together with a layer of microwave reflecting material. The device is placed on the floor of the oven and on the opposite side of the product heated from the source of microwave energy. The low loss dielectric consists, for example, of a flat sheet of dielectric material having two sheets of aluminum foil imbedded therein as concentric rings positioned in a plane parallel to the floor of the oven chamber and spaced from about ¾ of an inch to one inch below the product that is to be heated.

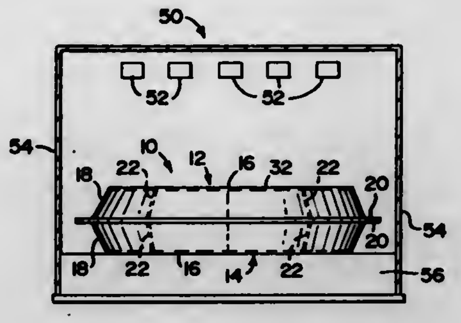
3,835,281
DIFFERENTIAL MICROWAVE HEATING CONTAINER

Frank L. Mannix, 20 Beechcraft Rd., Newton, Mass.

Filed July 5, 1973, Ser. No. 376,677

Int. Cl. H05b *9/06;* **B65d** *1/24;* **A45c** *11/20*

U.S. Cl. 219—10.55 **8 Claims**



A differential heating container for cooking food contained therein with microwave radiation comprising an upper and lower container element each including a plurality of ribs which form a plurality of corresponding pockets such that when the container elements are placed together, the corresponding pockets cooperatively form individual food compartments isolated from one another. Opposite sides of each compartment include equal amounts of microwave opaque area which determine the heating effects of the microwave radiation for each individual compartment independent of the remaining compartment. Locking means are formed on the ribs to cooperatively interlock the upper and lower container elements together as an integral differential heating container.

3,835,282
INDUCTION HEATING APPARATUS FOR HEATING THE MARGINAL EDGE OF A DISK

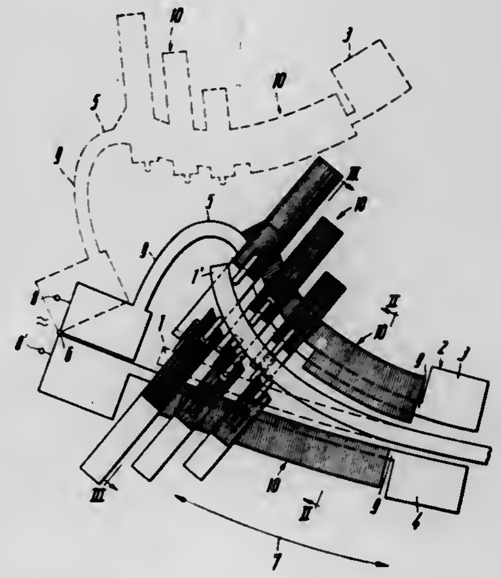
Jochen Sass, Meckelfeld, and Rolf Esche, Spardorf, both of Germany, assignors to Ottensener Eisenwerk GmbH, Hamburg, Germany

Filed Jan. 31, 1973, Ser. No. 328,483

Claims priority, application Germany, Jan. 31, 1972, 2204343

Int. Cl. H05b *5/08*

U.S. Cl. 219—10.57 **13 Claims**



Induction heating apparatus for heating the marginal edge of a disk as the latter is deformed to produce a peripheral flange, incorporates ferromagnetic means located on both sides of the marginal edge of the disk, such means being adapted to move as the disk is deformed, for maintaining a relatively constant magnetic path through the marginal area of the disk during its deformation.

3,835,283
PARTITION AND FRONT WALL FORMING CHOKE STRUCTURE FOR A MICROWAVE OVEN

Ryuji Suzuki, Kitakatsuragi, Japan, assignor to Matsushita Electric Co., Ltd., Osaka, Japan

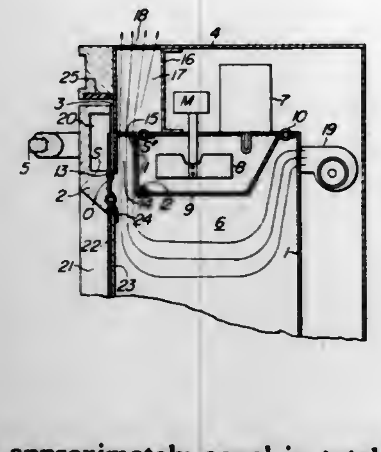
Continuation of Ser. No. 119,628, March 1, 1971, abandoned. This application June 15, 1973, Ser. No. 370,379

Claims priority, application Japan, Mar. 3, 1970, 45-18578

Int. Cl. H05b *9/06*

U.S. Cl. 219—10.55 **6 Claims**

An electromagnetic-wave seal in a high-frequency heating equipment, comprising a first electromagnetic-wave labyrinth which has its terminal short-circuited either to a front port of a heating chamber or to a door and which is approximately equal in total length to an integral times a half-wavelength of the fundamental wavelength, and a second electromagnetic-wave labyrinth which has its terminal short-circuited to the vicinity of an inlet of said first electromagnetic-wave labyrinth and which is approximately equal in total length to an odd number times the quarter-wavelength of the fundamental wavelength, thereby efficiently preventing leakage of electromagnetic-waves.



3,835,284

MEANS FOR SURFACE TREATING AND WELDING TO A METAL

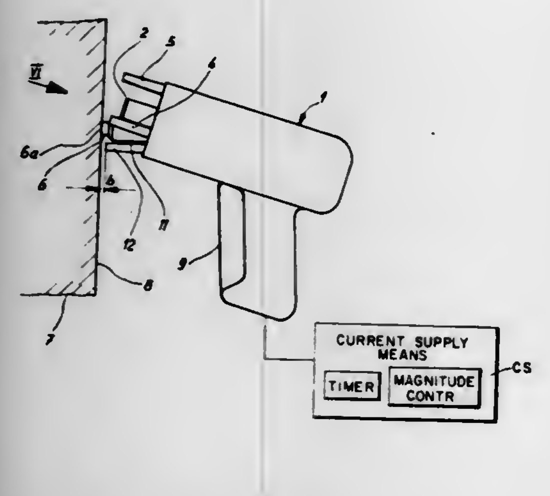
Norbert Gstohl, Eschen, and Dankmar Tauern, Triesenberg, both of Liechtenstein, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Division of Ser. No. 132,040, April 7, 1971, Pat. No. 3,701,879. This application June 23, 1972, Ser. No. 265,518

Claims priority, application Germany, Apr. 13, 1970, 2017655

Int. Cl. B23k *9/00, 11/04*

U.S. Cl. 219—98 **14 Claims**



The surface of a metal workpiece, to which a capacitor discharge stud welding gun is to weld a stud, is precleaned by discharging the gun while it holds a tungsten or other high-melting-point electrode against the workpiece. This passes a stud-welding current pulse through the electrode and the workpiece. It causes a short explosive heating effect that tears up the surface of the workpiece and rips away the thus loosened contamination. It produces a clean metal surface whose extent corresponds to the diameter of the electrode. The magnitude and duration of the pulse are such as to have welded a stud with a lower melting point to the metal. The tungsten electrode may be replaced with titanium, niobium, zirconium, molybdenum etc. These have lower melting points and produce slight surface diffusion of these materials into the metal to form desirable alloys.

3,835,285

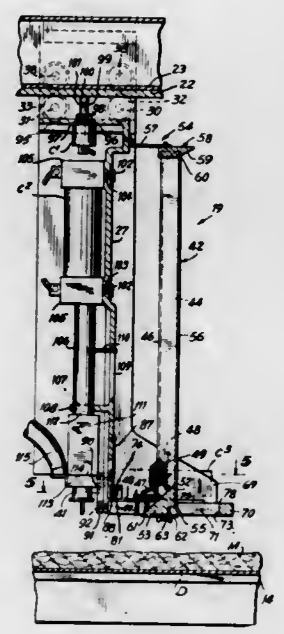
AUTOMATIC RESISTANCE WELDER

Milton Hinden, and Charles Giannone, both of North Babylon, N.Y., assignors to Duro-Dyne Corporation, Farmingdale, N.Y.

Continuation-in-part of Ser. No. 281,205, Aug. 16, 1972, Pat. No. 3,762,541. This application Jan. 12, 1973, Ser. No. 323,099

Int. Cl. B23k *9/00, 11/04, 9/12*

U.S. Cl. 219—98 **5 Claims**



The present invention relates to an automatic resistance welding apparatus for securing insulation material to air conditioning ducts by means of headed metal clips or pins advanced through the insulation material and welded to the ducts. The apparatus includes a grounded support surface on which the metallic duct material is mounted and a welding head mounted on a guide rail in spaced parallel relation to the support surface.

The welding head assembly includes a welding electrode shiftable toward and away from the surface. An operator handle is provided on the welding head, manipulation of the handle being effective to shift the welding head along the rail and, when the head achieves a selected position, to trigger a welding cycle.

The apparatus is characterized by a brake assembly interposed between the rail and the welding head assembly, activation of the apparatus through a welding cycle being preceded by energizing of the brake assembly whereby the position of the welding head relative to the rail is fixed in advance of movement of the weld clip into contact with the insulation or workpiece, and is maintained in such fixed position during formation of the weld.

3,835,286

WELDING ELECTRODE STRUCTURE AND FILLER WIRE MECHANISM FOR AN AUTOMATIC WELDING APPARATUS

Gasparas Kazlauskas, North Hollywood, Calif., assignor to Astro-Arc Co., Sun Valley, Calif.

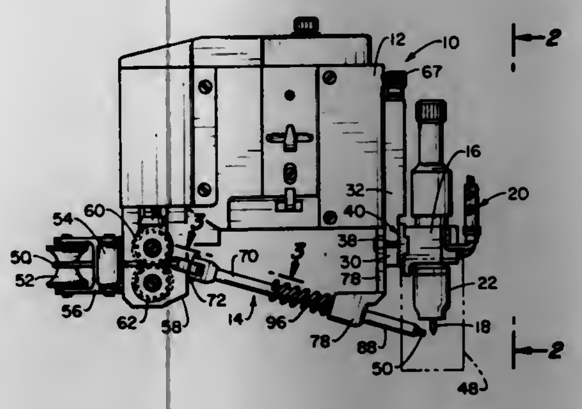
Filed June 11, 1973, Ser. No. 368,767

Int. Cl. B23k *9/12*

U.S. Cl. 219—130 **5 Claims**

In an automatic welding apparatus wherein the welding electrode is to move longitudinally in a prescribed path to produce a weld bead upon a workpiece, the welding electrode and welding electrode housing being pivotally mounted in respect to the welding apparatus housing, a shaft interconnecting the welding electrode housing and the welding apparatus housing, the shaft being movable in predetermined increments to effect precise angular movement of the welding

electrode housing with respect to the welding apparatus housing, a filler wire mechanism being universally mounted in respect to the welding apparatus housing, a portion of the filler wire mechanism being pivotal along with the welding electrode housing.



3,835,287

APPARATUS FOR AUTOMATIC ELECTRIC ARC WELDING

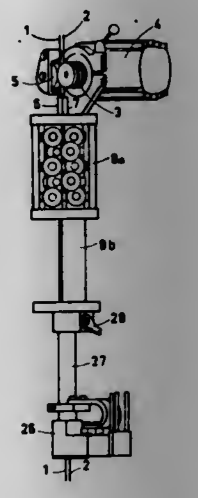
Sven Jonas Roland Jonsson, 11, Manstigen, S-695 00, Laxa, Sweden

Filed June 28, 1973, Ser. No. 374,758

Claims priority, application Sweden, June 30, 1972, 8644/72

Int. Cl. B23k *9/12*

U.S. Cl. 219—130 **3 Claims**



A welding head for automatic electric arc welding with a bare, fusible electrode having a circular cross-section, comprising a wire advancing mechanism, a welding nozzle, and a wire straightening assembly arranged between said wire advancing mechanism and said nozzle, said assembly consisting of two aligned units operating in planes at right angles to each other.

3,835,288

ARC-WELDING ELECTRODE

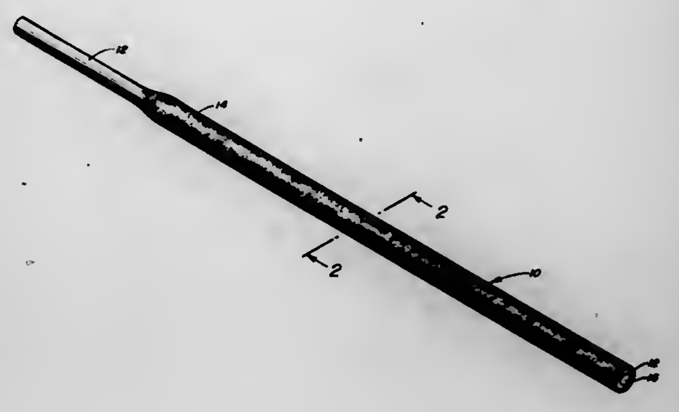
Harold R. Henderson, 152 Lenwood Dr., Lancaster, Ohio 43130

Filed Nov. 5, 1971, Ser. No. 196,050

Int. Cl. B23k *35/00*

U.S. Cl. 219—145 **2 Claims**

An underwater electrode comprising generally cylindrical hollow-elongate electrically conducting substrate coated with an insulating material that is self-extinguishing when ignited by an arc. The coating is of a thickness and strength so that it burns away as the substrate is consumed forming a slight cone-shaped protective extension at the end of the substrate where the arc is struck to a workpiece. A preferred coating is a pre-catalyzed thermosettable epoxy resin placed on an uncoated substrate.



3,835,289

ELECTRODE FOR ARC WELDING

Nikolai Ivanovich Kakhovsky, pereulok Mechnikova, 3, kv. 1; Anatoly Nikolaevich Vakulenko, ul. Engelsa, 3, kv. 54; Leonid Stepanovich Zakharov, ul. Karla Marxa, 4, kv. 6; Vladimir Nikolaevich Lipodaev, pereulok Mechnikova, 4, kv. 27; Vladimir Grigorievich Fartushny, Sapernoe pole 28, kv. 15; Jury Nikolaevich Kakhovsky, pereulok Mechnikova, 3, kv. 1, all of Kiev; Vily Arsentievich Boiko, ul. Kirova, 104/6, kv. 1, Sumy; Zinovy Abramovich Sidlin, ul. vavilova, 45, kv. 21, Moscow, and Konstantin Andreevich Juschenko, Sapernoe pole, 28, kv. 30, Kiev, all of U.S.S.R.

Filed Oct. 12, 1972, Ser. No. 296,816

Claims priority, application U.S.S.R., Feb. 3, 1972, 1740244; Sept. 9, 1970, 1473314

Int. Cl. B23k *35/22*

U.S. Cl. 219—146 **22 Claims**

An electrode for arc welding, comprising a core based on iron with alloying additives of chromium, nickel and titanium, and a coating consisting of fluorite, rutile concentrate, iron powder, chromium and mica. In addition to the above components, said coating also contains magnesite, ferrotitanium and ferroniobium that ensure high plasticity and resilience to the deposited metal, the latter thus being resistant to the formation of pores and hot cracks.

3,835,290

MAGNETICALLY SUPPORTED VEHICLE ENGINE WARMER

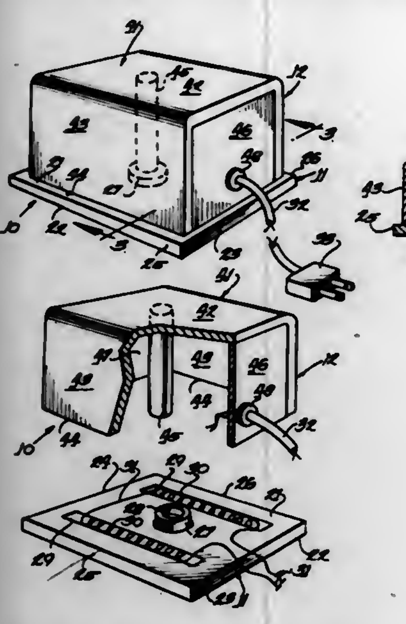
Raymond W. Peters, Rt. 3, Box 192, Arcadia, Wis. 54612

Filed Dec. 5, 1973, Ser. No. 421,767

Int. Cl. H05b *1/00*

U.S. Cl. 219—205 **4 Claims**

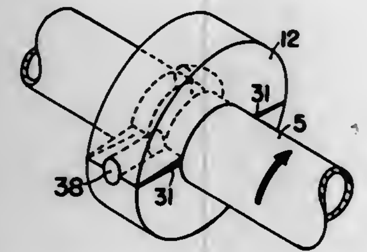
An electric engine warming heater adapted to be magnetically secured to any selected portion of a vehicle engine. The heater includes a flat base member, which may be of magnetic material, having a top surface provided with slots in which are disposed electric heating coils. A housing secured to the top of base member covers encloses the heating coils. The top and two opposite sidewalls of the housing are formed by a permanent horse-shoe magnet. The other sidewalls of the housing are formed by flat plates secured to the legs of the horse-show magnet. A cyclindrical bar magnet is secured to the base portion of the horse-shoe magnet and projects downwardly therefrom into the center of a ring-shaped magnet secured to the base member.



3,835,291
ELECTRON BEAM WELDING MACHINE WITH SPLIT SEAL MEANS

David Sciaky, Chicago, Ill., assignor to Welding Research, Inc., Chigago, Ill.

Filed Feb. 16, 1973, Ser. No. 332,915
Int. Cl. B23k *15/00*
U.S. Cl. 219—121 EB **8 Claims**



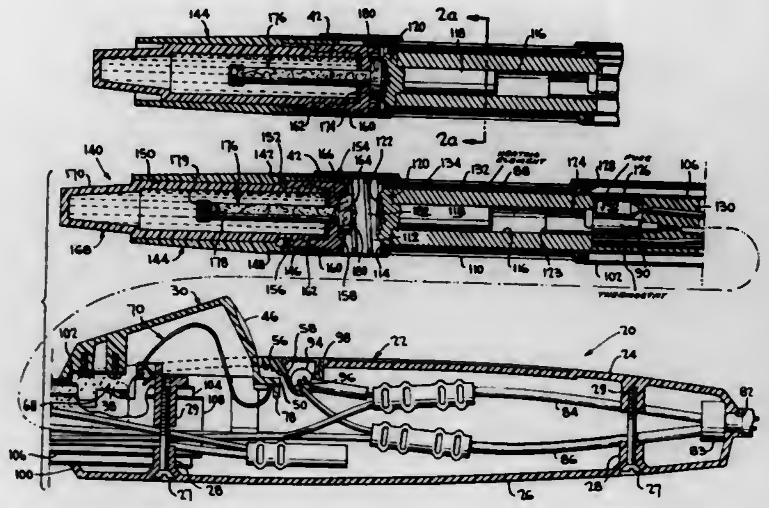
A sealing device for sealing cylindrical objects passing through a wall of a vacuum chamber and which are to be rotated about their longitudinal axes comprising a two part annular resilient seal separable along a plane passing through a diameter of the seal. The parts are installed one on each section of a wall of the chamber which has been split into two parts which may be moved in relation to one another so that when the wall sections are separated the seal parts are separated and the inside of the vacuum chamber is accessible so that the cylindrical objects may be positioned part inside the chamber and the remainder extending outside the chamber. When the wall sections are brought to the closed position the seal parts meet along the plane and surround the cylinder so as to form an effective vacuum seal between wall and cylinder. Means are provided in the resilient seal for preventing leakage of air into the chamber along the interface between the two seal parts when the cylindrical objects are in rotation.

3,835,292
STEAM CURLING IRON

Henry J. Walter, Wilton; John H. Kronheim, Stamford, and Harvey Levine, Fairfield, all of Conn., assignors to Clairol, Incorporated, New York, N.Y.

Filed Feb. 28, 1973, Ser. No. 336,676
Int. Cl. H05b *1/00;* **A45d** *1/02, 2/36*
U.S. Cl. 219—222 **20 Claims**

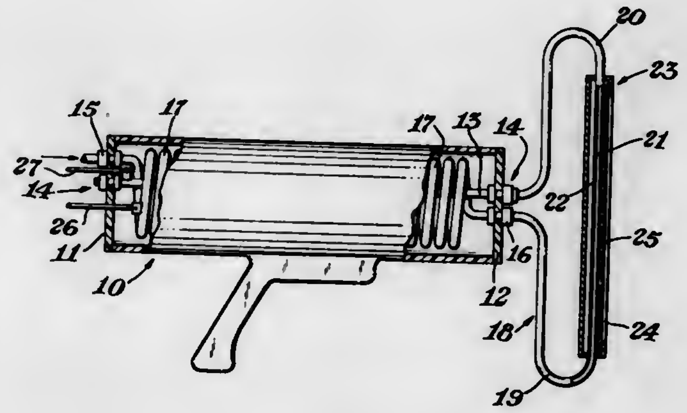
A steam curling iron having a tubular body with apertures therein, a heating element disposed in a heating chamber in the tubular body, and a fluid dispensing device mounted at one end of the tubular body including a reservoir for storing a fluid and a metering mechanism for supplying a metered quantity of the fluid from the reservoir to the heating chamber such that the heating element evaporates a predetermined amount of fluid for application through the apertures to hair wound around the tubular body. The tubular body has axial depressions in the outer surface thereof with the apertures positioned in the axial depressions to emit steam tangentially of the tubular body, and a clip extends along the tubular body for holding the ends of a tress of hair wound around the tubular body, the clip being mounted in a housing at an end of the tubular body opposite the fluid dispensing device to be pivotally biased against the tubular body and to be movable away from the tubular body in a direction transverse to the longitudinal axis of the tubular body to permit hair wound around the tubular body to be axially removed therefrom.



3,835,293
ELECTRICAL HEATING APPARATUS FOR GENERATING SUPERHEATED VAPORS

Dale L. McAlister, 4314 Jefferson, Midland, Mich. 48640

Filed Sept. 17, 1973, Ser. No. 398,047
Int. Cl. H05b *3/42;* **B05b** *1/24;* **F22g** *1/16*
U.S. Cl. 219—300 **1 Claim**

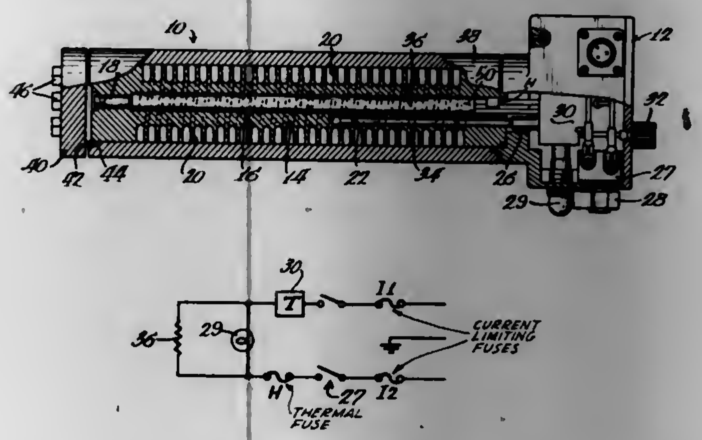


An improved apparatus for generating superheated vapors of vaporizable organic liquids having a novel superheating section capable of delivering a wide swath of superheated vapors. The new section is substantially a loop of electrical resistance tubing connected to the vapor generating section of a mobile or hand-held electrical resistance tube heater. The loop is hollow through about two-thirds of its length, the remainder, the return to the electrical circuit, being solid. The tubular portion of the superheater has a plurality of perforations in a substantially straight section, which section is surrounded by a slotted housing for directing the vapors entering the housing from the perforated tube.

3,835,294
HIGH PRESSURE ELECTRIC FLUID HEATER

Duane D. Krohn, and Samuel W. Culbertson, both of Arvada, Calif., assignors to Binks Manufacturing Company, Franklin Park, Ill.

Filed Apr. 6, 1973, Ser. No. 348,484
Int. Cl. H05b *1/02;* **B05b** *1/24;* **F24h** *1/12*
U.S. Cl. 219—305 **1 Claim**

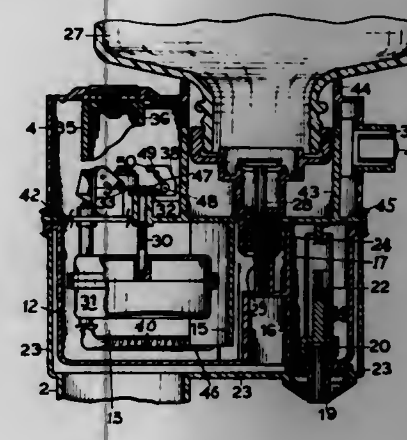


A compact and easily cleaned high pressure heater for paint and the like includes a cylindrical core having a continuous spiral groove in the outer surface. A cylindrical cover having open ends is disposed around and in axially slidable engagement with the core to define with the groove a closed end spiral passageway. A fluid inlet and outlet to the passageway are provided at opposite ends of the cover and the cover is held between a removable end cap secured to one end of the core and a control box attached to the other end thereof. An electric heating element is enclosed in the core and has a pair of leads adapted for connection to a power supply. A thermostat having a sensing element disposed in the core is located in the control box. A current limiting fuse is provided in each of the heater leads and a thermal fuse is provided to protect the heater in the event the thermostat should fail.

3,835,295
WATER HEATER

Aldo Ronchese, 20 Saint Johns Rd., Houghton, Johannesburg, South Africa

Filed Sept. 5, 1972, Ser. No. 286,427
Int. Cl. H05b *1/02;* **F24h** *1/24;* **B67d** *5/62*
U.S. Cl. 219—314 **14 Claims**

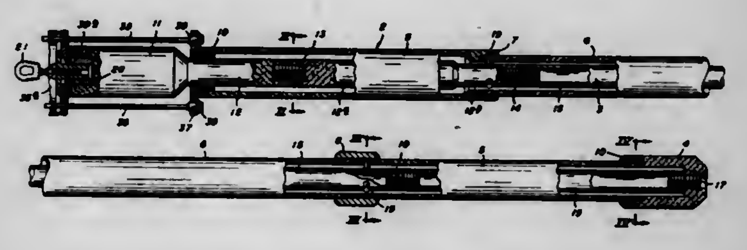


A water heater for heating predetermined variable quantities of water and dispensing the exact predetermined quantity at substantially the boiling temperature includes a heating compartment having its bottom connected to the top of a second compartment. A heating element is provided in the heating compartment. The heating compartment is connected to a constant level water supply means. A movable float in the heating compartment is latched in a first position whereby it displaces a predetermined quantity of water. The float can be released for movement to a selected second position determined by a variable stop means wherein the quantity of water displaced by the float is decreased. The selected second position determines the quantity of water to be heated. Movement of the float from the first to the second position activates a switch to energize the heating element. The heated water is transferred through a passage from the bottom of the heating compartment into the upper part of the second compartment and may be then dispensed from the second compartment through a siphonic dispenser.

3,835,296
INDUSTRIAL ELECTRIC RESISTANCE HEATER

William V. Middough, Shaker Heights, Ohio, and Louis H. Jaquay, Bridgeville, Pa., assignors to Dravo Corporation, Pittsburgh, Pa.

Division of Ser. Nos. 234,689, Jan. 27, 1972, Pat. No. 3,764,718, Continuation of Ser. No. 29,150, April 16, 1970, abandoned. This application Oct. 1, 1973, Ser. No. 402,092
No. 402,092
Int. Cl. H05b *3/10*
U.S. Cl. 219—553 **9 Claims**

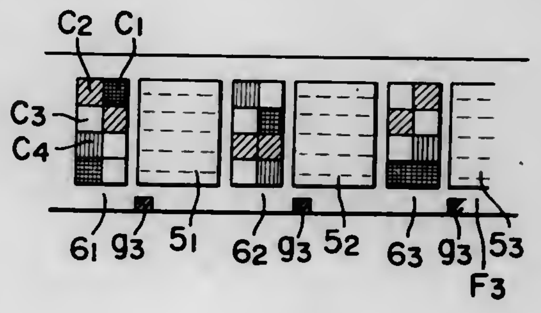


An electric resistance heater for industrial use with high heat emmisitivity per unit of length and low energy loss has coaxially-extending non-magnetic resistance units with a terminal end and an end opposite the terminal ends where the two conductors, otherwise electrically separate, are joined, thereby connecting them in series. At the terminal end the inner conductor projects through an enlargement of the outer conductor and has an exposed terminal portion of the same diameter as the enlarged terminal end of the outer conductor.

3,835,297
MICROFILM PROVIDED WITH COLOR CODES AND DEVICE FOR RECORDING AND REPRODUCING SUCH CODES

Mutshuiro Inoue, 4100-2, Isobe, Kanagawa-ken, Sagamihara-shi, and Shunzo Inoue, 4-45-17, Minami Magome, Ohta-ku, Tokyo, both of Japan

Continuation of Ser. No. 111,057, Jan. 29, 1971, abandoned. This application May 9, 1973, Ser. No. 358,485
Claims priority, application Japan, Feb. 5, 1970, 45-10141
Int. Cl. G06k *19/06, 7/12;* **G01n** *21/30;* **G01d** *15/14*
U.S. Cl. 235—61.11 E **4 Claims**

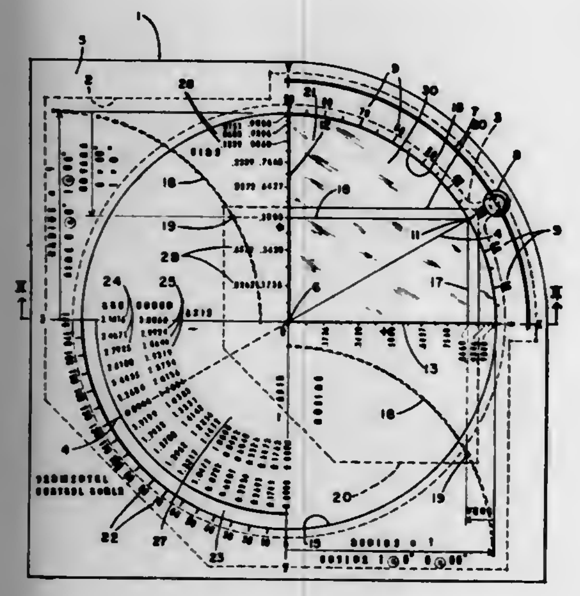


The invention consists in a microfilm provided with color index codes of at least two colors other than the colors for recording information on the microfilm, to thereby increase the facility to search for the index codes and accordingly a desired type of information recorded in the recording frames of the microfilm represented by such color codes. The invention also consists in a code recording device for additionally forming the said color index codes on a photographed microfilm in a light environment, and a reproducing device for reproducing the color index codes formed on the photographed microfilm.

3,835,298
DEVICE FOR DEMONSTRATING AND CALCULATING MATHEMATICAL FUNCTIONS

Joseph D. DeAndrea, 349 S. Aiken Ave., Pittsburgh, Pa. 15232

Filed Aug. 15, 1973, Ser. No. 388,460
Int. Cl. G06g *1/00*
U.S. Cl. 235—61 GM **5 Claims**

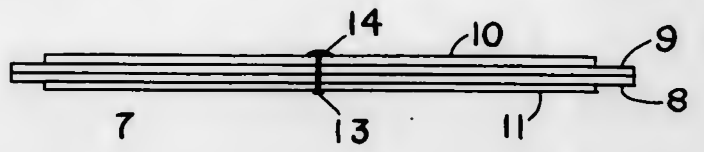


A device for demonstrating and calculating mathemetical functions comprising a planar member having a unit circle inscribed thereon and a 90° angular scale associated therewith to indicate the angle of an arc measured within one quadrant of the unit circle. The planar member also includes perpendicularly extending ordinate and abscissa axes positioned with their point of intersection at the origin of the unit circle. Numerical indicia are associated with each axis to indicate sine, cosine, versine and coversine values. A cursor member carrying a radius vector hairline inscribed thereon is pivotally mounted within the open interior of the planar member at the origin of the unit circle with the radius vector hairline passing through the origin. A flat, transparent indicator member having two intersecting perpendicular hairlines inscribed thereon is pivotally mounted within the interior portion of the planar member to the cursor member. Alignment means is provided to maintain a perpendicular relationship between the hairlines of the indicator member with the abscissa and ordinate axes when said cursor member and flat indicator member are moved through a quadrant of the unit circle thus permitting visual observation of the sine and cosine values of an inscribed angle at the points of intersection of the pair of perpendicular hairlines with the ordinate and abscissa axes respectively. My device may also include segmental central angle indicia, arc indicia and chord indicia whereby the segmental central angle of any inscribed angle within a quadrant of the unit circle may be determined along with the length of arc and length of chord for said segmental central angle.

3,835,299
NAVIGATIONAL COMPUTERS

Peter Baldwin Turney, 1405 Forest Park Ave., Baltimore, Md. 21207

Filed Sept. 21, 1973, Ser. No. 399,432
Int. Cl. G06c *27/00;* **G06g** *1/08*
U.S. Cl. 235—61 NV **7 Claims**

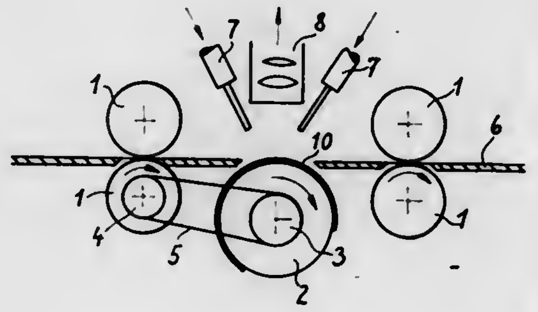


A navigational computer for solving wind vector problems including a plurality of rotatable discs having cooperatively arranged wind grid, aircraft grid, and 360° compass rose, for setting and reading air speeds, wind speeds and ground speeds, and for calculating drift angles and the crab angles necessary to compensate for drift. A runway orienter is incorporated in the wind grid and cooperates with the compass rose to indicate the direction of the various legs in airport traffic patterns.

3,835,300
WEB-READING SYSTEM WITH REPLACEABLE DRUM

Siegmar Donner, Augsburg, Germany, assignor to Fa. Kleindienst & Co., Augsburg, Germany

Filed Oct. 12, 1972, Ser. No. 296,961
Claims priority, application Germany, Nov. 24, 1971, 2158302
Int. Cl. G06k *7/10*
U.S. Cl. 235—61.11 E **2 Claims**



The invention relates to a drum which is removable from conveying means in an optical or electronic reading system for documents, the drum having means for mounting on its surface a test document so that when the drum is replaced in the conveying means the test document can be constantly read whereby faults can be detected or the system can be adjusted.

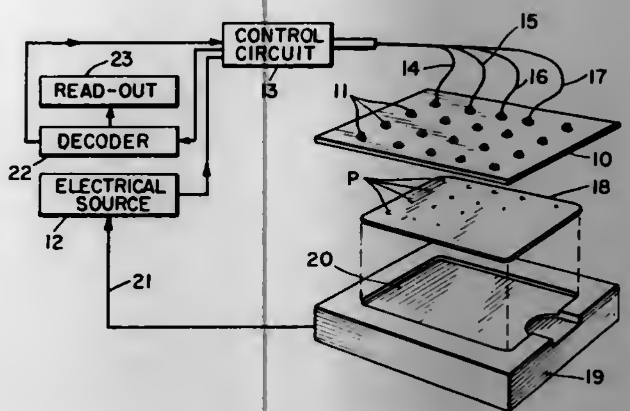
3,835,301
CARD CODING AND READ-OUT SYSTEM

Walter W. Barney, Encino, Calif., assignor to Paul W. Helert, El Cajon, Calif., a part interest

Filed Feb. 21, 1973, Ser. No. 334,197
Int. Cl. G06k *1/02;* **G01d** *15/08;* **G06k** *7/06;* **G06f** *5/02;* **G06k** *19/06*
U.S. Cl. 235—61.11 A **2 Claims**

A card may be provided with an invisible code and the same apparatus employed for coding the card can be used to read back the code on the card and convert it to a display of information defined by the code. The coding of the card is accomplished by subjecting selected points of the card to a high voltage which causes a current to flow through the selected points and render them more conductive than remaining portions of the card. The selected points rendered more conductive are invisible to the naked eye and the physical appearance of the

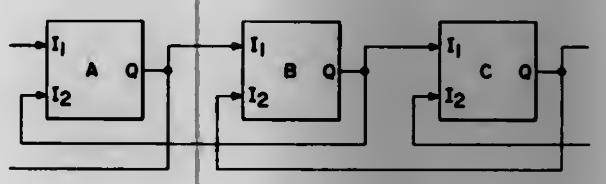
card is in no way impaired. In reading out the code, a lesser voltage is applied to all points on the card and only those points rendered more conductive will pass current to provide electrical signals for operating a suitable read-out, print-out, computer input, or for otherwise retrieving the information.



3,835,302
RING-COUNTER

Kenneth K. Au, Ottawa, Ontario, Canada, assignor to Microsystems International Limited, West Montreal, Quebec, Canada

Filed Feb. 15, 1973, Ser. No. 332,542
Claims priority, application Canada, Dec. 29, 1972, 160227
Int. Cl. H03k *27/00*
U.S. Cl. 235—92 NG **28 Claims**



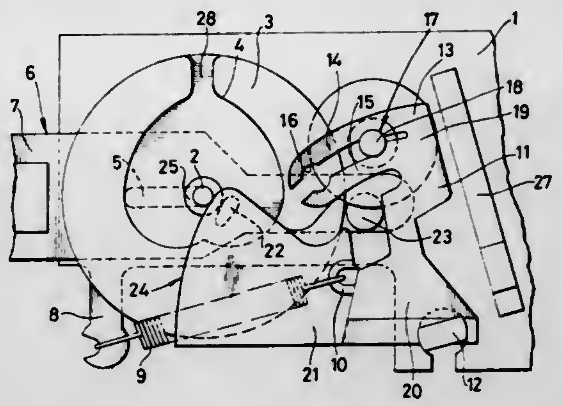
A ring counter having a number of series connected elements, each element having a feedback path to the preceding element and a feed-forward path to the succeeding element. For error-free operation, regardless of noise occurring at any input within the counter, each element requires (n-2) feedback paths associated therewith, "n" being the number of elements within the counter.

3,835,303
RESET DEVICE FOR DIGIT DRUMS IN COUNTERS

Hans Gunter Krauss, Vohrum, Germany, assignor to Elmeg-Elektro-Mechanik GmbH, Peine, Germany

Filed Jan. 22, 1973, Ser. No. 325,393
Claims priority, application Germany, Jan. 24, 1972, 2203257
Int. Cl. G06c *15/42*
U.S. Cl. 235—144 HC **11 Claims**

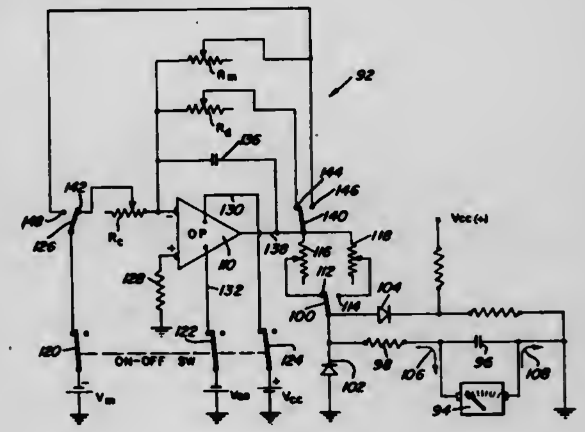
A reset device for resetting the digit drums of a counter wherein the drums are coupled by transfer pinions mounted on a shaft which is movable to disengage the transfer pinions from the digit drums during the resetting of the digit drums by reset fingers acting on heart-shaped cams associated with the digit drums, the reset device including a resilient element which is movable with the reset fingers, is engageable with the shaft and defines two stop positions of the shaft relative thereto, the positions being such that on operation of the device the shaft in one stop position is initially moved with the resilient element to disengage the transfer pinions from the digit drums, on further movement of the resilient element during which the reset fingers act on the cams to reset the digit drums, the shaft abuts a stop and the resilient element moves relative thereto to move the shaft into the other stop position, and during the reverse movement of the resilient element the shaft in the other stop position is moved back to reengage the transfer pinions with the digit drums and is thereafter moved relative to the resilient element back into the one stop position thereof.



3,835,304
CHEMICAL MIGRATION RATIO INSTRUMENT

Sylvia Martinez, 1111 Pizarro St., Coral Gables, Fla. 33134

Filed Dec. 19, 1972, Ser. No. 316,552
Int. Cl. G01n *33/00;* **G06g** *7/16*
U.S. Cl. 235—151.3 **20 Claims**



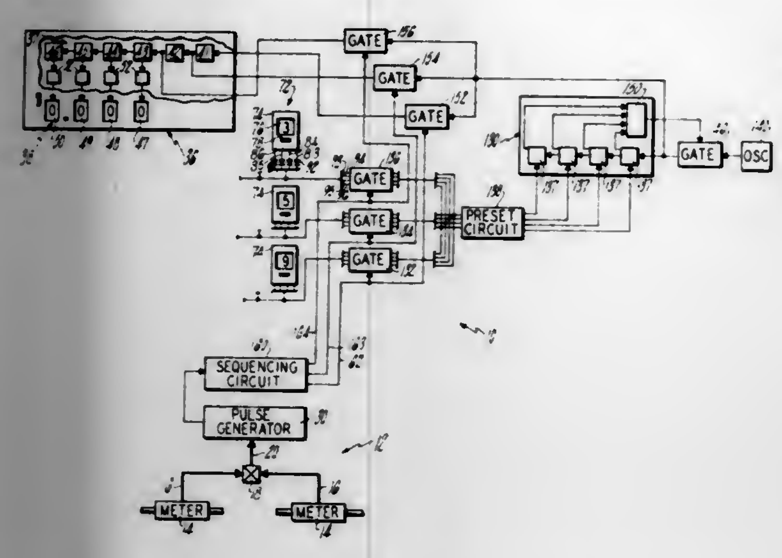
An instrument for calculating chemical migration ratios or the like on a test surface, said instrument comprising a pointer adapted to overlie the test surface, control means for moving the pointer to selected locations relative to the test surface, circuit means associated with the control means for providing electrical signals representative of the position of the pointer relative to the test surface, and meter means responsive to the electrical signals for providing readings corresponding to the pointer positions. The circuit means may include memory means for storing the readings for comparison with subsequent readings.

3,835,305
COMPUTING DEVICE

Crawford M. Kus, Vernon, Conn., assignor to Veeder Industries Inc., Hartford, Conn.

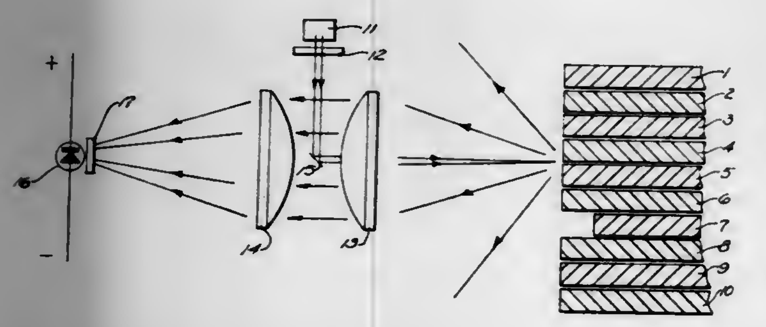
Continuation of Ser. No. 64,278, Aug. 17, 1970, Pat. No. 3,696,236. This application Aug. 18, 1972, Ser. No. 281,637The portion of the term of this patent subsequent to Oct. 3, 1989, has been disclaimed.
Int. Cl. G06f *15/56, 7/52*
U.S. Cl. 235—151.34 **2 Claims**

A computing device for a multiple product gasoline dispensing system having a cost counter for accumulating the cost of gasoline dispensed, a bank of three price decade switches for each gasoline product settable for establishing the amounts of the three places respectively of a three place unit volume price, and a pulse generator for generating a pulse for each one-hundredth of a unit volume of gasoline dispensed. A sequencing circuit is operated by each pulse to sequentially set a binary predetermining counter at the straight binary complement of the amount established by each decade switch for the gasoline product being delivered and an oscillator is gated to index the predetermining counter from such setting to a maximum count and simultaneously index the cost counter to enter such amount into the cost counter at a level corresponding to its order of significance in unit volume price.



3,835,306
REFLECTION-TYPE COUNTER

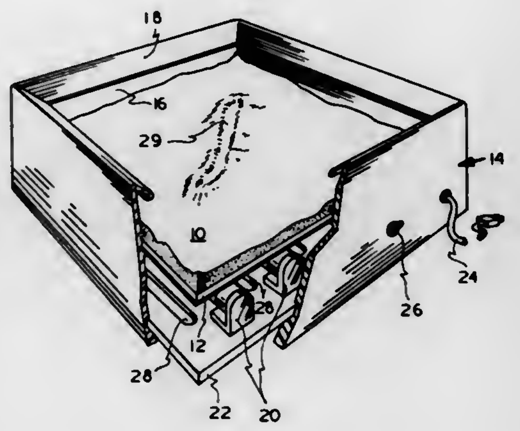
Thomas L. Bills, and Robert E. Boni, both of c/o Armco Steel Corporation, 703 Curtis St., Middletown, Ohio 45042
Filed Sept. 27, 1972, Ser. No. 292,762
Int. Cl. G06m *9/00*
U.S. Cl. 235—92 SB **18 Claims**



A reflection-type counter for counting a plurality of adjacent edges of reflective material as for example the number of convolutions in a coil of reflective material or the number of sheets in a stack of sheets of reflective material. The counter comprises a light source and means for focusing a beam of light of elliptical cross section from the source onto the edges being counted, the elliptical beam having a minor axis less than the width of the edges upon which it is focused. The beam is so oriented with respect to the edges being counted that both the angle of incidence and the angle of reflectance are substantially perpendicular to the edges being counted. The reflected beam is directed to a photo detector. The voltage output of the photodetector increases as the intensity of the light striking the detector increases. Thus the voltage output of the photodetector is greater when the light beam passes over an edge of the reflective material than when it passes over an interface between edges. Means are provided to process the voltage output of the photodetector into a digital signal. The number of times the signal drops below a predetermined level is counted and displayed. The electronics are such that the number displayed is equal to the number of interfaces passed by the beam plus one, thus giving the actual number of edges present.

3,835,307
CREATIVE OPTICAL ARTISTIC MEDIUM

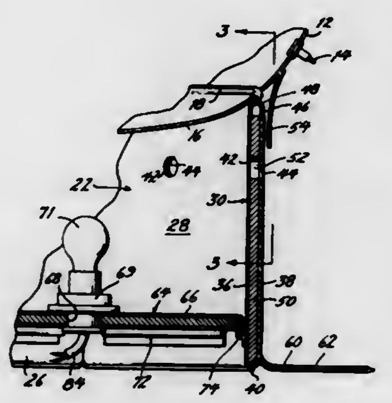
Leland P. Johnston, 513 South Lafayette St., Macomb, Ill. 61455
Filed Apr. 19, 1971, Ser. No. 134,955
Int. Cl. F21
U.S. Cl. 240—1 **3 Claims**



A structure providing a creative medium includes a light source directing white, colored, or variegated light through a layer of sand or comparable material supported under a light-transmissive panel. The light source and panel are supported upon a framework which also acts as container for the layer of sand. The artist inscribes lines and/or areas in the material, or otherwise redistributes it in patterns which form creative displays by virtue of the way light is passed through the material from the light source therebelow.

3,835,308
INFLATABLE ORNAMENTAL DEVICE

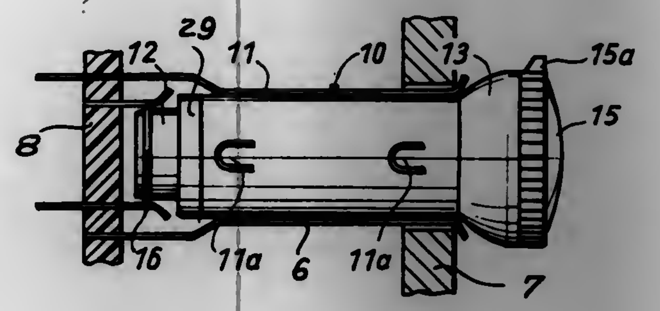
Harvey Reese, Melrose Park, Pa., assignor to Reese-Stein & Co., Inc., Cornwells Heights, Pa.
Filed Dec. 9, 1971, Ser. No. 206,409
Int. Cl. A47g *33/00*
U.S. Cl. 240—10 C **8 Claims**



An envelope which simulates a figure when inflated has a transparent bottom wall and is connected to an upstanding base adjacent the bottom wall. A lamp within the base projects light upwardly through the base, through the bottom wall, and into the figure. The base is collapsible.

3,835,309
ELECTRICAL APPLIANCE POWERED BY SELF-CONTAINED RECHARGEABLE BATTERY

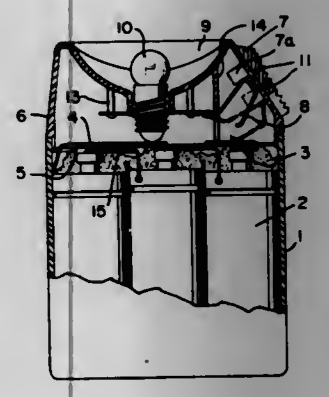
Waldemar Witte, and Alois Langer, both of Murrhardt, Germany, assignors to Waldemar Witte, Murrhardt, Panoramaweg, Germany
Filed Nov. 15, 1972, Ser. No. 306,548
Claims priority, application Germany, Nov. 30, 1971, 2159202
Int. Cl. F21l *9/00*
U.S. Cl. 240—10.6 CH **3 Claims**



Electrical appliance such as a pocket flashlight and the like powered by a self-contained rechargeable battery. The appliance is provided with means whereby the batteries thereof may be recharged by inserting an electrical plug on the appliance into the cigarette lighter receptacle of a motor vehicle. A device is also provided whereby the batteries of the appliance may be recharged from the electrical mains of a house. A flashlight made in accordance with the invention may have the lens thereof pivotally mounted so that when the lens is swung away from its operative, light-focusing position on the flashlight, it serves as a magnifying glass to facilitate the examination of a map or the like illuminated by the flashlight.

3,835,310
FLASHLIGHT

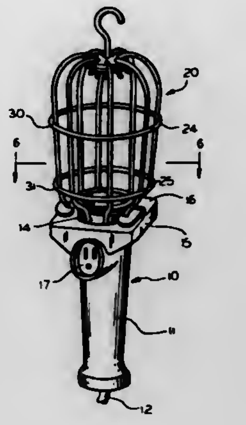
Robert Koder, Ellwangen, Germany, assignor to Varta Aktiengesellschaft, Frankfurt/Main, Germany
Filed Sept. 13, 1972, Ser. No. 288,616
Claims priority, application Germany, Jan. 11, 1972, 2206544
Int. Cl. F21l *7/00*
U.S. Cl. 240—10.65 **17 Claims**



Flashlight having an internal connector strip fixedly connected at one end to the flashlight lamp, and deflectable at the other end to make or break contact with a battery terminal. Contains provisions for maintaining accurate alignment between the deflector connector strip end and the battery terminal. The strip itself is so curved as to ensure reliable area contact with the battery terminal when deflected into its contact-making position.

3,835,311
HAND LAMP WITH PIVOTABLE WIRE CAGE SECTION

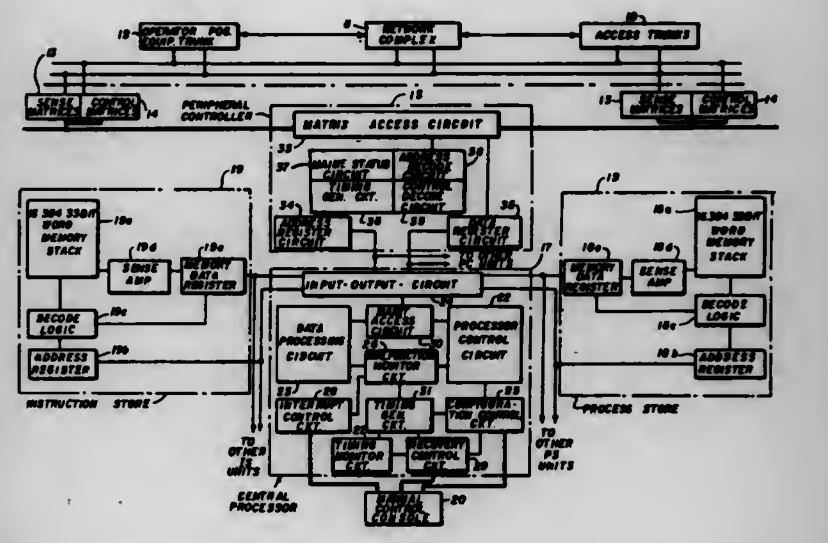
David E. Kramer, Northbrook, Ill., assignor to Daniel Woodhead, Inc., Northbrook, Ill.
Filed May 25, 1973, Ser. No. 364,125
Int. Cl. F21v *15/02*
U.S. Cl. 240—54 R **5 Claims**



A portable hand lamp having a bulb-protecting cage with a pivotable wire cage section, and releasable locking means on the handle coacting with the lower ends of vertical wires of the pivotable section embodying diagonal edges releasably holding a pair of wires and a bar and lip combination coacting to keep the front section in closed position.

3,835,312
RECOVERY CONTROL CIRCUIT FOR CENTRAL PROCESSOR OF DIGITAL COMMUNICATION SYSTEM

John A. Wilber, Elk Grove Village; Verner K. Rice, Wheaton, and Rolfe E. Buhrke, La Grange Park, all of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Mar. 15, 1973, Ser. No. 341,427
Int. Cl. G06f *11/00, 15/00*
U.S. Cl. 340—172.5 **16 Claims**

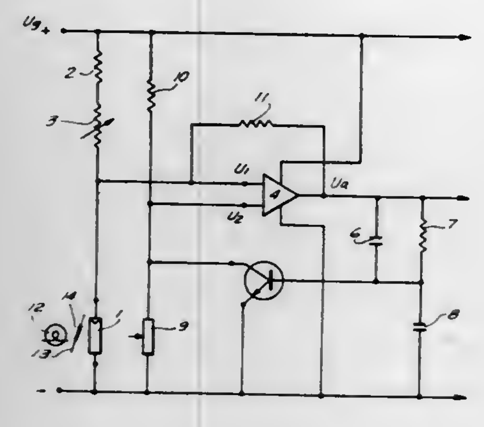


The central data processor of a digital communication system includes a recovery control circuit which is responsive to error levels in the central processor and initiates an internal timing cycle to generate signals used to initiate system recovery action.

3,835,313
ARRANGEMENT FOR COMPENSATING FOR CHANGES IN THE OPERATING CHARACTERISTICS OF A MEASURING ELEMENT

Guenther Stiefelmeyer, Vordere str. 99, Bissingen, and Guenther Schumm, Bruhlstr. 11/1, Beuren, both of Germany

Filed Apr. 10, 1973, Ser. No. 349,785
Int. Cl. H01j *39/12*
U.S. Cl. 250—206 **5 Claims**

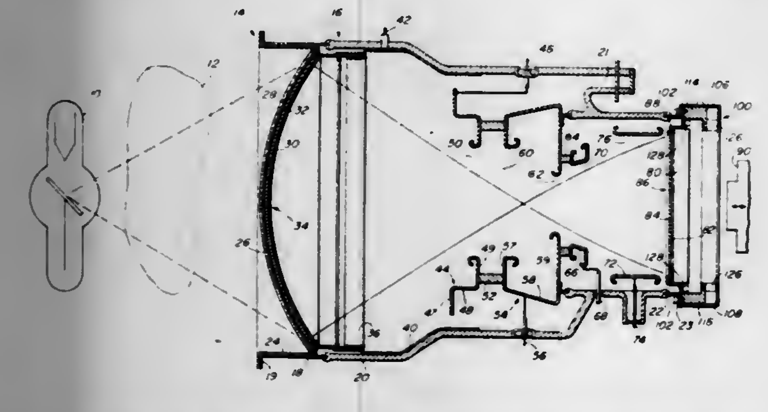


A photoresistor forms part of a voltage divider whose tap is connected to the inverting input of a differential amplifier. A second voltage divider has a tap connected to the direct input of the differential amplifier. The differential amplifier output is connected to a capacitor through a parallel resistor-capacitor network. The voltage across the capacitor consitutes the emitter-base voltage of a transistor whose emitter-collector circuit is connected in parallel with one resistor of the second voltage divider. Changes in the operating characteristic of the measuring element cause a change in the voltage across the capacitor which in turn causes a change in the resistance of the emitter-collector circuit of the transistor in such a direction that the output voltage of the differential amplifier is independent of the changes of the operating characteristics of the measuring element.

3,835,314
INTENSIFIER RADIOGRAPHIC IMAGING SYSTEM

Stanley S. Grossel, New York, N.Y.; Andrew L. Cunningham, Springfield, and H. Sherwood Cooke, Stamford, both of Conn., assignors to The Machlett Laboratories, Incorporated, Springdale, Conn.

Filed Mar. 5, 1973, Ser. No. 337,817
Int. Cl. H01j *31/50*
U.S. Cl. 250—213 VT **15 Claims**

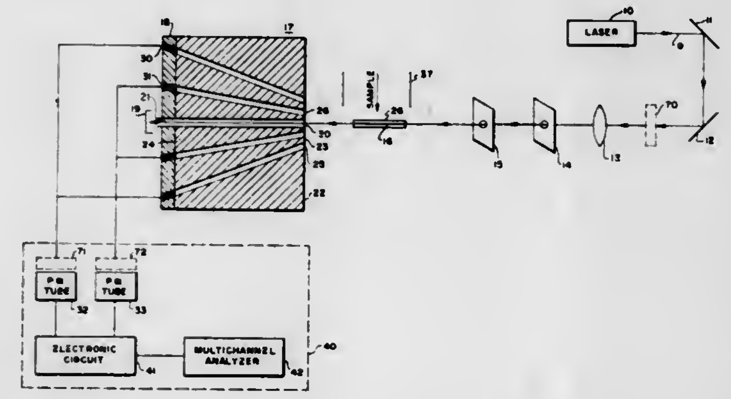


An intensified radiographic imaging system comprised of an image intensifier tube including an input screen assembly having means for converting an incident X-ray image into an electron image, an output screen having means for converting the electron image into a visible light image, and an adjacent output faceplate transparent to visible light; a photographic film; means for pressing a portion of the film against the exterior surface of the output faceplate when desired; and means for focusing the entire electron image onto a minified area of the imaging screen and alternatively onto an area of the imaging screen proportionate in size to said portion of the film.

3,835,315
SYSTEM FOR DETERMINING PARAMETERS OF A PARTICLE BY RADIANT ENERGY SCATTERING TECHNIQUES

Claude C. Gravitt, Jr., Rockville, Md., assignor to The United States of America as represented by the Secretary of Commerce, Washington, D.C.

Filed Dec. 6, 1972, Ser. No. 312,529
Int. Cl. G01n *21/26*
U.S. Cl. 250—218 **7 Claims**

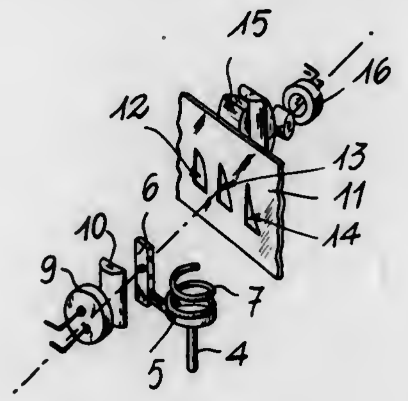


A collector contains a hole and annular apertures for transmitting a pair of conical, coaxial sheets of radiant energy. A beam of energy is directed through the hole, whereby a scattering volume is defined by the beam diameter and the fields of view of the apertures. When a particle moves through the volume, enery is scattered through the apertures and is detected to generate a pair of signals, each having a magnitude dependent upon the intensity of the energy in one of the conical sheets. A device responds to the magnitudes of the signals to indicate the size or nonspherical characteristics of the particle.

3,835,316
DEVICE FOR ELECTRONICALLY DETECTING PRESSURE CHANGES IN A FLUID

Maurizio Checchetti, Piazza Sicilia, 6, Milan, Italy 20146

Filed Sept. 13, 1973, Ser. No. 396,747
Claims priority, application Italy, Sept. 25, 1972, 29641/72
Int. Cl. G01d *5/34*
U.S. Cl. 250—231 P **4 Claims**

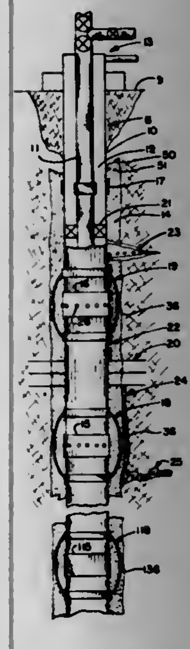


A device for electronically detecting pressure changes in a fluid is disclosed. The device comprises a movable plunger fast with a perforated movable diaphragm, on one side having a light source and on the other side a stationary screen with at least one shaped aperture beyond which a photoresistor is arranged and connected to an electric circuit for transforming the optical signal into an electric signal.

3,835,317
MARKER FOR CEMENTED CASING

Roy R. Vann, Box 40-A Star Route West, Artisia, N. Mex. 88210

Continuation-in-part of Ser. No. 109,381, Jan. 25, 1971, Pat. No. 3,710,114. This application Dec. 22, 1972, Ser. No. 317,648
Int. Cl. G21h *5/02*
U.S. Cl. 250—260 **6 Claims**

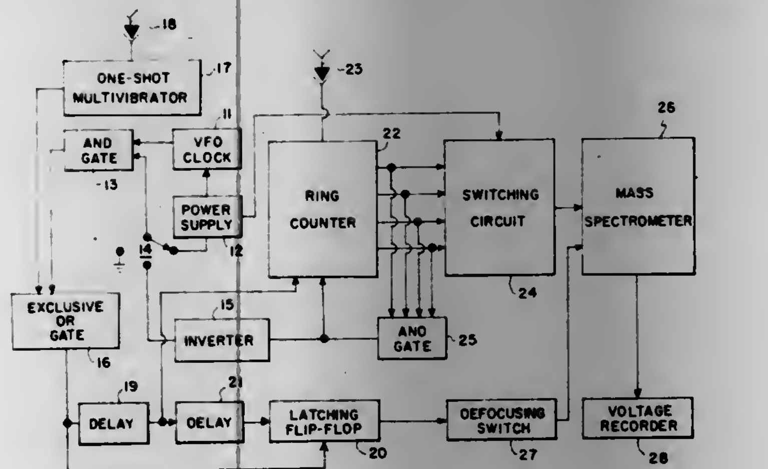


Method of determining the location in a well bore of the top of a cement plug by adding an isotope having a known half-life to the cement slurry as the cement is initially pumped into the borehole annulus. The isotope is subsequently located by measuring the radio activity of the borehole with radiation measuring apparatus of the prior art.

3,835,318
FAST SCAN CONTROL FOR DEFLECTION TYPE MASS SPECTROMETERS

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention by; Paul R. Yeager, Box 901; Gianni Gaetano, Railway Rd., both of Grafton, Va. 23490, and David B. Hughes, 34 Langhorne Circle, Newport News, Va. 23606

Continuation of Ser. No. 188,836, Oct. 31, 1971, abandoned. This application May 4, 1973, Ser. No. 357,126
Int. Cl. H01j *39/34*
U.S. Cl. 250—281 **6 Claims**

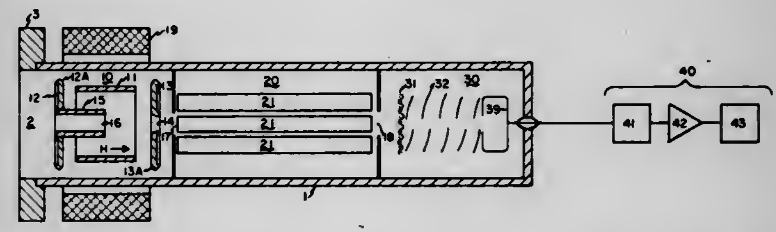


A high-speed scan device that allows most any scanning sector mass spectrometer to measure preselected gases at a very high sampling rate. The device generates a rapidly changing staircase output which is applied to the accelerator of the spectrometer and it also generates defocusing pulses that are applied to one of the deflecting plates of the spectrometer which when shorted to ground deflects the ion beam away from the collector. A defocusing pulse occurs each time there is a change in the staircase output.

3,835,319
COLD CATHODE ION SOURCE MASS SPECTROMETER WITH STRAIGHT LINE ARRANGEMENT OF ION SOURCE AND ANALYZER

Jonathan R. Roehrig, and Franklin L. Torney, both of South Weymouth, Mass., assignors to National Research Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 811,139, March 27, 1969, abandoned. This application May 14, 1971, Ser. No. 143,327
Int. Cl. H01j *39/34*
U.S. Cl. 250—290 **9 Claims**

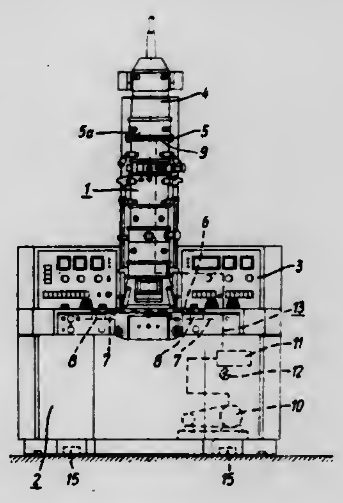


Mass spectrometer combination and ion source subcombination therefor. The mass spectrometer has a magnetron ion source, a quadrupole ion analyzer and an ion collector with digital counting read-out and this is useful for residual gas analysis, partial pressure analysis and chemical composition determination and is particularly suited for ultra-high vacuum usage yielding high sensitivity and improved signal-to-noise ratio, consistent with low weight and bulk. The ion source is constructed so that photons are not produced at those loci which can be viewed through the ion exit aperture thereof. Thus, the spectrometer collector is free from impingement thereon of light energy and the signal-to-noise ratio of the instrument is improved thereby.

3,835,320
PARTICLE-BEAM DEVICE EQUIPPED WITH MEANS FOR ATTENUATING MECHANICAL MOVEMENTS

Hans Helwig, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Munich, Germany

Filed May 21, 1970, Ser. No. 39,388
Claims priority, application Germany, May 28, 1969, 1927410
Int. Cl. H01j *37/26;* **G01n** *23/00*
U.S. Cl. 250—311 **6 Claims**



A particle-beam device has a beam axis and is exposed to mechanical movements. The device also has a column assembly for housing electro-optical equipment needed for focus the particle beam and a support structure for supporting the column assembly. A damping system for damping the mechanical movements has a plurality of elastic pressure vessels communicating with the support structure and the column for holding the column. The damping system includes fluid actuating means connected to the pressure vessels for actuating the pressure vessels in response to the mechanical movements.

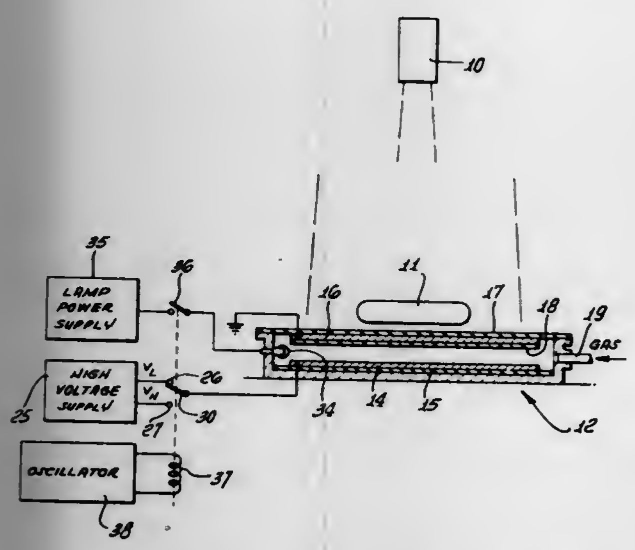
3,835,321
METHOD AND APPARATUS FOR ACHIEVING GAIN IN ELECTRON RADIOGRAPHY IMAGING CHAMBER

Andrew P. Proudian, Chatsworth, Calif., assignor to Xonics, Inc., Van Nuys, Calif.

Filed Sept. 28, 1973, Ser. No. 401,894

Int. Cl. G03b *41/16*

U.S. Cl. 250—315 A **10 Claims**



An electron radiography system with improved resolution and high gain. An electron radiography system with a few percent of an electronegative gas added to the imaging gas and operable for short intervals in the avalanche, high gain condition. Arrangements for obtaining periodic high gain operation including gap voltage increases and gap radiation.

3,835,322
METHOD AND APPARATUS FOR ANALYZING NITROGEN OXIDES IN GAS

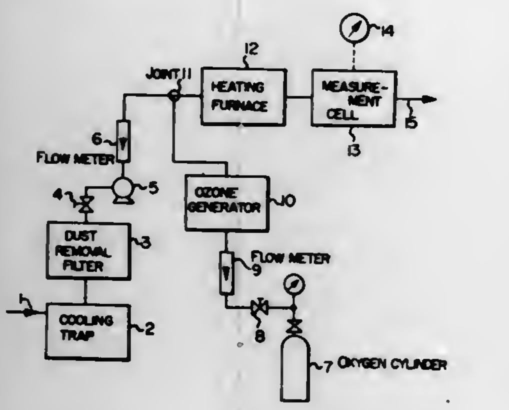
Isamu Komatsu, Takahagi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 2, 1973, Ser. No. 329,119

Claims priority, application Japan, Feb. 4, 1972, 47-12215

Int. Cl. G01n *21/00*

U.S. Cl. 250—343 **29 Claims**



Nitrogen oxides in a gas, for example, flue gas from a boiler, are continuously analyzed by (*a*) adding ozone gas to the gas containing nitrogen oxides thereby converting the nitrogen oxides to dinitrogen pentaoxide, (*b*) thermally decomposing the dinitrogen pentaoxide in the gas to nitrogen dioxide at a temperature of 300° to 340°C, and (*c*) continuously measuring nitrogen dioxide content of gas by an optical analyzer, for example, dual wavelength, photoelectric type analyzer of ultraviolet and visible regions.

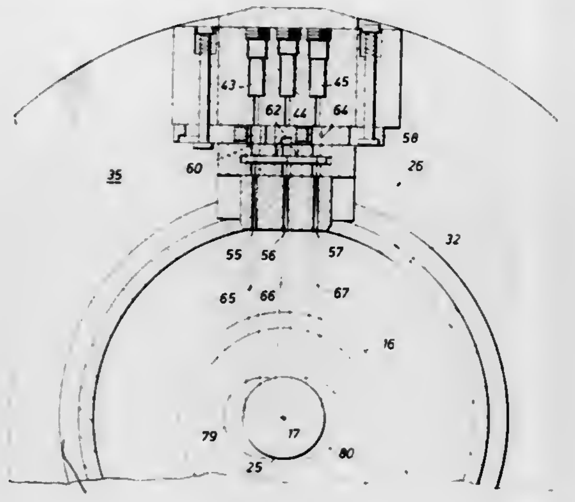
3,835,323
RADIATION INSPECTION APPARATUS WITH ADJUSTABLE SHUTTER FOR INSPECTING DIFFERENT SIZES OF TUBULAR GOODS

John E. Kahil, 9607 Windswept, Houston, Tex. 77042

Filed Aug. 7, 1972, Ser. No. 278,311

Int. Cl. G01t *1/18*

U.S. Cl. 250—360 **22 Claims**



In the new and improved radiation apparatus disclosed herein for inspecting tubular goods, a radiation detector is arranged on a selected inspection axis for receiving radiation from a uniquely-arranged radiation emitter facing the detector and rotating about the exterior of the tubular member as it is translated along the axis around the detector. In the preferred embodiment disclosed herein, this unique radiation emitter includes an array of side-by-side radioactive sources aligned with laterally-spaced focussing passages for producing a composite radiation pattern formed by a number of individual sharply-defined radiation patterns on opposite sides of the inspection axis as well as intersecting the axis. The emitter further includes a selectively-positionable radiation controller which is arranged for movement between one position for emitting only a single radiation beam of selected intensity to produce a radiation pattern of reduced size and another position for emitting radiation beams from all of the sources to produce the composite pattern across the inspection axis.

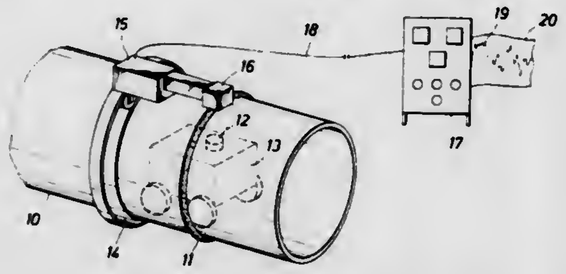
3,835,324
PIPE WELD INSPECTION METHOD AND APPARATUS

Orville C. Weigle, 6617 Ariel St., Houston, Tex. 77036

Filed Oct. 4, 1972, Ser. No. 294,943

Int. Cl. G01t *1/10*

U.S. Cl. 250—360 **7 Claims**



An illustrative embodiment of the invention includes method and apparatus for pipe weld seam inspection. A gamma ray source of relatively low intensity is disposed on the interior portion near the center of a pipe section being inspected. A gamma ray detector comprising an activated scintillating crystal and a photomultiplier tube is traversed in a track on an elastomeric belt about the circumference of the pipe and maintained adjacent said weld seam at all circumferential points. The intensity of the gamma radiation penetrating the weld seam is sensed and recorded as a function of the circumferential location of the detectors. This recording may then be interpreted in terms of the material density of the weld at all circumferential points on the seam.

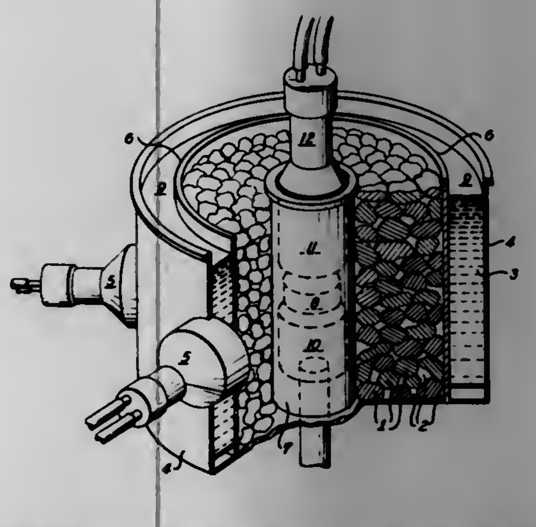
3,835,325
RADIATION DETECTORS USING MULTIPLE SCINTILLATION CRYSTAL PIECES

Gerald J. Fishman, Huntsville, Ala., assignor to Brown Engineering Company, Inc., Huntsville, Ala.

Filed Aug. 18, 1972, Ser. No. 281,699

Int. Cl. G01t *1/20*

U.S. Cl. 250—366 **22 Claims**



An apparatus for the detection of invisible radiation utilizing a unique geometry which results in an improve efficiency. A plurality of inorganic halide crystals are contained in a region of an enclosure, upon one surface of which is disposed a plurality of photomultiplier tubes. An optical coupling medium is diposed between a boundary of the crystals and the photomultiplier tubes, the medium being of a certain minimum dimension to ensure that light emitted from the crystals is incident at the photomultiplier tubes. In one embodiment, the enclsoure is cylindrical and a sample area is centrally located within the enclosure. In another embodiment the enclsoure is a parallelepiped with a large sample area located below the enclosure and the photomultiplier tubes located on the upper surface of the enclosure.

3,835,326
METHOD OF DETERMINING THE SPEED OF ROTATING BODIES

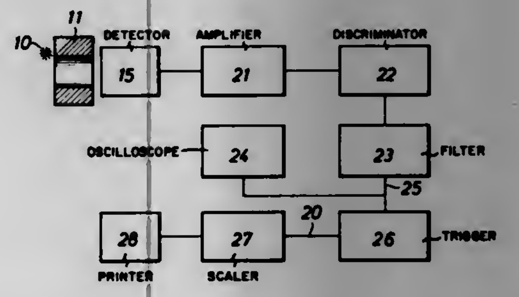
Andreas Gerve, Linkenheim; Gunder Essig, Karlsruhe, and Bernhard Herkert, Neureut, all of Germany, assignors to Gesellschaft fur Kernforschung mbH, Karlsruhe, Germany

Filed Mar. 27, 1973, Ser. No. 345,460

Claims priority, application Germany, Mar. 27, 1972, 2214859

Int. Cl. G01t *1/16*

U.S. Cl. 250—393 **11 Claims**



The rotational speed of a rotating body is determined by providing an activated point on one end surface of the body so that it emits radiation. A shield for the radiation is placed adjacent this axial surface of the body in such a position that it covers only a portion of the axial surface. A detector is aligned with the uncovered portion of the body for detecting the radiation emitted by the activated point on the body and the detector registers the emitted radiation as sequences of pulses. By determining the time between successive sequences of pulses, the speed or the rotating body can be determined.

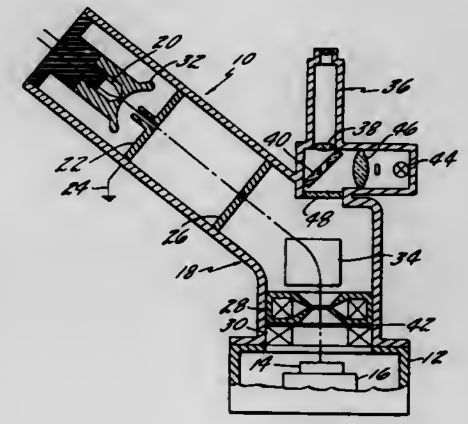
3,835,327
TRIODE ELECTRON GUN FOR ELECTRON BEAM MACHINES

Glen S. Lawrence, Windsorville, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Continuation of Ser. No. 250,910, May 8, 1972, abandoned. This application Nov. 29, 1973, Ser. No. 420,240

Int. Cl. H01j *37/00*; G01n *23/00*

U.S. Cl. 250—398 **8 Claims**



A high power electron beam machine for operating on a workpiece is disclosed in which the beam focus is automatically maintained constant without the necessity of lens current variation regardless of changes in beam current. The electron gun assembly for the machine consists of a Rogowski gun having a square ribbon filament recessed from an enlarged filament aperture, and a pin type anode with a reduced height and an increased gap from the bias electrode. The electron gun produces a stationary image or apparent source of electrons even though the beam current or the high voltage operating level of the electron gun is varied. Increased life of the ribbon filament is obtained by using a ribbon filament consistng of tungsten with 3 percent rhenium added thereto.

3,835,328
IONIZATION SYSTEM FOR SENSING AND MEASURING GASEOUS IMPURITIES

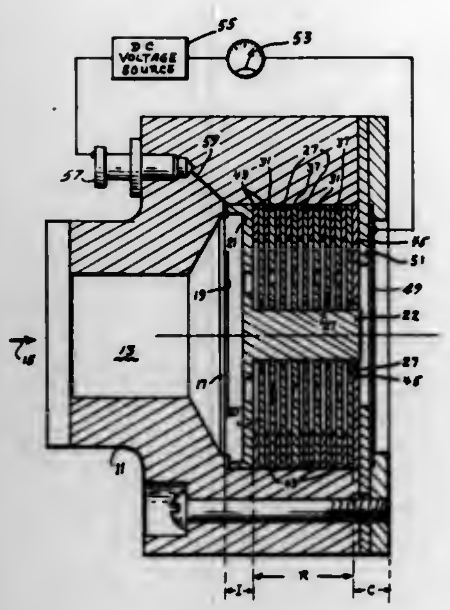
William A. Harris, New Brighton; Bernard C. Schluter, Forest Lake, and Erik T. Tromborg, Bloomington, all of Minn., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed May 12, 1972, Ser. No. 252,695

Int. Cl. G01n *23/12*

U.S. Cl. 250—432 **3 Claims**

An ionization detector in which a vapor sample flows past a source of ionizing radiation of beta particles and through a recombination region which forces the sample to pass through a tortuous path created by a series of parallel adjacent and spaced insulated washers mounted about a shaft with the washers having different selected openings. The sample first passes through a metallic manifold also having openings and then through the washers followed by the ion collection region which includes a screen of electrically conducting material. A



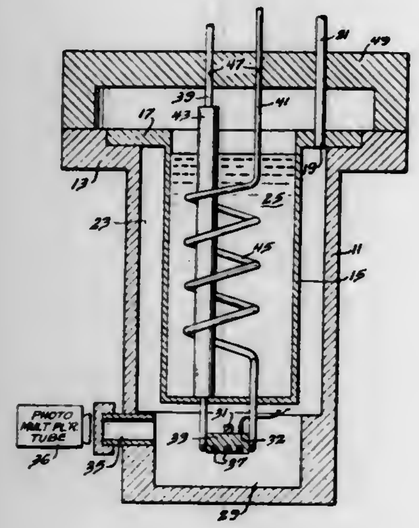
DC voltage source connects the manifold and the screen with an ammeter in series therewith for readout.

3,835,329

METHOD OF MEASURING FAST NEUTRON FLUX USING THERMOLUMINESCENT DOSIMETER

Paul R. Moran, and David W. Pearson, both of Madison, Wis., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Aug. 23, 1973, Ser. No. 390,970
Int. Cl. G01t *1/11*
U.S. Cl. 250—484 **10 Claims**



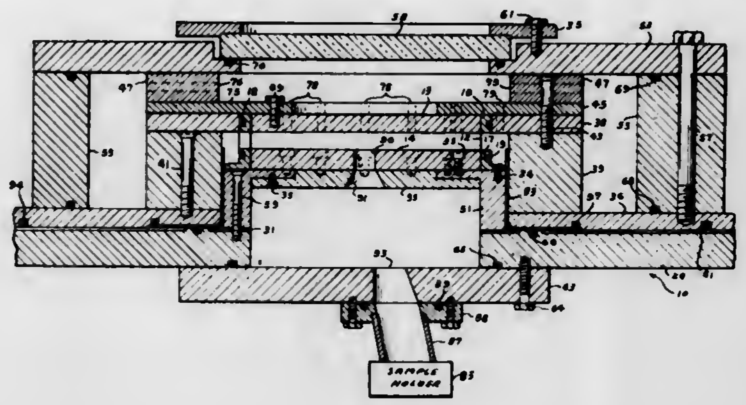
Thermoluminescent phosphors which are susceptible to neutron activation are exposed to a mixed field of radiation. Thermoluminescence resulting from prompt gamma irradiation is removed by a short period of annealing at a high temperature. The phosphors are then stored in a shielded chamber maintained at a sufficiently low temperature to allow accumulation of radiation dose produced by radionuclides formed on neutron activation. The thermoluminescence attributable to this self-irradiation dose is read and correlated to neutron flux or dose. Through use of separate phosphor materials having different threshold energies for neutron activation, energy spectra of fast neutron flux is obtained.

3,835,330

ELECTROMAGNETIC IMPLOSION X-RAY SOURCE

William L. Baker, Columbus, Ohio, and Peter John Turchi, New York, N.Y., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sept. 15, 1972, Ser. No. 289,693
Int. Cl. H01j *35/00*
U.S. Cl. 250—493 **3 Claims**



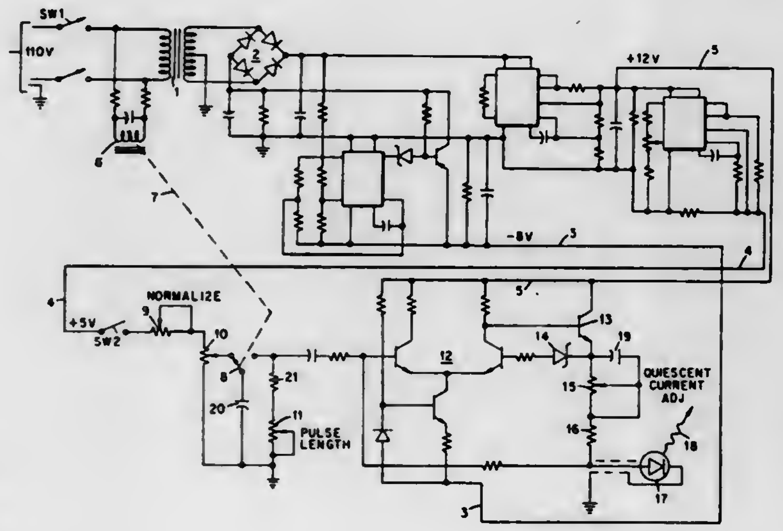
An electromagnetic implosion X-ray source having a thin cylindrical metal foil supported on spaced electrodes within an evacuated chamber. The electrode system is connected through a switch to a capacitor bank power supply with low inductance leads and with the average electrical impedance of the dynamic plasma being matched to the impedance of the power supply. An X-ray radiation path is provided between the X-ray source and a sample holder attached to the X-ray source.

3,835,331

STABLE PULSED LIGHT SOURCE

John H. Thorngate, and Phillip T. Perdue, both of Oak Ridge, Tenn., assignors to The United States of America as represented by the Secretary of United States Atomic Energy Commission, Washington, D.C.

Filed Sept. 26, 1973, Ser. No. 401,091
Int. Cl. H01j *39/12*
U.S. Cl. 250—552 **4 Claims**



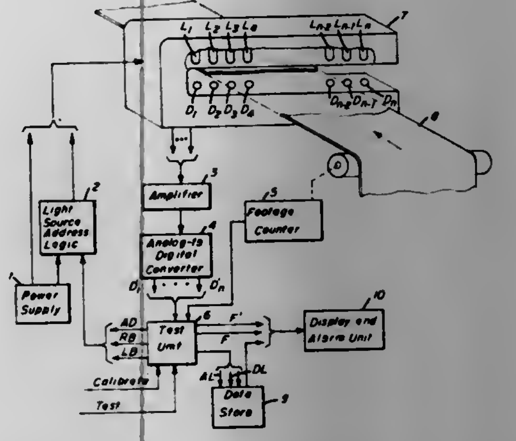
A pulsed light source is provided for use as a standard source of light for the calibration of photomultiplier tubes and the like. The source utilizes an inexpensive light-emitting diode and produces pulses whose height and length may be adjusted. Temperature stabilization is employed and the diode is operated in the current mode. Typical resolution and stability are 3 and 0.5 percent, respectively.

3,835,332

INSPECTION APPARATUS FOR DETECTING DEFECTS IN A WEB

Robert E. Bridges, Pittsford, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed June 4, 1973, Ser. No. 366,818
Int. Cl. G01n *21/32*
U.S. Cl. 250—563 **16 Claims**



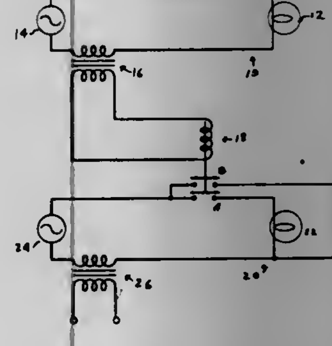
Apparatus is disclosed in which a moving web is scanned by repetitively pulsing a set of light emitting diodes in sequence and the resulting light passing through, or reflected from, the moving web is detected by a set of photosensors. The output signal of each photosensor is converted into a digital code, representing the intensity of the detected light. During a calibration mode of operation, the apparatus converts the codes generated by repeated scanning of a defect-free web into data representing the normal ranges of variation in the amplitude and in the scan-to-scan difference in amplitude of signals generated by each photosensor. After calibration of the apparatus is completed, scanning of the web to be inspected begins and the digital codes generated are applied to the calibrated apparatus, which compares them with the data representing the normal ranges of variation in the photosensor output signal characteristics to determine if defects are present in the web.

3,835,333

REDUNDANT ELECTRICAL SYSTEM

Markandan Hari Balan, 3363 Sedgwick Ave., Bronx, N.Y. 10463

Filed Mar. 19, 1973, Ser. No. 342,847
Int. Cl. H02j *9/00*
U.S. Cl. 307—64 **4 Claims**



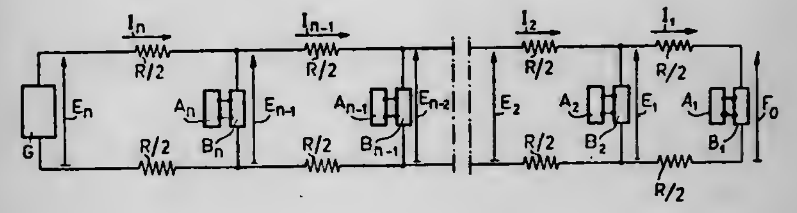
A system for providing continuous operation of electrical appliances, lights, etc. comprising a primary load circuit and a secondary load circuit. Each of the load circuits having a source of power and a load. Monitor means is arranged between the primary and secondary load circuits which is responsive to the passage of current in the primary circuit to maintain the secondary circuit inoperative, and responsive to the cessation of current in the primary circuit to render said secondary circuit operative. Preferably the monitor means comprises a transformer and a solenoid relay.

3,835,334

REMOTE POWER SUPPLY FOR REPEATERS

Jean-Luc Notteau, Paris, France, assignor to Telecommunications Radioelectrigues Et Telephoniques T.R.T., Paris, France

Filed Apr. 13, 1972, Ser. No. 243,594
Claims priority, application France, Apr. 15, 1971, 71.13280
Int. Cl. H02j *1/10*
U.S. Cl. 307—69 **4 Claims**



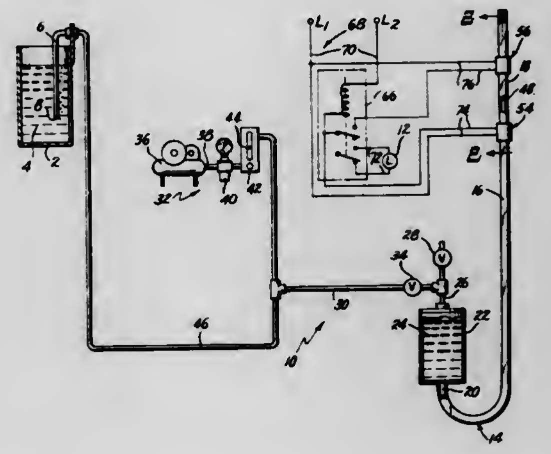
A remote power supply system for transmission line repeaters where the local power supply unit of the respective repeaters are all connected in parallel with the remote power supply line. Each of these local power supply units comprises a d-c to d-c converter that automatically controls the voltage applied so that a constant lower supply voltage that is equal for all the repeaters is supplied to each repeater.

3,835,335

LIQUID LEVEL RESPONSIVE CONTROL SYSTEM

John Robischon, 430 Warrior St., S.E., Olympia, Wash. 98503

Filed Aug. 13, 1973, Ser. No. 387,931
Int. Cl. G01f *23/12*
U.S. Cl. 307—116 **6 Claims**



A U-tube is connected to a pressure vessel, the vessel and the U-tube containing an operating liquid, and the vessel also being connected to conduit means leading from a source of gas pressure. A bubbler tube is disposed in a container holding the controlling liquid, and is connected to the conduit means. The U-tube includes a sight glass portion having disposed therein a float containing magnetic means, which float rises and falls in response to the level of the controlling liquid in the container. Spaced, magnetically responsive switches are mounted on the U-tube to be operated by the float, the switches being connected into a circuit for operating equipment controlled by the system.

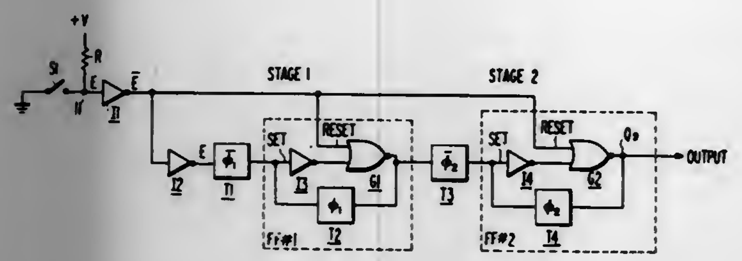
3,835,336
PULSE WIDTH SENSING CIRCUIT

Dennis Howard Block, Hightstown, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 23, 1973, Ser. No. 344,299

Int. Cl. H03k *5/20*

U.S. Cl. 307—234 **10 Claims**



A circuit for producing an output signal indicative of the presence of an input signal of duration greater than a given duration, T. The circuit includes a first stage which in response to a sampling pulse and the presence of an input signal of first value, stores a signal of first binary significance. The circuit also includes a second stage which in response to a shift pulse occurring a time T after the sampling pulse produces at its output, which is the circuit output, a signal corresponding to the one stored in said first stage. Each stage includes means responsive to the input signal for resetting the output of each stage to a level of second binary significance when the input signal has a second value. A signal of first value must, therefore, be present for a duration greater than T to produce an output of first binary significance, where the duration must also include a sampling pulse followed by a shift pulse. The circuit also includes means for, selectively, directly passing the input signals from the input to the output of the circuit.

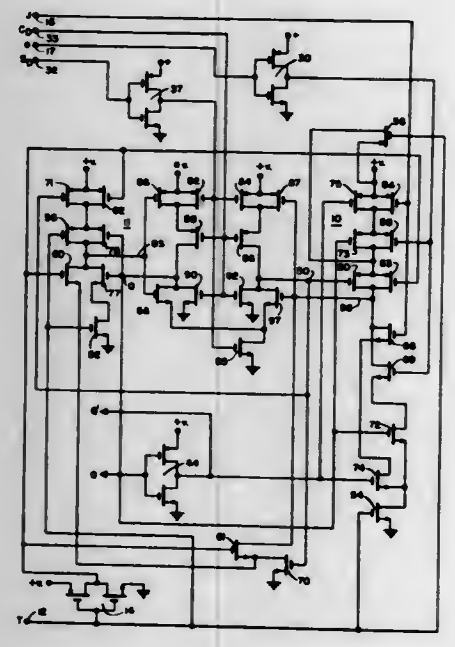
3,835,337
BINARY UNIVERSAL FLIP-FLOP EMPLOYING COMPLEMENTARY INSULATED GATE FIELD EFFECT TRANSISTORS

James W. Foltz, Scottsdale, Ariz., assignor to Motorola, Inc., Chicago, Ill.

Filed July 20, 1973, Ser. No. 381,056

Int. Cl. H03k *3/286, 3/33, 21/00*

U.S. Cl. 307—279 **11 Claims**



A universal J-K flip-flop is implemented with insulated gate field effect transistors of both P and N channel types. The transistors are interconnected as a plurality of AND gates and NOR gates, with some transistors serving a dual function in both the master and slave portions of the flip-flop. A provision for direct set and reset of the flip-flop also is included.

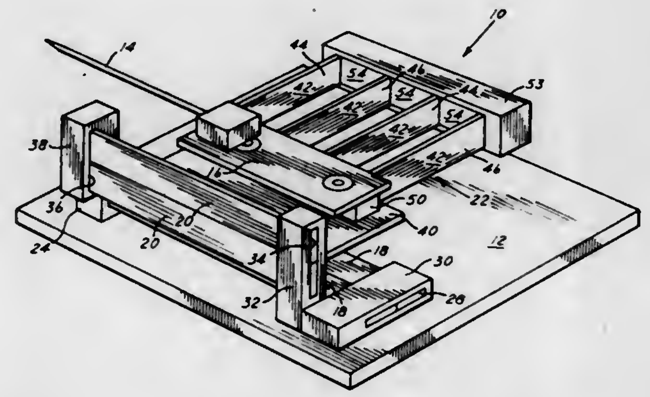
3,835,338
ELECTRICALLY CONTROLLED ULTRA-MICROMANIPULATOR

A. Robert Martin, 9172 E. Tufts Cir., Englewood, Colo. 80110

Filed Aug. 23, 1973, Ser. No. 390,846

Int. Cl. H04r *17/00*

U.S. Cl. 310—8.6 **12 Claims**



An electrically controlled ultra-micromanipulator utilizes three sets of electrostrictive elements arranged in mutually perpendicular relationship and interconnected to selectively move a probe or other object in a three-dimensional pattern. In the disclosed embodiment, two sets of the electrostrictive elements establish pivotal movement about mutually perpendicular axes and the third set of electrostrictive elements establish linear movement in a direction perpendicular to the pivotal axes of the other two sets of elements. The elements establishing the linear movement are arranged in pairs adapted to flex in opposite directions upon an applied potential so that the probe or other object moves along a linear path.

3,835,339
IMPROVEMENT RELATIVE TO LINEAR INDUCTION MOTORS AND COOLING DEVICES APPLIED TO THE SAME

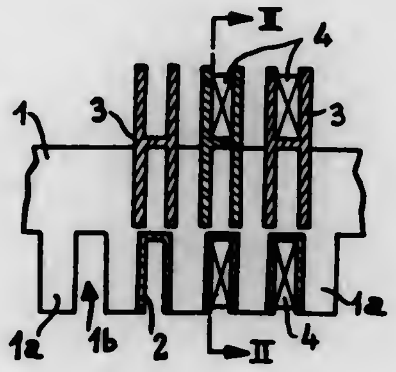
Joseph Laronze, Tassin La Demi-Lune, France, assignor to Compagnie Electro-Mecanique, Paris, France

Filed May 9, 1973, Ser. No. 358,511

Claims priority, application France, Dec. 8, 1972, 72.44437

Int. Cl. H02k *41/02*

U.S. Cl. 310—13 **9 Claims**



A linear induction motor comprises armature and inductor components one of which is mounted for movement along a rectilinear path relative to the other. The inductor component includes a rectangular laminated body made from sheets of magnetic material and which provides a row of spaced teeth confronting the armature member, longitudinally spaced energizable coil means surround the body of the inductor between the teeth and longitudinally spaced heat-radiating units made from a material, which has good heat-conductivity characteristic, and is also amagnetic, surround the inductor body on all sides except the toothed side. These heat radiating units are provided with vaned surfaces to collect part of the heat given off by the coils and other vaned surfaces for dissipating the heat thus collected to the ambient air. If the heat-radiating unit is made from a material which is also electrically conductive, it effects a reduction in leakage flux.

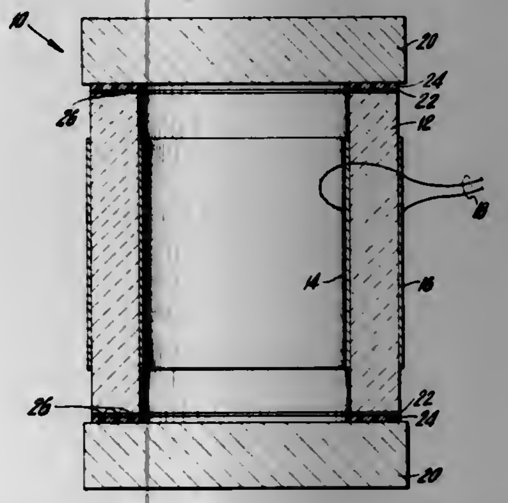
3,835,340
TRANSDUCER CORONA SHIELD

Sid Schildkraut, Flushing, N.Y., assignor to Edo Corporation, College Point, N.Y.

Filed Feb. 15, 1973, Ser. No. 332,716

Int. Cl. H04r *17/00*

U.S. Cl. 310—9.8 **5 Claims**



In an electroacoustic transducer, corona in the interface between the ceramic transducer element and the electrically conductive transducer end mass, supporting structure, or the like, is substantially eliminated by means of a corona shield electrode on the ceramic element in the interface and electrically connected to the end mass or other conductive structure.

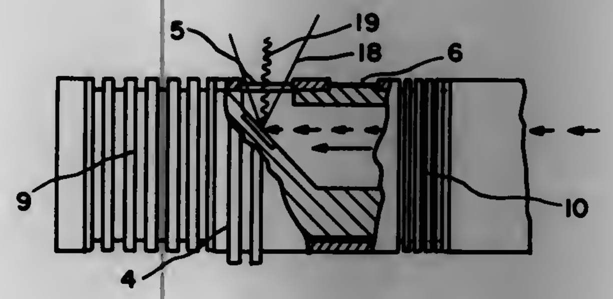
3,835,341
SELECTABLE MULTI-WINDOW X-RAY TUBE

William P. Zingaro, 22 Clubway, Hartsdale, N.Y. 10530

Filed June 25, 1973, Ser. No. 373,286

Int. Cl. H01j *35/18*

U.S. Cl. 313—59 **7 Claims**



An x-ray tube provides with a plurality of windows mounted in a slide which is hermetically sealed on the exterior of the tube envelope. Movement of the slide which is effected by a bellow at each end of the slide places a window of given thickness and material in the path of x-rays generated within the tube permitting x-rays of different wave-lengths and intensities generated within the tube to be most efficiently and selectively transmitted. The windows may be of different thicknesses and of the same or different material.

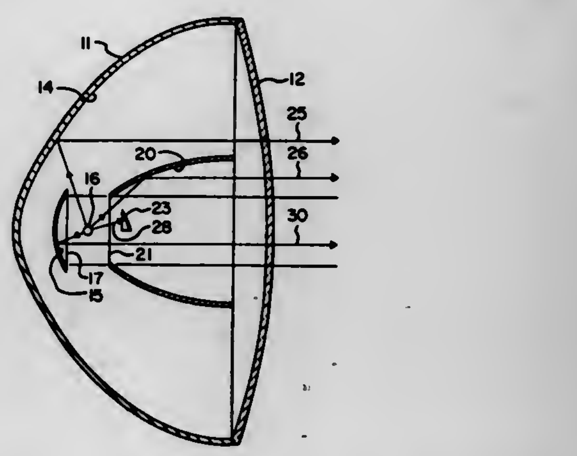
3,835,342
RADIANT ENERGY COLLECTOR OR REFLECTOR

Miller L. Freeman, Burbank, Calif., assignor to John W. Ervin, Beverly Hills, Calif., a part interest

Filed May 21, 1973, Ser. No. 361,955

Int. Cl. H01k *1/32*

U.S. Cl. 313—114 **9 Claims**



A light projector particularly suitable for automobile headlights which will direct a plurality of concentric light beams of different intensities substantially without energy loss. The light projector is provided with a stepped rear reflector of parabolic shape or partially or entirely of the shape of an anamorphosscope. It also is provided with a first front reflector of parabolic shape and a second front reflector disposed inside of the first front reflector of substantially spherical shape. The first front reflector may also be partially or entirely of the shape of an anamorphoscope corresponding to that of the rear reflector. The second front reflector substantially obscures the light source from an observer above a predetermined plane such as a horizontal plane. This will minimize the danger of glare to an approaching driver. On the other hand it will direct substantially all of the light onto the road and permit the beam to reach farther out with the same amount of candle power. The projector may also be used to direct any radiant energy such as electromagnetic waves or sound waves. Additionally it may be used not only to reflect or project radiant energy but also for collecting radiant energy into a focal point.

3,835,343
GAS-DISCHARGE TUBE FOR HIGH-CURRENT PULSED OPERATION

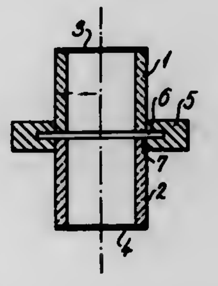
Andrew James Timothy Holmes, and John Ritchie Cozens, both of London, England, assignors to National Research Development Corporation, London, England

Filed Aug. 4, 1972, Ser. No. 278,024

Claims priority, application Great Britain, Aug. 13, 1971, 38100/71

Int. Cl. H01j *61/06, 61/30*

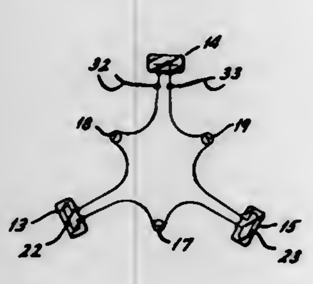
U.S. Cl. 313—217 **5 Claims**



A gas-discharge tube capable of sustaining a cold-cathode arc enables the switching of high-current pulses with a duration of one microsecond at a rate in excess of 100 KH. The operative surface of the cathode bounds at least one cavity in the cathode such that for a majority of points on the surface the outward normal to the surface intersects the surface at a distance not exceeding 5 millimeters and preferably not exceeding 2 millimeters. The cathode surface may be the surface of an annular slit and the cathode material may be copper.

3,835,344
APPARATUS FOR SUPPORTING CATHODE HEATERS

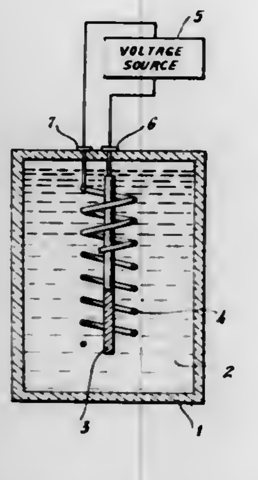
Thomas E. Chesla, Chalfont, Pa., assignor to Philco-Ford Corporation, Philadelphia, Pa.
Division of Ser. No. 256,980, May 25, 1972, Pat. No. 3,802,855. This application May 14, 1973, Ser. No. 360,152
Int. Cl. H01j *1/92*
U.S. Cl. 313—273 **1 Claim**



A heater support ring for use in the multicathode gun of a cathode ray tube. The support ring is made from a single piece of conductive wire which is preformed into a generally triangular shape the apex portions of which are glassed into gun assembly rods. Three cuts are then made in the wire and free ends adjoining the cuts are bent into position to accept the connections of the filamentary heaters. The support ring structure is unusually short, in the direction of the axial length of the cathode ray tube gun, and few welds are required.

3,835,345
ELECTROLUMINESCENT SOLUTIONS

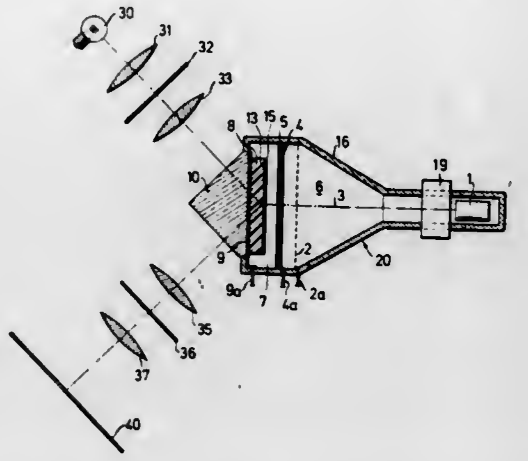
Kenneth W. French, Mineola; Paul O. Haugsjaa, Plainview, both of N.Y., and Adam Heller, Sharon, Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.
Filed Sept. 27, 1971, Ser. No. 184,142
Int. Cl. H01j; H01k
U.S. Cl. 313—358 **9 Claims**



Electroluminescent emission is produced in an active medium comprising a compound containing at least one active ion selected from the group of ions consisting of ions of cerium, praseodymium, neodymium, samarium, europium, gadolinium, dysprosium, terbium, thulium, and ytterbium. The active ion is dissolved in a solvent from which it can be electrodeposited. The preferred solvents are either a Lewis Acid in phosphorus oxychloride, dimethyl sulfoxide, or propylene carbonate. When the active medium is placed in contact with a pair of electrodes and a voltage of sufficient magnitude is applied across the electrodes, electroluminescent emission is observed.

3,835,346
CATHODE RAY TUBE

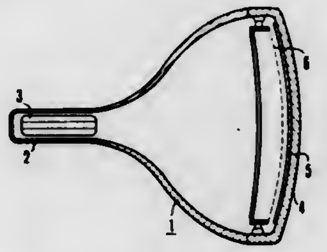
Fred Mast, Zuzwil, and Ulrich La Roche, Zurich, both of Switzerland, assignors to Eidophor AG, Glarus, Switzerland
Filed Oct. 17, 1972, Ser. No. 298,233
Claims priority, application Switzerland, Oct. 27, 1971, 15685/71
Int. Cl. H01j *29/12*
U.S. Cl. 313—91 **6 Claims**



A cathode ray tube for a projection television system is provided having a charge layer dividing the tube envelope into two chambers. An electron gun is mounted in one of the chambers to provide an electron beam which is deflected over the charge layer and an electrostatically deformable modulation layer supported on an optically transparent support is provided in the other chamber, the free surface of the modulation layer facing the charge layer being deformable by the electrostatic forces provided in the charge layer by scanning thereof by the electron beam. An alternative form of tube is also provided in which the charge layer rests on the deformable modulation layer which is supported on an optically transparent surface of the envelope so that the modulation layer is totally enclosed and isolated from the rest of the tube envelope, the charge layer forming a vacuum tight partition.

3,835,347
COLOUR PICTURE TUBE WITH IMPROVED COLOR PURITY

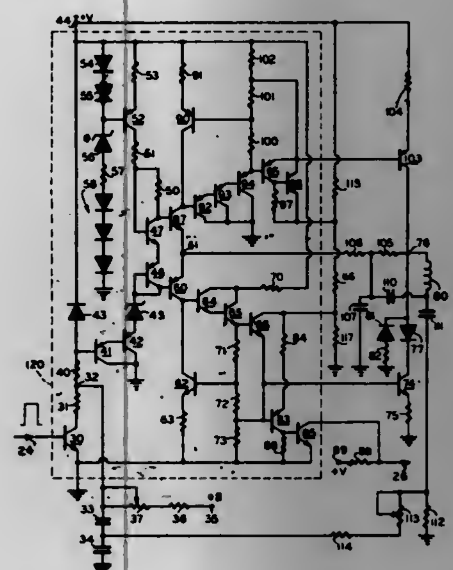
Hiromi Kanai, Mobara City, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed July 21, 1972, Ser. No. 273,822
Claims priority, application Japan, Aug. 11, 1971, 46-60312
Int. Cl. H01j *29/32*
U.S. Cl. 313—92 R **2 Claims**



In a colour picture tube of the type comprising an evacuated envelope and a fluorescent screen including a plurality of phosphor units and a coating of a black non-luminous substance applied onto the areas between the phosphor units, the phosphor units are provided over substantially the entire surface of the fluorescent screen at a substantially equal pitch, and each of the phosphor units has an area larger than the cross-sectional area of an electron beam impinging upon the fluorescent screen, and the area of the phosphor units at the peripheral portion is larger than or substantially equal to that of the units at the central portion.

3,835,348
TELEVISION RECEIVER DEFLECTION CIRCUITRY

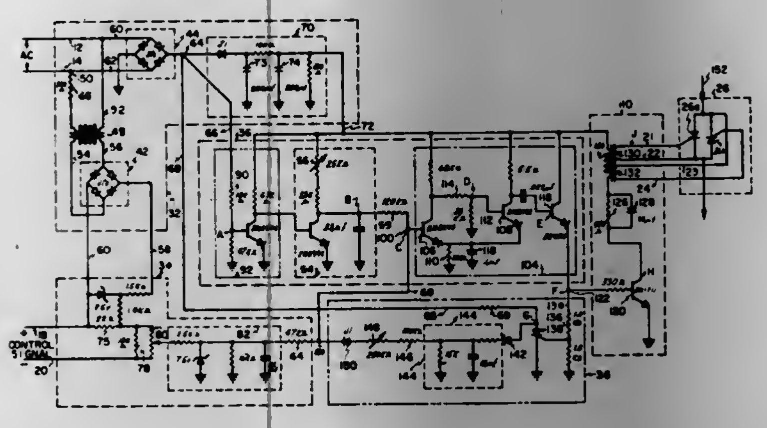
Dong Woo Rhee, Williamsville, N.Y., assignor to GTE Sylvania Incorporated, Stamford, Conn.
Filed Dec. 29, 1972, Ser. No. 319,512
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 TD **16 Claims**



A deflection circuit adapted for monolithic integrated circuit construction with external power output transistors is shown. The circuit includes circuitry for matching the characteristics of the integrated circuit to the output transistors and circuitry for minimizing power consumption as well as circuitry for improving the transient response.

3,835,349
SOLID STATE ELECTRONIC STAGE LIGHTING CONTROL CIRCUIT

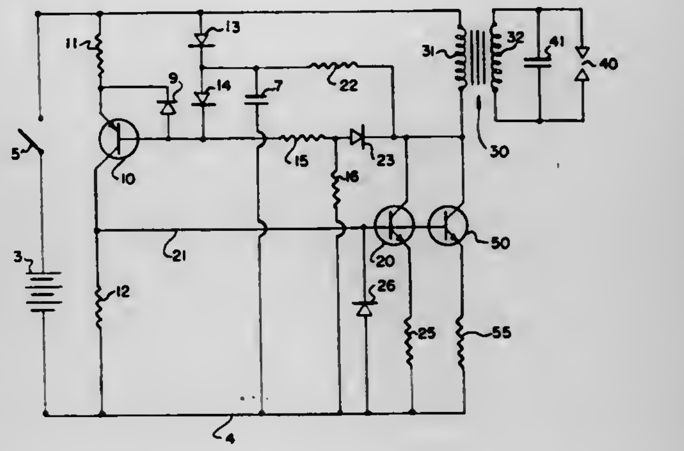
Leroy D. Yancey, 1834 S. Oakmont Dr., Bountiful, Utah
Filed Aug. 6, 1973, Ser. No. 386,039
Int. Cl. H05b *39/04*
U.S. Cl. 315—194 **12 Claims**



An electronic control circuit for controlling the luminescence of incandescent lamps used in theaters for stage lighting is constructed by interconnecting control signal input means, a solid state triggering circuit and output means to a controllable main power supply apparatus such as a silicon-controlled rectifier device (SCR). The control circuit also includes power supply means to provide direct current operating pulses and bias voltages to circuit components, and a feedback circuit to provide for stable and automatic operation. The electronic control circuit provides a square law relationship between a linear scaled indicia of adjustment means of an external signal source, which supplies an input control signal to the circuit, and the luminescence of the incandescent lamps.

3,835,350
HIGH ENERGY OUTPUT INDUCTIVE IGNITION SYSTEM

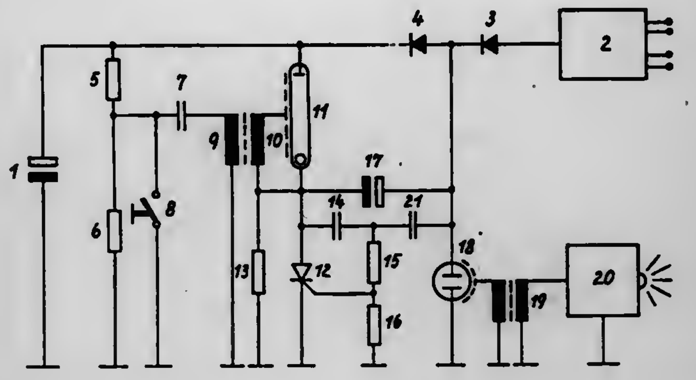
Kaushik H. Thakore, Sidney, N.Y., assignor to The Bendix Corporation, Southfield, Mich.
Filed Nov. 29, 1972, Ser. No. 310,281
Int. Cl. H05b *37/02, 39/04*
U.S. Cl. 315—209 T **2 Claims**



An improved ignition system for a gas turbine engine that has a high energy output capability at low input voltage at reasonable cost because of parallel arranged transistors having matched current transfer ratios (Beta).

3,835,351
PHOTOGRAPHIC FLASH APPARATUS

Arthur Schneider, Volkenrode, Germany, assignor to Rollei-Werke Franke & Heidecke, Braunschweig, Germany
Filed Nov. 17, 1972, Ser. No. 307,605
Claims priority, application Germany, Nov. 25, 1971, 2158361; Germany, Nov. 25, 1971, 2158362
Int. Cl. H05b *41/32*
U.S. Cl. 315—241 P **1 Claim**



Photographic flash apparatus having a flash tube, a light integrator for measuring the quantity of light reflected from the subject being photographed, and an electronic switch operated by the integrator when the cumulative or integrated total of reflected light reaches a threshold value. A thyristor in the circuit of the flash tube becomes conductive when the flash tube is flashed, and is connected to the electronic switch operated by the integrator in such a way as to become non-conductive when the threshold value is reached, thereby terminating the flash in such a way as to conserve the remaining power or energy in the main capacitor which powers the flash tube, rather than dissipating the remaining energy by short circuiting it. The gate of the thyristor is activated to render the thyristor conductive, in response to and as a result of the firing of the flash tube, rather than from a separate source. When the electronic switch is operated to terminate the flash, a negative potential is temporarily applied to the gate of the thyristor, so as to shorten the turn-off time of the thyristor.

3,835,352
TIMING ATTACHMENT FOR A RELAY

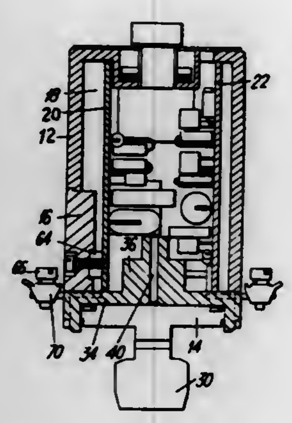
Geoffrey Clarke, Blunsdon, Nr. Swindon, England, assignor to Square D Company, Park Ridge, Ill.

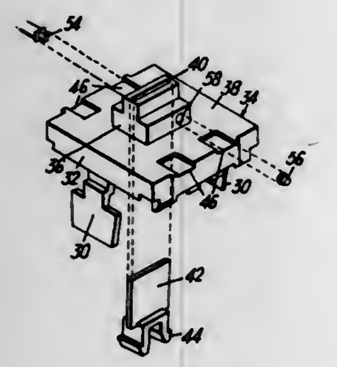
Filed Mar. 16, 1973, Ser. No. 342,327

Claims priority, application Great Britain, Mar. 21, 1972, 13107/72

Int. Cl. H01h *47/18, 47/24*

U.S. Cl. 317—130 **8 Claims**





A timing attachment for a relay including a light source and detector and an apertured control member movable between the light source and detector to influence transmission of light therebetween, the movement of the control member being controlled by the relay, and the light source and detector providing initiation of the timing. Reversal of the timing attachment on the relay changes the position of the attachment relative to the control member to enable change from time delay after energization of the relay to time delay after de-energization or vice versa.

3,835,353
CAPACITIVE VOLTAGE-DIVIDING ARRANGEMENT FOR HIGH VOLTAGE MEASURING APPARATUS

Wolfgang Hermstein, and Eckart Maenicke, both of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

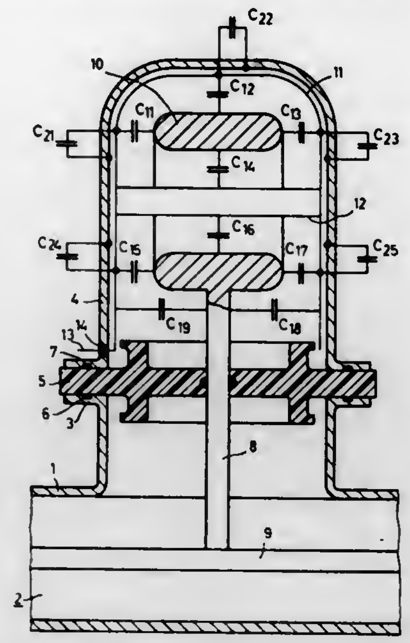
Filed Mar. 15, 1973, Ser. No. 341,673

Claims priority, application Germany, Mar. 29, 1972, 2215928

Int. Cl. H01g *3/02*

U.S. Cl. 317—244 **23 Claims**

In a capacitive voltage-dividing device of the type having a high-voltage capacitor connected in series with a low-voltage capacitor for high voltage measurements, particularly in connection with fully insulated, metal clad, high voltage switchgear, an improved arrangement comprises an inner electrode connected to the high voltage bus of the switchgear and extending through an opening in the metal cover; an intermediate or measuring electrode surrounding the inner electrode; and an outer electrode forming a cap-like extension of the metal cover and surrounding the measuring electrode in spaced, insulated relation. The measuring electrode in combination with the inner electrode forms the high voltage capacitor, and the measuring electrode in combination with the outer electrode forms the low voltage capacitor of the arrangement.



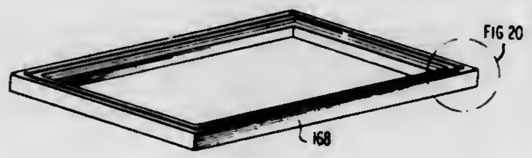
3,835,354
FURNITURE AND ROOM PARTITION COMPONENTS

Enrique Torres-Pena, Apartado Aereo 62-31, Bogota, Colombia

Filed Sept. 6, 1972, Ser. No. 286,819

Int. Cl. E04b *5/52;* **F16b** *3/00*

U.S. Cl. 312—257 SK **9 Claims**



Furniture and room components which can readily be assembled in various combinations to form any of a wide variety of furniture units or room partition units, with the units easily disassembled when desired. The components include vertical support members, vertical and horizontal edge members, corner members and panel members. The panel members can include sliding doors, vertically hinged doors and horizontally hinged doors

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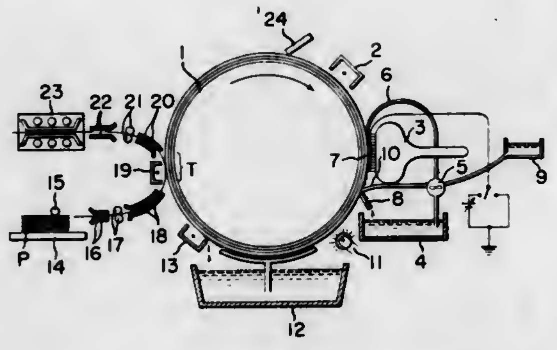
3,835,355
LIQUID DISCHARGING OR CHARGING DEVICE

Syusei Tsukada, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 13, 1973, Ser. No. 387,815

Int. Cl. G03g *15/00*

U.S. Cl. 317—262 A **41 Claims**



A liquid discharging or charging device comprises means for supplying discharging or charging liquid to the surface of a

photosensitive medium in an electrophotographic copying apparatus. Means is provided to apply a reference potential to the supplied liquid. A blade bears against the surface of the photosensitive medium to remove the supplied discharging or charging liquid therefrom. Means is provided to supply lubricant liquid to the area of contact of the blade with the surface of the photosensitive medium. A container is provided for collecting therein the discharging or charging liquid removed by the blade.

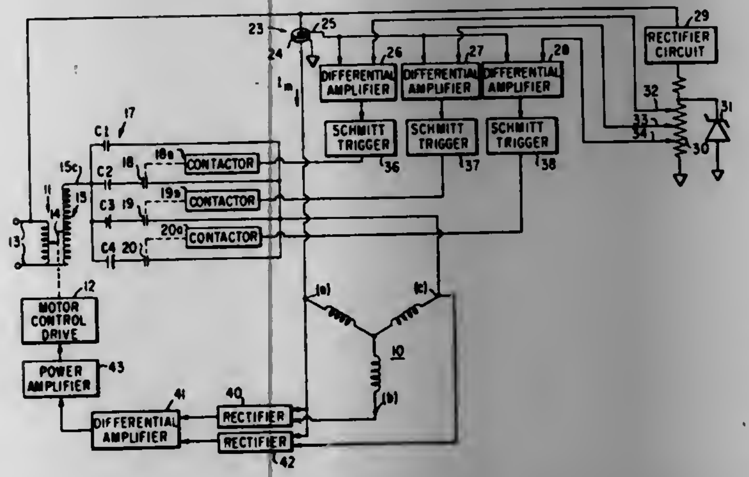
3,835,356
SYSTEM FOR OPERATING THREE-PHASE INDUCTION MOTOR UNDER BALANCED CONDITIONS FOR CHANGING LOADS

Leo H. Soderholm, Ames, Iowa, assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Apr. 23, 1973, Ser. No. 353,369

Int. Cl. H02p *1/44*

U.S. Cl. 318—221 R **7 Claims**



Improvements are made to an autotransformer-capacitor static phase converter for energizing a three-phase induction motor from a single-phase source which enable the motor to operate under balanced conditions for various loads. The amplitude of the derived phase voltage is changed to equalize the voltage of the two other phases, and the capacitance in the derived phase is increased as a function of load current.

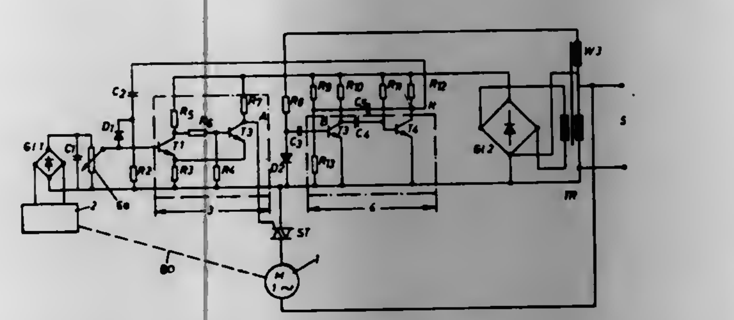
3,835,357
METHOD AND APPARATUS FOR SPEED REGULATION OF ALTERNATING CURRENT MOTORS

Walter K. Holzer, Droste-Hulshoff-Weg 19, Meersburg, Germany

Filed Dec. 29, 1972, Ser. No. 319,310

Int. Cl. H02p *5/16*

U.S. Cl. 318—327 **7 Claims**



The invention relates to an apparatus and method for the speed regulation of alternating current motors. The speed of the motor is indicated by the tachometer and it is compared with a reference value indicative of a desired speed to cut off power to the motor when it exceeds the desired speed. The power remains off for a preset time and then is restored until the motor exceeds the desired speed again.

3,835,358
INDUCTIVE CONTROL PULSE GENERATING APPARATUS FOR AN ELECTRIC MACHINE

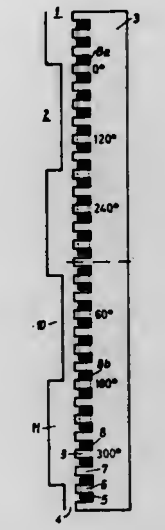
Ulrich Schuler, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Apr. 18, 1973, Ser. No. 352,203

Claims priority, application Germany, May 5, 1972, 2222912

Int. Cl. H02k *11/00;* **H02p** *5/00*

U.S. Cl. 318—327 **6 Claims**



An apparatus is provided for generating control pulses for controlling the speed of an electric machine. The apparatus comprises a rotatable, serrated rotor disposed adjacent a stator provided with a plurality of spaced apart teeth on the periphery thereof. A plurality of primary and secondary windings are alternately disposed in a linear arrangement on selected ones of said plurality of said stator teeth, the primary windings being coupled to an excitation signal generator. A selected pair of the secondary windings are coupled to a pair of rectifiers, which rectify signals induced therein and generate the control pulses. These pulses are fed to an electronic amplifier which differentiates the signals to produce sharply defined control pulses.

3,835,359
ANGULAR POSITION SELECTING AND CONTROLLING DEVICE FOR A ROTARY MEMBER

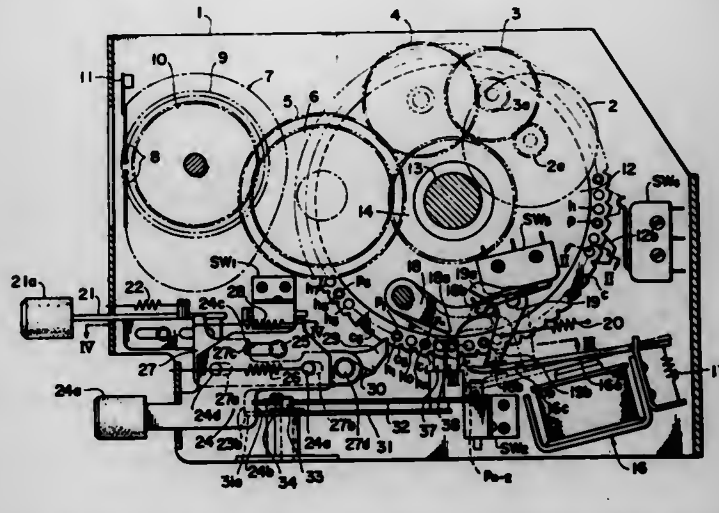
Sachio Kimura; Yoshiaki Aoki; Toshiki Kiriyama, and Katsuro Shimomae, all of Tokyo, Japan, assignors to Kabushiki Kaisha Koparu, Tokyo-to, Japan

Filed Jan. 5, 1973, Ser. No. 321,465

Claims priority, application Japan, Jan. 14, 1972, 47-6497; Jan. 19, 1972, 47-8600; July 27, 1972, 47-88493

Int. Cl. G05b *11/14*

U.S. Cl. 318—467 **5 Claims**



An angular position selecting and controlling device for a rotary member enabling to easily and arbitrarily pre-select a plural number of angular stopping positions of a rotary member by operating a button, and also enabling, by operation of another button, to stop the rotary member reliably with minimum power consumption successively at angular positions pre-selected as mentioned above, said angular position selecting and controlling device comprising a plurality of pins movably fitted along the circumference of the rotary member, two controlling levers for making those pins project from and push into the surface of the rotary member, an electromagnet having an armature which is capable of locking the rotary member at a stopped position, a stop lever engageable with the above-mentioned pins, a locking lever being engaged with said stop lever and being capable of holding the above-mentioned armature at a position where said armature is attracted by the electro-magnet, a switch for starting the rotary member by operation of the above-mentioned button and at the same time for energizing the electromagnet, and a switch for continuing the rotary motion of the rotary member being closed by the armature when said armature is attracted by the electro-magnet.

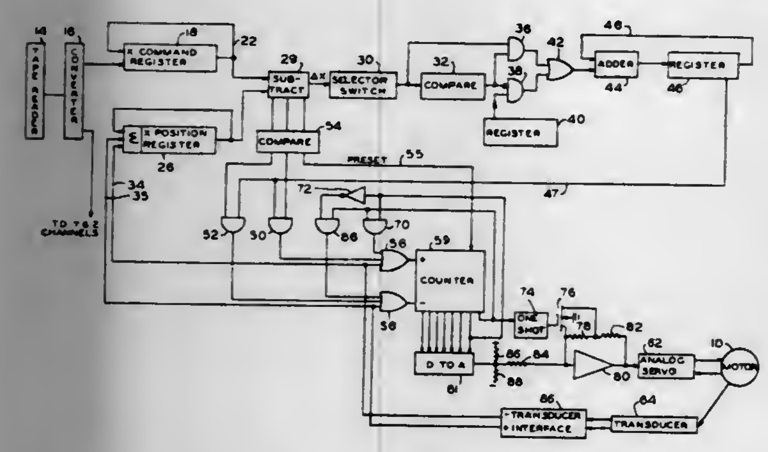
3,835,360
NUMERICAL CONTROL SYSTEM

William B. Kiwiet, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Continuation-in-part of Ser. Nos. 66,979, Aug. 26, 1970, , and Ser. No. 121,316, March 5, 1971,. This application Mar. 20, 1972, Ser. No. 236,352

Int. Cl. G05b *19/28*

U.S. Cl. 318—561 **25 Claims**



In a point-to-point control system of a modified, optimum, nonlinear type, a digital servomechanism employs an error counter receiving an input from a position-error-to-frequency-converter. The counter has a limited range, which, when exceeded, applies additional input to the servomechanism for producing rapid traverse. The error-to-frequency-converter normally receives a maximum input greater than the actual position error, until a deceleration range is detected, at which point the error-to-frequency-converter directs the servomechanism's error counter for bringing about rapid deceleration. The normal counter limits are also exceeded during deceleration for bringing about increased servomechanism gain and braking toward final position. As soon as substantial deceleration has taken place, such that the counter limits are no longer exceeded, the counter directs a deceleration which is linear with respect to the distance-to-go, for final, accurate servomechanism positioning.

3,835,361
AUTOMATIC PROXIMITY BRAKING SYSTEM FOR MOTOR VEHICLES

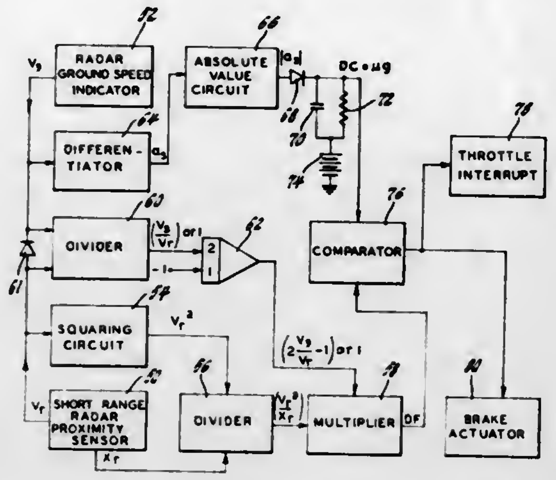
Norman W. Schubring, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 10, 1973, Ser. No. 387,349

Int. Cl. G05b *13/02*

U.S. Cl. 318—561 **3 Claims**

A vehicle braking system for automotive vehicles in which a circuit is provided for continually calculating a controllable deceleration figure which is related to the required vehicle velocity reduction over a measured headway spacing and for calculating a non-controllable deceleration constant representing maximum deceleration available for braking action. A signal is generated for effecting vehicle braking when the deceleration figure is equal to or greater than the deceleration constant. A new, safe value of deceleration constant is obtained with each vehicle acceleration and deceleration and the deceleration constant is decreased at a predetermined rate between vehicle accelerations and decelerations.



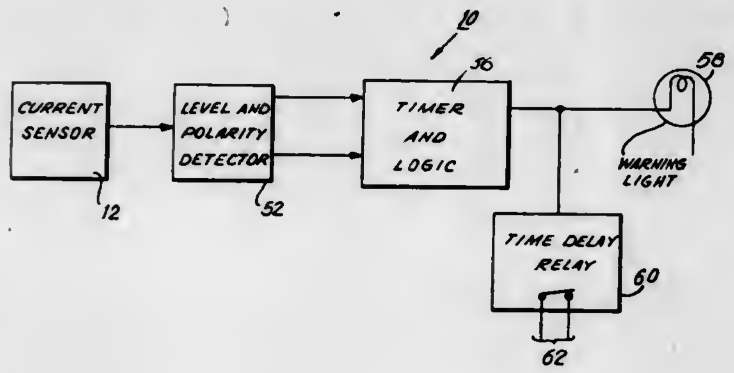
3,835,362
DEFECTIVE BATTERY CONDITION/CHARGING SYSTEM WARNING DEVICE

Leonard M. Greene, Chappaqua, N.Y., assignor to Safe Flight Instrument Corporation, White Plaines, N.Y.

Filed Aug. 9, 1973, Ser. No. 387,204

Int. Cl. H02j *7/00*

U.S. Cl. 320—25 **13 Claims**



A device which warns when a nickel-cadmium storage battery is defective or when the system for charging the battery is operating improperly. The device senses charging current flow in a battery cable and generates a warning signal when a predetermined level of charging current is exceeded for a predetermined length of time.

3,835,363
MOTOR VEHICLE POWER SUPPLY SYSTEM

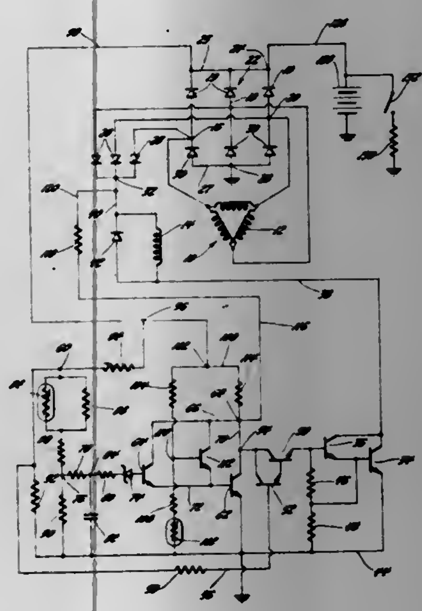
Thomas E. Kirk, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 17, 1973, Ser. No. 425,264

Int. Cl. H02j *7/16*

U.S. Cl. 320—64 **2 Claims**

A motor vehicle power supply system where the direct current electrical loads in the motor vehicle are supplied by a main bridge-rectifier circuit connected to an alternating current generator. The output voltage of the generator is regulated by a transistor voltage regulator having a transistor switching means connected in series with the field winding of the generator. The field winding is energized by a full-wave rectifier circuit comprised of three auxiliary diodes and three diodes of the main bridge rectifier connected with the AC output terminals of the alternating current generator. The voltage regulator is permanently connected with the battery of the electrical system through a first energizing circuit such that the battery biases the output transistor of the regulator into a conductive condition. This first energizing circuit includes a resistor which is operative to limit current drain on the system during a shut-down condition of the motor vehicle. When the generator of the electrical system is driven by the motor vehicle engine, the three auxiliary diodes provide base drive current to the base-emitter circuit of the output transistor of the voltage regulator through a second energizing circuit that has less electrical resistance than the first energizing circuit that is permanently connected to the battery.



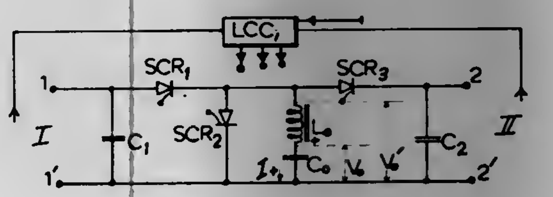
3,835,364
ELECTRIC POWER CONVERTERS

Willem J. C. Van Rooy, 10 Wolmaransstreet, Potchefstroom, South Africa

Continuation-in-part of Ser. No. 180,570, Sept. 15, 1971, abandoned. This application Mar. 5, 1973, Ser. No. 337,995

Int. Cl. H02m ; G05f

U.S. Cl. 321—2 **6 Claims**



A class of power converters which operate between two voltages of continuously variable magnitudes and continuously reversible polarities. It has bidirectional power flow capabilities and some degree of input to output isolation can be provided for. The converter includes a simple circuit arrangement of passive inductors and capacitors and solid state switches controlled in a specific logic sequence so that the output voltage tends to follow a desired reference voltage in spite of limited changes in an either active or passive load. The inherent high efficiency, the relatively high switching frequencies, the possibility of adapting to changing input output wave forms and the suitability to modular construction techniques make power supplies built in accordance with the invention substantially better suited for emergency interfacing systems of different power sources on board airborne or mobile vehicles.

3,835,365
CONTROL EQUIPMENT FOR AN ELECTRONIC POWER CONVERTOR

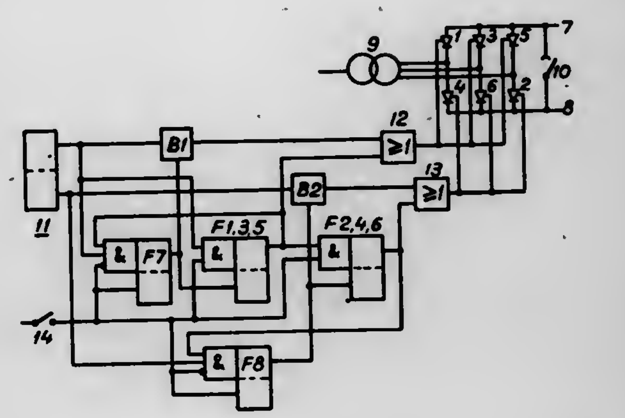
Ake Ekstrom; Per Olof Jackson, and Lenhart Jansson, all of Ludvika, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Nov. 21, 1973, Ser. No. 418,112

Claims priority, application Sweden, Dec. 11, 1972, 16112/72

Int. Cl. H02h *7/14*; **H02m** *1/18, 1/08*

U.S. Cl. 321—11 **4 Claims**



An electronic power convertor which has a plurality of rectifiers arranged in a bridge connection is provided with a pulse generator and with connecting members in the circuit between the pulse generator and the rectifiers. Connecting members in the connection between the pulse generator and the rectifiers are controlled by control circuits which, in response to a blocking signal, render the connecting members inoperative, so that control voltage is no longer supplied to the rectifier from the pulse generator directly through the connecting members. However, the control circuit also acts to continue the supply of control voltage to one of the rectifiers which are conducting at the time that the blocking signal is initiated and to the corresponding rectifier of the same phase of the bridge, so that these two rectifiers will conduct and form a by-pass circuit. In case of deblocking of the rectifier, each commutation group of the bridge is deblocked separately by the normal control pulse for the proper rectifier of the group acting in the by-pass circuit.

3,835,366
INVERTERS SUPPLYING A HIGH FREQUENCY ALTERNATING CURRENT

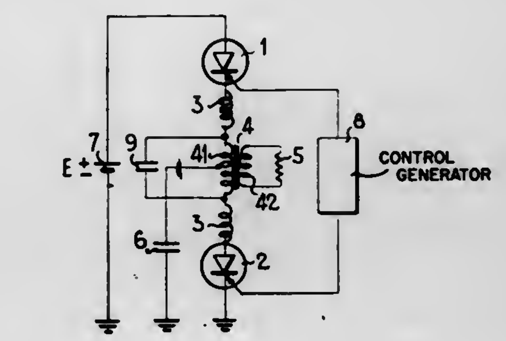
Edmond Cord Homme, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Mar. 19, 1973, Ser. No. 342,434

Claims priority, application France, Apr. 21, 1972, 72.14250

Int. Cl. H02m *7/52*

U.S. Cl. 321—45 R **7 Claims**



A dc to ac electric power inverter which includes a series static inverter circuit, having at least two controlled rectifiers interconnected by a self-quench circuit and alternately switched on and off by trigger pulses. The triggering frequency is made equal to the a c output signal frequency divided by an integer greater than the number of rectifier pairs in use so that the upper frequency limit of the output signal is enhanced.

3,835,367

OVERLOAD PROTECTION CIRCUITS

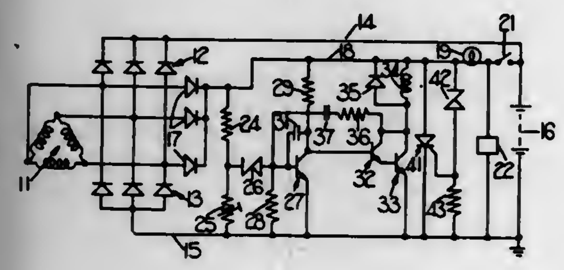
David Wiley, Walsall, England, assignor to Joseph Lucas (Electrical) Limited, Birmingham, England

Filed Feb. 13, 1973, Ser. No. 332,097

Claims priority, application Great Britain, Feb. 19, 1972, 7785/72

Int. Cl. H02p *9/30*

U.S. Cl. 322—28 **5 Claims**



An overload protection circuit has a thyristor the anode and cathode of which are connected across a pair of supply lines requiring protection. Connected across the anode-cathode is a series circuit including a voltage dependent resistance and a resistor, the junction of which is connected to the gate of the thyristor. At the nominal voltage of the system, the voltage dependent resistance has a high value, but it has a substantially reduced value at voltages substantially above the nominal voltage of the system. The voltage dependent resistance protects the system against low current volts, and the thyristor is turned on for high current volts.

3,835,368

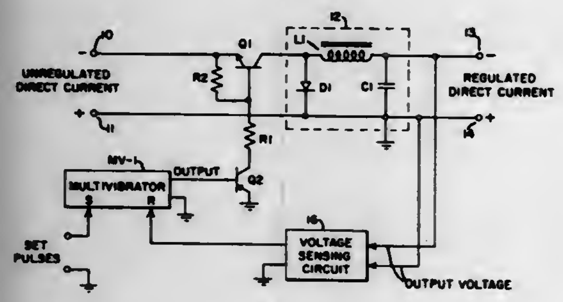
VOLTAGE REGULATOR FOR A DIRECT CURRENT POWER SUPPLY

James W. Williams, Lynchburg, Va., assignor to General Electric Company, Lynchburg, Va.

Filed May 21, 1973, Ser. No. 362,269

Int. Cl. G05f *1/56*

U.S. Cl. 323—17 **1 Claim**



Unregulated direct current is supplied to output terminals through the emitter-collector path of a transistor that is switched on and off by a bistable multivibrator. The multivibrator is periodically set by periodically recurring set pulses to turn the transistor on and supply direct current. The multivibrator is reset by a voltage sensing circuit which produces a reset pulse to turn the transistor off in response to the voltage at the output terminals reaching a selected magnitude.

3,835,369

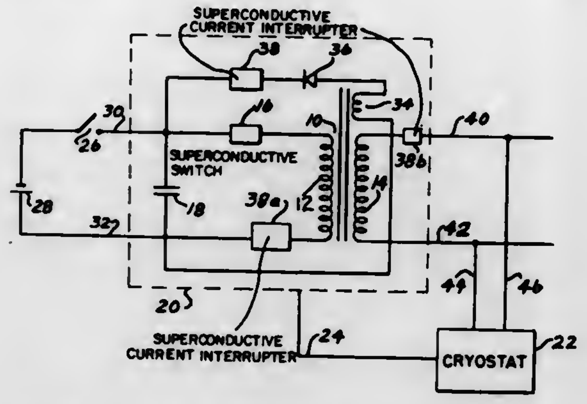
METHOD AND APPARATUS FOR GENERATING ELECTRICAL VOLTAGE OF AMPLITUDE VARYING WITH TIME

Jose C. Zoleta, 90-39 56th Ave., Elmhurst, N.Y. 11373

Filed Mar. 16, 1973, Ser. No. 342,146

Int. Cl. H02m *7/42*

U.S. Cl. 323—44 F **19 Claims**


SUPERCONDUCTIVE CURRENT INTERRUPTER
38
36
34
30
16
10
40
26
SUPERCONDUCTIVE SWITCH
28
18
38a
12
32
42
20
44
46
SUPERCONDUCTIVE CURRENT INTERRUPTER
24
CRYOSTAT
22

Voltage generators in which the primary winding of a superconductive transformer is excited by momentary connection to a source of direct current and is further energized responsively to voltage induced in the secondary winding by cyclic changing of primary winding current, for compensating losses internal to the transformer and associated circuitry. Control of such further energization and maintenance of transformer winding current below the current level at which the transformer windings are rendered normal are effected by superconductive current-interrupting devices.

3,835,370

DAMPENED CHOKE COIL

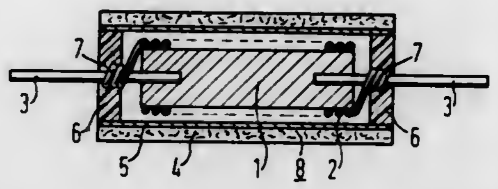
Hans-Peter Kaiserswerth, Regensburg; Josef Wimmer, Wenzenbach, and Rudolf Schaller, Regensburg, all of Germany, assignors to Siemens Aktiengsellschaft, Berlin and Munich, Germany

Filed Mar. 9, 1973, Ser. No. 339,736

Claims priority, application Germany, Mar. 17, 1972, 7210297[U]; Mar. 17, 1972, 7210330[U]

Int. Cl. G05f *3/02;* **H01f** *17/06*

U.S. Cl. 323—78 **1 Claim**



A damped electrical coil structure wherein either the coil and its ferromagnetic core or an associated resistor is formed in the shape of a tube and the other of the two elements is placed at the interior of the tube. The resistor and the coil are connected in parallel relationship by an electrically conductive compound which bridges the gap formed by the walls of the tube and the electrical element placed at the interior thereof.

3,835,371

APPARATUS FOR DETECTING THE PRESENCE OF ELECTRICALLY CONDUCTIVE MATERIAL WITHIN A GIVEN SENSING AREA

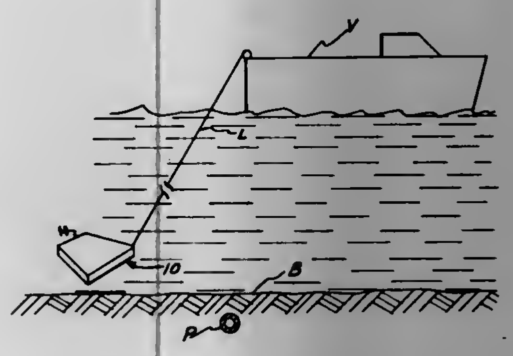
Mohammad Kian Mirdadian, 7020 Atwell, and Robert J. Schwartz, 5446 Quinslock, both of Houston, Tex. 77035

Filed July 27, 1972, Ser. No. 275,757

Int. Cl. G01v *3/10*

U.S. Cl. 324—3 **10 Claims**

A transmitter having a tuned LC circuit which is driven at resonant frequency by alternating current supplied by a digital, square wave pulse circuit is employed with a detector provided by a second tuned LC circuit which is resonant at the transmitter frequency. The winding axis of the detector coil is perpendicular to the winding axis of the transmitter inductance coil. The detector produces an output signal at the transmitter frequency when electrically conductive materials alter the mutual inductance between the coils in the two circuits. The detected signal is amplified and filtered by active,



passive and synchronous filtering means and the resulting signal is transmitted to a remote location for analysis. When employed to detect the presence and location of underwater materials, the transmitter circuit and the amplifying and filtering circuits are included in a submerged probe which is connected to a surface vessel by a cable. The connecting cable preferably carries only direct current to reduce noise and eliminate the effect of cable length on proper circuit operation.

3,835,372

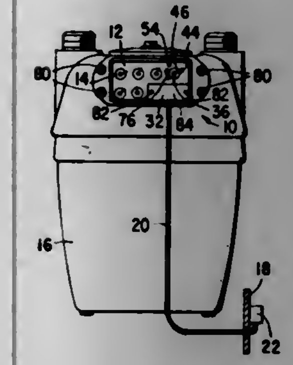
SWITCH CLOSURE DEVICE FOR METERS

John D. Adair, Huntington Valley, Pa., assignor to The Singer Company, New York, N.Y.

Filed May 14, 1973, Ser. No. 360,247

Int. Cl. G01n *31/02;* **H03k** *3/00;* **G08c** *19/16*

U.S. Cl. 324—28 R **3 Claims**



A switch closure device mounted on an index box in which the motion of an index arm turns a wheel which in turn causes a magnet to activate a reed switch. The components of the switch closure device adjacent to the index are made of clear polycarbonate plastic so as not to obscure the reading of the index. The wheel and magnet assembly are mounted internally of the index box, while the reed switch and the terminal block are mounted externally thereof. Safety of operation is assured since the switch is separated from the fluid in the meter by three seals: the stuffing box, the index box and the glass which encapsulates the reed switch. The switch closure device can provide any one of a number of pulses per unit volume, as for example, every 10, 100 or 1,000 cubic feet of metered gas.

3,835,373

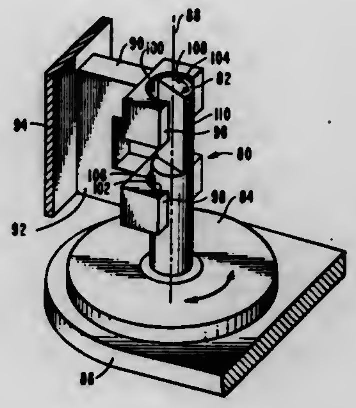
ROTATIONAL POSITION SENSOR UTILIZING A HALL DEVICE AND MEANS TO MAINTAIN THE HALL VOLTAGE CONSTANT

Jerry Matula, Culver City, Calif., assignor to Pertec Corporation, Los Angeles, Calif.

Filed Feb. 12, 1973, Ser. No. 331,342

Int. Cl. G01r *33/00*

U.S. Cl. 324—34 PS **14 Claims**



A rotational position sensor is disclosed in which a Hall Effect device mounted within an air gap of variable size within a magnetic circuit is subjected to changes in magnetic flux density in direct relation to the rotational position of a cylindrical member forming a part of the magnetic circuit. The magnetic circuit includes a C-shaped permanent magnet having opposite pole pieces forming air gaps with the cylindrical member. The cylindrical member comprises a half cylinder in the region of the air gap containing the Hall Effect device so as to vary the effective area of the gap and thus the flux density as the cylindrical member turns. The voltage of the Hall Effect device is applied to a feedback circuit including a differential amplifier so as to vary the current through the device as necessary to maintain the Hall voltage constant and provide an output voltage which varies linearly with the rotational position of the cylindrical member.

3,835,374

METHOD AND APPARATUS FOR PROVIDING SPEED COMPENSATION FOR INFORMATION CONTAINING SIGNALS IN WHICH THE THRESHOLD LEVEL OF THE DETECTOR IS VARIED PROPORTIONAL TO SPEED

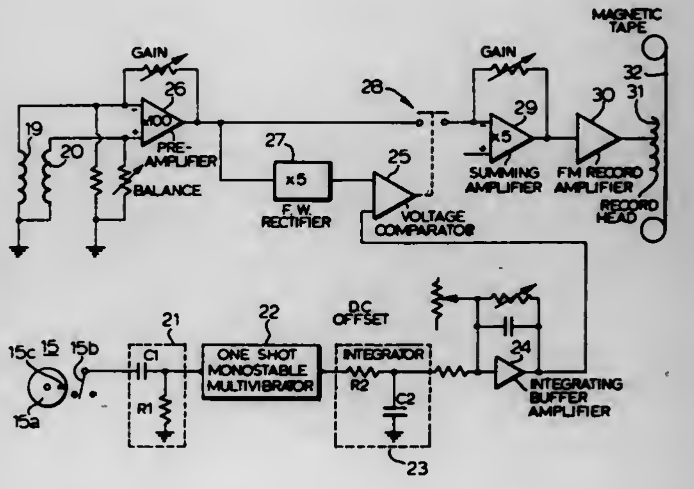
David S. Frost, Mississauga, Ontario, Canada, assignor to Transcanada Pipelines Limited, Toronto, Ontario, Canada

Filed Feb. 20, 1973, Ser. No. 334,127

Claims priority, application Canada, Feb. 13, 1973, 163648

Int. Cl. G01r *33/12*

U.S. Cl. 324—37 **7 Claims**



Certain types of equipment, for example, certain types of instrument pigs used for detecting flaws in or other characteristics of pipelines, employ sensing devices that derive information-containing signals having an amplitude that varies in response to a characteristic of the device being scanned by the scanning device and undesirably in response to the speed of movement of the sensing device through the device being scanned. In order to speed compensate the information-containing signal so that it can be properly interpreted, a speed responsive signal that varies in amplitude in response to the speed of movement of the sensing device is derived and is used to vary the threshold level of the information-containing signal to permit portions of the information-containing signal that exceed in amplitude the amplitude of the speed responsive signal to be recorded and to prevent portions of the information-containing signal that are lesser in amplitude than the amplitude of the speed responsive signal from being recorded.

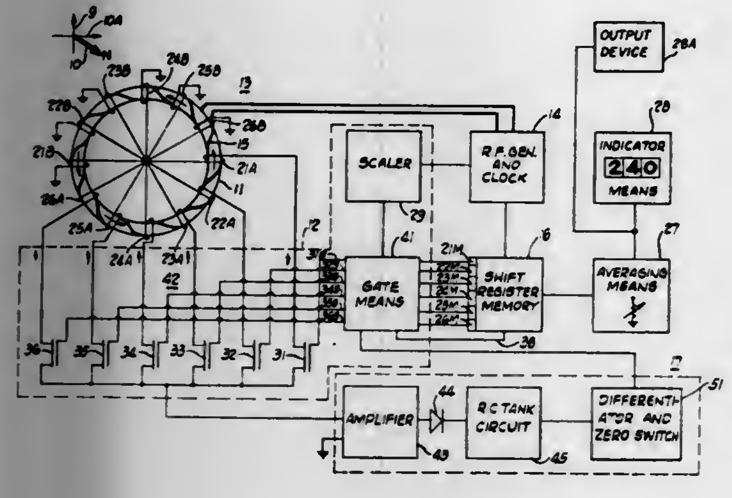
3,835,375
APPARATUS FOR DETERMINING THE DIRECTION OF A MAGNETIC FIELD RELATIVE TO A REFERENCE DIRECTION BY SYNCHRONOUSLY SCANNING THE FIELD AND A MEMORY

Leopold Rovner, 2201 Acacia Park Dr., Cleveland, Ohio 44124

Continuation-in-part of Ser. No. 219,725, Jan. 21, 1972. This application July 21, 1972, Ser. No. 274,069

Int. Cl. G01r ***33/04***

U.S. Cl. 324—43 R **17 Claims**



An apparatus to detect the direction of an external magnetic field is disclosed incorporating a flux gate magnetometer having a plurality of sensing coil arrays. A scanner sequentially connects each sensing array to a detector to determine the sensing coil which is in alignment with the external magnetic field. A memory device having a plurality of memory units is connected to the scanner to transfer the content of a memory unit to an indicator upon detection of said alignment. The indicator numerically displays the content of the memory unit which is the angular direction of the external field relative to a marker direction.

3,835,376
METHOD AND APPARATUS FOR DETECTING UNEVEN MAGNETIC FIELD BY SWEEPING A PLASMA CURRENT ACROSS A SEMICONDUCTOR

Shoei Kataoka, Tokyo, Japan, assignor to Agency of Industrial Science & Technology, Tokyo, Japan

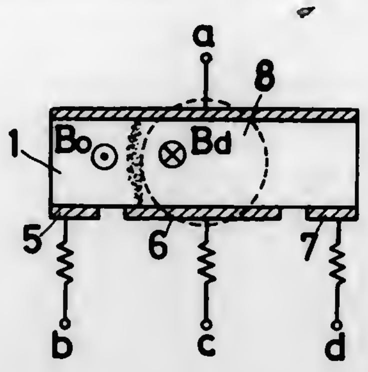
Filed Aug. 17, 1972, Ser. No. 281,408

Claims priority, application Japan, Aug. 20, 1971, 46-62929; Sept. 20, 1971, 46-72459

Int. Cl. G01r ***33/06***

U.S. Cl. 324—43 R **21 Claims**

The invention disclosed provides a semiconductor device and method whereby an inverted magnetic field such as a magnetic bubble is detected by placing the semiconductor device having at least two electrodes on a magnetic body, allowing a filamentary or plasma current to sweep in the semiconductor from a first input electrode, confining the filamentary current at the boundary of a detected inverted magnetic field, and detecting the position of the inverted magnetic field by means of an output electrode through which the filamentary or plasma current flows.



3,835,377
THREE TERMINAL MAGNETORESISTIVE MAGNETIC FIELD DETECTOR IN WHICH VOLTAGES OF OPPOSITE POLARITY RELATIVE TO GROUND ARE APPLIED TO OPPOSITE ENDS

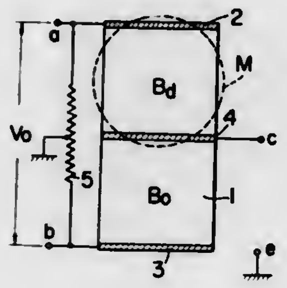
Shoei Kataoka, Tokyo, Japan, assignor to Kogyo Gijutsuin, a/k/a, Agency of Industrial Science and Technology, Ministry of International Trade and Industry, Japanese Government, Tokyo-To, Japan

Continuation of Ser. No. 121,914, March 8, 1971, abandoned. This application Mar. 28, 1973, Ser. No. 345,576

Claims priority, application Japan, Mar. 9, 1970, 45-19270

Int. Cl. G01r ***33/06***

U.S. Cl. 324—46 **8 Claims**



Disclosed herein is a detector of local magnetic field, in which metallic electrodes are connected to the both ends and central part of at least one semiconductor having a magneto resistive characteristic thereby to form at least one magneto resistive element having three terminals, said element being arranged on a plane, whereby presence of a local magnetic field in said element can be detected from a voltage appearing across each of the central electrodes of said elements and a predetermined reference point.

In addition, a semiconductor displacement transducer is also disclosed, which serves to produce an output voltage having any of the polarity, positive or negative, corresponding to a magnetic field displacement, by displacing the magnetic field applied to a part of the magnetoc resistive element with three terminals.

3,835,378
SYSTEM FOR AUTOMATIC GAIN MEASUREMENT

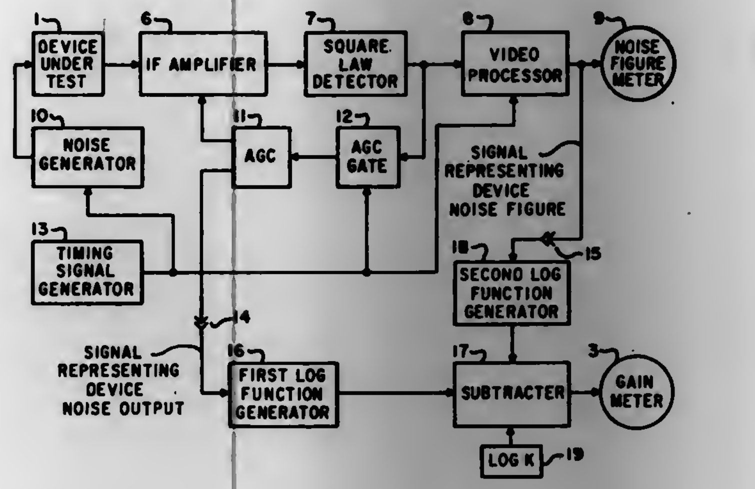
Francis E. Edden, Huntington, and Joseph P. Engeman, East Northport, both of N.Y., assignors to Cutler-Hammer Inc., Milwaukee, Wis.

Filed Dec. 17, 1973, Ser. No. 425,601

Int. Cl. G01r ***27/00***

U.S. Cl. 324—57 R **10 Claims**

An automatic measurement of gain is made with an automatic noise figure indicator by adapting the indicator to take the quotient of two parameters of the device under test. Signals representing these parameters are inherently available within the automatic noise figure indicator and can be used for the measurement of gain without affecting the simultaneous measurement of noise figure.



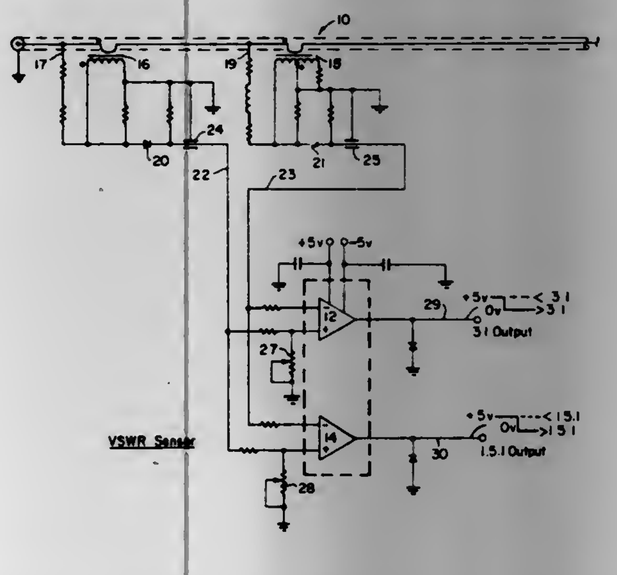
3,835,379
DETECTOR CIRCUITS FOR SIGNAL TRANSMISSION

Lawrence R. Templin, La Mirada, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Division of Ser. No. 251,232, May 8, 1972, Pat. No. 3,794,941. This application Jan. 28, 1974, Ser. No. 437,430

Int. Cl. G01r ***27/04***

U.S. Cl. 324—58 B **6 Claims**



Standing wave ratio (VSWR) detector provides sensing and monitoring of antenna tuning for broad band signal transmission of 2 to 80 MHz by sampling of forward and reflected signals to produce a digital output for indicating high and low standing wave ratios. A load sensor provides for sampling of transmission by detecting a plurality of impedance levels for preload and tuning after selection of the preload reactance. Each impedance level has a digital output for indicating the desired pre-load reactance and a digital output for the tuned reactance. The load sensor operates concurrently with a phase sensor in different control loops to select inductive and capacitive reactances of the antenna impedance matching network to approach the desired load resistance and 0° phase condition. The tuning is continuously monitored by the VSWR detector for initiating and controlling the duration of tuning cycles according to the detected impedance matching condition to provide at least a 1.5:1 ratio.

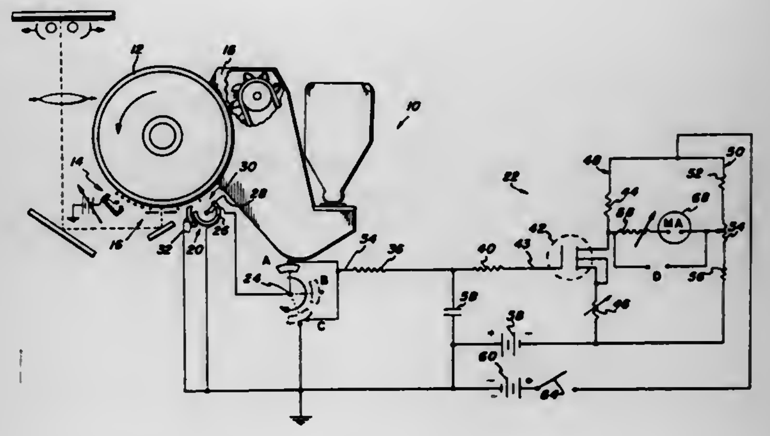
3,835,380
ELECTROMETER SYSTEM

John L. Webb, Fairport, N.Y., assignor to Xerox Corporation, Stanford, Conn.

Filed Aug. 14, 1973, Ser. No. 388,320

Int. Cl. G01r ***29/12***

U.S. Cl. 324—72 **5 Claims**



A simple electrometer system particularly adapted for noncontact measurement of electrostatic charges in electrostatography, such as the charge level on photoreceptor surface areas in commercial xerographic machines. Structure for readily mounting the electrometer as a desired measurement position immediately prior to image development in such machines is disclosed. Stable, long term and very high resistance induced electrostatic charge retention and accurate measurement thereof is provided by a simple disclosed electrometer circuit utilizing only a few commercially available electronic components including a single semi-conductive active element. The circuit output can be read by a conventional test meter, or utilized for various machine controls. The electrometer is controlled by a simple rotary switching arrangement.

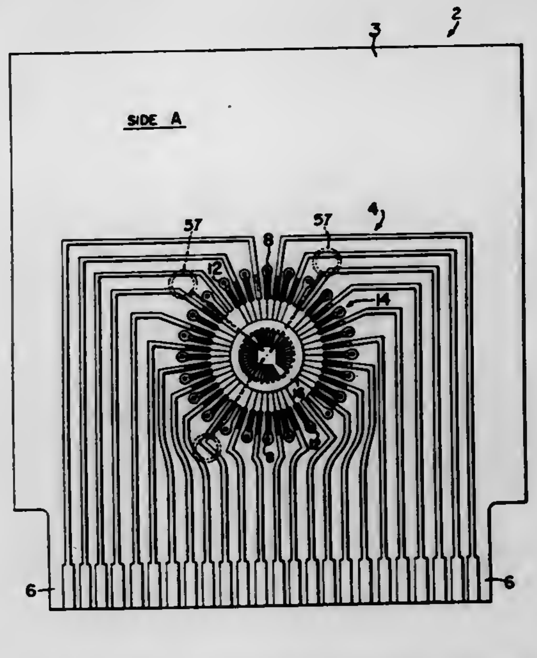
3,835,381
PROBE CARD INCLUDING A MULTIPLICITY OF PROBE CONTACTS AND METHODS OF MAKING

Oliver R. Garretson, and Richard C. Harmon, both of Mountain View, Calif., assignors to Tieco, Inc., Mountain View, Calif.

Continuation of Ser. No. 799,472, Feb. 14, 1969, abandoned. This application Aug. 9, 1973, Ser. No. 386,999

Int. Cl. G01r ***1/06, 31/02***

U.S. Cl. 324—158 P **27 Claims**

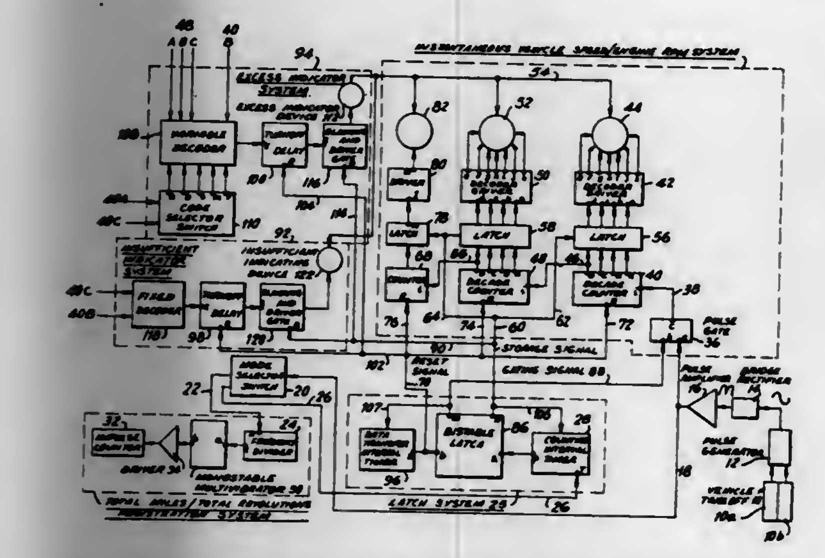


Presented is a probe card useful in testing the effectiveness and utility of semiconductor devices and hybrid circuit substrates prior to the application to such devices and substrates of terminal leads for interconnection with other components. The probe card includes a unitary electrically conductive probe assembly including a multiplicity of closely spaced conductive probes arranged in a radiating array to provide a multiplicity of contact tips adapted to be pressed with uniform pressure and contact resistance on the terminal pads of semiconductor devices and hybrid circuit substrates.

3,835,382
VEHICLE PERFORMANCE INDICATOR SYSTEM

Emanuel S. Weisbart, 98-40 57th Ave., Lefrak City, N.Y. 11368

Filed June 29, 1971, Ser. No. 157,964
Int. Cl. G01p *3/56*
U.S. Cl. 324—161 **20 Claims**

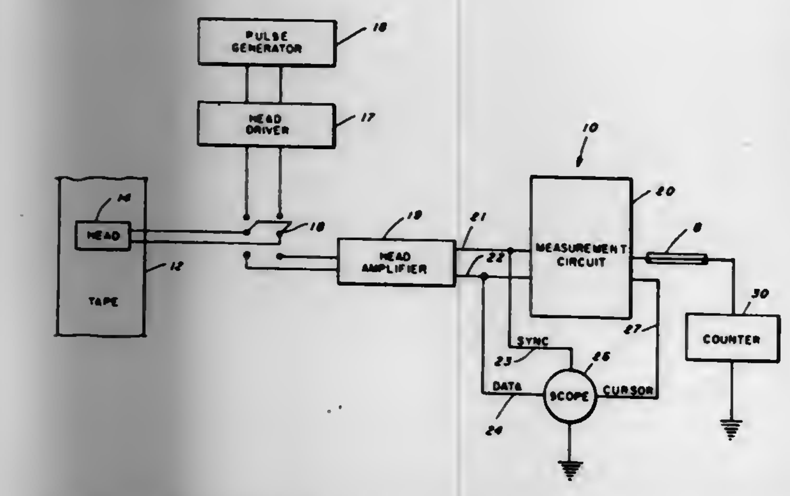


An electronic multi-mode vehicle performance indicator system selectively provides a digital display of odometer, tachometer, speedometer readings as well as other vehicle performance parameters while avoiding the disadvantages of mechanical systems which are subject to frequent breakdown. Provision is made to signal the operator of the vehicle when a preselected maximum vehicle velocity or engine rpm is being exceeded and furthermore to signal the operator when the engine rpm drops below a preset minimum level with the consequent danger of engine stall. Other vehicle parameters such as total elapsed engine revolutions is also displayed.

3,835,383
DATA PULSE WIDTH MEASUREMENT CIRCUIT

Tommy R. Crofford, Tulsa, Okla., assignor to Telex Computer Products, Inc., Tulsa, Okla.

Filed Sept. 24, 1973, Ser. No. 400,394
Int. Cl. G04f *11/06, 11/12*
U.S. Cl. 324—186 **6 Claims**



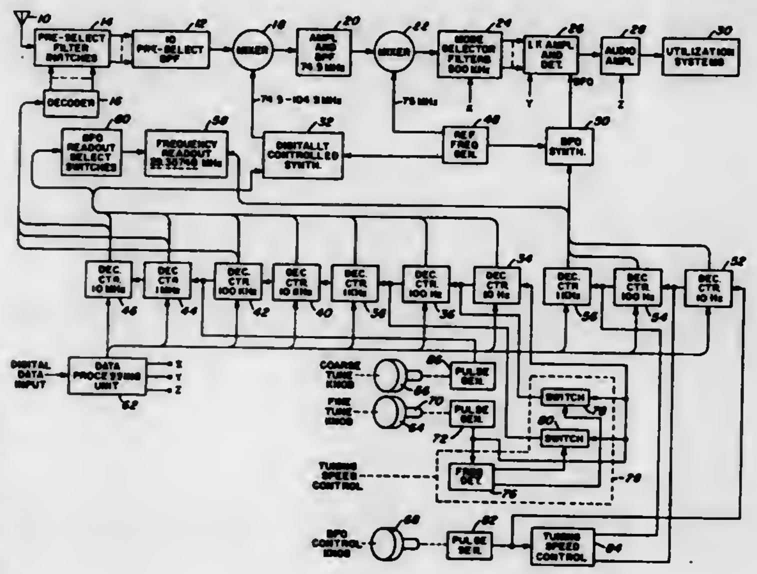
This abstract describes a system by means of which the duration of each pulse in a selected series of pulses which can be repetitively and synchronously generated, can be measured. A signal is provided at the start of each repetition of the series or train of pulses, a variable time delay means responsive to this initiating pulse generates a cursor pulse which can be positioned in time coincidence with any one of the pulses in the pulse train. Means are provided for generating pulses at each data transition and means are provided for the first transition pulse following the cursor pulse to start a pulse counter and means responsive to the next succeeding transition pulse to stop the counter. The counter reading is therefore a precise measure of the time duration of the pulse.

The timing pulse which is coincident with the start of the pulse train can be carried to an oscilloscope which displays also the cursor pulse to indicate which of the pulses in the train is being measured at the time.

3,835,384
TUNING SYSTEM

Ronald C. Liff, San Diego, Calif., assignor to General Dynamics Corporation, St. Louis, Mo.

Filed Dec. 20, 1972, Ser. No. 316,771
Int. Cl. H04b *1/40*
U.S. Cl. 325—25 **32 Claims**



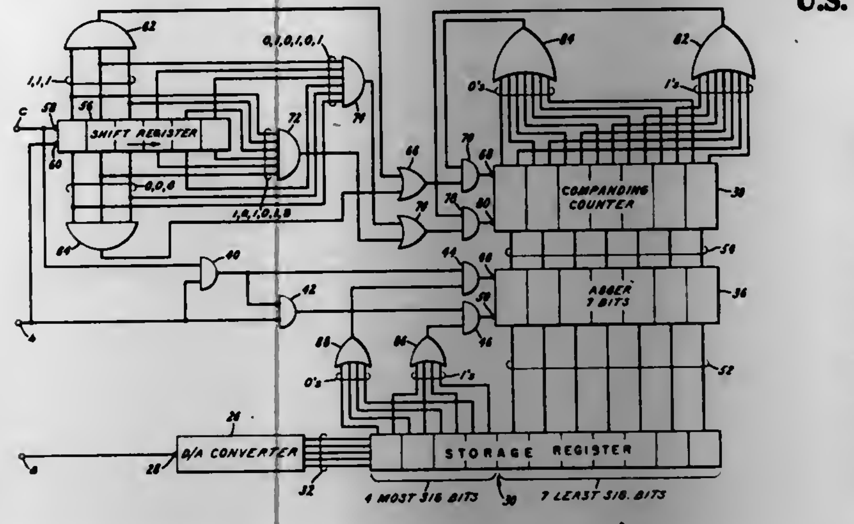
A radio receiver is described, which is capable of being turned to any frequency in the low through the high frequency bands. A number corresponding to the desired frequency is set into a counter having several decade counter stages each for a separate digit of the frequency. A manually operable control generates pulses at a rate depending upon the speed at which the control is actuated. These pulses are inputted to the first or subsequent stages of the counter depending upon the pulse rate; thus providing automatically and continuously variable tuning rate. The counts stored in the counter are simultaneously applied to a digitally controlled synthesizer and to a digital readout which indicates the frequency to which the receiver is tuned while tuning is being carried out. The output of the digital synthesizer determines the frequency which is received by the receiver which will be accepted by the intermediate frequency stages thereof and thereby controls the tuning of the receiver. The tuning of the receiver may also be preset by applying direct digital inputs simultaneously to each of the counter stages.

3,835,385
DIGITAL DELTA ENCODER AND DECODER

David F. Hoeschele, Jr., Norristown, Pa., and John D. Zubas, Ormand Beach, Fla., assignors to General Electric Company, New York, N.Y.

Filed May 18, 1973, Ser. No. 361,598
Int. Cl. H03k *13/22*
U.S. Cl. 325—38 B **5 Claims**

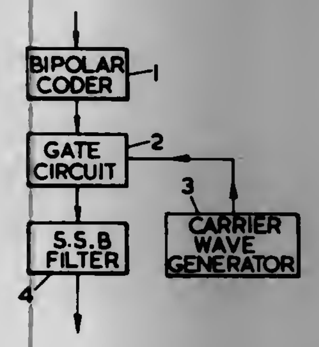
Amplitude varying signal is time sampled at constant clock rate (e.g. 40 kHz for voice) and sample is compared (in encoder) with analogue conversion of digitally stored previous value. If signal has increased, logical "1" is transmitted, if it has decreased, logical "0" is transmitted; simultaneously digitally stored value is increased for "1," decreased for "0", by increment stored in companding counter. To make increment match signal change between successive samples, companding counter content is increased by unity for three successive "1" or "0" signals, and decreased by six successive alternating "1" and "0" signals. Decoder logic is same as encoder except that no comparator is used, encoded signals operating directly upon digital stores; analogue conversion of digitally stored value is output.



3,835,386
BINARY DATA COMMUNICATION APPARATUS

Frederick Charles Court, Lymington, England, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed May 30, 1973, Ser. No. 365,112
Int. Cl. H04b *1/68*
U.S. Cl. 325—50 **5 Claims**

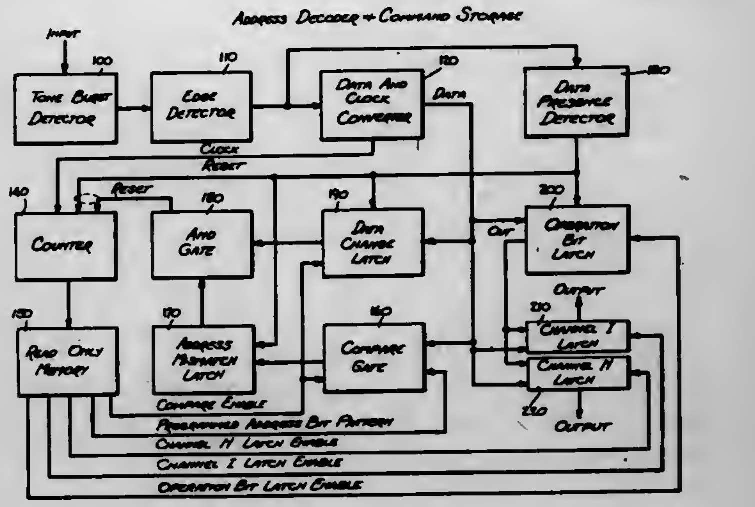


Apparatus for the single side band transmission of binary data. The apparatus comprises a coder which converts the binary data sequence to a related code sequence, gate circuit means, a carrier signal generator and a band pass filter. The related code sequence and carrier signals are applied to the gate circuit means so that the related code sequence gates the carrier signals through to the output. The output of the gate circuit means therefor comprises bursts of carrier signals. The gate circuit means are further arranged so that alternate bursts of carrier signal are in anti-phase relationship with each other. These carrier signal bursts are applied to a band pass filter. The response of the filter is such that when a half bit duration burst is applied to it the output is a burst of oscillation of twice the bit duration rising from zero amplitude to a maximum in the first bit period and falling again to zero in the second bit period. The filter's output is an amplitude and dipolar angle modulated (ADAM) signal which only occupies a single side band and can be detected at the receiver by a simple envelope detector.

3,835,387
CONTROL CIRCUITRY FOR INFORMATION TRANSMISSION SYSTEM

Earnest F. Rooks, El Monte, and David E. Lewis, Orange, both of Calif., assignors to Columbia Pictures Industries, Inc., New York, N.Y.

Filed Nov. 15, 1972, Ser. No. 306,830
Int. Cl. H04q *7/02*
U.S. Cl. 325—55 **36 Claims**

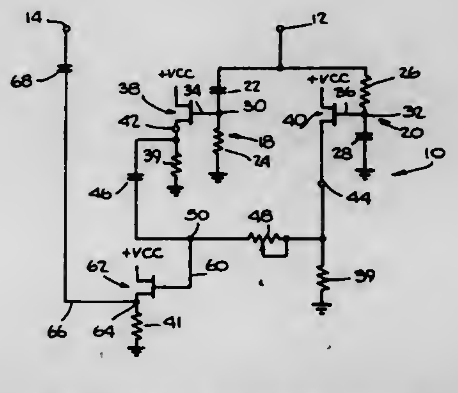


Logic circuitry for control of advisable converter-tuner stations of a cable television distribution system. The converter-tuners of the system are controlled by logic circuitry responsive to tone bursts modulated on a command carrier. The logic circuitry employs retriggerable one shot element to transform the logical bits of the command signal comprising tones into a clock signal and separate data signal, the clock signal being coherent with the data. The data in the tone bursts are encoded on a command carrier in a split phase mark mode, groups of such tones constituting a command word having address and command portions. A read only memory is used to internally generate the address of the converter receiving the command signal. Comparison circuitry is provided in order that the actual address received may be compared with the internally generated address to determine whether the unit receiving the address is in fact receiving its own address. This serial bit-by-bit comparison halts the further execution of the program by the unit at the first mismatch of an address bit. The read only memory also provides signals to control the response of the unit to the command portion of the command message in the event that the unit receiving the command message is the one addressed by the address portion thereof. A data presence detector automatically resets the system on the expiration of the command word transmission.

3,835,388
FREQUENCY ADJUSTABLE ENCODER AND DECODER

William B. Dowell, Jr., Raleigh, N.C., assignor to Aerotron, Inc., Raleigh, N.C.

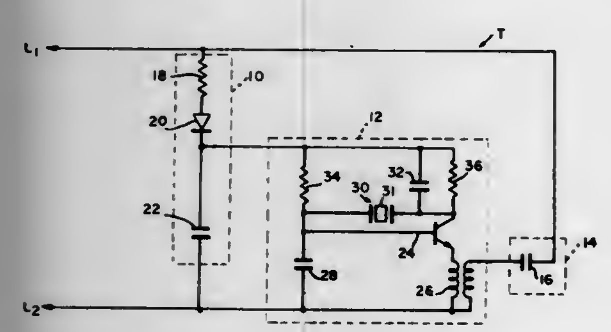
Filed June 21, 1973, Ser. No. 372,348
Int. Cl. H04b *1/00*
U.S. Cl. 325—64 **16 Claims**



A completely frequency adjustable decoder and encoder circuit in a continuous tone coded squelch system of mobile radio is made possible through the use of a new null network. This filter network is characterized by the placement of field effect transistors or other isolation devices between phase shifting portions of the network. All the requirements of frequency stability, small standard components, immunity to mechanical shock, and low cost are simultaneously possible in this decoder-encoder circuit. Large inventory reduction is possible because only one set of frequency determining components are necessary instead of a multitude, and the decoder-encoder is characterized by single unit construction. Change of one frequency to another is easily accomplished in the field by simply adjusting a single control component in the null network. This is accomplished without having to order new parts for the filter, and the replacement which is often involved. The frequency change is made without affecting other tone squelch parameters (i.e., modulation, sensitivity, etc.) and only the newly selected frequency must be checked for accuracy.

3,835,389
CARRIER CURRENT SYSTEM

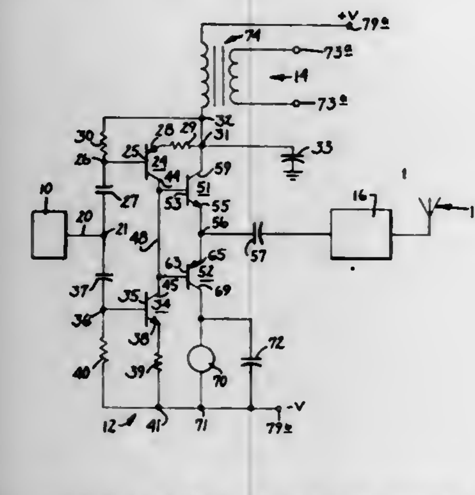
Ralph K. Helfen, Niles, Ill., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.
Continuation of Ser. No. 176,221, Aug. 30, 1971, abandoned. This application July 11, 1973, Ser. No. 378,092
Int. Cl. H04b *1/00*
U.S. Cl. 325—64 **10 Claims**



A transmitter and a receiver are both connected to a power source. A piezoelectric resonator means is used in the transmitter to determine the frequency of a transmitted signal and a piezoelectric resonator means is used in the receiver for selective reception of the desired transmitted signal.

3,835,390
POWER OUTPUT STAGE FOR USE IN LOW-POWER RADIO FREQUENCY TRANSMITTERS

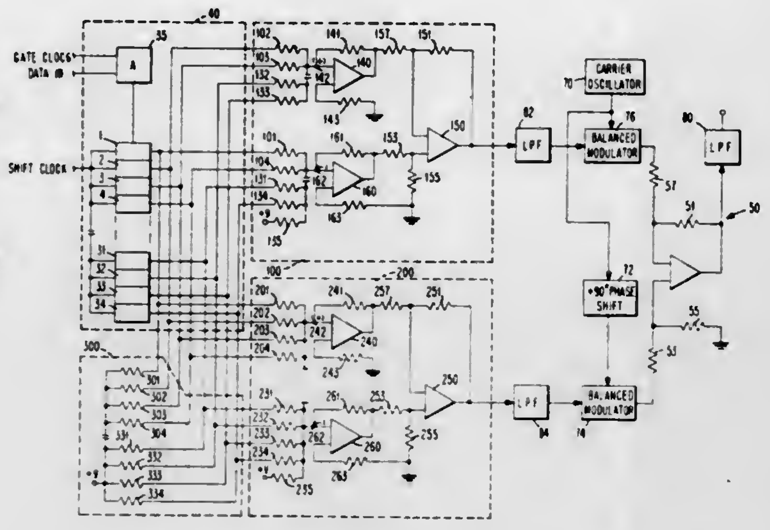
Claudio de Sa e Silva, Bozeman, Mont., assignor to Info Systems, Inc., Bozeman, Mich.
Filed Dec. 22, 1971, Ser. No. 210,651
Int. Cl. H04b *1/04*
U.S. Cl. 325—105 **3 Claims**



A power output stage for use in a low-power radio frequency transmitter. The output stage includes a first complementary pair of transistors which are driven at the carrier signal frequency and at a sufficiently high power level to provide operation of the transistors in the switching mode. An emitter-follower amplification stage is connected to the first transistor pair and provides an additional power increase. A filter network connected to the output transistor pair attenuates the harmonic frequencies while allowing the fundamental carrier signal frequency to pass to the broadcast antenna.

3,835,391
VESTIGIAL SIDEBAND SIGNAL GENERATOR

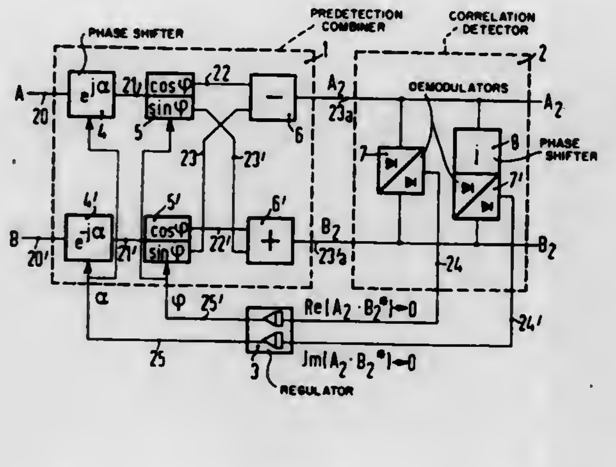
Yang Fang, Clarksburg, Md., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed May 21, 1971, Ser. No. 145,685
Int. Cl. H04b *1/68*
U.S. Cl. 325—136 **8 Claims**



A vestigial sideband signal generation method and apparatus suitable for transmission of digital data using a single filter for baseband data wave shaping and vestigial sideband shaping.

3,835,392
SYSTEM FOR TWO OR MORE COMBINED COMMUNICATION CHANNELS REGULATED IN ACCORDANCE WITH LINEAR RELATIONSHIPS

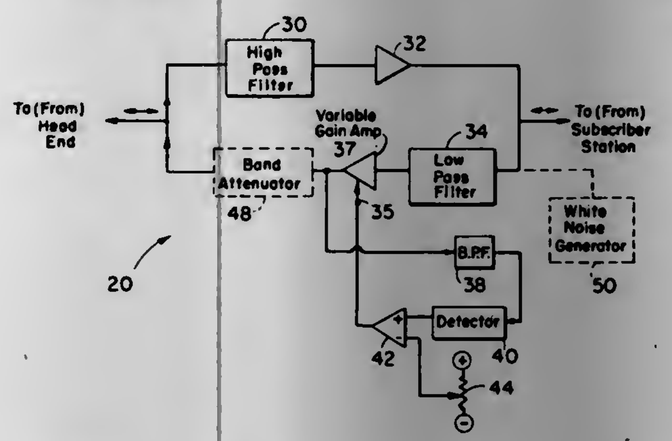
Helmut Mahner, Munich, and Karl Kammerlander, Wolfratshausen, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany
Continuation of Ser. No. 94,850, Dec. 3, 1970, abandoned. This application Mar. 28, 1973, Ser. No. 345,774
Int. Cl. H04b *1/06*
U.S. Cl. 325—306 **3 Claims**



Two or more communication channels containing coherent signals of respectively different amplitudes and phases aside from respective uncorrelated spurious signals of mutually equal intensities, are combined to a channel of optimal signal-to-noise ratio. This is done by transforming the original signals in a combiner network to an equal number of linear combinations, and regulating the respective transformations by controlling real parameters thereof so as to eliminate correlation between the linear combinations. As a result, the combined signal of the output channel exhibits the desired optimum of signal-to-noise ratio.

3,835,393
DUPLEX CABLE COMMUNICATIONS NETWORK EMPLOYING AUTOMATIC GAIN CONTROL UTILIZING A BAND LIMITED NOISE AGC PILOT

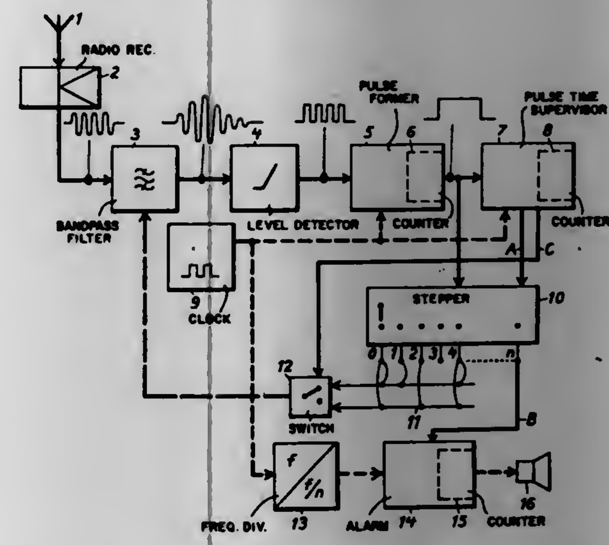
Henry B. Marron, Moorestown, N.J., assignor to Jerrold Electronics Corporation, Philadelphia, Pa.
Filed Apr. 17, 1972, Ser. No. 244,470
Int. Cl. H04b *3/56, 1/60*
U.S. Cl. 325—308 **5 Claims**



A full duplex private communications network provides independent automatic gain control circuitry for the oppositely-propagating signals. Band limited white noise is used to effect automatic gain control for information converging in the distribution network towards common head end equipment. Automatic gain control for this reverse direction propagation is thereby made insensitive to frequency and phase perturbations of any AGC pilot, and also performs well notwithstanding malfunctions in system communications links.

3,835,394
CODE RECEIVER IN STAFF LOCATOR

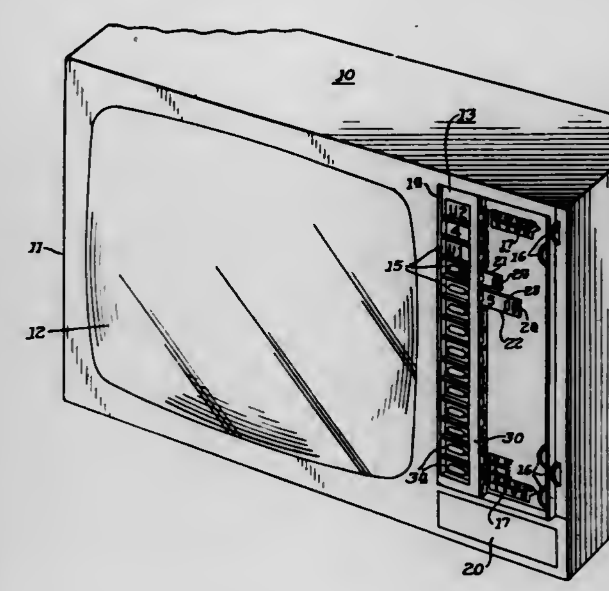
Nils Tomas Stolt, Bromma, and Dag E:son Akerberg, Ektorp, both of Sweden, assignors to Telefonaktiebolaget L. M. Ericsson, Stockholm, Sweden
Filed Feb. 1, 1973, Ser. No. 328,685
Claims priority, application Sweden, Feb. 9, 1972, 1500/72
Int. Cl. H04b *5/04*
U.S. Cl. 325—321 **6 Claims**



A device is in a staff locator receiver for decoding of radio calls destined to that receiver. The device contains a bandpass filter, switchable between preselected frequencies. A decoder in the device contains purely digital circuits, i.e., a level detector, a pulse former, a pulse time supervisor which discards the call if a pulse in the call does not pass the bandpass filter within the correct time period, a stepping device which for each pulse advances one step and sets the bandpass filter in accordance with a code word assigned to the receiver and an alarm arrangement which signals when a complete call is accepted. A digital clock oscillator is common to all digital circuits. The decoder discriminates between two different call words assigned to one receiver, basing the discrimination on the type of start pulse for the call.

3,835,395
TELEVISION CHANNEL INDICATING TAB WITH AUTOMATIC VHF/UHF SWITCHING

Dennis D. Smith, Skokie, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed Sept. 4, 1973, Ser. No. 394,034
Int. Cl. H04n *5/50;* **H03j** *5/12*
U.S. Cl. 325—459 **7 Claims**

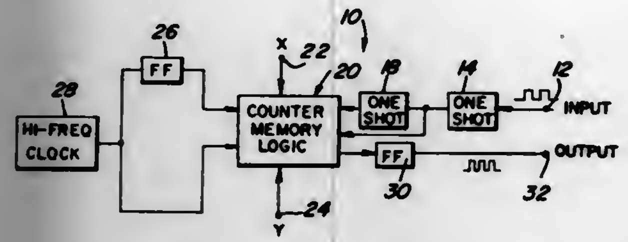


A combination UHF-VHF television tuner system has a plurality of tuning positions each including an individual potentiometer for adjusting the tuning voltage of an appropriate varactor-diode tuner, and a flexible plastic channel number indicator tab, which when illuminated, yields a visible indication of the tuning position selected and the channel number of the television signal programmed at the selected tuning position. A common contact strip is provided at the tuning positions for switching between UHF and VHF operating modes and each tuning position also includes an individual spring contact, self-biased into engagement with the common contact. The channel number indicator tab is coded in accordance with its channel number designation to selectively separate the individual and common contacts. In the preferred embodiment, the indicator tab has an aperture permitting engagement of the individual and common contacts.

3,835,396
DEVICE FOR CHANGING FREQUENCY OF CONSTANT AMPLITUDE SQUARE WAVES

Gary A. Demos, 1153 Descanso Dr., Los Angeles, Calif. 91011, and David S. Ruhoff, P.O. Box 4492, Los Angeles, Calif. 91106
Filed Sept. 12, 1973, Ser. No. 396,372
Int. Cl. H03k *21/06*
U.S. Cl. 328—41 **15 Claims**

An input signal having a constant amplitude, square wave form shape, is reproduced with the same square wave form and amplitude but at a frequency that is equal to the input frequency multiplied and divided by two factors externally programmed into a logic section within which a fixed frequency clock signal is compared with the input frequency. The clock signal divided by one of the externally programmed factors drives an input counter until reset by the input signal to



produce a number loaded into an output counter in a down counting operational mode to produce an output signal which is divided by the other externally programmed factor either before or after counting of the clock signal.

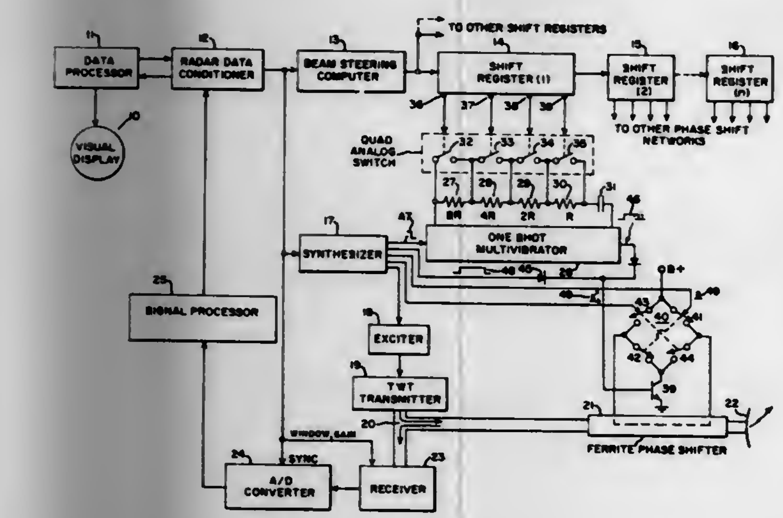
3,835,397
DIGITALLY CONTROLLED PHASE SHIFT NETWORK

Nicholas F. D'Antonio, Liverpool, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Oct. 23, 1973, Ser. No. 409,018

Int. Cl. H03k *17/66, 17/14*; H01p *1/32*

U.S. Cl. 328—155 **9 Claims**



The present invention relates to a digitally controlled phase shift network for use with an individual antenna element, as would form a part of a phased array radar system wherein a directional beam is formed and electrically scanned by control of the phase of each individual antenna element. The phase shift network here described is responsive to a computed digital signal which it converts in an electrically switched resistance-capacitance timing network to a pulse whose duration is an analog quantity stepped in equivalence to the digital input. The variable duration pulse is used to control the volt time area of a source of magnetizing energy to achieve stepped remanent states in the ferrite phase shifters corresponding to stepped angles of phase shift. A direct conversion of a digital signal into an analog phase shift angle is achieved while also providing electronic compensation for nonlinearity in the magnetization characteristics of the ferrite and for temperature drift.

The invention herein described was made in the performance of a contract with the Department of the Army.

3,835,398
CLOCK PULSE REGENERATOR

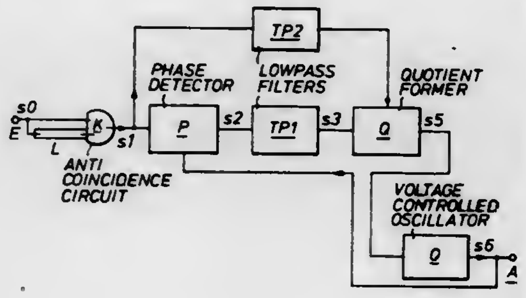
Peter Russer, Senden/Iller, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H, Frankfurt am Main, Germany

Filed Aug. 3, 1973, Ser. No. 385,238

Claims priority, application Germany, Aug. 3, 1972, 2238172

Int. Cl. H03b *1/00*

U.S. Cl. 328—164 **1 Claim**



In a circuit for regenerating the clock pulses of a PCM signal and including a phase control loop composed of a phase detector, a first lowpass filter and a controlled oscillator producing a control voltage which is applied as a control voltage to the phase detector, the regeneration of clock pulses is improved by also providing a quotient former having a first input connected to the output of the low pass filter and an output connected to the oscillator, and a second low pass filter having the same transmission characteristic as the first low pass filter and connected between the signal input of the phase detector and a second input of the quotient former. These added components cooperate with the other components of the circuit to produce a regenerated clock pulse which is free of phase fluctuations due to frequency and amplitude fluctuations in the received signal.

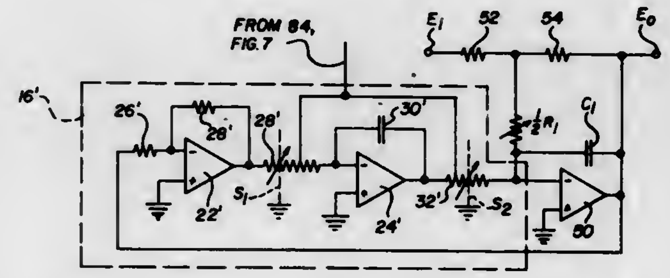
3,835,399
ADJUSTABLE ELECTRONIC TUNABLE FILTER WITH SIMULATED INDUCTOR

Robert S. Holmes, 151 Westland Ave., Rochester, N.Y. 14618

Continuation of Ser. No. 220,059, Jan. 24, 1972, abandoned. This application June 4, 1973, Ser. No. 366,638

Int. Cl. H03b *1/04*

U.S. Cl. 328—167 **5 Claims**



A stable tunable Q bandpass filter adapted to have its parameters dynamically varied over a wide range of bandwidths and center frequencies. The filter includes a capacitor and a network coupled in parallel across the capacitor. The network includes a plurality of operational amplifiers coupled to simulate an inductor without utilizing coils. A feature of the filter is that it can be readily made adaptive to track an input signal which may randomly vary in frequency. A further feature of the invention is to have one input of each operational amplifier coupled directly to ground to minimize stray capacitance. The performance characteristics of this filter are in part attained by the method of component layout and shielding techniques used, in addition to the method of circuit excitation.

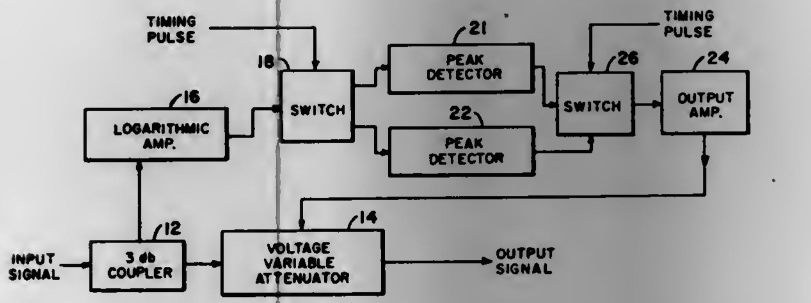
3,835,400
SEQUENTIAL AUTOMATIC GAIN CONTROL CIRCUIT

William G. Briscoe, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed July 25, 1973, Ser. No. 382,628

Int. Cl. H03k *5/18*; H03g *3/20*

U.S. Cl. 328—168 **2 Claims**



The sequential automatic gain control circuit is an improved AGC circuit that can be used in search and track radars which receive a series of pulse returns from each target. The sequential AGC is well suited for monopulse radars and moving target indication (MTI) processing where gain stability and gain match between channels are required. The maximum input signal levels are sensed by a pair of AGC circuits which alternately provide output levels for a predetermined time. The output signal levels are proportional to the maximum input signal received during the previous pulse return period.

3,835,401
SIGNAL CONTROL CIRCUIT

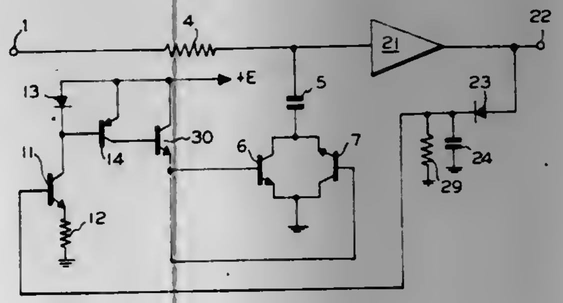
Masao Tomita; Kiyoji Fujisawa, and Takashi Miura, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 26, 1973, Ser. No. 326,696

Claims priority, application Japan, Feb. 1, 1972, 47-011658; Feb. 8, 1972, 47-014255; Feb. 8, 1972, 47-014256

Int. Cl. H03f *1/32*; H03g *3/20*; H03k *5/08*

U.S. Cl. 328—172 **17 Claims**



A signal control circuit has two transistors. The collector and the emitter of the first transistor are connected to the emitter and the collector of the other transistor, respectively, and the bases of the two transistors are grounded. The amplitude of a signal applied to the junction of the collector of the first transistor and the emitter of the other transistor through a resistor and a capacitor from an input terminal is controlled according to a control signal applied to the junction of the bases of the two transistors.

3,835,402
VOLTAGE-FREQUENCY CONVERTER

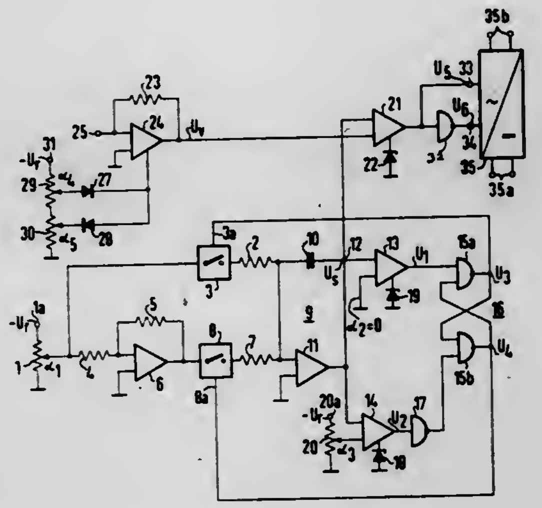
Christian Kublick, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Mar. 12, 1973, Ser. No. 340,056

Claims priority, application Germany, Mar. 16, 1972, 2212792

Int. Cl. H03k *4/08*

U.S. Cl. 328—181 **11 Claims**



A voltage-frequency converter is disclosed and has an integrator which acts as a sawtooth generator. A positive or negative input voltage is alternatively connected to the input of the integrator and both voltages are proportional to a reference voltage. One input voltage is preferably taken off at a voltage divider and the second input voltage is derived from the other by means of an inverting amplifier. The integrator is followed by two limit-value stages for determining the reversal points of the sawtooth voltage. Datum voltages are supplied to the limit-value stages and are also proportional to the reference voltage. The voltage appearing at the integrator input is disconnected by the output signals of the limit-value stages upon reaching a reversal point of the sawtooth waveform whereupon the voltage of the opposite polarity is connected. The frequency generated by the voltage-frequency converter is independent of the reference voltage.

3,835,403
STEPWISE CURRENT ADJUSTING SYSTEM

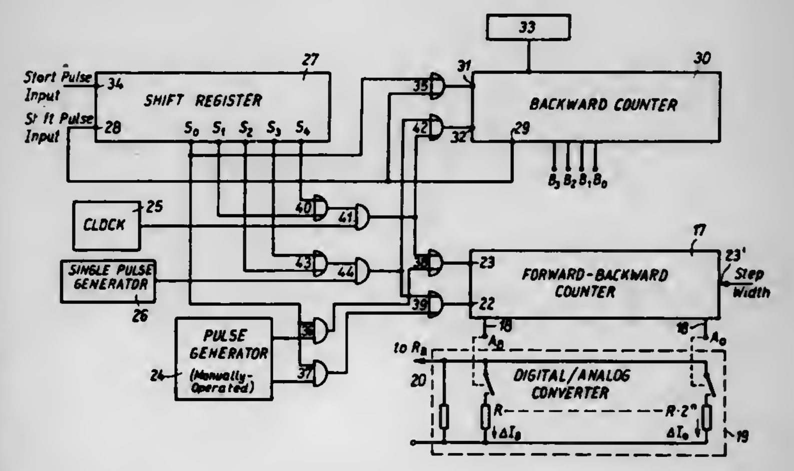
Klaus Leinemann, Leopoldshafen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Sept. 18, 1972, Ser. No. 289,605

Claims priority, application Germany, Sept. 28, 1971, 2149106

Int. Cl. H03k *4/02*

U.S. Cl. 328—186 **6 Claims**

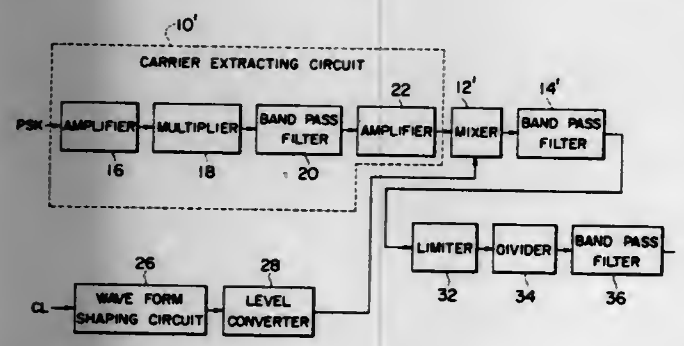


In an improved system for stepwise current adjustment, particularly adapted for adjusting the lens current of electron microscopes, a setting device for providing accurate voltage increments to the input of a control and regulating circuit for electromagnetic lenses includes a forward-and backward digital counter connected to the control means through a digital-to-analog converter. A shift register controlled by a backward counter connects counting signal inputs to the forward-and-backward counter via interlinking logic circuits to permit manual selection of a predetermined output from the setting device, corresponding to an assumed focus condition followed by automatic stepwise variation of the setting device ouput through a selected range about the predetermined value.

3,835,404
EXTRACTING CIRCUIT FOR REPRODUCING CARRIER SIGNALS FROM A MULTIPHASE MODULATED SIGNAL

Hiroshi Nakamura, Sagamihara, and Hiroaki Ohyama, Tokyo, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Nov. 29, 1972, Ser. No. 310,475
Claims priority, application Japan, Dec. 1, 1971, 46-96995
Int. Cl. H03k *9/00*
U.S. Cl. 329—104 **6 Claims**

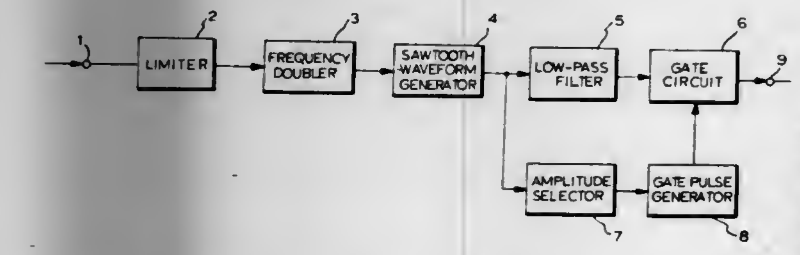


A carrier reproducing circuit for demodulating a signal transmitted by a pulse coded modulation-multiphase modulation system in which the output of a carrier extracting circuit is sampled by a clock pulse of a bit repetitive frequency in a sampling circuit and the sampled output is applied to a band-pass filter having a pass band of a carrier frequency to reproduce a carrier of reduced phase jitter.

3,835,405
FM DEMODULATION SYSTEM

Katsutoshi Nishimura, Osaka; Kiyoji Fujisawa, Nara, and Toshikazu Yosumi, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed July 16, 1973, Ser. No. 379,338
Int. Cl. H03d *3/18*
U.S. Cl. 329—126 **3 Claims**

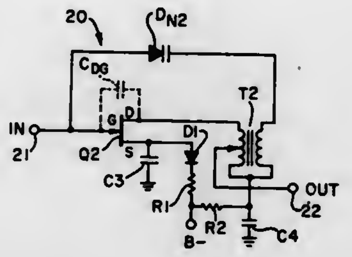


An FM demodulation system has a limiter, a frequency doubler, a sawtooth-wave generator, a low-pass filter, an amplitude selector and a noise suppressing circuit. The output voltage of the sawtooth-wave generator is proportional to the frequency deviation of the FM signal and becomes large when a noise occurs. During the occurrence of noise, the amplitude selector which is coupled to the output of the saw-tooth generator generates a signal for controlling the characteristics of the signal path in the noise suppressing circuit, so that a noise component does not appear at the signal output terminal.

3,835,406
NEUTRALIZED AMPLIFIER CIRCUIT

Wallace T. Thompson, East Amherst, N.Y., assignor to GTE Sylvania Incorporated, Stanford, Conn.

Filed Oct. 2, 1972, Ser. No. 293,911
Int. Cl. H03f *1/14, 3/16*
U.S. Cl. 330—27 **6 Claims**

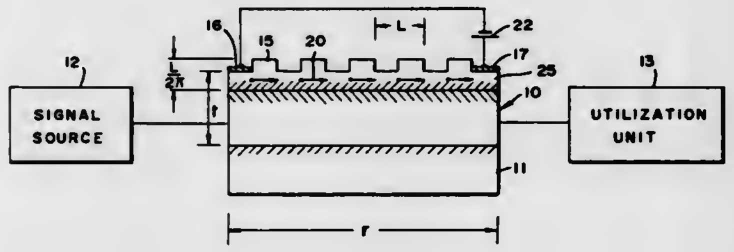


A neutralized amplifier stage including a bipolar or a field effect transistor and having an output transformer. A variable capacitance diode is connected from the secondary winding of the transformer to the input electrode of the transistor. The capacitive effect of the diode varies with applied voltage thereby instantaneously balancing the internal capacitance of the transistor, which also varies with applied drive or B+ voltage, over a wide dynamic operating range.

3,835,407
MONOLITHIC SOLID STATE TRAVELING WAVE TUNABLE AMPLIFIER AND OSCILLATOR

Amnon Yariv, and Avraham Gover, both of Pasadena, Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed May 21, 1973, Ser. No. 362,821
Int. Cl. H03f *3/04*
U.S. Cl. 330—5 **10 Claims**

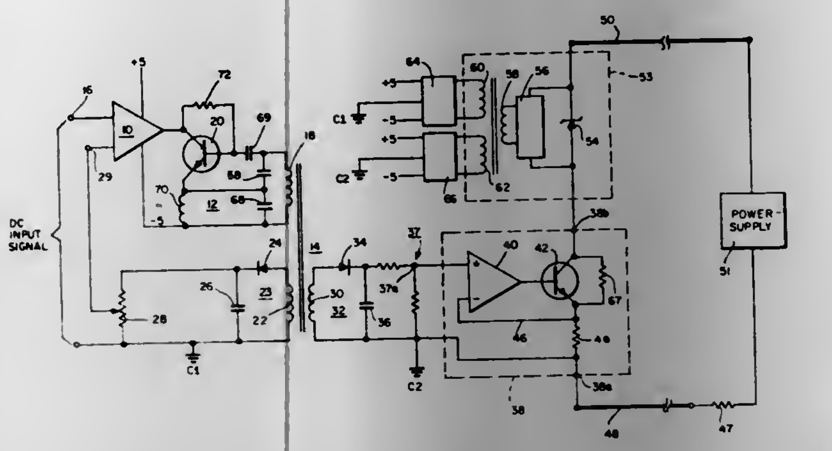


A travelling wave amplifier of signals in the millimeter wavelength range consists of a monolithic solid state waveguide structure wherein space harmonics of the input electromagnetic energy wave (signals) are generated due to periodic corrugations of the guide's top surface. The waveguide structure includes a current conductive layer supportive of a stream of electrons with an electron velocity v_e, the stream of electrons being located where the amplitude of the spatial first harmonic is a maximum The corrugation periodicity L is selected so that the equality $v_e = K (\omega/\pi) L$ is satisified. In the equality, ω is the angular frequency of the input wave and K is a factor which is not less than and on the order of one.

3,835,408
DC SIGNAL TRANSLATOR WITH A VARIABLE AMPLITUDE OSCILLATOR

William John Shaffer, Sumneytown, Pa., assignor to Leeds & Northrup Company, North Wales, Pa.

Continuation-in-part of Ser. No. 284,081, Aug. 28, 1972, abandoned. This application Aug. 3, 1973, Ser. No. 385,598
Int. Cl. H03f *3/38*
U.S. Cl. 330—10 **17 Claims**

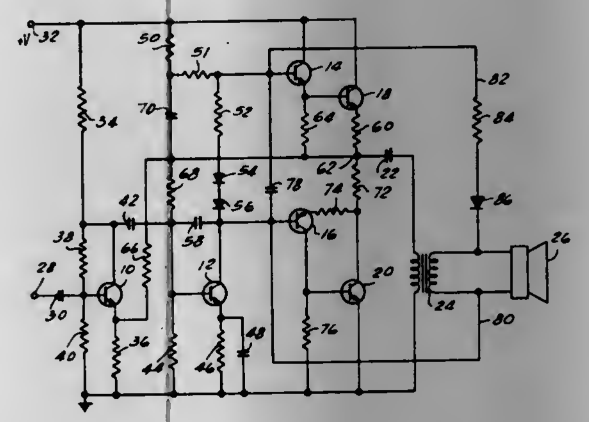


A DC signal translator having an output DC isolated from the input comprises a variable amplitude oscillator generating an oscillating output signal having an amplitude directly related to the magnitude of the DC supply voltage for the oscillator. A DC isolating transformer is associated with the oscillator. A feedback rectifying circuit is coupled between the DC isolating transformer and the input of an amplifier so that the oscillator's DC supply voltage, and hence, AC amplitude, is continuously adjusted so as to maintain a portion of the rectified DC feedback signal very nearly equal to the input signal. An output rectifying circuit which is matched with the feedback rectifying circuit is coupled to the isolating transformer so as to produce a DC output signal corresponding to the DC input signal while maintaining DC isolation between the input and the output of the DC signal translator.

3,835,409
AMPLIFIER DISTORTION CIRCUIT FOR ELECTRIC GUITARS

William G. Laub, 920 Greenwood, Winnetka, Ill. 60093

Filed Sept. 25, 1973, Ser. No. 400,666
Int. Cl. H03f *3/18;* **G10h** *1/06*
U.S. Cl. 330—13 **5 Claims**

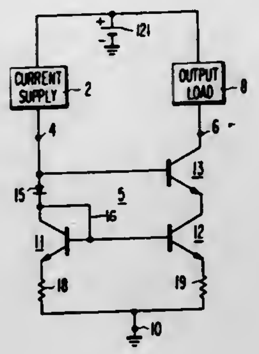


An amplifier for use with electric guitars for amplifying an electrical signal for application to a loudspeaker includes means for introducing crossover distortion in proportion to the amplitude of the electrical signal.

3,835,410
CURRENT AMPLIFIER

Harold Allen Wittlinger, Pennington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 26, 1972, Ser. No. 318,645
Int. Cl. H03f *3/42*
U.S. Cl. 330—19 **6 Claims**

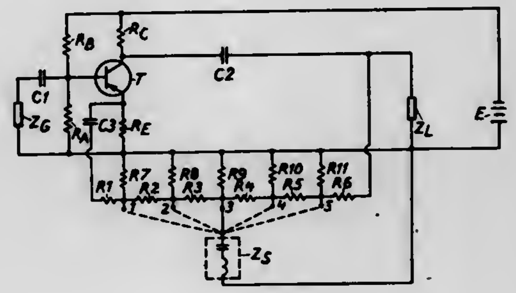


A three-terminal current amplifier has a current gain substantially independent of the forward current gains of its component transistors. It employs a first transistor with collector-to-base feedback regulating its collector current flow to equal applied input current and a second transistor having a base emitter circuit in parallel with that of the first transistor. Output current from the collector electrode of the second transistor consequently is proportional to the input current. Means are provided for maintaining the collector potentials of the first and second transistors substantially equal to help maintain a fixed relationship between the output and input current amplitudes.

3,835,411
ADJUSTABLE EQUALIZING NETWORK

Bengt Jonas Timoteus Carleson, Stockholm, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed Aug. 4, 1972, Ser. No. 277,891
Claims priority, application Sweden, Aug. 27, 1971, 10911/71
Int. Cl. H03f *3/04*
U.S. Cl. 330—31 **6 Claims**



The invention relates to an adjustable equalizing network that is principally suited for use in the transmission of carrier wave telephone signals through a coaxial cable. While heretofore known equalizing networks comprise T-type networks with inverse frequency dependent impedances in their shunt and series branches respectively, the equalizing network of the invention comprises a T-type network in which the series branch includes only resistive elements and the shunt branch alone is provided with a frequency dependent impedance.

3,835,412
TRANSISTOR AMPLIFIER PROTECTIVE CIRCUIT

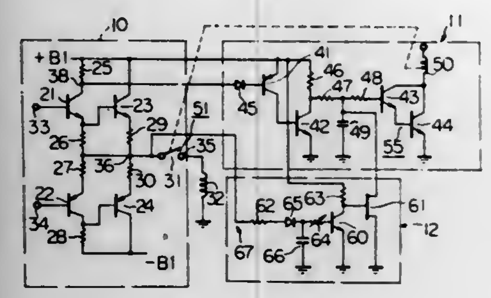
Masatsugu Honda, and Masanobu Shinozaki, both of Yokohama, Japan, assignors to Victor Company of Japan Limited

Filed Nov. 2, 1973, Ser. No. 412,092

Claims priority, application Japan, Nov. 6, 1972, 47-127171; Dec. 7, 1972, 47-122043; Dec. 7, 1972, 47-122044

Int. Cl. H03f *1/00*

U.S. Cl. 330—207 P **5 Claims**



A protective circuit for protecting a transistor amplifier against excessive current flowing therethrough, which comprises voltage response switching means, and improved control means, provided for protecting the transistor amplifier. The improved control means is intended to control the sensitivity of the voltage responsive switching means.

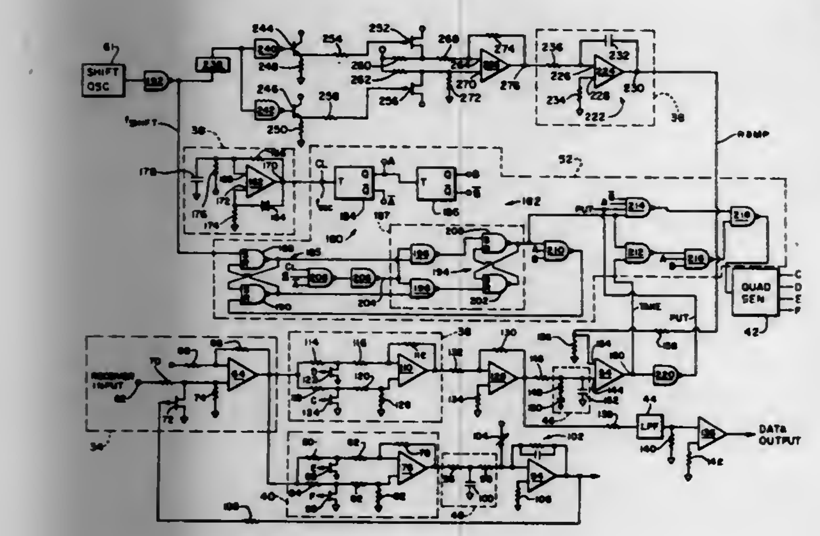
3,835,413
CRYSTAL PHASE-LOCKED LOOP

Philip L. Epstein, Elizabeth, N.J., assignor to Quindar Electronics, Inc., Springfield, N.J.

Filed June 16, 1972, Ser. No. 263,538

Int. Cl. H03b *3/04*

U.S. Cl. 331—1 A **10 Claims**



A phase-locked loop comprises a crystal voltage controlled oscillator for generating an output signal having a frequency related to an input signal, a phase detector for selectively combining an incoming signal and the output signal of the crystal voltage controlled oscillator and for generating an output signal which contains the sum and difference frequencies of the combined signals, and a low pass filter for filtering out the sum frequency signal. The difference frequency signal at an output of the loop filter is applied to the crystal voltage controlled oscillator for controlling the frequency of the signal at the output thereof.

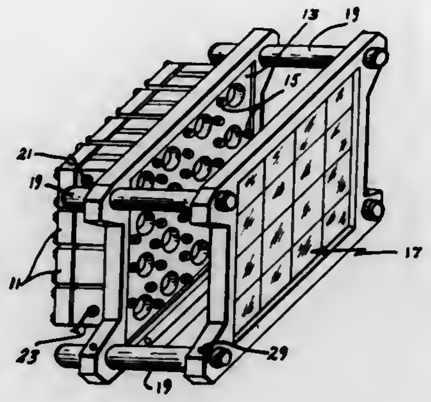
3,835,414
GALLIUM ARSENIDE ARRAY

William E. Ahearn, Purny Station, N.Y., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 24, 1972, Ser. No. 238,708

Int. Cl. H01s *3/02*

U.S. Cl. 331—94.5 **3 Claims**



A gallium arsenide laser array in which laser modules are mounted on a printed circuit support plate. Each module has a housing creating a cavity and shaped substantially as a pair of cones with opposing vertices. At the junction of the vertices there is a stack of gallium arsenide diode chips each of the chips being mounted on a heat sink with dielectric spaces therebetween. Each module has a spherical mirror positioned to reflect the laser beam through openings in the support plate. A lens array is mounted with support rods to the support plate with each lens of the array corresponding to a laser module.

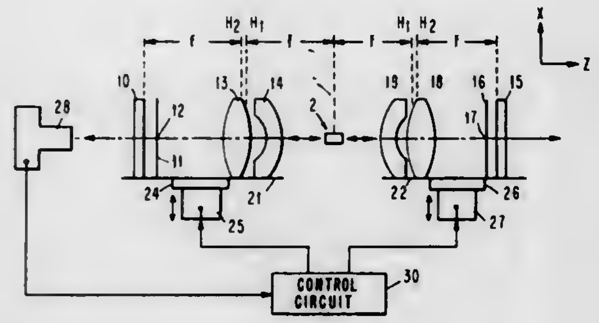
3,835,415
HIGH RADIANCE SEMICONDUCTOR LASER

Elizabeth Maria Rutz, Bethesda, and Morton Richard Kagan, Potomac, both of Md., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 28, 1972, Ser. No. 266,904

Int. Cl. H01s *3/00*

U.S. Cl. 331—94.5 S **22 Claims**



A diffraction-limited semiconductor laser system capable of a high radiance output which features means for controlling automatically the alignment of a p-n junction of the semiconductor laser with respect to an external resonating cavity. The control means operates to maintain automatically the alignment of the resonating cavity components along the narrow dimension of the external surface of the junction, thereby maximizing the power of the coherent radiation.

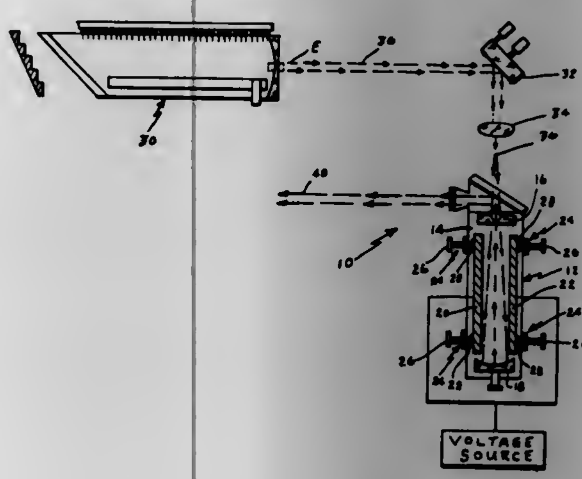
3,835,416
TUNABLE OFF RESONANT OPTICALLY PUMPED LASER

Howard R. Schlossberg, Lexington; Harold R. Fetterman, Waltham, and Jerry Waldman, Lexington, all of Mass., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 13, 1973, Ser. No. 340,810

Int. Cl. H01s *3/09*

U.S. Cl. 331—94.5 P **5 Claims**



A tunable off resonant optically pumped laser system in which a high power pulsed laser is utilized to optically pump a molecular gas having a vibrational absorption band near the laser frequency. The electric field of the pumping laser is at least as great as a predetermined strength so that upon the application of a D.C. electric field on the absorbing gas the resultant submillimeter laser oscillation is capable of being tuned.

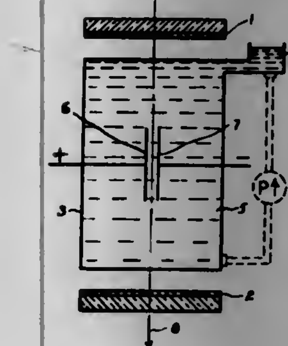
3,835,417
METHOD AND MEANS FOR EXCITING LIQUID LASERS

Fritz Peter Schafer, Gottingen-Nikolausberg, Germany, assignor to Carl Zeiss-Stifting, Wuerttemberg, Germany

Continuation-in-part of Ser. No. 120,531, March 3, 1971, abandoned. This application June 19, 1973, Ser. No. 371,361

Int. Cl. H01s *3/00*

U.S. Cl. 331—94.5 L **10 Claims**



Liquid lasers are excited by generating a flow of electric current through a laser-cell liquid which comprises a solute capable of fluorescing when subjected to the current and dissolved in an aprotonic (also known as an aprotic) solvent. The ions of said solute serve as the carrier ions of the current. More than one solute may be used, in which case, the added solute is excitable to selective emission by transfer of energy from the first solute, and its fluorescence contributes to the ability of the first solute to effect laser emission.

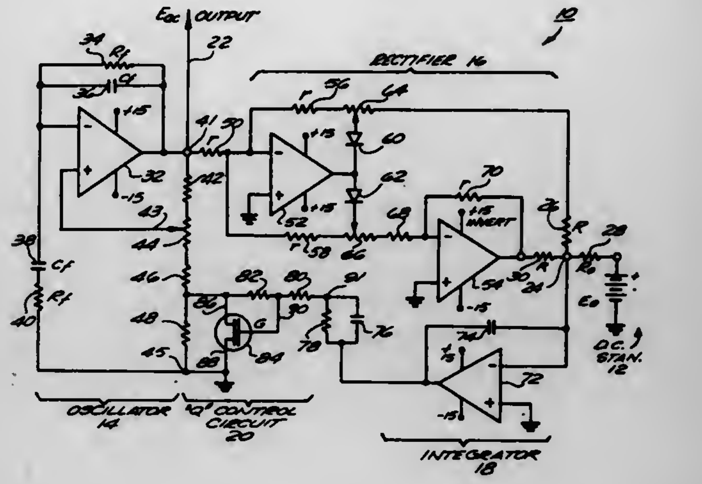
3,835,418
STABILIZED ALTERNATING CURRENT SOURCE

Roswell W. Gilbert, New York, N.Y., assignor to RFL Industries, Inc., Boonton Township, N.J.

Filed Oct. 17, 1972, Ser. No. 298,257

Int. Cl. H03b *3/02*

U.S. Cl. 331—141 **13 Claims**



An extremely stable and accurate d.c. source such as a standard cell is used to control very precisely the magnitude of an a.c. voltage produced by an oscillator. The oscillator output is rectified by means of a full-wave rectifier, and is compared with the voltage of the d.c. standard. Any difference between the standard and the rectified value of the oscillator voltage is integrated by an integrator circuit with a relatively long time constant, and then is used to drive a circuit which controls the "Q" of the oscillator by negative feedback. This precisely regulates the magnitude of the oscillator output. Preferably, the "Q" control circuit includes at least one field effect transistor (FET) connected in a bridge network. The FET is used as a voltage-sensitive, relatively distortion-free resistor. In the preferred embodiment of the invention, a "biquad" oscillator is used to produce three output voltages, the phases of which are separated by 90°. Amplitude of the output voltages is controlled with a high degree of precision by means of the technique described above, except that the "Q" control circuit uses two FET bridge circuits connected in push-pull.

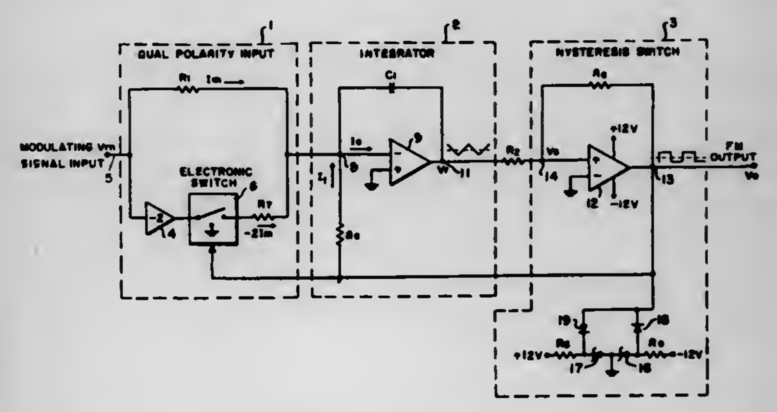
3,835,419
CURRENT SWITCHING FREQUENCY MODULATOR

David T. Milne, Silver Spring, Md.; David J. Plumpe, Springfield, and David E. Armstrong, Alexandria, both of Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 18, 1973, Ser. No. 352,400

Int. Cl. H03c *3/08*

U.S. Cl. 332—16 R **17 Claims**



The linear frequency modulator of the invention is comprised of a dual polarity input circuit coupled to a VCO. The VCO includes a closed loop integrator-hysteresis switch circuit which continuously oscillates to produce a square wave output from the hysteresis switch. The magnitude of the square wave is held substantially constant and fed back to the integrator. The integrator alternately produces positive and negative ramp voltages whose slopes are proportional to the substantially constant magnitude of the square wave. The hysteresis switch reverses the polarity of its output thus causing the integrator to reverse its direction of integration when the ramp voltages attain a value proportional to the substantially constant square wave magnitude. The resultant output of the integrator is a triangular wave having a center frequency which remains substantially constant as any drift of the square wave magnitude will have opposite effects on the ramp slopes and voltage value at which the ramps change direction. The dual polarity input is responsive to the square wave to add the modulating signal directly to the square wave prior to integration when the square wave is positive and to add the modulating signal with its polarity reversed to the square wave when the square wave is negative. The slopes of the triangular wave output from the integrator are thus caused to increase or decrease depending on the original polarity of the modulating signal. As the ramp switching values are held constant the frequency of the triangular wave and consequently the frequency of the square wave hysteresis switch output are caused to vary in amount proportional to the modulating signal amplitude.

3,835,420
ISOLATOR

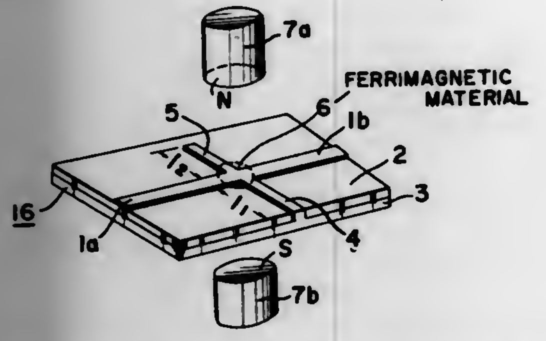
Nobutake Orime; Hidetoshi Kurebayashi, and Shojiro Nakahara, all of Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Kanagawa-ken, Japan

Filed July 23, 1973, Ser. No. 381,623

Claims priority, application Japan, July 26, 1972, 47-74832; Aug. 4, 1972, 47-78148; Nov. 10, 1972, 47-112715

Int. Cl. H01p ***1/32***

U.S. Cl. 333—24.2 **8 Claims**



An isolator has a dielectric substrate such as a composite substrate or a single ferrimagnetic substrate; a magnetic material inserted in a hole of the dielectric substrate in the thickness direction thereof; a single plate conductor placed on one surface of the dielectric substrate; a main line conductor placed on the other surface of the dielectric substrate and over the magnetic material; a branch line conductor and a sub-branch line conductor branching from the main line conductor; wherein one end of the line conductor is opened and the other end of the line conductor is connected to the single plate conductor.

3,835,421
MICROWAVE TRANSMISSION LINE AND DEVICES USING MULTIPLE COPLANAR CONDUCTORS

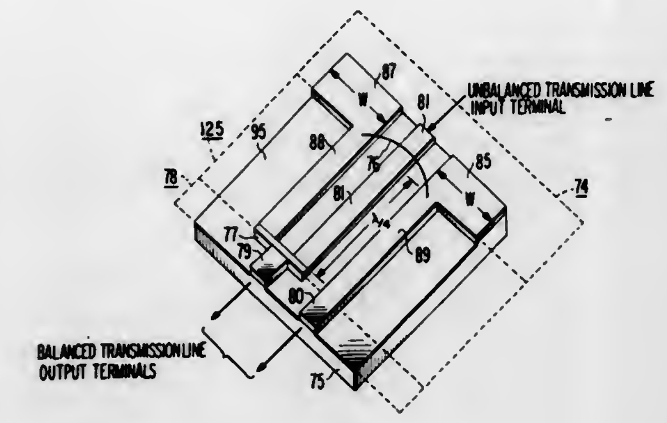
Robert Eugene De Brecht, Cranbury, and Louis Sebastian Napoli, Hamilton Square, both of N.J., assignors to RCA Corporation, New York, N.Y.

Division of Ser. No. 315,087, Dec. 14, 1972. This application Sept. 27, 1973, Ser. No. 401,554

Int. Cl. H01p ***5/10;*** **H03h** ***7/42***

U.S. Cl. 333—26 **2 Claims**

Three coplanar conductive surfaces on the top surface of a dielectric substrate form a microwave transmission line having first and second transmission modes used in the construction and operation of various microwave devices, such as amplifiers unbalanced-to balanced transmission line transformers and directional couplers.


87
W
81
UNBALANCED TRANSMISSION LINE INPUT TERMINAL
125
95
88
76
85
78
81
74
W
λ/4
77
79
89
80
BALANCED TRANSMISSION LINE OUTPUT TERMINALS
75

3,835,422
SURFACE WAVE FREQUENCY DISCRIMINATOR

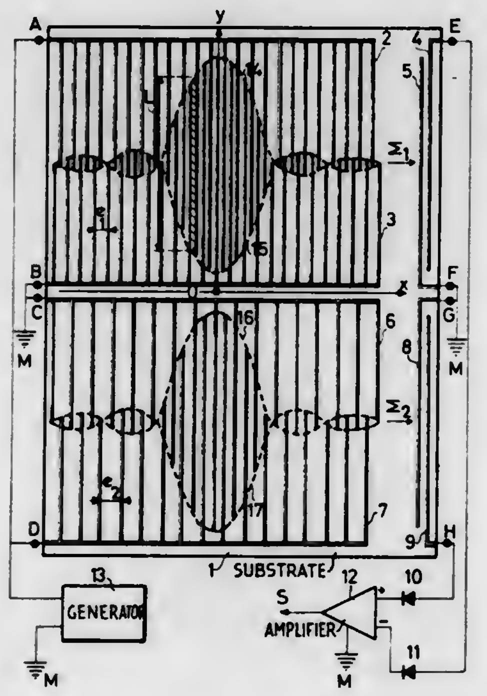
Pierre Hartemann, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Jan. 10, 1973, Ser. No. 322,544

Claims priority, application France, Jan. 14, 1972, 72.1268

Int. Cl. H03h ***9/26;*** **H03d** ***3/26***

U.S. Cl. 333—72 **9 Claims**



The present invention relates to frequency discriminators. The frequency discriminator in accordance with the invention comprises a pair of surface wave electromechanical filters deposited upon a single substrate; the spectral responses of the filters are offset in frequency and have a triangular profile so that by subtraction of the detected voltages at the output of these filters, an S characteristic is obtained.

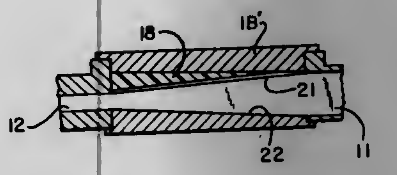
3,835,423
BROADBAND WAVEGUIDE WITH MEANS FOR SUPPRESSING TE MODE

Frank E. Parisi, Waltham, Mass., assignor to Adams-Russell Co., Inc., Waltham, Mass.

Filed Apr. 20, 1973, Ser. No. 352,925

Int. Cl. H01p ***1/16, 5/08***

U.S. Cl. 333—98 M **8 Claims**



A rectangular waveguide dimensioned to propagate the TE_{10} mode includes at each end of the waveguide terminations for terminating the TE_{20} mode comprising slotted tapered ridges with lossy cavities closing the slots.

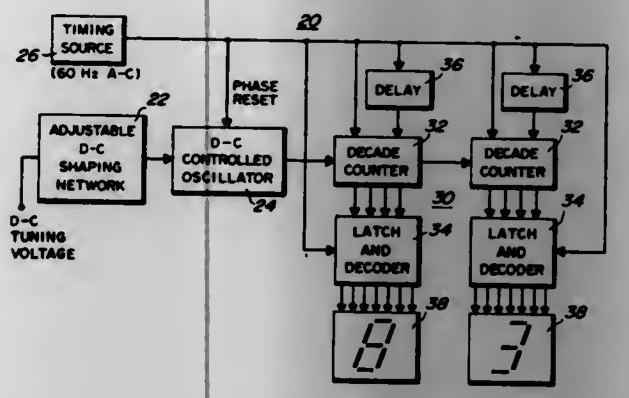
3,835,424
CHANNEL INDICATOR AND DISPLAY ARRANGEMENT UTILIZING D-C TUNING VOLTAGES OF VARACTOR TUNER

Charles J. Marik, Chicago, Ill., assignor to Motorola, Inc., Chicago, Ill.

Filed Nov. 28, 1973, Ser. No. 419,736

Int. Cl. H03j ***1/04***

U.S. Cl. 334—87 **10 Claims**



An improved channel indicator and display arrangement especially suited for television receivers with varactor tuner mechanisms. The disclosed arrangement operates directly from the dc tuning voltages themselves wherein the output frequency of a dc controlled oscillator is made to track the various channels selected by virtue of a dc shaping network. The output of the controlled oscillator is fed directly to one or more counter/decoder/display units, preferably in integrated circuit form, wherein the signal information is counted, decoded and reset to selectively control one or more display devices such as a Numatron tube or the like.

3,835,425
ELECTROMAGNETIC RELAY WITH REVERSIBLE SWITCH MODULES

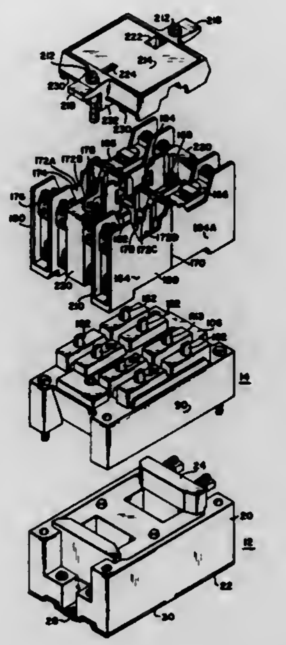
Walter C. Karch, Grafton; Kenneth J. Marien, and Robert C. Mierendorf, Wauwatosa, all of Wis., assignors to Square D Company, Park Ridge, Ill.

Filed Nov. 1, 1973, Ser. No. 412,055

Int. Cl. H01h ***50/04***

U.S. Cl. 335—132 **13 Claims**

A relay having switching modules which permit the switching functions of the relay to be easily converted to provide normally open or normally closed contact functions without disturbing the wiring to the relay. The switch modules are mountable in either of two positions in individual readily accessible sockets in the relay and are actuated by a lever arrangement which acts as a stabilizer and stroke multiplier. The stroke multiplying action of the lever arrangement permits the magnet to have a small air gap and to operate with a reduced inrush current. The relay also includes a pair of plungers which are actuated by the levers and act as indicators and load balancers to prevent the switch modules from providing undesired overlapping contact functions.



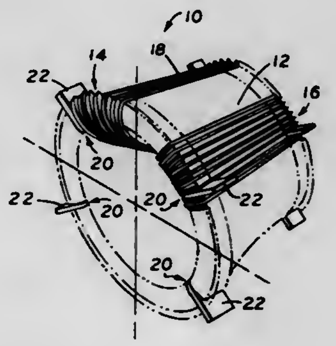
3,835,426
WINDING CROWN FOR INLINE GUN DEFLECTION YOKE

Charles E. Torsch, Geneva, N.Y., assignor to GTE Sylvania Incorporated, Stamford, Conn.

Filed Oct. 24, 1973, Ser. No. 409,040

Int. Cl. H01f ***7/00***

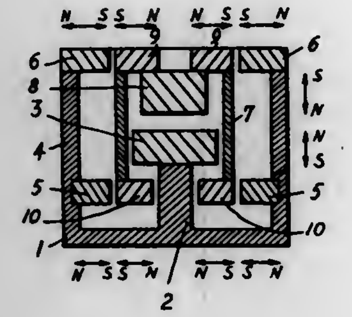
U.S. Cl. 335—210 **5 Claims**



A toroidal deflection yoke for a color cathode ray tube comprises a hollow substantially frusto-conical core having a plurality of turns of wire toroidally wound thereabout to form a pair of horizontal deflection coils and a pair of vertical deflection coils. A front winding crown having a radial circumferential plurality of grooves for engaging the coil wires is also provided. The front crown has a plurality of voids within the coils. These predetermined voids are provided with projecting ears or tabs useful as engaging points while the coil is being wound. A similar but smaller rear winding crown is also provided at the opposite end of the core and it is also provided with a similar number of ears which are substantially coincident with the ears on the front crown.

3,835,427
SOLID-BORNE SOUND TRANSDUCERS

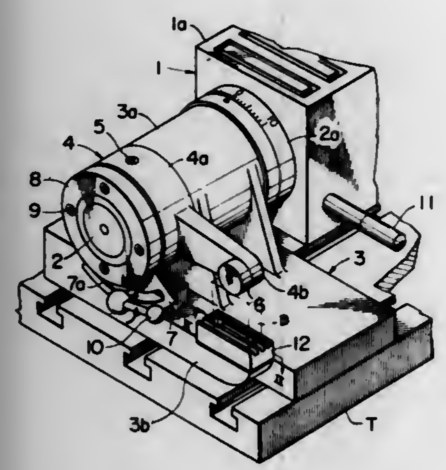
Elmar Breitbach, 10, Bornbreite, Gottingen, Germany
Filed Mar. 19, 1973, Ser. No. 342,429
Claims priority, application Germany, Mar. 20, 1972, 2213373
Int. Cl. H01f *7/00*
U.S. Cl. 335—231 **8 Claims**



A solid-borne sound transducer for the precise measurement of vibrations consisting of a pot-shaped stator, a bell-shaped oscillator located coaxially within the stator and supported by a supporting magnet system mounted on the stator and the oscillator. At least two annular magnet systems, each consisting of two concentrically arranged annular magnets, are provided on the stator and the oscillator for centring and maintaining the oscillator within the stator without any mechanical or physical contact therebetween.

3,835,428
ELECTROMAGNETIC CHUCK DEVICE

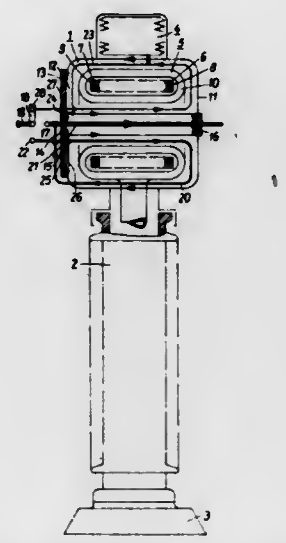
Isao Ito, Tokyo, Japan, assignor to Nissin Precision Machines Co., Ltd., Tokyo-to, Japan
Filed Oct. 9, 1973, Ser. No. 404,182
Claims priority, application Japan, Apr. 14, 1973, 48-44211
Int. Cl. H01f *7/02*
U.S. Cl. 335—288 **4 Claims**



An electromagnetic chuck device comprising a flat surface for holding workpieces, a sine-bar, and an adjustable platform for carrying block-gauge, in order to precisely carry in the predetermined state workpieces to be subjected to machining operations. In this chuck device, a spindle portion of the magnetic chuck and the sine-bar being fitted to the spindle portion have a tapered profile to make coincident a rotating center of the magnetic chuck with that of the sine-bar upon assembly.

3,835,429
CURRENT TRANSFORMER

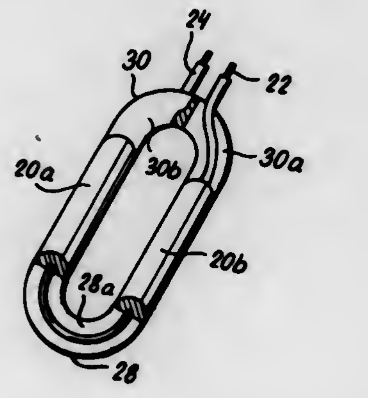
Wolfgang Hermstein, and Heinz Schiemann, both of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Filed Feb. 6, 1973, Ser. No. 329,978
Claims priority, application Germany, Feb. 7, 1972, 7204896
Int. Cl. H01f *40/06*
U.S. Cl. 336—82 **18 Claims**



A current transformer switchable at the primary side and operable in an electrical system at high voltage and current for detecting currents in respective current ranges is disclosed. The current transformer includes a secondary system defining a window passage therethrough and having an iron core. A plurality of primary windings surround the core and the windings include respective conductors having respective cross-sections stepped down in magnitude one with respect to the other in correspondence to respective ones of the current ranges. A metallic enclosure surrounds the secondary system in the manner of a hollow ring and constitutes a turn of the primary windings. An elongated conductor member in the form of a compact, short rod extends through the window passage for detecting currents in an additional current range greater than the first-mentioned current ranges.

3,835,430
TUBULAR CORE ELECTRIC TRANSFORMER

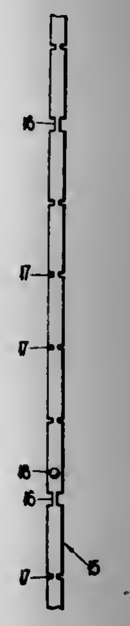
Laszlo Kocsis, Budapest, Hungary, assignor to Transelectro Magyar villamossagi Kulkereskedelmi Vallalat, Budapest, Hungary
Continuation of Ser. No. 37,467, May 18, 1970, abandoned, which is a continuation of Ser. No. 774,986, Nov. 12, 1968, abandoned. This application Apr. 5, 1972, Ser. No. 241,473
Claims priority, application Hungary, Sept. 20, 1968, KO 2192
Int. Cl. H01r *17/06*
U.S. Cl. 336—83 **4 Claims**



An electric transformer has a tubular iron core and its primary is located within the tube which can serve for secondary. In such case, the tubular iron core is short-circuited by a conductor connected to the tube extremities. The transformer may also have a secondary separate from the tubular iron core in which case the secondary has, preferably, likewise the form of a tube located within the tubular iron core and surrounding the primary. Both the primary and the secondary may consist of several turns. Such transformers are distinguished by exceptionally high values of power factor and efficiency, and are particularly suitable for heating, heat storing and energy shock absorbing purposes.

3,835,431
ELECTRICAL FUSE

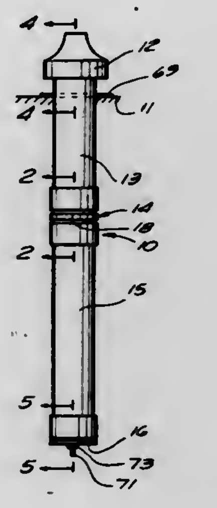
Philip Rosen; John Feenan, both of Liverpool, England, and Kenneth Douglas Howton, Pallavaram, Madras, India, assignors to The English Electric Company Limited, London, England
Continuation-in-part of Ser. No. 74,429, Sept. 22, 1970, abandoned. This application Mar. 20, 1972, Ser. No. 236,018
Claims priority, application Great Britain, Sept. 23, 1969, 46794/69
Int. Cl. H01h *85/12*
U.S. Cl. 337—161 **10 Claims**



A multi-element high-voltage fuse comprises a plurality of similar fuse elements connected in parallel, each element being a strip of fusible material having a plurality of first portions of reduced cross-section spaced along its length and, between each mutually adjacent pair of said first portions, a plurality of shorter second portions of reduced cross-section. Under short-circuit conditions, substantially all the first and second portions of all the elements fuse simultaneously. Under low overload conditions, the elements fuse one at a time, at their longer first portions only, but the conditions are such that multiple arcing occurs, at substantially all these longer first portions, leading to safe fuse operation, at lower values of overcurrent than in conventional designs; and since the longer first portions are much less numerous than the shorter second portions they have relatively little effect on the overall resistance of the fuse and thus on its current carrying capacity. Conversely, fewer parallel elements are required to achieve a given minimum breaking current, since a lower current density per element suffices to produce multiple arcing. Thus, for a given minimum breaking current, the fuse may be more compact and robust than hitherto. In general, each element should contain about one of the longer second portions per kilovolt of the voltage rating of the fuse, for safe operation of the fuse under low overload conditions.

3,835,432
FUSE HOLDER

Vincenzo Calone, 265 Salita Tarsia, Naples, Italy
Filed Feb. 12, 1973, Ser. No. 331,420
Int. Cl. H01h *85/14*
U.S. Cl. 337—247 **10 Claims**

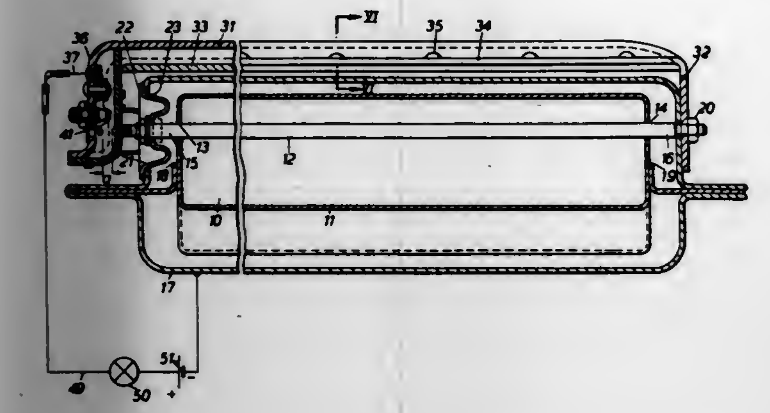


A fuse holder including first and second tubular members arranged in tandem, a cap engageable with the upper end of the first tubular member, a cylindrical electrical terminal and coupling threaded to the lower end of the first tubular member and to the upper end of the second tubular member, and a plug type electrical terminal which is threaded to and seals off the lower end of the second tubular member. When the cap is engaged with the first tubular member and O-ring seal between the cap and the first tubular member and O-ring seals adjacent to each of the threaded engagements provide a hermetically sealed fuse enclosure. The cap includes an axially extending elongated member having an elastic member secured to its end for engaging the hollow contact end of a fuse. Further, the cap includes a plurality of spaced apart teeth extending radially inwardly and the upper end of the first tubular member includes a plurality of spaced apart and radially extending beveled teeth. The cap teeth are engageable with the beveled surfaces on the teeth of the first tubular member such that rotation of the cap in one direction axially moves the cap to insure a tight locking engagement between the cap and tubular member. Thereafter, rotation of the cap in an opposite direction unlocks the cap so that it can be lifted away from the first tubular member. When the fuse is in the seated position, a toroidal spring connects one contact of the fuse to the tubular electrical terminal and a second toroidal spring connects the other contact of the fuse to the plug-type terminal.

3,835,433
CATALYTIC CONVERTER OVERHEATING PROTECTION

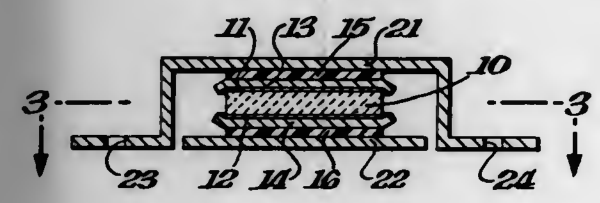
Rudolf Lamprecht, Russelsheim am Main, Germany, assignor to General Motors Corporation, Detroit, Mich.
Filed Sept. 4, 1973, Ser. No. 394,103
Claims priority, application Germany, Sept. 13, 1972, 336302
Int. Cl. H01h *37/48*
U.S. Cl. 337—382 **2 Claims**

A temperature-monitoring device in a catalytic converter for use in an exhaust gas decontamination system for an internal combustion engine (e.g. a motor vehicle internal combustion engine), for monitoring the catalyst used in the converter against overheating, by indicating the attainment of a predetermined temperature in the converter and/or automatically controlling a separate arrangement for controlling the supply of exhaust gas to the converter, comprises an elongated heat-expandable element supported within the converter, the expansion of said element caused by said predetermined rise in temperature causing the operation of a switch means supported adjacent said element, said switch means, when operated, actuating a warning indicator means and/or said separate arrangement.



3,835,434
PTC RESISTOR PACKAGE

Manfred Kahn, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass.
Filed June 4, 1973, Ser. No. 366,931
Int. Cl. H01c *7/04*
U.S. Cl. 338—22 **10 Claims**

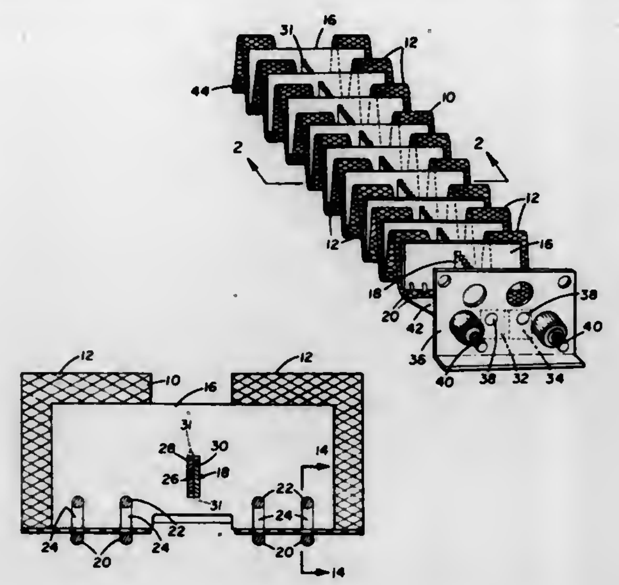


A PTC resistor body is metallized on two opposite and parallel surfaces. The body is sandwiched between two paddle-shaped metal plates making intimate electrical and thermal contact therewith. The handle-shaped portions of the plates extend radially from the package and serve as press-on-type terminals. This assembly is further sandwiched between broad thin layers of insulative material. This double sandwich structure is held in the recess of a hat-shaped metal bracket to which the top insulation layer is adhered. The bottom insulation layer adheres to a metal disc that is approximately flush with the brim portion of the metal bracket.

3,835,435
HEATING ELEMENT SUPPORT

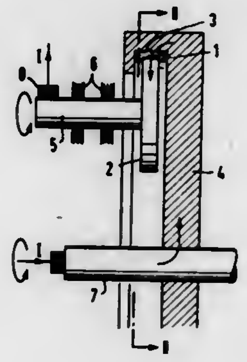
Jerry Eslie Seel, 595 Meadowbrook Dr., Adrian, Mich. 49221
Filed Dec. 18, 1972, Ser. No. 316,052
Int. Cl. H01c *3/00*; H05b *3/10*
U.S. Cl. 338—280 **19 Claims**

An electric heating element assembly for a moving air system in which the element is composed of a thin strip of apertured, foil-like material. According to the invention, the strip is formed with a series of continuous corrugations which establish a wavy pattern. The corrugated foil is immobilized and supported by a plurality of insulators which are connected to a support rod. The entire length of the resistance material between adjacent insulators is formed as a single, continuous, smoothly curved corrugation and the insulators maintain separation of those corrugations to prevent shorting or arcing. Various connecting arrangements are provided between the support rod and each insulator to prevent axial and rotational movement of each insulator relative to tne support rod. The entire length of the resistance material between adjacent insulators is formed as a single, continuous, smoothly curved corrugation and the insulators maintain separation of those corrugations to prevent shorting or arcing. Various connecting arrangements are provided between the support rod and each insulator to prevent axial and rotational movement of each insulator relative to the support rod.



3,835,436
HIGH SPEED ELECTRICAL CONTACT DEVICE INCLUDING A ROTATING LIQUID CONTACT ELEMENT

Peter Klaudy, Graz, Austria, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany
Filed May 22, 1973, Ser. No. 362,832
Claims priority, application Austria, May 23, 1972, 4433/72
Int. Cl. H01r *39/28, 39/30*
U.S. Cl. 339—5 L **8 Claims**

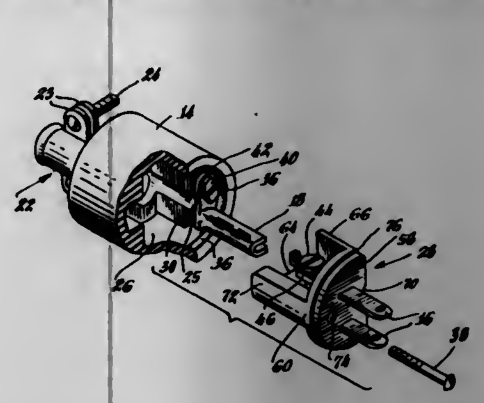


An electrical contact device for high currents and high current pickup speeds comprises a ring-shaped rotating metallic contact element, with the inner circumference of which a roller-shaped contact element that is made of solid material and rotates about an axis, is in electrical contact. The speed on the circumference of the roller-shaped contact element fully or almost fully coincides with the speed on the inner circumference of the ring-shaped contact element. The ring-shaped contact element consists of an highly electrically conductive contact liquid which is held in an open groove by centrifugal force. The contact resistance and the friction losses of the contact device are very small.

3,835,437
GROUNDING PLUG

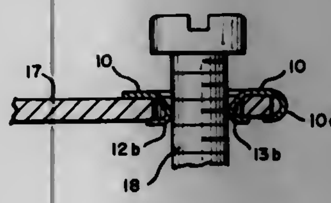
Albert J. Gartland, Jr., Trumbull; Vincent L. Carissimi, Fairfield, and George A. Riley, Bridgeport, all of Conn., assignors to Harvey Hubbell Incorporated, Bridgeport, Conn.
Filed June 14, 1972, Ser. No. 262,715
Int. Cl. H01r *3/06*
U.S. Cl. 339—14 P **10 Claims**

Apparatus for containing the blades of an electrical plug, especially where the plug includes a ground blade. A highly reliable ground is provided for the non-conducting metal structure of the plug by permanently connecting the ground blade thereto. The wiring terminal on the ground blade is externally disposed on the plug to facilitate verification of the ground wire connection to the plug. To avoid the safety hazard otherwise presented thereby, the wiring terminals on the power blades are structurally enveloped within the plug.



3,835,438
SELF-GROUNDING CLIP FOR THE MOUNTING STRAP OF AN ELECTRIC SWITCH OR RECEPTACLE

Edward Longworth, Jr., Fair Haven, Mass., assignor to John I. Paulding, Inc., New Bedford, Mass.
Filed June 29, 1972, Ser. No. 267,386
Int. Cl. H01r *3/06*
U.S. Cl. 339—14 R **3 Claims**

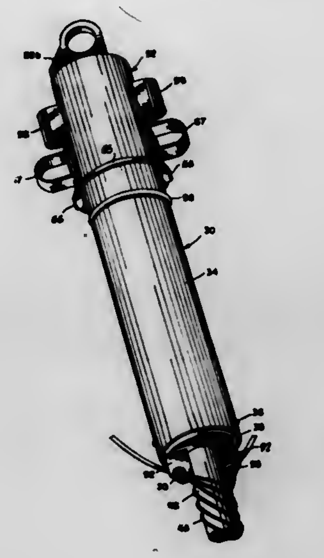


A self-grounding clip is provided for snapping into the screw slot of an electric switch- or receptacle-mounting strap and comprises a plate-like body portion having a central cut-out portion cut and bent about parallel fold lines to form two bent legs adapted to snap-fit into the screw slot, one end of the body being also bent out of the plane thereof arcuately about a fold line parallel to the fold lines of the central body legs and adapted to engage the end of the receptacle strap proximate the screw slot.

3,835,439
GROUNDED SURFACE DISTRIBUTION APPARATUS

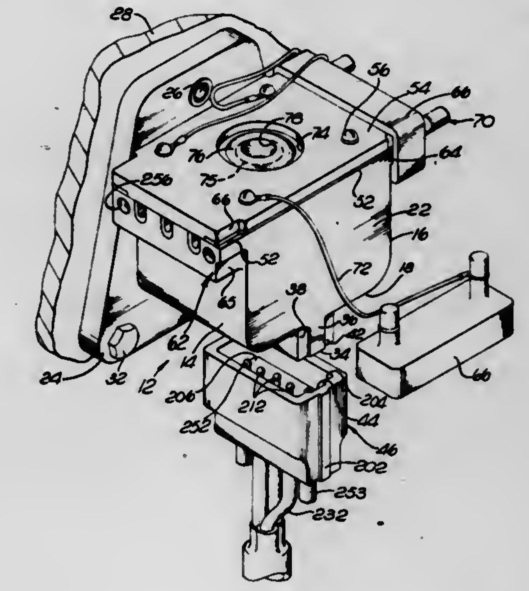
Edward H. Yonkers, Wilmette, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill.
Continuation of Ser. No. 871,105, June 30, 1969, abandoned, which is a division of Ser. No. 660,748, Aug. 15, 1967, abandoned. This application Mar. 15, 1972, Ser. No. 234,864
Int. Cl. H01r *31/08*
U.S. Cl. 339—19 **13 Claims**

A grounded surface distribution apparatus and system is provided including elastomer encapsulated cable terminals, joints, taps, load-break switches, current limiting fuses and surge protectors, each enclosed completely within a metal sheath combined in various arrangements to perform operational functions required in loop and radial underground distribution systems. The cable terminals include a soft dielectric filler making a void-free interfacial engagement with the surface of a hard dielectric filler of a mating component. To provide for breaking a coupling under load, an arc-quenching follower is retractable into an axial cavity in the coupling components of the system and projectable therethrough upon breaking of the circuit and disconnecting of the components to provide an improved arc-quenching function. Thus, there is provided an underground system having security, operational safety and convenience.



3,835,440
ELECTRICAL CONNECTOR ASSEMBLY FOR POWER DISTRIBUTION SYSTEM

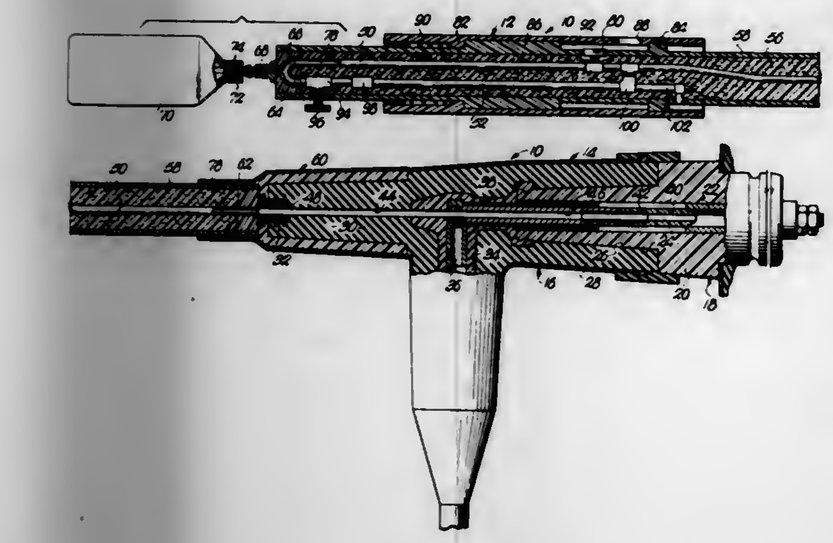
Dennis E. Clarke, Van Nuys, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Sept. 22, 1972, Ser. No. 292,482
Int. Cl. H01r *13/60*
U.S. Cl. 339—22 B **11 Claims**



An electrical connector having a housing member formed with a plurality of interior U-shaped channels. A bus member is positioned in each of the channels having a cross-section similar to that of the channels. A plural series of bores are formed through the housing, each defining spaced, electrical contact locations. Electrical contacts of each series are electrically connected at one end to one of the bus members and are positioned in some of the bore. The housing portion which contains the bores is formed with a connector shell extending therefrom, the outer surface of the shell having a polarization key or keyway formed thereon for interconnection with a mating electrical connector.

3,835,441
GAS OPERABLE ELECTRICAL CONNECTOR AND METHOD

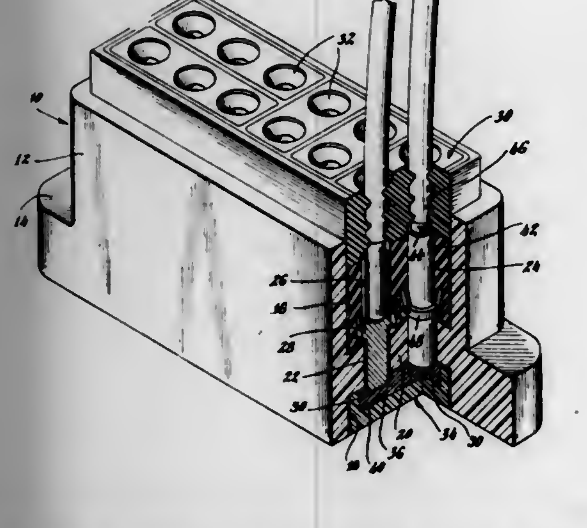
Robert W. Harmon, Centralia, Mo., assignor to A. B. Chance Company, Centralia, Mo.
Continuation-in-part of Ser. No. 20,641, March 18, 1970, Pat. No. 3,649,952. This application Feb. 17, 1972, Ser. No. 227,155The portion of the term of this patent subsequent to Mar. 14, 1989, has been disclaimed.
Int. Cl. H01r *13/62*
U.S. Cl. 339—45 **22 Claims**



An electrical connector unit having a pair of complementally configured connector components which are adapted to be opened and closed by pressurized gas. A tubular member is coupled to one of the components which has a gas-conveying passage therein for introducing pressurized, arc-suppressing gas into the interior of the connector. Means within the member selectively direct the gas at high pressure through the one component and against the other component to shift the two components away from each other and open the connector, and selectively directs the gas at a low pressure offering minimal resistance to closing movement of the components during closing thereof.

3,835,442
TERMINATION MODULE UTILIZING CONDUCTIVE ELASTOMER BUSSING

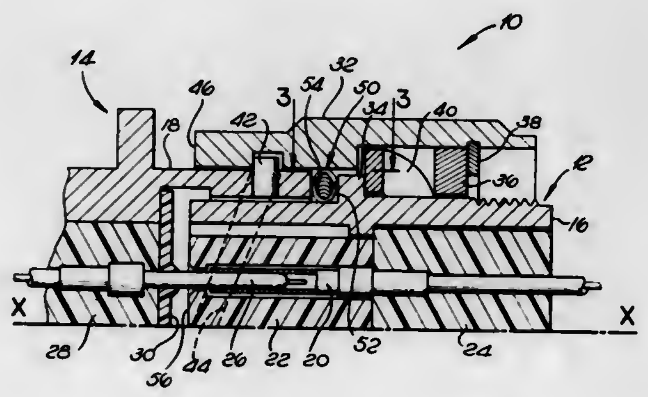
Norman R. Anderson, Cicero, and Joseph Janatka, La Grange, both of Ill., assignors to Bunker Ramo Corporation, Oak Brook, Ill.
Filed Feb. 1, 1973, Ser. No. 328,705
Int. Cl. H01r *11/02*
U.S. Cl. 339—59 R **6 Claims**



This invention relates to a termination module for selectively interconnecting a plurality of electrical conductors. The conductors to be connected are attached to pin contacts mounted in a housing, the pin contacts having a contacting surface at one end. A bus pad of a conductive elastomer material is supported in intimate physical and electrical connection with the contacting surfaces of the contact pins for at least two of the conductors which are to be joined. A bus bar of copper or some other metallic material may be supported adjacent the side of the bus pad opposite the side in contact with the contact pins to shunt at least some of the current flowing between the pins, thereby reducing the resistance of the termination. Where a requirement exists that a circuit not be completed through the bus pad until the contact pins are substantially mounted, the bus pad may be formed of a conductive elastomer which is conductive only when a compressive force is applied thereto.

3,835,443
ELECTRICAL CONNECTOR SHIELD

Bruce K. Arnold, El Toro, and John T. Keith, Los Angeles, both of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Apr. 25, 1973, Ser. No. 354,330
Int. Cl. H01r *13/54*
U.S. Cl. 339—90 R **3 Claims**



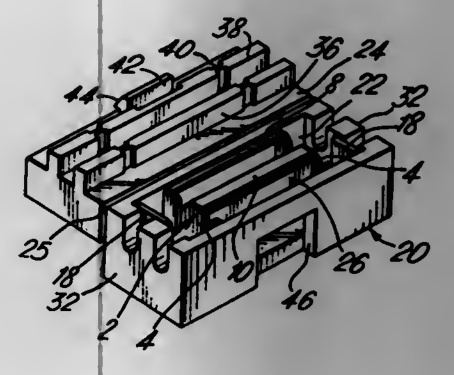
A radio frequency and electromagnetic interference shield for an electrical connector comprising a helically coiled conductive spring which is interposed between facing surfaces on the mating halves of the connector. The spring is coiled in such a manner that the convolutions thereof are slanted at an oblique angle to the center axis of the connector members. The axial distance between said facing surfaces when the connector members are mated is less than the normal outside helical diameter of the convolutions of the spring. Thus, mating of the connector members axially flattens the spring to form an almost continuous metal shield between the connector members.

3,835,444
SLOTTED PLATE CONNECTOR

Roberto Plana, and Francisco Villazon, both of Barcelona, Spain, assignors to AMP Incorporated, Harrisburg, Pa.
Filed Apr. 5, 1973, Ser. No. 348,388
Claims priority, application Spain, Apr. 8, 1972, 179,115/72; Apr. 8, 1972, 179,116/72
Int. Cl. H01r *9/06*
U.S. Cl. 339—98 **4 Claims**

An electrical connector for electrically connecting the electrically conductive cores of insulated wire, the connector comprising an insulating housing having a base and side walls defining an aperture for providing access to the interior of the housing, a lid movable to a closed position to cover the aperture a lead out opening for each wire, and first and second metal plates supported in the housing in spaced opposed relationship, with an edge of each plate facing away from the base, a plurality of slots opening into such edge, each slot of each plate being aligned with a slot of the other plate and being

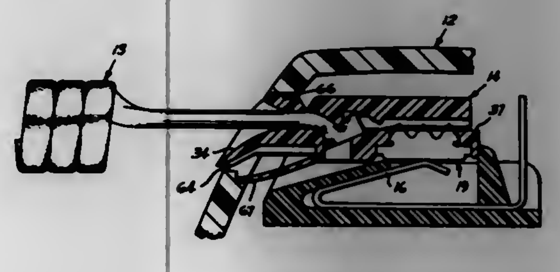
capable of receiving an insulated wire forced into the slot by the lid as it is moved to its closed position, so that the edges of the slot pierce the insulation of the wire to make electrically conductive contact with the core of the wire, there being providing a wire severing edge associated with one slot, only, of each pair of aligned slots and disposed on the side of the slot remote from the other slot of the aligned pair, each wire severing edge being positioned for cooperation with the lid to trim a wire received in the associated slot as the wire is forced into the slot by the lid.



The invention includes a contact for the connector.

3,835,445
ELECTRICAL CONNECTING DEVICES FOR TERMINATING CORDS AND METHODS OF ASSEMBLING THE DEVICES TO CORDS

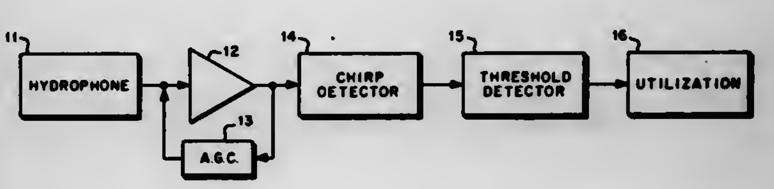
Edwin C. Hardesty, Perry Hall, Md., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed Dec. 4, 1972, Ser. No. 311,575
Int. Cl. H01r *9/08, 13/58*
U.S. Cl. 339—99 R **13 Claims**



A one piece plug for terminating a cord to connect electrically the cord to components in a telephone apparatus is constructed with features advantageous to the assembly of the cord with the plug. The plug has a base molded with a cover hinged integrally to one end of the base and in an open position. This avoids the alignment of the cover with the base during assembly with the cord. Also, the base is formed with a cord-input aperture in the one end and which advantageously circumscribes substantially the cord periphery to maintain the cord within the plug during assembly operations. A leading portion of the cord is inserted into the aperture and extended past the other end of the plug. The jacket is removed from the leading portion to expose individually insulated conductors. Then the cord is retracted and the conductors fanned out into associated troughs having the same spacing as the components. The cover is closed and bonded to the base to confine the conductors and prevent unintended lateral and longitudinal movement. Flat terminals are inserted into the base to move internal contacting portions thereof into engagement with the conductors. External contacting portions of the terminals engage associated components of the telephone apparatus when the plug is inserted thereinto.

3,835,446
CHIRP SIGNAL APPARATUS

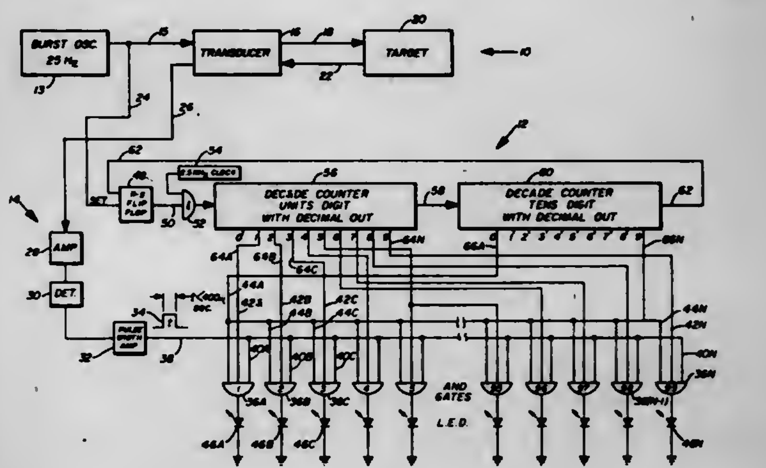
Richard Rowlands, State College, Pa., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Nov. 25, 1966, Ser. No. 597,835
Int. Cl. G01s *7/52*
U.S. Cl. 340—3 R **12 Claims**



The apparatus disclosed herein includes a hydrophone for sensing underwater sonar signals, a gain controlled amplifier receiving the hydrophone output, and a chirp signal detector for detecting chirp signals having an instaneous frequency which increases with time. The chirp detector is further described as including a specially clamped reed which is electromagnetically driven into vibration having an instantaneous frequency equivalent to that of the sensed chirp signal and having an instantaneous peak amplitude corresponding to a characteristic nonlinear frequency vibration amplitude response. The apparatus disclosed further includes threshold detector means responsive to reed vibration amplitude for indicating the reception of the chirp signal to utilization apparatus.

3,835,447
LIGHT EMITTING DIODE READOUT

Darrell J. Lowrance, Tulsa, Okla., assignor to Lowrance Electronics, Inc., Tulsa, Okla.
Filed Mar. 19, 1973, Ser. No. 342,378
Int. Cl. G01s *9/68*
U.S. Cl. 340—3 R **8 Claims**



This disclosure describes a readout or output display for a sonar system which uses a plurality of low power, voltage-sensitive lights, such as light emitting diodes, arranged in sequential order along a line or other geometrical arrangement. A first oscillator controls the pulsing of the underwater ultrasonic transducer means. Each pulse of the first source of pulses also starts a counter, which is controlled by a clock, providing third pulses, which are of a period small compared to the period of the first pulses. On the count of 100 the counter resets to zero. The transducer means receives a reflection of the pulse of ultrasonic energy and converts it to electrical signals. These signals are processed and shaped to form a series of second pulses which mark the times of reception of the reflected pulses. A plurality of gate means are connected to said plurality of lights. Each of the gates are controlled by said second pulses and the pulse outputs of the counter, in such a manner that each of the gates sequentially has a voltage pulse applied from the counter and the particular gate which has such voltage applied to its input, at the same time that the reflection pulse is received, will be lighted. The position of this light will then be a measure of the time interval between the outgoing ultrasonic pulse and the reflected pulse, and therefore a measure of the depth of the reflecting medium.

3,835,448

MULTIBEAM STEERING SYSTEM FOR A CIRCULAR SECTION ACOUSTIC TRANSDUCER ARRAY

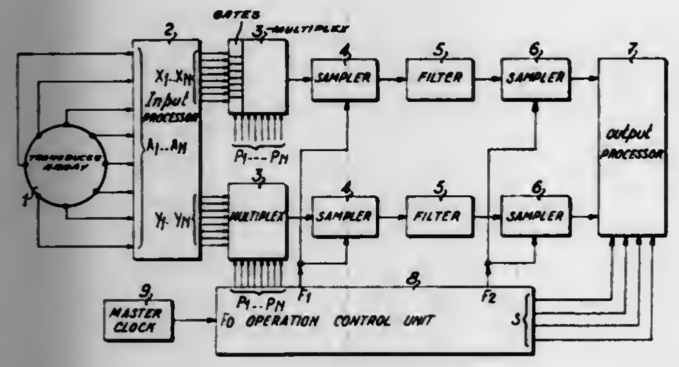
Jean Bertheas, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Apr. 19, 1973, Ser. No. 352,717

Claims priority, application France, May 10, 1972, 72.16758

Int. Cl. G01s *3/80, 7/52*

U.S. Cl. 340—6 R **5 Claims**



A system for the accurate multibeam steering, prior to the beams forming by electronic means, of a circular-section acoustic transducer array.

The electric signals derived from transducers aranged in columns are processed and multiplexed in time-division fashion using an electronic switch, then sampled at a variable frequency F_1 before being applied to an interpolation filter whose output is resampled at a fixed frequency F_2. The frequency F_1 is made variable in dependance of a setpoint value; the interval between these two frequencies F_1 and F_2 producing an offset between the instants of sampling, and thus making it possible to modify to beam steering.

The system is applicable to the multibeam steering and stabilisation in the azimuthal plane, of an acoustic transmit and/or receive transducer array.

3,835,449

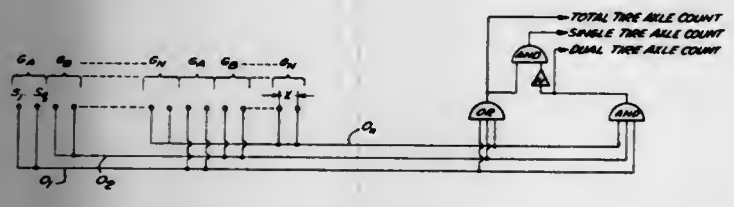
METHOD AND APPARATUS FOR CLASSIFYING THE TIRE WIDTH OF MOVING VEHICLES

Joseph R. Viracola, P.O. Box 2, Santa Monica, Calif. 90406

Filed May 24, 1972, Ser. No. 256,568

Int. Cl. G08g *1/015, 1/02*

U.S. Cl. 340—38 R **15 Claims**



The method of arranging a row of tire sensing devices across about half a traffic lane, arranging the devices into groups whose length is no greater than the difference in width between the narrowest dual tire to be detected as such and the widest single tire to be detected as such, arranging the groups into a series of blocks each containing N groups producing a first output indicating that a tire has passed whenever a tire encounters any one of the sensing devices, and producing a sound output indicating that the passing tire is a dual tire whenever the tire has encountered a sensing device in each one of a first, second, and Nth group of devices.

3,835,450

MOTOR VEHICLE INDICATOR SYSTEMS

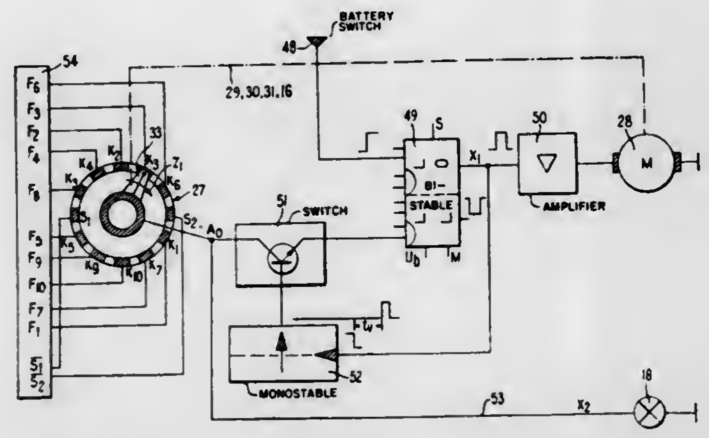
Lothar Reck, Russelsheim, Germany, assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 19, 1972, Ser. No. 316,581

Claims priority, application Germany, Dec. 29, 1971, 2165213

Int. Cl. G08b *19/00*

U.S. Cl. 340—52 F **4 Claims**



A system for indicating operating conditions in motor vehicles comprises a warning device energised by a power source and electrically connected to the corresponding switches or measuring instruments for the respective vehicle mechanisms, any failure in one or more of the vehicle mechanisms to be monitored being indicated by a single stationary warning lamp arranged on the instrument panel in the field of vision of the driver, the lamp illuminating in each instance one field on a scale which is divided into several fault indicating fields and is arranged on a rotatable drum movable by a motor relative to the warning lamp and so controlled, that one field indicating the respective fault is illuminated by the warning lamp; in the event of a failure in more than one of the vehicle mechanisms provision is made to move the scale after a delay period to illuminate another fault indicating field of the scale.

3,835,451

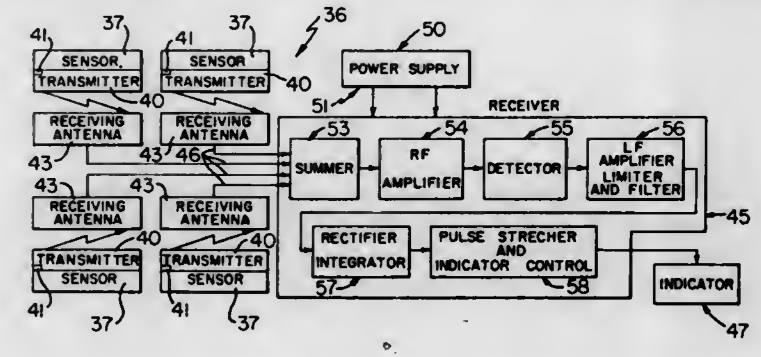
PULSE STRETCHER FOR A RECEIVER OF A PNEUMATIC TIRE LOW PRESSURE MONITORING AND WARNING SYSTEM

Donald E. Church, Richmond, Ind., assignor to Tyrechek, Inc,, Houston, Tex.

Filed Sept. 15, 1972, Ser. No. 289,540

Int. Cl. B60c *23/04*

U.S. Cl. 340—58 **10 Claims**



An electrical apparatus provides a reliable indication which is readily identifiable once a plurality of useable electrical signals are supplied thereto as a result of a low pressure condition in a pneumatic tire of an associated vehicle. The apparatus employs an electrical device which increases the effective time duration of a useable signal and an indicator which provides the indication during the increased time duration of the useable signal and such indicator operates to automatically cease to provide an indication after a time period to thereby define the identifiable indication by a repeated activation of the indicator.

3,835,452

CODING SYSTEM FOR STOCHASTIC REPRESENTATION

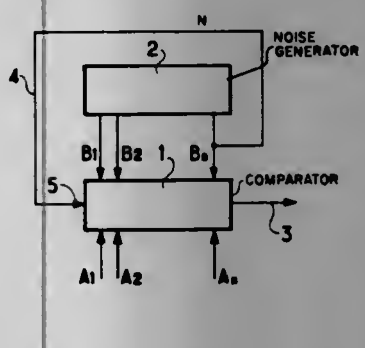
Jean Zirphile, Grenoble, France, assignor to Societe Generale de Constructions Electriques et Mecaniques (Alsthom), Paris, France

Filed Feb. 21, 1973, Ser. No. 334,403

Claims priority, application France, Feb. 21, 1972, 72.5826

Int. Cl. G06f *7/02*

U.S. Cl. 340—146.2 **4 Claims**



The invention concerns the coding of a data item given in digital form, in a bifilar stochastic representation. It is characterized in that a comparator receives the bits of a digital noise and the data bits, other than the sign bit, of a digital data item to be coded, and supplies an output signal transmitted to one of the wires of a bifilar stochastic representation, possibly by means of elements in a simple combination of that signal and of the sign bit of the digital data item to be coded. The invention applies more particularly to operator elements in stochastic representation.

3,835,453

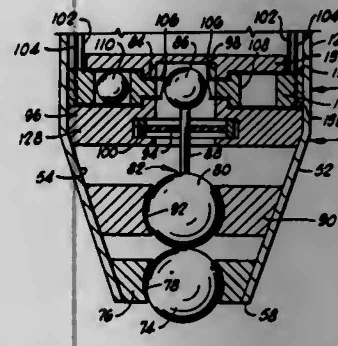
CODE GENERATING AND RECEIVING APPARATUS

Sarukkai R. Narayanan, 2905 N. Stiles, Apt. D-405, Oklahoma City, Okla. 73105

Filed June 1, 1972, Ser. No. 258,791

Int. Cl. G06k *9/16*

U.S. Cl. 340—146.3 SY **24 Claims**



An improved code generating and receiving apparatus having a writing instrument marking indicia on a writing surface in a code generating position and generating indicia indicating signals in response to indicia being marked on the writing surface, the indicia indicating signals being indicative of the marked indicia and a predetermined number of the generated indicia indicating signals comprising the indicia code, and a receiving apparatus receiving, identifying and deciphering the received indicia code, the receiving apparatus generating and transmitting feedback signals to be received by the writing instrument for providing operator-perceivable feedback, in one form. In one aspect, the invention also includes apparatus generating an orientation signal responsive to the orientation of the writing instrument and establishing a movable reference point for identifying the sequence of the indicia indicating signals and generating an indicia code substantially independent of the orientation of the writing instrument.

3,835,454

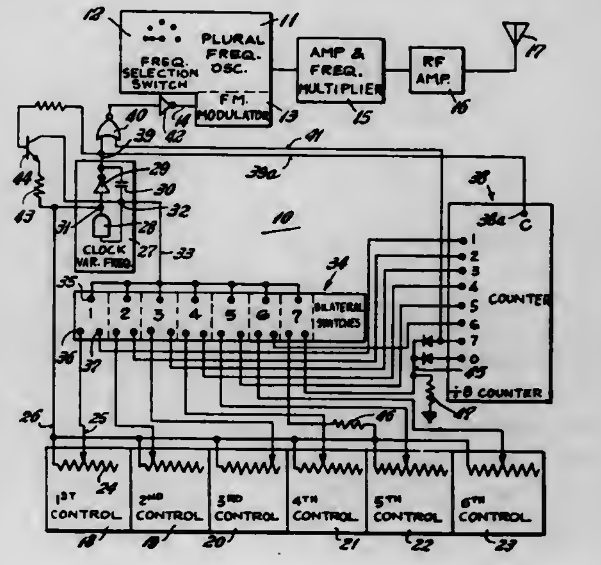
PLURAL CHANNEL FM REMOTE CONTROL SYSTEM

Joseph Palmieri, Deep River, and Douglas M. French, New Haven, both of Conn., assignors to Westport International, Inc., Milford, Conn.

Filed Oct. 10, 1972, Ser. No. 296,268

Int. Cl. H04b *1/00*

U.S. Cl. 340—171 R **8 Claims**



A system for individually adjusting a plurality of remotely located servo units according to the adjustment of a manual control for each unit by transmitting an FM carrier signal that is broken into a plurality of segments with each segment including a portion having a low frequency and another portion of a high frequency with the duration of each segment being related to the setting of its manual control. An FM receiver decodes the wave to produce an electrical pulse related to the duration of each segment with the associated servo unit assuming a position that is related to the pulse duration. The transmitter is capable of selecting any one of a plurality of different carrier frequencies and if each device receives only one of the carrier frequencies, the transmitting may select the device to be controlled.

ERRATUM

For Class 340—172 see:
Patent No. 3,835,312

3,835,455

SYSTEM FOR SIMULTANEOUSLY DISPLAYING REPRESENTATION OF A PLURALITY OF WAVEFORMS IN TIME OCCURRING RELATION

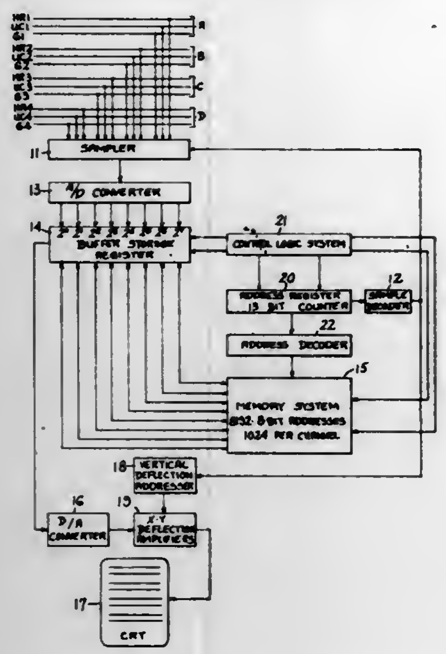
Thomas J. Abbenante, Branford, Conn., assignor to Corometrics Medical Systems, Inc., Wallingford, Conn.

Continuation of Ser. No. 848,652, Aug. 8, 1969, abandoned. This application Aug. 20, 1971, Ser. No. 173,686

Int. Cl. G06f *3/14*

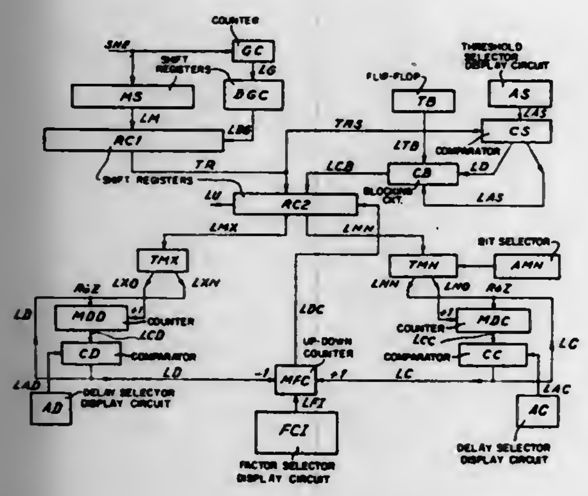
U.S. Cl. 340—172.5 **14 Claims**

This disclosure relates to a system for monitoring and storing the amplitude of a plurality of simultaneously occurring waveforms and simultaneously displaying the history of the waveforms over a predetermined interval of time. The amplitudes of the waveforms are sampled at closely spaced intervals of time and stored in a multi-station memory system. Periodically each stored waveform is updated and the oldest sampled and stored amplitude discarded.



3,835,456
COMPRESSION OF THE DYNAMICS OF NUMERICAL SIGNALS

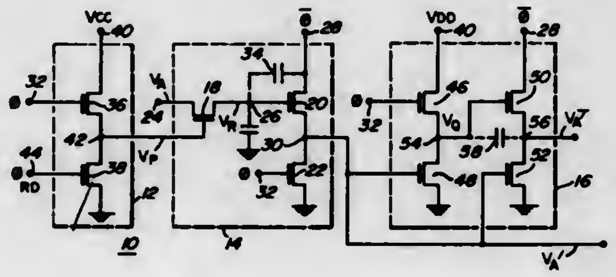
Philippe Angelle, Thouare, and Jean-Claude Naudot, Nantes, both of France, assignors to Societe d'Etude, Recherches et Constructions Elecroniques (S.E.R.C.E.L.), Nantes Carquefou, France
Filed Nov. 5, 1971, Ser. No. 196,047
Claims priority, application France, Nov. 6, 1970, 70.40038
Int. Cl. G01v *1/00*; G06f *1/00*
U.S. Cl. 340—172.5 12 Claims



A method and apparatus for reducing the relationship between the maximum and minimum values of amplitude of an analogue or digital signal expressed in fixed point. The method may include displaying an initial value of a factor of compression corresponding to a number of shifts of the point, shifting the point in correspondence with the factor of compression to supply a modified signal, detecting the overflow of a maximum or minimum value by the modified signal, blocking the overflow information for a time corresponding to the maximum or minimum overshoot delay, and modifying the number of shifts of the point in accordance with the detected overflow. The apparatus may include a shift register for receiving a digital signal in fixed point and shifting the signal in correspondence with a factor of compression, a first test circuit which is excited when at least one of a first number of higher orders of notation of the shift register has a logical state other than zero, a second test circuit which is excited when none of a second number of higher orders of notation of the shift register has a logical state other than zero, at least one delay store for producing an output in response to successive excitations of one of the test circuits within a particular delay, another store responsive to the output of the delay store for increasing or decreasing the signal in the shift register depending upon whether the signal is greater than a maximum value or smaller than a minimum value.

3,835,457
DYNAMIC MOS TTL COMPATIBLE

Robert Tapel Yu, Tempe, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Dec. 7, 1972, Ser. No. 312,999
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 R 10 Claims

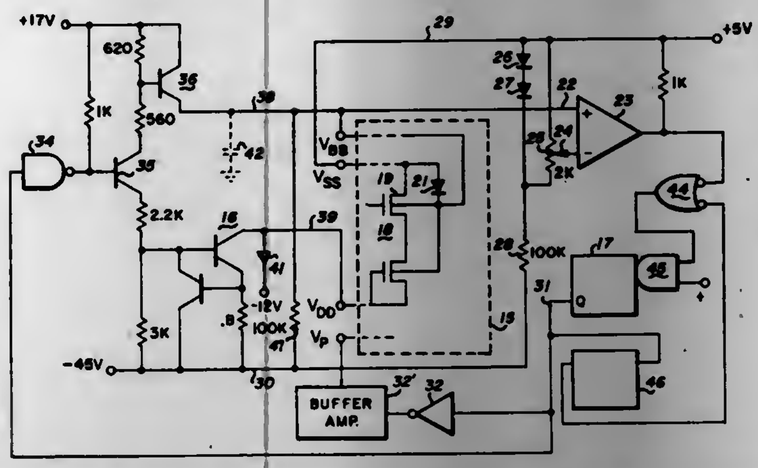


The dynamic MOS TTL compatible input voltage level translator has an input terminal for receiving a TTL voltage level for transmission to the gate of a load MOSFET through a transmission gate MOSFET. The gate of the transmission gate MOSFET is connected to a switching bias circuit which turns on the transmission gate MOSFET to transmit the TTL input voltage, and turns off the MOSFET to maintain a voltage comprising the TTL voltage plus a bootstrap voltage at the gate of the load MOSFET. The bootstrap voltage is added through the use of an enhancement capacitor which is connected between the gate and the drain of the MOSFET load device, the drain also being connected to an input for receiving a clock complement signal. A switch MOSFET device has its gate connected through a terminal for receiving a clock signal and has its drain connected at a junction to the source of the load MOSFET device, the junction providing an output signal of a MOS amplitude voltage for application to succeeding MOS stages.

3,835,458
DIE TEMPERATURE CONTROLLED PROGRAMMING OF IC MEMORY DEVICE

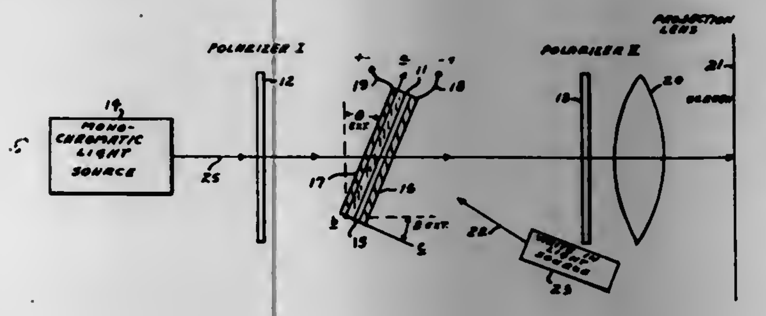
Dale Mrazek, 27876 Via Ventana, Los Altos Hills, Calif. 94022
Filed Dec. 3, 1973, Ser. No. 421,411
Int. Cl. G11c *7/04*
U.S. Cl. 340—173 R 10 Claims

The programming pulse rate of an integrated circuit memory array such as a voltage stressed programmable read only memory is controlled by sensing the temperature of the IC die. The memory device is rapidly pulsed until a preselected safe ceiling temperature is reached, and thereafter the rate of application of the pulses is controlled to maintain the temperature of the die at or near the safe ceiling temperature. The temperature of the die is sensed by measuring the voltage drop across a diode within the IC circuit, this voltage drop being a function of the temperature of the die, and the rate of pulsing of an oscillator, and thus the rate of application of the programming power pulses, is controlled in accordance with the diode voltage.



3,835,459
BIREFRINGENCE READ BI TI O DISPLAY AND MEMORY DEVICE

Theodore E. Luke, Englewood, and Stewart E. Cummins, New Carlisle, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Division of Ser. No. 232,173, March 6, 1972. This application Apr. 18, 1973, Ser. No. 352,388
Int. Cl. G11c *11/22*, *11/42*
U.S. Cl. 340—173.2 4 Claims

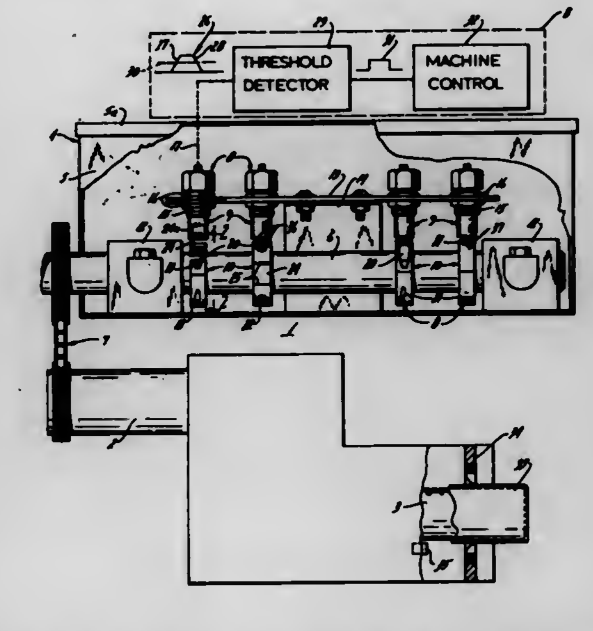


Information to be stored is written into a single crystal of bismuth titanate, by either direct electrodes, photoconductors, or electron beams. Storage is by oppositely switched domains in the poled bismuth titanate crystal. The crystal is positioned between crossed polarizers, positioned 45° from extinction, and rotated about the *b* axis such that an OFF state by thickness extinction occurs for one of the domains; the opposite domain then being in an ON state. Readout in one embodiment is by monochromatic light. In another embodiment a second bismuth titanate crystal is positioned adjacent the storage crystal and oriented such that its *b* axis is perpendicular to the *b* axis of the first crystal to provide a storage system that is read out with white light. In this second embodiment the second crystal makes the total retardation through it and through one domain of the storage crystal zero which gives no transmission of light, that is, an OFF state; the other domain providing an ON state.

3,835,460
ROTARY FIELD SWITCH MEANS FOR MACHINE APPARATUS

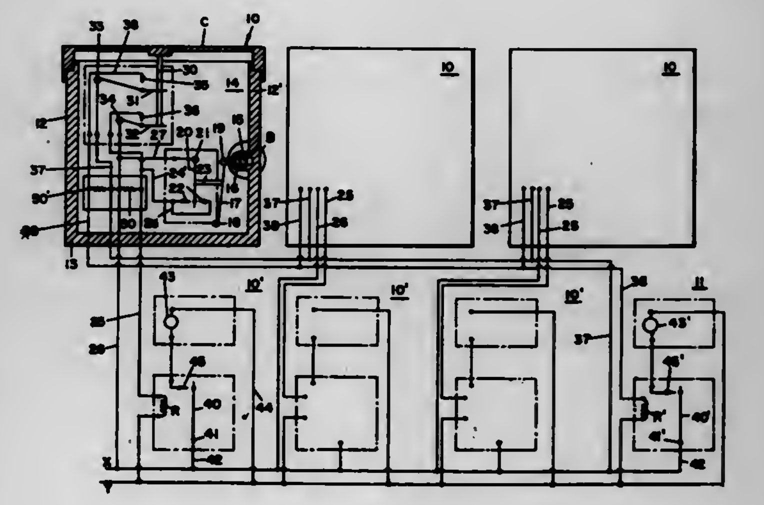
Louis J. Handziak, Milwaukee, Wis., assignor to Joseph Schlitz Brewing Company, Milwaukee, Wis.
Filed Dec. 4, 1972, Ser. No. 311,763
Int. Cl. G08b *21/00*
U.S. Cl. 340—271 6 Claims

A switch operating collar encircles a shaft and includes two semi-cylindrical metal members interconnected with abutting end faces by suitable set screws for releasably clamping the collar to the shaft. A circumferentially extended slot or keyway is machined or otherwise formed in the outer peripheral surface of the one member. The side edges of the slot are formed along a chordal line to define relatively sharp discontinuities in the face or periphery of the collar. The collar screws are accessible from the semi-circular member containing the slot. Shaft bearings firmly support the signal drive shaft and clamped collar unit, or units, for rotation about a predetermined axis. A metal proximity sensor head is mounted aligned with the peripheral surface of the collar. The circumferential extent of the slot is slightly larger than the operative corresponding dimension of the sensor head. The axial width of the collar unit is slightly less than the sensor head such that the screw holes do not generate operative output signals. Each movement of the slot past the sensing head generates a pulse signal having an inclined leading and trailing edge. A threshold detector responds at a selected level to produce a square wave output signal for providing digital logic signals.



3,835,461
TAMPERPROOF ALARM SWITCH

James E. Nelson, 304 Harvard Ave., Wenonah, N.J. 80090
Filed June 18, 1963, Ser. No. 289,783
Int. Cl. G08b *13/08*
U.S. Cl. 340—274 1 Claim

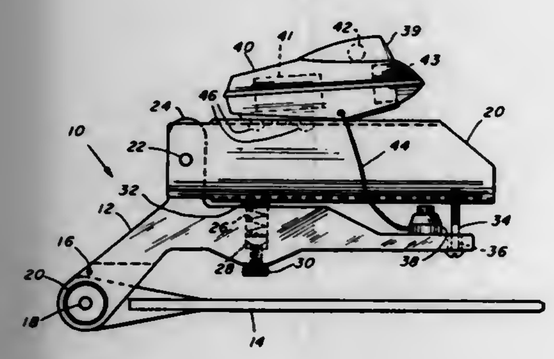


1. An alarm system for a normally closed security room having a movable room closure providing access thereto, which comprises,

a. a normally closed housing within the security room having a movable housing cover providing access thereto,
b. a first switch in the housing, a first remote indicator and electrical connections therebetween,

c. a second switch in the housing, a second remote indicator and electrical connections therebetween,
d. said first switch having a contact arm which is operable by movement of the room closure to independently energize the first indicator,
e. said second switch having a contact arm connected to the housing cover and operable by movement of the housing cover to energize the second indicator,
f. a third switch in the housing having a contact arm connected to the housing cover and
g. said third switch being electrically connected with the first indicator whereby both indicators are simultaneously energized by movement of the housing cover.

3,835,462
FISHING ROD BEEPER
Rubie E. Periman, Rt. 1, Box 1129, Owasso, Okla. 74055
Filed June 7, 1972, Ser. No. 260,377
Int. Cl. G08b *21/00*
U.S. Cl. 340—279 **1 Claim**

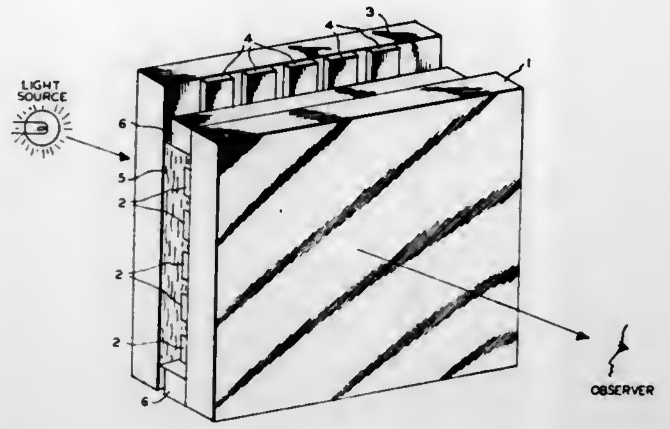


A type of signaling device for use with a fishing pole and line, sounds a signal whenever there is a catch on the hook, which provides a pull on the fishing cord or on the fishing pole. In one embodiment a two-piece hinged frame is provided which can be forced into the ground as a standard. There is a tubular receptacle into which the fishing pole can be inserted. This receptacle is hinged to the frame and is opposed by an adjustable spring means. There is a push button mounted on the frame against which the receptacle can be pressed, against the force of the spring. This push button connects to a battery and signal means which can be a small light or horn. When the fishing pole is inserted in the socket and there is a pull on the fishing line, the receptacle will be rotated against the force of the spring and close the push button to sound the signal.

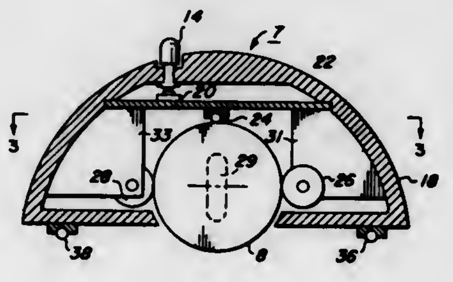
3,835,463
LIQUID CRYSTAL X–Y MATRIX DISPLAY DEVICE
Masahide Tsukamoto, and Tetsuro Ohtsuka, both of Takatsuki, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan
Filed July 27, 1972, Ser. No. 275,742
Claims priority, application Japan, July 29, 1971, 46-57384
Int. Cl. G02f *1/18*
U.S. Cl. 340—324 M **6 Claims**

A matrix display device having a liquid crystal display element at each of the intersections of horizontal parallel strip shaped X-electrodes and vertical parallel strip shaped Y-electrodes. Each display element is excited by an X-address pulse applied to an X-electrode and a Y-signal applied to a Y-electrode for producing an image. The liquid crystal has a threshold voltage in a.c. operation above which the liquid crystal exhibits a change in transparency.

The X-address pulse is a gated a.c. voltage of frequency *f*, phase ϕ_1, time interval T_1, amplitude 2V and average level Vav. The Y-signal is an a.c. voltage of frequency f, amplitude V, average level Vav and phase ϕ_1 which is switched to a different phase ϕ_2 during a time interval T_2. The amplitude V is equal to or less than the threshold voltage and more than one-third of the threshold voltage. The time interval T_2 is controlled by an image signal synchronized with the X-address pulse so that each display element has the transparency changed for producing an image.



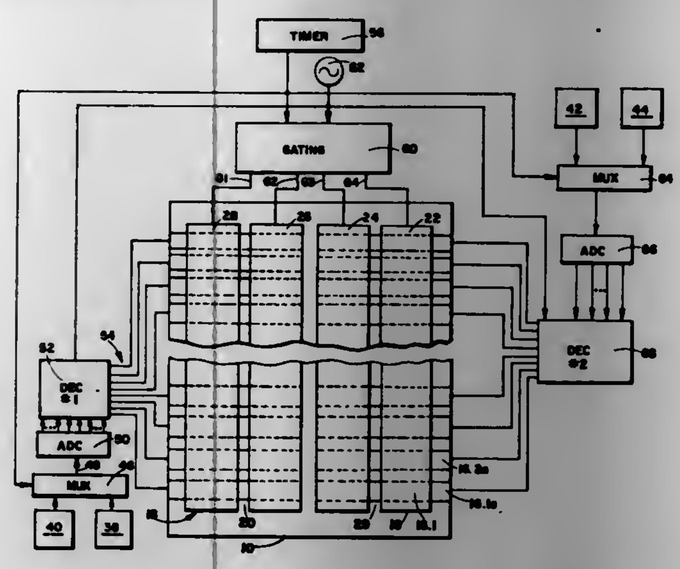
3,835,464
POSITION INDICATOR FOR A DISPLAY SYSTEM
Ronald E. Rider, Menlo Park, Calif., assignor to Xerox Corporation, Stamford, Conn.
Filed Jan. 11, 1973, Ser. No. 322,810
Int. Cl. G06f *3/14*
U.S. Cl. 340—324 A **14 Claims**



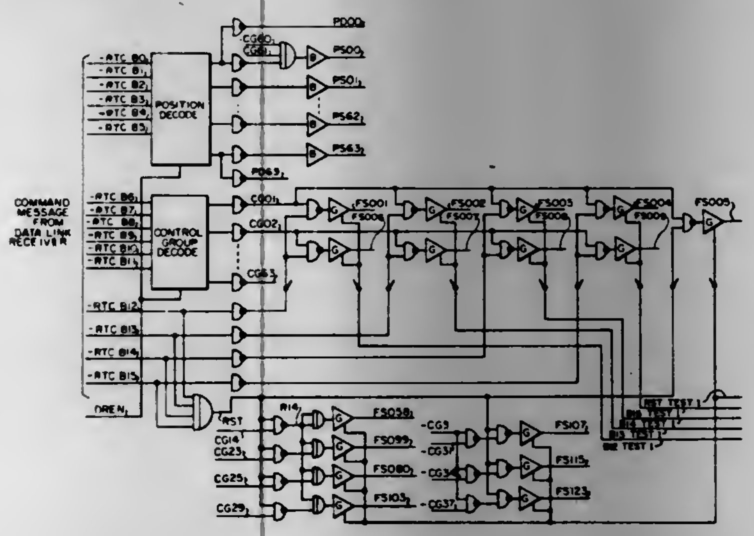
The invention relates to a position indicator which rides over a surface for controlling a cursor over a visual display. The indicator generates signals indicative of its positions to cause the cursor to be displayed on the display at a corresponding position. The indicator includes a control mechanism that comprises a transport sphere in combination with position wheels indicative of Cartesian coordinates. The sphere is in contact with the surface over which the indicator rides and the position wheels contact the sphere at a position on the sphere approximately 90° from the contact loci of the sphere and the surface.

3,835,465
LIQUID CRYSTAL BAR GRAPH DISPLAY
Lawrence E. Tannas, Jr., Orange, and John V. Hobbs, Camarillo, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.
Filed Feb. 28, 1973, Ser. No. 337,259
Int. Cl. G08b *5/36*
U.S. Cl. 340—324 R **7 Claims**

An analog display in the form of a plurality of bar graphs is provided by an arrangement of horizontally extending graphic electrode strips cooperating with vertically disposed and mutually discrete common electrode strips and a film of liquid crystal material confined between the electrodes. Selected groups of the horizontal graphic electrode strips are energized in accordance with the magnitude of a bidirectionally varying signal, and a selected one or more of the common electrodes are concurrently energized to selectively display the several bar graphs in a time shared arrangement.



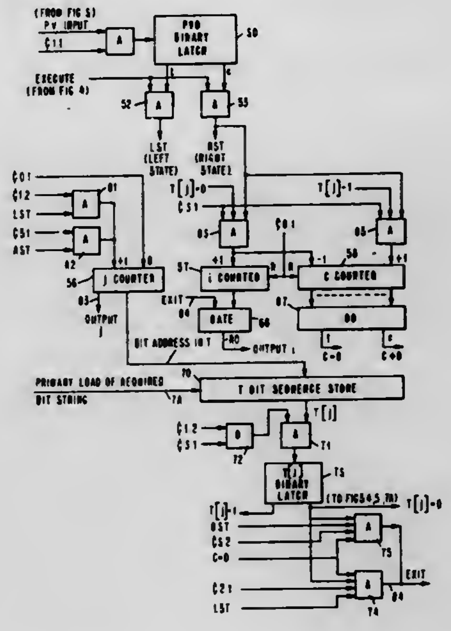
3,835,466
CONTROL OF OPERATOR POSITION DISPLAY
Edward S. Bieszczad, Hoffman Estates; William R. Wedmore, Glen Ellyn, and John S. Young, Addison, all of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Sept. 14, 1973, Ser. No. 397,570
Int. Cl. G08b *5/36*
U.S. Cl. 340—334 **5 Claims**



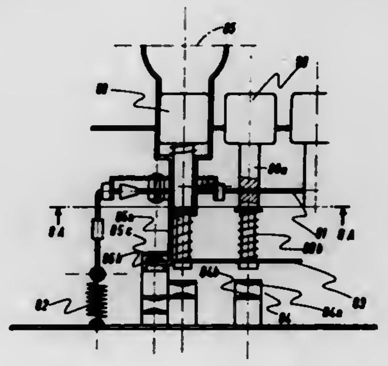
A display buffer for controlling lighting of lamps and other functions at a plurality of operator positions. There is an arrangement of relay drivers and relays into what are effectively matrix circuits, with current sensors connected to relay driver ground switches using a common resistor for each bit of status codes (including reset), so that current for only one relay should flow through each resistor. The arrangement includes logic associated with the current sensors to monitor the operation and detect failures.

3,835,467
MINIMAL REDUNDANCY DECODING METHOD AND MEANS
Luther Jay Woodrum, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 10, 1972, Ser. No. 305,631
Int. Cl. H04l *3/00*
U.S. Cl. 340—347 DD **2 Claims**

Electronically decoding variable length minimal redundancy binary input codes into characters in a character set. Code flexibility is provided by easily supporting (1) different transmitted codes for the same outputted character set, and (2) the same transmitted code for different output character sets. Tree structured codes are used for translating minimal redundancy codes into characters, which are well-known in the prior art of Huffman codes, in which the sink vertices in a binary tree correspond to characters in a character set. The set of path vectors in the binary tree is the minimal redundancy encoding for the characters represented by the sinks. A bit sequence store T has its bit positions set to represent the binary tree, in which the bit positions are set to correspond to the vertices in the tree when it is scanned in left list order; and a 1 setting represents an inner vertex and a 0 setting represents a sink vertex in the binary tree. Store T is easily reset to permit easy changes in the binary tree represented therein, in order to support (1) and (2) above. The path vectors in the tree are transmitted as the coded characters are decoded using the correct tree set into store T.



3,835,468
RATIONAL ALPHABETIC SYSTEM
Antonio Monteiro Alves dos Santos, Rua Fernao Alvares do Oriente, No. 4, 2nd, Drto. Bairro des S. Miguel, Lisbon, Portugal
Continuation-in-part of Ser. No. 788,246, Dec. 31, 1968, abandoned. This application June 29, 1972, Ser. No. 267,579
Claims priority, application Portugal, Jan. 2, 1968, 48892
Int. Cl. H01h *13/72*
U.S. Cl. 340—365 R **1 Claim**

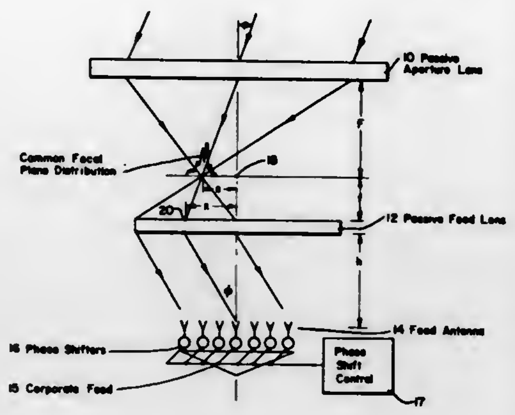


Apparatus having a plurality of elements disposed relative to each other or movable to different positions relative to each other in which the positions correspond to information and that information may be read-out in matrix form or as characters and forms of writing according to the invention. The apparatus are manipulatable by movable parts of the bodies of handicapped operators for control of other apparatus. Apparatus for communicating with the blind provide outputs according to a communication system of symbols and characters and writing and reading apparatus for the blind operate within the communication system.

3,835,469
OPTICAL LIMITED SCAN ANTENNA SYSTEM

Chao C. Chen, Cerritos, and Edward C. Du Fort, Fullerton, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed Nov. 2, 1972, Ser. No. 303,174
Int. Cl. H01q *3/26*
U.S. Cl. 343—754 7 Claims

This invention relates to an optical antenna system including an aperture lens, a feed lens and a feed array for scanning a pencil beam or multiple simultaneous beams over a limited angular sector with good sidelobe levels and minimum gain degradation. Both amplitude and phase distributions over the aperture lens are controlled for all scan angles. Also, the feed lens may be positioned in a manner such that virtually the entire aperture lens is illuminated for all scan angles thereby minimizing the size of the aperture lens, energy spillover and rate of gain decrease with angle from boresight.

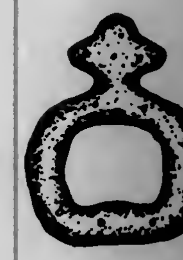


DESIGNS

SEPTEMBER 10, 1974

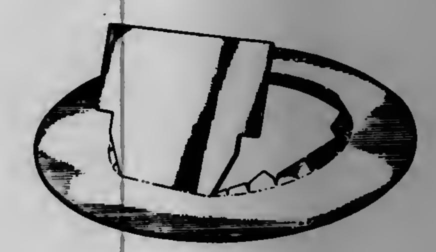
232,667
EXPANDED CEREAL FOOD PRODUCT

Stylianos A. Topalis, Mount Prospect, Ill., assignor to The Quaker Oats Company
Filed Jan. 10, 1973, Ser. No. 322,408
Term of patent 14 years
Int. Cl. D1—*01*
U.S. Cl. D1—1



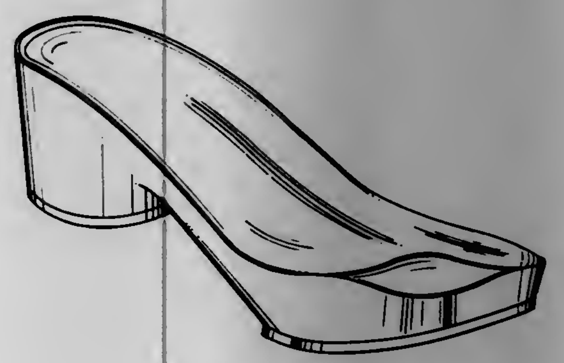
232,668
HAT

John C. De Moubrun, 309 N. Reese Place, Burbank, Calif. 91506
Filed Mar. 7, 1973, Ser. No. 338,738
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—257



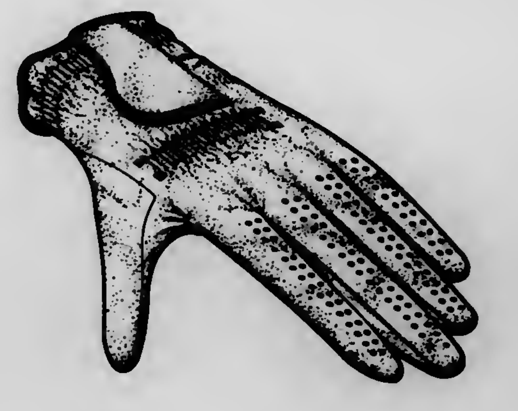
232,669
CLOG SHOE SOLE

Joseph P. Famolare, Jr., Florence, Italy, assignor to Famolare, Inc., New York, N.Y.
Filed Dec. 15, 1972, Ser. No. 315,609
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—322



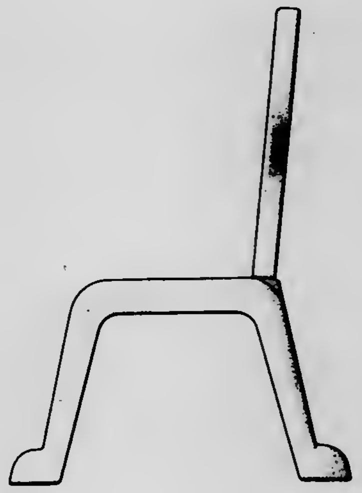
232,670
GOLF GLOVE

James M. Long, South Hadley, Mass., assignor to Questor Corporation, Toledo, Ohio
Filed May 21, 1973, Ser. No. 362,162
Term of patent 14 years
Int. Cl. D2—*06*
U.S. Cl. D2—361

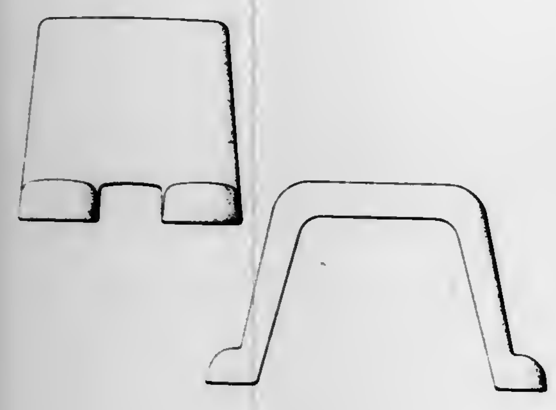


232,671
CHILD'S CHAIR

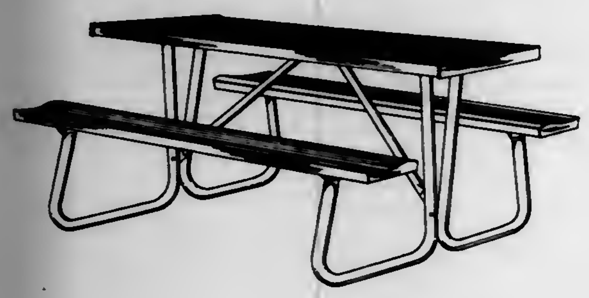
Jerrold J. Krumholz, West Orange, Herbert H. V. Reisgen, Westfield, and George C. Kress, Union, N.J., assignors to Kusan, Inc., Nashville, Tenn.
Filed Mar. 30, 1973, Ser. No. 346,663
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—7



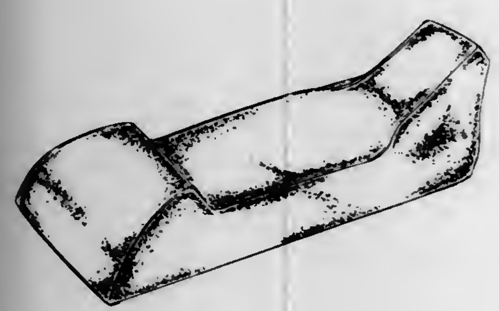
232,672
CHILD'S BENCH
Jerrold J. Krumholz, West Orange, Herbert H. V. Reisgen, Westfield, and George C. Kress, Union, N.J., assignors to Kusan, Inc., Nashville, Tenn.
Filed Mar. 30, 1973, Ser. No. 346,664
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—7



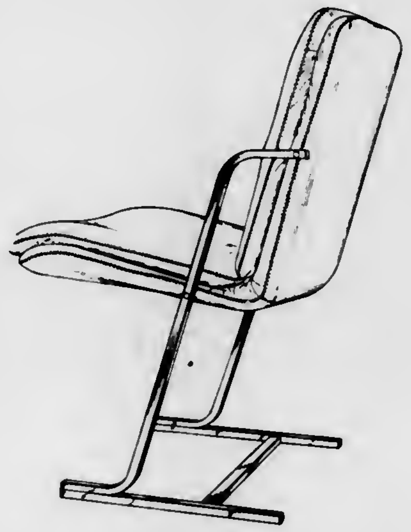
232,673
COMBINED TABLE AND SEAT UNIT
Charles P. Taylor, Magnolia, Ark., assignor to Howmet Corporation, Greenwich, Conn.
Filed July 14, 1972, Ser. No. 271,891
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—45



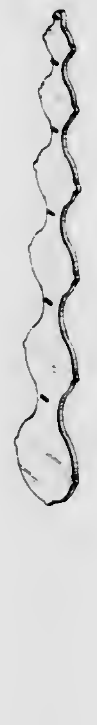
232,674
SNOWMOBILE SEAT
Thomas Scott, Valcourt, Quebec, Canada, assignor to Bombardier Limited, Valcourt, Quebec, Canada
Filed May 10, 1972, Ser. No. 252,155
Claims priority, application Canada Apr. 5, 1972
Term of patent 7 years
Int. Cl. D6—*01*
U.S. Cl. D6—48.1



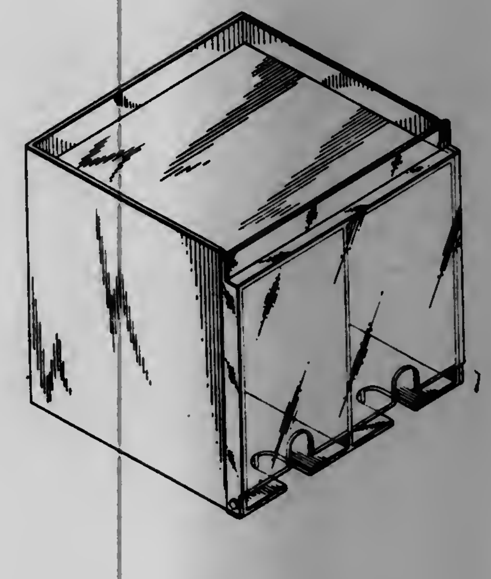
232,675
CHAIR
Alex Strassle, Kirchberg, Switzerland, assignor to Intercollection Development S.A., Kirchberg, Switzerland
Filed Jan. 26, 1973, Ser. No. 326,750
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—56



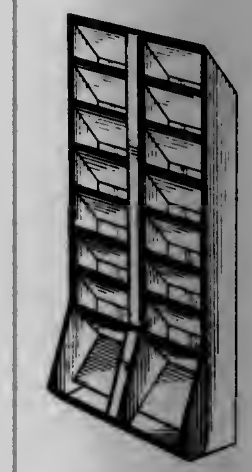
232,676
PAN BOARD
Samuel G. Oliver, P.O. Box 14, La Plata, Md. 20646
Filed Feb. 28, 1973, Ser. No. 336,770
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—114



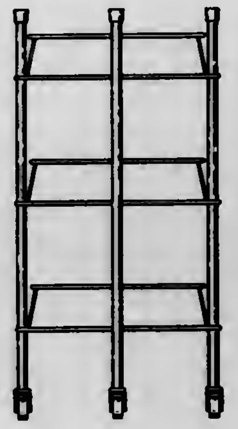
232,677
STORAGE CABINET
Ronald S. Schotland, Honey Brook Drive, R.D. 2, Princeton, N.J. 08540
Filed Dec. 18, 1972, Ser. No. 316,292
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—127



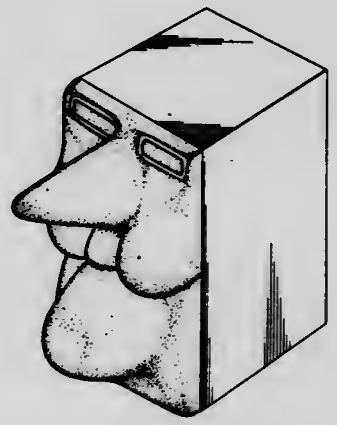
232,678
STAMP CASE
Takaji Funahashi, 1, 2-chome, Kitatakajo-machi, Nagoya, Japan
Filed Jan. 30, 1973, Ser. No. 328,140
Claims priority, application Japan Aug. 17, 1972; Aug. 31, 1972
Term of patent 14 years
Int. Cl. D20—*02;* D6—*99*
U.S. Cl. D6—130



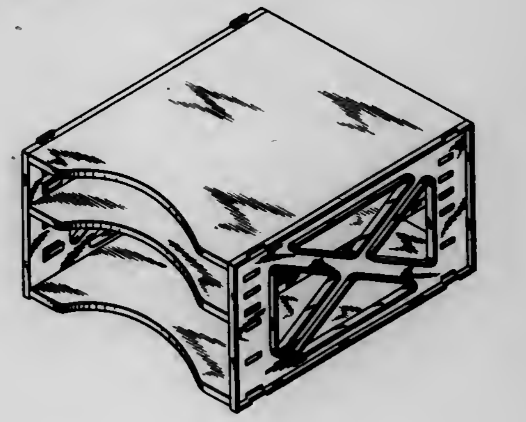
232,679
SHOE STORAGE RACK
Eugene Weiss, 2 Alice Ave., Merrick, N.Y. 11566
Filed Sept. 21, 1973, Ser. No. 399,391
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—146



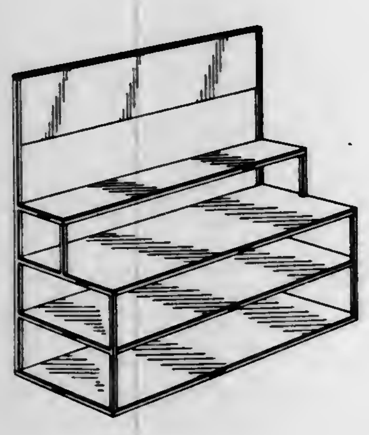
232,680
CHEST OF DRAWERS OR SIMILAR ARTICLE
Joseph H. Forrester, 9903 Melgar Drive, Whittier, Calif. 90601
Original design application June 22, 1970, Ser. No. 23,579, now Patent No. 225,150. Divided and this application July 3, 1972, Ser. No. 268,733
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—152



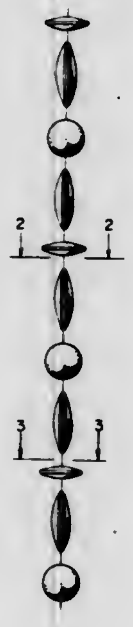
232,681
SHELF
Beatrice Bliss, Los Angeles, Calif., assignor to Blisscraft of Hollywood, Gardena, Calif.
Filed Mar. 26, 1973, Ser. No. 345,033
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—186



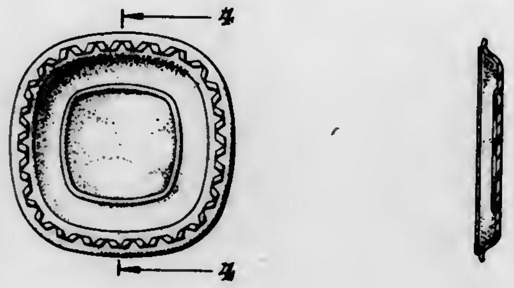
232,682
DISPLAY RACK
Raymond P. Audette, 2217 W. 2nd St.,
Santa Ana, Calif. 92703
Filed Apr. 16, 1973, Ser. No. 351,209
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—186



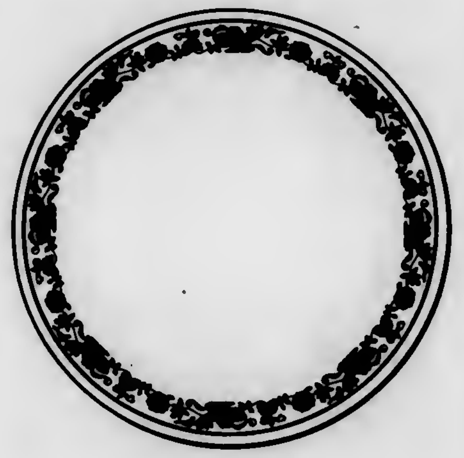
232,683
STRAND OF BEADS FOR CURTAIN ELEMENTS OR THE LIKE
Irving Levine, 23555 Park Belmonte,
Calabasas Park, Calif. 91302
Filed Nov. 10, 1972, Ser. No. 305,604
Term of patent 14 years
Int. Cl. D6—*10*
U.S. Cl. D6—205



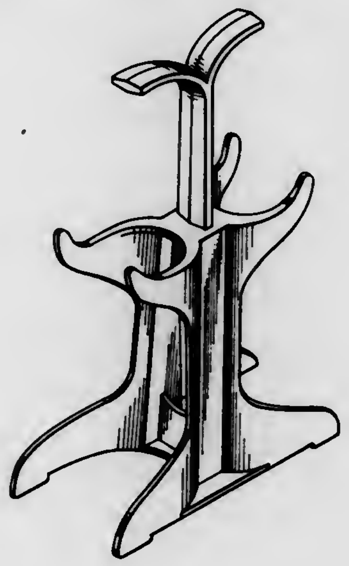
232,684
DISH OR SIMILAR ARTICLE
Clara Virginia Eicholtz, Midland, Mich., assignor to Dolco Packaging Corp., North Hollywood, Calif.
Filed July 28, 1972, Ser. No. 276,268
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—3



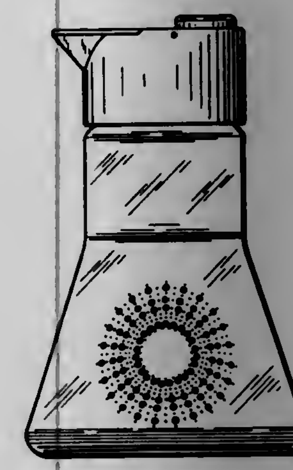
232,685
PLATE OR THE LIKE
Cynthia S. Gerow, Lafayette, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Dec. 29, 1972, Ser. No. 319,548
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—36



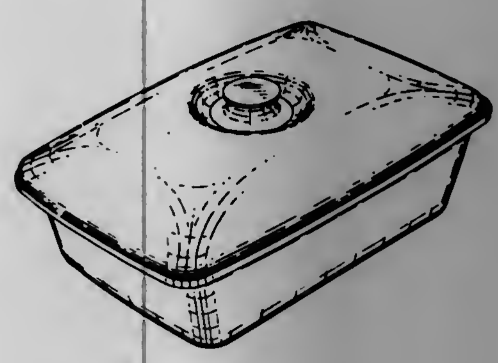
232,686
CONDIMENT RECEPTACLE CADDY
Edward N. Montesi, Barrington, R.I., assignor to Dart Industries Inc., Los Angeles, Calif.
Filed Jan. 15, 1973, Ser. No. 323,692
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—58



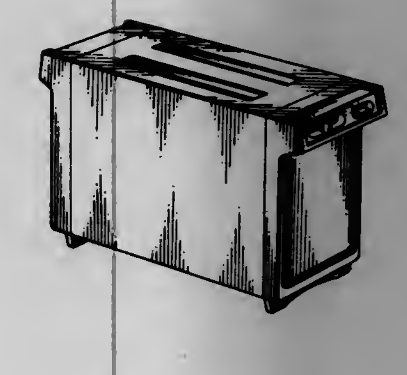
232,687
CRUET OR THE LIKE
Theodore M. Reyda, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Mar. 19, 1973, Ser. No. 342,759
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—59



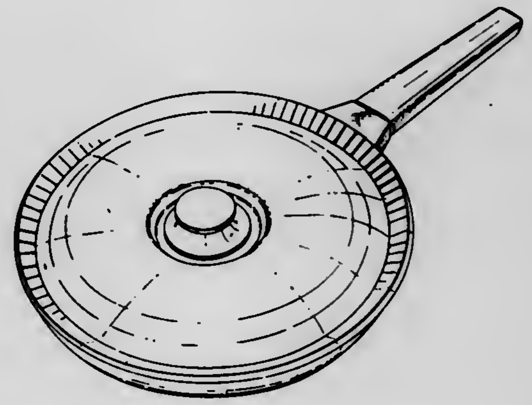
232,688
FISH COOKER
Graham John Aries, Stourbridge, England, assignor to Tower Housewares Limited, Wolverhampton, Staffordshire, England
Filed Mar. 10, 1972, Ser. No. 233,856
Claims priority, application Great Britain Sept. 10, 1971
Term of patent 14 years
The portion of the term of the patent subsequent to Sept. 28, 1985, has been disclaimed
Int. Cl. D7—*02*
U.S. Cl. D7—85

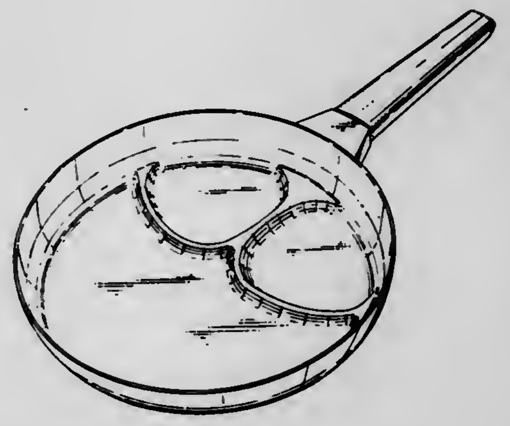


232,689
TOASTER
Masatoshi Naito, Ikeda, Fujio Sawamura, Toyonaka, Kunio Funatsu, Osaka, and Noriharu Furuyabu, Ashiya, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed May 22, 1972, Ser. No. 255,950
Claims priority, application Japan Nov. 26, 1971
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—93

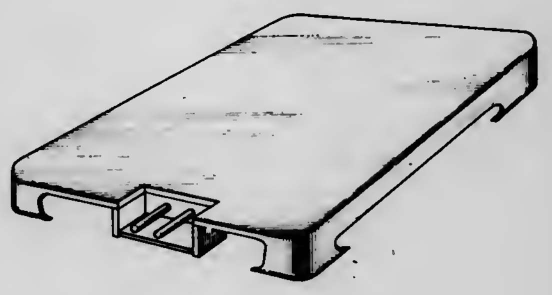


232,690
COMBINED FRYPAN AND LID THEREFOR
Graham John Aries, Stourbridge, England, assignor to Tower Housewares Limited, Wombourne, Wolverhampton, England
Filed Mar. 10, 1972, Ser. No. 233,842
Claims priority, application Great Britain Sept. 10, 1971
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—95





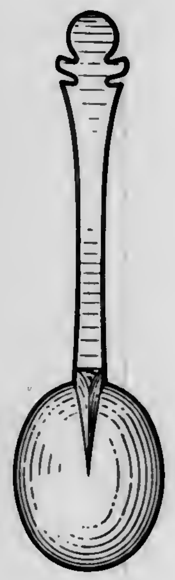
232,691
HOTPLATE
Iven Earl Turnipseed, 10633 Mount Gleason, Sunland, Calif. 91040, and Oral Steve Adams, 9753 Aqueduct, Sepulveda, Calif. 91343
Filed Sept. 25, 1972, Ser. No. 291,743
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—123



232,692
SPOON

William F. Kayhoe, 1007 Baldwin Road,
Richmond, Va. 23229
Filed Mar. 30, 1973, Ser. No. 346,255
Term of patent 14 years
Int. Cl. D7—*03*

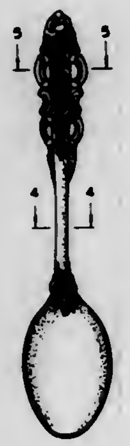
U.S. Cl. D7—137



232,693
SPOON OR SIMILAR ARTICLE

Frank R. Perry, Oneida, N.Y., assignor to
Oneida Ltd., Oneida, N.Y.
Filed May 2, 1973, Ser. No. 356,340
Term of patent 14 years
Int. Cl. D7—*03*

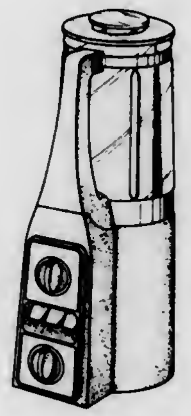
U.S. Cl. D7—137



232,694
MIXER

Akikazu Iwagami and Isamu Abe, Osaka, Japan, assignors
to Sanyo Electric Co., Ltd., Osaka, Japan
Filed Jan. 4, 1973, Ser. No. 321,074
Term of patent 14 years
Int. Cl. D7—*04*

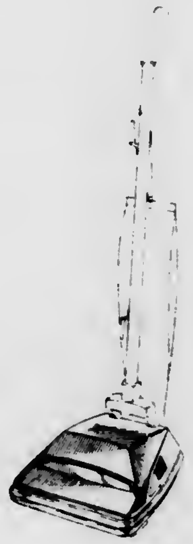
U.S. Cl. D7—159



232,695
VACUUM CLEANER CASING

Richard A. Wareham, North Canton, Ohio, assignor to
The Hoover Company, North Canton, Ohio
Filed July 6, 1973, Ser. No. 377,049
Term of patent 14 years
Int. Cl. D15—*05*

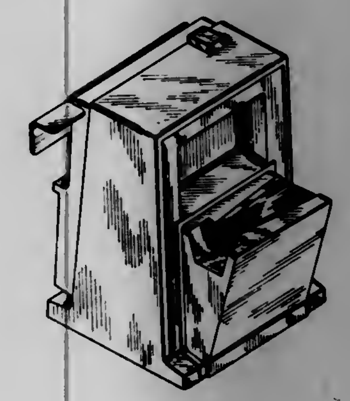
U.S. Cl. D7—170



232,696
COMBINED ELECTRIC CAN OPENER AND KNIFE SHARPENER

Ralph David Gourley, Santa Barbara, Calif., assignor to
Rival Manufacturing Company, Kansas City, Mo.
Filed May 26, 1972, Ser. No. 257,469
Term of patent 14 years
Int. Cl. D7—*99;* D8—*05*

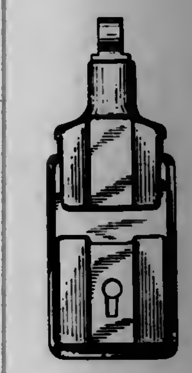
U.S. Cl. D8—35



232,697
LOCK FOR ZIPPER LUGGAGE AND THE LIKE

Julius Sheiman, North Woodmere, N.Y., assignor to Crest
Lock Co., Inc., New York, N.Y.
Filed Aug. 2, 1972, Ser. No. 277,246
Term of patent 14 years
Int. Cl. D8—*07*

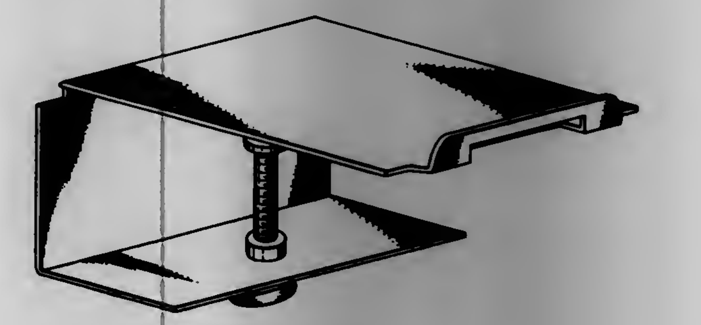
U.S. Cl. D8—123



232,698
CLAMP

John Lawlor, Tappan, N.Y., and John Sgombick, Ramsey,
N.J., assignors to Xerox Corporation, Stamford, Conn.
Filed Dec. 26, 1972, Ser. No. 318,310
Term of patent 14 years
Int. Cl. D8—*08*

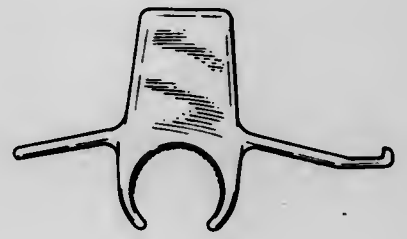
U.S. Cl. D8—246



232,699
FLASHLIGHT BATTERY CLAMP FOR A BICYCLE

William Bartunek, Yonkers, N.Y., assignor to P. R.
Mallory & Co. Inc., Indianapolis, Ind.
Filed Sept. 17, 1973, Ser. No. 398,110
Term of patent 14 years
Int. Cl. D8—*08*

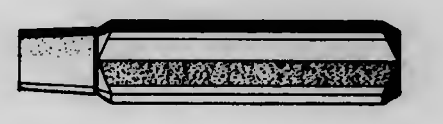
U.S. Cl. D8—247



232,700
COMBINED BOTTLE AND CAP THEREFOR

John Pardo, Yonkers, N.Y., assignor to The Procter &
Gamble Company, Cincinnati, Ohio
Filed Aug. 21, 1972, Ser. No. 282,298
Term of patent 14 years
Int. Cl. D9—*01*

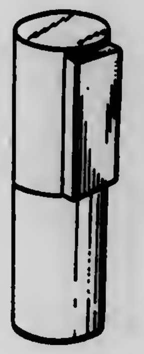
U.S. Cl. D9—71



232,701
BOTTLE

Franco Bettonica, Milan, Italy, assignor to
Perlier S.p.A., Milan, Italy
Filed May 30, 1972, Ser. No. 258,195
Claims priority, application Italy Jan. 17, 1972
Term of patent 7 years
Int. Cl. D9—*01*

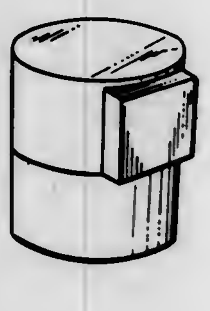
U.S. Cl. D9—83



232,702

BOTTLE

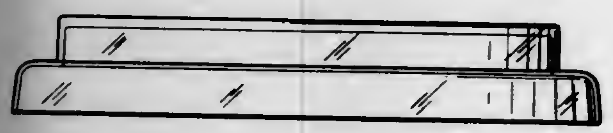
Franco Bettonica, Milan, Italy, assignor to Perlier S.p.A., Milan, Italy
Filed May 30, 1972, Ser. No. 258,200
Claims priority, application Italy Jan. 17, 1972
Term of patent 7 years
The portion of the term of the patent subsequent to Sept. 10, 1981, has been disclaimed
Int. Cl. D9—*01*
U.S. Cl. D9—83



232,703

DISPLAY CONTAINER

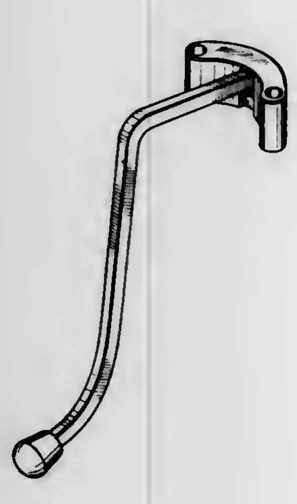
Ernest Konzi, Montville, N.J., assignor to Sarah Coventry, Inc., Newark, N.Y.
Filed Nov. 1, 1971, Ser. No. 194,802
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—237



232,704

RESUSCITATOR VALVE TRIGGER

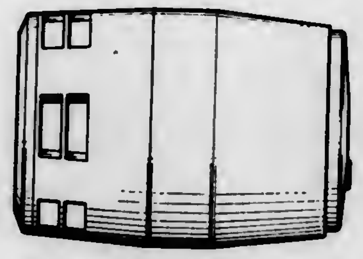
Barry K. Wagner, 313 San Elijo St., San Diego, Calif. 92106
Filed July 23, 1973, Ser. No. 381,489
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—291



232,705

SIREN, OR SIMILAR ARTICLE

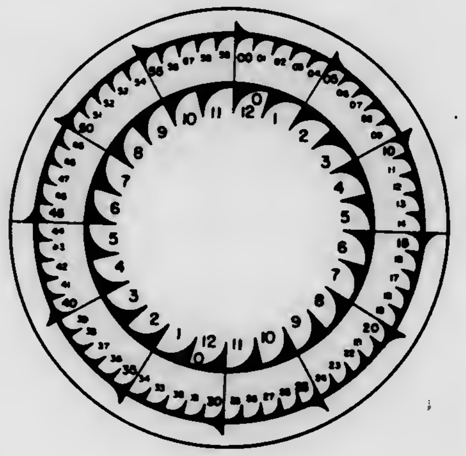
Stuart Sharenow, Kew Gardens, N.Y., assignor to Empire Machines, Inc., Westbury, N.Y.
Filed Dec. 7, 1972, Ser. No. 312,810
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D10—120



232,706

CLOCKFACE

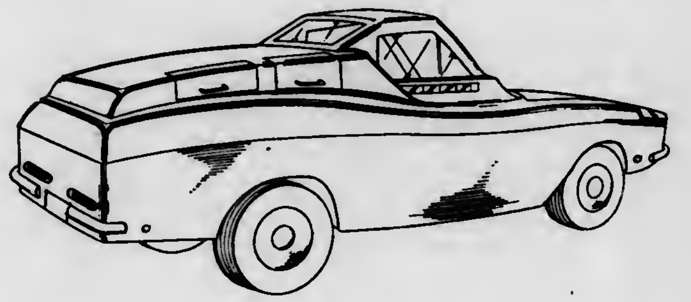
Richard A. Strong and Rosa M. Strong, both of 6816 Longford Drive, Dayton, Ohio 45424
Original design application Nov. 5, 1970, Ser. No. 25,841, now Patent No. 224,033, dated June 27, 1972. Divided and this application Feb. 22, 1972, Ser. No. 228,484
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D10—126



232,707

VEHICLE FOR DISPENSING PETROLEUM PRODUCTS OR THE LIKE

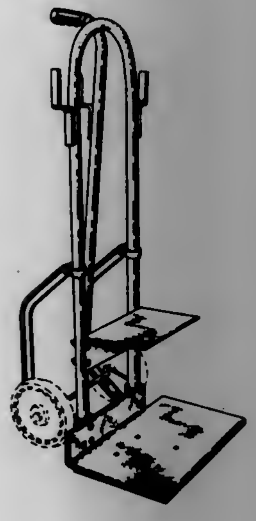
Delles T. Davis, Abilene, and Bruce D. Motlong, Midland, Tex., assignors to Research Fuels, Inc.
Continuation-in-part of design application Ser. No. 24,449, Aug. 12, 1970. This application Nov. 11, 1971, Ser. No. 198,059
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—14



232,708

CART BODY FOR PRESSURE WASHING APPARATUS

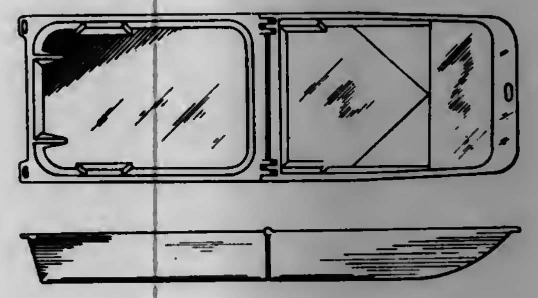
Herbert C. Forchemer, 3811 Shasta Drive, Santa Clara, Calif. 92705
Filed July 3, 1972, Ser. No. 268,488
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—34



232,709

BOAT

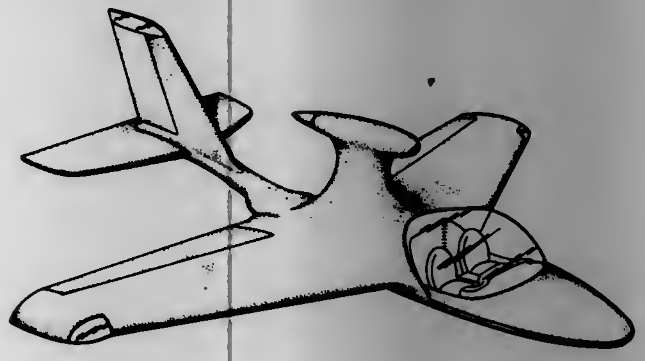
Avery Marrin, Tulsa, Okla., assignor to Clam Corporation, Tulsa, Okla.
Filed July 20, 1972, Ser. No. 273,541
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D12—62



232,710

AIRCRAFT

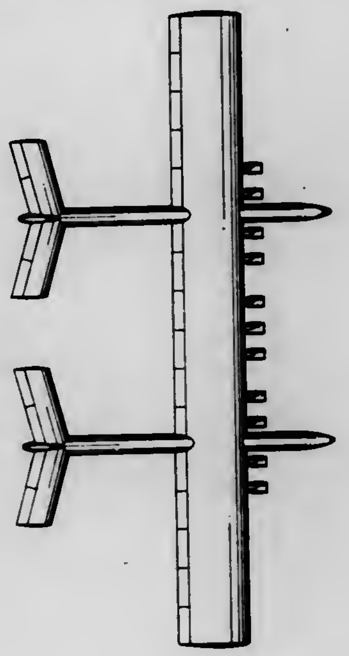
Norman D. Moore, 1576 N. 25A, Troy, Ohio 45373
Filed July 24, 1972, Ser. No. 274,278
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—75



232,711

AIRPLANE

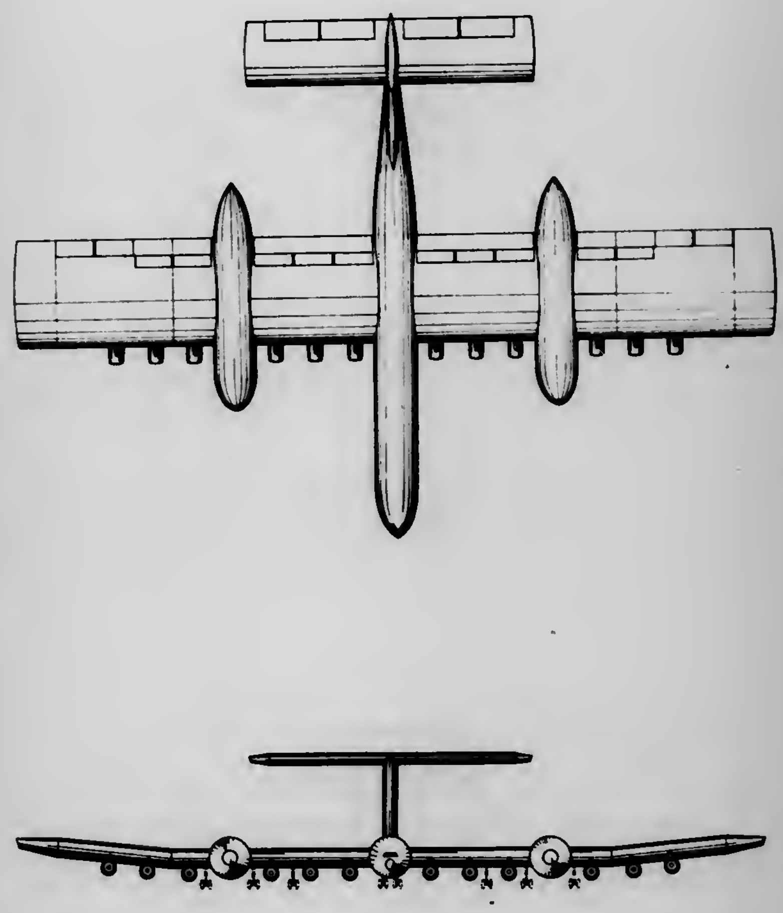
Mark E. Kirchner, Mercer Island, and Philip C. Whitener, Seattle, Wash., assignors to The Boeing Company, Seattle, Wash.
Filed Dec. 26, 1972, Ser. No. 318,070
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—76



232,712

AIRPLANE

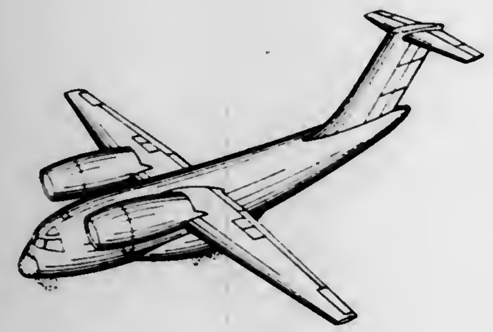
Robert B. Brown, Kent, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Dec. 26, 1972, Ser. No. 318,069
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—80



232,713
AIRCRAFT

William H. Cook, Bellevue, John K. Wimpress and Maynard L. Pennell, Seattle, and Robert P. Person, Mercer Island, Wash., assignors to The Boeing Company, Seattle, Wash.

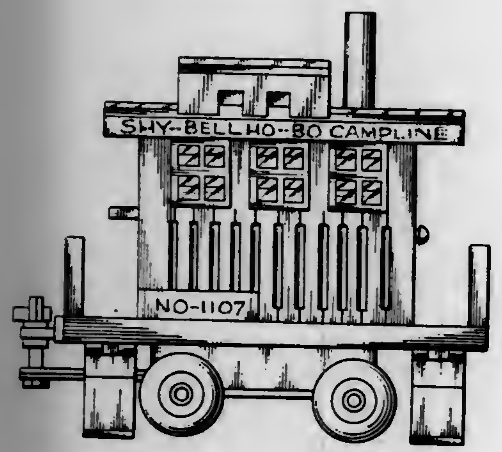
Filed Jan. 8, 1973, Ser. No. 322,076
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—80



232,714
MOBILE DINER

Lee Shy-Bell Schauble, Box L & S, Manteno, Ill. 60950

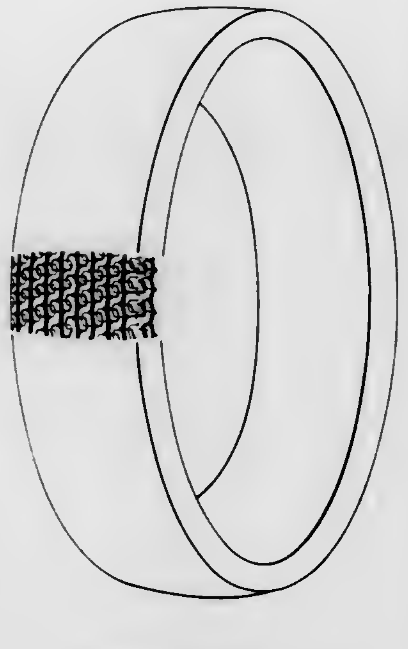
Filed Nov. 19, 1971, Ser. No. 200,650
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D12—102



232,715
PNEUMATIC TIRE TREAD AND BUTTRESS

Clarence H. Vizina, Ferndale, Mich., assignor to Uniroyal, Inc., New York, N.Y.

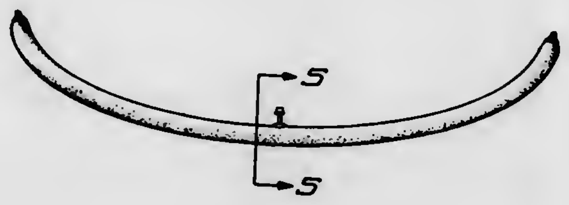
Filed Oct. 20, 1972, Ser. No. 298,998
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—141



232,716
WINDSHIELD WIPER PROTECTOR

Ray M. Shenk, 2012 W. Excelsior Ave., Lot 202, Hopkins, Minn. 55343

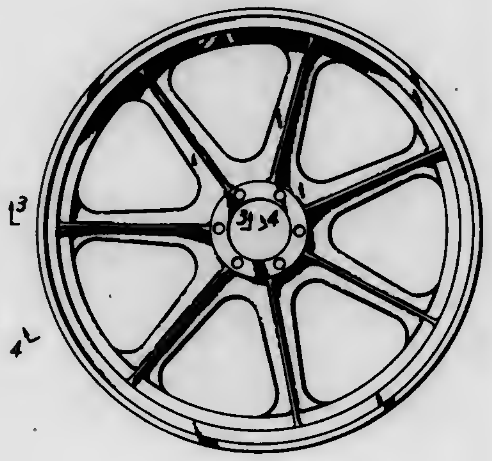
Filed Dec. 18, 1972, Ser. No. 315,920
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—155



232,717
WHEEL

Elliott M. Morris, Corona Del Mar, Calif., assignor to Morris Industries, Santa Ana, Calif.

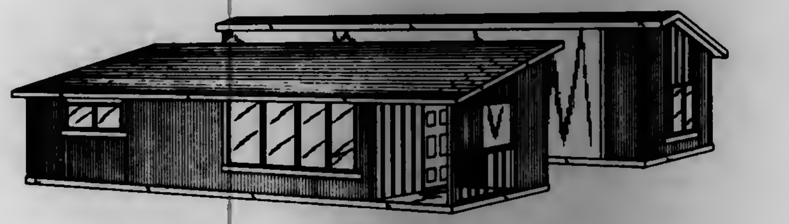
Filed July 17, 1972, Ser. No. 272,310
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—205



232,718
MODULAR MOBILE HOME WITH OFF-CENTER ROOF PEAK

Dan Philip Eacret, Fountain Valley, Calif., assignor to Bendix Home Systems, Inc., Atlanta, Ga.

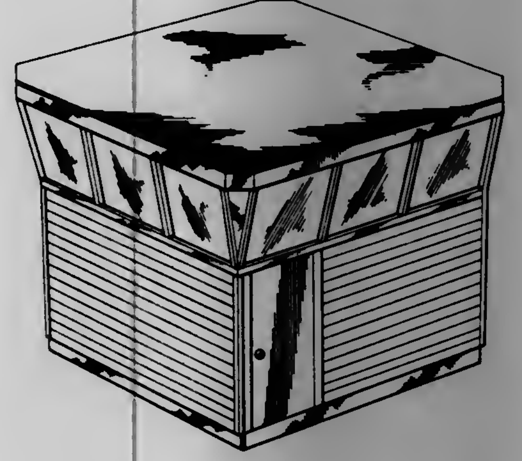
Filed July 17, 1972, Ser. No. 272,475
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 A



232,719
CONTROL HOUSE MODULE OR SIMILAR ARTICLE

Erbie Gail Mize and W. Norman Smith, Chattanooga, Tenn., assignors to Astec Industries, Inc., Chattanooga, Tenn.

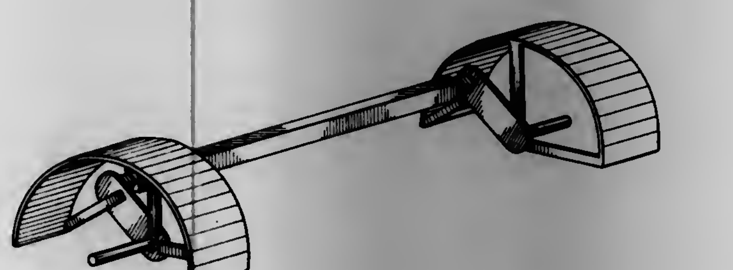
Filed Mar. 29, 1973, Ser. No. 346,052
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 R



232,720
AXLE AND FENDERS UNIT

Ewen Butcher, 682 Kirk Ave., Ventura, Calif. 93003

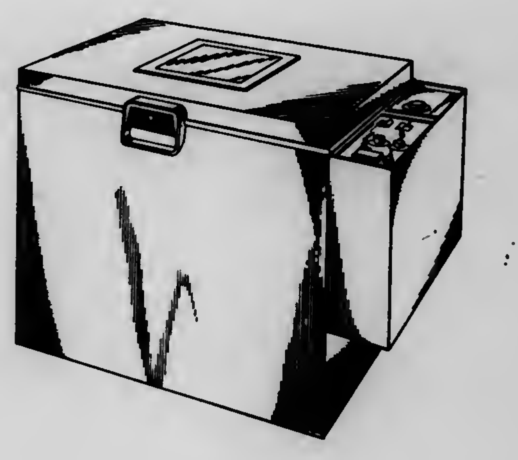
Filed Aug. 17, 1971, Ser. No. 172,610
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D14—2



232,721
INCUBATOR-SHAKER

Alexander I. Newman, River Forest, Ill., assignor to Lab-Line Instruments, Inc., Melrose Park, Ill.

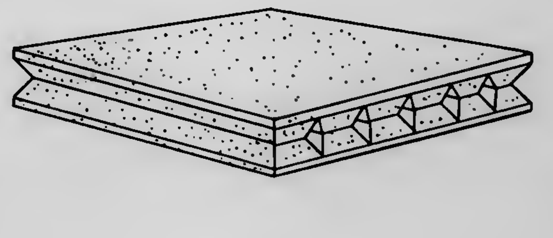
Filed May 17, 1972, Ser. No. 254,355
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D16—2



232,722
CONCRETE BLOCK

John A. Wilnau, P.O. Box 13026A, Pinecastle Station, Orlando, Fla. 32809

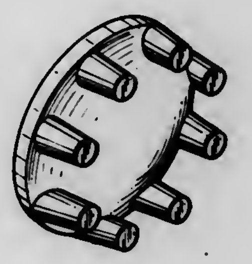
Filed Oct. 16, 1972, Ser. No. 297,969
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D18—2 R



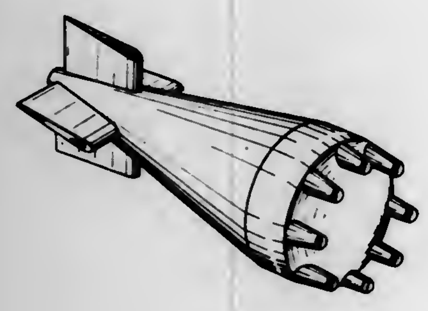
232,723
PROJECTILE NOSE

David D. Abbott, Baltimore County, Md., assignor to AAI Corporation, Cockeysville, Md.

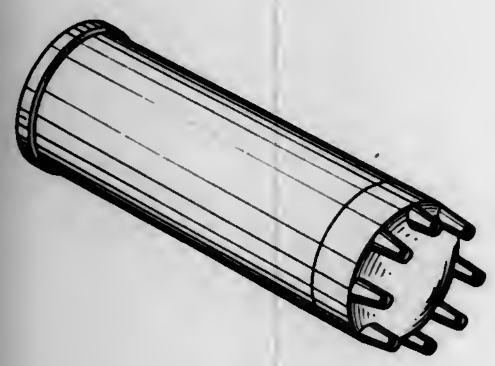
Filed Sept. 24, 1971, Ser. No. 183,726
Term of patent 14 years
Int. Cl. D22—*03*
U.S. Cl. D22—10



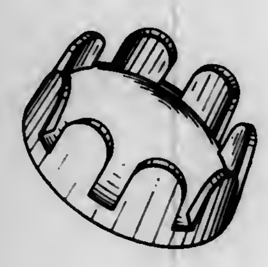
232,724
PROJECTILE
David D. Abbott, Baltimore County, Md., assignor to AAI Corporation, Cockeysville, Md.
Filed Sept. 24, 1971, Ser. No. 183,729
Term of patent 14 years
Int. Cl. D22—*03*
U.S. Cl. D22—10



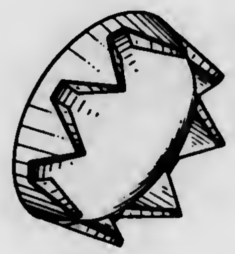
232,725
CARTRIDGE
David D. Abbott, Baltimore County, Md., assignor to AAI Corporation, Cockeysville, Md.
Filed Sept. 24, 1971, Ser. No. 183,730
Term of patent 14 years
Int. Cl. D22—*03*
U.S. Cl. D22—10



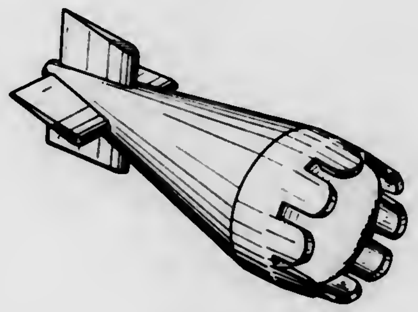
232,726
PROJECTILE NOSE
David D. Abbott, Baltimore County, Md., assignor to AAI Corporation, Cockeysville, Md.
Filed Sept. 24, 1971, Ser. No. 183,737
Term of patent 14 years
Int. Cl. D22—*03*
U.S. Cl. D22—10



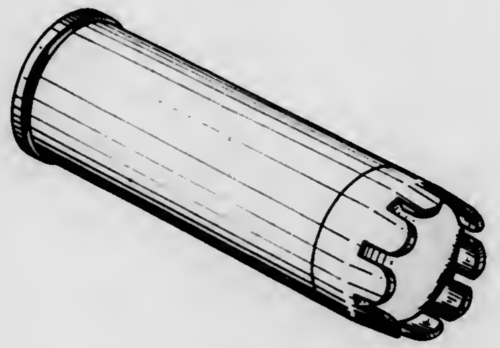
232,727
PROJECTILE NOSE
David D. Abbott, Baltimore County, Md., assignor to AAI Corporation, Cockeysville, Md.
Filed Sept. 24, 1971, Ser. No. 183,738
Term of patent 14 years
Int. Cl. D22—*03*
U.S. Cl. D22—10



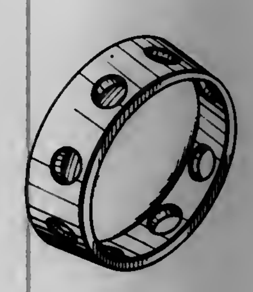
232,728
PROJECTILE
David D. Abbott, Baltimore County, Md., assignor to AAI Corporation, Cockeysville, Md.
Filed Sept. 24, 1971, Ser. No. 183,739
Term of patent 14 years
Int. Cl. D22—*03*
U.S. Cl. D22—10



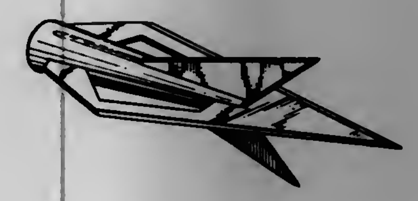
232,729
CARTRIDGE
David D. Abbott, Baltimore County, Md., assignor to AAI Corporation, Cockeysville, Md.
Filed Sept. 24, 1971, Ser. No. 183,740
Term of patent 14 years
Int. Cl. D22—*03*
U.S. Cl. D22—10



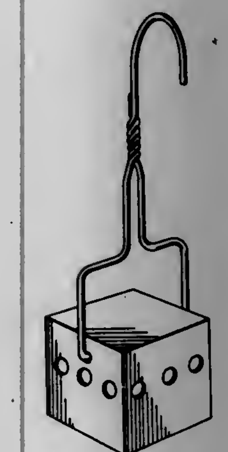
232,730
PROJECTILE NOSE
David D. Abbott, Baltimore County, Md., assignor to AAI Corporation, Cockeysville, Md.
Filed Sept. 24, 1971, Ser. No. 183,741
Term of patent 14 years
Int. Cl. D22—*03*
U.S. Cl. D22—10



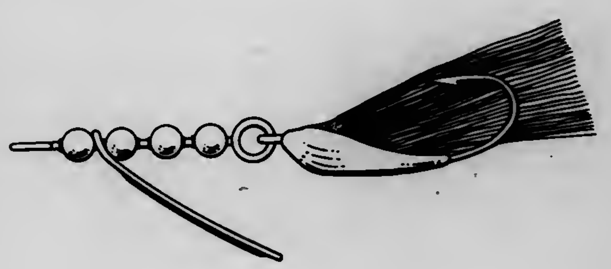
232,731
BROADHEAD FOR HUNTING ARROW
Anthony L. Altier, Honesdale, Pa., assignor to Indian Industries, Inc., Evansville, Ind.
Filed July 20, 1972, Ser. No. 273,452
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—12



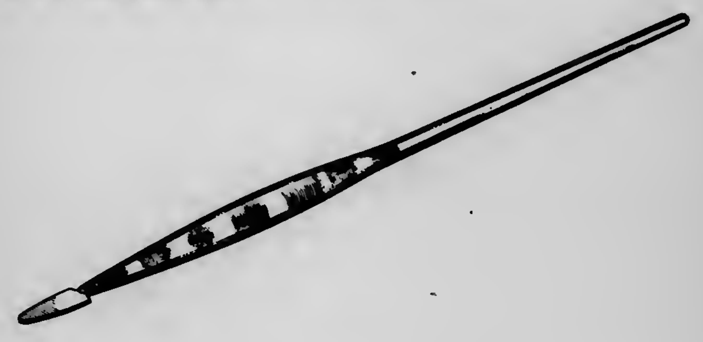
232,732
HOLDER FOR PESTICIDES AND THE LIKE
Harold A. Lutes, 5128 Corolite St., Long Beach, Calif. 90808
Filed Nov. 17, 1972, Ser. No. 307,427
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—18



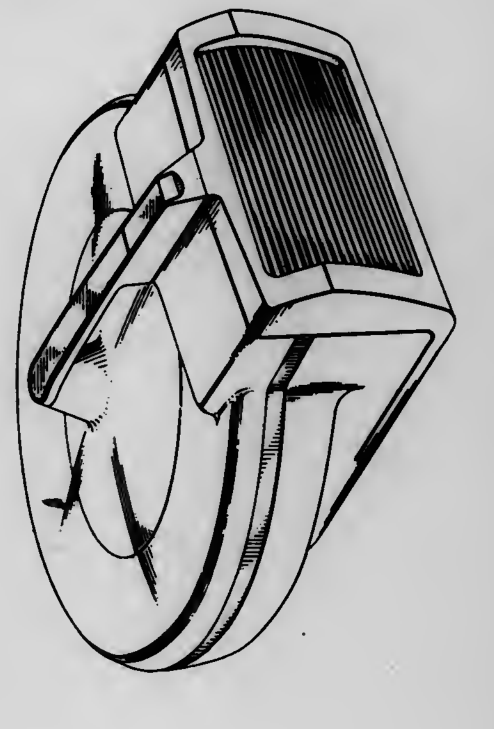
232,733
FISH LURE
Phillip A. Rabideau, 201 Penhurst Drive, Pittsburgh, Pa. 15235
Filed Aug. 14, 1972, Ser. No. 280,653
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—27



232,734
DENTAL INCISAL PACKING TOOL
Robert Philip Berger, 17110 Clemons Drive, Encino, Calif. 91316
Filed Dec. 29, 1969, Ser. No. 20,652
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—1 D

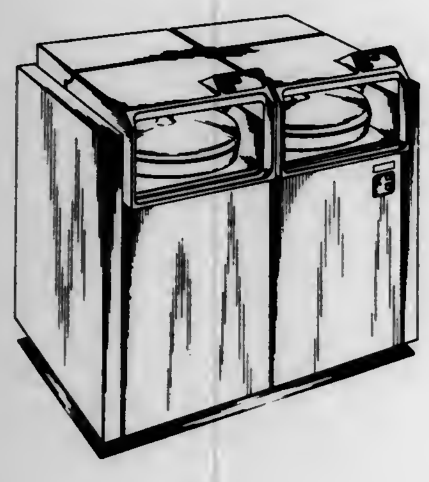


232,735
MAGNETIC DISK MODULE
John Orville Kinsey, Morgan Hill, Bernard William McVey, Saratoga, and David Graham Moore, Richard Burke Mulvany, and Philip Cleer Yenerich, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 12, 1973, Ser. No. 340,402
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C



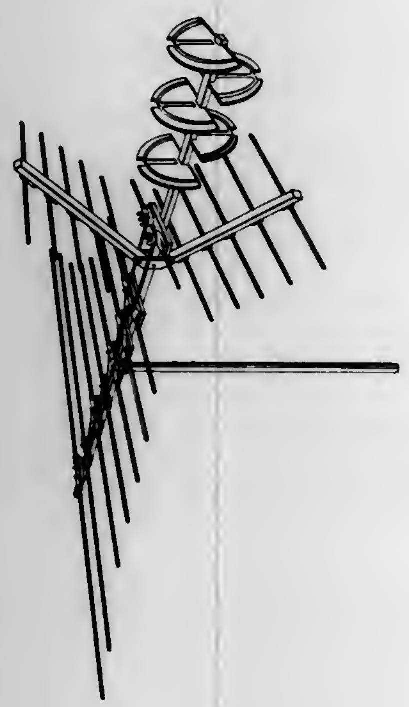
232,736
DISK STORAGE FACILITY

Philip Cleer Yenerich, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 12, 1973, Ser. No. 342,898
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C



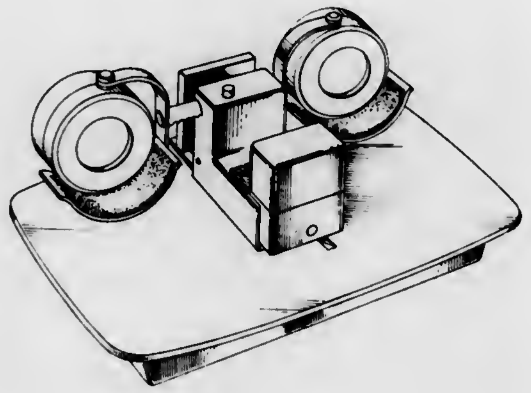
232,737
TELEVISION ANTENNA

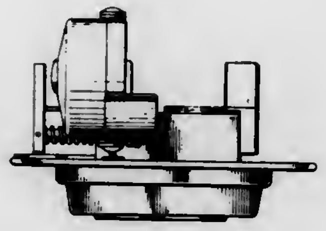
Dominick Padilla, New York, and Arthur A. Fink, Yonkers, N.Y., assignors to RMS Electronics, Inc., Bronx, N.Y.
Filed Mar. 15, 1972, Ser. No. 235,114
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 F



232,738
ACOUSTIC COUPLER

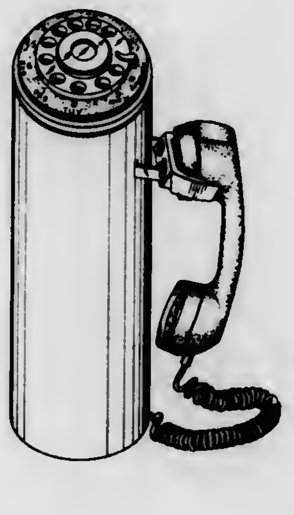
Virgil H. Johnson, Churubusco, Ind., assignor to Minnesota Mining and Manufacturing Company
Filed Apr. 7, 1972, Ser. No. 242,271
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A





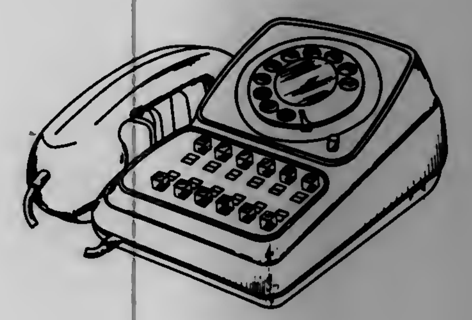
232,739
CYLINDRICAL TABLE TELEPHONE

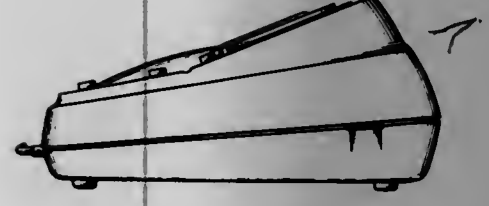
Bruce Wasserman, 326 W. 23rd St., New York, N.Y. 10011
Filed Mar. 16, 1973, Ser. No. 342,184
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A



232,740
TELEPHONE OR SIMILAR ARTICLE

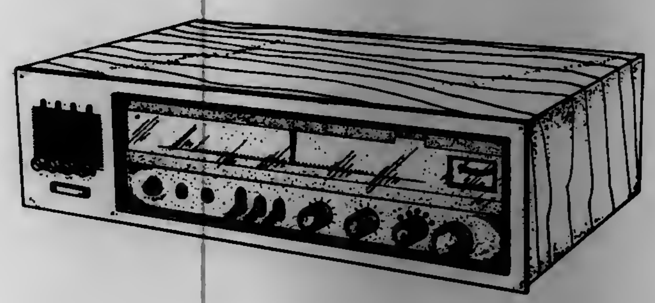
Nobuyasu Takahashi and Nobuji Nakamura, Tokyo, Japan, assignors to Kabushikikaisha Taikodenki Seisakusho, Shinagawa-ku, Tokyo, Japan
Filed June 7, 1973, Ser. No. 367,829
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A





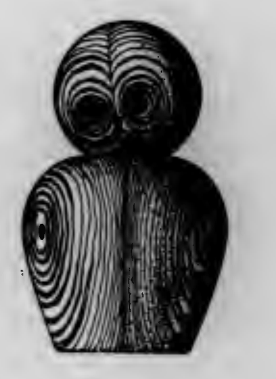
232,741
AMPLIFIER

Hiroshi Hirasa and Benito Mishiro, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Oct. 2, 1973, Ser. No. 402,854
Claims priority, application Japan Apr. 11, 1973
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 L



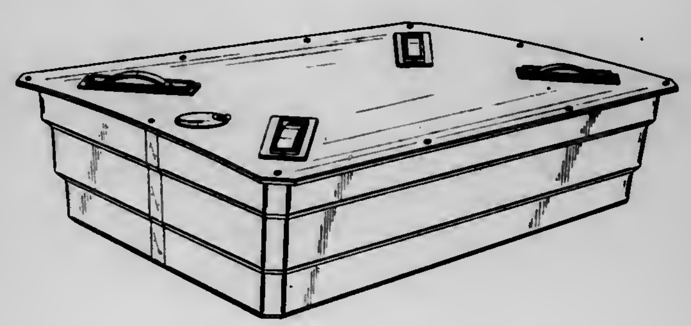
232,742
OWL FIGURINE

Stig Hedman, Gavle, Sweden, and Torkel Nilson, Redmond, Wash.; said Hedman assignor to said Nilson
Filed Aug. 29, 1972, Ser. No. 284,637
Term of patent 3½ years
Int. Cl. D11—*02*
U.S. Cl. D29—23 B



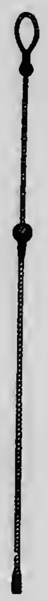
232,743
LIQUID SUPPLEMENT FEEDER FOR CATTLE

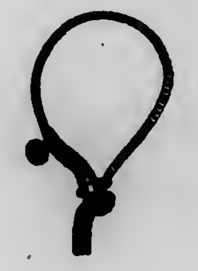
Lee R. Mangrum, P.O. Box 397, Giddings, Tex. 78942
Filed Sept. 29, 1972, Ser. No. 293,321
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—13



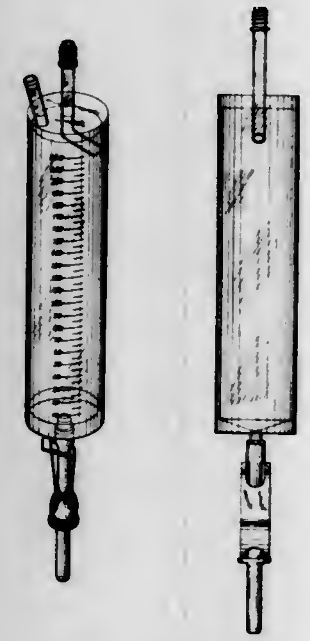
232,744
CHOKELESS NECK ROPE FOR A HORSE

James D. McGrew, 8120 Rio Linda Blvd., Elverta, Calif. 95626
Filed Feb. 16, 1973, Ser. No. 333,050
Term of patent 14 years
Int. Cl. D30—*04*
U.S. Cl. D30—19

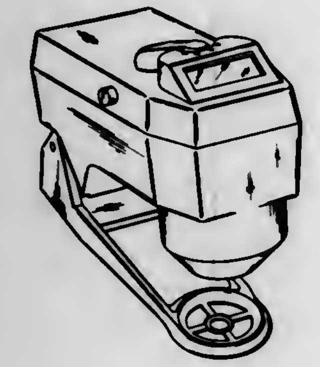




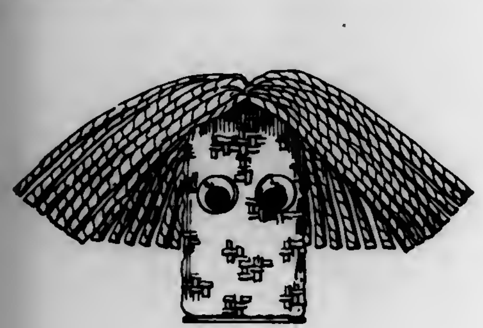
232,745
APPARATUS FOR MEASURING LIQUIDS
Terrance O. Noble, 1416 E. 72nd St.,
Minneapolis, Minn. 55423
Filed July 18, 1973, Ser. No. 380,405
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D32—1



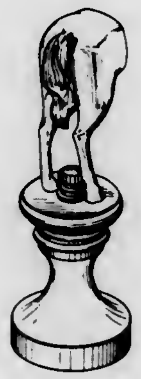
232,746
REFLECTION DENSITOMETER
Perry Dwaine Hampton, Dallas, James R. Cox, Richardson, and Peter J. Warren, Dallas, Tex., assignors to Cosar Corporation, Garland, Tex.
Filed Apr. 30, 1973, Ser. No. 355,674
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D32—2



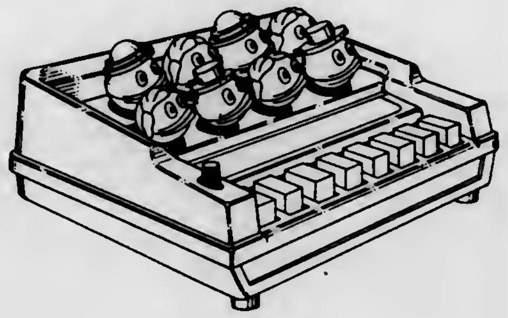
232,747
DOLL OR SIMILAR ARTICLE
Jo Anne W. Sharp, Ji-Meva Farms, Rte. 104,
North Rose, N.Y. 14516
Filed Mar. 26, 1973, Ser. No. 344,710
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—4 R



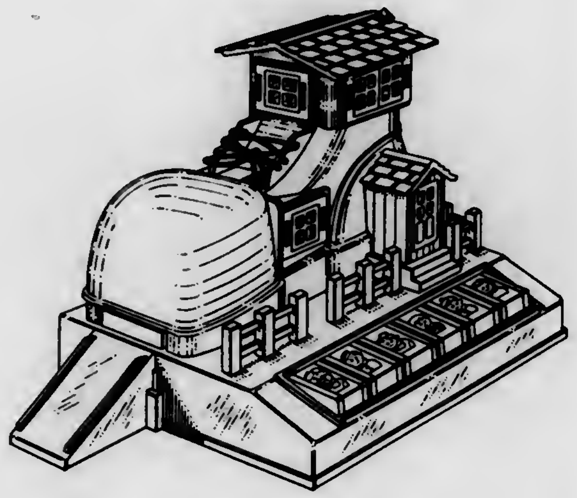
232,748
KNIGHT CHESSMAN
Lawrence S. Pratt, 39 Gramercy Park,
New York, N.Y. 10010
Filed Nov. 24, 1972, Ser. No. 309,442
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 CH



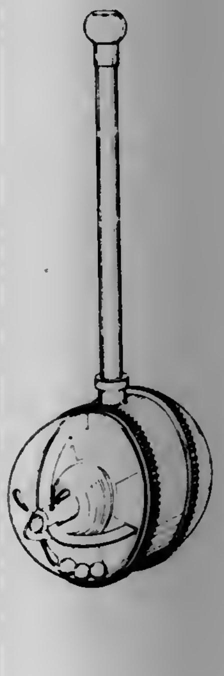
232,749
MUSICAL TOY
Michael R. Meyers, 18 Lyncrest Drive, Munsey, N.Y. 12123, and Michael Langieri, 8 Cedar St., Butler, N.J. 07405
Filed Oct. 2, 1972, Ser. No. 294,336
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 C



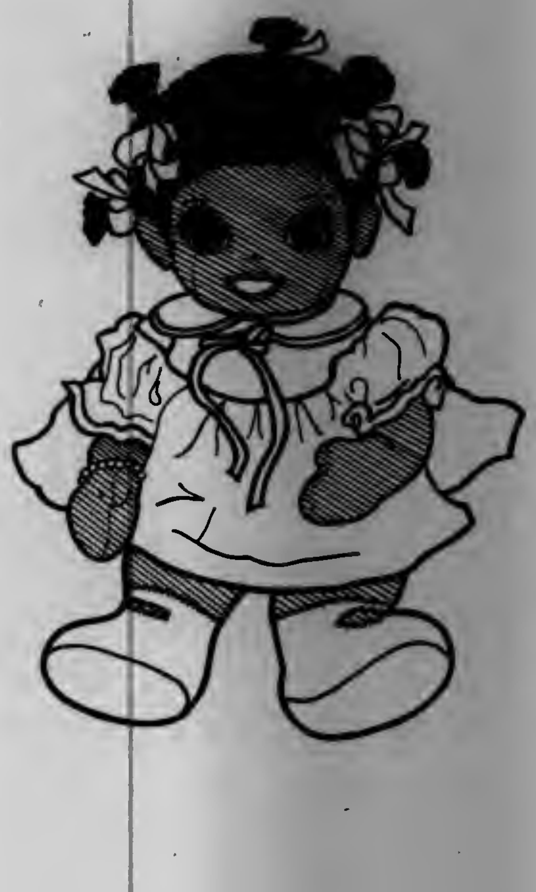
232,750
PUSH-BUTTON ACTION TOY
Michael Langieri, Butler, N.J., assignor to Questor Corporation, Toledo, Ohio
Filed Oct. 2, 1972, Ser. No. 294,447
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 A



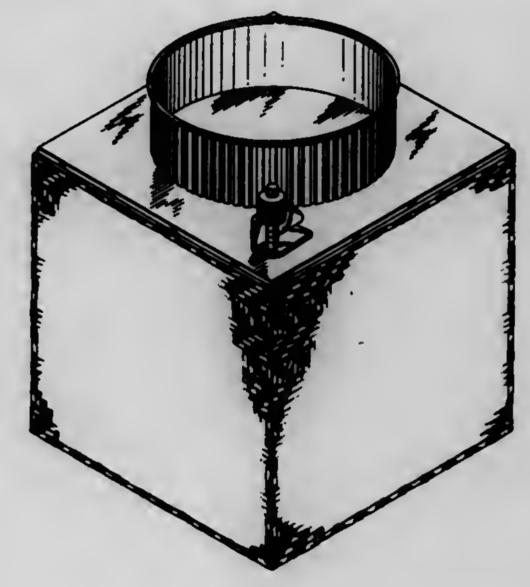
232,751
TRUNDLE TOY
Eugene J. Echterling, Woodland Hills, Calif., assignor to Questor Corporation, Toledo, Ohio
Filed Jan. 24, 1973, Ser. No. 326,304
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 D



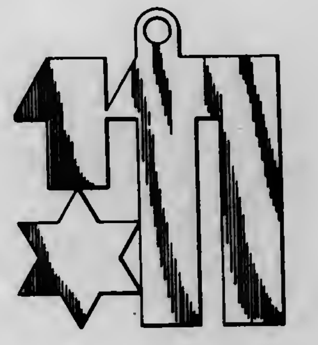
232,752
DOLL
Ruby M. Partridge, 552 Crestwood Ave., North Vancouver, British Columbia, Canada
Filed Oct. 4, 1972, Ser. No. 298,762
Term of patent 3½ years
Int. Cl. D21—*01*
U.S. Cl. D34—4 R



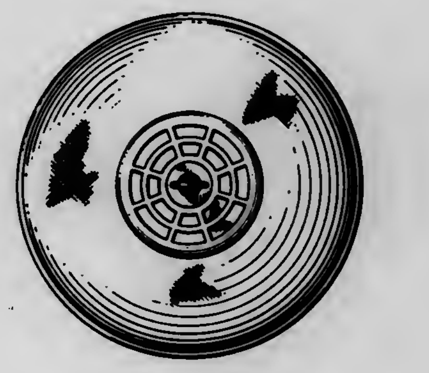
232,753
FLOWER POT WITH WATERING AUTOMAT
Eino Jalakas, Violvagen 2, Stenungsund, Sweden
Filed Feb. 3, 1972, Ser. No. 223,408
Term of patent 7 years
Int. Cl. D11—*02*
U.S. Cl. D35—3 R



232,754
CHARM OR SIMILAR ARTICLE
Bernard Bernstein, 3224 Bronx Blvd.,
Bronx, N.Y. 10467
Filed Feb. 2, 1973, Ser. No. 328,907
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—17



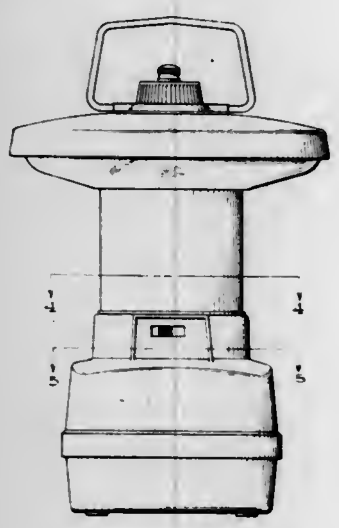
232,755
COMBINATION SPEAKER AND LAMP
Arthur Robson, Jericho, N.Y., assignor to Morse Electro Products Corp., Brooklyn, N.Y.
Filed Aug. 23, 1972, Ser. No. 283,207
Term of patent 7 years
Int. Cl. D26—*05;* D14—*01*
U.S. Cl. D48—20 D



232,756

ELECTRIC LANTERN

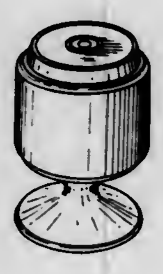
Daniel C. Oakley, Madison, Nolan K. Rhoades, Beloit, and Arthur R. Schmidt, Madison, Wis., assignors to ESB Incorporated
Filed Nov. 13, 1972, Ser. No. 306,002
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D48—24 R



232,757

CIGARETTE LIGHTER

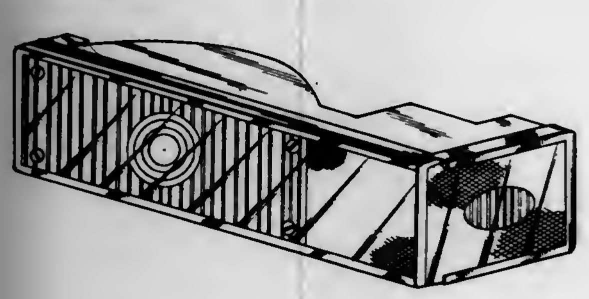
Kenjiro Goto, Tokyo, Japan, assignor to Mansei Kogyo Kabushiki Kaisha, Kawaguchi-shi, Saitama, Japan
Filed Mar. 15, 1973, Ser. No. 341,683
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27 R



232,758

WRAP-AROUND TAIL LIGHT

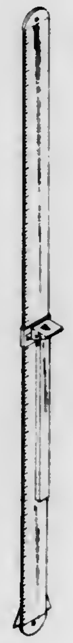
Peter Hedgewick, Windsor, Ontario, Canada, assignor to International Tools (1973) Limited, Windsor, Ontario, Canada
Filed May 5, 1972, Ser. No. 250,841
Term of patent 14 years
Int. Cl. D26—*06*
U.S. Cl. D48—32 R



232,759

HEIGHT MEASURING SCALE

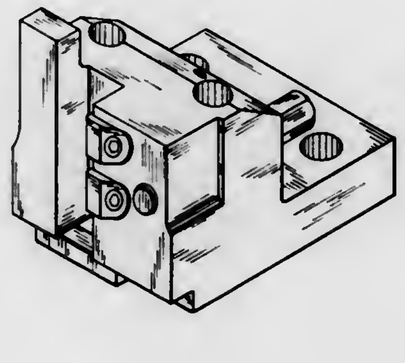
Merwin Guy Hall, Rte. 1, Box 268, Covington, La. 70433
Filed Oct. 12, 1972, Ser. No. 296,966
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—6 A



232,760

TOOL HOLDER FOR A LATHE TOOL, OR SIMILAR ARTICLE

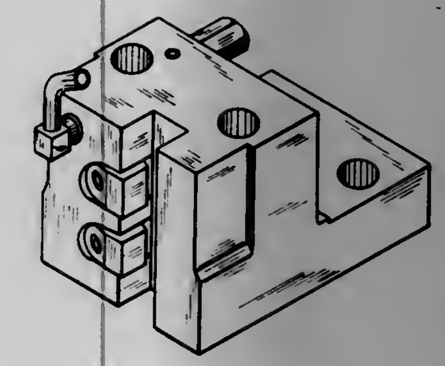
Pasquale Joseph Lanese, Mayfield Heights, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio
Filed Sept. 11, 1972, Ser. No. 287,632
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D54—6



232,761

TOOL HOLDER FOR A LATHE TOOL, OR SIMILAR ARTICLE

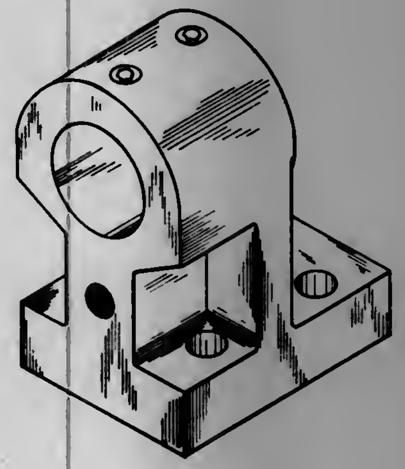
Pasquale Joseph Lanese, Mayfield Heights, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio
Filed Sept. 11, 1972, Ser. No. 287,748
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D54—6



232,762

TOOL HOLDER FOR END WORKING TOOLS FOR A LATHE, OR SIMILAR ARTICLE

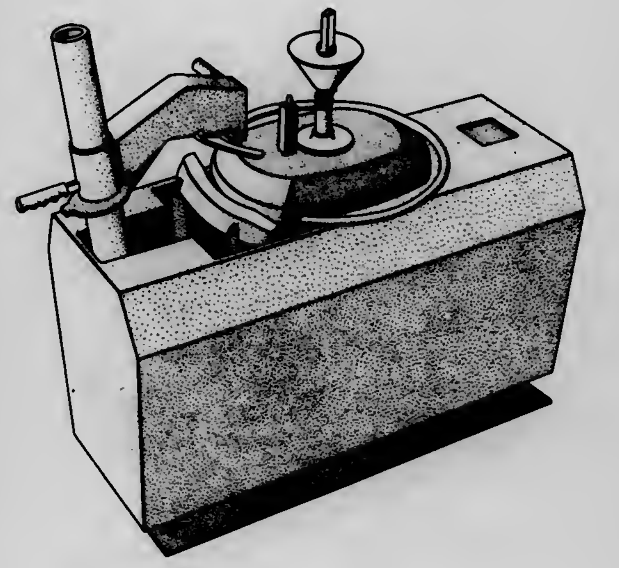
Pasquale Joseph Lanese, Mayfield Heights, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio
Filed Sept. 11, 1972, Ser. No. 287,987
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D54—6



232,763

AUTOMATIC TIRE CHANGER MACHINE

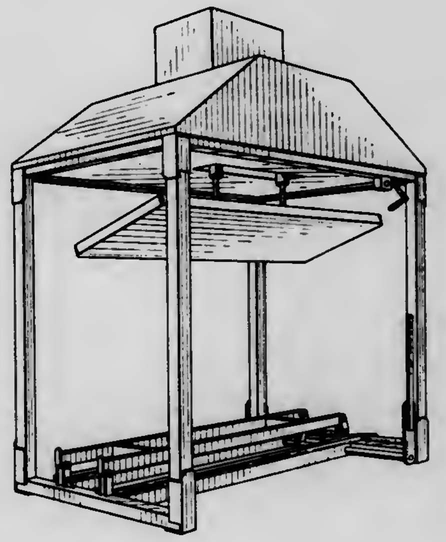
John T. Curtis, Hamilton, Ohio, assignor to Magnum Automotive Equipment, Inc., Cincinnati, Ohio
Filed June 1, 1972, Ser. No. 258,945
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D54—13 R



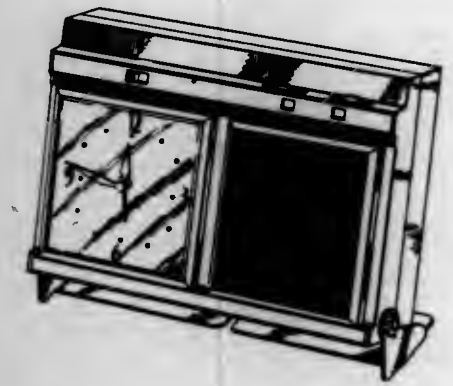
232,764

TRASH COMPACTOR DEVICE

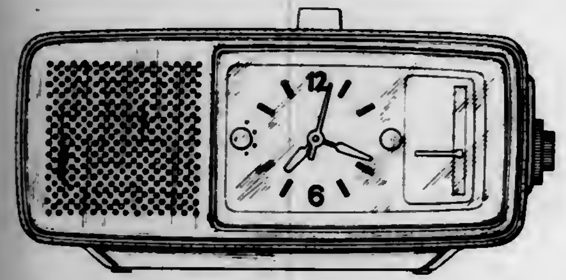
Arthur B. Turley, 1216 S. Kentucky, Sedalia, Mo. 65301
Filed Nov. 3, 1972, Ser. No. 303,537
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1 B



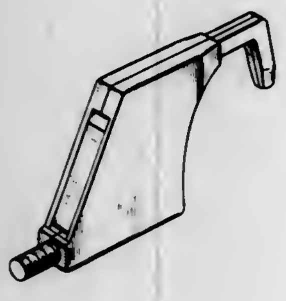
232,765
CLOCK-RADIO
Lester Kenneth Franklin, deceased, late of Hong Kong, by Mildred P. Franklin, executor, 39 Burton Road, Toronto 10, Ontario, Canada
Filed July 7, 1972, Ser. No. 269,759
Claims priority, application Great Britain Feb. 11, 1972
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D56—4 B



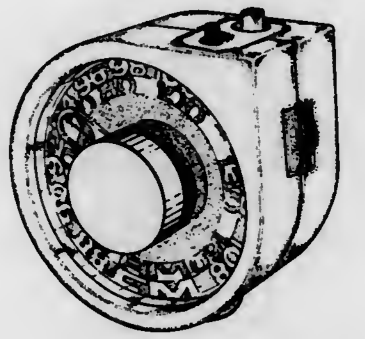
232,766
CLOCK-RADIO
John T. Houlihan, Manlius, N.Y., assignor to General Electric Company
Filed Dec. 22, 1972, Ser. No. 317,675
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D56—4 B



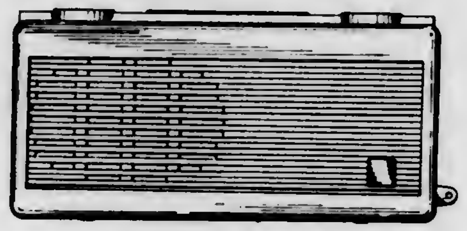
232,767
MINIATURE RADIO RECEIVER
Jack D. Stevens, 125 Willlow Drive, Danville, Calif. 94526
Filed May 30, 1973, Ser. No. 365,314
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 B



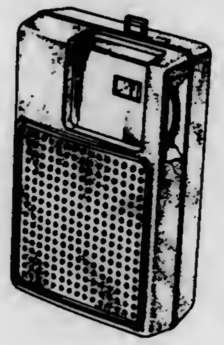
232,768
RADIO RECEIVER
Benito Mishiro, Sakai, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Mar. 21, 1973, Ser. No. 343,409
Claims priority, application Japan Dec. 8, 1972
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 B



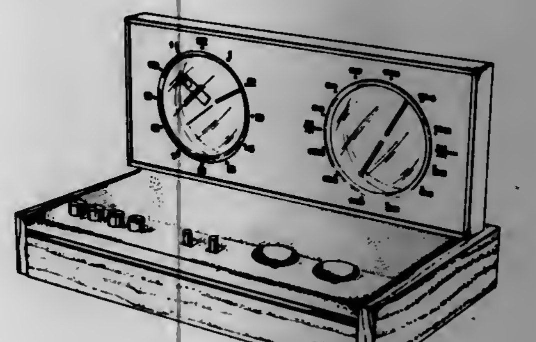
232,769
RADIO RECEIVER
Ser-Kit Au and Man-Sing Lui, both of Koshun House, 5th Floor, 331B, Nathan Road, Kowloon, Hong Kong
Filed July 11, 1972, Ser. No. 270,847
Claims priority, application Great Britain Jan. 12, 1972
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 B



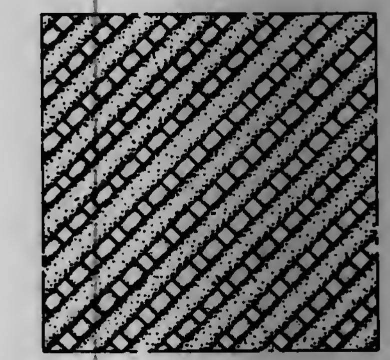
232,770
RADIO RECEIVER
Masaaki Miyamoto, Moriguchi, Ken Kawamura, Osaka, and Minoru Owada, Suita, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 11, 1972, Ser. No. 313,882
Claims priority, application Japan June 14, 1972
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4 B



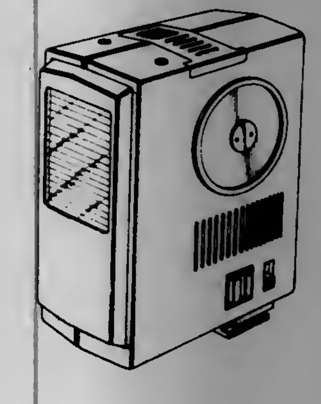
232,771
COMBINED RADIO RECEIVER AND CLOCK
Kunio Hoshino, Kadoma, and Kazumasa Takenaka and Masaaki Miyamoto, Moriguchi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 7, 1972, Ser. No. 313,169
Claims priority, application Japan June 12, 1972
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D56—4 B



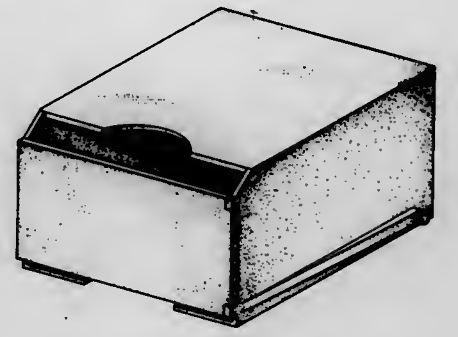
232,772
PAPER TOWELING OR SIMILAR ARTICLE
Gordon D. Thomas, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Mar. 9, 1973, Ser. No. 339,553
Term of patent 14 years
Int. Cl. D5—*06*
U.S. Cl. D59—2 A



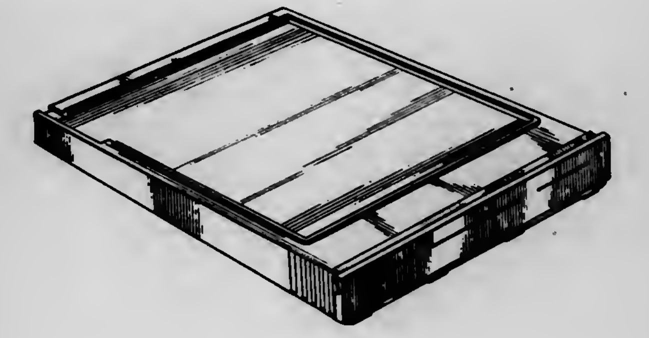
232,773
ELECTRONIC FLASH
Takaharu Kato, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Jan. 29, 1973, Ser. No. 327,401
Claims priority, application Japan Aug. 1, 1972
Term of patent 14 years
Int. Cl. D16—*05*
U.S. Cl. D61—1 F



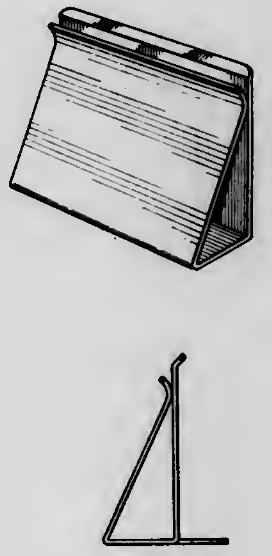
232,774
SLIDE DISPENSER FOR A TABLE VIEWER
Peter T. Quinn, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Jan. 6, 1972, Ser. No. 215,993
Term of patent 14 years
Int. Cl. D16—*99*
U.S. Cl. D61—1 S



232,775
PHOTOGRAPHIC FILM CASSETTE OR SIMILAR ARTICLE
Vaito K. Eloranta, Needham, Richard Paglia, Carlisle, Richard R. Wareham, Marblehead, and Nicholas Gold, Arlington, Mass., assignors to Polaroid Corporation, Cambridge, Mass.
Filed Sept. 28, 1972, Ser. No. 292,965
Term of patent 14 years
Int. Cl. D16—*99*
U.S. Cl. D61—1 T



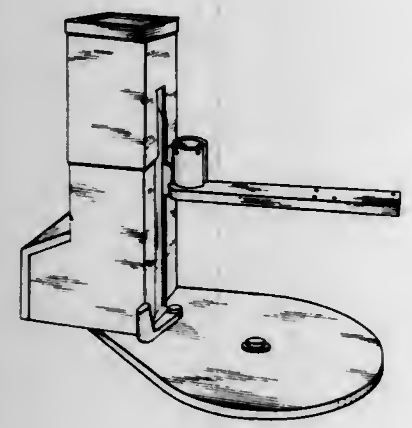
232,776
COMBINED MEMORANDA AND PENCIL HOLDER
Mauritz C. Ranseen, 3019 Bryant Ave. S., Minneapolis, Minn. 55408
Filed Oct. 3, 1972, Ser. No. 294,635
Term of patent 14 years
Int. Cl. D19—*99*
U.S. Cl. D74—1 C



232,777
ADJUSTABLE MOUNTING BASE FOR A PATIENT SUPPORTING UNIT

George A. Fortnam, Des Moines, Iowa, assignor to Den-Tal-Ez Mfg. Co., Des Moines, Iowa
Filed Aug. 25, 1972, Ser. No. 283,978
Term of patent 14 years
Int. Cl. D24—*01*

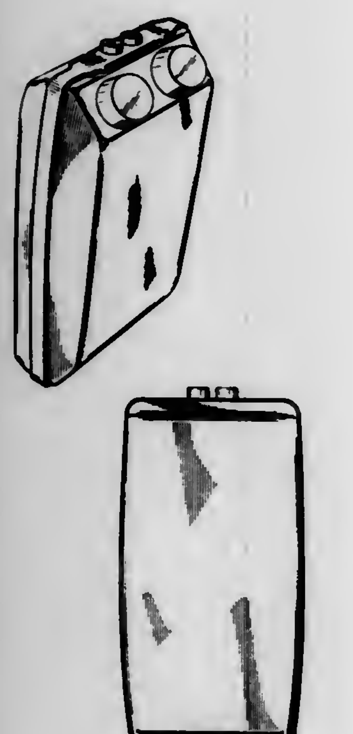
U.S. Cl. D83—1 E



232,778
MEDICAL ELECTRICAL EQUIPMENT CASE

Richard M. Hagen, Chaska, Robert L. Jordan, Coon Rapids, and William E. Greuloch, Minneapolis, Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Filed July 23, 1973, Ser. No. 381,503
Term of patent 14 years
Int. Cl. D24—*01*

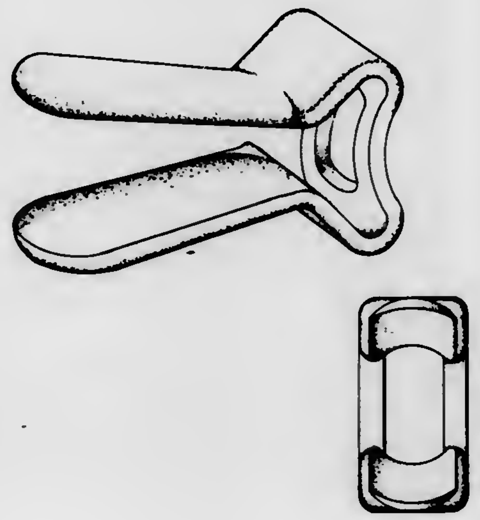
U.S. Cl. D83—1 F



232,779
VAGINAL SPECULUM

Donald M. Olson, Oakland, Calif., assignor to Max Morris, San Jose, and Earl L. Kirkman, Felton, Calif., fractional part interest to each
Filed Aug. 10, 1972, Ser. No. 279,641
Term of patent 14 years
Int. Cl. D24—*02*

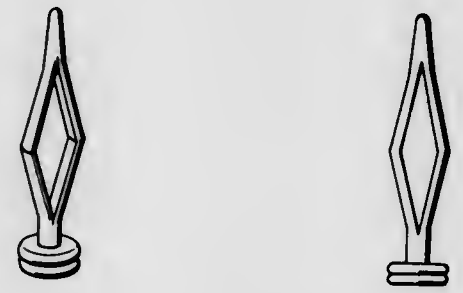
U.S. Cl. D83—12 R



232,780
TEAT DILATOR FOR COWS

Eli A. Zackheim, Norwich, Conn., assignor to Jules Silver, Norwich, Conn.
Filed July 7, 1972, Ser. No. 269,613
Term of patent 14 years
Int. Cl. D24—*02*

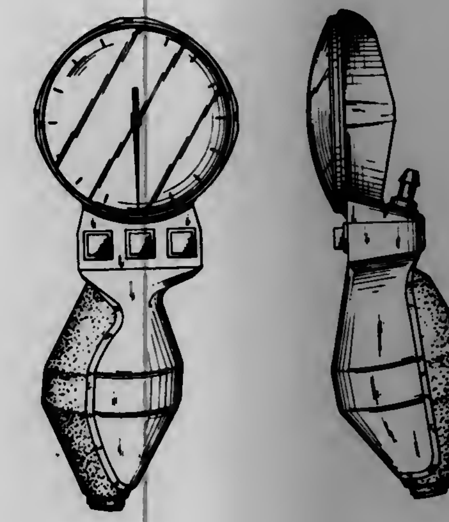
U.S. Cl. D83—12 R



232,781
SPHYGMOMANOMETER

Jan Raczkowski and Stefania Raczkowski, Long Beach, N.Y., assignors to Propper Manufacturing Co., Inc., Long Island City, N.Y.
Filed Feb. 8, 1974, Ser. No. 440,651
Term of patent 14 years
Int. Cl. D24—*02*

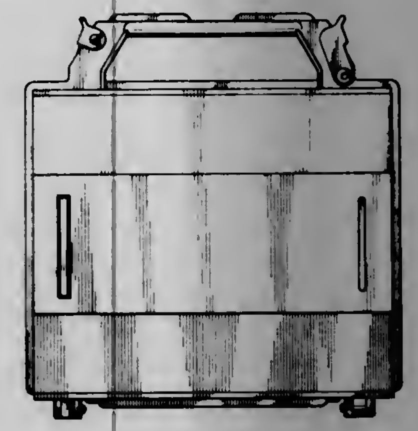
U.S. Cl. D83—12 R



232,782
TAPE-REEL STORAGE CASE

Karl D. Kryter, Los Altos, Calif., assignor to Acousis Company, Los Altos, Calif.
Filed Dec. 29, 1972, Ser. No. 319,892
Term of patent 14 years
Int. Cl. D3—*99*

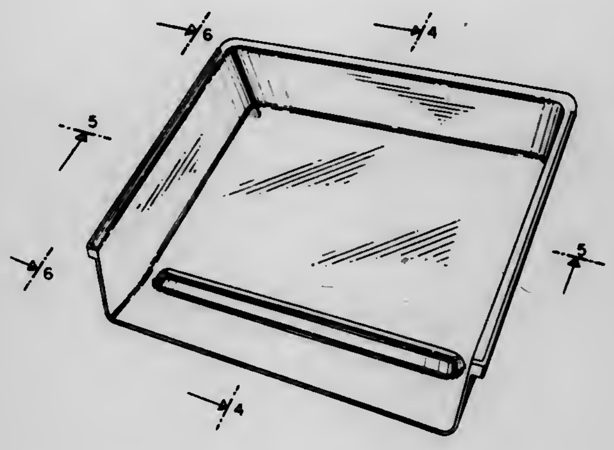
U.S. Cl. D87—1 D



232,783
TOTE TRAY

George Payne, Bedford Hills, N.Y., assignor to American Standard Inc., New York, N.Y.
Filed Sept. 25, 1972, Ser. No. 291,870
Term of patent 14 years
Int. Cl. D3—*99*

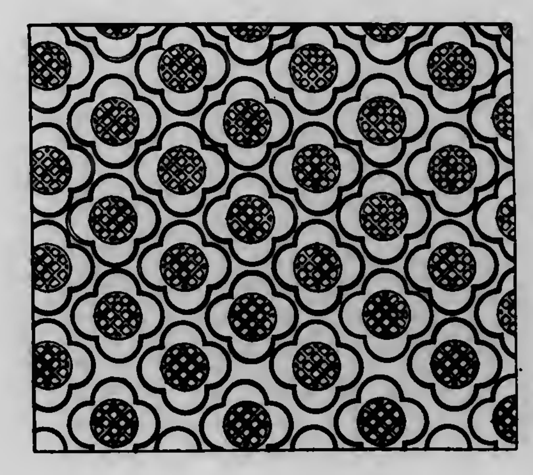
U.S. Cl. D87—1 R



232,784
EMBOSSED PLASTIC SHEET MATERIAL OR SIMILAR ARTICLE

Paul Hirschl, New York, N.Y., assignor to Ropa Industries, Inc., New York, N.Y.
Filed July 3, 1972, Ser. No. 268,729
Term of patent 7 years
Int. Cl. D5—*06*

U.S. Cl. D87—3 G



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 10TH DAY OF SEPTEMBER, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. B. Chance Company: *See—*
West, Edward L., 3,835,238.

A-T-O Inc.: *See—*
Teti, John J., 3,834,563.

AAI Corporation: *See—*
Young Robert B., 3,834,314.

AB Bahco Ventilation: *See—*
Johansson, Allan Hilbert, 3,834,171.

Abbatiello, Leonard A.; Carey, Loren E.; Ferree, Donald V.; and Green, Walter L., to United States of America, Atomic Energy Commission. Ultrasonically controlled thickness machining. 3,834,256, Cl. 82-21.00a.

Abbenante, Thomas J., to Corometrics Medical Systems, Inc. System simultaneously displaying representation of a plurality of waveforms in time occurring relation. 3,835,455, Cl. 340-172.500.

Abbott, Phillip Andrew, to Brown & Root, Inc. Method and apparatus for laying large diameter pipeline segments offshore. 3,834,169, Cl. 61-72.300.

Abcor, Inc.: *See—*
Del Pico, Joseph; and Shea, Edward M., 3,834,545.

Abell, William David; and Sindelar, William Frank, to Black and Decker Manufacturing Company, The. Adjustable positive clutch screwdriver. 3,834,252, Cl. 81-52.40r.

Abildgaard, William H.; and Groswith, Charles T., III, to Velco-Bind, Inc. Cased book using end sheets bound with plastic retainers. 3,834,739, Cl. 281-21.000.

Abramovich, Evgeny Alexandrovich: *See—*
Medovar, Boris Izrailevich; Bagla, Vitaly Mikhailovich; Latash, Jury Vadimovich; Emelyanenko, July Georgievich; Fedorovsky, Boris Borisovich; Alferoy, Jury Fedorovich; and Abramovich, Evgeny Alexandrovich, 3,834,446.

ACF Industries, Incorporated: *See—*
Atkinson, Eulas R., 3,834,664.

Acieries de Gennevilliers Anciens Etablissements C. Delachaux: *See—*
Bommart, Patrick, 3,835,268.

Acker, Douglas B.; and Berrry, Trevis L., to Reliance Trailer Manufacturing, Inc. Method for transproting building modules. 3,834,111, Cl. 52-747.000.

Acme-Hamilton Manufacturing Corporation: *See—*
Elson, Arthur M., 3,834,423.

Adachi, Kazuma, to Kabushiki Kaisha Daikin Seisakusho. Dual spring device for preventing improper disengagement of clutch. 3,834,501, Cl. 192-70.280.

Adachi, Takeshi, to Nippon Gakki Seizo Kabushiki Kaisha. Apparatus for producing base tones in an electronic musical instrument. 3,835,236, Cl. 84-1.240.

Adachi, Takeshi, to Nippon Gakki Seizo Kabushiki Kaisha. Electronic musical instrument with key-dependent time-variable delaying device. 3,835,237, Cl. 84-1.240.

Adair, John D., to Singer Company, The. Switch closure divice for meters. 3,835,372, Cl. 324-28.00r.

Adalbert, Gerhard: *See—*
Linder, Ernst; Adalbert, Gerhard; and Hess, Jurgen, 3,834,846.

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- Anderson, Carroll C., to Ford Motor Company. Vehicle occupant restraining device. 3,834,728, Cl. 280-150.00b.
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  - Krippene, Brett C.; Clark, Merle M.; and Triffon, Apostol, 3,834,858.
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- Bach, Hartwig C., to Monsanto Company. Process for the preparation of benzonitrile. 3,835,177, Cl. 260-465.00r.
- Bachman, John A.: *See—*
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- Baillargeon, Frank. Engine heating device. 3,834,356, Cl. 122-265.000.
- Bajcar, Miles S.; Wallace, Gary Leonard; and Linehan, John J., to Chemetron Corporation. Rapid action article transfer apparatus. 3,834,515, Cl. 198-27.000.
- Baker Brush Co., Inc.: *See—*
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- Baker Perkins Limited: *See—*
  - Edwards, Albert, 3,834,442.
- Baker, William Albert; Wheatley, John Arthur; Read, Peter John; Latimer, Keith Graham; and Reynolds, Terence David Warren, to Alcan Research and Development Limited. Method of making aluminium bearing alloy strip. 3,833,983, Cl. 29-149.50s.
- Baker, William L.; and Turchi, Peter John, to United States of America, Air Force. Electromagnetic implosion X-ray source. 3,835,330, Cl. 250-493.000.
- Balan, Markandan Hari. Redundant electrical system. 3,835,333, Cl. 307-64.000.
- Balas, Gizella: *See—*
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- Ball, Richard B.; Gurler, Tuygan; Clement, Carl J.; and Horine, David A. Hand held teaching machine. 3,834,041, Cl. 35-9.00a.
- Bando America Inc.: *See—*
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- Banyu Pharmaceutical Co. Ltd.: *See—*
  - Miyano, Tetsuji; Suzuki, Kunio; and Fukatsu, Hiroshi, 3,835,146.
- Barber, Walter W. Mount for cylindrical roll. 3,834,639, Cl. 242-68.000.
- Baribeau, Ronald O.; and Baribeau, Russell A. Fuel injection nozzle for internal combustion engine. 3,834,678, Cl. 261-41.00d.
- Baribeau, Ronald O.; and Baribeau, Russell A. Fuel injection system for internal combustion engine. 3,834,679, Cl. 261-41.00d.
- Baribeau, Russell A.: *See—*
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  - Baribeau, Ronald O.; and Baribeau, Russell A., 3,834,679.
- Barlett, Jamie S. Precast railroad tie and tie plate. 3,834,620, Cl. 238-287.000.
- Barna, Gabriel G.; and Jasinski, Raymond J., to Texas Instrumetns, Incorporated. Fe-1173 electro-chemical sensor and activating method therefor. 3,835,009, Cl. 204-195.00g.
- Barnes, Clarence A., Jr.; and Chadsey, Carl T., Jr., to Reflectomorphics, Inc. Anamorphic greeting cards and other structural graphic pieces. 3,834,051, Cl. 40-124.100.
- Barnett, Allan E.: *See—*
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- Barnett, Cecil, to Raphael's Limited. Monwheel plastic lens edger. 3,834,089, Cl. 51-284.000.
- Barney, Walter W., of 51% to Hebert, Paul W. Card coding and readout system. 3,835,301, Cl. 235-61.11a.
- Barr, Arthur C. Nursing unit with improved plastic liner. 3,834,570, Cl. 215-11.00e.
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- Barron, Benny G.: *See—*
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- Barrus, Gordon Brent; Emenaker, Leo Joseph; and Melissa, Raymond Franklin, to Pertec Corporation. High speed speed line printing apparatus. 3,834,303, Cl. 101-93.00c.
- Bartell, Ralph A., to Warner-Lambert Company. Container closure for lyophilized products. 3,834,571, Cl. 215-256.000.
- Barthod-Malat, Jean. Descaling apparatus with rotary jets. 3,834,625, Cl. 239-227.000.
- Bartholomew, Donald D. High efficiency-low pollution emission engine. 3,834,364, Cl. 123-119.00e.
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- Battelle Memorial Institute: *See—*
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- Beal, Philip F., III; and Pike, JOhn E., to Upjohn Company, The. PGA_3. 3,835,181, Cl. 260-468.00d.
- Beam, Jon W. Tobacco smoking equipment. 3,834,399, Cl. 131-3.000.
- Bean, Kenneth E.; and Gleim, Paul S., to Texas Instruments Incorporated. Method for isolation of circuit regions in monolithic integrated circuit structure. 3,834,958, Cl. 156-8.000.
- Beaumont, Gregory, to Meyers Taylor Pty., Ltd. Window assembly. 3,834,078, Cl. 49-85.000.
- Beck, Charles A., to Diamond Shamrock Corporation. Hard surface cleaners. 3,835,070, Cl. 252-526.000.
- Becker, Otto Alfred. Insulating wall unit. 3,834,096, Cl. 52-172.000.
- Becker, William S., Jr. Furniture module and furniture items resulting from module combinations. 3,834,776, Cl. 312-108.000.
- Beckman Instruments, Inc.: *See—*
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- Behrens, Roy E.; and Donahue, Leo O., to Graphic Engineers, Inc. Interceptor for forming gaps in papers carried by a conveyor. 3,834,288, Cl. 93-93.00r.
- Behrens, Roy E.; and Donahue, Leo O., to Graphic Engineers, Inc. Photoelectric counter for paper conveyor. 3,834,289, Cl. 93-93.00c.
- Beichel, Rudi; and Reynolds, Clifton J., to Aerojet-General Corporation. Fluid-operable linear actuators. 3,834,283, Cl. 92-33.000.
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  - Thakore, Kaushik H., 3,835,350.
- Bengt, Fredrikson; and Kjell, Bergman, to Allmanna Svenska Elektriska Aktiebolaget. Means for automatic control of batching when casting from a heat-retaining of casting furnace or ladle (crucible). 3,834,587, Cl. 222-56.000.
- Bennington, Russell J.; and Szalay, Laszlo G., to Budd Company, The. Article transfer apparatus. 3,834,555, Cl. 214-1.0bt.
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- Bequet, Jean Francois; Dubois, Paul; and Van Asbroeck, Roger, to Solvay & Cie. Device for making sheets. 3,834,853, Cl. 425-336.000.
- Berg, Leo; Lenemann, Gerhard Johann; and Kinneging, Johannes Wilhelmus, to Knapsack Aktiengesellschaft. Filling nozzle with heating jacket. 3,834,622, Cl. 239-132.100.
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- Bernardot, Andre: *See—*
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- Bertheas, Jean, to Thomson-CSF. Multibeam steering system for a circular section acoustic transducer array. 3,835,448, Cl. 340-6.00r.
- Bertolacini, Ralph J.; Lehmann, Gerald M.; and Wollaston, Eugene G., to Standard Oil Company. Catalytic cracking with reduced emission of sulfur oxides. 3,835,031, Cl. 208-120.000.
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- Bhagat, Gopal C.; and Veillard, George E., to Xerox Corporation. Copying machine with means for mounting carrier bead pickoff roller therein. 3,834,804, Cl. 355-3.00r.
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- Bieszczad, Edward S.; Wedmore, William R.; and Young, John S., to GTE Automatic Electric Laboratories, Incorporated. Control of operator position display. 3,835,466, Cl. 340-334.000.
- Bilbro, James E.; and Johnson, Ben C. Jr., to Thermon Manufacturing Company. Pipe heat transfer assembly and method of making same. 3,834,458, Cl. 165-164.000.
- Bills, Thomas L.; and Boni, Robert E. Reflection-type counter. 3,835,306, Cl. 235-92.0sb.
- Binks Manufacturing Company: *See—*
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- Birch, Bonnie Alice. Brassiere construction. 3,834,397, Cl. 128-480.000.
- Birkett, Ralph H. Magnetic game. 3,834,707, Cl. 273-126.00a.
- Bishop, Thomas Desmond, to Deritend Engineering Company Limited, The. Stripping apparatus as used in the production of cardboard and like blanks. 3,834,291, Cl. 93-36.00a.
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- Bissonette, Vernon L. Photographic elements containing color-providing layer units for amplification processes. 3,834,907, Cl. 96-74.000.
- Bixby, Willard H., to American Device Manufacturing Company. Compartment door structure. 3,834,612, Cl. 232-25.000.
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- Blasing, Elmer Paul, Jr., to Formica Corporation. Processing of a multiplicity of webs to enhance the manufacture of multicomponent laminates. 3,834,964, Cl. 156-269.000.
- Blazewicz, Andrew J.; Piaskowski, Edward J.; and Wood, James F., to Babcock & Wilcox Company, The. Furnace seal. 3,834,328, Cl. 110-165.00r.
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- Bliss, William W. Jogging gam apparatus. 3,834,702, Cl. 273-86.00b.
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- Bloch, Herman S., to Universal Oil Products Company. Preparation of polycyclic compounds. 3,835,197, Cl. 260-666.0py.
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- Bock, Nils Erik, to Morgardshammar AB. Optical gauge. 3,834,820, Cl. 356-164.000.
- Bockstie, Lawrence G., Jr., to Corning Glass Works. Flameproof moisture-resistant coatings for electrical components. 3,834,938, Cl. 117-201.000.
- Bodet, Pierre. Timepiece with automatic calendar. 3,834,151, Cl. 58-4.00a.
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Boss, Holm Diethard; and Butschek, Hans Albert, to Messerschmitt-Bolkow..Blohm GmbH. Method and device for electrohydraulic control of a hydraulic actuator. 3,834,279, Cl. 91-459.000.
Bothwell, Peter William. Handlebars. 3,834,249, Cl. 74-551.800.
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Bottoms, Clifford C., to Dresser Industries, Inc. Jarring tool. 3,834,471, Cl. 175-304.000.
Bourdolle, Henri M.; Lacroix, Serge R.; Fleury, Jean E.; Peuillot, Gilbert; and Pinot, Jean, to Regie Nationale des Usines Renault and Automobiles Peugeot. Electrochemical grinding methods and apparatus. 3,835,016, Cl. 204-224.00m.
Bourgeois, Joseph F.; and Grace, James M., to Amana Refrigeration, Inc. Trash compactor with-down means for trash container and liner. 3,834,299, Cl. 100-229.00a.
Bouton, Michael John; and Sikes, Bob L. Liquid and solid sensing device. 3,834,235, Cl. 73-293.000.
Boutsicaris, Stephen P.; and Hayes, Robert A., to Firestone Tire & Rubber Company, The. Butadiene resins and process for preparation. 3,835,075, Cl. 260-17.4bb.
Bow, William J., to Foster Wheeler Corporation. Direct contact condenser having an air removal system. 3,834,133, Cl. 55-257.000.
Bowen, Willard L., to Torrington Company, The. Fractured bearing race. 3,834,772, Cl. 308-196.000.
Bowers, Bernard P.; and Breidegam, Delight E., Jr., to East Penn Manufacturing Company , Inc. Battery holddown. 3,834,479, Cl. 180-68.500.
Boyd, William A. Holder for intravenous injection cannula and tubing. 3,834,380, Cl. 128-133.000.
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Bracha, Peretz; and Waitman, Arie, to Makhteshim Chemical Works Ltd. Cinnamanilides. 3,835,128, Cl. 260-240.00j.
Bracht, Karl Friedrich; Strube, Herbert A.; and Sacht, Hans Otto, to Welger, Gebruder. Pick-up baler, sprayer and compactor combination. 3,834,141, Cl. 56-341.000.
Brackin, Wayne L., to Dresser Industries, Inc. Transfer elevator for integral and collar tubing. 3,834,751, Cl. 294-104.000.
Bradshaw, Franklin C., to Kroy Industries Inc., mesne. Printing apparatus. 3,834,507, Cl. 197-6.700.
Brady, Thomas J.; Lawrence, Richard L.; Gonnella, Carmen J.; and Metzler, Gottfried, III, to Mennen Company, The. Bottle-closure structrue. 3,834,596, Cl. 222-520.000.
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Brasfield, Steven H., Sr.: *See—*
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Bremaud, Claude R., to Societe Anonyme dite: Societe Europeenne de. Submarine reservoirs. 3,834,337, Cl. 114-16.00e.
Breslow, Jeffrey D.; and Jaworski, Eugene, to Glass, Marvin, & Associates. Doll carrying a marking means and accessory with movable marking surface. 3,834,070, Cl. 46-116.000.
Breslow, Jeffrey D., to Glass, Marvin, & Associates. Game device with illuminable playing positions. 3,834,711, Cl. 273-141.00a.
Brett, James E., to Purex Corporation, Ltd. High throughput filter having multiposition valve. 3,834,537, Cl. 210-136.000.
Brichard, Edgard, to Glaverbel S.A. Control of currents in glass drawing kiln. 3,834,975, Cl. 161-1.000.
Brickner, Kenneth G.; and Stanley, Edward B., to United States Steel Corporation. Ductile, weldable high-strength-steel wire and method for producing same. 3,834,948, Cl. 148-2.000.
Bridges, Robert E., to Eastman Kodak Company. Inspection apparatus for detecting defects in a web. 3,835,332, Cl. 250-563.000.
Brietbach, Elmar. Solid-borne sound transducers. 3,835,427, Cl. 335-231.000.
Briscoe, William G., to United States of America, Army. Sequential automatic gain control circuit. 3,835,400, Cl. 328-168.000.
Briskin, Theodore S.; Schnautz, Norman G.; and Sabherwal, Inderjit, to Sutton Research Corporation. Smokable substitute material. 3,834,398, Cl. 131-2.000.
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Broisman, Raymond, to American Cyanamid Company. Adhesion of fibrous material to rubber. 3,834,934, Cl. 117-76.00t.
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Brown, Paul L. Hand manipulated toy. 3,834,069, Cl. 46-51.000.
Brownscombe, Philip J., to Dietzgen Corporation. Projector viewer with indicating device. 3,834,800, Cl. 353-27.000.
Bru, Michel, to Ets J.J. Carnaud & Forges de Basse-Indre. Pneumatic elevator for lifting a sheet of material. 3,834,558, Cl. 214-1.0bt.
Brudy, Peter E., to Dominion Auto Accessories Limited. Reflecting device. 3,834,789, Cl. 350-97.000.
Brumlik, George C. Self-adhering fastening filament. 3,833,972, Cl. 24-24.000.
Brun, Andre; Jaffe, Albert; and De Panafieu, Philippe, to Subsea Equipment Associates Limited (Seal). Well-head assembly. 3,834,460, Cl. 166-.500.
Brun, Robert; and Pages, Michel, to Rhone-Poulenc S.A. Semi-permeable tubular assembly. 3,834,546, Cl. 210-321.000.
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Burke, Raymond William, to Beckman Instruments, Inc. Mechanical positioning device for precisely determining a series of mechanical locations. 3,834,243, Cl. 74-33.000.
Burkett, Jamie L. Portable overhead post and rail splitter. 3,834,436, Cl. 144-326.00r.
Burkin, Jury Alexandrovich; and Seleznev, Jury Emelyanovich. Device for making digit winding loops in memory storage matrices. 3,833,994, Cl. 29-203.0mm.
Burr, Robert Page; and Keogh, Raymond J., to Photocircuits Corporation. Method of making laminated wire wound/armatures. 3,834,014, Cl. 29-598.000.
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Butsch, Richard L., to General Electric Company. Plastic tub wall alignment for dishwashing rack mounting. 3,834,784, Cl. 312-350.000.
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Cahnman, Hugo N.; Sterne, Frank; and Canfield, Douglas M., to Cahnman, Hugo, Associates, Inc. Method of bulking and heat-setting yarn. 3,833,975, Cl. 28-72.100.
Caione, Vincenzo. Fuse holder. 3,835,432, Cl. 337-247.000.
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Carpino, Louis A.; and Han, Grace Y., to Research Corporation. 9-Fluorenylmethanol haloformates, carbonates and thiocarbonates. 3,835,175, Cl. 260-463.000.
Carr, George W., to Pullman Incorporated. Container front end construction. 3,834,575, Cl. 220-1.500.
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Clement, Carl J.: *See—*
Ball, Richard B.; Gurler, Tuygan; Clement, Carl J.; and Horine, David A., 3,834,041.
Cleveland Hardward & Forging Co.: *See—*
Slovensky, Mike J., Jr., 3,834,747.
Cleveland, Joseph J.; and Fritsch, Carl W., Jr., to GTE Sylvania Incorporated. Fine grain translucent alumina. 3,834,915, Cl. 106-73.400.
Cliffton, Ethan W.; and Culligan, Matthew J. Collapsible support unit for a garment bag or the like. 3,834,548, Cl. 211-118.000.
Coates, Richard H. Propping device for outdoor stoves. 3,834,745, Cl. 292-339.000.
Cochran, Stanley Robert; and Johnson, Melvin Harry, to Du Pont de Nemours, E. I., and Company. Process for texturing yarn by gear crimping. 3,833,976, Cl. 28-72.150.
Coe, Roger Frank; and Lumby, Roland John, to Lucas, Joseph, Industries, Limited. . 3,835,211, Cl. 264-66.000.
Coffin, Harry S., to Control Valve Corporation. Printed circuit card component removal apparatus. 3,834,605, Cl. 228-20.000.
Cole National Corporation: *See—*
Richens, Robert H.; and Garner, Charles A., 3,834,688.
Coleman Company, Inc., The: *See—*
James, Larry S., 3,834,856.
Coleman, Harold R.: *See—*
Burke, Noel I.; and Coleman, Harold R., 3,835,113.
Colin, Pierre, to Produits Chimiques Ugine Kuhlmann. Method for treating solutions containing cyanohydrins. 3,835,047, Cl. 210-63.000.
Collins, Dennis William, to Steeper, Hugh, (Roehampton) Limited. Pivoted artificial limb with spring loaded joint lack. 3,833,942, Cl. 3-12.300.
Collins, Harold B.: *See—*
Dunn, Ralph; Ayton, Ian F.; Cane, Albert; Collins, Harold B.; Lewis, J. Stephen; Morris, Joseph P.; and Shapero, Wallace H., 3,834,974.
Collins, Johnnie C., to Servis Equipment Company. Earth working implement lift assembly. 3,834,465, Cl. 172-197.000.
Colombo, Paolo; and Galliverti, Marco, to Societa Italiana Resine S.I.R. S.p.A. Process for the preparation of catalysts for the polymerisation and copolymerisation of ethylene. 3,835,065, Cl. 252-429.00c.
Colonial Metals, Inc.: *See—*
Davies, Ronald F.; and Benvegno, George J., 3,835,066.
Columbia Broadcasting System, Inc.: *See—*
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Columbia Pictures Industries, Inc.: *See—*
Rooks, Earnest F.; and Lewis, David E., 3,835,387.
Colyer, Steve: *See—*
Hunter, Roland L., 3,834,656.
Comas, Jorge Rectoret. Spring loaded pattern drum for ease of pattern jack insertion. 3,834,188, Cl. 66-50.00b.
Commissariat a l'Energie Atomique: *See—*
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Commonwealth Scientific and Industrial Research Organization: *See—*
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Compagnie Francaise de Raffinage: *See—*
Van Den Berghe, Paul; and Tannenberger, Helmut, 3,834,943.
Comstock & Wescott, Inc.: *See—*
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Congleton, Wayne, to Dolco Packaging Corporation. Container assembly having compartments and means for stacking container blank. 3,834,609, Cl. 229-28.00r.
Congoleum Industries, Inc.: *See—*
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Consarc Corporation: *See—*
Luchok, John; and Wooding, Patrick J., 3,834,447.
Consolidated Novelty Co., Inc.: *See—*
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Continental Disc Corporation: *See—*
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Continental Gummi-Werke Aktiengesellschaft: *See—*
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Continental Oil Company: *See—*

McGuire, Stephen E.; Stauter, John C.; and Kennedy, Carl D., 3,834,533.
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Lowery, William E.; and Jennings, Roger G., 3,834,967.
Control Data Canada, Ltd.: *See—*
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Control Techniques Corporation: *See—*
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Control Valve Corporation: *See—*
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Conway, Bernard W.; and Moran, James, to Dexter, C. H., & Sons, Inc. Process of forming wet laid tufted nonwoven fibrous web from a viscous fibrous dispersion and product. 3,834,983, Cl. 162-168.000.
Conwed Corporation: *See—*
Astedt, George; and Benasutti, Roger, 3,834,106.
Cook, Cleo E.: *See—*
Jones, Dana C.; Cook, Cleo E.; and Murray, Alfred K., 3,834,175.
Cook, Neal A.; and Friedenfeld, Gerard. Vehicle space closing means. 3,834,752, Cl. 296-1.00s.
Cook, Reginald Kenneth; and Burylo, Piotr Stanislaw. Fluid-cooled nuclear reactor. 3,834,987, Cl. 176-59.000.
Cook, Sanford L.: *See—*
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Cooke, H. Sherwood: *See—*
Grossel, Stanley S.; Cunninghame, Andrew L.; and Cooke, H. Sherwood, 3,835,314.
Cooksley, Ralph D. Heat transfer method and apparatus. 3,834,448, Cl. 165-1.000.
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Coontz, David: *See—*
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Corbin, Dennisis: *See—*
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Corporation: *See—*
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Costes, Didier, to Commissariat a l'Energie Atomique and Electricite de France (Service National). Removable head pressure vessel, especially for boiling-water reactors. 3,834,452, Cl. 165-47.000.
Coumans, Harry Maria: *See—*
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Coupal, Bernard: *See—*
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Court, Frederick Charles, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Defence in Her Britannic Majesty's Government of the. Binary data communication apparatus. 3,835,386, Cl. 325-50.000.
Court, Otto: *See—*
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Coutin, Bernard: *See—*
Sekiguchi, Hikaru; Rapacoulia, Panayota; and Coutin, Bernard, 3,835,100.
Cowan, Larry Clyde, to Leesona Corporation. Fluid circuit indicator. 3,834,346, Cl. 116-70.000.
Cox, Calvin Howard, to Bell-Fruit Manufacturing Company Limited. Gaming machine with comparison of randomly determined and player preselected symbols. 3,834,712, Cl. 273-143.00r.
Cox, Raymond E.: *See—*
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Cozens, John Ritchie: *See—*
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Craft Camera Corporation: *See—*
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Cranney, William D.: *See—*
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CRC-Crose International, Inc.: *See—*
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Creusot-Loire: *See—*
Ancelle, Bernard; and Lejeune, Pierre, 3,834,869.
Crigger, Clarence J.; and Arbogast, Ralph S. Snow and ice anti-skid devices for shoes. 3,834,045, Cl. 36-7.600.
Crimmins, Arthur G., to All American Industries, Inc. Air cushion pallet. 3,834,556, Cl. 214-1.0be.
Critchlow, Ezra F.: *See—*
Strasburg, Richard N.; and Critchlow, Ezra F., 3,834,181.
Critchlow, Philip R.; and Zeitlin, Bruce A. Multi-filament composite superconductor with transposition of filaments. 3,835,242, Cl. 174-126.0cp.
Crofford, Tommy R., to Telex Computer Products, Inc. Data pulse width measurement circuit. 3,835,383, Cl. 324-186.000.
Croquelois, Jean-Pierre; Erskine, William; and Gerber, Raymond, to Battelle Memorial Institute. Process and device for non-impact printing with liquid ink. 3,834,301, Cl. 101-1.000.
Crosby, Edward L. Jr., to United States of America, Air Force. Tethered balloon refueling system. 3,834,655, Cl. 244-135.00r.
Cross Company, The: *See—*
Swis, Philip E.; Labeau, Russell; and Brown, Glenn M., 3,834,221.
Crosser, Ralph W., Jr.: *See—*
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Crow, Gerald W. Method and apparatus for separating wood bark from gravel. 3,834,561, Cl. 241-24.000.
Cubic Corporation: *See—*
Ciambrone, David, 3,835,039.
Culbertson, Samuel W.: *See—*
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Culligan, Matthew J.: *See—*
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Cultrera, Salvatore J. Emergency V-belt for vehicles. 3,834,245, Cl. 74-231.00j.
Cummins, Stewart E.: *See—*
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Cunninghame, Andrew L.: *See—*
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Cupper, Robert A.; and Somekh, George S., to Union Carbide Corporation. Thermally stable lubricants for external combustion engines. 3,834,166, Cl. 60-651.000.
Curry, John L. Method for making curved tubes. 3,833,985, Cl. 29-157.00a.
Cutler, John Frederick; Edwards, Robert Andrew; and Sarle, Charles Richard, to Wallace-Murray Corporation. Engine turbochargins system with vented compressor bearing. 3,834,156, Cl. 60-59.00t.
Cutler-Hammer Inc.: *See—*
Edden, Francis E.; and Engeman, Joseph P., 3,835,378.
Cutter Laboratories, Inc.: *See—*
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Daichi Kogyo Seiyaku Kabushiki Kaisha: *See—*
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Daikin Kogyo Kabushiki Kaisha: *See—*
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Dainichi-Nippon Cables, Ltd.: *See—*
Fujita, Hideo; Ishitobi, Masami; Suga, Hiroyoshi; Itohara, Fukuo; Matsushita, Michiharu; and Yamamoto, Hiroshi, 3,835,006.
Daiwa Boseki Kabushiki Kaisha: *See—*
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Dale, William L.: *See—*
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D'Alerta, Rolando Mario. Carburetion attachment for auxiliary air. 3,834,367, Cl. 123-124.00r.
Daley, Daniel R., to Penetryn Products, Inc. Packer for sealing pipe leaks. 3,834,421, Cl. 138-97.000.
Dalton, Ronald James: *See—*
Fairweather, John Anthony; and Dalton, Ronald James, 3,835,037.
Daly, Paul C. Device for monitoring earthmoving. 3,834,037, Cl. 33-292.000.
Damon Corporation: *See—*
Ferrari, Andres; Blumle, Leo J.; and Bonar, Laurence C., 3,834,821.
Daneck, David A.: *See—*
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Danfoss A/S: *See—*
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Danieli, Luigi. Equipment for conveying smokes and products of the combustion in a smelting furnace. 3,834,293, Cl. 98-36.000.
Daniels, Dennis, to US Amada, Ltd. Method of manufacturing multiple parts from a workpiece. 3,834,211, Cl. 72-324.000.
Danree, Bernard: *See—*
Malen, Charles; Danree, Bernard; and Pascaud, Xavier, 3,835,141.
D'Antonio, Nicholas F., to General Electric Company. Digitally controlled phase shift network. 3,835,397, Cl. 328-155.000.
Darlinger, Edward P.; Downs, William; and Stewart, Jack F. Absorption optimization apparatus. 3,834,129, Cl. 55-242.000.
Dart Industries, Inc.: *See—*
Butler, Albert O., 3,834,715.
Dattilo, Anthony J.; and Zegafuse, Donald W. Jr., to International Business Machines Corporation. Scanning light synchronization system. 3,835,249, Cl. 178-7.600.
Daughenbaugh, Raymond S.; Simon, Lewis B.; and Braun, Frank R., to United States of America, Navy. Floatable, telescoping, transportable shelter. 3,833,954, Cl. 9-1.00r.
Daugherty, Donald E.: *See—*
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- Davenport, Lonnie R. Apparatus and method for mending knit fabric. 3,834,185, Cl. 66-1.00r.
- Davidson, Alan John: *See—*
  - George, Edwin Francis; and Davidson, Alan John, 3,834,888.
- Davies, James Francis: *See—*
  - Cheng, Wai Ming; Davies, James Francis; and Pethica, Brian Anthony, 3,835,057.
- Davies, Ronald F.; and Benvegno, George J., to Colonial Metals, Inc. Catalytic mixture. 3,835,066, Cl. 252-429.00r.
- Davis, Francis E., Jr.; Derr, Walter R.; and Ginter, Earle F., to Mobil Oil Corporation. Regeneration of halogen promoted bimetallic reforming catalyst. 3,835,063, Cl. 252-415.000.
- Davis, Hugh J.: *See—*
  - Lerner, Irwin S.; Davis, Hugh J.; and Earl, Thad J., 3,834,378.
- Davis, James E. P.: *See—*
  - Weigl, James; and Davis, James E. P., 3,834,383.
- Dawdowicz, Jan; and Ferraro, Frank A., to Warner-Lambert Company. Dispensing system for razor blade cartridges. 3,834,018, Cl. 30-40.200.
- Dawley, Richard H.: *See—*
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- Dawson & Usher Limited: *See—*
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- De Boer, Herman O.: *See—*
  - Wolff, David F.; De Boer, Herman O.; Tiger, Emil; and McCarthy, James G., 3,834,814.
- De Brecht, Robert Eugene; and Napoli, Louis Sebastian, to RCA Corporation. Microwave transmission line and devices using multiple coplanar conductors. 3,835,421, Cl. 333-26.000.
- De Cicco, Michael A., to Sundstrand Heat Transfer, Inc. Method of making heat exchanger. 3,833,986, Cl. 29-157.30a.
- De Faccio, Paul L.; and West, Harold H., to Harbor Island Machine Works, Inc. Food tray covering machine. 3,834,120, Cl. 53-298.000.
- De Jonge, Cornelis R. H. I.; Mijs, William J.; and Hageman, Hendrik J., to Akzo N.V. Stabilization of organic substances that are liable to peroxidic decomposition. 3,835,095, Cl. 260-45.85s.
- De Laval Separator Company, The: *See—*
  - Heitman, Richard G., 3,834,407.
- De Long, W. Bradford: *See—*
  - White, Robert W.; and De Long, W. Bradford, 3,834,021.
- De Muylder, Jean-Marie, to Societe D'Etudes et de Realisations. 3-Substituted-4-hydroxy-coumarins. 3,835,161, Cl. 260-343.20r.
- De Panafieu, Philippe: *See—*
  - Brun, Andre; Jaffe, Albert; and De Panafieu, Philippe, 3,834,460.
- De Penti, Kenneth L., to Midland-Ross Corporation. Rotary operated coupler locklift mechanism. 3,834,553, Cl. 212-166.000.
- De Ris, John N.: *See—*
  - Orloff, Lawrence; De Ris, John N.; and Coons, John D., 3,834,462.
- De Villers, Julien, to Societe C.M.V. Automatic handling machines. 3,834,557, Cl. 214-1.0bh.
- De Wied, David: *See—*
  - Greven, Hendrik Marie; and De Wied, David, 3,835,110.
- De Wilde, Ralph J. Table. 3,834,325, Cl. 108-109.000.
- DeAndrea, Joseph D. Device for demonstrating and calculating mathematical functions. 3,835,298, Cl. 235-61.0gm.
- Deco Products Company; consisting of Charles, Andrew H., Henderson, Thomas J., Atkinson, Guy F., Company and Henderson, James A., Corporation: *See—*
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- Deere & Company: *See—*
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  - Treichel, Richard, 3,834,284.
- Degremont, Societe Generale d'Epuration et d'Assaninissement: *See—*
  - Bernard, Jacques J. P., 3,834,540.
- Dehne, Axel G. Double-acting expander engine and cryostat. 3,834,172, Cl. 62-6.000.
- Del Mar Engineering Laboratories: *See—*
  - Sanctuary, Clifford; Woods, Donald C.; and Bachman, John A., 3,834,375.
- Del Pico, Joseph; and Shea, Edward M., to Abcor, Inc. Supported tubular membrane. 3,834,545, Cl. 210-321.000.
- Delbag-Luftfilter Gesellschaft mit beschrankter Haftung: *See—*
  - Neumann, Gerhard Max, 3,834,131.
- Delfino, Willie. Hay rake tooth and mounting base. 3,834,140, Cl. 56-400.000.
- Demos, Gary A.; and Ruhoff, David. Device for changing frequency of constant amplitude square waves. 3,835,396, Cl. 328-41.000.
- Dennison, Edward, to Yardney International Corporation. Multi-cell metal-fluid battery. 3,834,944, Cl. 136-86.00a.
- Dennnard, Robert H.; and Spampinato, Dominic P., to International Business Machines Corporation. Process for the formation of self-aligned silicon and aluminum gates. 3,834,959, Cl. 156-11.000.
- Denzel, Theodor; and Hoehn, Hans, to Squibb, E. R. & Sons, Inc. Amino derivatives of (4,3-c)pyrazolopyridine carboxylic acids and esters. 3,835,144, Cl. 260-295.50b.
- Deritend Engineering Company Limited, The: *See—*
  - Bishop, Thomas Desmond, 3,834,291.
- Derr, Walter R.: *See—*
  - Davis, Francis E., Jr.; Derr, Walter R.; and Ginter, Earle F., 3,835,063.
- Desmarais, Armand J., to Hercules Incorporated. Joint cement compositions. 3,835,074, Cl. 260-17.000.
- Detrex Chemical Industries, Inc.: *See—*
  - Thalacker, Richard E., 3,834,408.
- Deutsche Texaco Aktiengesellschaft: *See—*
  - Kunert, Max; and Sandhack, Lothar, 3,835,025.
- Devaney, Mark J., Jr., to Eastman Kodak Company. Normally locked spindle mechanism unlockable by a complimentary core. 3,834,640, Cl. 242-68.300.
- Dexter, C. H., & Sons, Inc.: *See—*
  - Conway, Bernard W.; and Moran, James, 3,834,983.
- Dexter, Carl J. Automobile sunshine shade. 3,834,755, Cl. 296-97.00g.
- Di Renzo, Simon, to Philco-Ford Corporation. Method of forming electrical connections. 3,834,015, Cl. 29-628.000.
- Diaclear, Inc.: *See—*
  - Portyrata, Raymond E., 3,834,535.
- Diamond Shamrock Corporation: *See—*
  - Beck, Charles A., 3,835,070.
- Dickinson, William B.; and Vaupotic, Marcia P., to Sterling Drug Inc. 2- and 3-Pyridylisothiocyanates. 3,835,145, Cl. 260-294.80e.
- Dictaphone Corporation: *See—*
  - Matz, Bjorn J., 3,835,261.
- Diehl, Christiane, heirs: *See—*
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- Dietze, Wolfgang; Emeis, Reimer; Keller, Wolfgang; Muehlbauer, Alfred; and Reuschel, Konrad, to Siemens Aktiengesellschaft. Device for holding semiconductor discs during high temperature treatment. 3,834,349, Cl. 118-500.000.
- Dietzel, Klaus, to Zako Rohrverbindungen GmbH & Co. KG. Proces and arrangement for double flanging or pipes. 3,833,984, Cl. 29-157.00r.
- Dietzgen Corporation: *See—*
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- DiMinno, Philip J., Jr., to United Aircraft Corporation. Water separator. 3,834,126, Cl. 55-210.000.
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  - Hohenschutz, Heinz; Franz, Dieter; Fuelow, Horst; and Dinkhauser, Guenter, 3,835,185.
- Display-Design GmbH fur moderne Verkaufsforderungsmittel und Raumausstattung: *See—*
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- Dixon, Jack: *See—*
  - Trask, Walter H.; and Dixon, Jack, 3,834,182.
- Dixon, William D., to Monsanto Company. Stunting plants employing 4-oxo-alpha-phenyl-2, 5-cyclohexadiene-1, alpha-acetonitrile, 0-(alkyl-carbamoyl)oximes. 3,834,887, Cl. 71-76.000.
- Dlouhy, Gerald Ernest. Baseball game. 3,834,703, Cl. 273-89.000.
- Dmitriev, Leonid Sergeevich: *See—*
  - Nessler, Andrei Maximilianovich; Raag, Frants Ivanovich; Savelieva, Maria Pavolovna; Vikhrova, Agrippina Gavrilovna; and Dmitriev, Leonid Sergeevich, 3,834,146.
- Doane, William M.: *See—*
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- Dock & Dock, the firm of: *See—*
  - Hunter, Roland L., 3,834,656.
- Docksteader, Wesley E. Impact ore mill. 3,834,632, Cl. 241-187.000.
- Dodd, John Alton, Jr.; and Okamoto, Raymond Fujio, to RCA Corporation. Method of making elliptically or rectangularly graded photoprinting masters. 3,834,905, Cl. 96-27.00e.
- Dodgson, Gilbert Edward. Adjustable kingpin assembly for trailers. 3,834,736, Cl. 280-407.000.
- Dolbear, Geoffrey E.; and Magee, John S., to Grace, W. R., & Co. Catalytic cracking with silver-rare earth of copper-rare earth exchanged Y-type zeolite. 3,835,032, Cl. 208-120.000.
- Dolco Packaging Corporation: *See—*
  - Congleton, Wayne, 3,834,609.
- Doll, Brendan L., to Cellu Products Company. Apparatus for forming a stretchable tubular packaging material. 3,834,969, Cl. 156-466.000.
- Dollmeier, Georg: *See—*
  - Muller, Karl-Heinz; Rindfleisch, Volker; Von Rauch, Moriz; Willasch, Dieter; and Dollmeier, Georg, 3,835,246.
- Domann, Helmut: *See—*
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- Dominion Auto Accessories Limited: *See—*
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- Donahue, Leo O.: *See—*
  - Behrens, Roy E.; and Donahue, Leo O., 3,834,288.
  - Behrens, Roy E.; and Donahue, Leo O., 3,834,289.
- Donaldson, George Alan. Impact attenuating, replaceable powerplant support. 3,834,476, Cl. 180-64.001.
- Donnelly, Brendan J.: *See—*
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- Donnelly, James F., to Jamesbury Corporation. Metal seat butterfly valve. 3,834,663, Cl. 251-173.000.
- Donner, Siegmar, to Fa Kleindienst Fa. & Co. Web-reading system with replacable drum. 3,835,300, Cl. 235-61.11e.
- Doonan, David F.: *See—*
  - Hirdler, Louis C.; Schiessl, Henry W.; and Doonan, David F., 3,835,136.
- Dorff, Donald; and Santi, Joseph A., to Hydraulic Products Incorporated. Hydraulic power translating device. 3,834,842, Cl. 418-75.000.
- Dornier System GmbH: *See—*

  - Hepp, Wolfgang; Pimiskern, Klaus; and Herbert, Werner, 3,833,981.
- Dorschner, Kenneth P.; and Albright, James A., to SCM Corporation. Phenyl nitrone derivatives useful as seed protectants. 3,834,073, Cl. 47-57.600.
- dos Santos, Antonio Monterio Alves. Rational alphabetic system. 3,835,468, Cl. 340-365.00r.
- Doschek, Antony Z.; and Doschek, Mary Louise. Acoustic speaker system. 3,834,485, Cl. 181-31.00b.
- Doschek, Mary Louise: *See—*
  - Doschek, Antony Z.; and Doschek, Mary Louise, 3,834,485.
- Dostourian, Harry, to American Optical Corporation. Hearing protector headset. 3,833,939, Cl. 2-209.000.
- Dougall, James R.; and Moll, Alvon Donald, to Minneapolis Electric Steel Castings Company. Bowl and mantle assembly for cone crushers. 3,834,633, Cl. 241-295.000.
- Douglas, Joseph E.: *See—*
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- Dow Chemical Company, The: *See—*
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  - Hart, Porter, 3,834,529.
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  - Symm, Richard H.; and Barron, Benny G., 3,834,935.
  - Wagner, Eugene R., 3,835,137.
  - Wagner, Eugene R., 3,835,138.
- Dowd, Daniel J., to Westvaco Corporation. Chamfering apparatus. 3,834,274, Cl. 90-11.00r.
- Dowell, William B., Jr., to Aerotron, Inc. Frequency adjustable encoder and decoder. 3,835,388, Cl. 325-64.000.
- Downs, William: *See—*
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- Drake, Frederick E. Expansion joint. 3,834,741, Cl. 285-226.000.
- Dravo Corporation: *See—*
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  - Middough, William V.; and Jaquay, Louis H., 3,835,296.
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  - Brackin, Wayne L., 3,834,751.
  - Fiegl, David Elmer, 3,834,774.
- Dreves, Alfred E., to General Electric Company. Membrane mounting assembly and method. 3,834,543, Cl. 210-232.000.
- Drummond Scientific Company: *See—*
  - Kenney, James W., 3,834,240.
  - Robinson, John E.; and Kenney, James W., 3,834,590.
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- du Mesnil du Buisson, Godefroy L. M. Lowering apparatus. 3,834,671, Cl. 254-158.000.
- Du Pont de Nemours, E. I., and Company: *See—*
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  - Brown, Morton; Hoeschele, Guenther Kurt; and Witsiepe, William Kenneth, 3,835,098.
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- Dubois, Normand A.; and Skeen, Gary R., said Skeen assor to Dubois, Normand A. Chain anchoring means for a bicycle lock or the like. 3,834,825, Cl. 403-378.000.
- Dubois, Paul: *See—*
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- Ducate, John S. Pivotal clamping mechanism for die sets. 3,834,217, Cl. 72-446.000.
- Dudley, Michael Alan; and Claessens, Pierre Leon, to Canada Wire and Cable Limited. Electrocoating process and apparatus. 3,835,005, Cl. 204-181.000.
- Dufresne, Webster J., to International Telephone and Telegraph Corporation. Joy stick control mechanism with movable printed circuit switch assembly controlling motor input power polarity. 3,835,270, Cl. 200-6.00a.
- Dugan, John. Hinged gutter cover. 3,834,091, Cl. 52-12.000.
- Dugan, John J.; and Yao, Keith C., to Esso Research and Engineering Company. Sulfur removal from molten media. 3,835,033, Cl. 208-125.000.
- Dulle, Bernard Allen, to Procter & Gamble Company, The. Textile tampon having a resilient foam core. 3,834,389, Cl. 128-285.000.
- Dunlop Limited: *See—*
  - Ottewell, Roger James; and Moring, Peter Lothar Ernst, 3,834,150.
- Dunn, Elman R., to Litton Industries, Inc. Workpiece retainer assembly for disc grinders. 3,834,087, Cl. 51-237.00t.
- Dunn, R. S.; and Rife, William J., to Neet Products Incorporated. Roof lock member. 3,834,104, Cl. 52-376.000.
- Dunn, Ralph; Ayton, Ian F.; Cane, Albert; Collins, Harold B.; Lewis, J. Stephen; Morris, Joseph P.; and Shapero, Wallace H., to Mattel, Inc. Sewing machine toy. 3,834,974, Cl. 156-578.000.
- Dunsmoor, Lyle H., to PPG Industries, Inc. Process for the recovery of dissolved mercury salts from aqueous solutions. 3,835,217, Cl. 423-499.000.
- Durin, Michel, to Societe Anonyme Automobiles Citroen. Device for measuring liquid level and air pump for use therein. 3,834,236, Cl. 73-302.000.
- Duro-Dyne Corporation: *See—*
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- Dussourd, Jules L.; and Haugen, Ronald L., to Ingersoll-Rand Company. Gas drying apparatus and method. 3,834,136, Cl. 55-33.000.
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- Dyntar, Milos, to Landis & G Y R AG. Pid controller for heating, ventilating and air conditioning systems. 3,834,617, Cl. 236-1.00c.
- Dyson, Ian Fraser, to Du Pont de Nemours, E. I., and Company. Process for preparing aromatic acid chlorides. 3,835,187, Cl. 260-544.00m.
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  - Wright, Charles J., 3,834,902.
- Ebner, Cuno; and Schuler, Max, to Fidelity Union Trust Company, Executive Trustee under Sandoz Trust of 5-4-55,mesne. Herbicidal composition and method employing pyridazone derivatives. 3,834,889, Cl. 71-92.000.
- Economy, James; and Wohrer, Luis C., to Carborundum Company, The. Phenolic resin ion exchange fibers. 3,835,072, Cl. 260-2.0lc.
- Edden, Francis E.; and Engeman, Joseph P., to Cutler-Hammer Inc. System for automatic gain measurement. 3,835,378, Cl. 324-57.00r.
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- Eiley, David, to Lucas, Joseph, (Electrical) Limited. Overload protection circuits. 3,835,367, Cl. 322-28.000.
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- Ekstrom, Ake; Jackson, Per Olof; and Jansson, Lenhart, to Allmanna Svenska Elektriska Aktiebolaget. Control equipment for an electronic power convertor. 3,835,365, Cl. 321-11.000.
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- Elkins, Edward John, to Valley Tow-Rite; a division of Scott & Fetzer Co. Device for towing one vehicle with another. 3,834,737, Cl. 280-502.000.
- Ellingham, Bruce; and Chisholm, Andrew Alexander, to Platt International Limited. Open-end spinning of textile yarns. 3,834,145, Cl. 57-56.000.
- Elliott, John Scotchford; Jayne, Gerald John Joseph; and Folliard, Patrick James, to Cooper, Edwin & Company Limited. Trithiopyrophosphates. 3,835,202, Cl. 260-933.000.
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- Erickson, Allen M.; Kaplow, Robert L.; and King, W. Lawton, to United States of America, Navy. Direct vision laser range gate system. 3,834,795, Cl. 350-161.000.
- Erlebach, Richard, to Gertsch AG. Ski boot and use thereof as part of a releasable ski binding. 3,834,723, Cl. 280-11.35d.
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- Falciai, Fabrizio; Falciai, Riccardo; Falciai, Giuseppe; and Falciai, Renzo. Symmetrical rotary pump for a variable speed hydrostatic transmission. 3,834,841, Cl. 418-26.000.
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- Feltz, Michel Joseph. Ferrrous alloys. 3,834,950, Cl. 148-31.000.
- Fendel, Kurt; Bauer, Johann; and Kohl, F. Johannes, to Wacker-Chemie GmbH. Method for the polymerization of vinyl chloride/vinyl ester copolymers and the high bulk density copolymers of the process. 3,835,105, Cl. 260-87.100.
- Fendley, Richard L.; Hoenig, Gerhard E.; Poehlmann, George; and Prendergast, John M., Jr., to Western Electric Company, Incorporated, mesne. Apparatus for solid-phase bonding mating members through an interposed pre-shaped compliant medium. 3,834,604, Cl. 28-5.000.
- Ferat, Alain; Masotti, Robert; and Chavenel, Hubert, to Rhone-Progil. Process for bonding copper or iron to titanium or tantalum. 3,835,007, Cl. 204-192.000.
- Feren, Conrad J.; and Squires, Robert W., to Lilly, Eli, and Company. Electrochemical device electrolyte for chemical analysis. 3,835,062, Cl. 252-408.000.
- Ferguson, Bernard J. Track system wall assembly for houses or the like. 3,834,094, Cl. 52-122.000.
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- Field, John Rosslyn, to Plessey Handel und Investments A.G. Electric switches. 3,835,276, Cl. 200-160.000.
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- Finike Italiana Marposs-Soc, In accomandita Semplice di Mario Possati & C.: *See—*
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- Finke, Harry P.; Carr, Hugh B.; and Wilson, Carl D., to Bloom Engineering Company, Inc. Three lever valve with relief port. 3,834,420, Cl. 137-630.120.
- Finnemore, Harlan E., to Air Preheater Company, The. Horizontal support for rotary regenerative heat exchanger. 3,834,449, Cl. 165-7.000.
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- Firstenberg, Harold S. Track laying attachment to wheels having protruding hubs. 3,834,771, Cl. 305-25.000.
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- Fischer, Edgar; and Muck, Karl Friedrich. Light degradable thermoplastic molding composition based on polyacetals. 3,835,097, Cl. 260-67.0fp.
- Fischer, William K., to Uniroyal, Inc. Thermoplastic blend of copolymer rubber and polyolefin plastic. 3,835,201, Cl. 260-897.00a.
- Fisher, Dale J.; and Mueller, Theodore R., to United States of America, Atomic Energy Commission. Automatic controlled-current coulometric environmental monitor. 3,835,008, Cl. 204-195.00t.
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- Fishman, Gerald J., to Brown Engineering Company, Inc. Radiation detectors using multiple scintillation crystal peices. 3,835,325, Cl. 250-366.000.
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  - Tafapolsky, Bernard; and Flaherty, Francis Edward, 3,834,265.
- Fleischer, Helmut; Schnaibel, Eberhard; and Domann, Helmut, to Bosch, Robert, G.m.b.H. Safety arrangement for protecting against the locking of wheels in motor vehicles. 3,834,770, Cl. 303-21.00p.
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  - Rossell, Gary L.; Fleischer, Paul C., Jr.; and Seifer, Maurice I., 3,834,979.
- Fletcher, Eldon Lawrence, to Du Pont de Nemours, E. I., and Company, mesne. Open cell foam device for gas distribution in filament quenching chimneys. 3,834,847, Cl. 425-72.000.
- Fleury, Jean E.: *See—*
  - Bourdolle, Henri M.; Lacroix, Serge R.; Fleury, Jean E.; Peuillot, Gilbert; and Pinot, Jean, 3,835,016.
- FMC Corporation: *See—*
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- Folliard, Patrick James: *See—*
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- Foltz, James W., to Motorola, Inc. Binary universal flip-flop employing complementary insulated gate field effect transistors. 3,835,337, Cl. 307-279.000.
- Fonas, Kenneth R. Method and apparatus for tuning a pair of skis. 3,834,250, Cl. 76-101.00r.
- Ford Motor Company: *See—*
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  - Gandhi, Haren S.; Kummer, Joseph T.; and Shelef, Mordecai, 3,835,069.
  - Kansier, Denis A., 3,834,730.
  - Labana, Santokh S.; Golovoy, Amos; and Chang, Yun Feng, 3,834,926.
- Ford, Robert B. Step arrangement. 3,834,490, Cl. 182-88.000.
- Fordyce, Homer E.; and Fritz, Gerald D., to Marley Company, The. Fireproof, prefab fill support structure for cooling tower. 3,834,681, Cl. 261-111.000.
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- Forrest Paschal Machinery Company: *See—*
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- Fortman, Lloyd D.; and Kasper, Joseph G., to Tennnant Company. Surface maintenance machine. 3,833,961, Cl. 15-50.00c.
- Foster, Linda R.: *See—*
  - Foster, Stephen F.; and Foster, Linda R., 3,834,396.
- Foster, Stephen F.; and Foster, Linda R. Temperature differnetial applicator holder. 3,834,396, Cl. 128-403.000.
- Foster Wheeler Corporation: *See—*
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- Fouquet-Werk Frauz & Planck: *See—*
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- Fournier, Pierre: *See—*
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- Fowler, Donald M. Shoe sole structure. 3,834,046, Cl. 36-28.000.
- Fowler, Raymond L.; Hill, James D.; McCornack, Richard W.; Perkins, N. Kenneth; Sendelweck, Michael L.; West, Donald L.; Williams, Thomas H.; and Yosmali, Krikor, to International Business Machines Corporation. Ink jet printing apparatus with line sweep an incremental printing facilities. 3,834,505, Cl. 197-1.00r.
- Fox, Daniel W.; and Wambach, Allen D., to General Electric Company. Polylactone-modified linear polyesters and molding compositions containing the same. 3,835,089, Cl. 260-40.00r.
- Fox, Richard; Neill, Keith; and Tankey, Howard, to ICI Australia Limited. Coated ammonium nitrate. 3,834,955, Cl. 149-7.000.
- Frank, Robert G., to PPG Industries, Inc. Method of conveying glass sheets through a furnace. 3,834,885, Cl. 65-106.000.
- Franz, Dieter: *See—*
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- Franzen, Gustav, to Palitex-Project Company GmbH. Apparatus for repositioning the spindle rotor and for actuating pneumatic threading mechanisms of a textile yarn processing machine. 3,834,144, Cl. 57-34.00r.
- Frayer, James A.; and Stauffer, Harry C., to Gulf Research & Development Company. Arctic diesel fuel. 3,835,022, Cl. 208-15.000.
- Frazier, Harry W.; Smith, Lowell R.; and Wagenknecht, John H., to Monsanto Company. Electrolytic process for producing N-phosphonomethyl glycine. 3,835,000, Cl. 204-78.000.
- Fredricks, Don: *See—*
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- Fregeolle, Oscar, to Pilot Research Corporation. Fabric slitting method and apparatus for circular knitting machine. 3,834,191, Cl. 66-147.000.
- Freitas, Antone, Jr. Mounting and support device for a rotary machine. 3,834,657, Cl. 248-23.000.
- Fremont, Maurice Henri Louis: *See—*
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- French, Horace Edgar, III; and Smith, Harold F., to UMC Industries, Inc. Heat exchange unit. 3,834,180, Cl. 62-417.000.
- French, Kenneth W.; Haugsjaa, Paul O.; and Heller, Adam, to GTE Laboratories Incorporated. Electroluminescent solutions. 3,835,345, Cl. 313-358.000.
- Frendberg, Arthur M.; and Gorzegno, Walter P. Babcodk & Wilcox Company, The. 3,834,358, Cl. Vapor generator.
- Freund Ind. Co., Ltd.: *See—*
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- Fried, John H.: *See—*
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- Frost, David S., to Transcanada Pipelines Limited. Method and apparatus for providing speed compensation for information containing signals in which the threshold level of the detector is varied proporational to speed. 3,835,374, Cl. 324-37.000.
- Frost, Lawrence W.; and Scala, Luciano C., to Westinghouse Electric Corporation. Method for forming reverse osmosis membranes composed of polyamic acid salts. 3,835,207, Cl. 264-41.000.
- Fuchs, John R., to General Motors Corporation. Power tool with torque control. 3,834,467, Cl. 173-12.000.
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- Fujisawa, Tamotsu; Kojima, Takakazu; and Hata, Kazumi, to Sagami Chemical Research Center. Process for preparing thiobisphenols. 3,835,196, Cl. 260-608.000.
- Fujita, Hideo; Ishitobi, Masami; Suga, Hiroyoshi; Itohara, Fukuo; Matsushita, Michiharu; and Yamamoto, Hiroshi, to Dainichi-Nippon Cables, Ltd. and Tomoegawa Paper Manufacturing Co., Ltd. Method of removing ionic substances from a pulp. 3,835,006, Cl. 204-80.00r.
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- Fukuta, Kenji; Nagatsuka, Yoshihiro; Tsuburaya, Shigeo; Miyashita, Rihei; Sekiguti, Juniti; Aoki, Eiji; and Sasahara, Motoe, to Agency of Industrial Science & Technology. Three-dimensional fabric, and method and loom construction for the production thereof 3,834,424, Cl. 139-22.000.
- Fukuta, Norihiko; and Paik, Young H., to United States of America, Interior, mesne. Method of generating ice nuclei smoke particles for weather modification and apparatus therefor. 3,835,059, Cl. 252-305.000.
- Fulberth, Werner; and Neitzer, Erika, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Orally administrable drug dosage form having delayed action. 3,835,221, Cl. 424-20.000.
- Fuller, Sterritt Ray; Munzel, Howard Everett; and Queener, Carl Allan, to International Business Machines Corporation. Copier with leading edge image control. 3,834,807, Cl. 355-3.00r.
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- Furst, Beatrice M. Storage bag for clothing articles or the like. 3,834,497, Cl. 190-43.000.
- Gades, Larry D.; Brnadberg, Lawrence C.; and Gorman, Roger A., to Pillsbury Company, The. Compasite microwave energy perturvating device. 3,835,280, Cl. 219-10.550.
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- Gammaflux, Inc.: *See—*
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- Gander, Robert Johns; and Potts, Richard McCrea, to Johnson & Johnson. Dental restorative cement compositions. 3,835,090, Cl. 260-42.150.
- Gandhi, Haren S.; Kummer, Joseph T.; and Shelef, Mordecai, to Ford Motor Company. Ruthenium catalyst system. 3,835,069, Cl. 252-462.000.
- Ganser, Wilhelm, to Uniroyal AG. Radially expandable and contractible mandrel. 3,834,257, Cl. 82-44.000.
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- Garrett, Abram J., to United States of America, Navy. Environmental fluidic switching device with plural diaphragms. 3,835,271, Cl. 200-834.000.
- Garth, Bruce Hollis, to Du Pont de Nemours, E. I., and Company. Anti-icing gasoline composition. 3,834,882, Cl. 44-66.000.
- Gartland, Albert J., Jr.; Carissimi, Vincent L.; and Riley, George A., to Hubbell, Harvey, Incorporated. Grounding plug 339/014.00p. 3,835,437, Cl. .
- Gary, Wildon A. System stabilizer. 3,835,015, Cl. 204-197.000.
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- Genbauffe, Francis S., to Robertshaw Controls Company. Control system and control device therefor or the like. 3,834,661, Cl. 251-89.000.
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- Giebel, Ernest W., to Union Camp Corporation. Compartmented tray. 3,834,608, Cl. 229-15.000.
- Gift, Eugene G., to Emhart Corporation. Lane defining apparatus for handling articles in columns. 3,834,117, Cl. 53-61.000.
- Giger, Urs, to Eta A.G., Ebauches-Fabrik. Device for fastening the inner end of a mainspring to the barrel arbor of a clockwork. 3,834,154, Cl. 58-87.000.
- Gilbert, Richard Lyman; and Hryck, Michael David, to International Business Machines Corporation. Print density control. 3,834,306, Cl. 101-93.00c.
- Gilbert, Roswell W., to RFL Industries, Inc. Stabilized alternating current source. 3,835,418, Cl. 331-141.000.
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- Girard, Herbert A. Core transfer apparatus. 3,833,974, Cl. 28-1.00r.
- Girard, Marc M.; and Martin, Daniel M., to Institut de Recherches de la Siderurgie Francaise. Method to regulate feeding of bulk material. 3,834,473, Cl. 177-1.000.
- Giraud, Benjamin, to Pilot Research Corporation. Method and apparatus for slitting fabric on a circular knitting machine. 3,834,192, Cl. 66-147.000.
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- Goettl, Adam D.; and Goettl, Bruce A., to Amory Research and Development Co.; a division of Goettl Enterprises. Fluid containing structure. 3,833,944, Cl. 4-172.000.
- Goettl, Bruce A.: *See—*
  - Goettl, Adam D.; and Goettl, Bruce A., 3,833,944.
- Goff, Raymon L.; and Rau, Jim L., to TRW Inc. Power steering system with auxiliary power capability. 3,834,278, Cl. 91-413.000.
- Goggins, Robert B. Veterinary surgical tool for enlarging the pelvic girdle of heifer during parturition. 3,834,393, Cl. 128-305.000.
- Golovoy, Amos: *See—*
  - Labana, Santokh S.; Golovoy, Amos; and Chang, Yun Feng, 3,834,926.
- Gomi, Yoshifumi, to Kabushiki Kaisha Suwa Seikosha. Printer. 3,834,305, Cl. 101-93.00c.
- Gonnella, Carmen J.: *See—*
  - Brady, Thomas J.; Lawrence, Richard L.; Gonnella, Carmen J.; and Metzler, Gottfried, III, 3,834,596.
- Goodman, R. S., Company: *See—*
  - Goodman, Roy S. Jr.; Kirk, Dee Maryon; and Kirk, Harvey D., 3,834,565.
- Goodman, Roy S. Jr.; Kirk, Dee Maryon; and Kirk; Harvey D., to Goodman, R. S., Company. Hydraulic loading ramp. 3,834,565, Cl. 214-85.000.
- Gorbachev, Leonid Alexeevich: *See—*
  - Solonitsyn, Rem Alexandrovich; Vjukov, Ivan Elizarovich; Gorbachev, Leonid Alexeevich; Belonogov, Anatoly Mikhailovich; Vorobiev, Gennady Afanasievich; and Efimov, Alexandr Vasilievich, 3,834,982.
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  - Paton, Boris Evgenievich; Lebedev, Vladimir Konstatinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Viatly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovic; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladiir Mikhailovich; and Voronin, Georgy Alexandrovich, 3,835,227.
  - Paton, Boris Evgenievich; Lebedev, Vladimir Konstatinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovic; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladiir Mikhailovich; and Voronin, Georgy Alexandrovich, 3,835,228.
  - Paton, Boris Evgenievich; Lebedev, Vladimir Konstatinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovic; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volohonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladimr Mikhailivich; and Voronin, Georgy Alexandrovich, 3,835,229.
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- Goto, Kenji; and Mizuno, Kiyohiko, to Messrs, Toyota Jidosha Kogyo Kabushiki Kaisha. Engine exhaust recirculation apparatus. 3,834,363, Cl. 123-119.00a.
- Gottlieb, Stanley; and Geating, John A., to General Electric Company. Detection of malarial parasites in blood. 3,834,874, Cl. 23-230.00b.
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- Grant, Mooza V.P. Deterrent for self-destructive actions. 3,834,379, Cl. 128-132.00r.
- Grant, Roy Arthur, to Tasman Vaccine Laboratory Limited. Process for the purification. 3,835,041, Cl. 210-27.000.
- Grapha Maschinenfabrik Hans Muller AG: *See—*
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  - Behrens, Roy E.; and Donahue, Leo O., 3,834,289.
- Grasman, Rudolf; Hell, Walter; and Mullner, Wilhelm, to Waagner-Biro A.G. Cable clamps. 3,833,971, Cl. 24-132.0wl.
- Gravatt, Claude C., Jr., to United States of America, Commerce. System for determining parameters of a particle by radiant energy scattering techniques. 3,835,315, Cl. 250-218.000.
- Green, David L.: *See—*
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- Greene, Frederick C., to Shepherd Products U.S. Inc. Method of assembling supporting pins within a caster wheel pivot boss bore. 3,834,006, Cl. 29-436.000.
- Greene, Leonard M., to Safe Flight Instrument Corporation. Defective battery condition/charging system warning device. 3,835,362, Cl. 320-25.000.
- Greer Hydraulics, Inc.: *See—*
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  - Gyongyosi, Laszlo; and Gregory, David A., 3,834,718.
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- Grell, Helga U. Raincover for stroller with canopy. 3,834,756, Cl. 296-136.000.
- Gressman, Norman J.: *See—*
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- Greven, Hendrik Marie; and De Wied, David, to Akzona Incorporated. Vasopression peptides having psychopharmacological activity. 3,835,110, Cl. 260-112.500.
- Gribens, Joel A.: *See—*
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- Groezinger, Marlo W. Haystack feeder. 3,834,353, Cl. 119-60.000.
- Gropper, Hans: *See—*
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- Grossel, Stanley S.; Cunninghame, Andrew L.; and Cooke, H. Sherwood, to Machlett Laboratories, Incorporated, The. Intensifier radiographic imaging system. 3,835,314, Cl. 250-213.0vt.
- Grossman, David G.; and Rittler, Herman L., to Corning Glass Works. Ceramic and glass-ceramic articles produced from beta-spodumene. 3,834,981, Cl. 161-192.000.
- Groswith, Charles T., III: *See—*
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- Grove, John L. Aerial platform with articulating jib. 3,834,488, Cl. 182-2.000.
- Grubb, Willard T.; and King, Lawrence H., to General Electric Company. Oxygen sensor and electrode device therefor. 3,835,013, Cl. 204-195.00p.
- Grudzinski, Michael, to Empire Abrasive Equipment Corporation. Abrasive blasting system with personnel protective features. 3,834,082, Cl. 51-12.000.
- Gruner, Heinz Walter; and Heisig, Charles Gladstone, to Sybron Corporation. Electromagnetic flowmeter having self-cleaning electrodes. 3,834,232, Cl. 73-194.0em.
- Gruttner,Alfred: *See—*
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- Gstohl, Norbert; and Tauern, Dankmar, to Hilti Aktiengesellschaft. Means for surface treating and welding to a metal. 3,835,284, Cl. 219-98.000.
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  - McLaughlin, Donald W., 3,835,257.
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  - Thompson, Wallace T., 3,835,406.
  - Torsch, Charles E., 3,835,426.
- Guala, Piergiacomo, to Angelo Guala di Piergiacomo e Roberto Guala & C.S.A.S. Closure and pouring device for containers. 3,834,597, Cl. 222-525.000.
- Gude, Gunther Max, to Meister-Werke GmbH. Arrangement on a zigzag or automatic sewing machine for the adjustment of the stitch position and width of the stitch. 3,834,332, Cl. 112-158.00a.
- Guerrero, Paul: *See—*
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- Gulf Research & Development Company: *See—*
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  - Frayer, James A.; and Stauffer, Harry C., 3,835,022.
- Gullberg, Lars, to Oy Wartsila Ab. Speed regulating device including planetary gearing and a hydraulic unit of variable volume. 3,834,985, Cl. 162-280.000.
- Gunson's Sertex, Limited: *See—*
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- Gyongyosi, Laszlo; and Gregory, David A., to Ingersoll-Rand Company. Flexible hood means. 3,834,470, Cl. 175-211.000.

- Gyongyosi, Laszlo; and Gregory, David A., to Ingersoll-Rand Company. Sealing means. 3,834,718, Cl. 277-166.000.
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- Hajek, Manfred: *See—*
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- Hakansson, Sven Anders Samuel, to Kommanditbolaget United Stirling (Sweden) AB & Co. Heat exchangers for stirling cycle engines. 3,834,455, Cl. 165-87.000.
- Hale, Jesse R. Sandwich core panel with structural decoupling between the outer face sheets thereof. 3,834,487, Cl. 181-33.00g.
- Hall, John N., to Hercules Incorporated. Apparatus for forming blow molded container of oriented thermoplastic polymers. 3,834,852, Cl. 425-326.00b.
- Hall, Norman T., to Liquid Nitrogen Processing Corporation. Glass-filled thermoplastic pellets suitable for blending with thermoplastic. 3,834,980, Cl. 161-176.000.
- Hall, Peter Joseph, to Microfilm Recording Company Limited. Tape cartridge. 3,834,650, Cl. 242-192.000.
- Hammel, Joseph J., to PPG Industries, Inc. Glass composition and method of making. 3,834,911, Cl. 106-39.700.
- Hampton, Thomas L.: *See—*
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- Han, Grace Y.: *See—*
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- Handziak, Louis J., to Schlitz, Joseph, Brewing Company. Rotary field switch means for machine apparatus. 3,835,460, Cl. 340-271.000.
- Hankey, James J., to International Equipment Company, mesne. Centrifuge rotor with sample holding means and means for balancing the same. 3,834,613, Cl. 233-23.00a.
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- Hanzler Mfg. Corporation: *See—*
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- Hara, Hiroshi; Yokota, Yukio; Amano, Hiroyuki; and Nishimura, Tokio, to Fuji Photo Film Co., Ltd. Color silver halide photographic materials containing bis-pyrazolone color couplers. 3,834,908, Cl. 96-100.000.
- Harada, Kanji: *See—*
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- Harben, Grover S., Jr., to Gainesville Machine Company, Inc. Method and apparatus for killing poultry. 3,833,966, Cl. 17-1.00e.
- Harbor Island Machine Works, Inc.: *See—*
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- Harcourt, R. Earle, to Suitcase Shower Ltd. Self-locking hinge. 3,833,964, Cl. 16-145.000.
- Hardesty, Edwin C., to Western Electric Company, Incorporated. Electrical connecting devices for terminating cords and methods of assembling the devices to cords. 3,835,445, Cl. 339-99.00r.
- Hardinge Brothers, Inc.: *See—*
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- Harford, Jack Rudolph, to RCA Corporation. Keyed AGC circuit. 3,835,248, Cl. 178-7.30r.
- Harman, Robert W., to Chance, A.B., Company. Gas operable electrical connector and method. 3,835,441, Cl. 339-45.000.
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- Harris, Trevor L., to Harris Dynamics. Velocipede. 3,834,733, Cl. 280-251.000.
- Harris, William A.; Schluter, Bernard C.; and Tromborg, Erik T., to United States of America, Air Force. Ionization system for sensing and measuring gaseous impurities. 3,835,328, Cl. 250-432.000.
- Harrison, David E. F., to Shell Oil Company. Microbiological process. 3,834,989, Cl. 195-28.00r.
- Harrison, Ian T.: *See—*
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  - Pfister, Jurg R.; Harrison, Ian T.; and Fried, John H., 3,835,157.
  - Pfister, Jurg R.; Harrison, Ian T.; and Fried, John H., 3,835,158.
- Hart, Porter, to Dow Chemical Company, The. Device and method of density measurement and control of flotation systems. 3,834,529, Cl. 209-1.000.
- Hartemann, Pierre, to Thomson-CSF. Surface wave frequency discriminator. 3,835,422, Cl. 333-72.000.
- Hartenbach, Walter. Bile duct endoprothesis. 3,833,940, Cl. 3-1.000.
- Hartley, Ezra Dale. Compact reciprocating piston machine. 3,834,840, Cl. 417-535.000.
- Hashimoto, Kazuyuki. Basketball gam amusement device. 3,834,701, Cl. 273-85.00c.
- Hashizume, Shin; Kubota, Takashi; Usui, Katsuo; and Ogasahara, Hitosho, to Hitachi, Ltd. Cassette tape recorder. 3,834,651, Cl. 242-199.000.
- Hata, Kazumi: *See—*
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- Haugsjaa, Paul O.: *See—*
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- Hauni-Werke Korber & Co. K.G.: *See—*
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- Havera, Herbert John; and Strycker, Wallace Glenn, to Miles Laboratories, Inc. Diphenylhydantoin derivative. 3,835,151, Cl. 260-309.500.
- Havlas, Jiri; Kostelecky, Premysl; and Sedlarik, Jaroslav, to Elitex, Zarody Textilniko Strojirenstvi generalni. Method of controlling the knotting procedure in textile machines, particularly automatic winding machines and pneumatic circuit for performing aid method. 3,834,634, Cl. 242-35.60r.
- Havranek, Zdenek; Jiskra, Miroslav; Kubovy, Miroslav; Stary, Josef; and Vierikova, Vera, to Vyzkumny Sutav Bavlnarsky. Strand twisting arrangement for an open-ended yarn spinning system. 3,834,147, Cl. 57-58.890.
- Hawkins, Arnold L.: *See—*
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- Hawkins, Curtis Owen, to Du Pont de Nemours, E. I., and Company. Method. 3,834,251, Cl. 76-107.00s.
- Hawkins. Robert S.: *See—*
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- Hawley, Royal T.; and Hollytr, Richard S., to Western Gear Corporation. Drill string heave compensator and latching apparatus. 3,834,672, Cl. 254-172.000.
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- Hayashi, Takao; Kato, Hajime; and Ishige, Sadao, to Fuji Photo Film Co., Ltd. Color developer sheet for pressure sensitive recording paper. 3,834,929, Cl. 117-36.200.
- Hayes, Robert A.: *See—*
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- Haynes, George R.: *See—*
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- Haynes, Marguerite M.: *See—*
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- Healey, Arthur Stephen. Building block. 3,834,100, Cl. 52-309.000.
- Healy, Frank J.: *See—*
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- Heaney, Donald F., to Dravo Corporation. Activated sewage plant and process. 3,835,038, Cl. 210-4.000.
- Heath, Robert Boyson, to Rainsford Metal Products Proprietary Limited. Take-up spool latch. 3,834,646, Cl. 242-107.700.
- Hebert, Paul W.: *See—*
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- Heerdt, Ruth: *See—*
  - Weyer, Rudi; Hitzel, Volker; Aumuller, Walter; and Heerdt, Ruth, 3,835,188.
- Hehl, Klaus Friedrich, to ITW-ATECO G.m.b.H. Apparatus for fastening the casing of a semiconductor component to a mounting plate. 3,833,991, Cl. 29-203.00b.
- Heidtmann, Uwe: *See—*
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- Hein, Allyn J.; and Hendrickson, Vergil P., to Caterpillar Tractor Company. Override control for a variable displacement pump. 3,834,836, Cl. 417-222.000.
- Heinen, Harold J.: *See—*
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- Heinze, Richard F.; and Herber, John F., to Monsanto Company. Functional fluid compositions. 3,835,056, Cl. 252-78.000.
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- Heiter, Carl B., Jr.: *See—*
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- Heiter, Mary H.; and Heiter, Carl B., Jr. Combination boat and utility trailer structure. 3,834,753, Cl. 296-10.000.
- Heitman, Richard G., to De Laval Separator Company, The. Milking unit washer. 3,834,407, Cl. 134-56.00r.

Heitmann, William E.; and Oakwood, Thomas G., to Inland Steel Company. Hot rolled flat steel article for cryogenic service and method for producing same. 3,834,949, Cl. 148-12.000.

Helfen, Ralph K., to Mallory, P. R., & Co. Inc. Carrier current system. 3,835,389, Cl. 325-64.000.

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Hellman, Per Ingvar; and Sondell, Jan Ivar, to Stora Kopparbergs Bergslags Aktiebolag. Method and means for shaping a stream of melt flowing from a tapping hole. 3,834,629, Cl. 239-594.000.

Hellstrom, Bengt; Karsberg, Ulf; and Astrom, Ingmar, to Gotaverkens Angteknisko AB (Gotaverken Heat Engineering Co. Ltd.). Cyclone furnace having ash removal means. 3,834,327, Cl. 110-18.00r.

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Helwig, Hans, to Siemens Aktiengesellschaft. Particle-beam device equipped with means for attenuating mechanical movements. 3,835,320, Cl. 250-311.000.

Hemak, Thomas J., to Bendix Corporation, The. Protective shield for oxygen sensor. 3,835,012, Cl. 204-195.00s.

Hemingway, Maurice; and Ward, Trevor, to Hotwork Limited. Fluid fuel burners. 3,834,857, Cl. 431-158.000.

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Hemming, Raymond Charles; and Coumans, Harry Maria, to Northern Electric Company Limited. Anti-fraud device for coin operated apparatus. 3,834,504, Cl. 194-1.00g.

Henderson, Harold R. Arc-welding electrode. 3,835,288, Cl. 219-145.000.

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Hengelhaupt, Hans-Georg, to Triumph Werke Nuernberg A.G. Ribbon transporting arrangement. 3,834,511, Cl. 197-151.000.

Hennings, Walter, to Arn. Jung Lokomotivfabrik GmbH. Two rail suspension railway with a linear motor. 3,834,316, Cl. 104-148.01m.

Henry, James L. Computation device. 3,834,042, Cl. 35-9.00c.

Henzler, William G.; and Gressman, Norman J., to Hanzler Mfg. Corporation. Workpiece translation mechanism for transfer die press. 3,834,213, Cl. 72-405.000.

Hepp, Wolfgang; Pimiskern, Klaus; and Herbert, Werner, to Dornier System GmbH. Process for making a spherical segment for a supporting member of a spiral groove bearing. 3,833,981, Cl. 29-148.40r.

Herber, John F.: *See—*

Heinze, Richard F.; and Herber, John F., 3,835,056.

Herbert, Werner: *See—*

Hepp, Wolfgang; Pimiskern, Klaus; and Herbert, Werner, 3,833,981.

Hercules Incorporated: *See—*

Desmarais, Armand J., 3,835,074.

Hall, John N., 3,834,852.

Mellow, Dale F.; and Winer, Richard, 3,834,956.

Tucker, Charles R., 3,834,870.

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Hermann, Hans Dieter: *See—*

Burg, Karlheinz; Hermann, Hans Dieter; and Schlaf, Helmut, 3,835,080.

Hermstein, Wolfgang; and Maenicke, Eckart, to Siemens Aktiengesellschaft. Capacitive voltage-dividing arrangement for high voltage measuring apparatus. 3,835,353, Cl. 317-244.000.

Hermstein, Wolfgang; and Shciemann, Heinz, to Siemens Aktiengesellschaft. Current transformer. 3,835,429, Cl. 336-82.000.

Herr, Nicholas George. Needle. 3,834,599, Cl. 223-102.000.

Herron, Keith Roderick, to Kemp, James, & Co., Pty. Ltd. Sewerage air release valve. 3,834,415, Cl. 137-202.000.

Herron, William L.: *See—*

Adams, Kenneth D.; and Herron, William L., 3,834,334.

Herth, Walter; and Musfeldt, Theodor. Process for the construction of underpasses and an abutment for use therein. 3,833,960, Cl. 14-77.000.

Hess, Jurgen: *See—*

Linder, Ernst; Adalbert, Gerhard; and Hess, Jurgen, 3,834,846.

Hess, Peter, to Metallwerke Max Brose & Co. Adjustable seat inclination fitting. 3,833,965, Cl. 16-146.000.

Hettich, Alfred; and Stroezel, Reinhold, to Bosch, Robert, G.m.b.H. Hammer-drill. 3,834,468, Cl. 173-48.000.

Heyl & Patterson, Inc.: *See—*

Lofink, Gerard V., 3,834,552.

Heyl, Walter; Bergmann, Karl-Heinz; and Kern, Hermann, to Linde Aktiengesellschaft. Control system for axial-piston machines and the like. 3,834,281, Cl. 91-506.000.

Hidaka, Hiroyoshi: *See—*

Miyano, Tetsuji; Suzuki, Kunio; and Fukatsu, Hiroshi, 3,835,146.

Hidaka, Mikio: *See—*

Yamada, Keisho; Umemura, sumio; Odan, Kyoji; Hidaka, Mikio; and Fukuda, Kazuo, 3,835,193.

Hilfiker Pipe Co.: *See—*

Hilfiker, William K., 3,834,566.

Hilfiker, William K., to Hilfiker Pipe Co. Pipe handling attachment for a backhoe. 3,834,566, Cl. 214-138.00r.

Hill, James D.: *See—*

Fowler, Raymond L.; Hill, James D.; McCornack, Richard W.; Perkins, N. Kenneth; Sendelweck, Michael L.; West, Donald L.; Williams, Thomas H.; and Yosmali, Krikor, 3,834,505.

Hilti Aktiengesellschaft: *See—*

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Hinden, Alan W., to Promo-Pat Inc. Drawer and cabinet safety lock. 3,834,746, Cl. 292-290.000.

Hinden, Milton; and Giannone, Charles, to Duro-Dyne Corporation. Automatic resistance welder. 3,835,285, Cl. 219-98.000.

Hinderer, Helmut E.: *See—*

Bach, Hartwig C.; and Hinderer, Helmut E., 3,835,120.

Hinds, Ronald; and Akister, James Martin; deceased (by Akister, Nora; legal representative), to Carter, B. & F. & Co. Limited. Braiding machine. 3,834,271, Cl. 87-46.000.

Hinsche, Friedrich: *See—*

Spreckelmeyer, Bernhard; Hinsche, Friedrich; and Schabach, Werner, 3,834,917.

Hirdler, Louis C.; Schiessl, Henry W.; and Doonan, David F., to Olin Corporation. Recovery of chlorine and cyanuric acid values from polychloroisocyanuric acid and salts thereof. 3,835,136, Cl. 260-248.00a.

Hirose, Tatsuya: *See—*

Aiso, Hiroshi; Hirose, Tatsuya; and Kato, Kazuhisa, 3,834,996.

Hirsch, Winfred S., to Weck, Edward, & Company, Inc. Combination neurosurgical sponge. 3,834,390, Cl. 128-296.000.

Hisada, Hachiro, to Tokyo Toyo Rubber Industry Co., Ltd. Flexible diaphragms for gas meter. 3,834,231, Cl. 73-279.000.

Hisamatsu, Sadaoki: *See—*

Kamiya, Masahiko; Naya, Michiyoshi; and Hisamatsu, Sadaoki, 3,834,901.

Hitachi, Ltd.: *See—*

Hashizume, Shin; Kubota, Takashi; Usui, Katsuo; and Ogasahara, Hitosho, 3,834,651.

Hosho, Yukio, 3,834,677.

Kanai, Hiromi, 3,835,347.

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Hobbs, John V.: *See—*

Tannas, Lawrence E., Jr.; and Hobbs, John V., 3,835,465.

Hobza, Martin J. Standing occupant propelled merchandise carrier. 3,834,726, Cl. 280-87.04r.

Hocking, Martin B.; and Intihar, Donald J., to Dow Chemical Company, The. Method for the separation of ortho- and parp-dihydroxy benzene isomers. 3,834,997, Cl. 203-87.000.

Hocks, Peter: *See—*

Furst, Andor; Furlenmeier, Andre; Langemann, Albert; Waldovogel, Guy; Hocks, Peter; Kerb, Ulrich; and Wiechert, Rudolf, 3,835,127.

Hodges, Robert James, to Standard Telephones and Cables Limited. Electrographic apparatus for magnetic printing. 3,834,350, Cl. 118-637.000.

Hodgkin, Jonathan Howard; Hawthorne, David Geoffrey; Swift, Jean Drummond; and Solomon, David Henry, to Commonwealth Scientific and Industrial Research Organization. Titanium dioxide pigments and fillers. 3,834,923, Cl. 106-300.000.

Hoehn, Hans: *See—*

Denzel, Theodor; and Hoehn, Hans, 3,835,144.

Hoenig, Gerhard E.: *See—*

Fendley, Richard L.; Hoenig, Gerhard E.; Poehlmann, George; and Prendergast, John M., Jr., 3,834,604.

Hoeschele, David F., Jr.; and Zubas, John D., to General Electric Company. Digital delta encoder and decoder. 3,835,385, Cl. 325-38.00b.

Hoeschele, Guenther Kurt: *See—*

Brown, Morton; Hoeschele, Guenther Kurt; and Witsiepe, William Kenneth, 3,835,098.

Hoffman, Joseph Adrian, to American Cyanamid Company. Poly-(phosphine oxide derivative) with ammonium poly-phosphate as a flame retardant composition for polymers. 3,835,119, Cl. 260-45.75r.

Hoffman, Wolfgang, to B & H Manufacturing Company, Inc. Method for applying labels to containers. 3,834,963, Cl. 156-215.000.

Hoffmann, Ambros S., to Avco Corporation. Spinner de-icing for gas turbine engines. 3,834,157, Cl. 60-39-9d.

Hoffmann-La Roche Inc.: *See—*

Furst, Andor; Furlenmeier, Andre; Langemann, Albert; Waldovogel, Guy; Hocks, Peter; Kerb, Ulrich; and Wiechert, Rudolf, 3,835,127.

Hofmann, Eberhard; and Lehmann, Hartmut, to Bosch, Robert, G.m.b.H. Centrifugal injection timing control device for fuel injection pumps in diesel engines. 3,834,184, Cl. 64-25.000.

Hohenschutz, Heinz; Franz, Dieter; Fuelow, Horst; and Dinkhauser, Guenter, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of propionic acid. 3,835,185, Cl. 260-533.00a.

Hokama, Takeo: *See—*

Scardiglia, Frank; and Hokama, Takeo, 3,835,079.

Holben, Clair Dean; and Humphrey, John J., to Norgren, C. A., Co. Coupling unit for fluid control companents. 3,834,417, Cl. 137-613.000.

Holfrook, Boyde: *See—*

Hunter, Roland L., 3,834,656.

Holland Company: *See—*

Chierici, Osvaldo F., 3,834,554.

Holley, Myle J., Jr. Slip-jointed pile and dolphin construction. 3,834,168, Cl. 61-46.000.

Hollingsworth, Elmont E.; and Storlie, Llewellyn O., to Deco Products Company; consisting of Charles, Andrew H., Henderson, Thomas J., Atkinson, Guy F., Company and Henderson, James A., Corporation. Circular hose clamp. 3,833,969, Cl. 24-23.00w.

Hollis, Clinton R., to International Paper Company. Method and apparatus for opening tubes of flexible material. 3,834,287, Cl. 93-35.00p.

Hollytr, Richard S.: *See—*

Hawley, Royal T.; and Hollytr, Richard S., 3,834,672.

Holmes, Andrew James Timothy; and Cozens, John Ritchie, to National Research Development Corporation. Gas-discharge tube for high-current pulsed operations. 3,835,343, Cl. 313-217.000.

Holmes, Robert S. Adjustable electronic tunable filter with simulated inductor. 3,835,399, Cl. 328-167.000.

Holstein & Kappert Maschinenfabrik Phonix GmbH: *See—*

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Holtkamp, Donald A.; Chichester, Willard L.; and Rabbitt, Robert R., to Clark Equipment Company. Extended reach truck. 3,834,569, Cl. 214-762.000.

Holzer, Walter K. Method and apparatus for speed regulation of alternating current motors. 3,835,357, Cl. 318-327.000.

Homme, Thomson-CSF. Inverters supplying a high frequency alternating current. 3,835,366, Cl. 321-45.00r.

Honda, Masatsugu; and Shinozaki, Masanobu, to Victor Company of Japan Limited. Transistor amplifier protective circuit. 3,835,412, Cl. 330-207.00p.

Honjo, Osamu: *See—*

Matsushita, Izumi; Tanada, Kiyoshi; and Honjo, Osamu, 3,834,952.

Honjo, Satoru: *See—*

Matsumoto, Seiji; and Honjo, Satoru, 3,834,904.

Hopkins, Walter M. Articulated sculling oar. 3,834,343, Cl. 115-28.00r.

Horine, David A.: *See—*

Ball, Richard B.; Gurler, Tuygan; Clement, Carl J.; and Horine, David A., 3,834,041.

Horstmann, Josef: *See—*

Meier, Gunter; Laubach, Winfried; and Horstmann, Josef, 3,834,322.

Hoshi, Kinji; and Sugita, Kazuhiro, to Sony Corporation. Machine for grinding an edge contour on a semiconductor wafer. 3,834,083, Cl. 51-57.000.

Hoshika, Susumu: *See—*

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Hosho, Yukio, to Hitachi Ltd. Automatic choke control. 3,834,677, Cl. 261-39.00b.

Hosoi, Fumio: *See—*

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Hotwork Limited: *See—*

Hemingway, Maurice; and Ward, Trevor, 3,834,857.

Howard, Frank L.: *See—*

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Howarth, Graham Arton; and Hoyle, William, to Ciba-Geigy Corporation. Nitrofuryl-alpha-halo-hydrazones. 3,835,165, Cl. 260-347.500.

Howe, Gerald F. Disposable oil drip pan. 3,834,527, Cl. 206-494.000.

Howton, Kenneth Douglas: *See—*

Rosen, Philip; Feenen, John; and Howton, Kenneth Douglas, 3,835,431.

Hoya Glass Works, Ltd.: *See—*

Asahara, Yoshiyuki; and Izumitani, Tetsuro, 3,834,913.

Hoyle, William: *See—*

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Hradcovsky, Rudolf J., to Kozak, Otto R. and Atlas Technology Corporation. Electrolytic production of glassy layers on metals. 3,834,999, Cl. 204-56.00r.

Hryck, Michael David: *See—*

Gilbert, Richard Lyman; and Hryck, Michael David, 3,834,306.

Hsieh, Chia-Lung: *See—*

Schoenrock, Karlheinz W. R.; Hsieh, Chia-Lung; and Rounds, Hugh G., 3,834,941.

Hubbard, Don P.; Levake, Richard N.; and Steiger, James A. Method and a machine for aligning and joining pipes. 3,833,996, Cl. 29-237.000.

Hubbell, Harvey, Incorporated: *See—*

Gartland, Albert J., Jr.; Carissimi, Vincent L.; and Riley, George A., 3,835,437.

Huber, J. M., Corporation: *See—*

Almagro, Guillermo; Bertorelli, Orlando L.; Mays, Robert K.; Williams, Lloyd E.; and Zimmerman, Howard F., Jr., 3,835,216.

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Mays, Robert Kenneth; and Hackbarth, Lowell Edwin, 3,834,921.

Takewell, Robert B.; Brandon, Paul W.; and Odom, Paul R., 3,834,850.

Hubert, Alexis, to Norgren, C. A., Co. Reclassifier for oil fog lubrication systems. 3,834,493, Cl. 184-7.00r.

Hubert, W., & Co. Machinefabriek N.V.: *See—*

Sinnema, Hendrik, 3,834,851.

Huck Manufacturing Company: *See—*

Pinkerton, William E., 3,834,011.

Hudson Products Corparation: *See—*

Owen, Tom E., 3,833,987.

Huffhines, Robert A., Jr., to Tex-a-dyne. Electrode housing and holder. 3,835,014, Cl. 204-195.00p.

Hughes Aircraft Company: *See—*

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Moulin, Norbert L., 3,833,992.

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Templin, Lawrence R., 3,835,379.

Hughes Company, Inc.: *See—*

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Hughes, David B.: *See—*

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Hulbert, Clarence E., Jr. Multipurpose light assembly. 3,833,955, Cl. 9-83.00e.

Hummell, John D., to PPG Industries, Inc. Method for disposal of liquid waste. 3,834,055, Cl. 431-11.000.

Hummell, John D., to PPG Industries, Inc. Method for disposal of liquid waste. 3,834,855, Cl. 431-11.000.

Humphrey, John J.: *See—*

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Hunt, Walter G.; and Belz, Ray J., to Anheuser-Busch, Incorporated. Oxidized cationic starch. 3,835,114, Cl. 260-233.30r.

Hunter, Chester: *See—*

Hunter, Roland L., 3,834,656.

Hunter, James: *See—*

Hunter, Roland L., 3,834,656.

Hunter, James A.; and Sessions, Robert W. Occlusion device and method and apparatus for inserting the same. 3,834,394, Cl. 128-325.000.

Hunter, Richard: *See—*

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Hunter, Roland L., 2% to Barrett, Mel, 1% to Olson, Milt, 1% to Furnes, Joe, 4% to Michial, Frank, 1% to Hunter, Richard, 1/2% to Fredricks, Don, 1/4% to Holfrook, Boyde, 1/4% to Walkley, Sherm, 1% to Samuels, Ed, 2% to Byrnes, Ed, 2% to Bell, Dick, 2% to ell, Dunham, 10% to Murrey, Ross, 1/3% to Colyer, Steve, 1% to Hunter, James, 1/3% to Hunter, Chester, 2% to Jeffs, Carley, 1/4% to Taylor, Dale, 1/2% to Jeffs, Gene and 25% to Dock & Dock, the firm of. Means for maintaining stability of rock drill by rearard bracing anchorage. 3,834,656, Cl. 248-13.000.

Huntington, Robert G., to American Air Filter Company, Inc. Damper. 3,834,662, Cl. 251-121.000.

Hurst, Fred J.; and Crouse, David J., to United States of America, Atomic Energy Commission. Oxidative stripping process for the recovery of uranium from wet-process phosphoric acid. 3,835,214, Cl. 423-10.000.

Hurwitz, Melvin D., to Rohm & Haas Company. Cigarette burn resistant mattresses having aluminized polyurethane foam layer. 3,833,951, Cl. 5-345.00r.

Huson, Gale, to Signode Corporation. Bale strapping system. 3,834,297, Cl. 100-3.000.

Hussissian, Vahan A. Method of flocculating. 3,835,045, Cl. 210-49.000.

Husted, Robert F.; and Radke, Rodney O., to Monsanto Company. Herbicidal compositions. 3,834,891, Cl. 71-109.000.

Hydraulic Products Incorporated: *See—*

Dorff, Donald; and Santi, Joseph A., 3,834,842.

Iacona, Marco J. Method of skirting a mobile home. 3,834,109, Cl. 52-742.000.

Ichikawa, Hiroshi, to Jintan Terumo Co., Ltd. Degassing device. 3,834,124, Cl. 55-159.000.

Ichiryu, Ken: *See—*

Miura, Masaki; Ichiryu, Ken; and Nakazawa, Hayashi, 3,834,513.

ICI America Inc.: *See—*

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ICI Australia Limited: *See—*

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Igarashi, Takeshi: *See—*

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Igarashi, Tetsuo: *See—*

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Igarashi, Tsutomu: *See—*

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Iida, Kosuke; Kanada, Nobuo; and Kurita, Takeji, to Takiron Co., Ltd. Synthetic resin coated pipe. 3,834,009, Cl. 29-477.000.

Iida, Wataru: *See—*

Sakane, Kazuhiro; and Iida, Wataru, 3,834,084.

Ikebe, Shigueaqui: *See—*

Mori, Kenjiro; Takemoto, Yasuzi; and Ikebe, Shigueaqui, 3,835,077.

Illinois Tool Works Inc.: *See—*

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  - Tsuchiya, Teruo; Imai, Hisashi; and Motegi, Ryohei, 3,834,500.
- Imbertson, N. M. & Associates, Inc.: *See—*
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- Immer, Hans U.; Nelson, Verner R.; and Gotz, Manfred K., to American Home Products Corporation, mesne. Process for preparing the releasing hormone of Luteinizing hormone (LH) and of follicle stimulating hormone (FSH), salts and compositions thereof, and inermediates therefor. 3,835,108, Cl. 260-112.500.
- Imperial Chemical Industries Limited: *See—*
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  - George, Edwin Francis; and Davidson, Alan John, 3,834,888.
  - Sullivan, John Terence; and Littlefair, Robert George, 3,834,623.
- Imperial-Eastman Corporation: *See—*
  - Strybel, Richard V., 3,834,743.
- Indra, Jaromir, to Vysoke uceni technicke v Brne. Method of and apparatus for filling a fuel injection pump. 3,834,838, Cl. 417-490.000.
- Industrial Research Products, Inc.: *See—*
  - Killion, Mead Clifford, 3,835,263.
- Industrialisation Rationnille du Batiment IRBA GP.: *See—*
  - Cara, Jean-Francois, 3,834,112.
- Info Systems, Inc.: *See—*
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  - Gyongyosi, Laszlo; and Gregory, David A., 3,834,718.
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- Inoue, Eiichi; Kokado, Hiroshi; Shimzu, Isamu; and Ohtsuka, Shuichi, to Fuji Photo Film Co., Ltd. Imagewise exposing a metal halide layer with laser to form permanent metal image. 3,834,903, Cl. 96-27.00e.
- Inoue, Hiromitsu: *See—*
  - Ohasi, Hiroshi; Okamoto, Shinsuke; Inoue, Hiromitsu; Mori, Hirokazu; and Okamoto, Mineo, 3,835,254.
- Inoue, Komei; and Asami, Kazuto, to Glory Kogyo Kabushiki Kaisha. Control device for a coin-wrapping mechanism. 3,834,116, Cl. 53-59.00r.
- Inoue, Mutsuhiro; and Inoue, Shunzo. Microfilm provided with color codes and device for recording and reproducing such codes. 3,835,297, Cl. 235-61.11e.
- Inoue, Shunzo: *See—*
  - Inoue, Mutsuhiro; and Inoue, Shunzo, 3,835,297.
- Institut de Recherches de la Siderurgie Francaise: *See—*
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- Institut Elektrosvarki IM. E. O. Patona: *See—*
  - Paton, Boris Evgenievich; Lebedev, Vladimir Konstatinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Viatly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovic; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladiir Mikhailovich; and Voronin, Georgy Alexandrovich, 3,835,227.
  - Paton, Boris Evgenievich; Lebedev, Vladimir Konstatinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovic; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladiir Mikhailovich; and Voronin, Georgy Alexandrovich, 3,835,228.
  - Paton, Boris Evgenievich; Lebedev, Vladimir Konstatinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovic; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volohonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladimr Mikhailivich; and Voronin, Georgy Alexandrovich, 3,835,229.
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  - Fowler, Raymond L.; Hill, James D.; McCornack, Richard W.; Perkins, N. Kenneth; Sendelweck, Michael L.; West, Donald L.; Williams, Thomas H.; and Yosmali, Krikor, 3,834,505.
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  - Rutz, Elizabeth Maria; and Kagan, Morton Richard, 3,835,415.
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- Itagaki, Tadashi, to Pioneer Electronic Corporation and Tokorozawa Electronics Corporation. Vibrating member for acoustic transducer. 3,835,265, Cl. 179-181.00r.
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- Ito, Yoshie; and Suda, Kataro. Amusement and game board with automatic dice casting means. 3,834,713, Cl. 273-145.00e.
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- Jackson, Herman Roy. Drycleaning compositions. 3,835,036, Cl. 208-249.000.
- Jackson, John Maxwell, to Chromax Limited. Take off and stacker for container printing machine. 3,834,522, Cl. 198-210.000.
- Jackson, Per Olof: *See—*
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- Jackson, Richard L., to Jackson Communication Corporation. Aerial blocks. 3,834,674, Cl. 254-190.00r.
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- Jaffe, Edward E., to Du Pont de Nemours, E. I., and Company. Production of chlorine-containing copper phthalocyanines. 3,834,922, Cl. 106-288.00q.
- Jahn, Gerhard. Retaining means. 3,834,824, Cl. 402-13.000.
- Jakenberg, Klas-Erik, to Uddeholms Aktiebolag. Trip steel for springs. 3,834,951, Cl. 148-36.000.
- Jakobi, Wilhelm; and Voges, Bernd, to Koppers, Heinrich, GmbH. Regenerator construction. 3,834,864, Cl. 432-222.000.
- James, Alec Patrick, to National Research Development Corporation. Ticket systems. 3,834,406, Cl. 133-2.000.
- James, Earl W. Adjustable granular material dispenser. 3,834,593, Cl. 222-440.000.
- James, Larry S., to Coleman Company, Inc., The. Pilot reclamation system for gas-fires forced draft heater. 3,834,856, Cl. 431-30.000.
- Jamesbury Corporation: *See—*
  - Donnelly, James F., 3,834,663.

- Janatka, Joseph: *See—*
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- Janda, Robert J., to Gammaflux, Inc. Method for drying moldable resins. 3,834,038, Cl. 34-1.000.
- Janning, John L., to National Cash Register Company. Alignment film for a liquid crystal display cell. 3,834,792, Cl. 350-160.01c.
- Jansa, Edward F. Fishing rod holder. 3,834,057, Cl. 43-21.200.
- Jansson, Lenhart: *See—*
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- Jaster, Heinz; Kosky, Philip G.; and Staub, Fred W., to General Electric Company. Double valve vapor push pump. 3,834,835, Cl. 417-209.000.
- Jaunarajs, Karlis L.; and Yang, Julie C., to Johns Manville Corporation. Method for the preparation of fibrous soluble calcium sulfate anhydrite. 3,835,219, Cl. 423-555.000.
- Jaworski, Eugene: *See—*
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- Jensen, Henry E., to Eltra Corporation. Water cooled industrial battery. 3,834,945, Cl. 136-161.000.
- Jepson, Robert M.: *See—*
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- Johansson, Allan Hilbert, to AB Bahco Ventilation. Arrangement in heat exchangers. 3,834,171, Cl. 62-3.000.
- Johansson, Uno Waldemar, to Teem Incorporated AB. Air conditioning unit. 3,834,453, Cl. 165-54.000.
- Johncock, Allan W., to Standard Oil Company. Electronic speed governor for a turbine. 3,834,830, Cl. 415-30.000.
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- Johnson, Alfred D., to Sylvania Electric Products Inc. Cathode ray tube diplay assembly having diverse optical means therein. 3,835,251, Cl. 178-7.850.
- Johnson, Ben C. Jr.: *See—*
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- Johnson, David Emil, to Mobil Oil Corporation. Apparatus for butt welding thermoplastics sheets and films. 3,834,971, Cl. 156-507.000.
- Johnson, Delp W. Method of threading a cable through panel and tube sections to make a folding structure. 3,834,005, Cl. 29-433.000.
- Johnson, Melvin Harry: *See—*
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- Johnson, Richard H., to Stone Container Corporation. Packaging machine and method. 3,834,114, Cl. 53-32.000.
- Johnson, Robert B.; and Robert, Louis F., to Fibreboard Corporation. Bag packing apparatus. 3,834,115, Cl. 53-55.000.
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- Johnston, Leland P. Creative optical artistic medium. 3,835,307, Cl. 240-1.000.
- Jones, Alan Richardson, to Dade Reagents, Inc. Method and apparatus for storing digital information in fluid medium. 3,834,411, Cl. 137-1.000.
- Jones, Brian Paul, to Lucas, Joseph, (Industries) Limited. Actuators for stroke control in hydraulic machines. 3,834,280, Cl. 91-505.000.
- Jones, Dana C.; Cook, Cleo E.; and Murray, Alfred K., to General Motors Corporation. Servo temperature control valve for refrigeration system. 3,834,175, Cl. 62-196.000.
- Jones, Robert H., to Beckman Instruments, Inc. Sampling apparatus. 3,834,588, Cl. .
- Jonsson, Sven Jonas Roland. Apparatus for automatic electric arc welding. 3,835,287, Cl. 219-130.000.
- Jordan, Anthony. Grease filter. 3,834,135, Cl. 55-444.000.
- Jorgensen, Henning B.: *See—*
  - Bohnke, Ernest; and Jorgensen, Henning B., 3,834,992.
- Joslyn, Larry James, to Sybron Corporation. Table top steam sterilizer. 3,834,872, Cl. 21-94.000.
- Joslyn Mfg. and Supply Co.: *See—*
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Kahil, John E. Radiation insepection apparatus with adjustable shutter for inspecting different sizes of tubular goods. 3,835,323, Cl. 250-360.000.

Kahn, Manfred, to Sprague Electric Company. PTC resistor package. 3,835,434, Cl. 338-22.000.

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Kamp, Heinz; Wilms, Willi; and Reichardt, Volker, to Schlafhorst, W., & Co. Warp knitting mechine. 3,834,189, Cl. 66-84.00a.

Kampf, Eberhard, to Kampf, Erwin, Maschinenfabrik. Apparatus for winding tapes and films. 3,834,642, Cl. 242-75.500.

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Kanada, Nobuo: *See—*

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Kanai, Hiromi, to Hitachi, Ltd. Colour picture tube with improved color purity. 3,835,347, Cl. 313-408.000.

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Kano, Hideo; Ogata, Masuru; and Yukinaga, Hisajiro, to Shionogi & Co., Ltd. Quinone derivatives and compositions containing the same. 3,835,168, Cl. 260-396.00r.

Kansier, Denis A., to Ford Motor Company. Sling means for shoulder harness. 3,834,730, Cl. 280-150.0sb.

Kaplow, Robert L.: *See—*

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Karabedian, James A., to Owens-Illinois, Inc. Process of extruding a foamed extrudate and controlling the thickness thereof. 3,835,209, Cl. 264-51.000.

Karch, Walter C.; Marien, Kenneth J.; and Mierendorf, Robert C., to Square D Company. Electromagnetic relay with reversible switch modules. 3,835,425, Cl. 335-132.000.

Karimori, Akira; Kodama, Risaku; and Kato, Akio, to Kabushiki Kaisha Kohjin. Method of preparing flame resistant paper having a high delamination resistance. 3,834,937, Cl. 117-155.0ua.

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Kastenbein, Werner, to Ingold, Hans, & Co. Conveyor installation with transport containers. 3,834,319, Cl. 104-246.000.

Kataoka, Shoei, to Agency of Industrial Science & Technology. Method and apparatus for detecting uneven magnetic field by sweeping a plasma corrent across a semiconductor. 3,835,376, Cl. 324-43.00r.

Kataoka, Shoei, to Kohyo Gijutsuin. Three terminal magnetoresistive magnetic field detector in which voltages of opposite polarity relative to ground are applied to opposite ends. 3,835,377, Cl. 324-46.000.

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Kawachi, Sunao: *See—*

Takamiya, Youichi; Sasaguri, Kiichiro; Sano, Hiroshi; Okina, Katsumi; and Kawachi, Sunao, 3,835,088.

Kawaguchi, Kiyoshi; Shoge, Kaoru; and Ono, Kenji, to Toyo Kohan Co., Ltd. Metal strip straightening machine. 3,834,202, Cl. 72-163.000.

Kawakubo, Kazuo: *See—*

Takahashi, Isao; Fujii, Motoharu; Kawakubo, Kazuo; Ariga, Masao; and Sugiura, Susumu, 3,834,808.

Kazlauskas, Gasparas, to Astro-Arc Co. Welding electrode structure and filler wire mechanism for an automatic welding apparatus. 3,835,286, Cl. 219-130.000.

Keady, Frederick D., to Weatherhead Company, The. Control valve for motor vehicle fluid power circuit. 3,834,162, Cl. 60-518.000.

Keely, William A., to Bendix Corporation, The. Back-up fuel control system. 3,834,361, Cl. 123-32.0ea.

Kehse, Wolfgang; and Jess, Uwe, to Extraktionstechnik Gesellschaft fur Anlagenbau GmbH. Continuous production of beer wort from dried malt. 3,834,296, Cl. 99-276.000.

Keihin Seiki Manufacturing Co., Ltd.: *See—*

Miyazaki, Toyoshige, 3,834,676.

Keith, Gareth A., to Masoneilan International, Inc. Control valve with elastically loaded cage trim. 3,834,666, Cl. 251-361.000.

Keith, John T.: *See—*

Arnold, Bruce K.; and Keith, John T., 3,835,443.

Keller, Rudolf: *See—*

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Keller, Wolfgang: *See—*

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Kelley, Jerry O., to Arvin Industries, Inc. Tape recording system. 3,834,601, Cl. 226-191.000.

Kelly, James E., to Mech-El Industries, Inc. Adhesive bonding system. 3,834,966, Cl. 156-379.000.

Kelly, Minton J.: *See—*

Parkinson, William W., Jr.; Kelly, Minton J.; and Sturm, Bernard J., 3,835,122.

Kelsey, Harley E., to Northern Purification Services Ltd. Aerobic wastewater treatment apparatus. 3,834,536, Cl. 210-104.000.

Kelton, Robert Lee. Imitation horns for steers. 3,834,354, Cl. 119-144.000.

Kemira Oy: *See—*

Ahonen, Heikki, 3,834,877.

Kemp, Horace N.: *See—*

Lee, Charles A.; Furbeck, Warren R.; and Kemp, Horace N., 3,834,689.

Kemp, James, & Co., Pty. Ltd.: *See—*

Herron, Keith Roderick, 3,834,415.

Kennecott Copper Corporation: *See—*

Peterson, Thomas D.; and Crosser, Ralph W., Jr., 3,834,534.

Queneau, Paul B.; and Prater, John D., 3,834,893.

Spedden, Henry Rush; and Malouf, Emil Edward, 3,834,760.

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McGuire, Stephen E.; Stauter, John C.; and Kennedy, Carl D., 3,834,533.

Kenney, Harold E.; Donahue, Edward T.; and Maerker, Gerhard, to United States of America, Agriculture. Cyanoethoxylated fatty acid metal soap thickened greases. 3,835,051, Cl. 252-33.600.

Kenney, James W.: *See—*

Robinson, John E.; and Kenney, James W., 3,834,590.

Kenney, James W., to Drummond Scientific Company. Apparatus for drawing liquids into, and expelling liquids from, a pipette or the like. 3,834,240, Cl. 73-425.600.

Keogh, Raymond J.: *See—*

Burr, Robert Page; and Keogh, Raymond J., 3,834,014.

Kerb, Ulrich: *See—*

Furst, Andor; Furlenmeier, Andre; Langemann, Albert; Waldovogel, Guy; Hocks, Peter; Kerb, Ulrich; and Wiechert, Rudolf, 3,835,127.

Kern, Hermann: *See—*

Heyl, Walter; Bergmann, Karl-Heinz; and Kern, Hermann, 3,834,281.

Kesler, Clyde E., to United States Steel Corporation. Fiber-reinforced cement composite. 3,834,916, Cl. 106-99.000.

Khaleeluddin, Khaja; Sutthoff, Robert Fredric; and Nelson, William Junior, to Standard Brands Incorporated. Method of refining an enzymatically produced fructose-containing solution. 3,834,940, Cl. 127-46.00a.

Kidda, Bernard G.: *See—*

Seregely, Daniel E.; and Kidda, Bernard G., 3,834,823.

Kieser, Lester C. Fish cleaning board. 3,833,967, Cl. 17-70.000.

Kikuchi, Yukio. Electric drill holder. 3,834,828, Cl. 408-92.000.

Kilbourn, Edward E., to Rohm & Haas Company. 3-Pyridylmethyl ester of 5-benzofurazanyl-carbamate-1-oxide. 3,835,147, Cl. 260-295.50b.

Killion, Mead Clifford, to Industrial Research Products, Inc. Microphone assembly operable in directional and non-directional modes. 3,835,263, Cl. 179-107.0fd.

Kimberly-Clark Corporation: *See—*

Schwarz, Eckhard C. A., 3,833,973.

Kimoto, Jitsumi: *See—*

Ueda, Kozo; Kimoto, Jitsumi; and Moritake, Mitsuru, 3,835,024.

Kimura, Sachio; Aoki, Yoshiaki; Kiriyama, Toshiki; and Shimomae, Katsuro, to Kabushiki Kaisha Koparu. Angular position selecting and controlling device for a rotary member. 3,835,359, Cl. 318-467.000.

Kimura, Yoshiaki, to Konishiroku Photo Industry Co., Ltd. Vertically diverged holographic image formation with zero-order diffraction suppression. 3,834,785, Cl. 350-3.500.

King, Earle C., to Mine Safety Appliances Company. Differential pressure transducer for liquid metals. 3,834,239, Cl. 73-398.00r.

King, Jack A., to Cities Service Oil Company. Oil spill control. 3,835,049, Cl. 210-63.000.

King, Lawrence H.: *See—*

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King Musical Instruments; a division of Seeburg Corporation of Delaware, The: *See—*

McCracken, George T., 3,834,268.

King, Thomas C. Spin breaking process. 3,834,631, Cl. 241-26.000.

King, W. Lawton: *See—*

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Kingsbury, William L., to General Motors Corporation. Exhaust gas recirculation control valve. 3,834,366, Cl. 123-119.00a.

Kinneging, Johannes Wilhelmus: *See—*

Berg, Leo; Lenemann, Gerhard Johann; and Kinneging, Johannes Wilhelmus, 3,834,622.

Kiriyama, Toshiki: *See—*

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Kirk, Dee Maryon: *See—*

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Kirk, Harvey D.: *See—*

Goodman, Roy S. Jr.; Kirk, Dee Maryon; and Kirk, Harvey D., 3,834,565.

Kirk, Thomas E., to General Motors Corporation. Motor vehicle power supply system. 3,835,363, Cl. 320-64.000.

Kirkpatrick, Milton E.; and Mendelson, Ralph A., to TRW Inc. Method of forming powder compacts. 3,835,210, Cl. 264-61.000.

Kitai, Kiyoshi; Onda, Eiichi; Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, to Seiko Koki Kabushiki Kaisha. Shutter blade operation mechanism for focal plane shutter. 3,834,802, Cl. 354-246.000.

Kitamura, Shigeyoshi: *See—*

Matsuo, Takashi; Itaya, Nobushige; Okuno, Yositosi; Mizutani, Toshio; Ohno, Nobuo; and Kitamura, Shigeyoshi, 3,835,176.

Kitazawa, Yoshio; Ariyoshi, Ikuji; Nagawa, Masato; and Terai, Kenji, to Nippon Steel Corporation. Magnetic conveyer. 3,834,519, Cl. 198-41.000.

Kiwiet, William B., to Tektronix, Inc. Numerical control system. 3,835,360, Cl. 318-561.000.

Kjell, Bergman: *See—*

Bengt, Fredrikson; and Kjell, Bergman, 3,834,587.

Klaassen, Dirk; Spadon, Luciano J.; and Tiessens, Meindert, to Stamicarbon N.V. Method of controlling a polymer preparation process. 3,835,106, Cl. 260-94.90p.

Klaudy, Peter, to Siemens Aktiengesellschaft. High speed electrical contact device including a rotating liquid contact element. 3,835,436, Cl. 339-5.001.

Klein, Albert Joseph, to American Can Company. Strip casting aluminum alloy. 3,834,900, Cl. 75-142.000.

Klein, Gerald B. Leader connector. 3,834,061, Cl. 43-44.900.

Klein, Michael B. Crown remover. 3,834,026, Cl. 32-43.000.

Klein, Richard M., to GTE Laboratories Incorporated. Encapsulation for light-emitting diodes. 3,834,883, Cl. 65-32.000.

Kleinhenz, Albert: *See—*

Von Jordan, Wenzel; Kleinhenz, Albert; Wiemer, Jean; and Hemmerling, Horst, 3,834,127.

KLI, Inc.: *See—*

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Klicki, Chester E.: *See—*

Surletta, Zygmunt M.; Klicki, Chester E.; and Nowack, Robert A., 3,833,948.

Knapp, William H.: *See—*

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Knapsack Aktiengesellschaft: *See—*

Berg, Leo; Lenemann, Gerhard Johann; and Kinneging, Johannes Wilhelmus, 3,834,622.

Knechtel, Wilhelm, to Canon Kabushiki Kaisha. Device for separating copy carriers from a roll, drum or the like by means of a suction roll. 3,834,690, Cl. 271-80.000.

Knepshield, William R.: *See—*

Lampman, Russell A.; and Knepshield, William R., 3,834,392.

Knohl, Friedrich K., to Illinois Tool Works Inc. Concrete insert. 3,834,103, Cl. 52-372.000.

Knol, Willem. Method and apparatus for determining the quanity of a bulk material deposited on a conveyor. 3,834,474, Cl. 177-1.000.

Kobayashi, Kazuo; and Ogawara, Shoichi, to Sukegawa Electric Co., Ltd. Level gauge of liquid metal. 3,834,234, Cl. 73-290.00r.

Koch, James Allan, to Deere & Company. Combined draft hook opreating and draft sensing. 3,834,738, Cl. 280-504.000.

Kochavi, Jacob. Method of making dental restorations and product thereof. 3,834,024, Cl. 32-8.000.

Kocsis, Laszlo, to Transelektro Magyar Villamossagi Kulkereskldelmi Vaelalat. Tubular core electric transformer. 3,835,430, Cl. 336-83.000.

Kodama, Jiro K.: *See—*

Carr, John B.; Haynes, George R.; Albert, James R.; and Kodama, Jiro K., 3,835,132.

Kodama, Risaku: *See—*

Karimori, Akira; Kodama, Risaku; and Kato, Akio, 3,834,937.

Koder, Robert, to Varta Aktiengesellschaft. Flashlight. 3,835,310, Cl. 240-10.650.

Koehring Company: *See—*

Wilke, Raud A., 3,834,163.

Koerper Engineering Associates, Inc.: *See—*

Putney, Gordon A., 3,834,927.

Koh-I-Noor Rapidograph, Inc., mesne: *See—*

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Kohl, F. Johannes: *See—*

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Koizumi, Noboru: *See—*

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Kojima, Takakazu: *See—*

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Kokado, Hiroshi: *See—*

Inoue, Eiichi; Kokado, Hiroshi; Shimzu, Isamu; and Ohtsuka, Shuichi, 3,834,903.

Koleczek, Roman A. V-shape blocks having flanges and notches for stacking. 3,834,067, Cl. 46-25.000.
Komatsu, Isamu, to Hitachi, Ltd. Method and apparatus for analyzing nitrogen oxides in gas. 3,835,322, Cl. 250-343.000.
Komine, Yoshio, to Canon Kabushiki Kaisha. Auto zoom device for a motion picture camera. 3,834,796, Cl. 350-187.000.
Kommanditbolaget United Stirling (Sweden) AB & Co.: *See—*
  Hakansson, Sven Anders Samuel, 3,834,455.
Konen, Dolores A.: *See—*
  Silbert, Leonard S.; and Konen, Dolores A., 3,835,203.
Kongelbeck, Sverre, to United States of America, Navy. Actuator and latch. 3,834,282, Cl. 92-10.000.
Konishiroku Photo Industry Co., Ltd.: *See—*
  Kimura, Yoshiaki, 3,834,785.
Kopat Gesellschaft fur Konstruktion Entwicklung und Patentverwertung m.b.H., & Co., K.G.: *See—*
  Ritter, Kaspar, 3,834,164.
Koppers Company, Inc.: *See—*
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  Van Ackeren, Joseph, 3,834,993.
  Van Ackeren, Joseph, 3,834,995.
Koppers, Heinrich, GmbH: *See—*
  Jakobi, Wilhelm; and Voges, Bernd, 3,834,864.
Kormendy, Ferenc; Nemeth, Ferenc; Muranyi, Istvan; and Balas, Gizella, to Labor Muszeripari Muvek. Device for use with a liquid transfer appliance in chemical analysis. 3,834,876, Cl. 23-259.000.
Kosky, Philip G.: *See—*
  Jaster, Heinz; Kosky, Philip G.; and Staub, Fred W., 3,834,835.
Kostelecky, Premysl: *See—*
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Koutitonsky, Serge Iginai, to Esso Research and Engineering Company. Method for producing an integral skin phenolic foam. 3,835,208, Cl. 264-45.000.
Koyama, Mitsuo: *See—*
  Kitai, Kiyoshi; Onda, Eiichi; Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, 3,834,802.
Kozak, Otto R.: *See—*
  Hradcovsky, Rudolf J., 3,834,999.
Kozinski, Richard C., to General Motors Corporation. Air conditioning system with multiple function heat exchanger. 3,834,451, Cl. 165-23.000.
Kraft, Elise; and Schlossman, Mitchell L. Lanolin derivatives essentially comprising esters of lanolin alcohol with lactic acid. 3,835,169, Cl. 260-397.200.
Kralowetz, Bruno. Forging press. 3,834,214, Cl. 72-407.000.
Kralowetz, Bruno; and Grill, Hubert, to GFM Gesellschaft fur Fretigungstechnik und Maschinenbau Aktiengesellschaft. Forging press. 3,834,218, Cl. 72-462.000.
Kramer, David E., to Woodhead, Daniel, Inc. Hand lamp with pivotable wire cage section. 3,835,311, Cl. 240-54.00r.
Krauss, Hans Gunter, to Elmeg-Electro-Mechanik GmbH. Reset device for digit drums in counters. 3,835,303, Cl. 235-144.0hc.
Krausser, Alfred: *See—*
  Krausser, Heinz; and Krausser, Alfred, 3,834,704.
Krausser, Heinz; and Krausser, Alfred, to Edelmann, Carl, GmbH. Target with evaluating holes. 3,834,704, Cl. 273-102.00r.
Krebs, Frank; and Zimmermann, Frederick N., to March Manufacturing Company. Metering pump. 3,834,839, Cl. 417-505.000.
Krekeler, Claude B., to Cincinnati Mine Machinery Co., The. Core breaking means. 3,834,764, Cl. 299-86.000.
Kremkau, Ward Joseph, to AMP Incorporated. Crimping apparatus. 3,833,993, Cl. 29-203.00d.
Krestenyakov, Yordan Ivanov: *See—*
  Valchev, Alexander Yordanov; Ninov, Emil Pantaleev; Peev, Vasil Georgiev; Velev, Velyu Todorov; Visokomogilski, Georgi Alexandrov; and Krestenyakov, Yordan Ivanov, 3,835,230.
Krippene, Brett C.; Clark, Merle M.; and Triffon, Apostol, to Babcock & Wilcox Company, The. Fuel burner. 3,834,858, Cl. 431-279.000.
Kristiansen, Odd, to Ciba-Geigy Corporation. Propanal derivatives. 3,835,173, Cl. 260-456.00a.
Kristiansen, Odd, to Ciba-Geigy Corporation. Propanal derivatives. 3,835,174, Cl. 260-456.00a.
Krjuchkova, Alexandra Pavlovna: *See—*
  Lazareva, Elena Nikolaevna; Belozerova, Olga Petrovna; Efimova, Tamara Ivanovna; Sitnikova, Ljudmila Vladimirovna; and Krjuchkova, Alexandra Pavlovna, 3,835,190.
Krohn, Duane D.; and Culbertson, Samuel W., to Binks Manufacturing Company. High pressure electric fluid heater. 3,835,294, Cl. 219-305.000.
Kroll, Bruno: *See—*
  Specht, Hans; Kroll, Bruno; and Gruttner,Alfred, 3,834,518.
Kronheim, John H.: *See—*
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Kroy Industries Inc., mesne: *See—*
  Bradshaw, Franklin C., 3,834,507.
Krupsky, Michael R. Single suspension lounger. 3,834,757, Cl. 297-277.000.
Krusche, Kurt, to Allstar Verbrauchsgueter GmbH. & Co. Nozzle for vacuum cleaner. 3,833,962, Cl. 15-400.000.
Kublick, Christian, to Siemens Aktiengesellschaft. Voltage-frequency converter. 3,835,402, Cl. 328-181.000.
Kubota, Takashi: *See—*
  Hashizume, Shin; Kubota, Takashi; Usui, Katsuo; and Ogasahara, Hitosho, 3,834,651.
Kubovy, Miroslav: *See—*
  Havranek, Zdenek; Jiskra, Miroslav; Kubovy, Miroslav; Stary, Josef; and Vierikova, Vera, 3,834,147.
Kuchler, Fritz, to Brain Dust Patents Establishment. Discharge device for slicing machine. 3,834,259, Cl. 83-69.000.
Kuchler, Fritz, to Brain Dust Patents Establishment. Weighing system. 3,834,475, Cl. 177-25.000.
Kuhle, Engelbert: *See—*
  Widdig, Arno; Kuhle, Engelbert; and Kaspers, Helmut, 3,835,164.
Kuhn, Falk, to Fouquet-Werk Frauz & Planck. Latch opener apparatus for knitting machines and particularly circular knitting machines. 3,834,190, Cl. 66-111.000.
Kulmburg, Alfred: *See—*
  Swoboda, Karl; Kulmburg, Alfred; and Bloch, Rupert, 3,834,947.
Kummer, Joseph T.: *See—*
  Gandhi, Haren S.; Kummer, Joseph T.; and Shelef, Mordecai, 3,835,069.
Kummerow, Jack A. C., to Storer, S. A., & Sons Company. Apparatus for fabricating modular wall sections. 3,834,973, Cl. 156-558.000.
Kunert, Max; and Sandhack, Lothar, to Deutsche Texaco Aktiengesellschaft. Process for the production of high purity normal paraffins. 3,835,025, Cl. 208-25.000.
Kuparinen, Lasse, to Koh-I-Noor Rapidograph, Inc., mesne. Cleansing receptacle for capillary writing pen parts. 3,834,409, Cl. 134-117.000.
Kurebayashi, Hidetoshi: *See—*
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Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
  Nakao, Masaaki; Shiiki, Zenya; and Amagi, Yasuo, 3,835,266.
Kurioka, Takashi. Water supply cock. 3,834,665, Cl. 251-349.000.
Kurita, Takeji: *See—*
  Iida, Kosuke; Kanada, Nobuo; and Kurita, Takeji, 3,834,009.
Kurokawa, Junji; Watanabe, Toshio; and Asami, Tomiaki, to Kabushiki Kaisha Ricoh. Electrostatic latent image transferring apparatus for use in electrophotography. 3,834,810, Cl. 355-3.00r.
Kurokawa, Takaaki; Yamada, Junji; Hoshika, Susumu; and Jujo, Yukio, to Tokyo Shibaura Denki Kabushiki Kaisha. Apparatus for blowmolding hollow glassware in glass retaining unit. 3,834,884, Cl. 65-229.000.
Kus, Crawford M., to Veeder Industries Inc. Computing device. 3,835,305, Cl. 235-151.340.
Kwolek, John P.: *See—*
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La Croce, Leonard Thomas, to American Can Company. Container having a metal overcap-thermoplastic lid closure assembly. 3,834,579, Cl. 220-60.00r.
La Police, George D.; and Odermann, Charles R., to Singer Company, The. Belt guard for sewing machines. 3,834,335, Cl. 112-261.000.
La Roche, Ulrich: *See—*
  Mast, Fred; and La Roche, Ulrich, 3,835;346.
Labana, Santokh S.; Golovoy, Amos; and Chang, Yun Feng, to Ford Motor Company. Method of making a color picture tube. 3,834,926, Cl. 117-17.000.
Labeau, Russell: *See—*
  Swis, Philip E.; Labeau, Russell; and Brown, Glenn M., 3,834,221.
Labor Muszeripari Muvek: *See—*
  Kormendy, Ferenc; Nemeth, Ferenc; Muranyi, Istvan; and Balas, Gizella, 3,834,876.
Lacroix, Serge R.: *See—*
  Bourdolle, Henri M.; Lacroix, Serge R.; Fleury, Jean E.; Peuillot, Gilbert; and Pinot, Jean, 3,835,016.
Laigle, Roger E.; Rakich, Antone F.; and Sivakoff, William J., to Anaconda American Brass Company. Method and apparatus for forming an accurately dimensioned metal strip having varying thickness. 3,834,207, Cl. 72-241.000.
Lalancette, Jean Marc; and Coupal, Bernard, to Universite de Sherbrooke. Removal and recovery of chromium from polluted waters. 3,835,042, Cl. 210-28.000.
Laman, Joseph Richard, to Firestone Tire & Rubber Company, The. Floating anti-pollution apparatus. 3,834,538, Cl. 210-154.000.
Lamb, Kenneth E., to Professor, Inc., The. Racing board game apparatus. 3,834,709, Cl. 273-134.0ad.
Lamberet, Paul. Installation for manufacturing stratified isothermal panels. 3,834,968, Cl. 156-389.000.
Lambiris, Theodore, to General Motors Corporation. Method of assembly and joining shift indicator components. 3,834,007, Cl. 29-453.000.
Lamontagne, Edmond Joseph Honore. Portable press for reducing the size of tubing. 3,834,206, Cl. 72-211.000.
Lamp, Edward F.: *See—*
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Lampman, Russell A.; and Knepshield, William R., to KLI, Inc. Laparoscopy system. 3,834,392, Cl. 128-303.130.
Lamprecht, Rudolf, to General Motors Corporation. Catalytic converter overheating protection. 3,835,433, Cl. 337-382.000.
Lancaster Level-Flo, Inc.: *See—*
  Stoltzfus, Henry S.; and Stoltzfus, John S., 3,834,768.
Landis & G Y R AG: *See—*
  Dyntar, Milos, 3,834,617.

Lane, Richard T. Quickly-collapsible shell fish trap. 3,834,064, Cl. 43-100.000.
Lang, Franz Josef, to Display-Design GmbH fur moderne Verkaufsforderungsmittel und Raumausstattung. Rack construction for the storage of articles. 3,834,324, Cl. 108-91.000.
Langemann, Albert: *See—*
  Furst, Andor; Furlenmeier, Andre; Langemann, Albert; Waldovogel, Guy; Hocks, Peter; Kerb, Ulrich; and Wiechert, Rudolf, 3,835,127.
Langer, Alois: *See—*
  Witte, Waldemar; and Langer, Alois, 3,835,309.
Lapeyre, Gabriel Ernest Rene. Device for fixing a dental prosthesis. 3,834,023, Cl. 32-5.000.
Lapper, Maurice Noel, to British Steel Corporation. Stock cutting measurement systems. 3,834,262, Cl. 83-345.000.
Laronze, Joseph, to Compagnie Electro Mecanique. Relative to linear induction motor and cooling device applied to the same. 3,835,339, Cl. 310-13.000.
Larson, Clarence E.; Dawley, Richard H.; and Reese, Roger H., to Martin Marietta Corporation. Portable bin carrier assembly. 3,834,568, Cl. 214-307.000.
Larson, Harry D.: *See—*
  Tuffias, Robert H.; and Larson, Harry D., 3,834,775.
Larson, Lewis G., to Phillips Petroleum Company. Downflow cocurrent catalytic cracking. 3,835,029, Cl. 208-113.000.
Larson, Richard E., to Cherne Industrial, Inc. Sewer repair apparatus. 3,834,422, Cl. 138-97.000.
Last, Arthur W.: *See—*
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Latash, Jury Vadimovich: *See—*
  Medovar, Boris Izrailevich; Bagla, Vitaly Mikhailovich; Latash, Jury Vadimovich; Emelyanenko, July Georgievich; Fedorovsky, Boris Borisovich; Alferoy, Jury Fedorovich; and Abramovich, Evgeny Alexandrovich, 3,834,446.
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Lazareva, Elena Nikolaevna; Belozerova, Olga Petrovna; Efimova, Tamara Ivanovna; Sitnikova, Ljudmila Vladimirovna; and Krjuchkova, Alexandra Pavlovna. Chemical compound, N,N'-dibenzylethylenediaminodimethyltetracycline. 3,835,190, Cl. 260-559.000.
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Lebold, Steve. Easily removable orthopedic shoe platform. 3,834,377, Cl. 128-80.00g.
Lederman, Warren A.; and Pawlak, Alfred J., to Johnson Service Company. Fluidic respirator control system with patient triggering response means. 3,834,382, Cl. 128-145.800.
Lee, Charles A.; Furbeck, Warren R.; and Kemp, Horace N., to International Paper Company, mesne. Web folding apparatus. 3,834,689, Cl. 270-41.000.
Lee, Gim F., Jr., to General Electric Company. Composition of a polyphenylene ether, a rubber styrene graft copolymer and normally rigid block copolymer of a vinyl aromatic compound. 3,835,200, Cl. 260-876.00r.
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  Poppenberger, Leopold H., 3,834,693.
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Leffler, Dennis Frank, to Pelton & Crane Company. Pedestal for a treatment chair. 3,834,660, Cl. 248-418.000.
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Leonhart, Xaver. Pocket billiard game apparatus. 3,834,706, Cl. 273-122.00r.

Lerner, Irwin S.; Davis, Hugh J.; and Earl, Thad J., to Robins, A. H., Company Incorporated. Intrauterine device. 3,834,378, Cl. 128-130.000.

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Level, Bertrand P. E., to Plastrex-Manurhin S.A.R.L. Retractable winding mandrel. 3,834,641, Cl. 242-72.100.

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Lewis, Sheldon N.; and Miller, George Allen, to Rohm & Haas Company. Derivatives of 3-isothiazolones with active halogen compounds. 3,835,150, Cl. 260-302.00a.

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Lin, James G.: *See—*

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Lincoln, Frank H., Jr.; Pike, John F.; and Youngdale, Gilbert A., to Upjohn Company, The. 15 Alkoxy PGE compounds. 3,835,180, Cl. 260-468.00d.

Lincoln Manufacturing Company, Inc.: *See—*

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Linde Aktiengesellschaft: *See—*

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Linder, Ernst; Adalbert, Gerhard; and Hess, Jurgen, to Bosch, Robert, GmbH. Rotor supporting arrangement for a compressor. 3,834,846, Cl. 418-255.000.

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Linick, Richard. Extensible toilet tissue roll holder. 3,834,636, Cl. 242-55.200.

Linstruth, Charles A., to Van Straaten Chemical Company. Magnetic separator and conveyor. 3,834,542, Cl. 210-222.000.

Linz, Albert. Vehicle mounted vibratory compactor. 3,834,827, Cl. 404-133.000.

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Lipodaev, Vladimir Nikolaevich: *See—*

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Lockheed Aircraft Corporation: *See—*

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LogEtronics Inc.: *See—*

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LoGiudice, Roberto C. Welder's mask. 3,833,936, Cl. 2-8.000.

LoGiudice, Roberto C. Welders's mask. 3,888,936, Cl. 2-8.000.

Logsdon, Duane D. Washing machine connection structure. 3,834,781, Cl. 312-229.000.

Long Mfg. N.C., Inc.: *See—*

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Long, William R., to Long Mfg. N.C., Inc. Method and apparatus for harvesting and treating tobacco. 3,834,137, Cl. 56-27.500.

Longworth, Edward, Jr., to Paulding, John I., Inc. Self-grounding clip for the mounting strap of an electric switch or receptacle. 3,835,438, Cl. 339-14.00r.

Lonnee, Noble M. Self-locking price tag. 3,834,748, Cl. 292-320.000.

Lonza Ltd.: *See—*

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Loomis, Phillip Eugene; and Morgan, Joe Pierce, to AMP Incorporated. Method and apparatus for disposing unassembled insulating housings in a predetermined position for facilitating placement of articles such as electrical connecting devices within said houings. 3,834,016, Cl. 29-630.00a.

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Lorenz, William K.; Sebesta, Edward C.; and McClellan, Charles L., to Sun Oil Company of Pennsylvania. Solid waste disposal process. 3,835,021, Cl. 208-13.000.

Lovelock, James E., to California Institute of Technology. Combined electrolytic hydrogen gas separator and generator for gas chromatographic systems. 3,835,019, Cl. 204-246.000.

Lowery, William E.; and Jennings, Roger G., to Control Building Systems, Inc. Apparatus for forming foamed panels. 3,834,967, Cl. 156-356.000.

Lowrance, Darrell J., to Lowrance Electronics, Inc. Light emitting diode readout. 3,835,447, Cl. 340-3.00r.

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Luchok, John; and Wooding, Patrick J., to Consarc Corporation. Apparatus for casting a plurality of ingots in a consumable electrode furnace. 3,834,447, Cl. 164-273.00m.

Ludvigsen, Hans Thorkil. Building element. 3,834,108, Cl. 52-593.000.

Ludwig, Gary Joe; and Wood, Loren E., to Black, Sivalls & Bryson, Inc. Safety pressure relief device. 3,834,580, Cl. 220-89.00a.

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Luke, Theodore E.; and Cummins, Stewart E., to United States of AMerica, Air Force. Birefringence read $Bi_4Ti_3O_{12}$ display and memory device. 3,835,459, Cl. 340-173.200.

Lumby, Roland John: *See—*

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Luoni, Biagio, to USAG S.p.A. Trolley adapted to hold or to exhibit things or articles of different kinds. 3,834,725, Cl. 280-79.200.

Lydick, Leslie B., to B. F. Goodrich Company, The. Vinyl halide plastisol compositions containing a carboxylic polymer. 3,835,116, Cl. 260-17.45g.

Lynn, Merill: *See—*

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Lystad, Leonard A., to General Motors Corporation. Window regulator for a station wagon tailgate window. 3,834,080, Cl. 49-348.000.

Maag, Gustav A.; and Callaham, John E., to Procter & Gamble Company, The. Selectively insulated mill roll. 3,834,205, Cl. 72-201.000.

Macha, Frank J., Jr.: *See—*

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Macken, John A., to Rockwell International Corporation. Cumulative optical frequency shifter. 3,834,790, Cl. 350-157.000.

Maddox, Jim, Jr.; Zimmerman, Margaret J.; and Tuggle, Ray, to Texaco Inc. Demulsification compositions containing alkyl ether sulfates alkyl ether sulfates. 3,835,060, Cl. 252-332.000.

Madsen, Per, to Bendix Corporation, The. Laminated heat pipe and method of manufacture. 3,834,457, Cl. 165-105.000.

Maenicke, Eckart: *See—*

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Maerker, Gerhard: *See—*

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Mahlman, Harvey A.; and Sisson, Warren G., to United States of America, Atomic Energy Commission. Cross-flow filtration process. 3,835,040, Cl. 210-23.000.

Mahner, Helmut; and Kammerlander, Karl, to Siemens Aktiengesellschaft. System for two or more combined communication channels regulated in accordance with linear relationships. 3,835,392, Cl. 325-306.000.

Mahoney, James G. Eyeshield for horses. 3,834,121, Cl. 54-80.000.

Maine Technical Industries Incorporated: *See—*

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Malen, Charles; Danree, Bernard; and Pascaud, Xavier, to Science Union Et Cie Societe Francaise De Recherche Medicale. Quinalythiohydroximic acids and their derivatives. 3,835,141, Cl. 260-283.00s.

Maley, Edward F.: *See—*

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Malinowski, William J.: *See—*

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Mallinder, Frederick Paul; and Hannah, Clifford George, to Rolls-Royce (1971) Limited. Fibre reinforced composite structures. 3,834,832, Cl. 416-230.000.

Mallory, P. R., & Co. Inc.: *See—*

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Malootian, Markay H.: *See—*

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Malouf, Emil Edward: *See—*

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Mammino, Joseph: *See—*

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Mannix, Frank L. Diffrential microwave heating container. 3,835,281, Cl. 219-10.550.

March Manufacturing Company: *See—*

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Marchner, Jan, to Allmanna Svenska Elektriska Aktiebogaget. Tilting furnace. 3,835,231, Cl. 13-10.000.

Marchner Jan, to Allmanna Svenska Elektriska Aktiebolaget. Charging means. 3,835,232, Cl. 13-10.000.

Marconi, Walter: *See—*

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Mardiguian, Jean; and Fournier, Pierre, to Societe a Responsabilite Limitee dite: Societe d'Etude et d'Exploitation de Marques Mar-Pha. Heparin esters. 3,835,112, Cl. 260-211.00r.

Maremont Corporation: *See—*

Smeltzer, Paul; and Daneck, David A., 3,834,019.

Margraf, Adolf. Dust and like filters method. 3,834,123, Cl. 55-96.000.

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Marin, Heiner, to Siemens Aktiengesellschaft. Contact system for a high-voltage circuit breaker. 3,835,274, Cl. 200-148.00r.

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Marron, Henry B., to Jerrold Electronics Corporation. Duplex cable communications network employing automatic gain control utilizing a band limited noise AGC pilot. 3,835,393, Cl. 325-308.000.

Martin, A. Robert. Electrically controlled ultra-micromanipulator. 3,835,338, Cl. 310-8.600.

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Martinez, Sylvia. Chemical migration ratio instrument. 3,835,304, Cl. 235-151.300.

Masatchi, Morteza, to Garlock Inc. Pipe coupling. 3,834,744, Cl. 285-373.000.

Masato, Tanabe, to Schering Corporation. 3'-Keto-2',3'-seco-1'(2')-yne steriodal derivatives, methods for their manufacture, and compounds produced thereby. 3,835,160, Cl. 260-340.900.

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Masterson, Joseph B.; and Lawler, John D., to General Cable Corporation. Adaptor for modifying connector to accomodate smaller conductors. 3,835,241, Cl. 174-87.000.

Matson, Chares Bernard, to Cincinnati, Milacron Inc. Wedge flow coolant nozzle for grinding machine. 3,834,088, Cl. 51-267.000.

Matsui, Masanao; and Okumo, Yositosi, to Sumitomo Chemical Company Limited. Insecticidal composition comprising vinylcyclopropanecarboxylates. 3,835,220, Cl. 424-17.000.

Matsumoto, Seiji; and Honjo, Satoru, to Fuji Shashin Film Kabushiki Kaisha. Copying process utilizing a transparent composite filter with elementary zones. 3,834,904, Cl. 96-27.00e.

Matsumoto, Yutaka. Foldable hanger. 3,834,598, Cl. 223-89.000.

Matsumura, Kozo; and Ito, Sigeki, to Nissha Printing Co., Ltd. Transfer material. 3,834,925, Cl. 117-3.400.

Matsuo, Takashi; Itaya, Nobushige; Okuno, Yositosi; Mizutani, Toshio; Ohno, Nobuo; and Kitamura, Shigeyoshi, to Sumitomo Chemical Company, Limited. Alpha-cyanobenzyl cyclopropanecarboxylates. 3,835,176, Cl. 260-465.00d.

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  - Tomita, Masao; Fujisawa, Kiyoji; and Miura, Takashi, 3,835,401.
  - Tsukamoto, Masahide; and Ohtsuka, Tetsuro, 3,835,463.
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- Matsushita, Izumi; Tanada, Kiyoshi; and Honjo, Osamu, to Nippon Steel Corporation. Method of manufacturing cold-rolled non-oriented electro-6 magnetic steel sheet and product electromagnetic steel sheet. 3,834,952, Cl. 148-112.000.
- Matsushita, Michiharu: *See—*
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- Matthaus, Gunther, to Siemens Aktiengesellschaft. Fluid cooled electrical cable. 3,835,240, Cl. 174-15.00c.
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- Mattox, William Judson; and Arey, William Floyd, Jr., to Esso Research and Engineering Company. Crystalline alumino-silicate catalysts for catalytic cracking. 3,835,030, Cl. 208-120.000.
- Matula, Jerry, to Pertec Corporation. Rotational position sensor utilizing a hall device and means to maintain the hall voltage constant. 3,835,373, Cl. 324-34.0ps.
- Matz, Bjorn J., to Dictaphone Corporation. Privacy and seizure control circuit for a remote station dictating system. 3,835,261, Cl. 179-100.1dr.
- Maurelli, Manlio: *See—*
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- Maurer, Wilhelm. Shoe fastening. 3,834,048, Cl. 36-50.000.
- Mawhinney, Robert C.; Lamp, Edward F.; and Mulich, Stephen F., Jr., to MB Associates. Cartridge. 3,834,311, Cl. 102-41.000.
- May, Erhard Thaddaus, to Ott, A. Device for holding a spindle for drawing-off of a yarn. 3,834,647, Cl. 242-130.200.
- Mayer, Karl, Textilmaschinenfabrik GmbH: *See—*
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- MB Associates: *See—*
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- McAlister, Dale L. Electrical heating apparatus for generating superheated vapors. 3,835,293, Cl. 219-300.000.
- McAllister, Robert L., to American Air Filter Company, Inc. Fluid tight seal for fluid treating filter. 3,834,134, Cl. 55-378.000.
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- McCabe, Francis J. Method of fabricating and assembling a damper. 3,833,989, Cl. 29-157.00r.
- McCarroll, Alan F., to Xerox Corporation. Pressure heated fuser assembly. 3,834,861, Cl. 432-60.000.
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- McClellan, Amos E.; and Daugherty, Donald E., to Sperry Rand Corporation. Mechanism for securing and locking the posting board of a mechanized filing cabinet. 3,834,780, Cl. 312-219.000.
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- McConnell, Lloyd T.; and Trimmier, John R., to Advance Technology Center, Inc. Dichromic mirror having multilayer thin films including vanadium dioxide. 3,834,793, Cl. 350-160.00r.
- McCord, Carolyn Creel. Nurse's cap attachment system. 3,834,405, Cl. 132-101.000.
- McCord, Wilfred M., Jr., to Vermont American Corporation. Dovetail fixture. 3,834,435, Cl. 141-144.500.
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- McCracken, George T., to King Musical Instruments; a division of Seeburg Corporation of Delaware, The. Trombone support. 3,834,268, Cl. 84-453.000.
- McCracken, Nathan John, to Polymer Corporation Limited. Method for drying polymeric materials. 3,834,440, Cl. 159-47.00r.
- McCraney, Thomas E.: *See—*
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- McDevitt, John P.; and Chang, Marguerite S., to United States of America, Navy. . 3,834,957, Cl. Solvent process for productio.
- McDole, Ewell E.; and Howard, Frank L., to Kaiser Aluminum & Chemical Corporation. Emulsion for hot rolling aluminum products. 3,835,052, Cl. 252-49.500.
- McDonald, George B., to Control Data Canada, Ltd. Methods and apparatus for determining the thrust of a jet engine. 3,834,222, Cl. 73-117.400.
- McDuffee, Charles M. Power Humidifier. 3,834,683, Cl. 261-138.000.
- McFadden, Buryl L., Jr.: *See—*
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- McGee, Leland T. Hydraulic trailer steering and sway control mechanism. 3,834,480, Cl. 180-79.20b.
- McGilp, Kenneth J., to Excel Tool and Die Corporation. Motorcycle drive chain tensioner kit. 3,834,246, Cl. 74-242.11b.
- McGrath, William K., to United States Steel Corporation. Method of erecting a cantiliver truss bridge;bridge; panel for a bridge; and dummy chords fsor panel. 3,833,959, Cl. 14-14.000.
- McGuire, Stephen E.; Stauter, John C.; and Kennedy, Carl D., to Continental Oil Company. Concentration of oxide copper ores by flotation separation. 3,834,533, Cl. 209-166.000.
- McKay, Robert H.: *See—*
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- McLaughlin, Donald W., to GTE Automatic Electric Laboratories, Incorporated. Method of recording data including sampling rate. 3,835,257, Cl. 179-8.00a.
- McMurry, Everett D., to McMurry Oil Tools, Inc. Method and apparatus for gas-lift production of liquid from wells. 3,834,414, Cl. 137-155.000.
- McMurry Oil Tools, Inc.: *See—*
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- McNamara, John J., Jr.; and Baum, William. Removable weight for practicing with athletic implements. 3,834,697, Cl. 273-1.00b.
- McPhee, Charles J., to American Hospital Supply Corporation. Mixing column for medical humidifier and method of humidifying inhalable gases. 3,834,682, Cl. 261-123.000.
- McPhillips, Norris J., to Parker-Hannifin Corporation. Tube coupling. 3,834,742, Cl. 285-249.000.
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- Meehan, John F. Water skate. 3,833,956, Cl. 9-310.00d.
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- Megraw, Robert E.; and Woodson, Judith C., to Warner-Lambert Company. Colorimetric assay for lysozyme. 3,834,991, Cl. 195-103.50r.
- Meier, Dale J.; and St. Clair, David J., to Shell Oil Company. Lubricating compositions. 3,835,053, Cl. 252-59.000.
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- Mengler, Helmut; Rosch, Gunter; Schinzel, Erich; and Smerz, Otto, to Farbwerke Hoechst Aktiengesellscahft vormals Meister Lucius & Bruning. Styryl-pyrazoline compounds. 3,835,126, Cl. 260-239.900.
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- Meric, Jean Paul, to Centre d'Etudes et de Recherches de l'Industrie des Liants Hydrauliques. Continuous measurement of the fineness of a pulverulent material. 3,834,818, Cl. 356-102.000.
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- Meyer, Virginia M. Panic bar safety plate. 3,834,077, Cl. 49-50.000.
- Meyers Taylor Pty., Ltd.: *See—*
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- Miller, Joseph. Adapter apparatus for tractor. 3,834,567, Cl. 214-145.000.
- Milne, David T.; Plumpe, David J.; and Armstrong, David E. Current switching frequency modulator. 3,835,419, Cl. 332-16.00r.
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- Mirdadian, Mohammad Kian; and Schwartz, Robert J. Apparatus for detecting the presence of electrically conductive material within a given sensing area. 3,835,371, Cl. 324-3.000.
- Mirtain, Henri, to Uniroyal S.A. Asymmetric pneumatic vehicle tire. 3,834,439, Cl. 152-361.0fp.
- Mitchell, Ernest L., to Westinghouse Electric Corporation. Blade shank cooling arrangement. 3,834,831, Cl. 416-95.000.
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- Moehring, John Theodore; and Totten, Thomas Norman, Sr., to General Electric Company. Light-off transient control for an augmented gas turbine engine. 3,834,160, Cl. 60-243.000.
- Moeller, John T. Method and apparatus for forming a cabochon. 3,834,085, Cl. 51-127.000.
- Moggio, William A., to Armstrong Cork Company. Conditioned slide surface for carpet printer. 3,834,308, Cl. 101-407.0bp.
- Molitorisz, Joseph Bellevue, to Rotopak Systems Inc. Automatic density control for rolling-compressing machines. 3,834,300, Cl. 100-89.000.
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Moody, Nahum. Hospital bed with removable bed pan. 3,833,945, Cl. 5-90.000.
Moon, Malcolm W.; and Rizzo, Victor L., to Upjohn Company, The. Herbicidal methods and compositions using 1'-variable-1; 1'-dihalohalobenzeneazomethanes. 3,834,892, Cl. 71-121.000.
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Morane, Bruno P.; Paoletti, Charles; Maurelli, Manlio; Merrien, Louis; and Sathicq, Robert, to L'Oreal. Pressure-responsive safety device for aerosol dispenser and containers equipped therewith. 3,834,589, Cl. 222-80.000.
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Moshofsky, Jerome F. Scrap materials processor. 3,834,264, Cl. 83-356.300.
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Moulin, Norbert L., to Hughes Aircraft Company. Assembly tool for replacement of wire seal, electrical contact. 3,833,992, Cl. 29-203.00h.
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Muller, Otto, to Staubli Ltd. Method and apparatus for connecting the one ends of heddles or rather spring tie-rods to elastic draw cords in a jacquard machine. 3,834,426, Cl. 139-85.000.
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Nakamura, Hiroshi; and Ohyama, Hiroaki, to Fujitsu Limited. Extracting circuit for reproducing carrier signals from a multiphase modulated signal. 3,835,404, Cl. 329-104.000.
Nakamura, Masakatsu; Yonezawa, Toshio; Kato, Taketoshi; Watanabe, Masaharu; and Akatsuka, Minoru, to Tokyo Sibaura Electric Co., Ltd. Semiconductor devices containing as impurities As and P or B and the method of manufacturing the same. 3,834,953, Cl. 148-86.000.
Nakao, Masaaki; Shiiki, Zenya; and Amagi, Yasuo, to Kureha Kagaku Kogyo Kabushiki Kaisha. Hollow carbonaceous microspheres suitable for use in carbon microphones. 3,835,266, Cl. 179-190.000.
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Neumann, Gerhard Max, to Delbag-Luftfilter Gesellschaft mit beschrankter Haftung. Roller web filter for purification of gas. 3,834,131, Cl. 55-354.000.
Nevalainen, Harri P., to Ovako Oy. Low-carbon, high-strength structural steel with good weldability. 3,834,897, Cl. 75-124.000.
Newland, Tandy H., to General Motors Corporation. Weld bead removal procedure. 3,834,275, Cl. 90-24.00b.
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- Nisenson, Stanley M.; and Green, David L., to Allied Chemical Corporation. Non-woven product. 3,834,978, Cl. 161-81.000.
- Nishimura, Izuhiko; and Shimoi, Akio, to Kabushiki Kaisha Suwa Seikosha. Time correction device for electronic timpieces. 3,834,152, Cl. 58-23.00r.
- Nishimura, Katsutoshi; Fujisawa, Kiyoji; and Yosumi, Toshikazu, to Matsushita Electric Industrial Co., Ltd. FM demodulation system. 3,835,405, Cl. 329-126.000.
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- Noble, Allen. Decimal point indicator for slide rule. 3,834,614, Cl. 235-64.300.
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- Nystrand, Ernst Daniel, to Paper Converting Machine Company. Plybonding method, apparatus and product. 3,834,286, Cl. 93-1.100.
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  - Heitmann, William E.; and Oakwood, Thomas G., 3,834,949.
- Obergfell, Allen R., to Fastener Corporation. Fastener driving tool. 3,834,602, Cl. 227-120.000.
- Obladen, Peter: *See—*
  - Schiller, Werner; Obladen, Peter; and Peters, Leonhard, 3,834,216.
- O'Brien, Thomas Francis, to Penn-Olin Chemical Company. Ion exchange removal of dichromates from electrolytically produced alkali metal chlorate-chloride solutions. 3,835,001, Cl. 204-95.000.
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  - Yamada, Keisho; Umemura, sumio; Odan, Kyoji; Hidaka, Mikio; and Fukuda, Kazuo, 3,835,193.
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- Oestmann, Eldon D.: *See—*
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- Ohlson, Stuart A. Building construction and method. 3,834,095, Cl. 52-122.000.
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- Ohringer, Jack G. Stress indicating bolt. 3,834,269, Cl. 85-62.000.
- Ohsumi, Yoshiro: *See—*
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- Oka, Takashi; Arima, Tatsuhiro; and Noda, Tugio, to Nissan Motor Company, Limited. Sealing unit for pressurized gas generator of automotive safety device. 3,834,729, Cl. 280-150.0ab.
- Okada, Jujiro; and Satoo, Isamu. Apparatus to draw an oval. 3,834,028, Cl. 33-30.00g.
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- Oswald, Hendrikus J.; and Thiruvillakkat, Krishnan, to Allied Chemical Corporation. Melt blends of carboxylic acid terminated, low molecular weight polyamide and polyvalent metal compounds. 3,835,101, Cl. 260-78.0sc.
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- Overstreet, Vern C., to Haynes, Marguerite M. Releasable sinker using water-soluble material and resilient attaching means. 3,834,059, Cl. 43-34.120.
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- Pages, Michel: *See—*
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- Palmer, J. F. Shock absorbing bumper system. 3,834,483, Cl. 180-91.000.
- Palmieri, Joseph; and French, Douglas M., to Westport International, Inc. Plural channel FM remote control system. 3,835,454, Cl. 340-171.00r.
- Pampinella, Albert N. Toilet article container. 3,834,782, Cl. 312-248.000.
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- Parkison, Richard G., to American Standard Inc. Ceramic disc faucet valve. 3,834,416, Cl. 137-550.000.
- Parsons, Hubert J., to Hardinge Brothers, Inc. Self-centering jaw chuck. 3,834,720, Cl. 279-1.001.
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- Paschal, Forrest A.; and Stuart, Gerald L., to Forrest Paschal Machinery Company. Brick unloader-stacker apparatus. 3,834,298, Cl. 100-7.000.
- Pass, Roger D. Method of stringing a game racket. 3,834,699, Cl. 273-73.00d.
- Patenaude, Raymond Arthur; and Tonseth, Ivar Scott, Jr., to General Electric Company. Multibarrel automatic weapon. 3,834,272, Cl. 89-12.000.
- Patin, Pierre. Variable speed drive system. 3,834,520, Cl. 198-110.000.
- Paton, Boris Evgenievich; Lebedev, Vladimir Konstatinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Viatly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovic; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladiir Mikhailovich; and Voronin, Georgy Alexandrovich, to Institut Elektrosvarki IM. E. O. Patona. Electroslag remelting system with wqualized plural electrode remelting. 3,835,227, Cl. 13-9.000.
- Paton, Boris Evgenievich; Lebedev, Vladimir Konstatinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovic; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladiir Mikhailovich; and Voronin, Georgy Alexandrovich, to Institut Elektrosvarki IM. E. O. Patona. Method for electroslag remelting with equalized plural electrode remelting. 3,835,228, Cl. 13-9.000.
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- Patterson, Maurice M.; and Sheffield, Bass C., to Shell Oil Company. Method for determining liquid production from a well. 3,834,227, Cl. 73-155.000.
- Paul, Dennis D. Smoking pipe. 3,834,402, Cl. 131-205.000.
- Paulding, John I., Inc.: *See—*
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- Paulin, Jean, to Ugine Carbone. Method of mounting rings of hard sintered metal on a rolling cylinder. 3,833,982, Cl. 29-148.40d.
- Paulson, Harold E. Printing press feed mechanism. 3,834,691, Cl. 271-100.000.
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- Pecorella, Saviour S.; and Shotkin, Robert, to Becton, Dickinson and Company. Disposable temperature indicator. 3,834,226, Cl. 73-150.00a.
- Pedinoff, Melvin E., to Hughes Aircraft Company. Colinear heterodyne frequency modulator. 3,834,816, Cl. 356-28.000.
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- Penny, Robert Noel. Rotary regenerative heat exchanger. 3,834,450, Cl. 165-8.000.
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- Periman, Rubie E. Fishing rod beeper. 3,835,462, Cl. 340-279.000.
- Perkel, Harold, to RCA Corporation. Closed loop roll and yaw control for satellites. 3,834,653, Cl. 244-1.0sa.
- Perkins, Lee E. Jarring accelerator. 3,834,472, Cl. 175-321.000.
- Perkins, N. Kenneth: *See—*
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Peters, Donald E. Floating space frame. 3,834,336, Cl. 114-.50f.
Peters, Leo. Tear strip sealing structure for blister packages. 3,835,224, Cl. 426-130.000.
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Pfister, Jurg R.; Harrison, Ian T.; and Fried, John H., to Syntex (U.S.A.) Inc., mesne. N-substituted acridone carboxylic acids and derivatives. 3,835,139, Cl. 260-279.00r.
Pfister, Jurg R.; Harrison, Ian T.; and Fried, John H., to Syntex (U.S.A.) Inc., mesne. Heterocyclic substituted xanthone carboxylic acid compounds. 3,835,157, Cl. 260-332.20a.
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Picker, Patrick, to Universite de Sherbrooke. Differential thermal detection and differential flow microcalorimetry. 3,834,873, Cl. 23-230.00r.
Pickford, Nigel Evans; and Daerds, Henry Charles, to British Visqueen Limited. Carrier-bags. 3,834,528, Cl. 206-526.000.
Pieters, Leon Andre, to Image Analysing Computers Limited. Information modification in image analysis systems employing line scanning. 3,835,245, Cl. 178-6.800.
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Pinkard, Richard L. Framing template. 3,834,033, Cl. 33-174.00g.
Pinkerton, William E., to Huck Manufacturing Company. Method of setting a threaded fastener. 3,834,011, Cl. 29-517.000.
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Pirovano, Camillo. Batch feeder with flexible and adjustable container walls. 3,834,591, Cl. 222-185.000.
Pityo, Albert F., to Reel Power Equipment, Inc. Boat anchor winch mechanism. 3,834,670, Cl. 254-150.00r.
Pivawer, Philip M., to Olin Corporation. Process for hydrolyzing pyrophosphates. 3,835,206, Cl. 260-983.000.
Plana, Roberto; and Villazon, Francisco, to AMP Incorporated. Slotted plate connector. 3,835,444, Cl. 339-98.000.
Plastrex-Manurhin S.A.R.L.: *See—*
Level, Bertrand P. E., 3,834,641.
Platt International Limited: *See—*
Ellingham, Bruce; and Chisholm, Andrew Alexander, 3,834,145.
Plessey Handel und Investments A.G.: *See—*
Field, John Rosslyn, 3,835,276.
Plumpe, David J.: *See—*
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Pluta, Linda J.: *See—*
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Pocock, Walter E., to United States of America, Navy. Method of reducing solid arcing product build-up between electrical contacts in pressurized fluid ambients. 3,835,278, Cl. 200-249.000.
Poehlmann, George: *See—*
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Pogonowski, Ivo C., to Texaco Inc. Method of joining telescoped pipe sections. 3,834,012, Cl. 29-523.000.
Polley, Eugene: *See—*
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Ponci, Riccardo: *See—*
Arsura, Emilio; Baruffini, Agostino; Giald, Franco; Pellegrini, Giovanni; Ponci, Riccardo; and Scrivani, Pietro, 3,835,189.
Poppenberger, Leopold H., to Lee, Raymond, Organization, Inc., The. Ski instruction apparatus. 3,834,693, Cl. 272-57.00b.
Portec, Inc.: *See—*
Pratt, Robert A.; Broling, Keith W.; and Tatina, Richard A., 3,834,321.
Portyrata, Raymond E., to Diaclear, Inc. Swimming pool filtering system. 3,834,535, Cl. 210-75.000.
Pottage, Paul Richmond: *See—*
Rundell, John Trethowan; and Pottage, Paul Richmond, 3,834,541.
Potter Instrument Company, Inc.: *See—*
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Potter, John T., to Potter Instrument Company, Inc. Helical bar printer and hammer therefor. 3,834,304, Cl. 101-930.000.
Potts, Richard McCrea: *See—*
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Pouzou, Albert M., to Reynolds Metals Company. Ball bat. 3,834,698, Cl. 273-72.00a.
Powell, John M.: *See—*
McAusland, Robert R.; and Powell, John M., 3,834,044.
Powers, Joseph E., to Kaiser Steel Corporation. Nailable steel floor planking for freight vehicles. 3,834,105, Cl. 52-377.000.
PPG Industries, Inc.: *See—*
Dunsmoor, Lyle H., 3,835,217.
Frank, Robert G., 3,834,885.
Hammel, Joseph J., 3,834,911.
Hummell, John D., 3,834,055.
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Prater, John D.: *See—*
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Pratt, Robert A.; Broling, Keith W.; and Tatina, Richard A., to Portec, Inc. Cushioned rack for containers on flatcars. 3,834,321, Cl. 105-366.00a.
Pravednaya, Ljudmila Dmitrievna: *See—*
Kaljuko, Alexei Yakovlevich; Simkhovich, Fridrikh Levikovich; Cherednik, Nina Fedorovna; Pravednaya, Ljudmila Dmitrievna; Kasakov, Alexei Mikhailovich; Saposhkov, Alexandr Mikhailovich; and Lischinsky, Anri Iosifovich, 3,835,250.
Prendergast, John M., Jr.: *See—*
Fendley, Richard L.; Hoenig, Gerhard E.; Poehlmann, George; and Prendergast, John M., Jr., 3,834,604.
Prenn, Otto E., to Steel Company of Canada, Limited, The. Electrode seals for electric-arc furnaces. 3,835,233, Cl. 13-17.000.
Prentice, Winslow W.; and Malootian, Markay H., to United States of America, Navy. Method of making fusible and electircal conductive coating. 3,834,960, Cl. 156-53.000.
Prescher, Kenneth E.; Schauer, Ronald E.; and Sikorski, Frank B., to GTE Automatic Electric Laboratories, Incorporated. Comminication switching system, with marker, register, and other subsystems coordinated by a stored program central processor. 3,835,260 Cl. 179-18.0es.
Preston, Jerome A., to Essex International Inc. Theic-hydantoin-ester resins for wire coatings. 3,835,121, Cl. 260-77.5nc.
Preuss, Bernhard, to Siemens Adtiengesellschaft. Electric power circuit breaker equipped with a latching mechanism wherein restoring forces are provided as a function of switching shaft position. 3,835,275, Cl. 200-153.0sc.
Pridgen, Robert H. Leg muscle exercise apparatus. 3,834,694, Cl. 272-58.000.
Priebs, Horst, to Anker-Werke AG. Recorder head for code characters in line printing. 3,834,506, Cl. 197-1.00r.
Procter & Gamble Company, The: *See—*
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Maag, Gustav A.; and Callaham, John E., 3,834,205.
White, Ronald E., 3,835,058.
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Thompson, Jimmy M., 3,834,871.
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Professor, Inc., The: *See—*
Lamb, Kenneth E., 3,834,709.
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Pullman Incorporated: *See—*
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Puls, Werner H.: *See—*
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Pum, Franz, to Alberto-Culver Company. Oxidation dye compositions containing 5-aminoguaiacols as couplers. 3,834,866, Cl. 8-11.000.
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Putney, Gordon A., to Koerper Engineering Associates, Inc. Fluidized bed coating method. 3,834,927, Cl. 117-21.000.
Putzig, Donald Edward, to Du Pont de Nemours, E. I., and Company. Blue disperse 1,4-diaminoanthraquinone-2,3-dicarboximide dyes. 3,835,154, Cl. 260-326.00c.
Pyrotenax Limited: *See—*
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Queneau, Paul B.; and Prater, John D., to Kennecott Copper Corporation. Combined chemical treatment and flotation process for recovering relatively high grade molybdenite from off grade ore low grade ore materials. 3,834,893, Cl. 75-2.000.
Quigley, Richard E., Jr.; and McFadden, Buryl L., Jr., to United States of America, Air Force. Dual mode auxiliary power unit. 3,834,161, Cl. 60-244.000.
Quindar Electronics, Inc.: *See—*
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Quinn, Brian P., to United States of America, Air Force. Compact high thrust augmentation ejector system. 3,834,834, Cl. 417-179.000.
Raag, Frants Ivanovich: *See—*
Nessler, Andrei Maximilianovich; Raag, Frants Ivanovich; Savelieva, Maria Pavolovna; Vikhrova, Agrippina Gavrilovna; and Dmitriev, Leonid Sergeevich, 3,834,146.
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Rabelos, Nicholas A., to Rescue Industries, Inc. Fire escape device with belt tightening slide. 3,834,489, Cl. 182-5.000.

Rack, David. Shape-retaining substrate for a plant and method of making the same. 3,834,072, Cl. 47-37.000.
Rademacher, Friedrich, to Holstein & Kappert Maschinenfabrik Phonix GmbH. Movably displaceable return gas pipe in a counter pressure filling machine. 3,834,428, Cl. 141-39.000.
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Radke, Rodney O.: *See—*
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Raimbault, Pierre Lucien, to L.C.C.-C.I.C.E. Compagnie Europeenne de Composants. Liquid crystal display devices and methods of manufacturing such devices. 3,834,791, Cl. 350-160.01c.
Rainer, Ewald Joseph. Variable length ski. 3,834,722, Cl. 280-11.13k.
Raines, Herman R. Surgical mask with adhesive vapor barrier. 3,834,384, Cl. 128-146.200.
Rainsford Metal Products Proprietary Limited: *See—*
Heath, Robert Boyson, 3,834,646.
Raisin, Jean-Pierre; and Bernardot, Andre, to Centre Technique Industriel dite: Institut Textile de France. Machine for automatic assembly of knitted articles. 3,834,331, Cl. 112-27.000.
Rakich, Antone F.: *See—*
Laigle, Roger E.; Rakich, Antone F.; and Sivakoff, William J., 3,834,207.
Randall, John W., to USM Corporation. Shoe last and method for insole attachment means. 3,833,958, Cl. 12-142.00r.
Rapacoulia, Panayota: *See—*
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Raphael's Limited: *See—*.
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Rapko, John N., to Monsanto Company. Tetiahydrofuran polycarboxylic acids. 3,835,163, Cl. 260-347.300.
Raschke, Heinz, to Vereinigte Osterreichische- Eisen- und Stahlwerke-Alpine Montan Aktiengesellschaft. Continuous casting mold having a breakout sensing and control device. 3,834,445, Cl. 164-150.000.
Raspanti, Giuseppe: *See—*
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Rathburn, Paul, to Craft Camera Corporation. Graphic arts camera. 3,834,811, Cl. 355-18.000.
Ratz, Walter; and Laval, Willy, to Bergwerksverbank GmbH. Conductor loops for ascertaining damage in steel cable reinforced conveyor belts. 3,834,524, Cl. 198-232.000.
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Ray, Lindsey W.; Bryant, William S.; and Ray, William A., to Ray, Lindsey W. and Ray, William A. mesne. Deep-mine augering machine. 3,834,761, Cl. 299-10.000.
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Ray, William A. mesne: *See—*
Ray, Lindsey W.; Bryant, William S.; and Ray, William A., 3,834,761.
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Reck, Lothar, to General Motors Corporation. Motor vehicle indicator systems. 3,835,450, Cl. 340-52.00f.
Reed, Geoffrey Ronald, to British Steel Corporation. Coil stabilising system. 3,834,637, Cl. 242-65.000.
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Reese, Roger H.: *See—*
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Reese-Stein & Co., Inc.: *See—*
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Reeser, Eugene F., to Phillips Petroleum Company. Apparatus for rotating articles on a moving conveyor. 3,834,516, Cl. 198-283.000.
Reflectomorphics, Inc.: *See—*
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Regie Nationale des Usines Renault: *See—*
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Reid, Jay H., to Sears, Roebuck and Co. Knockdown jack assembly. 3,834,669, Cl. 254-133.000.
Reimers, James L., to FMC Corporation. High speed container orienting mechanism. 3,834,517, Cl. 198-266.000.
Reinfeld, Kurt, to Koppers Company, Inc. Sinter pallet. 3,834,684, Cl. 266-21.000.
Reliance Trailer Manufacturing, Inc.: *See—*
Acker, Douglas B.; and Berrry, Trevis L., 3,834,111.
Remley, Kenneth H., to American Cyanamid Company. Textile adhesive from polyurethane. 3,835,081, Cl. 260-29.2tn.
Renfroe, Harrris Burt, to Ciba-Geigy Corporation. 3-Aroyl-alkenyleneimines. 3,835,149, Cl. 260-297.00r.
Renjilian, Armen, to Albany International Corporation. Fibrous product. 3,834,547, Cl. 210-497.100.
Renouf, William, to Stephens, N. S., Company, Inc. Dinghy lifting device. 3,834,338, Cl. 114-43.500.
Rescue Industries, Inc.: *See—*
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Restanino, Alfred J., to ICI America Inc. Dewatering of aqueous suspensions. 3,835,046, Cl. 210-54.000.
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Reynolds, Clifton J.: *See—*
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Reynolds Metals Company: *See—*
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RFL Industries, Inc.: *See—*
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Rhee, Dong Woo, to GTE Sylvania Incorporated. Television receiver deflection circuitry. 3,835,348, Cl. 315-27.0td.
Rhee, Seong Kwan; and Kwolek, John P., to Bendix Corporation, The. Sponge iron friction material. 3,835,118, Cl. 260-38.000.
Rhone-Poulenc S.A.: *See—*
Brun, Robert; and Pages, Michel, 3,834,546.
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Richardson, Kenneth, to Pfizer Inc. Alpha-(substituted sulfonamide)arylmethylpenicillin. 3,835,115, Cl. 260-239.100.
Richens, Robert H.; and Garner, Charles A., to Cole National Corporation. Key vise structure. 3,834,688, Cl. 269-42.000.
Richmond Marine Limited: *See—*
Thorpe, David C., 3,834,340.
Richter, Albert P., Jr., to Texaco Inc. Highly efficient long life gas trap. 3,834,125, Cl. 55-208.000.
Rider, Ronald E., to Xerox Corporation. Position indicator for a display system. 3,835,464, Cl. 340-324.00a.
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Ririe, Otis E., Jr., to Phillips Petroleum Company. Hydrogen fluoride vapor detection system. 3,834,875, Cl. 23-232.00c.
Ritcey, Gordon Malcolm; and Lucas, Bernard Henry, to Canadian Patents and Development Limited. Co-extraction and separate recovery of uranium and thorium from acid solutions. 3,835,213, Cl. 423-9.000.
Ritter, Kaspar, to Kopat Gesellschaft fur Konstruktion Entwicklung und Patentverwertung m.b.H., & Co., K.G. Hydrostatic torque converter. 3,834,164, Cl. 60-492.000.
Rittler, Herman L.: *See—*
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Rizzo, Victor L.: *See—*
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Robertson, Donald, to Leeds & Northrup Company. Thermocouple for surface temperature measurements. 3,834,237, Cl. 73-359.000.
Robertson, Harry M. Extrusion die. 3,834,209, Cl. 72-269.000.
Robins, A. H., Company Incorporated: *See—*
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Robinschon, John. Liquid level responsive control system. 3,835,335, Cl. 307-116.000.
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Robinson, Robert Harold. Cartridge string guitar assembly. 3,834,266, Cl. 84-267.000.
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Roehrig, Jonathan R.; and Torney, Franklin L., to National Research Corporation. Cold cathode ion source mass spectrometer with straight line arrangement of ion source and analyzer. 3,835,319, Cl. 250-290.000.
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Rogers, Howard D.; and Schaeflern, Henry, to Singer Company, The. Knit contour unit for a knitting machine. 3,834,186, Cl. 66-1.00r.
Rohm & Haas Company: *See—*
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Ronchese, Aldo. Water heater. 3,835,295, Cl. 219-314.000.
Ronk, Hugo V., to American La France Inc. Portable fire escape ladder. 3,834,492, Cl. 182-196.000.
Rooks, Earnest F.; and Lewis, David E., to Columbia Pictures Industries, Inc. Control circuitry for information transmission system. 3,835,387, Cl. 325-55.000.
Roos, Gunther; Kaussen, Robert; and Van Spankeren, Ulrich, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Flame resistant reinforced polyolefin mixture. 3,835,091, Cl. 260-42.450.
Root, Charles B., to Allied Chemical Corporation. Catalytic decomposition of ammonium bisulfate to form ammonium, bisulfite and sulfur dioxide. 3,835,218, Cl. 423-519.000.
Roper, Ralph E., to Wallace Expanding Machines, Inc. Apparatus for forming metal wheels. 3,834,212, Cl. 72-354.000.
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Rose, Henry J. Oil based coating composition. 3,834,920, Cl. 106-267.000.
Rose, Marshall G., Jr.; and Clark, Harold V., to Ampex Corporation. Apparatus and method for sensing diameter of tape pack on storage reel. 3,834,648, Cl. 242-186.000.
Rosen, Philip; Feenen, John; and Howton, Kenneth Douglas, to English Electric Company Limited, The. Electrical fuse. 3,835,431, Cl. 337-161.000.
Rosenberg, Bruce L., to United States of America, Navy. Nonlinear energy absorption system. 3,833,952, Cl. 5-353.000.
Rossell, Gary L.; Fleischer, Paul C., Jr.; and Seifer, Maurice I., to Rohm and Haas Company. Laminar reinforcement element and method for reinforcing textile garments. 3,834,979, Cl. 161-146.000.
Rostagno, Walter, to Societe d'Assistance Technique pour Produits Nestle S.A. Production of edible granules. 3,835,226, Cl. 426-213.000.
Roth, Johann; and Grimm, Werner, to Braun Aktiengesellschaft. Movie camera with synchron pulse generator for a sound recorder. 3,834,797, Cl. 352-12.000.
Rothwell, Ronald Edward; Cipriani, Cipriano; and Rush, Julian Lee, to Allied Chemical Corporation. Shock-proof nylon carpet system. 3,834,977, Cl. 161-67.000.
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Rouyer, Georges Aimable Theophile; and Fremont, Maurice Henri Louis, to Societe National Industriele Aerospatiale. Method and machine for corrugating or pleating sheet metal. 3,834,199, Cl. 72-38.000.
Rovner, Leopold. Apparatus for determining the direction of a magnetic field relative to a reference direction by sychronously scanning the field and a memory. 3,835,375, Cl. 324-43.00r.
Rowe, James H.; and Markus, Joseph, to Nabisco, Inc. Method for forming toaster packages having pour spouts. 3,834,113, Cl. 53-14.000.
Rowlands, Richard, to United States of America, Navy, mesne. Chirp signal apparatus. 3,835,446, Cl. 340-3.00r.
Royal Medical Corporation: *See—*
Mueller, Fritz Kurt; Martin, Billy Otis; Martin, Robert Cherry; Stricklin, Bobby Joe; and Weeks, Raymond Leland, 3,834,238.
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Ruh, Gerhard, to Olympia Werke AG. Multiple pitch margin stop device. 3,834,508, Cl. 197-63.000.
Ruh, Gerhard, to Olympia Werke AG. Function controlling margin stop arrangement. 3,834,509, Cl. 197-63.000.
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Russer, Peter, to Licentia Patent-Verwaltungs-G.m.b.H. Clock pulse regenerator. 3,835,398, Cl. 328-164.000.
Rutherford, Robert, to Swan Hunter Group Limited. Construction of ships. 3,834,339, Cl. 114-77.00r.
Rutledge, James E., research Corporation. Chemcial modification of rice. 3,835,225, Cl. 426-208.000.
Rutledge, Seth E. Valve stem and valve stem tool. 3,833,995, Cl. 29-221.500.
Rutz, Elizabeth Maria; and Kagan, Morton Richard, to International Business Machines Corporation. High radiance semiconductor laser. 3,835,415, Cl. 331-94.50s.
Sabherwal, Inderjit: *See—*
Briskin, Theodore S.; Schnautz, Norman G.; and Sabherwal, Inderjit, 3,834,398.
Sachs, Gunter, to Eastman Kodak Company. Film drive for cinematographic apparatus. 3,834,652, Cl. 242-205.000.
Sacht, Hans Otto: *See—*
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Sakurai, Waichi; Igarashi, Takeshi; and Yuasa, Osamu, to Daiwa Boseki Kabushiki Kaisha and Kabushiki Kaisha Toyoda Jodoshokki Seisakusho. Ringless spinning apparatus. 3,834,148, Cl. 57-58.950.
Samuels, Ed: *See—*
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Samuelsen, Eirik, to Dyno Industrier A.S. Process for the production fo a water-bearing explosive composition. 3,834,954, Cl. 149-2.000.
Sanctuary, Clifford; Woods, Donald C.; and Bachman, John A., to Del Mar Engineering Laboratories. . 3,834,375, Cl. Respiratory gas analyzer for .
Sandhack, Lothar: *See—*
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Sanger, Jacobus Simon. Handling apparatus for lifting and displacing articles of relatively great weight. 3,834,667, Cl. 254-2.00r.
Sangster, Arlon G. Anti-theft device for internal combustion engines. 3,834,484, Cl. 180-114.000.
Sano, Hiroshi: *See—*
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Santos, Manuel V. Knot tying instruments. 3,834,395, Cl. 128-326.000.
Saposhkov, Alexandr Mikhailovich: *See—*
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Sass, Jochen; and Esche, Rolf, to Ottensener Eisenwerk GmbH. Induction heating apparatus for heating the marginal edge of a disk. 3,835,282, Cl. 219-10.570.
Sathicq, Robert: *See—*
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Sato, Kazuo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Detonator. 3,834,313, Cl. 102-70.20a.
Sato, Takuya R. Silver, silver chloride electrodes. 3,834,373, Cl. 128-206.00e.
Satoo, Isamu: *See—*
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Sattler, James L., to Wildwood Products, Inc. Awning construction. 3,834,400, Cl. 131-5.0at.
Sauer, J. P., & Sohn GmbH: *See—*
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Sauer, Philip H., to Cenco Medical/Health Supply Corporation. Suction control arrangement for a suction catheter. 3,834,388, Cl. 128-276.000.
Sauveur, Omer G.; and Adams, Rudolph J., to Peterson, Carl G., Co. Coil stock cradle. 3,834,643, Cl. 242-78.700.
Sava, Robert, to Owens, Thaddeus E., mesne. Means for securing a magnetic tape to motion picture film. 3,834,972, Cl. 156-517.000.
Savage, James G.; and Hawkins, Arnold L., to Singer Company, The. Assembly for spooling an audit trail in a data terminal. 3,834,638, Cl. 242-67.10r.
Savelieva, Maria Pavolovna: *See—*
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Scala, Luciano C.: *See—*
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Scardiglia, Frank; and Hokama, Takeo, to Velsicol Chemical Corporation. Hot melt compositions comprising styrene-isobutylene copolymer, wax, and a primary resin. 3,835,079, Cl. 260-28.50a.
Scarlett, John A., to Philco-Ford Corporation. Refrigerator cabinet structure and its manufacture. 3,834,177, Cl. 62-288.000.
Scarritt, Francis M., Sr. Lane stripe steering guide. 3,834,036, Cl. 33-264.000.
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Schaller, Rudolf: *See—*
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Schering Aktiengesellschaft: *See—*
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Schiemann, Wofram. Device for the venting of Jerry cans. 3,834,594, Cl. 222-464.000.
Schiessl, Henry W.: *See—*
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Schiessl, Henry W.; Sawhill, Duane L.; and Bhutani, Sudhir K., to Olin Corporation. Polychloroisocyanuric acids prepared from a monoalkali metal cyanurate. 3,835,134, Cl. 260-248.00c.
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Schiller, Werner; Obladen, Peter; and Peters, Leonhard, to Eumuco Aktiengesellschaft fur Maschinebau. Forging press. 3,834,216, Cl. 72-441.000.
Schinzel, Erich: *See—*
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Schmidt, Herbert K., to Wean United, Inc. Die changing apparatus. 3,834,208, Cl. 72-263.000.
Schmidt, Walter E., to Petcoa Industries, Inc., mesne. Non-corrosive, insulated illumination device for an aquarium. 3,834,351, Cl. 119-5.000.
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Scholfield, Richard P., to Wheeldex Manufacturing Company, Inc. Pivot file with multiple rows of file cards. 3,834,050, Cl. 40-67.000.
Scholz, Manfred: *See—*
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Schons, Pete A. Tire spray collector apparatus. 3,834,732, Cl. 280-154.50r.
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Schuler, Ulrich, to Siemens Aktiengesellschaft. Inductive control pulse generating apparatus for an electric machine. 3,835,358, Cl. 318-327.000.
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Schumacher, Gustav, II; and Schumacher, Gunter. Device for supporting the cutting mechanism on a harvesting machine. 3,834,139, Cl. 56-313.000.
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Schunemann, Horst. Tool for taking impressions of toothless jaws. 3,834,025, Cl. 32-17.000.
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Sciaky, David, to Welding Research, Inc. Electron beam welding meachine with split seal means. 3,835,291, Cl. 219-121.0eb.
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Seavey, Robert W. Feed and trim apparatus. 3,833,979, Cl. 29-27.00c.
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Seel, Jerry Eslie. Heating element support. 3,835,435, Cl. 338-280.000.
Seidel, Harry W., to Raytheon Company. Oven hood with automatic switch. 3,834,295, Cl. 98-115.00k.
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Seiwert, David L.; and Hampton, Thomas L., to General Electric Company. Method of making a lightweight duct. 3,834,965, Cl. 156-294.000.
Sekiguchi, Hikaru; Rapacoulia, Panayota; and Coutin, Bernard, to Agence Nationale de Valorisation de la Recherche (Anvar). Method for anionic polymerization of alpha-pyrrolidone or alpha-piperidone with quaternary ammonium salts. 3,835,100, Cl. 260-78.00p.
Sekiguti, Juniti: *See—*
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Sevik, Maurice M.; and Smith, Fred E., to United States of America, Navy. Bellmouth vehicle exhaust port. 3,834,626, Cl. 239-265.130.
Sexton, Peter R. L.; and Tibbetts, Samuel H, III, to Maine Technical Industries Incorporated. Fluid-cooled engine exhaust system. 3,834,341, Cl. 115-.50r.
Seyama, Tsuneo, to Aidearu Kiki Co., Ltd. Electromotive hand sewer. 3,834,333, Cl. 112-169.000.
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Shaffer, William John, to Leeds & Northrup Company. DC signal translator with a variable amplitude oscillator. 3,835,408, Cl. 330-10.000.
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Kakhovsky, Nikolai Ivanovich; Vakulenko, Anatoly Nikolaevich; Zakharov, Leonod Stepanovich; Lipodaev, Vladimir Nikolaevich; Fartushny, Vladimir Grigorievich; Kakhovsky, Jury Nikolaevich; Boiko, Vily Arsentievich; Sidlin, Zinovy Abramovich; and Juschenko, Knstantin Andreevich, 3,835,289.
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Sihvonen, Kauno E., to Gould, Inc. Apparatus for measuring roundness, concentricity, flatness and axis squareness. 3,834,032, Cl. 33-174.0td.
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Siler, Charles A., to Outboard Marine Corporation. Side gas seal means for rotary mechanisms. 3,834,845, Cl. 418-142.000.
Silva, Claudio De Sa E, to Info Systems, Inc. Power output stage for use in low-power radio frequency transmitters. 3,835,390, Cl. 325-105.000.
Simeth, Claus, to Roland Offsetmaschinenfabrik Faber & Schleicher AG. Pile delivery with safety device. 3,834,495, Cl. 187-29.00r.
Simkhovich, Fridrikh Levikovich: *See—*
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Simmons, Bjorn Herman Olof, to Aktiebolaget Bofors. Parachute-borne flare assmblage. 3,834,312, Cl. 102-35.400.
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Simond, Ludger. Joint assembly for striking tool. 3,834,826, Cl. 403-374.000.
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Sioli, Giancarlo: *See—*
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Sisson, Warren G.: *See—*
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Sitnikova, Ljudmila Vladimirovna: *See—*
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Slaker, Frank A.: *See—*
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Smart, Daniel Henry, to Communications Patents Limited. Wired broadcasting systems. 3,835,244, Cl. 178-5.600.
Smeltzer, Paul; and Daneck, David A., to Maremont Corporation. Apparatus for cutting exhaust system tubes. 3,834,019, Cl. 30-92.000.
Smerz, Otto: *See—*
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Smid, Vlastimil: *See—*
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Smith, David B.; and Gribens, Joel A., to Grace, W. R., & Co. Flowed-in polyurethane gaskets for pail and drum covers. 3,834,578, Cl. 220-46.00r.
Smith, Dennis D., to Zenith Radio Coroporation. Television channel indicating tab with automatic VHF/UHF switching. 3,835,395, Cl. 325-459.000.
Smith, Fred E.: *See—*
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Smith, Harold F.: *See—*
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Smith, Troy F., Jr., to Mead Corporation, The. Clipboard and novel hinge connections. 3,833,970, Cl. 24-67.500.
Smits, Denis L., to Superseal Corporation. Double glazed window assembly. 3,834,097, Cl. 52-172.000.
Smolinski, Richard C. Practice golf club. 3,834,714, Cl. 273-183.00d.
Snam Progetti S.p.A.: *See—*
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Soames, Michael Richard, to Image Analysing Computers Limited. Field illumination for image analysis. 3,835,247, Cl. 178-7.200.
Societa Italiana Resine S.I.R. S.p.A.: *See—*
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Societe a Responsabilite Limitee dite: Societe d'Etude et d'Exploitation de Marques Mar-Pha: *See—*
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Soderholm, Leo H., to United States of America, Agriculture. System for operating three-phase induction motor under balanced conditions for changing loads. 3,835,356, Cl. 318-221.00r.
Solaroli, Sergio, to Finike Italiana Marposs-Soc, In accomandita Semplice di Mario Possati & C. Device for transport and gauging of mechanical pieces particularly used on automatic measuring machines. 3,834,532, Cl. 209-82.000.
Solomon, David Henry: *See—*
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Solonitsyn, Rem Alexandrovich; Vjukov, Ivan Elizarovich; Gorbachev, Leonid Alexeevich; Belonogov, Anatoly Mikhailovich; Vorobiev, Gennady Afanasievich; and Efimov, Alexandr Vasilievich. Method and apparatus utilizing the effects of cavitation in the treatmnt of fibrous suspensions. 3,834,982, Cl. 162-1.000.
Solter, Robert L.; and Hansen, Franklin A., to Continental Disc Corporation. Reverse buckling disc arrangement for direct mounting. 3,834,581, Cl. 220-89.00a.
Solvay & Cie: *See—*
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Sommer, Gordon M., to Sommer, G. M., Co., Inc. Variable speed drive with electronic control means. 3,834,502, Cl. 192-104.00f.
Sondell, Jan Ivar: *See—*
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Sony Corporation: *See—*
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Sorensen, Robert N. Inflatable crib. 3,833,947, Cl. 5-94.000.
Soule, Frank A. Safety belt for use on motor vehicles. 3,834,758, Cl. 297-389.000.
Sousan, Andre Levy. Electronic random predictor. 3,834,710, Cl. 273-138.00a.
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Sowards, Norman K., to Environmental Products, Inc. Low pollution incineration of solid waste. 3,834,326, Cl. 110-8.00r.
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Spampinato, Dominic P.: *See—*
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Specht, Hans; Kroll, Bruno; and Gruttner,Alfred, to Continental Gummi-Werke Aktiengesellschaft. Electrical conductor element for checking possible damage to conveyor belts, and conveyor belt equipped with such conductor element. 3,834,518, Cl. 198-40.000.
Spector, Donald, to Rubin, Sam. Double-acting hydraulic exerciser. 3,834,696, Cl. 272-79.00c.
Spedden, Henry Rush; and Malouf, Emil Edward, to Kennecott Copper Corporation. In-situ generation of acid for in-situ leaching of copper. 3,834,760, Cl. 299-5.000.
Spedden, Henry Rush; and Last, Arthur W., to Kennecott Copper Corporation. Process for recovering molybdenum values from molybdenite ore materials. 3,834,894, Cl. 75-2.000.
Sperry Rand Corporation: *See—*
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Square D Company: *See—*
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Stackawicz, Carl. Fishing reel and appurtenance. 3,834,644, Cl. 242-84.20g.
Staley, A.E., Manufacturing Company: *See—*
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Standing, Clifford R. Device to repair damaged doors and walls. 3,834,107, Cl. 52-514.000.
Stanley, Edward B.: *See—*
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Stanway, E., to United Merchants and Manufacturers, Inc. Apparatus and fluid treatment fabric in rope form. 3,834,194, Cl. 68-176.000.
Stapleton, Thomas T.; and Farrar, Reed A., to General Motors Corporation. Method and apparatus for surface defect detection using detection of non-symmetrical patterns of non-specularly reflected light. 3,834,822, Cl. 356-200.000.
Stark, Jurt; Gropper, Hans; Urban, Friedrich; and Pfannmueller, Helmut, to Badische Anilin & Soda-Fabrik Aktiengesellschaft. Production of low molecular weight waxy poly-ethylenes. 3,835,107, Cl. 260-94.90r.
Starting Industry Company Limited: *See—*
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Stiefelmeyer, Guenther; and Schumm, Guenther. Arranagement for compensating for changes in the operating characteristics of a measuring element. 3,835,313, Cl. 250-206.000.
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Stolt, Nils Tomas; and Akerberg, Dag E., to Telefonaktiebolaget L M Ericsson. Code receiver in staff locator. 3,835,394, Cl. 325-321.000.
Stoltman, Donald D.; and Stettner, Ernest R., to General Motors Corporation. Rotary engine oil metering pump. 3,834,843, Cl. 418-84.000.
Stoltzfus, Henry S.; and Stoltzfus, John S., to Lancaster Level-Flo, Inc. Distributor head for silo fill pipe. 3,834,768, Cl. 302-60.000.
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Strumbos, William P. Reinforced foamed-panel structure. 3,834,962, Cl. 156-79.000.
Strybel, Richard V., to Imperial-Eastman Corporation. Tube coupling. 3,834,743, Cl. 285-249.000.
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- Sturtevant, Paul A. Disposal system utilized with a heat source. 3,833,943, Cl. 4-10.000.
- Stute, Walter, to Pernod S.A. Device for dispensing rolling articles. 3,834,584, Cl. 221-312.000.
- Subsea Equipment Associates Limited (Seal): *See—*
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- Subsea Equipment Associates Limited, mesne: *See—*
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- Suggitt, John W.; and Inkis, Walter V. Apparatus for applying preservative material to erected poles and the like. 3,834,329, Cl. 111-6.000.
- Sugita, Kazuhiro: *See—*
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- Sugiura, Susumu: *See—*
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  - Mori, Kenjiro; Takemoto, Yasuzi; and Ikebe, Shigueaqui, 3,835,077.
- Summers, C. Elwood. Art instructing apparatus. 3,834,043, Cl. 35-26.000.
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- Sund, Erik Ivar. Heat insulating protective cover for temperature sensitive goods. 3,834,292, Cl. 98-32.000.
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- Superseal Corporation: *See—*
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- Surletta, Zygmunt M.; Klicki, Chester E.; and Nowack, Robert A., to Lear Siegler, Inc. Box spring assembly. 3,833,948, Cl. 5-247.000.
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  - Uchida, Mitsuo; Jinno, Sigeru; Suzuki, Yoshiki; Itagaki, Ryuya; and Sumi, Tooru, 3,834,224.
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- Swan Hunter Group Limited: *See—*
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- Swett, James P.; and Ashton, Harold P. Mold for ingestible substances. 3,834,437, Cl. 150-.500.
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- Tack, Carl E., to Trans Dyne, Inc. Spring mounted snubber wear plate. 3,834,320, Cl. 105-197.00d.
- Tacke, William H.; Ormiston, Robert B.; and McKay, Robert H., to Steelcase Inc. Panel jointure system. 3,834,093, Cl. 52-71.000.
- Tafapolsky, Bernard; and Flaherty, Francis Edward, to Gillette Company, The. Ceramic cutting instruments. 3,834,265, Cl. 83-651.000.
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- Takahashi, Isao; Fujii, Motoharu; Kawakubo, Kazuo; Ariga, Masao; and Sugiura, Susumu, to Canon Kabushiki Kaisha. Electronic photographic copying machine. 3,834,808, Cl. 355-3.00r.
- Takamiya, Youichi; Sasaguri, Kiichiro; Sano, Hiroshi; Okina, Katsumi; and Kawachi, Sunao, to Shin Nihon Kagaku Kogyo Kabushiki Kaisha. Containing resin composition as thickening agent. 3,835,088, Cl. 260-33.6ua.
- Takase, Sinji; and Shioiri, Tomonori, to Nippon Oil Company, Limited. Method of preparing hydrocracking catalysts and process. 3,835,026, Cl. 208-111.000.
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- Takeuchi, Hideo, to Minolta Camera Kabushiki Kaisha. Automatic diaphragm setting device for camera. 3,834,039, Cl. 354-42.000.
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- Takewell, Robert B.; Brandon, Paul W.; and Odom, Paul R., to Huber, J. M., Corporation. Apparatus for agglomerating powders. 3,834,850, Cl. 425-222.000.
- Takiron Co., Ltd.: *See—*
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- Tatsuta, Sumitaka; and Ueno, Wataru, to Fuji Photo Film Co., Ltd. Process for producing photographic material. 3,834,928, Cl. 117-34.000.
- Tauern, Dankmar: *See—*
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- Taylor, Kendrick, 20% to Lee, Raymond, Organization, Inc., The. Napkin for ties. 3,833,937, Cl. 2-46.000.
- Teach, Eugene G., to Stauffer Chemical Company. Phenoxy acetals and their utility as herbicides. 3,835,171, Cl. 260-455.00a.
- Tee-Pak, Inc.: *See—*
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- Teem Incorporated AB: *See—*
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- Templin, Lawrence R., to Hughes Aircraft Company. Detector circuits for signal transmission. 3,835,379, Cl. 324-58.00b.
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- Terry, C. Edward, to Textile Rubber and Chemical Company, Inc. Method of promoting separation between a heated curing surface and a backing material. 3,834,961, Cl. 156-72.000.
- Terzian, Rouben T.; and Glass, Marvin I., to Glass, Marvin, & Associates. Doll with coordinated head and torso movement. 3,834,071, Cl. 46-120.000.
- Teti, John J., to A-T-O Inc. Battery carrier. 3,834,563, Cl. 214-77.00r.
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  - Carlin, Joseph T.; and Allen, Joseph C., 3,834,461.
  - Maddox, Jim, Jr.; Zimmerman, Margaret J.; and Tuggle, Ray, 3,835,060.
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- Textile Rubber and Chemical Company, Inc.: *See—*
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- Thakore, Kaushik H., to Bendix Corporation, The. High energy output inductive ignition system. 3,835,350, Cl. 315-209.00t.
- Thalacker, Richard E., to Detrex Chemical Industries, Inc. Apparatus for cleaning small items. 3,834,408, Cl. 134-83.000.
- Theodorides, Panos C. Outlet box with adjustable mounting. 3,834,658, Cl. 248-205.00r.
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- Thompson, Claude W. Trap for removing solid particles from a liquid circulating system. 3,834,539, Cl. 210-167.000.
- Thompson, Elbert Gordon, to Sutton Engineering Company. Straightening machine. 3,834,203, Cl. 72-164.000.
- Thompson, Jimmy M., to Procter Chemical Company, Inc. Durable press textile materials by anhydrous solvent finishing process. 3,834,871, Cl. 8-187.000.
- Thompson, Wallace T., to GTE Sylvania Incorporated. Neutralized amplifier circuit. 3,835,406, Cl. 330-27.000.
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  - Hartemann, Pierre, 3,835,422.
- Thorngate, John A.; and Perdue, Phillip T., to United States of America, Atomic Energy Commission. Stable pulsed light source. 3,835,331, Cl. 250-552.000.
- Thorpe, David C., to Richmond Marine Limited. Marine craft. 3,834,340, Cl. 114-201.00r.
- Thousand, John L., to Revcon, Incorporated. Wheel adapter. 3,834,766, Cl. 301-9.0dn.
- Thum, Oskar. Orthopedic appliance. 3,834,376, Cl. 128-80.00a.
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- Tiffany Industries, Inc.: *See—*
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- Timex Corporation: *See—*
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- Tobias, John D. Method of making spool valves. 3,833,988, Cl. 29-157.10r.
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- Tokyo Keiki Co., Ltd.: *See—*
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- Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
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- Tokyo Sibaura Electric Co., Ltd.: *See—*
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- Tolmie, Robert J., to Sperry Rand Corporation. Dry shaver with hair guiding and skin stretching means. 3,834,017, Cl. 30-34.200.
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- Tomlinson, Edward G., to Uniroyal, Inc. Method of forming a splice in a toothed power transmission belt. 3,833,998, Cl. 29-401.000.
- Tomoegawa Paper Manufacturing Co., Ltd.: *See—*
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- Trimble, Robert C. Decorative and safety attachment for spoke wheels. 3,834,765, Cl. 301-37 00r
- Trimmier, John R.. *See*—
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- Tsuge, Yasuhiko; and Koizumi, Noboru, to Matsushita Electric Industrial Company, Limited and Sekisui Kagaku Kogyo Kabushiki Kaisha. Vibration diaphragm and cone edge of a loudspeaker. 3,834,486, Cl. 181-32.00r.
- Tsukada, Syusei, to Canon Kabushiki Kaisha. Photo-information transmission and exposure device. 3,834,803, Cl. 355-1.000.
- Tsukada, Syusei, to Canon Kabushiki Kaisha. Liquid discharging or charging device. 3,835,355, Cl. 317-262.00a.
- Tsukamoto, Masahide; and Ohtsuka, Tetsuro, to Matsushita Electric Industrial Co., Ltd. Liquid crystal X-Y matrix display device. 3,835,463, Cl. 340-324.00m.
- Tube, Gordon, Products Company, Inc.: *See*—
  - Burg, Robert J.; Lieberman, Milton; and Fiorenza, Armand A. (said Lieberman assor. to), 3,834,549.
- Tucker, Charles R., to Hercules Incorporated. Textile finishing process. 3,834,870, Cl. 8-168.000.
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- Tuggle, Ray: *See*—
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- Wakamatsu, Moritomo, to Nihon Algonquin Kabushiki Kaisha. Escalator. 3,834,514, Cl. 198-16.000.
- Walaschek and Associates, Incorporated: *See—*
  - Walaschek, John P., 3,835,117.
- Walaschek, John P., to Walaschek and Associates, Incorporated. Rubberized coal tar pitch emulsion. 3,835,117, Cl. 260-28.5as.
- Waldman, Jerry: *See—*
  - Schlossberg, Howard R.; Fetterman, Harold R.; and Waldman, Jerry, 3,835,416.
- Waldner, Gedaleia; and Alter, Israel Jacob, to Israel Atomic Energy Commission, The State of. Flame-retardant polymers. 3,835,103, Cl. 260-80.600.
- Waldovogel, Guy: *See—*
  - Furst, Andor; Furlenmeier, Andre; Langemann, Albert; Waldovogel, Guy; Hocks, Peter; Kerb, Ulrich; and Wiechert, Rudolf, 3,835,127.
- Waldrop, Thomas E.; and Hawkins, Robert S., to Grace, W. R., & Co. Dripless vacuum nozzle. 3,834,118, Cl. 53-79.000.
- Walker, Dean Max: *See—*
  - Yost, Howard S.; Walker, Wesley Max; and Walker, Dean Max, 3,834,680.
- Walker, Wesley Max: *See—*
  - Yost, Howard S.; Walker, Wesley Max; and Walker, Dean Max, 3,834,680.
- Walkley, Sherm: *See—*
  - Hunter, Roland L., 3,834,656.
- Wallace Expanding Machines, Inc.: *See—*
  - Roper, Ralph E., 3,834,212.
- Wallace, Gary Leonard: *See—*
  - Bajcar, Miles S.; Wallace, Gary Leonard; and Linehan, John J., 3,834,515.
- Wallace, Roy H. Combined plow and fertilizer dispenser. 3,834,330, Cl. 111-7.000.
- Wallace-Murray Corporation: *See—*
  - Cutler, John Frederick; Edwards, Robert Andrew; and Sarle, Charles Richard, 3,834,156.
- Walles, Wilhelm E. Foldable rack for suspending cooking pans over a campfire. 3,834,371, Cl. 126-30.000.
- Walsh, Harold L. Portable cutting device. 3,834,434, Cl. 144-34.00e.
- Walter, Frederick L. Method of dissolving gases in liquids. 3,835,048, Cl. 210-63.000.
- Walter, Henry J.; Kronheim, John H.; and Levine, Harvey, to Clairol, Incorporated. Steam curling iron. 3,835,292, Cl. 219-222.000.
- Walus, Aloysius N.: *See—*
  - Jeffery, Jeffery J.; and Walus, Aloysius N., 3,835,076.
- Wambach, Allen D.: *See—*
  - Fox, Daniel W.; and Wambach, Allen D., 3,835,089.
- Ward, John W., to Union Oil Company of California. Hydrogenative conversion processes and catalyst for use therein. 3,835,027, Cl. 208-111.000.
- Ward, John W.; and Clark, Danford E., to Union Oil Company Of California. Hydrocracking process with rejuvenated catalyst. 3,835,028, Cl. 208-111.000.
- Ward, Trevor: *See—*
  - Hemingway, Maurice; and Ward, Trevor, 3,834,857.

- Warner, Kent F., to W & H Conveyor Systems, Inc. Pneumatic control system for a trolley dispatch network. 3,834,315, Cl. 104-88.000.
- Warner-Lambert Company: *See—*
  - Bartell, Ralph A., 3,834,571.
  - Dawdowicz, Jan; and Ferraro, Frank A., 3,834,018.
  - Megraw, Robert E.; and Woodson, Judith C., 3,834,991.
  - Wittekind, Raymond R., 3,835,142.
  - Zinnes, Harold; and Lindo, Neil A., 3,835,156.
- Washizuka, Isamu; and Kaumae, Masaru, to Sharp Kabushiki Kaisha. Multiplexing connection between a key board and an integrated circuit device. 3,834,616, Cl. 235-160.000.
- Wasser, Ernest. Router bit and method of grinding said bit. 3,834,090, Cl. 51-288.000.
- Watanabe, Kazuo: *See—*
  - Munakata, Hideaki; Watanabe, Kazuo; Arimatsu, Yoshikazu; and Tanaka, Masasazu, 3,835,099.
- Watanabe, Masaharu: *See—*
  - Nakamura, Masakatsu; Yonezawa, Toshio; Kato, Taketoshi; Watanabe, Masaharu; and Akatsuka, Minoru, 3,834,953.
- Watanabe, Masaru; and Ohashi, Azusa, to Fuji Photo Film Co., Ltd. Method of producing aluminum planographic printing plates. 3,834,998, Cl. 204-33.000.
- Watanabe, Toshiaki; and Yuhara, Hideo, to Okuma Machinery Works, Ltd. Method for monitoring machining condition of machine tool. 3,834,615, Cl. 235-151.110.
- Watanabe, Toshio: *See—*
  - Kurokawa, Junji; Watanabe, Toshio; and Asami, Tomiaki, 3,834,810.
- Waters, Douglas S. J. Lockable safety door stop. 3,833,963, Cl. 16-82.000.
- Watkins, Sidney C., to Avco Corporation. Flat air-blast fuel injector. 3,834,627, Cl. 239-430.000.
- Wean United, Inc.: *See—*
  - Schmidt, Herbert K., 3,834,208.
- Weatherhead Company, The: *See—*
  - Keady, Frederick D., 3,834,162.
- Weaver, W.R., Company: *See—*
  - Steck, William F., III, 3,834,052.
- Webb, John L., to Xerox Corporation. Electrometer system. 3,835,380, Cl. 324-72.000.
- Weck, Edward, & Company, Inc.: *See—*
  - Hirsch, Winfred S., 3,834,390.
- Wedmore, William R.: *See—*
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- Weeks, Raymond Leland: *See—*
  - Mueller, Fritz Kurt; Martin, Billy Otis; Martin, Robert Cherry; Stricklin, Bobby Joe; and Weeks, Raymond Leland, 3,834,238.
- Weigl, James; and Davis, James E. P., to Puritan-Bennett Corporation. Respiration apparatus with flow responsive control valve. 3,834,383, Cl. 128-145.800.
- Weigle, Orville C. Pipe weld inspection method and apparatus. 3,835,324, Cl. 250-360.000.
- Weil, Edward D., to Stauffer Chemical Company. Hydroxyalkylphosphonate carbamates. 3,835,204, Cl. 260-938.000.
- Weinmann, Carl E., to Valley Craft Products, Inc. Drum pallet. 3,834,323, Cl. 108-51.000.
- Weisbert, Emanuel S. Vehicle performance indicator system. 3,835,382, Cl. 324-161.000.
- Weiss, Gerhart, to Baker Brush Co., Inc. Brush fabricating apparatus. 3,834,863, Cl. 432-121.000.
- Weiss, Martin Joseph: *See—*
  - Schaub, Robert Eugene; and Weiss, Martin Joseph, 3,835,179.
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- Weldon, Winfred D.: *See—*
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- Welger, Gebruder: *See—*
  - Bracht, Karl Friedrich; Strube, Herbert A.; and Sacht, Hans Otto, 3,834,141.
- Werle, Eugen; and Fritz, Hans, to Farbenfabriken Bayer Aktiengesellschaft. Isolation of enzymes and enzyme inhibitors. 3,834,990, Cl. 195-68.000.
- West, Donald L.: *See—*
  - Fowler, Raymond L.; Hill, James D.; McCornack, Richard W.; Perkins, N. Kenneth; Sendelweck, Michael L.; West, Donald L.; Williams, Thomas H.; and Yosmali, Krikor, 3,834,505.
- West, Edward L., to A. B. Chance Company. Spiral conductor cover. 3,835,238, Cl. 174-5.00r.
- West, Harold H.: *See—*
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- West, Kennard Dungan, to Air Products and Chemical, Inc. Catalyst preparation. 3,835,068, Cl. 252-455.00z.
- Western Electric Company, Incorporated: *See—*
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  - Montone, Liber J., 3,834,819.
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- Western Gear Corporation: *See—*
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- Westinghouse Electric Corporation: *See—*
  - Frost, Lawrence W.; and Scala, Luciano C., 3,835,207.
  - Mitchell, Ernest L., 3,834,831.
- Westmoreland, Hollis O. Bubble test for internal combustion engines. 3,834,220, Cl. 73-47.000.
- Westport International, Inc.: *See—*
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- Westvaco Corporation: *See—*
  - Dowd, Daniel J., 3,834,274.
- Weyer, Rudi; Hitzel, Volker; Aumuller, Walter; and Heerdt, Ruth, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Benzenesulfonyl-ureas and process for their preparation. 3,835,188, Cl. 260-553.0da.
- Wharton Engineers (Elstree) Limited: *See—*
  - Alexander, William, 3,834,673.
- Wheatley, John Arthur: *See—*
  - Baker, William Albert; Wheatley, John Arthur; Read, Peter John; Latimer, Keith Graham; and Reynolds, Terence David Warren, 3,833,983.
- Wheeldex Manufacturing Company, Inc.: *See—*
  - Scholfield, Richard P., 3,834,050.
- Wheeler, Lionel H.: *See—*
  - Clavin, Edward A.; Wheeler, Lionel H.; Brooks, Robert E., Jr.; and Campbell, Wallace Clealon, Jr., 3,834,210.
- Whirlpool Corporation: *See—*
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- Whisson, Hubert James. Panel assembly. 3,834,092, Cl. 52-36.000.
- White, Frederick K.: *See—*
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- White, Henry J., Jr. Method and apparatus for measuring water currents. 3,834,229, Cl. 73-170.00a.
- White, Robert W.; and De Long, W. Bradford. Precision instrument system. 3,834,021, Cl. 30-232.000.
- White, Ronald E., to Procter & Gamble Company, The. Process of preparing bar soap compositions and products thereof. 3,835,058, Cl. 252-121.000.
- White, Russell P., Jr., to Haggar Company. Diazo printing system. 3,834,813, Cl. 355-50.000.
- Whited, Charles A., to Xerox Corporation. Particle level indicator. 3,834,806, Cl. 355-3.0dd.
- Wiczer, Max. Lock anti-pick device. 3,834,198, Cl. 70-208.000.
- Widdig, Arno; Kuhle, Engelbert; and Kaspers, Helmut, to Bayer Aktiengesellschaft. N-alkoxycarbonyl-N'acyl-N"-2-acylamidophenylguanidines. 3,835,164, Cl. 260-347.400.
- Wiechert, Rudolf: *See—*
  - Furst, Andor; Furlenmeier, Andre; Langemann, Albert; Waldovogel, Guy; Hocks, Peter; Kerb, Ulrich; and Wiechert, Rudolf, 3,835,127.
- Wieder, Horst K. Loudspeaker enclosure. 3,835,256, Cl. 179-1.00e.
- Wiemer, Jean: *See—*
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- Wiest, Hubert: *See—*
  - Bergmeister, Eduard; Ludwig, Peter; Wiest, Hubert; and Hafener, Klaus, 3,835,086.
- Wilber, John A.; Rice, Verner K.; and Buhrke; Rolfe E., to GTE Automatic Electric Laboratories, Incorporated. Recovery control circuit for central processor of digital communication system. 3,835,312, Cl. 340-172.500.
- Wild, Gene M., to Lilly, Eli, and Company. Cephalosporin C recovery. 3,835,129, Cl. 260-243.00c.
- Wilder, Charles M. G.; and Cook, Sanford L., to Mesker Industries, Inc. Insulated door construction. 3,834,101, Cl. 52-309.000.
- Wildwood Products, Inc.: *See—*
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- Wilhelmson, Jack L., to Sherwood Medical Industries, Inc. Fluid measuring and dispensing system. 3,834,586, Cl. 222-47.000.
- Wilke, Raud A., to Koehring Company. Control valve for hydraulically operated implements. 3,834,163, Cl. 60-422.000.
- Wilkens, Christian Peter, to Mayer, Karl, Textilmaschinenfabrik GmbH. Process for the production of multi-colored single face ware. 3,834,193, Cl. 66-195.000.
- Willard, Wayne E., to Blue Valley Machine and Manufacturing Company. Apparatus for forming a marginal edge portion of metal work pieces. 3,834,201, Cl. 72-70.000.
- Willasch, Dieter: *See—*
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- Willem Corporation: *See—*
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- Williams, Earl P.: *See—*
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- Williams, Fred S.; and Stock, William G., to Aluminum Company of America. Brine electrolysis employing mercury cathode. 3,835,002, Cl. 204-99.000.
- Williams, John W., to General Electric Company. Voltage regulator for a direct current power supply. 3,835,368, Cl. 323-17.000.
- Williams, Lloyd E.: *See—*
  - Almagro, Guillermo; Bertorelli, Orlando L.; Mays, Robert K.; Williams, Lloyd E.; and Zimmerman, Howard F., Jr., 3,835,216.
- Williams, Thomas H.: *See—*
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Wing, Robert E.; and Doane, William M., to United States of America, Agriculture. Method of incorporating water soluble epoxypropyl starch into paper. 3,834,984, Cl. 162-175.000.

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Winter, Charles M. Trailer hitch mechanism. 3,834,735, Cl. 280-423.00r.

Winter, Phillip M., to Minnesota Mining and Manufacturing Company. High intensity shot peening. 3,834,200, Cl. 72-53.000.

Wisdom, Lawrence W.; and Hilton, Barney W., to Frito-Lay, Inc. Process for producing potato chips. 3,835,222, Cl. 426-49.000.

Wisenbaker, Edward M. Rotary screw switch. 3,835,272, Cl. 200-60.000.

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Witte, Waldemar; and Langer, Alois, said Langer assor. to said Witte Witte, Waldemar. Electrical appliance powered by self-contained rechargeable battery. 3,835,309, Cl. 240-10.6ch.

Wittekind, Raymond R., to Warner-Lambert Company. 1-(2-Imidazolin-2-yl)-2-(1,2,3,4-tetrahydro-2-isoquinolyl)-2-imidazolines. 3,835,142, Cl. 260-286.00r.

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Witzel, Bruce E.; Shen, Tsung-Ying; Graham, Patricia M.; Clark, Robert L.; and Pessolano, Arsenio A., to Merck & Co., Inc. Certain 2(1H)pyridinethiones. 3,835,143, Cl. 260-294.80t.

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Wolfe, Robert W.; and Carlson, Richard E. Method for forming welded seam can bodies. 3,834,010, Cl. 29-477.700.

Wolff, David F.; De Boer, Herman O.; Tiger, Emil; and McCarthy, James G., to Sunbeam Business Equipment Co. Book copier. 3,834,814, Cl. 355-51.000.

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Wong, Raymond Woo. Footsie bird game device. 3,834,705, Cl. 273-106.00a.

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Woodhead, Daniel, Inc.: *See—*
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Wright, Robert Lee, to Monsanto Company. Aqueous alkaline solution of an aldehyde conjoint condensate of resorcinol and saturated resorcinol polymer. 3,835,082, Cl. 260-29.300.

Wrzesinski, Joseph Francis, to Grace, W. R., & Co. Photocurable rapid drying water base paint made from a polyene-polythiol system. 3,835,085, Cl. 204-159.230.

Wurdeman, James A.: *See—*
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Wurdeman, Marion E.; and Wurdeman, James A. Grain dryer and aerator. 3,834,294, Cl. 98-57.000.

Wuthrich, Paul, to Timex Corporation. Offset pallet lever for watch escapement. 3,834,155, Cl. 58-121.00r.

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Yamada, Keisho; Umemura, sumio; Odan, Kyoji; Hidaka, Mikio; and Fukuda, Kazuo, to UBE Industries, Ltd. Process for producing acrolein or methacrolein. 3,835,193, Cl. 260-604.00r.

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Yocco, Albert A. Nail setting tool for applying grooved paneling. 3,834,603, Cl. 227-156.000.

Yoda, Kazuhiro; and Kato, Takashi, to Kabushiki Kaisha Daini Seikosha. Electronic timpiece with a multi-timer. 3,834,153, Cl. 58-38.000.

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Yoshino, Takao, to Kabushiki Kaisha Komatsu Seisakusho. Apparatus for mounting a marine engine. 3,834,344, Cl. 115-34.00r.

Yoshizawa, Michio; and Ohnishi, Masaru, to Mitsubishi Denki Kabushiki Kaisha. Electrophotographic system. 3,834,809, Cl. 355-3.00r.

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Yost, Howard S.; Walker, Wesley Max; and Walker, Dean Max. Air conditioning apparatus for a vehicle cab. 3,834,680, Cl. 261-92.000.

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Zakharov, Leonod Stepanovich: *See—*
Kakhovsky, Nikolai Ivanovich; Vakulenko, Anatoly Nikolaevich; Zakharov, Leonod Stepanovich; Lipodaev, Vladimir Nikolaevich; Fartushny, Vladimir Grigorievich; Kakhovsky, Jury Nikolaevich; Boiko, Vily Arsentievich; Sidlin, Zinovy Abramovich; and Juschenko, Knstantin Andreevich, 3,835,289.

Zako Rohrverbindungen GmbH & Co. KG: *See—*
Dietzel, Klaus, 3,833,984.

Zdanowski, Richard E., to Rohm and Haas Company. Method of removing floor polish comprising copolymer containing α,β-ethylenically unsaturated carboxylic acid and polyvalent metal compounds. 3,835,078, Cl. 260-28.50a.

Zee-Cheng, Kwang Yuen; and Cheng, Chia-Chung, to United States of America, Health, Education and Welfare. Process for the preparation of dehydroberbinium salts. 3,835,140, Cl. 260-283.0sy.

Zegafuse, Donald W. Jr.: *See—*
Dattilo, Anthony J.; and Zegafuse, Donald W. Jr., 3,835,249.

Zeiss-Stiftung, Carl: *See—*
Schafer, Fritz Peter, 3,835,417.

Zeitlin, Bruce A.: *See—*
Critchlow, Philip R.; and Zeitlin, Bruce A., 3,835,242.

Zenith Radio Coroporation: *See—*
Smith, Dennis D., 3,835,395.

Zenith Radio Corporation: *See—*
Moritz, Scott N.; Polley, Eugene; and Puls, Werner H., 3,835,262.

Ziaylek, Theodore, Jr., to Yardley Products Corporation. Ultrasonic inserts. 3,834,438, Cl. 151-41.730.

Zimmer, Peter. Rotary screen interrupter with squeegee lift means. 3,834,307, Cl. 101-115.000.

Zimmer, Peter. Rotary screen printer with programmable screen interrupt. 3,834,309, Cl. 101-715.000.

Zimmerman, Howard F., Jr.: *See—*
Almagro, Guillermo; Bertorelli, Orlando L.; Mays, Robert K.; Williams, Lloyd E.; and Zimmerman, Howard F., Jr., 3,835,216.

Zimmerman, Margaret J.: *See—*
Maddox, Jim, Jr.; Zimmerman, Margaret J.; and Tuggle, Ray, 3,835,060.

Zimmermann, Frederick N.: *See—*
Krebs, Frank; and Zimmermann, Frederick N., 3,834,839.

Zine, Anthony R., Jr., to Corning Glass Works. Container and partioning system for tubular objects. 3,834,526, Cl. 206-437.000.

Zingaro, William P. Selectable multi-window X-ray tube. 3,835,341, Cl. 313-59.000.

Zinnes, Harold; and Lindo, Neil A., to Warner-Lambert Company. Acyl derivatives of 4-hydroxy-2H-1-benzothiopyran-3-carboxamide 1,1-dioxide. 3,835,156, Cl. 260-327.0th.

Zirphile, Jean, to Societe Generale de Constructions Electriques et Macaniques (Alsthom). Coding system for stochastic representation. 3,835,452, Cl. 340-146.200.

Zittel, David R.; and Ajero, Fortunato, to Hughes Company, Inc. Container filling apparatus. 3,834,431, Cl. 141-131.000.

Zoleta, Jose C. Method and apparatus for generating electrical voltage of amplitude varying with time. 3,835,369, Cl. 323-44.00f.

Zubas, John D.: *See—*
Hoeschele, David F., Jr.; and Zubas, John D., 3,835,385.

Zumstein, Ernst, to Bystronic Maschinen AG. Apparatus for the simultaneous machining of a material moving with relative motion respect to the tools, in particular for cutting up a plate of glass. 3,834,258, Cl. 83-11.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 10TH DAY OF SEPTEMBER, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- American Optical Corp.: *See—*
  - Coates, Vincent J., and Welter. Re. 28,153.
- Coates, Vincent J., and L. M. Welter, to American Optical Corp. Field emission scanning microscope display. Re. 28,153, 9-10-74, Cl. 250—311.
- Cook, Paul M. Tube driving apparatus. Re. 28,151, 9-10-74, Cl. 173—91.
- Dow, Norris F., to Doweave, Inc. Triaxial fabric. Re. 28,155, 9-10-74, Cl. 139—383.
- Doweave, Inc.: *See—*
  - Dow, Norris F. Re. 28,155.
- Kiuchi, Yuji, K. Shimizu, and O. Yoshida, to Tokyo Shibaura Electric Co., Ltd. Photoconductive target with N-type layer of cadmium selenide including cadmium chloride and cuprous chloride. Re. 28,156, 9-10-74, Cl. 313—94.
- McDonnell Douglas Corp.: *See—*
  - Waters, Elmer D. Re. 28,152.
- Shimizu, Kazuo: *See—*
  - Kiuchi, Yuji, Shimizu, and Yoshida. Re. 28,156.
- Skuttle Mfg. Co.: *See—*
  - Stiles, Walter R. Re. 28,154.
- Stiles, Walter R., to Skuttle Mfg. Co. Wall or duct mounted humidistat. Re. 28,154, 9-10-74, Cl. 317—120.
- Tokyo Shibaura Electric Co., Ltd.: *See—*
  - Kiuchi, Yuji, Shimizu, and Yoshida. Re. 28,156.
- Waters, Elmer D., to McDonnell Douglas Corp. Oil well permafrost stabilization system. Re. 28,152, 9-10-74, Cl. 166—57.
- Welter, Leonard M.: *See—*
  - Coates, Vincent J., and Welter. Re. 28,153.
- Wycoff, Keith H. Transmitter with means for generating the carrier wave before generating the modulation components. Re. 28,157, 9-10-74, Cl. 325—155.
- Yoshida, Okio: *See—*
  - Kiuchi, Yuji, Shimizu, and Yoshida. Re. 28,156.

LIST OF PLANT PATENTEES

- Ball, Geo. J., Inc.: *See—*
  - Fischer, Arnold W. 3,611.
  - Fischer, Arnold W. 3,612.
  - Fischer, Arnold W. 3,613.
  - Fischer, Arnold W. 3,614.
- Conard-Pyle Co., The: *See—*
  - Williams, J. Benjamin. 3,615.
- Fischer, Arnold W., to Geo. J. Ball, Inc. Violet plant. 3,611, 9-10-74, Cl. 69.
- Fischer, Arnold W., to Geo. J. Ball, Inc. African violet. 3,612, 9-10-74, Cl. 69.
- Fischer, Arnold W., to Geo. J. Ball, Inc. African violet. 3,613, 9-10-74, Cl. 69.
- Fischer, Arnold W., to Geo. J. Ball, Inc. African violet. 3,614, 9-10-74, Cl. 69.
- Frampton's Nurseries Ltd.: *See—*
  - Machin, Barrie J. 3,616.
- Machin, Barrie J., to Frampton's Nurseries Ltd. Chrysanthemum plant. 3,616, 9-10-74, Cl. 78.
- Williams, J. Benjamin, to The Conard-Pyle Co. Rose plant. 3,615, 9-10-74, Cl. 6.

LIST OF DESIGN PATENTEES

- AAI Corp.: *See—*
  - Abbott, David D. 232,723—730.
- Abbott, David D., to AAI Corp. Projective nose. 232.723, 9-10-74, Cl. D22—10.
- Abbott, David D., to AAI Corp. Projectile. 232,724, 9-10-74, Cl. D22—10.
- Abbott, David D., to AAI Corp. Cartridge. 232,725, 9-10-74, Cl. D22—10.
- Abbott, David D., to AAI Corp. Projectile nose. 232,276, 9-10-74, Cl. D22—10.
- Abbott, David D., to AAI Corp. Projectile nose. 232,727, 9-10-74, Cl. D22—10.
- Abbott, David D., to AAI Corp. Projectile. 232,728, 9-10-74, Cl. D22—10.
- Abbott, David D., to AAI Corp. Cartridge. 232,729, 9-10-74, Cl. D22—10.
- Abbott, David D., to AAI Corp. Projectile nose. 232,730, 9-10-74, Cl. D22—10.
- Abe, Isamu: *See—*
  - Iwagami, Akikazu, and Abe. 232,694.
- Acousis Co.: *See—*
  - Kryter, Karl D. 232,782.
- Adams, Oral S.: *See—*
  - Turnipseed, Iven E., and Adams. 232,691.
- Altier, Anthony L., to Indian Industries, Inc. Broadhead for hunting arrow. 232,731, 9-10-74, Cl. D22—12.
- American Standard Inc.: *See—*
  - Payne, George. 232,783.
- Aries, Graham J., to Tower Housewares Ltd. Fish cooker. 232,688, 9-10-74, Cl. D7—85.
- Aries, Graham J., to Tower Housewares Ltd. Combined frypan and lid therefor. 232,690, 9-10-74, Cl. D7—95.
- Astec Industries, Inc.: *See—*
  - Mize, Erbie G., and Smith. 232,719.
- Au, Ser-Kit, and M-S, Lui. Radio receiver. 232,769, 9-10-74, Cl. D56—4.
- Audette, Raymond P. Display rack. 232,682, 9-10-74, Cl. D6—186.
- Bartunek, William, to P. R. Mallory, & Co., Inc. Flashlight battery clamp for a bicycle. 232,699, 9-10-74, Cl. D8—247.
- Bendix Home Systems, Inc.: *See—*
  - Eacret, Dan P. 232,718.
- Berger, Robert P. Incisal packing tool. 232,734, 9-10-74, Cl. D24—1.
- Bernstein, Bernard. Charm or similar article. 232,754, 9-10-74, Cl. D45—17.
- Bettonica, Franco, to Perlier S.p.A. Bottle. 232,701, 9-10-74, Cl. D9—83.
- Bettonica, Franco, to Perlier S.p.A. Bottle. 232,702, 9-10-74, Cl. D9—83.
- Bliss, Beatrice, to Blisscraft of Hollywood. Shelf. 232,681, 9-10-74, Cl. D6—186.
- Blisscraft of Hollywood: *See—*
  - Bliss, Beatrice. 232,681.
- Boeing Co., The: *See—*
  - Kirchner, Mark E., and Whitener. 232,711.
  - Brown, Robert B. 232,712.
  - Cook, William H., Wimpress, Pennell, and Person. 232,713.
- Bombardier Ltd.: *See—*
  - Scott, Thomas. 232,674.
- Brown, Robert B., to The Boeing Co. Airplane. 232,712, 9-10-74, Cl. D12—80.
- Butcher, Ewen. Axle and fenders unit. 232,720, 9-10-74, Cl. D14—2.
- Clam Corp.: *See—*
  - Marrin, Avery. 232,709.
- Cook, William H., J. K. Wimpress, M. L. Pennell, and R. P. Person, to The Boeing Co. Aircraft. 232,713, 9-10-74, Cl. D12—80.
- Corning Glass Works: *See—*
  - Gerow, Cynthia S. 232,685.
  - Reyda, Theodore M. 232,687.
- Cosar Corp.: *See—*
  - Hampton, Perry D., Cox, and Warren. 232,746.
- Cox, James R.: *See—*
  - Hampton, Perry D., Cox, and Warren. 232,746.
- Crest Lock Co., Inc.: *See—*
  - Sheiman, Julius. 232,697.
- Curtis, John T., to Magnum Automotive Equipment, Inc. Automatic tire changer machine. 232,763, 9-10-74, Cl. D54—13.
- Dart Industries Inc.: *See—*
  - Montesi, Edward N. 232,686.
- Davis, Delles T., and B. D. Motlong, to Research Fuels, Inc. Vehicle for dispensing petroleum products or the like. 232,707, 9-10-74, Cl. D12—14.
- De Monbrun, John C. Hat. 232,668, 9-10-74, Cl. D2—257.
- Den-Tal-Ez Mfg., Co.: *See—*
  - Fortnam, George A. 232,777.
- Dolco Packaging Corp.: *See—*
  - Eicholtz, Clara V. 232,684.
- ESB Inc.: *See—*
  - Oakley, Daniel C., Rhoades, and Schmidt. 232,756.
- Eacret, Dan P., to Bendix Home Systems, Inc. Modular mobile home with off-center roof peak. 232,718, 9-10-74, Cl. D13—1.
- Echterling, Eugene J., to Questor Corp. Trundle toy. 232,751, 9-10-74, Cl. D34—15.
- Eicholtz, Clara V., to Dolco Packaging Corp. Dish or similar article. 232,684, 9-10-74, Cl. D7—3.

- Eloranta, Viato K., R. Paglia, R. R. Wareham, and N. Gold, to Polaroid Corp. Photographic film cassette or similar article. 232,775, 9-10-74, Cl. D61—1.
- Empire Machines, Inc.: *See—*
  - Sharenow, Stuart. 232,705.
- Famolare, Inc.: *See—*
  - Famolare, Joseph P., Jr. 232,669.
- Famolare, Joseph P., Jr., to Famolare, Inc. Clog shoe sole. 232,669, 9-10-74, Cl. D2—322.
- Fink, Arthur A.: *See—*
  - Padilla, Dominick, and Fink. 232,737.
- Forchemer, Herbert C. Cart body for pressure washing apparatus. 232,708, 9-10-74, Cl. D12—34.
- Forrester, Joseph H. Chest of drawers or similar article. 232,680, 9-10-74, Cl. D6—152.
- Fortnam, George A., to Den-Tal-Ez Mfg., Co. Adjustable mounting base for a patient supporting unit. 232,777, 9-10-74, Cl. D83—1.
- Franklin, Lester K., deceased, by M. P. Franklin. Clock-radio. 232,765, 9-10-74, Cl. D56—4.
- Franklin, Mildred P.: *See—*
  - Franklin, Lester K., and M. P. 232,765.
- Funahashi, Takaji. Stamp case. 232,678, 9-10-74, Cl. D6—130.
- Furuyabu, Noriharu: *See—*
  - Naito, Masatoshi, Swamura, Funatsu, and Furuyabu. 232,689.
- Gayle, Stig H., and T. Nilson, to said Hedman assor. to said Nilson. Owl figurine. 232,742, 9-10-74, Cl. D29—23.
- General Electric Co.: *See—*
  - Houlihan, John T. 232,766.
- Gerow, Cynthia S., to Corning Glass Works. Plate or the like. 232,685, 9-10-74, Cl. D7—36.
- Gold, Nicholas: *See—*
  - Eloranta, Viato K., Paglia, Wareham, and Gold. 232,775.
- Goto, Kenjiro, to Mansei Kogyo Kabushiki Kaisha. Cigarette lighter. 232,757, 9-10-74, Cl. D48—27.
- Gourley, Ralph D., to Rival Mfg. Co. Combined electric can opener and knife sharpener. 232,696, 9-10-74, Cl. D8—35.
- Greuloch, William E.: *See—*
  - Hagen, Richard M., Jordan, and Greuloch. 232,778.
- Hagen, Richard M., R. L. Jordan, and W. E. Greuloch, to Medtronic, Inc. Medical electrical equipment case. 232,778, 9-10-74, Cl. D83—1.
- Hall, Merwin G. Height measuring scale. 232,759, 9-10-74, Cl. D52—6.
- Hampton, Perry D., J. R. Cox, and P. J. Warren, to Cosar Corp. Reflection densitometer. 232,746, 9-10-74, Cl. D32—2.
- Hedgewick, Peter, to International Tool (1973) Ltd. Wraparound tail light. 232,758, 9-10-74, Cl. D48—31.
- Hedman assor. to said Nilson: *See—*
  - Gayle, Stig H., and Nilson. 232,742.
- Hirasa, Hiroshi, and B. Mishiro, to Matsushita Electric Industrial Co., Ltd. Amplifier. 232,741, 9-10-74, Cl. D26—14.1.
- Hirschl, Paul, to Ropa Industries, Inc. Embossed fabric. 232,784, 9-10-74, Cl. D87—3.
- Honeywell Inc.: *See—*
  - Quinn, Peter T. 232,774.
- Hoover Co., The: *See—*
  - Wareham, Richard A. 232,695.
- Hoshino, Kunio, K. Takenaka, and M. Miyamoto, to Matsushita Electric Industrial Co., Ltd. Combined radio receiver and clock. 232,771, 9-10-74, Cl. D56—4.
- Houlihan, John T., to General Electric Co. Clock-radio. 232,766, 9-10-74, Cl. D56—4.
- Howmet Corp.: *See—*
  - Taylor, Charles P. 232,673.
- Indian Industries, Inc.: *See—*
  - Altier, Anthony L. 232,731.
- International Business Machines Corp.: *See—*
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  - Hedgewick, Peter. 232,758.
- Iwagami, Akikazu, and I. Abe, to Sanyo Electric Co., Ltd. Mixer. 232,694, 9-10-74, Cl. D7—159.
- Johnson, Virgil H., to Minnesota Mining and Mfg. Co. Acoustic coupler. 232,738, 9-10-74, Cl. D26—14.
- Jordan, Robert L.: *See—*
  - Hagen, Richard M., Jordan, and Greuloch. 232,778.
- Kabushiki Kaisha Ricoh: *See—*
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- Kabushikikasha Taikodenki Seisakusho: *See—*
  - Takahashi, Nobuyasu, and Nakamura. 232,740.
- Kato, Takaharu, to Kabushiki Kaisha Ricoh. Electronic flash. 232,773, 9-10-74, Cl. D61—1.
- Kayhoe, William F. Spoon. 232,692, 9-10-74, Cl. D7—137.
- Kawamura, Ken: *See—*
  - Miyamoto, Masaaki, Kawamura, and Owada. 232,770.
- Kimberly-Clark Corp.: *See—*
  - Thomas, Gordon D. 232,772.
- Kinsey, John O., B. W. McVey, D. G. Moore, R. B. Mulvany, and P. C. Yenerich, to International Business Machines Corp. Magnetic disk module. 232,735, 9-10-74, Cl. D26—5.
- Kirchner, Mark E., and P. C. Whitener, to The Boeing Co. Airplane. 232,711, 9-10-74, Cl. D12—76.
- Kryter, Karl D., to Acousis Co. Tape-reel storage case. 232,782, 9-10-74, Cl. D87—1.
- Konzi, Ernst (NMI), Sarah Coventry, Inc. Display container. 232,703, 9-10-74, Cl. D9—237.
- Kress, George C.: *See—*
  - Krumholz, Jerrold J., Reisgen, and Kress. 232,672.
- Krumholz, Jerrold J., H. H. V. Reisgen, and G. C. Kress, to Kusan, Inc. Child's chair. 232,671, 9-10-74, Cl. D6—7.
- Krumholz, Jerrold J., H. H. V. Reisgen, and G. C. Kress, to Kusan, Inc. Child's bench. 232,672, 9-10-74, Cl. D6—7.
- Kusan, Inc.: *See—*
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  - Newman, Alexander I. 232,721.
- Lanese, Pasquale J., to The Warner & Swasey Co. Tool holder for a lathe tool, or similar article. 232,760, 9-10-74, Cl. D54—6.
- Lanese, Pasquale J., to The Warner & Swasey Co. Tool holder having a lathe tool, or similar article. 232,761, 9-10-74, Cl. D54—6.
- Lanese, Pasquale J., to The Warner & Swasey Co. Tool holder for end working tools for a lathe, or similar article. 232,762, 9-10-74, Cl. D54—6.
- Langieri, Michael: *See—*
  - Meyers, Michael R., and Langieri. 232,749.
- Langieri, Michael, to Questor Corp. Educational Toy. 232,750, 9-10-74, Cl. D34—15.
- Lawlor, John, and J. Sgombick, to Xerox Corp. Clamp. 232,698, 9-10-74, Cl. D8—246.
- Levine, Irving. Strand of beads for curtain elements or the like. 232,683, 9-10-74, Cl. D6—205.
- Long, James M., to Questor Corp. Golf glove. 232,670, 9-10-74. Cl. D2—361.
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- Medtronic, Inc.: *See—*
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- McVey, Bernard W.: *See—*
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- Meyers, Michael R., and M. Langieri. Musical toy. 232,749, 9-10-74, Cl. D34—15.
- Minnesota Mining and Mfg. Co.: *See—*
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- Mishiro, Benito, to Matsushita Electric Industrial Co., Ltd. Radio receiver. 232,768, 9-10-74, Cl. D56—4.
- Miyamoto, Masaaki, K. Kawamura, and M. Owada, to Matsushita Electric Industrial Co., Ltd. Radio receiver. 232,770, 9-10-74, Cl. D56—4.
- Miyamoto, Masaaki: *See—*
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- Mize, Erbie G., and W. N. Smith, to Astec Industries, Inc. Control house module or similar article. 232,719, 9-10-74, Cl. D13—1.
- Montesi, Edward N., to Dart Industries Inc. Condiment receptacle caddy. 232,686, 9-10-74, Cl. D7—58.
- Moore, Norman D. Aircraft. 232,710, 9-10-74, Cl. D12—75.
- Morris, Elliott M., to Morris Industries. Wheel. 232,717, 9-10-74, Cl. D12—205.
- Morris Industries: *See—*
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- Nakamura, Nobuji: *See—*
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- Newman, Alexander I., to Lab-Line Instruments, Inc. Incubator-shaker. 232,721, 9-10-74, Cl. D16—2.
- Nilson, Torkel: *See—*
  - Gayle, Stig H., and Nilson. 232,742.
- Noble, Terrance O. Apparatus for measuring liquids. 232,745, 9-10-74. Cl. D32—1.
- Oakley, Daniel C., N. K. Rhoades, and A. R. Schmidt, to ESB Inc. Electric lantern. 232,756, 9-10-74, Cl. D48—24.
- Oliver, Samuel G. Pan board. 232,676, 9-10-74, Cl. D6—114.
- Olson, Donald M., 33⅓ each to Max Morris. Vaginal speculum. 232,779, 9-10-74, Cl. D83—12.
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- Paglia, Richard: *See—*
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- Pardo, John, to The Procter & Gamble Co. Combined bottle and cap therefor. 232,700, 9–10–74, Cl. D9—71.
- Partridge, Ruby M. Doll. 232,752, 9–10–74, Cl. D34—4.
- Payne, George, to American Standard Inc. Tote tray. 232,783, 9–10–74, Cl. D87—1.
- Perlier S.p.A.: *See—*
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  - Bettonica, Franco. 232,702.
- Perry, Frank R., to Oneida Ltd. Spoon or similar article. 232,693, 9–10–74, Cl. D7—137.
- Person, Robert P.: *See—*
  - Cook, William H., Pennell, and Person. 232,713.
- Polaroid Corp.: *See—*
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- Procter & Gamble. Co., The: *See—*
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- Quinn, Peter T., to Honeywell Inc. Slide dispenser for a table viewer. 232,774, 9–10–74, Cl. D61—1.
- RMS Electronics, Inc.: *See—*
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- Raczkowski, Jan., and S., to Propper Mfg. Co., Inc. Sphygmomanometer. 232,781, 9–10–74, Cl. D83—12.
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- Ransen, Mauritz C. Combined memoranda and pencil holder. 232,776, 9–10–74, Cl. D74—1.
- Reisgen, Herbert H. V.: *See—*
  - Krumholz, Jerrold J., Reisgen, and Kress. 232,671.
  - Krumholz, Jerrold J., Reisgen, and Kress. 232,672.
- Research Fuels, Inc.: *See—*
  - Davis, Delles T., and Motlong. 232,707.
- Reyda, Theodore M., to Corning Glass Works. Cruet or the like. 232,687, 9–10–74, Cl. D7—59.
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  - Oakley, Daniel C., Rhoades, and Schmidt. 232,756.
- Rival Mfg. Co.: *See—*
  - Gourley, Ralph D. 232,696.
- Robson, Arthur, to Morse Electro Products Corp. Combination speaker and lamp. 232,755, 9–10–74, Cl. D48—20.
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  - Hirschl, Paul. 232,784.
- Sanyo Electric Co., Ltd.: *See—*
  - Iwagami, Akikazu, and Abe. 232,694.
- Sarah Coventry, Inc.: *See—*
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- Schauble, L. S.-B. Mobile diner. 232,714, 9–10–74, Cl. D12—102.
- Schmidt, Arthur: *See—*
  - Oakley, Daniel C., Rhoades, and Schmidt. 232,756.
- Schotland, Ronald S. Storage cabinet. 232,677, 9–10–74, Cl. D6—127.
- Scott, Thomas, to Bombadier Ltd. Snowmobile seat. 232,674, 9–10–74, Cl. D6—48.1.
- Sgombick, John: *See—*
  - Lawlor, John, and Sgombick. 232,698.
- Sharenow, Stuart, to Empire Machines, Inc. Siren, or similar article. 232,705, 9–10–74, Cl. D10—120.
- Sharp, JoAnne W. Doll. 232,747, 9–10–74, Cl. D34—4.
- Sheiman, Julius, to Crest Lock Co., Inc. Lock for zipper luggage and the like. 232,697, 9–10–74, Cl. D8—123.
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- Silver, Jules: *See—*
  - Zackheim, Eli A. 232,780.
- Smith, W. Norman: *See—*
  - Mize, Erbie G., and Smith. 232,719.
- Stevens, Jack D. Miniature radio receiver. 232,767, 9–10–74, Cl. D56—4.
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- Strong, Richard A., and R. M. Clockface. 232,706, 9–10–74, Cl. D10—126.
- Strong, Rosa M.: *See—*
  - Strong, Richard A., and R. M. 232,706.
- Swamura, Fujio: *See—*
  - Naito, Masatoshi, Swamura, Funatsu, and Furuyabu. 232,689.
- Takahashi, Nobuyasu, and N. Nakamura, to Kabushikikasha Taikodenki Seisakusho. Telephone. 232,740, 9–10–74, Cl. D26—14.
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  - Hoshino, Kunio, Takenaka, and Miyamoto. 232,771.
- Taylor, Charles P., to Howmet Corp. Picnic table combined with benches. 232,673, 9–10–74, Cl. D6—45.
- Thomas, Gordon D., to Kimberly-Clark Corp. Paper toweling or similar article. 232,772, 9–10–74, Cl. D59—2.
- Topalis, Stylianos A., to The Quaker Oats Co. Expanded cereal food product. 232,667, 9–10–74, Cl. D1—1.
- Tower Housewares Ltd.: *See—*
  - Aries, Graham J. 232,688.
  - Aries, Graham J. 232,690.
- Turley, Arthur B. Trash compactor device. 232,764, 9–10–74, Cl. D55—1.
- Turnipseed, Iven E., and O. S. Adams. Hot plate. 232,691, 9–10–74, Cl. D7—123.
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  - Vizina, Clarence H. 232,715.
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- Wareham, Richard A., to The Hoover Co. Vacuum cleaner casing. 232,695, 9–10–74, Cl. D7—170.
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  - Lanese, Pasquale J. 232,760.
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  - Lanese, Pasquale J. 232,762.
- Wasserman, Bruce. Cylindrical table telephone. 232,739, 9–10–74, Cl. D26—14.
- Weiss, Eugene. Shoe storage rack. 232,679, 9–10–74, Cl. D6—146.
- Whitener, Philip C.: *See—*
  - Kirchner, Mark E., and Whitener. 232,711.
- Wilnau, John A. Concrete block. 232,722, 9–10–74, Cl. D18—2.
- Wimpress, John K.: *See—*
  - Cook, William H., Wimpress, Pennell, and Person. 232,713.
- Xerox Corp.: *See—*
  - Lawlor, John, and Sgombick. 232,698.
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CLASSIFICATION OF PATENTS

ISSUED SEPTEMBER 10, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2	
6	3,833,935
8	3,833,936
46	3,833,937
96	3,833,938
209	3,833,939
CLASS 3	
7	3,833,941
12.3	3,833,942
100	3,833,940
CLASS 4	
10	3,833,943
172	3,833,944
CLASS 5	
90	3,833,945
94	3,833,946
	3,833,947
247	3,833,948
259B	3,833,949
345B	3,833,950
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353	3,833,952
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11	3,834,866
115.5	3,834,867
130.1	3,834,868
151	3,834,869
168	3,834,870
187	3,834,871
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310D	3,833,956
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142E	3,833,957
142R	3,833,958
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	3,835,228
	3,835,229
	3,835,230
10	3,835,231
	3,835,232
17	3,835,233
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14	3,833,959
77	3,833,960
CLASS 15	
50C	3,833,961
400	3,833,962
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82	3,833,963
145	3,833,964
146	3,833,965
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1E	3,833,966
70	3,833,967
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114	3,833,968
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25.42	3,833,978
27C	3,833,979
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149.5S	3,833,983
157A	3,833,985
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157.1R	3,833,988
157.3A	3,833,986
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180S	3,834,878
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191.2	3,834,880
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203D	3,833,993
203H	3,833,992
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237	3,833,996
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477.7	3,834,010
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92	3,834,019
228	3,834,020
232	3,834,021
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8	3,834,024
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30G	3,834,028
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174TD	3,834,032
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160	3,834,040
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67	3,834,050
124.1	3,834,051
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3	3,834,054
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348	3,834,080
360	3,834,081
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127	3,834,085
218A	3,834,086
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288	3,834,090
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	3,834,095
172	3,834,096
	3,834,097
189	3,834,098
235	3,834,099
309	3,834,100
	3,834,101
311	3,834,102
372	3,834,103
376	3,834,104
377	3,834,105
489	3,834,106
514	3,834,107
593	3,834,108
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229	3,834,884
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201	3,834,205
211	3,834,206
241	3,834,207
263	3,834,208
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308	3,834,210
324	3,834,211
354	3,834,212
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99	3,834,916
109	3,834,917
122	3,834,918
214	3,834,919
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37LE	3,834,930
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3E	3,834,410
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86A	3,834,944
86D	3,834,943
161	3,834,945
176	3,834,946
CLASS 137	
1	3,834,411
68	3,834,412
116	3,834,413
155	3,834,414
202	3,834,415
550	3,834,416
613	3,834,417
625.48	3,834,418
625.63	3,834,419
630.12	3,834,420
CLASS 138	
97	3,834,421
	3,834,422
122	3,834,423
CLASS 139	
22	3,834,424
65	3,834,425
85	3,834,426
224A	3,834,427
383R	Re.28,155
CLASS 141	
39	3,834,428
83	3,834,429
119	3,834,430
131	3,834,431
388	3,834,432
392	3,834,433
CLASS 144	
34E	3,834,434
144.5	3,834,435
326R	3,834,436
CLASS 148	
2	3,834,948
12	3,834,947
	3,834,949
31	3,834,950
36	3,834,951
112	3,834,952
186	3,834,953
CLASS 149	
2	3,834,954
7	3,834,955
19.1	3,834,956
19.4	3,834,957
CLASS 150	
.5	3,834,437
CLASS 151	
41.73	3,834,438
CLASS 152	
361FP	3,834,439
CLASS 156	
8	3,834,958
11	3,834,959
53	3,834,960
72	3,834,961
79	3,834,962
215	3,834,963
269	3,834,964
294	3,834,965
356	3,834,967
379	3,834,966
389	3,834,968
466	3,834,969
489	3,834,970
507	3,834,971
517	3,834,972
558	3,834,973
578	3,834,974
CLASS 159	
47R	3,834,440
49	3,834,441
CLASS 161	
1	3,834,975
22	3,834,976
67	3,834,977
81	3,834,978
146	3,834,979
176	3,834,980
192	3,834,981
CLASS 162	
1	3,834,982
168	3,834,983
175	3,834,984
280	3,834,985
CLASS 164	
21	3,834,442
52	3,834,443
87	3,834,444
150	3,834,445
252	3,834,446
273M	3,834,447
CLASS 165	
1	3,834,448
7	3,834,449
8	3,834,450
23	3,834,451
47	3,834,452
54	3,834,453
80	3,834,454
81	3,834,455
104	3,834,456
105	3,834,457
164	3,834,458
169	3,834,459
CLASS 166	
.6	3,834,460
57	Re.28,152
245	3,834,461
CLASS 169	
17	3,834,462
28	3,834,463
CLASS 172	
22	3,834,464
197	3,834,465
235	3,834,466
CLASS 173	
12	3,834,467
48	3,834,468
75	3,834,469
91	Re.28,151
CLASS 174	
5R	3,835,238
15BH	3,835,239
15C	3,835,240
87	3,835,241
126CP	3,835,242
CLASS 175	
211	3,834,470
304	3,834,471
321	3,834,472
CLASS 176	
33	3,834,986
59	3,834,987
CLASS 177	
1	3,834,473
	3,834,474
25	3,834,475
CLASS 178	
5.4R	3,835,243
5.6	3,835,244
6.8	3,835,245
	3,835,246
7.2	3,835,247
7.3R	3,835,248
7.6	3,835,249
7.8	3,835,250
7.85	3,835,251
68	3,835,252
69.5DC	3,835,253
CLASS 179	
1GQ	3,835,255
1E	3,835,254
	3,835,256
8A	3,835,257
18BC	3,835,259
18ES	3,835,260
18HB	3,835,258
100.1DR	3,835,261
100.4C	3,835,262
107FD	3,835,263
111E	3,835,264
181R	3,835,265
190	3,835,266
CLASS 180	
9.64	3,834,477
64L	3,834,476
68P	3,834,478
68.5	3,834,479
79.2B	3,834,480
82R	3,834,481
90	3,834,482
91	3,834,483
114	3,834,484
CLASS 181	
31B	3,834,485
32R	3,834,486
33G	3,834,487
206	3,834,491
CLASS 182	
2	3,834,488
5	3,834,489
88	3,834,490
196	3,834,492
CLASS 184	
7R	3,834,493
CLASS 187	
9	3,834,494
29R	3,834,495
CLASS 188	
136	3,834,496
CLASS 190	
43	3,834,497
CLASS 191	
12.4	3,835,267
32	3,835,268
62	3,835,269
CLASS 192	
.09	3,834,499
4A	3,834,498
67R	3,834,500
70.28	3,834,501
104F	3,834,502
113B	3,834,503
CLASS 194	
1G	3,834,504
CLASS 195	
28R	3,834,989
66R	3,834,988
68	3,834,990
103.5R	3,834,991
139	3,834,992
CLASS 197	
1R	3,834,505
	3,834,506
6.7	3,834,507
63	3,834,508
	3,834,509
120	3,834,510
151	3,834,511
181	3,834,512
CLASS 198	
16R	3,834,513
16	3,834,514
27	3,834,515
40	3,834,518
41	3,834,519
110	3,834,520
203	3,834,521
210	3,834,522
220CA	3,834,523
232	3,834,524
266	3,834,517
283	3,834,516
CLASS 200	
6A	3,835,270
60	3,835,272
61.48	3,835,273
83Y	3,835,271
148R	3,835,274
153SC	3,835,275
160	3,835,276
249	3,835,278
318	3,835,277
332	3,835,279
CLASS 202	
139	3,834,993
174	3,834,994
248	3,834,995
CLASS 203	
9	3,834,996
87	3,834,997
CLASS 204	
33	3,834,998
56R	3,834,999
78	3,835,000
95	3,835,001
99	3,835,002
159.11	3,835,003
159.17	3,835,004
159.23	3,835,085
180R	3,835,006
181	3,835,005
192	3,835,007
195G	3,835,009
195L	3,835,010
195M	3,835,011
195P	3,835,013
	3,835,014
195S	3,835,012
195T	3,835,008
197	3,835,015
224M	3,835,016
224R	3,835,017
228	3,835,018
246	3,835,019
268	3,835,020
CLASS 206	
161	3,834,525
437	3,834,526
494	3,834,527
526	3,834,528
CLASS 208	
13	3,835,021
15	3,835,022
16	3,835,023
22	3,835,024
25	3,835,025
111	3,835,026
	3,835,027
	3,835,028
113	3,835,029
120	3,835,030
	3,835,031
	3,835,032
125	3,835,033
139	3,835,034
181	3,835,035
249	3,835,036
260	3,835,037
CLASS 209	
1	3,834,529
3	3,834,530
74M	3,834,531
82	3,834,532
166	3,834,533
326	3,834,534
CLASS 210	
4	3,835,038
17	3,835,039
23	3,835,040
27	3,835,041
28	3,835,042
31C	3,835,043
37	3,835,044
49	3,835,045
54	3,835,046
63	3,835,047
	3,835,048
	3,835,049
75	3,834,535
104	3,834,536
136	3,834,537
154	3,834,538
167	3,834,539
195	3,834,540
219	3,834,541
222	3,834,542
232	3,834,543
321	3,834,544
	3,834,545
	3,834,546
497.1	3,834,547
CLASS 211	
118	3,834,548
148	3,834,549
CLASS 212	
39MS	3,834,550
	3,834,551
95	3,834,552
CLASS 213	
166	3,834,553
	3,834,554
CLASS 214	
1BE	3,834,556
1BH	3,834,557
1BT	3,834,555
	3,834,558
	3,834,559
3	3,834,560
38BA	3,834,562
77R	3,834,563
83.26	3,834,564
85	3,834,565
138R	3,834,566
145	3,834,567
307	3,834,568
762	3,834,569
CLASS 215	
1E	3,834,570
255	3,834,573
256	3,834,571
272	3,834,572
CLASS 217	
19	3,834,574
CLASS 219	
10.55	3,835,280
	3,835,281
	3,835,283
10.57	3,835,282
98	3,835,284
	3,835,285
121EB	3,835,291
130	3,835,286
	3,835,287
145	3,835,288
146	3,835,289
205	3,835,290
222	3,835,292
300	3,835,293
305	3,835,294
314	3,835,295
553	3,835,296
CLASS 220	
1.5	3,834,575
26S	3,834,576
42B	3,834,577
46R	3,834,578
60R	3,834,579
89A	3,834,580
	3,834,581
CLASS 221	
248	3,834,582
251	3,834,583
312	3,834,584
CLASS 222	
1	3,834,585
47	3,834,586
56	3,834,587
61	3,834,588
80	3,834,589
148	3,834,590
185	3,834,591
277	3,834,592
440	3,834,593
464	3,834,594
504	3,834,595
520	3,834,596
525	3,834,597
CLASS 223	
89	3,834,598
102	3,834,599
CLASS 226	
97	3,834,600
191	3,834,601
CLASS 227	
120	3,834,602
156	3,834,603
CLASS 228	
5	3,834,604
20	3,834,605
CLASS 229	
2.5	3,834,606
14BA	3,834,607
15	3,834,608
28R	3,834,609
40	3,834,610
54R	3,834,611
CLASS 232	
25	3,834,612
CLASS 233	
23A	3,834,613
CLASS 235	
61GM	3,835,298
61NV	3,835,299
61.11A	3,835,301
61.11E	3,835,297
	3,835,300
64.3	3,834,614
92NG	3,835,302
92SB	3,835,306
144HC	3,835,303
151.11	3,834,615
151.3	3,835,304
151.34	3,835,305
160	3,834,616
CLASS 236	
1C	3,834,617
46	3,834,618
CLASS 237	
81	3,834,619
CLASS 238	
287	3,834,620

CLASS 239	
76	3,834,621
132.1	3,834,622
139	3,834,623
214.15	3,834,624
227	3,834,625
265.13	3,834,626
430	3,834,627
542	3,834,628
594	3,834,629
CLASS 240	
1	3,835,307
10C	3,835,308
10.6CH	3,835,309
10.65	3,835,310
54R	3,835,311
CLASS 241	
19	3,834,630
24	3,834,561
26	3,834,631
187	3,834,632
295	3,834,633
CLASS 242	
35.6R	3,834,634
47.01	3,834,635
55.2	3,834,636
65	3,834,637
67.1R	3,834,638
68	3,834,639
68.3	3,834,640
72.1	3,834,641
75.5	3,834,642
78.7	3,834,643
84.2G	3,834,644
107.7	3,834,645
	3,834,646
130.2	3,834,647
186	3,834,648
191	3,834,649
192	3,834,650
199	3,834,651
205	3,834,652
CLASS 244	
1SA	3,834,653
13	3,834,654
135R	3,834,655
CLASS 248	
13	3,834,656
23	3,834,657
205R	3,834,658
245	3,834,659
418	3,834,660
CLASS 250	
206	3,835,313
213VT	3,835,314
231P	3,835,316
260	3,835,317
281	3,835,318
290	3,835,319
311	Re.28,153
	3,835,320
315	3,835,321
343	3,835,322
360	3,835,323
	3,835,324
366	3,835,325
393	3,835,326
398	3,835,327
432	3,835,328
484	3,835,329
493	3,835,330
552	3,835,331
563	3,835,332
574	3,835,315
CLASS 251	
89	3,834,661
121	3,834,662
173	3,834,663
174	3,834,664
349	3,834,665
361	3,834,666
CLASS 252	
28	3,835,050
33.6	3,835,051
49.5	3,835,052
59	3,835,053
62	3,835,054
62.2	3,835,055
78	3,835,056
107	3,835,057
121	3,835,058
305	3,835,059
332	3,835,060
359A	3,835,061
408	3,835,062
415	3,835,063
423	3,835,064
429C	3,835,065
429R	3,835,066
447	3,835,067
455Z	3,835,068
462	3,835,069
526	3,835,070
545	3,835,071
CLASS 254	
2R	3,834,667
29R	3,834,668
133	3,834,669
150R	3,834,670
158	3,834,671
172	3,834,672
175.5	3,834,673
190R	3,834,674
CLASS 260	
2.1C	3,835,072
2.5B	3,835,073
17	3,835,074
17.4BB	3,835,075
17.4SG	3,835,116
23EP	3,835,076
28	3,835,077
28.5AS	3,835,117
28.5A	3,835,078
	3,835,079
29.2TN	3,835,081
29.2R	3,835,080
29.3	3,835,082
29.4R	3,835,083
29.6MN	3,835,148
29.6NR	3,835,084
33.6UA	3,835,086
	3,835,088
33.6R	3,835,087
38	3,835,118
40R	3,835,089
42.15	3,835,090
42.45	3,835,091
45.75R	3,835,119
45.85S	3,835,095
45.9R	3,835,092
	3,835,093
	3,835,094
47CP	3,835,120
67FP	3,835,096
	3,835,097
75N	3,835,098
	3,835,099
77.5NC	3,835,121
78SC	3,835,101
78P	3,835,100
78.5T	3,835,122
80.6	3,835,103
80.78	3,835,104
87.1	3,835,105
94.9B	3,835,123
94.9P	3,835,106
94.9R	3,835,107
112.5	3,835,108
	3,835,109
	3,835,110
209.5	3,835,111
211R	3,835,112
216	3,835,113
233.3R	3,835,114
239.1	3,835,115
239.3A	3,835,124
239.3B	3,835,125
239.55	3,835,127
239.9	3,835,126
240J	3,835,128
243B	3,835,131
243C	3,835,129
	3,835,130
247.5D	3,835,132
248NS	3,835,133
248A	3,835,136
248C	3,835,134
	3,835,135
256.4F	3,835,137
	3,835,138
279R	3,835,139
283SY	3,835,140
283S	3,835,141
286R	3,835,142
294.8E	3,835,145
294.8T	3,835,143
295R	3,835,146
295.5B	3,835,144
	3,835,147
297R	3,835,149
302A	3,835,150
309.5	3,835,151
315	3,835,152
326C	3,835,154
	3,835,155
326.43	3,835,153
327TH	3,835,156
332.2A	3,835,157
	3,835,158
340.3	3,835,159
340.9	3,835,160
343.2R	3,835,161
346.8R	3,835,162
347.3	3,835,163
347.4	3,835,164
347.5	3,835,165
348R	3,835,166
351	3,835,167
396R	3,835,168
397.2	3,835,169
438.1	3,835,170
453PH	3,835,172
455A	3,835,171
456A	3,835,173
	3,835,174
463	3,835,175
465D	3,835,176
465R	3,835,177
	3,835,178
465.5	3,835,182
468D	3,835,179
	3,835,180
	3,835,181
505C	3,835,183
533A	3,835,185
544M	3,835,186
	3,835,187
553DA	3,835,188
558D	3,835,189
559	3,835,190
562A	3,835,184
566R	3,835,191
586R	3,835,192
604R	3,835,193
606.5F	3,835,194
607A	3,835,195
608	3,835,196
666PY	3,835,197
674A	3,835,198
683.3	3,835,199
876B	3,835,200
897A	3,835,201
933	3,835,202
935	3,835,203
938	3,835,204
	3,835,205
983	3,835,206
CLASS 261	
18A	3,834,675
36A	3,834,676
39B	3,834,677
41D	3,834,678
	3,834,679
92	3,834,680
111	3,834,681
123	3,834,682
138	3,834,683
CLASS 264	
41	3,835,207
45	3,835,208
51	3,835,209
61	3,835,210
66	3,835,211
76	3,835,212
CLASS 266	
21	3,834,684
41	3,834,685
CLASS 267	
116	3,834,686
CLASS 269	
7	3,834,687
42	3,834,688
CLASS 270	
41	3,834,689
CLASS 271	
80	3,834,690
100	3,834,691
CLASS 272	
52.5	3,834,692
57B	3,834,693
58	3,834,694
60A	3,834,695
79C	3,834,696
CLASS 273	
1B	3,834,697
72A	3,834,698
73D	3,834,699
77R	3,834,700
85C	3,834,701
86B	3,834,702
89	3,834,703
102R	3,834,704
106A	3,834,705
122R	3,834,706
126A	3,834,707
132	3,834,708
134AD	3,834,709
138A	3,834,710
141A	3,834,711
143R	3,834,712
145E	3,834,713
183D	3,834,714
CLASS 277	
1	3,834,715
9	3,834,716
134	3,834,717
166	3,834,718
170	3,834,719
CLASS 279	
1L	3,834,720
CLASS 280	
7.15	3,834,721
11.13K	3,834,722
11.35D	3,834,723
33.99H	3,834,724
79.2	3,834,725
87.04R	3,834,726
96	3,834,727
150AB	3,834,729
150SB	3,834,730
150B	3,834,728
150.5	3,834,731
154.5R	3,834,732
251	3,834,733
261	3,834,734
407	3,834,736
423R	3,834,735
502	3,834,737
504	3,834,738
CLASS 281	
21	3,834,739
CLASS 285	
55	3,834,740
226	3,834,741
249	3,834,742
	3,834,743
373	3,834,744
CLASS 292	
38	3,834,747
290	3,834,746
320	3,834,748
339	3,834,745
CLASS 294	
15	3,834,749
87.2	3,834,750
104	3,834,751
CLASS 296	
1S	3,834,752
10	3,834,753
35R	3,834,754
97G	3,834,755
136	3,834,756
CLASS 297	
277	3,834,757
389	3,834,758
445	3,834,759
CLASS 299	
5	3,834,760
10	3,834,761
43	3,834,762
85	3,834,763
86	3,834,764
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U. S. GOVERNMENT PRINTING OFFICE : O - 1974

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, *Secretary*

PATENT OFFICE
C. Marshall Dann, *Commissioner*

A UNITED STATES
DEPARTMENT OF
COMMERCE
PUBLICATION

U. S.
DEPARTMENT
OF COMMERCE

Patent
Office

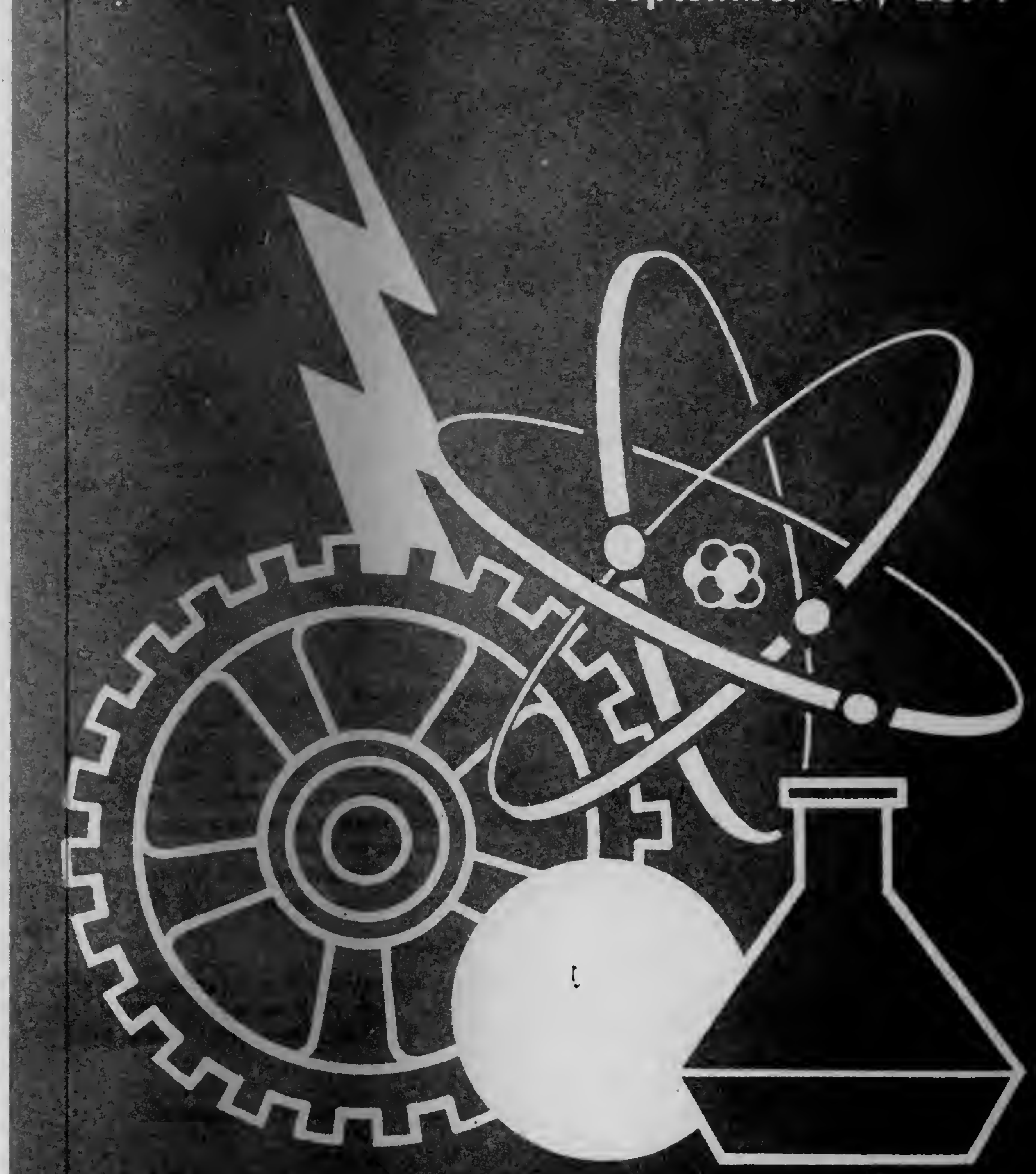
Vol. 926 Number 3

OFFICIAL GAZETTE

of the UNITED STATES PATENT OFFICE

PATENTS

September 17, 1974



PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

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- Designs and Plants . . . . PI 57

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PATENT OFFICE NOTICES

Availability of Rules of Practice

A new edition of "37 Code of Federal Regulations," revised to July 1, 1974 is now available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 for $1.75. The catalog number is GS 4.108: 37/9–74.

This booklet is published by the Office of the Federal Register and contains all patent rules and forms, trademark rules and forms as well as the copyright rules.

The looseleaf booklet entitled "Rules of Practice in Patent Cases" is no longer available. However, the looseleaf "Trademark Rules of Practice" booklet is still available for $3.50 ($1 additional for foreign mailing).

RENE D. TEGTMEYER,
Aug. 20, 1974. *Acting Commissioner of Patents.*

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent Office. Information tending to affect the eligibility of said applicants on moral, ethical, or other grounds, should be furnished the Commissioner of Patents on or before September 30, 1974.

Bailey, James S., 6007 Williamsburg Blvd., Arlington, Va. 22207
Chapnick, Melvin Bernard, 12769 Gazebo Ct., Woodbridge, Va. 22191
Gaither, Roger Sherwin, 4912 S. 25th St., Arlington, Va. 22202
Jaeger, Hugh Douglas, 815 S. 18th St., #304, Arlington, Va. 22202
Johnson, Richard J., 5612 N. 18th St., Arlington, Va. 22205
Miller, Hoke Smith, 39 Glenbrook Road, #3G, Stamford, Conn. 06902
Prince, Louis R., 7401 Aspen Ave., Takoma Park, Md. 20012
Zupcic, Anthony M.. 1085 Warburton Ave., #816, Yonkers, N.Y. 10701

LUTRELLE F. PARKER,
Chairman, Committee on Enrollment.

Manual of Patent Examining Procedure, 3rd Ed.

CHANGE NOTICE

Series No. 42–2
(Follows Change 42–1)

Reference: MPEP 1302.04
1302.04(f) August 21, 1974

Status of Applications Referred to in Allowed Patent Applications

Hereafter, examiners are authorized to indicate the abandonment status of applications referred to in patent applications ready for issue without a formal examiner's amendment.

In the situations where referred to applications are patented, present procedure permits the entry of "now Patent No. --------" and initialling in the margin by the examiner. Similarly, where the referred to applications are abandoned, the entry "and now abandoned" should be made and initialed in the margin by the examiner.

WILLIAM FELDMAN,
Deputy Assistant Commissioner for Patents.

Hand Delivery of Trademark Papers

Trademark papers which are not accompanied by fees or by authorization to charge a deposit account, may be filed by hand in the Trademark Docket Section or in the Incoming Mail Section of the Mail and Correspondence Division. However, to avoid confusion concerning money matters, when papers which are accompanied by fees or by authorization to charge a deposit account are filed by hand, they should be delivered only to the window in the Incoming Mail Section of the Mail and Correspondence Division where personnel can immediately refer the money or the charge to the Cashier. Trademark Examiners should not be requested to receive papers for filing (either with or without fees) since there is no convenient procedure by which the Examiners can transmit such papers to proper locations.

If a receipt is desired from the Trademark Docket Section, it may take the form of a duplicate copy of the paper or of a card identifying the paper and the application. The receipt will be date-stamped at the same time as the paper and handed back to the person delivering the paper. If a receipt is desired from the Incoming Mail Section, a card should be used. The card will be date-stamped and handed back to the person delivering the paper.

When a card is used for receipt, it should contain sufficient information to identify the paper and the application clearly. such as applicant's name, the serial number and filing date of the application, the mark, and the title or a description of the paper being filed.

In the discretion of the Assistant Commissioner for Trademarks, or of the Director of the Trademark Examining Operation, or of the Trademark Trial and Appeal Board, papers appropriate for those Offices (such as petitions or briefs) may be filed by hand in such Offices.

The procedure set forth in the notice entitled "Hand-Delivery of Papers" in the OFFICIAL GAZETTE of February 26, 1974 (919 O.G. TM 180) pertains to papers for patent applications. The designation "Examining Group" used in that notice relates to the patent examining area of the Patent Office. (The equivalent designation in the trademark examining area is "Examining Division.")

RENE D. TEGTMEYER,
Aug. 21, 1974. *Assistant Commmissioner for Trademarks.*

Calculation of Issue Fees

Effective October 1, 1974, the Patent Office in calculating the balance of issue fee due, after payment of the Base Issue Fee specified by the Notice of Allowance, shall charge at the rate of $10 a page, as provided in 35 USC 41, for each printed page of specification (including claims) for which payment has not theretofore been received. As the Base Issue Fee includes a $10 charge for one printed page of specification, a balance of fee will be due for each patent which consists of more than one printed page. A "page" consists of one side of a printed sheet containing any amount of specification (including claims). A notification of the Balance of Issue Fee Due will be mailed in each such case along with the original patent grant.

The notice of February 4, 1970 published in the OFFICIAL GAZETTE [872 O.G. 1] and reproduced in the current "Consolidated Listing of Recent Official Gazette Notices . . ." [Item 53] is rescinded as of close of business September 30, 1974.

WILLIAM I. MERKIN,
Aug. 1, 1974. *Assistant Commissioner for Administration.*

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,790,516, Wright and Butler, VEHICLE DISC BRAKE ASSEMBLY; **2,921,650**, H. J. Butler, DISC BRAKE, **filed** Feb. 8, 1973, D.C., N.D. Ind. (South Bend), Doc. 73–S–20, *Dunlop Holdings Limited* v. *The Bendix Corporation.* Order entered that this cause of action be dismissed pursuant to F.R.C.P. 41(a)(1)(i), Mar. 19, 1974.

2,811,069, A. H. Faulkner, ELECTRICAL MUSICAL INSTRUMENT, **filed** Mar. 19, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c685, *Alfred H. Faulkner* v. *Seeburg Corp. and Gulbransen Company.* By agreement order plaintiff's complaint dismissed with prejudice and the defendant's counterclaim dismissed with prejudice, Dec. 3, 1973.

2,847,313, E. E. Ellies, METHOD OF TREATING FRESH MEATS, **filed** Nov. 8, 1971, D.C., N.D. Ohio (Cleveland), Doc. C71–1094, *Tee-Pak, Inc.* v. *St. Regis Paper Co.* Judgment from U.S. Court of Appeals reversing decision of District Court entered on Dec. 22, 1972 and remanding case for further proceedings Mar. 15, 1974.

2,860,836, H. Jordan, MOUNTING SLEEVE AND CLAMP MEANS FOR DISPOSED DEVICES; **2,879,949**, same, GARBAGE DISPOSAL APPARATUS; **2,945,635**, same, RESILIENT HANGING DEVICE FOR WASTE DISPOSAL APPARATUS; **2,965,318**, same, WASTE DISPOSAL DEVICE HAVING NOISE DAMPENING MEANS; **3,076,611**, same, GARBAGE DISPOSAL DEVICE, **filed** Feb. 4, 1974, D.C., C.D. Calif. (Los Angeles), Doc. CV 74–293–DWW, *Waste King Corp.* v. *The Maytag Co., Inc.*

2,879,120, Howe and Burr, LONG TWO PART FOLDING TABLE; **2,974,555**, C. W. Andersen, ELECTRONIC PIANO, **filed** July 30, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c1949, *Musitronics Inc.* v. *The Wurlitzer Co.* Complaint and counterclaim dismissed pursuant to stipulation, Feb. 6, 1974.

2,879,949. (See 2,860,836.)

2,921,650. (See 2,790,516.)

2,945,635. (See 2,860,836.)

2,965,318. (See 2,860,836.)

2,974,555. (See 2,879,120.)

3,076,611. (See 2,860,836.)

3,094,278, B. F. Kuhne, DETENT TYPE ACTUATOR FOR CALCULATING MACHINE, **filed** Mar. 22, 1974, D.C., C.D. Calif. (Los Angeles), Doc. CV. 74–768–FW, *Addmaster Corporation* v. *Unitrex of America, Inc.*

3,140,249, Plank and Rosinski, CATALYTIC CRACKING OF HYDROCARBONS WITH A CRYSTALLINE ZEOLITE CATALYST COMPOSITE; **3,140,263**, same, CATALYTIC HYDROCARBON CONVERSION WITH A CRYSTALLINE ZEOLITE COMPOSITE CATALYST; **3,436,357**, same, CATALYST AND CONVERSION OR ORGANIC COMPOUNDS IN THE PRESENCE THEREOF, **filed** May 29, 1967, D.C. Conn. (New Haven), Doc. 67–H–424, *Mobil Oil Corporation* v. *W. R. Grace & Company et al.* Consent judgment of infringement and injunction entered Dec. 26, 1973.

3,140,253. (See 3,140,249.)

3,174,114, M. Arditi, ATOMIC CLOCK; **D. 193,989**, Clement and Inhelder, CABINET FOR ELECTRONIC APPARATUS, **filed** Mar. 15, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72–596 AAH, *Hewlett-Packerd Company* v. *Tracor, Inc.*

3,287,693, S. M. Bagno, TRANSDUCER-TRANSFORMER UNIT, **filed** Jan. 25, 1972, D.C., N.J. (Newark), Doc. C–155–72, *Systron-Donner Corporation* v. *Emergency Products Corporation.* Stipulation of dismissal of action, Mar. 22, 1974.

3,309,025, W. R. Malcolm, SELF-CLEANING SPRAY DEFLECTOR WEDGE FOR SPRINKLERS, **filed** June 12, 1973, D.C., E.D. Calif. (Fresno), Doc. F–818–C., *Rain Bird Sprinkler Mfg. Corp.* v. *Buckner Industries, Inc.* Filed stipulation of dismissal of complaint without prejndice, Mar. 25, 1974.

3,363,156, E. B. Cox, CAPACITOR WITH A POLYOLEFIN DIELECTRIC; **3,450,968**, same, ELECTRICAL ELEMENTS WITH IMPREGNATED DIELECTRIC AND INSULATORS; **3,540,561**, same, IMPREGNATED DIELECTRIC SYSTEMS; **Re. 27,533**, same; **Re. 27,823**, same, IMPREGNATED POLYPROPYLENE FILM IN A SEALED HOUSING; **Re. 27,824**, same, CAPACITOR WITH IMPREGNATED POLYPROPYLENE DIELECTRIC, **filed** Dec. 11, 1973, D.C.S.C. (Columbia), Doc. C/A 73–1609, *General Electrio Company* v. *McGraw-Edison Company.*

3,397,001, N. R. Friedman, CLOSURE LATCH ASSEMBLY, **filed** Mar. 29, 1974, D.C., N.D. Tex. (Dallas), Doc. CA3 74–276–D, *Kindergard Corporation et al.* v. *Shur-Lok Manufactuding Company, Inc. et al.*

3,417,450, R. M. Zell, METHOD FOR MAKING A PLUMBING VALVE BODY, **filed** Mar. 21, 1974, D.C., E.D. Mich. (Detroit), Doc. 74–71314, *Brass Craft Manufacturing Company* v. *Rockwell International Corp., Building Components Division.*

3,436,357. (See 3,140,249.)

3,450,968. (See 3,363,156.)

3,499,709, R. Uhlenberg, ELECTROPHOTOGRAPHIC STRIP FILM DEVICES WITH MEANS FOR HOLDING THE FILM AWAY FROM THE PHOTOCONDUCTOR DURING FILM TRANSPORT; **3,510,217**, Cirmele and Uhlenberg, ELECTROPHOTOGRAPHIC APPARATUS EMPLOYING AN ELASTIC PRESSURE PAD FOR PRESSING THE FILM AGAINST THE PHOTOCONDUCTOR; **3,635,556**, R. L. Levy, ELECTRODUPLICATION APPARATUS EMPLOYING A CONDUCTIVE POROUS ELASTIC PRESSURE PAD FOR PRESSING THE RECORDING MEDIUM AGAINST THE PHOTOCONDUCTOR; **3,715,225**, G. F. Day, METHOD FOR FIXING OF LIQUID TONER DEVELOPED ELECTROGRAPHIC IMAGES; **3,754,965**, J. B. Mooney, METHOD FOR MAKING AN ELECTROPHOTOGRAPHIC PLATE, **filed** Feb. 5, 1974, D.C., N.D. Calif. (San Francisco), Doc. C–74–0280 SC, *Varian Associates* v. *Photo Physics Inc.*

3,510,217. (See 3,499,709.)

3,530,561. (See 3,363,156.)

3,589,793, L. E. Curtiss, GLASS FIBER OPTICAL DEVICES, **filed** June 29, 1971, D.C. Del. (Wilmington), Doc. 4165, *Lawrence E. Curtiss et al.* v. *Warner-Lambert Co.* Final decree that a permanent injunction enjoining defendants from infringing patent with consent of parties, June 29, 1971.

3,635,556. (See 3,499,709.)

3,715,225. (See 3,499,709.)

3,736,575, D. J. Mallerich, Jr., SINGLE LINE PER BIT ASYNCHRONOUS CIRCUIT AND SYSTEM; **3,757,231**, C. Faustini, ASYNCHRONOUS CIRCUIT AND SYSTEM, **filed** Feb. 6, 1974, D.C., N.D. Calif. (San Jose), Doc. C–74–296–SC, *Fairchild Camera and Instrument Corporation* v. *Dyad Systems, Inc.*

3,754,965. (See 3,499,709.)

3,757,231. (See 3,736,575.)

3,758,051, D. D. Williams, VELOCITY CONTROL AND ORIENTATION OF A SPIN-STABILIZED BODY; **Re. 26,887**, W. B. McLean, PROPORTIONAL NAVIGATION SYSTEM FOR A SPINNING BODY IN FREE SPACE, **filed** Jan. 17, 1974, D.C. Del. (Wilmington), Doc. 74–10, *Hughes Aircraft Company, William B. McLean, and Walter G. Finch* v. *Philco-Ford Corporation.*

Re. 24,992, E. E. Ellies, METHOD OF TREATING FRESH MEATS, **filed** Apr. 28, 1971, D.C., N.D. Ohio (Cleveland), Doc. C71–446, *St. Regis Paper Company* v. *Tee-Pak, Inc.* Judgment from U.S. Court of Appeals reversing decision of District Court entered on Dec. 22, 1972 and remanding case for further proceedings, Mar. 15, 1974.

Re. 27,533. (See 3,363,156.)

Re. 27,823. (See 3,363,156.)

Re. 27,824. (See 3,363,156.)

D. 191,787, R. M. Heil, CLIP, **filed** Mar. 21, 1974, D.C., N.D. Ohio (Cleveland), Doc. C74–245, *Ruth M. Heil* v. *S. S. Kresge Company.*

D. 193,989. (See 3,174,114.)

Certificates of Correction for the Week of Sept. 17, 1974

P.P. 3,510
P.P. 3,530
Re. 27,943
Re. 27,958
Re. 27,996
Re. 27,999
Re. 28,014
Re. 28,034
D. 222,440
D. 230,792
D. 231,103
D. 231,279
3,342,826
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Certificates of Correction—Continued

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Erratum

All reference to Patent Number 3,795,165 to Heinrich Moelbert for Hydraulic Shearing Machine appearing in the OFFICIAL GAZETTE of March 5, 1974 should be deleted since no patent was granted.

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF AUGUST 31, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions: Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	10-9-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—R. F. BURNETT, Acting Director Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	7-25-73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	11-16-73
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	11-1-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	11-1-73
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—W. L. CARSON, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	1-23-74
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	3-1-73
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-5-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—N. ANSHER, Director Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	9-17-73
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—L. FORMAN, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-13-73
DESIGNS, GROUP 290—C. D. QUARFORTH, Director Industrial Arts; Household, Personal and Fine Arts.	3-26-73
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	10-11-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	11-13-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. PULFREY, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-2-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—B. R. GAY, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	11-9-73
GENERAL CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—M. M. NEWMAN, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	12-27-73

Expiration of patents: The patents within the range of numbers indicated below expire during September 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents
Plant Patents .... Numbers 2,804,620 to 2,807,803, inclusive
Numbers 1,638 to 1,645, inclusive

REISSUES

SEPTEMBER 17, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

28,158

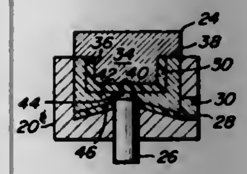
DISPLACEMENT MOLDING PLASTIC ARTICLES

Albert R. Uhlig, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Original No. 3,685,941, dated Aug. 22, 1972, Ser. No. 48,653, May 15, 1970, which is a division of application Ser. No. 679,109, Oct. 30, 1967, now Patent No. 3,590,114. Application for reissue June 26, 1973, Ser. No. 373,827

Int. Cl. B29f *1/00*

U.S. Cl. 425—245 **5 Claims**



In accordance with the present invention, plasticized plastic material is confined within a chamber of variable volume, and part of the walls of the chamber are formed by a first mold part which is movable relative to the chamber. A gate opening in the first mold part is normally blocked by a movable blocking member. A second mold part is initially spaced from the first mold part and is moved into contact with the first mold part. There is a mold cavity in the mold parts. At the same time, the blocking member is moved out of the gate opening so that the mold cavity communicates with the plasticized material in the chamber. The first and second mold parts are then moved jointly to reduce the volume of the chamber and thereby inject plasticized material through the gate opening into the mold cavity. Next, the gate opening is closed by the blocking member. The mold parts and the blocking member are moved in the reverse direction to enlarge the chamber to its original volume, and then the first mold part and the blocking member are halted while the second mold part moves further in the reverse direction to its initial position to accommodate ejection of the molded article. In one embodiment, the second mold part includes two members defining the mold cavity, these members being separable to effect ejection of the molded article.

28,159

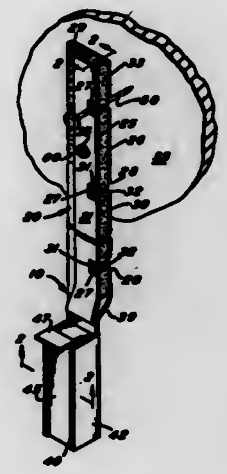
NAIL PLACING IMPLEMENT

Jack Litz, 1200 Walnut St., Philadelphia, Pa. 19107

Original No. 3,682,213, dated Aug. 8, 1972, Ser. No. 124,391, Mar. 17, 1971. Application for reissue June 27, 1973, Ser. No. 374,201

Int. Cl. B25c *3/00*

U.S. Cl. 145—46 **7 Claims**



A nail placing implement is disclosed which is U-shaped in cross section and having a straight edge provided with notches.

28,160

APPARATUS FOR PRODUCING BRICKS

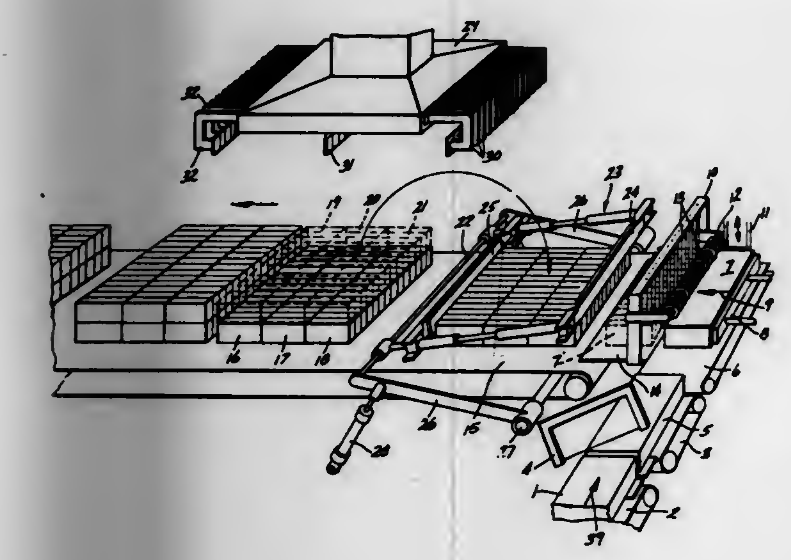
John Lingl, Finningerstrasse 70, Neu-Ulm, Germany

Original No. 3,602,963, dated Sept. 7, 1971, Ser. No. 870,901, July 28, 1969, which is a division of application Ser. No. 583,829, Oct. 3, 1966, now Patent No. 3,468,998. Application for reissue July 27, 1973, Ser. No. 383,105

Int. Cl. B28b *13/04*

U.S. Cl. 425—316 **8 Claims**

Apparatus for cutting a continuous length or strand of compressed raw material as it comes from an extrusion press and then stacking the blocks or bricks thus cut so that the facing sides of the individual bricks lie in full engagement with each other for protection from discoloration when they are fired. The apparatus includes a pair of belt conveyors disposed in tandem for carrying the strand of material as it comes from the extruder and a cutter intermediate these first two conveyors for cutting the strand into sections. A third conveyor, which moves in the same direction as the first two, carries each section against a stop from which it is pushed laterally through a cutter frame that divides it into the desired number of bricks to form a row of such bricks. A fourth conveyor that operates intermittently is disposed at right angles to the other downstream of the cutter frame to receive the rows of bricks as successive sections are pushed through the cutter frame one after another, so that the rows of bricks coming from the cutter are pushed transversely onto the fourth conveyor. Two groups of rows are formed on this last conveyor and are spaced from each other so that the second one to be formed can be inverted onto the other by a turnover device such that the faces of the bricks in one group are accurately aligned in registry with those of the other group. A gripper assembly then picks up the double-layer flat of bricks thus formed and places it on a kiln car. As successive double-layer flats are formed they are stacked one on top of the other until a stack of the desired height is built on the kiln car.



28,161

LINEAR INDUCTION MOTOR

Hugh Robert Bolton, London, Thomas George Fellows, Barnet, Eric Roberts Laithwaite, Surbiton, John Frederick Eastham, Long Ditton, and Ernest Frederick Needham, Whittlesford, England, assignors to Tracked Hovercraft Limited, London, England

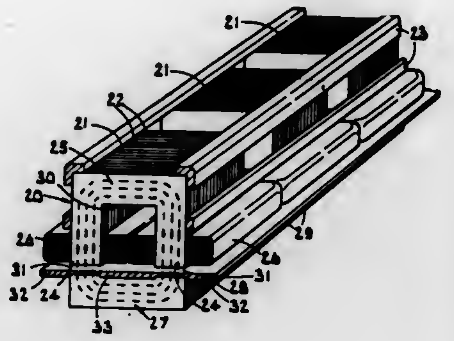
Original No. 3,585,423, dated June 15, 1971, Ser. No. 33,596, May 1, 1970. Application for reissue Nov. 7, 1972, Ser. No. 304,420

Claims priority, application Great Britain, May 2, 1969, 22,542/69

Int. Cl. H02k *41/04*

U.S. Cl. 310—13 **17 Claims**

A polyphase linear induction motor comprising a primary member having magnetic material formed with a polyphase winding and, for co-operating with the primary member, a secondary member comprising electrically conductive material backed by further magnetic material is so arranged that the working flux passes in low reluctance paths lying substantially in planes directed transversely of the motor. The depth of magnetic material required for a particular air gap flux density is therefore substantially independent of the pole pitch so that large pole pitches and hence high synchronous speeds can be achieved with tolerable depths of magnetic material. A particular application of the invention is to high speed transportation systems in which the secondary member forms part of the prepared track.



28,162

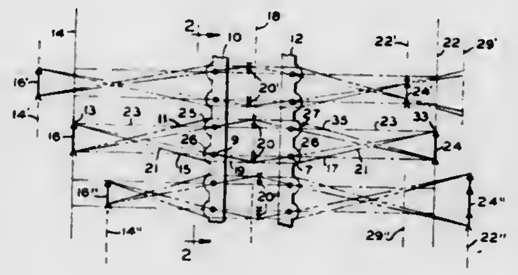
OPTICAL APPARATUS INCLUDING A PAIR OF MOSAICS OF OPTICAL IMAGING ELEMENTS

Robert H. Anderson, Evanston, Ill., assignor to Tektronix, Inc., Beaverton, Oreg.

Original No. 3,605,593, dated Sept. 20, 1971, Ser. No. 650,862, July 3, 1967. Application for reissue June 9, 1972, Ser. No. 261,224

Int. Cl. G03b *17/04*

U.S. Cl. 95—18 **37 Claims**



An optical apparatus for the transmission of light images is described including at least two mosiacs having a plurality of optical imaging elements, such as lenses or curved mirrors, supported in a two-dimensional array of elements and forming a plurality of light paths each containing image inverting and erecting elements in different mosiacs which transmit different portions of an image and recombine such image portions with their original relative orientation to reproduce the image of the viewed object. The optical elements may be lenses in a pair of lens mosaics including an inverting mosaic and an erecting mosaic which provide a plurality of lens pairs forming the light paths. A plurality of apertured plates are provided for preventing undesired light from reaching the composite image formed on the final image surface and the lens pairs are spaced so that adjacent image portions partially overlap and the overlapping areas coincide in the final image to provide a single, complete image. A cathode ray oscilloscope camera of extremely short length is formed using such an optical apparatus.

28,163

FRAMES FOR STACKING PALLETS

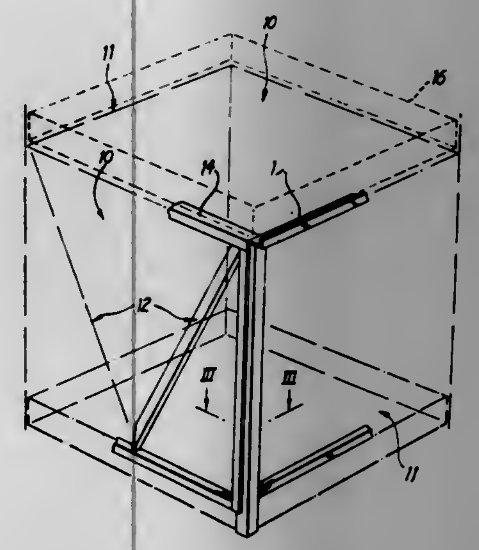
Harold Walker Eagland, deceased, late of St. Annes, England, by Phyllis Eagland, executor, St. Annes, England, assignor to Palletower Limited, St. Annes, Lancashire, England

Original No. 3,447,490, dated June 3, 1969, Ser. No. 693,466, Dec. 26, 1967. Application for reissue Jan. 19, 1971, Ser. No. 107,695

Claims priority, application Great Britain, Dec. 30, 1966, 58,251/66

Int. Cl. B65d *19/18*

U.S. Cl. 108—53 **3 Claims**



A frame for stacking pallets vertically, which is formed of 4 adjoining sections slidably interlocked at each corner. The frames are formed to rest on the peripheral upper surface of each pallet and include flange sections to restrain horizontal motion relative to the pallets.

28,164

METHOD AND APPARATUS FOR FILLING VEHICLE GAS BAGS

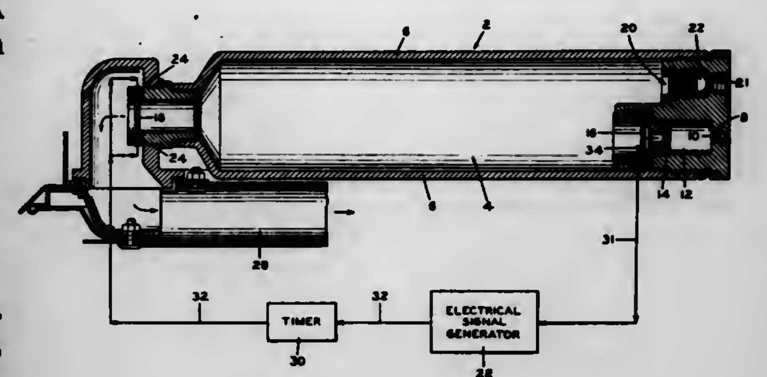
Robert L. Stephenson, Sterling Heights, Mich., assignor to Allied Chemical Corporation, New York, N.Y.

Original No. 3,674,059, dated July 4, 1972, Ser. No. 81,947, Oct. 19, 1970. Application for reissue Mar. 16, 1973, Ser. No. 342,127

Int. Cl. B65b *3/16*

U.S. Cl. 141—4 **14 Claims**

A method and apparatus for filling motor vehicle gas bags. A gas-filled cylinder is provided with an inlet pressure sensitive rupture disc and a dislodgeable outlet plug. The inlet disc is in communication with a combustible material. The material is fired, yielding a gaseous product. The outlet plug is dislodged before, concurrently or subsequent to the rupture of the inlet disc. The liberated gas flows to a diffuser, about which a motor vehicle gas bag is disposed, whereby the gas bag is filled.



28,165

BIOLOGICAL SPECIMEN PROCESSING AND EMBEDDING APPARATUS

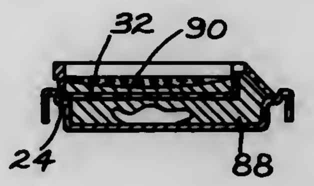
James Benjamin McCormick, Hinsdale, Ill., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Original No. 3,674,396, dated July 4, 1972, Ser. No. 74,159, Sept. 21, 1970, which is a continuation of abandoned application Ser. No. 725,722, May 1, 1968. Application for reissue May 21, 1973, Ser. No. 361,973

Int. Cl. B29c *1/00, 1/02, 1/14*

U.S. Cl. 425—117 **3 Claims**

A combination capsule and mold apparatus and treatment of a biological specimen by the use thereof is described wherein a biological specimen can be placed inside a capsule comprising an open-topped box-like open mold having a perforated bottom wall and a removable perforated cover. After the specimen has been processed inside the capsule with desired fluids, the cover is removed from the capsule to form an open mold, the specimen is transferred from the open mold to an open-topped box-like base mold, and the open mold is placed in coupled relation over the base mold. Molten paraffin is then poured through the open mold into the base mold. After the paraffin hardens, the open mold and the rigidly attached paraffin body containing the specimen are separated from the base mold, and the open mold is mounted in the holder of a microtome for subsequent slicing of the paraffin-embedded specimen.



28,166

COMFORT CONDITIONING SYSTEM

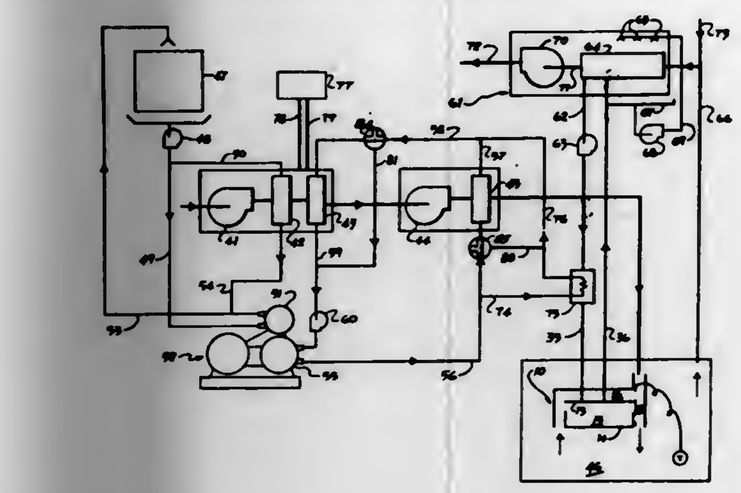
Gershon Meckler, Atlanta, Ga., assignor to Westinghouse Electric Corporation

Original No. 3,193,001, dated July 6, 1965, Ser. No. 256,421, Feb. 5, 1963. Application for reissue June 11, 1973, Ser. No. 368,916

Int. Cl. B60r *1/00;* **F25b** *27/00*

U.S. Cl. 165—27 **21 Claims**

Apparatus comprising a comfort conditioning system and a lighting fixture, said conditioning system including the particular fixture and being effective to reject heat *from the fixture when such heat is not required within a space to be conditioned, and utilizing, when required, at*



least a part of the heat to prevent an undesirably low space temperature.

28,167

BLENDS OF POLYOLEFINS AND POLYAMIDES

Alberto Bonvicini, Terni, and Giuseppe Cantatore, Collescipoli, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Original No. 3,668,278, dated June 6, 1972, Ser. No. 76,646, Sept. 29, 1970. Application for reissue Nov. 13, 1972, Ser. No. 306,148

Claims priority, application Italy, Oct. 1, 1969, 22,766/69; Oct. 2, 1969, 22,830/69

Int. Cl. C08g *41/04*

U.S. Cl. 260—857 L **5 Claims**

A new class of basic polyamides having a molecular weight between about 2,000 and 200,000. The polyamides are prepared by first reacting an acrylic or methacrylic ester with a monoamine and then further reacting the product obtainable with a polyamine. The polyamides are suitable for use as tinctorial modifiers for polymeric materials and particularly for crystalline polyolefins consisting essentially of isotactic macromolecules.

PLANT PATENTS

GRANTED SEPTEMBER 17, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,617

PLUM TREE

Frederic W. Anderson, Merced, Calif., assignor to Reedley Nursery, Inc., Reedley, Calif.

Filed Aug. 8, 1973, Ser. No. 386,735

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—38 **1 Claim**

A plum tree which is large, vigorous, upright to spreading, foliated with large to medium size obovate leaves, and a productive bearer of uniform, large to medium size, globose to slightly oblate, semi-freestone fruit having yellow to red flesh and very deep purple-blue skin.

3,618

PLUM TREE

Frederic W. Anderson, Merced, Calif., assignor to Reedley Nursery, Inc., Reedley, Calif.

Filed Aug. 16, 1973, Ser. No. 388,976

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—38 **1 Claim**

A plum tree which is large, vigorous, upright to spreading, foliated with large to medium size obovate leaves, and a productive bearer of uniform, large to medium size, globose, clingstone fruit having red skin and bistre green flesh.

3,619

NECTARINE TREE

Frederic W. Anderson, Merced, Calif., assignor to Reedley Nursery, Inc., Reedley, Calif.

Filed Aug. 30, 1973, Ser. No. 393,223

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—41 **1 Claim**

A nectarine tree which is large, vigorous, spreading, foliated with medium size, lanceolate leaves having a crenate margin, and a regular and productive bearer of uniform, medium size, symmetrical, globose-to-oblong, freestone fruit having yellow skin substantially entirely overspread with red at maturity, and yellow flesh.

3,620

DWARF PEACH TREE

Frederic W. Anderson, Merced, Calif., assignor to L. E. Cooke Co., Visalia, Calif.

Filed Sept. 7, 1973, Ser. No. 395,353

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—43 **1 Claim**

A genetically dwarf peach tree which is medium size, medium vigorous, spreading, foliated with large lanceolate leaves having a crenate margin and globose glands, and a productive bearer of uniform, large, symmetrical, globose, freestone fruit having yellow skin substantially overspread with red, and firm, crisp, melting, yellow flesh flecked with red.

PATENTS

GRANTED SEPTEMBER 17, 1974

GENERAL AND MECHANICAL

3,835,470

ITEMS OF APPAREL, ESPECIALLY SPORT CLOTHING

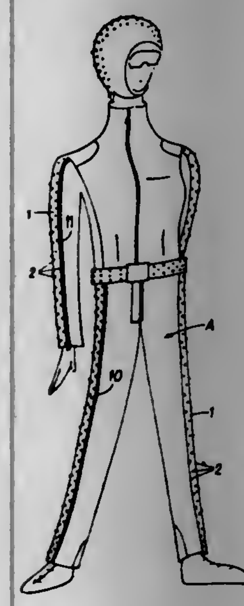
Franz Johann Greiter, Trogenerstrasse 1, Altstaetten, Switzerland

Filed Jan. 21, 1972, Ser. No. 219,785

Claims priority, application Austria, Feb. 12, 1971, 1202/71; Sept. 20, 1971, 8127/71

Int. Cl. A41d *1/08*

U.S. Cl. 2—79 **15 Claims**



The present sport clothing, for example ski pants and anoraks, is provided on its outer surface either in selected spots or all over with the brake elements in the form of surface roughening means such as spikes which are placed so as to provide a braking action when a fallen skier slides down a ski course. The surface roughening means or brake elements either are permanent parts of the fabric of which the sport garment is made or these means are removably attached to the garment.

3,835,471

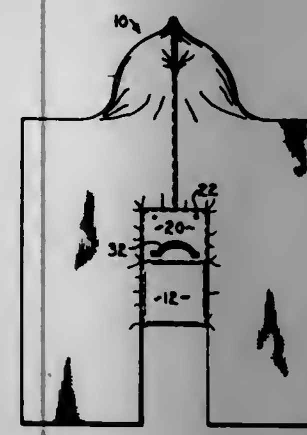
SPORTSMAN'S HOOD SEAT

Benson E. Lankford, 1517 S. Osage, Independence, Mo.

Filed July 5, 1973, Ser. No. 376,314

Int. Cl. A41d

U.S. Cl. 2—84 **3 Claims**



Protective apparel providing a cushion element for seating comfort. A water-resistant, hooded garment is designed to provide protection for the wearer from coldness and dampness. Long sides extend downwardly from a hood to provide a body wrap for a person covering legs, arms and head as well as the main body torso. A cushion element which is coupled with the garment is disposed at the center back of the garment to present a comfortable seat. Retaining structure in the form of a flap which is coupled with the seat element snaps to hold the garment in position against the element when not in use while still allowing the cushion element to be utilized. A handle is provided external to the flap for ease in carrying.

3,835,472

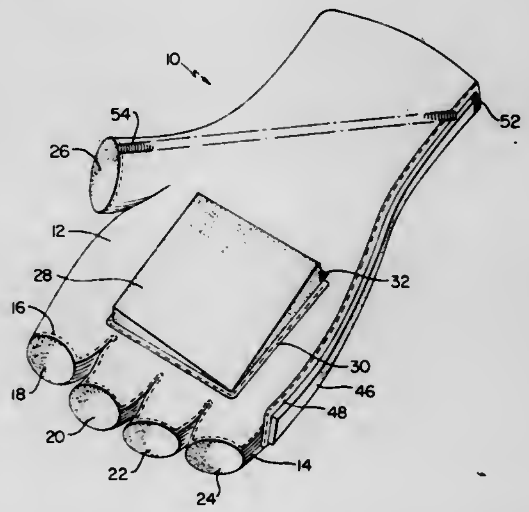
BOWLING GLOVE

James Duggins, 1745 Acreview Ln., Cincinnati, Ohio 45240

Filed Aug. 29, 1973, Ser. No. 392,567

Int. Cl. A41d *19/00*

U.S. Cl. 2—161 A **5 Claims**



A bowler's glove is provided with a fitted pocket to receive a wedge insert. The wedge insert permits the bowler to vary the amount of spin of the ball depending on the orientation of the wedge. A spring steel insert along one edge of the glove provides stiffening to assist in keeping the wrist straight, as well as providing added lift during the release of the ball. A coil spring aligned with the thumb stail assists in reminding the bowler to remove the thumb first during release of the ball.

3,835,473

WAIST-SIZE ADJUSTABLE TROUSERS

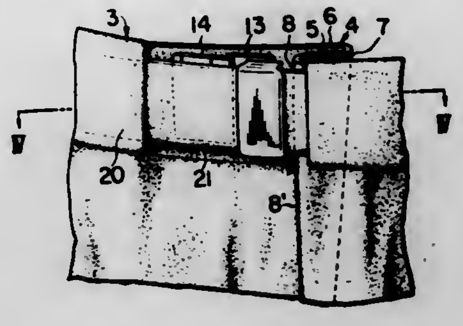
Taro Toyoda, 14-3,3-Chome, Kumoi-Machi, Gifu, Japan

Filed July 11, 1972, Ser. No. 270,738

Claims priority, application Japan, Mar. 15, 1972, 47-31064

Int. Cl. A41f *9/00*

U.S. Cl. 2—237 **3 Claims**

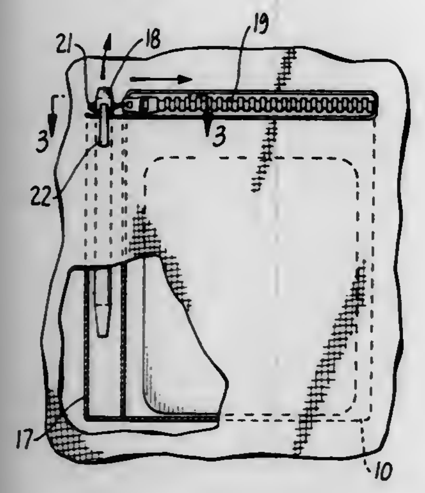


Trousers having an adjustable waist provided with a tuck consisting of folds in a longitudinal direction between two waist portions of the trousers, one fold of the above tuck being aligned with the crease line of the front of the trousers, the other folding line being on the back side of the tuck. A fastening band lies between the first fold portion and the other waist portion and an elastic band may lie between the back side fold of the tuck and the other waist portion. The size of the waist of the trousers is thus freely adjustable to the size of the waist of men who wear the trousers.

3,835,474
SAFETY POCKET CONSTRUCTION

Karl D. Williamson, 1085 Rose Ave., Mountain View, Calif. 94040

Filed Sept. 10, 1973, Ser. No. 395,755
Int. Cl. A41d *27/20*
U.S. Cl. 2—251 **4 Claims**

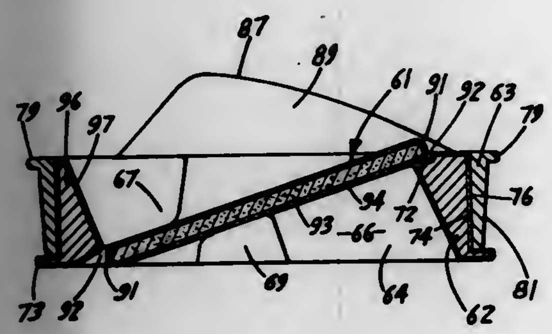


A Safety Pocket construction having a zipper on the inside pocket of a jacket with the zipper head formed to move toward the armpit to open the zipper. A ring is mounted on the zipper head to enable a pen or pencil to be slid through the ring and clipped onto the pocket to prevent the zipper from being moved until the pen or pencil is removed. In one embodiment here shown, a narrow vertical pocket for accommodating a pen or pencil is formed directly next to the jacket and towards the lapel to permit the pen or pencil to be slid through the ring and clipped onto the narrow vertical pocket to secure the zipper in the closed position to prevent a pickpocket from removing the pen or opening the zipper without the wearer's knowledge.

3,835,475
PIVOTING DISC-TYPE HEART VALVE WITH TWO-PIECE BASE

Francis W. Child, Maple Plain, Minn., assignor to The Regents of the University of Minnesota, Minneapolis, Minn.

Division of Ser. No. 124,754, March 16, 1971, Pat. No. 3,737,919. This application Oct. 17, 1972, Ser. No. 298,237The portion of the term of this patent subsequent to June 12, 1990, has been disclaimed.
Int. Cl. A61f *1/22*
U.S. Cl. 3—1 **39 Claims**

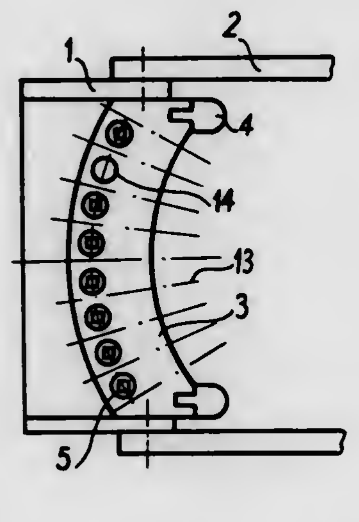


A heart valve having a base cooperating with a free floating pivoting disc to control the flow of blood through the valve. The disc has a substrate covered with a coating of silicon-alloyed Pyrolite carbon. The base can be a one-piece housing having side arms or two members joined together to confine the disc in a pivoting relationship with the housing. The disc pivots about a chordal axis and rotates about its center. The two members of the base have substrates with coatings of silicon-alloyed Pyrolite carbon.

3,835,476
SYSTEM OF PULSATORS FOR AN ELECTRO-OPHTHALM

Stanislaw Wysocki, ul. Grochowska 54 m.19, and Janusz Chalecki, ul. Grochowska 54 m.28, both of Warszawa, Poland

Filed Dec. 15, 1972, Ser. No. 315,668
Claims priority, application Poland, Dec. 18, 1971, 152277
Int. Cl. A61f *1/24*
U.S. Cl. 3—1 **3 Claims**

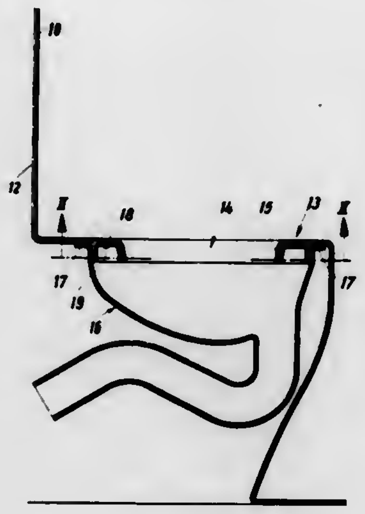


System of pulsators constituting the main unit of an electro-ophthalmic device, that is an apparatus mounted on a helmet worn on the head and providing pseudo-vision to blind persons. The pulsators transmit pulses onto the person's forehead by means of coils and slides pulsating therein.

3,835,477
TOILET ASSEMBLY

Hans Gunter Moller, 287 Delmenhorst Oldenburger Landstr. 50, Delmenhorst, Germany

Filed May 1, 1972, Ser. No. 248,831
Claims priority, application Germany, May 12, 1971, 2123475
Int. Cl. A47k *4/00, 13/02*; B32b *31/32*
U.S. Cl. 4—9 **3 Claims**

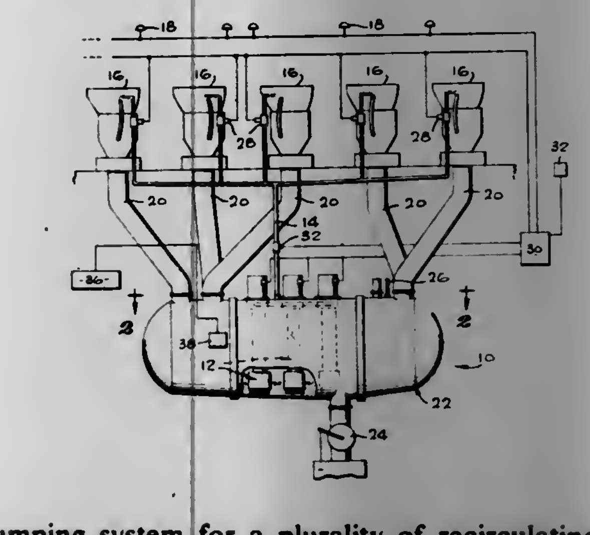


A toilet assembly having a seat member (13) provided with an opening (14) defined by a downwardly turned inner edge (15), and a bowl member (16) adhesively secured to the underside of the seat. A centering ring (18), having an inverted U-shaped cross-section, accurately positions the bowl with respect to the seat opening during assembly and provides a smooth surfaced flush channel (19). The centering ring may be a separate piece or may be integrally molded with the upper edge of the bowl.

3,835,478
MULTIPLE RECIRCULATING TOILET

Michael R. Molus, Chatsworth, Calif., assignor to Monogram Industries Inc., Santa Monica, Calif.

Filed June 8, 1972, Ser. No. 260,738
Int. Cl. E03d *1/22, 5/016*
U.S. Cl. 4—11 **7 Claims**

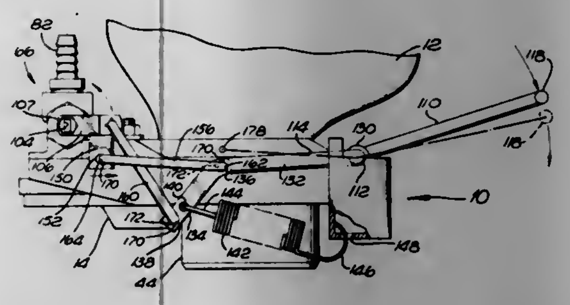


A pumping system for a plurality of recirculating toilets sharing a common tank is described. A variable volume pump has an internal by-pass valve which is controlled by the fluid pressure in the output line, to prevent excessive fluid pressure at the toilets. More than one pump is provided in the system for increased reliability. When a pump is operated, a time delay circuit is connected to a pressure switch which energizes the "next" pump if the fluid pressure in the line does not exceed a predetermined pressure within a set time interval.

3,835,479
TOILET VALVE ASSEMBLY

Kenneth Arthur Milette, Laguna Beach, and Tim Minoru Uyeda, South San Gabriel, both of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Apr. 4, 1973, Ser. No. 347,858
Int. Cl. E03d *11/10, 5/08*
U.S. Cl. 4—79 **6 Claims**

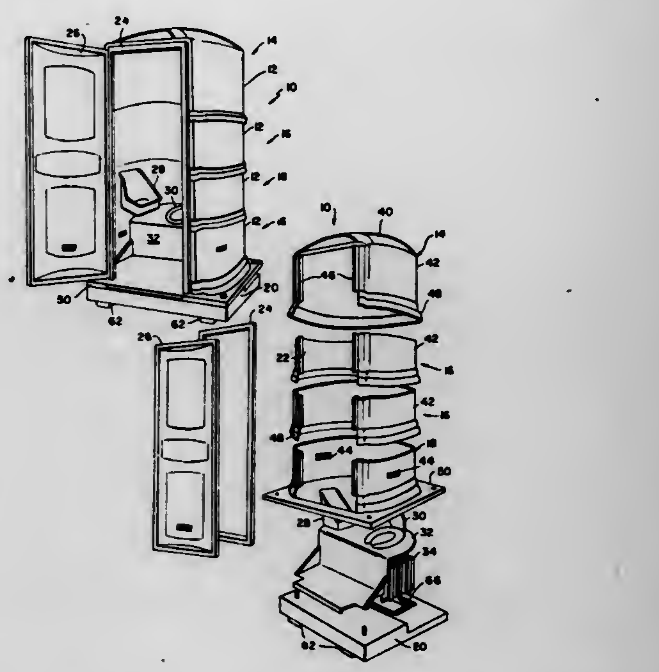


A valve assembly for a flush-type toilet for recreational vehicles or the like. The valve assembly includes a flat gate valve blade which is mounted to open and close the discharge outlet of the toilet bowl. A rotary water valve is also mounted on the valve housing. The valve blade and water valve embody actuating arms which are rotated by a pivoted lever through suitable linkage. The lever and linkage cooperate to provide an overcenter toggle action to actuate the gate valve blade more rapidly and with higher closing force than the water valve. The linkage is pivotally connected to the lever and to the actuating arms for the valves, and the lever is pivotally mounted on the housing, without separable fasteners.

3,835,480
CHEMICAL TOILET CABANA

George W. Harding, Warren, Mich., assignor to Poly-San Corporation, Sarasota, Fla.

Filed July 11, 1973, Ser. No. 378,316
Int. Cl. A47k *11/02*
U.S. Cl. 4—116 **10 Claims**

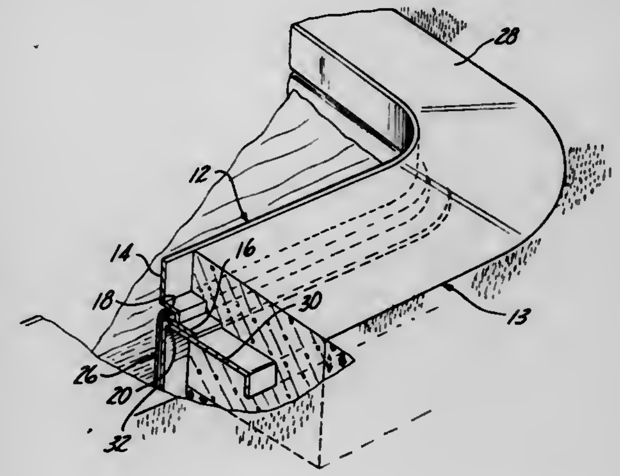


A chemical toilet cabana comprising a plurality of initially identical shell sections, each having a dome-like roof, side walls terminating in a bell-like enlarged lower end and a base flange extending outwardly from the enlarged lower end of the side wall. The base flange is removed from a first shell section to form a cabana top. The dome-like roof is removed from a second shell section to form a cabana base and both the dome-like roof and the base flange are removed from other shell sections to form intermediate cabana shell members. The sections are stacked one upon the other with the wall of a section fitted within the enlarged lower end of the section immediately thereabove and with the walls of the sections substantially in vertical alignment. The base flange of the bottom section is fastened to a base skid which includes a filler material for weight and stability of the cabana.

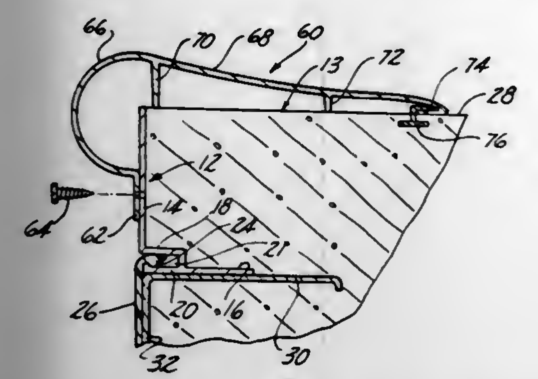
3,835,481
SWIMMING POOL COPING

John M. Engelhart, and William P. Morrish, both of Clio, Mich., assignors to Quality Pool Supply Co., Clio, Mich.

Filed Dec. 20, 1972, Ser. No. 316,660
Int. Cl. E04h *3/16, 3/18*
U.S. Cl. 4—172.21 **9 Claims**



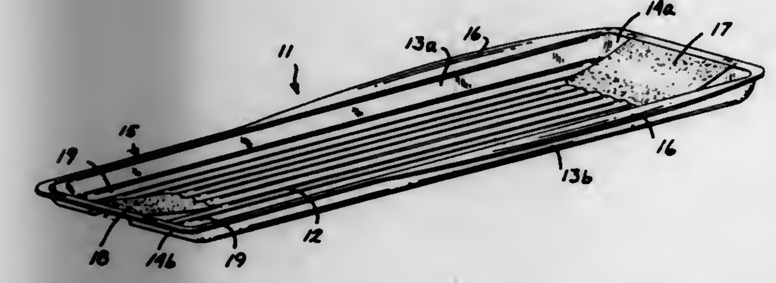
A one-piece extrudable, first coping for a swimming pool includes a horizontal section and a vertical section with means formed at the intersection of the horizontal and vertical sections for gripping the upper edge of a vinyl liner. The coping is attached to the metal liner for the pool and a deck is formed around the coping and aids in retaining the coping in place. A second coping can be attached to a vertical wall of the first coping to extend upwardly and over the edge of the deck.



3,835,482
SUNTANNING TUB

James R. Tersch, 4725 E. Marie Ln., Minneapolis, Minn. 55422

Filed Dec. 11, 1972, Ser. No. 313,834
Int. Cl. A47k *3/022;* **A61h** *33/00*
U.S. Cl. 4—177 **6 Claims**

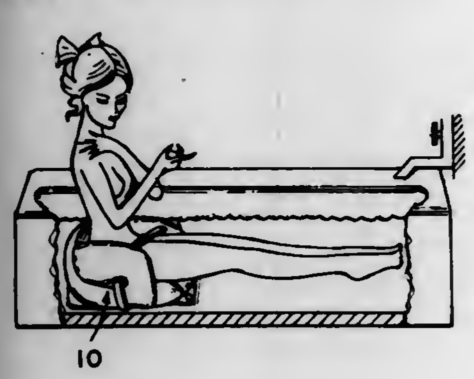


A shallow, tub-like receptacle for use by sunbathers in obtaining a suntan. The receptacle is defined by an elongated rectangular bottom with relatively short end and side walls projecting upwardly therefrom, the end walls being of different height so that the tub is deeper at one end than the other. A peripheral flange extends laterally outward from the end and side walls, the flange being widened along each side over a predetermined length to define arm rests for the user. The tub further includes inclined ramp surfaces disposed at each end thereof to receive and comfortably support the sunbather's head and feet in a position of repose.

3,835,483
SELF-HELP BATH SEAT

William M. Emery, deceased, late of New Providence, N.J., and by William W. Emery, administrator, Berkeley Heights, N.J.

Filed June 30, 1970, Ser. No. 51,039
Int. Cl. A47k *3/12*
U.S. Cl. 4—185 S **1 Claim**

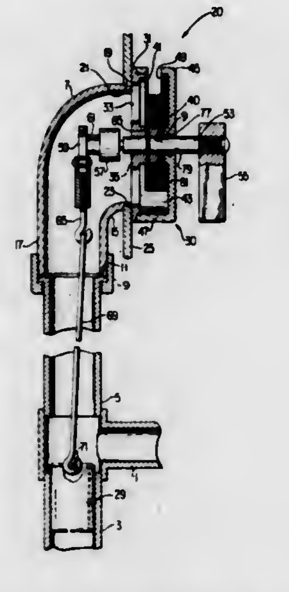


A seat for a bath tub to ease the user into the tub and to provide a natural lift when getting out resulting from buoyancy. An initially flat device which, when inflated, provides a seat portion and three upright sides and includes four suction cups for adherence of the seat to the tub when desired, and optional tie means to fasten the device about the buttocks, leaving the hands free.

3,835,484
BATHTUB OR THE LIKE DRAIN CONTROL AND OVERFLOW REGULATOR

Mikio Kato, 1003 Nottingham Pl., La Vale, Md. 21502

Filed Dec. 27, 1972, Ser. No. 318,898
Int. Cl. E03c *1/232, 1/24*
U.S. Cl. 4—199 **5 Claims**

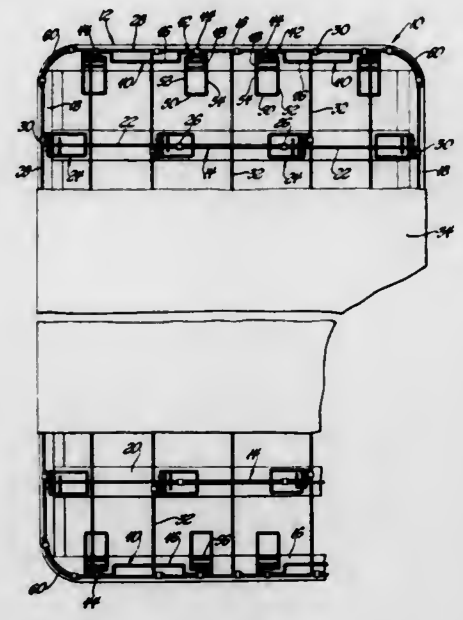


A rotary drain control for the outlet of a bathtub or the like includes an overcenter crank operating the main drain valve and an adjustable rotary valve for controlling access to the overflow drain adjacent the top of the tub or the like to provide for variations in water level in said tub.

3,835,485
BOX SPRING ASSEMBLY

Chester E. Klicki, Warren, Mich., assignor to Lear Siegler, Inc., Detroit, Mich.

Filed Jan. 19, 1973, Ser. No. 324,923
Int. Cl. A47c *23/02*
U.S. Cl. 5—247 **13 Claims**

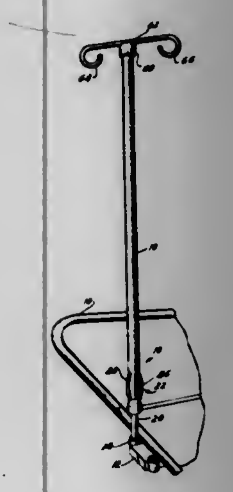


A box spring assembly including a frame upon which a plurality of spring units are supported to define a load-supporting surface upon which a mattress or the like may be disposed. The spring units include a plurality of spring members having fishmouths at each end with load-supporting straight sections interconnecting the fishmouths and extending transversely or perpendicular to the sides of the assembly. The particular improvement resides in auxiliary spring members having a pair of spaced apart fishmouth portions interconnected by a support portion with the support portion being generally U-shaped whereby the auxiliary spring members are connected to the end border wires of the assembly yet the U-shaped support portion is spaced inwardly from the border wire for providing additional support adjacent the ends of the assembly.

3,835,486
TELESCOPING NOVEL STAND ASSEMBLY

Roland A. Benoit, Danielson, and John Curran, Fitchville, both of Conn., assignors to InterRoyal Corporation, New York, N.Y.

Filed Aug. 14, 1972, Ser. No. 280,425
Int. Cl. F16m *11/08;* **A61g** *7/10*
U.S. Cl. 5—317 R **6 Claims**

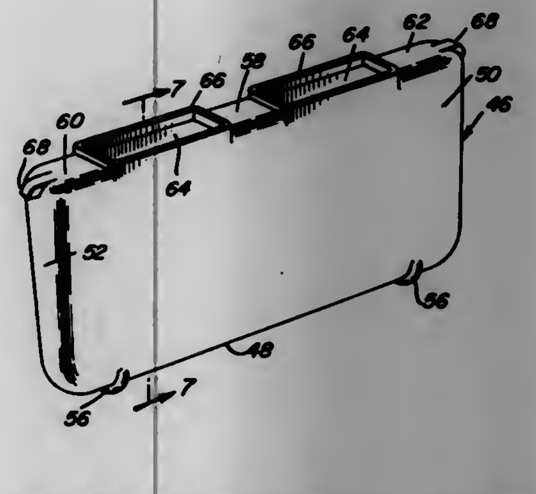


A support stand, particularly for hospital beds, includes outer and inner telescoping members arranged one within the other and which are telescopically movable for varying the heighth of the stand. The outer member carries a cross piece on its upper end having ends formed in a spiral to provide means for engaging articles thereon. The two members may be adjusted in height and locked into position by a releasable lock mechanism which includes a plurality of balls which are wedged into engagement between the two members for locking purposes and released for unlocking purposes.

3,835,487
BEE FEEDER FOR HIVES

Donald A. Grigg, Harper, Oreg., assignor to Silverbow Industries, Inc., Vale, Oreg.

Filed Mar. 22, 1973, Ser. No. 343,709
Int. Cl. A01k *53/00*
U.S. Cl. 6—5 **1 Claim**



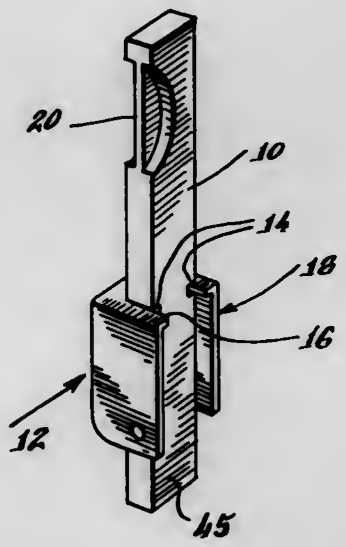
A honey-bee feeder which is adapted to replace a brood frame which has been withdrawn from a conventional box-type beehive. One embodiment of the invention is characterized by a one piece container made by "blow molding" from plastic material and is of requisite size and shape to be effectively fitted into the beehive. The side and end walls slope toward the bottom wall and provide a tapered easy-to-stack container. Upper end portions of the respective end walls are provided with horizontal outstanding lugs which can be hooked over and hung from the existing support rails in the beehive. The bottom wall has indentations which constitute bead-type elevating feet. These "feet" when in use elevate the container and provide a crawl space between the opposed bottoms of the hive and container. To minimize immersion and bee drowning the interior wall surfaces may be roughened and, in addition, an optionally useable arcuately bowed screen guard promotes reliable climbing and ultimate escape.

The second embodiment is basically the same as the aforementioned embodiment except that the upper end is provided with narrowed and centered supporting lugs and the otherwise open top embodies integral end and centered reinforcing webs which, thus located, define spaced elongated openings, and conjointly stabilize and prevent undesirable warping of the walls, particularly the sidewalls.

3,835,488
TENSION ADJUSTMENT TOOL

Joseph Dastoli, Sr., 41 Martin St., Stamford, Conn. 06902

Filed May 18, 1973, Ser. No. 361,711
Int. Cl. B25f *1/00*
U.S. Cl. 7—1 R **9 Claims**



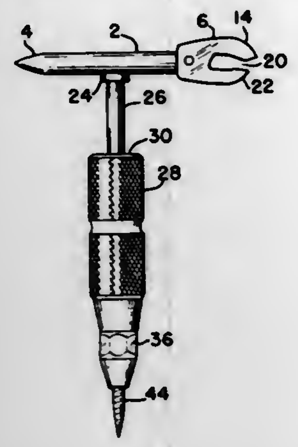
A tension adjustment tool for use in a ski binding and employing a central handle having a thinner portion at one end adapted for lateral adjustment of a screw type tension adjuster, and a bracketed cuff mechanism swivelably mounted to the opposite end of the handle and adapted to be fit over a spring tensed collar, normally employed for holding a tension adjusting mechanism in conjunction with the release portion of a ski binding.

3,835,489
UNIVERSAL CONE EXTRACTOR

James R. Lagace, 6761 Jackson Dr., and Nelson D. Sherman, 6751 Jackson Dr., both of San Diego, Calif. 92119

Filed July 25, 1973, Ser. No. 382,389
Int. Cl. B25f *1/00*
U.S. Cl. 7—1 R **1 Claim**

For use in removing conical spreader and snap tie assemblies which hold concrete forms, a tool for removing external portions of the assemblies after the concrete has hardened. The tool consisting of a lever operated claw socket tie breaker and a percussively operated, transversely disposed threaded member.



3,835,490
PROCESS FOR THE CONTINUOUS TREATMENT OF TEXTILE MATERIALS

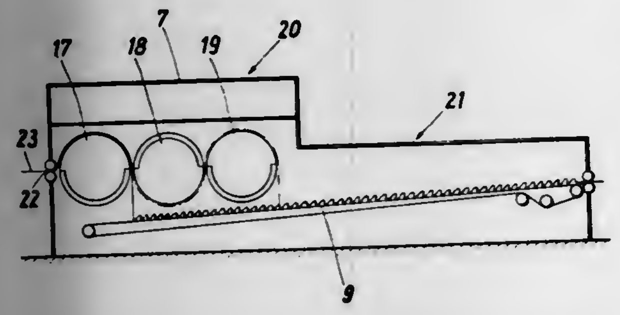
Heinz Fleissner, Egelsbach, near Frankfurt, Germany, assignor to Vepa AG, Basel, Switzerland

Continuation of Ser. No. 13,988, Feb. 25, 1970, abandoned, Continuation-in-part of Ser. No. 831,952, June 10, 1969, abandoned. This application Apr. 18, 1973, Ser. No. 352,348

Claims priority, application Germany, Feb. 26, 1969, 1909646; Jan. 31, 1970, 2004390

Int. Cl. B05c *9/14;* **D06c** *1/08, 7/02*

U.S. Cl. 8—149.1 **8 Claims**



The present disclosure is directed to a process for the continuous treatment of fibrous and thread-like materials in the form of slivers, roving or fibrous ribbon wherein uniform treatment, for example, uniform dye application and uniform setting of the dyestuff is effectively achieved.

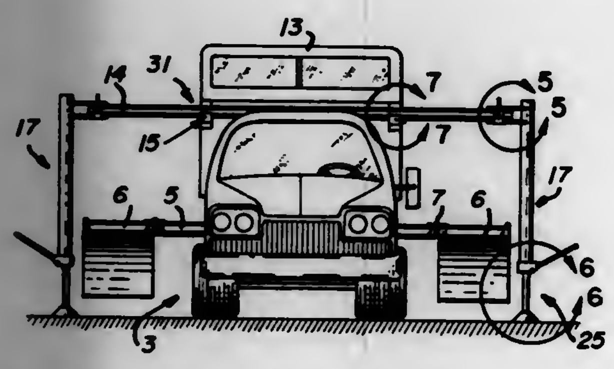
3,835,491
TRAILERABLE BOAT FOR A CAMPER AND METHOD FOR TRANSFERRING THE CAMPER

Harry E. Alne, 675 Sharon Park Dr. No. 201, San Mateo County, Calif. 94025

Filed Feb. 1, 1971, Ser. No. 111,364

Int. Cl. B63c *13/00*

U.S. Cl. 9—1 T **24 Claims**



The camper body is transferred from the bed of a truck to a trailered foldable pontoon boat by attaching a pair of lifting beams across opposite ends of the camper body. Four jacks, one attached to each end of the lifting beams, serve to lift the camper from the bed of the truck. The camper is lifted a sufficient amount such that the truck can pull forward and pull a camper body platform, provided on the trailered boat, into position below the camper body. The camper body is then lowered onto the platform and locked into position on the boat. The platform has a height sufficient to provide a pilot house region under the cab-over portion of the camper body. A collapsible wind screen is attached between the cab-over portion and the deck of the boat to screen off the pilot house. Seats are provided in the camper body platform such that when the camper is not in use the platform provides a plurality of passenger seats.

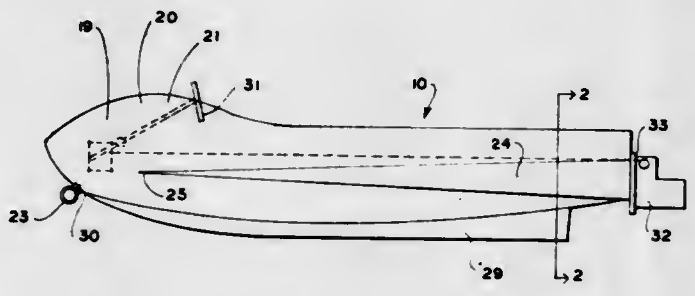
3,835,492
WATER SLED

Richard Orchowski, 30 Bibeau Bay, Winnipeg, Manitoba, Canada

Filed Oct. 16, 1972, Ser. No. 297,974

Int. Cl. B63b *5/00*

U.S. Cl. 9—6 **3 Claims**



A light weight unsinkable hull is towed behind a power boat. The hull is made of aluminum or glass fibre and contains floatation compartments filled with styrofoam. Side fin assemblies give stability and the keel can also be moulded on the underside. A steering wheel and rudder assembly gives greater flexibility to directional changes.

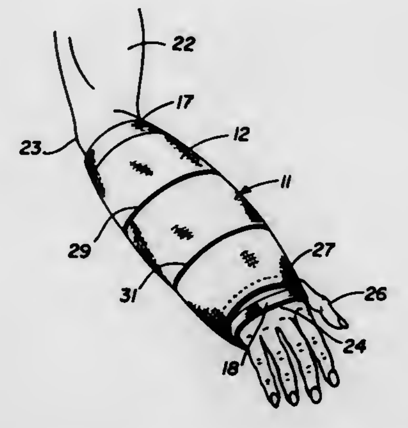
3,835,493
SWIM FIN

Gerald J. Grivna, Littleton, Colo., assignor to J. Wickham Clark, Golden, Colo., a part interest

Filed Apr. 19, 1973, Ser. No. 352,784

Int. Cl. A63b *31/04*

U.S. Cl. 9—307 **9 Claims**



A swim fin of fabric type material that is applied to a swimmer's appendages for extension between the operative extremity and a location closer the trunk or body of the swimmer. The fin at its midpoint is of a width corresponding to or slightly larger than the associated appendage at such position with fore and aft extensions therefrom being of various shape, size and configurations. The fin is to be attached to the swimmer at its fore and aft ends thereby providing a ballooning effect between the points of attachment during power stroke type swimming movements for the delivery of an increased propulsion effect. Preferably the fin is made permeable to water so a through flow of water will provide a desirable fin shaping effect and fin control.

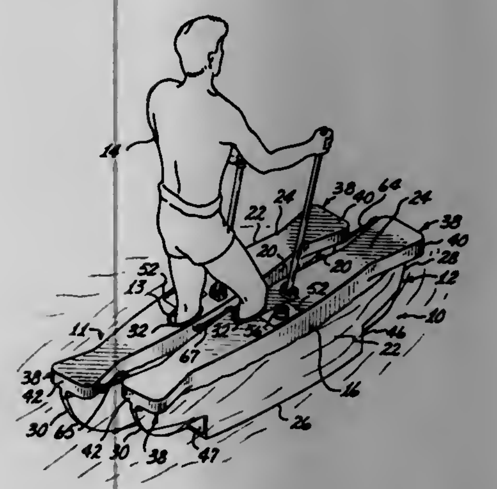
3,835,494
WATER WALKING PONTOONS

Earle T. Dougherty, 3420 N. 71st Ave., Phoenix, Ariz. 85033

Filed Dec. 10, 1973, Ser. No. 423,429

Int. Cl. A63c *15/04*

U.S. Cl. 9—310 D **14 Claims**



A water walking apparatus including a pair of elongated pontoons by which a user is able to propel himself through the water with a walking motion. The pontoons have longitudinally extending tunnels with flippers therein and have ballast tanks with buoyancy adjusting valves. The pontoons are formed with pitch dampeners thereon for improved stability and may also be provided with inertia reducers and improved propelling fins or flippers to increase the speed and distance travelled with the expenditure of a given amount of energy.

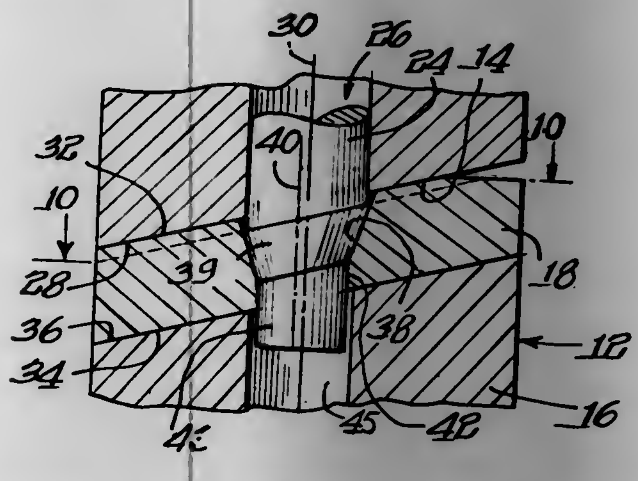
3,835,495
METHOD AND APPARATUS FOR SWAGING SCREW BLANK EXTREMITIES

Henry Anton Sygnator, Arlington Heights, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Dec. 29, 1972, Ser. No. 319,279

Int. Cl. B21h *3/02;* **B23g** *9/00*

U.S. Cl. 10—10 R **15 Claims**



The present invention relates generally to improvements in methods and mechanisms for swaging the entering portion of a screw blank, and more specifically to novel methods and mechanisms for producing screw blanks having laterally offset, substantially conical entering or work swaging portions and a pilot extending therefrom. The invention as disclosed herein contemplates the use of a novel die arrangement wherein a first die section is provided with an openended cylindrical bore for telescopically accommodating a screw blank of corresponding size. An adjacently positioned second die section having a substantially conical bore is adapted to receive the entering extremity of a screw blank from the first die section. The substantially conical bore has a peripheral surface comprised of a pair of segments of conical surfaces each generated from axes which are offset or laterally displaced and one of these axes being coincident with the axis of the bore in the first die section. This second die section is positioned intermediate the first die section and a third die section having a pilot-forming bore the central axis of which is coincident with the bore of the first die section.

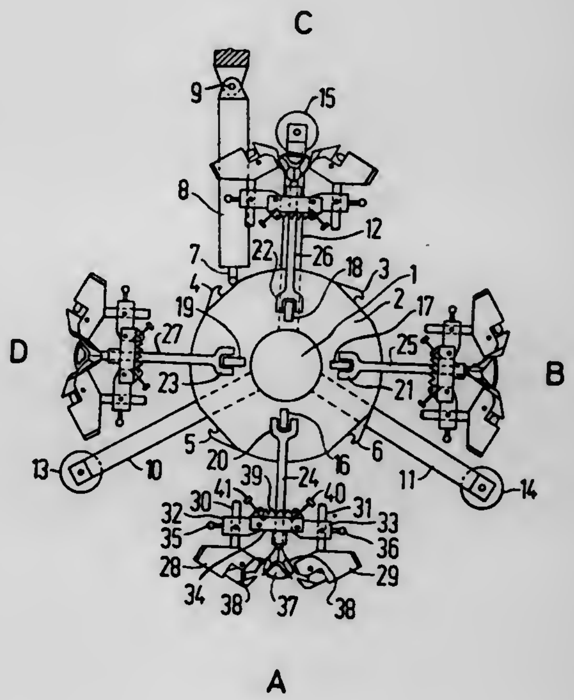
3,835,496
METHOD AND MACHINE FOR SHAPING THE HEEL OF A SHOE UPPER

Wilhelm Klein, Leiderbach/Ts, Germany, assignor to USM Corporation, Boston, Mass.

Filed Sept. 6, 1973, Ser. No. 394,785

Int. Cl. A43d *9/00*

U.S. Cl. 12—142 R **8 Claims**



A method and machine is provided for shaping a shoe upper onto the last by activating and pressing the heel onto the last and then fastening the heel onto the insole. A revolving table is provided with a plurality of stations, the first of which aligns the upper onto the last, the subsequent stations providing for activation, pressing and fastening while the upper remains on the last.

3,835,497
DOCKBOARD SAFETY STOP

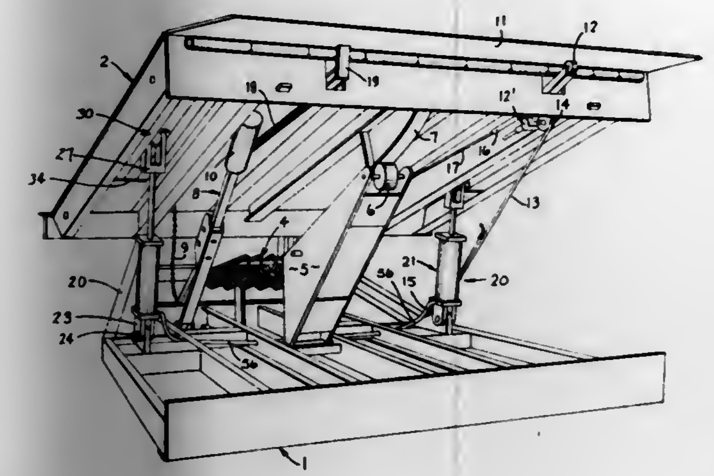
Vernon O. Smith, Ashley, Ohio, assignor to Overhead Door Corporation, Dallas, Tex.

Filed Jan. 22, 1973, Ser. No. 325,367

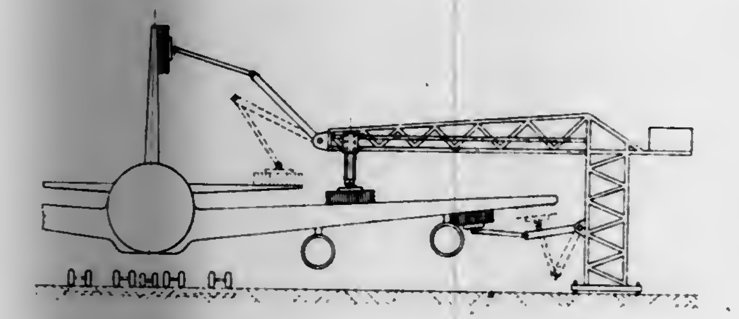
Int. Cl. B65g *11/00*

U.S. Cl. 14—71 **21 Claims**

A dock leveler having a swingable ramp or deck positioned for engagement with a truck bed. The deck is freely swingable through a selected angle, both above and below a horizontal position, to accommodate and compensate for various bed heights. To prevent the deck from falling in the event a load is positioned on the deck and the truck pulls away from the deck, an improved safety stop device is positioned for coaction with the deck. The safety stop device, in a preferred embodiment of the invention, comprises a pair of closed and self-contained hydraulic stop cylinders positioned for engagement with the opposite edges of the deck. The stop cylinders are load sensing and permit free swinging movement of the deck under light loads, but positively prevent free swinging movement of the deck when same is heavily loaded.



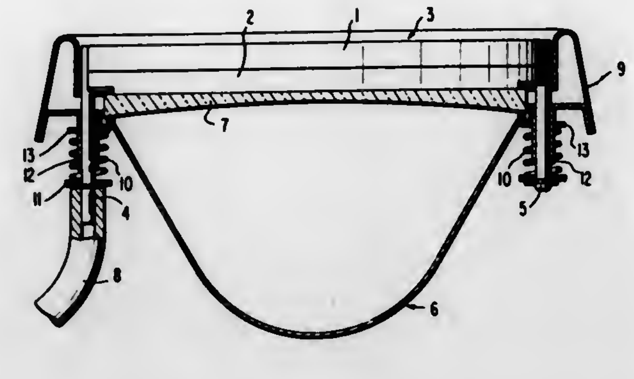
3,835,498
CRAFT WASHING PLANT
Laszlo Arato, Seebuchstrasse 19, Buochs, Switzerland (6374)
Filed July 12, 1973, Ser. No. 378,413
Claims priority, application Switzerland, July 14, 1972, 10635/72
Int. Cl. B64f *5/00*
U.S. Cl. 15—21 E **10 Claims**



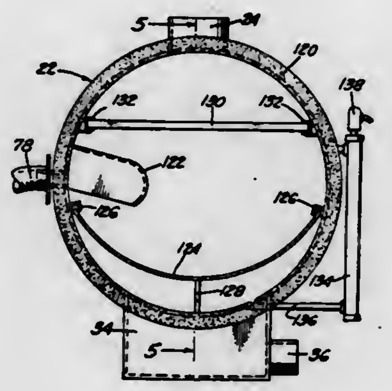
A washing plant for craft, particularly for aircraft or marine craft, comprises one or more cleaning assemblies each comprising one or more cleaning members and an articulated support for each of said cleaning members. Each support member is such as to allow each respective cleaning member to move in three orthogonal directions from any point of a predetermined space. The movement of each washing element is effected by a plurality of servomechanisms equal in number to the degrees of freedom of the corresponding articulated support, said servomechanisms being controlled by a device adapted to read a scale and/or mathematical model of the craft to be washed and to supply said servomechanisms with parameters corresponding to positions of the corresponding cleaning member on the surface of the craft to be washed.

3,835,499
WINDSHIELD WIPER
Klaus Bender, Esslingen (Neckar), Germany, assignor to Daimler-Benz A.G., Unterturkheim, Germany
Filed Feb. 26, 1971, Ser. No. 119,257
Claims priority, application Germany, Feb. 28, 1970, 2009488
Int. Cl. B60s *1/52, 1/38*
U.S. Cl. 15—250.04 **19 Claims**

A windshield wiper, particularly for the headlight glass panes of motor vehicles in which a wiper lamella consisting of a support part and of an elastic wiper blade arranged on the latter is constructed in such a manner as to be elastically bendable, preferably in a plane parallel to the surface to be cleaned; the lamella assumes its normal rest position approximately within the area of the outer boundary of the surface to be cleaned at a projecting edge.

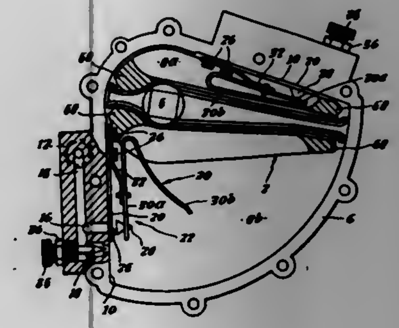


3,835,500
WATER REMOVAL MACHINE FOR ARTIFICIAL TURF
Frank J. Zamboni, Paramount, Calif., assignor to Frank J. Zamboni & Co., Paramount, Calif.
Division of Ser. No. 195,790, Nov. 4, 1971, Pat. No. 3,736,619. This application Jan. 29, 1973, Ser. No. 327,770
Int. Cl. A47l *5/00*
U.S. Cl. 15—319 **2 Claims**



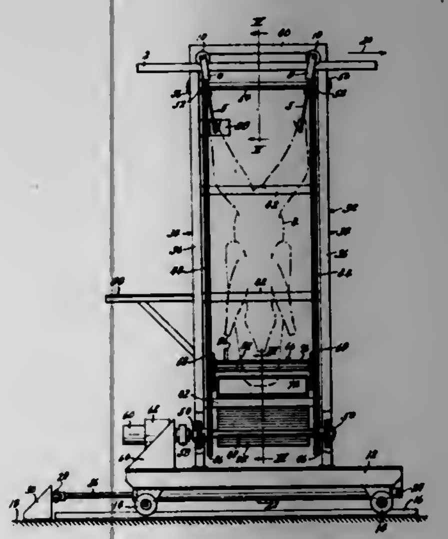
A machine for removing standing water from artifical turf, comprising an automotive vehicle carrying air and water pumps, air/water separation tank, nozzles, and associated equipment, and having a transverse water pick-up device including a roller that rolls on the turf and piles up a wave of water ahead of it. The roller is enclosed within a narrow, elongated housing having top, front and rear walls, and end plates. The bottom edge of the front wall just clears the turf and forms a narrow gap through which the piled up water flows into the housing ahead of the roller, where it is picked up by the vacuum suction and carried through a plurality of hoses to the tank. Here, the water is separated from the air and is pumped in a high-velocity jet to one side of the machine or the other, so that on successive passes over the turf, the machine moves all of the water to one side of the playing field where it can be drained off. The bottom edge of the rear housing wall extends slightly down into the turf and bends the pile forwardly, then releases it to flip droplets of water into the air behind the rear wall, where they are picked up by the air stream and carried through openings in the rear wall into the housing and thence through the hoses into the tank. An apron extends rearwardly from the rear wall, forming a confined space behind the housing, into which water droplets are flipped up by the turf. The trailing bottom edge of the apron rests lightly on the top of the turf, causing air to be sucked under the bottom edge of the apron and through the turf, to help pick up any remaining water.

3,835,501
ACTUATORS
Alan Richard Brine Nash, 39 Abbot's Ride, Farnham, England
Filed June 28, 1972, Ser. No. 267,176
Claims priority, application Great Britain, July 2, 1971, 31187/71
Int. Cl. E05f *3/04*
U.S. Cl. 16—51 **10 Claims**



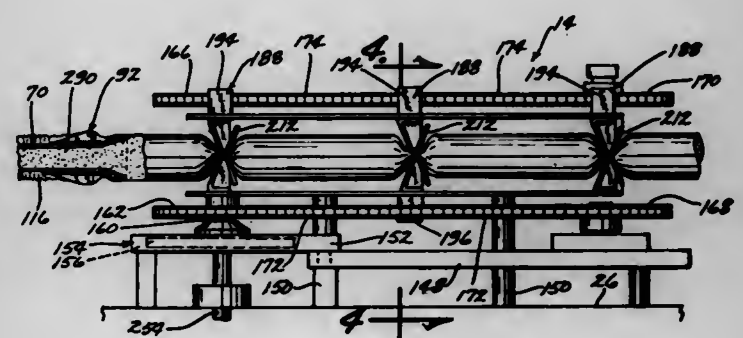
A pressure-fluid operated actuator used, e.g. as a door opening and closing mechanism has restriction means limiting the flow of pressure fluid and so slowing down the rate of movement towards the end of a closing movement. The restriction means do not affect the initial part of the movement and allow free entry of fluid into the actuator for the reverse movement. The arrangement can include means which limit the degree of restriction offered.

3,835,502
HIDE PULLING MACHINE
Phil W. Thompson, 13307 Spring St.; Ralph F. Thompson, 14919 Bennington, both of Grandview, Mo. 64030, and Harold G. Gottreu, 7109 Willlow, Raytown, Mo. 64133
Filed Mar. 2, 1973, Ser. No. 337,634
Int. Cl. A22b *5/16*
U.S. Cl. 17—21 **6 Claims**



A hide pulling machine for hogs consisting of a carriage movable on tracks beneath and parallel to a conveyor line along which hogs are moved, the hogs being suspended in a head-down position and having the hide previously pulled loose from the head, legs and belly, the carriage having mounted thereon a power operated pulling device moving downwardly adjacent the hog, and including a clamping device to which a loose portion of the hide may be affixed, so that the hide is pulled free of the back and sides of the animal in a downward direction. The clamping device is automatically released when the pulling is completed, and the hide is deposited in a discharge chute. The carriage travel on its rails may be synchronized with the conveyor travel, so that no interruption of the conveyor travel is necessary.

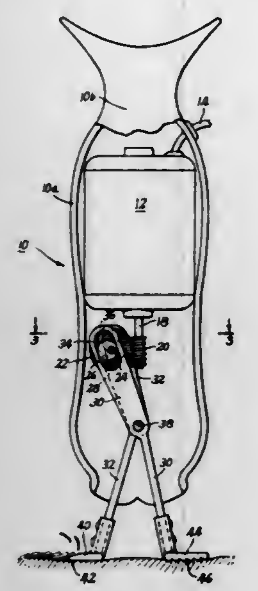
3,835,503
APPARATUS FOR ENCASING A PRODUCT
Ray T. Townsend, and Donald L. Beasley, both of Des Moines, Iowa, assignors to Townsend Engineering Company, Des Moines, Iowa
Filed Dec. 14, 1972, Ser. No. 315,223
Int. Cl. A22c *11/02*
U.S. Cl. 17—35 **16 Claims**



An apparatus for encasing a product including a product encasing machine, linking apparatus, and a looping apparatus. The product encasing machine includes a rotatable stuffing tube having a fin head mounted on its forward end. The fin head imparts rotational drive and longitudinal drag to the casing as the casing passes thereover as the casing is being filled. The rearward end of the stuffing tube is mounted in a socket type apparatus to permit the stuffing tube to be pivotally moved upwardly and laterally to facilitate the installation of the folded casing thereon. A modified means of supporting the discharge end of the stuffing tube is also disclosed comprising a split bearing member which embraces the rotating fin head and casing. The bearing member may be selectively opened to permit the stuffing tube to be pivotally raised to its loading position. The bearing member is spring loaded to permit different dragging forces to be selectively applied to the casing. Means is also provided for fluidly lubricating the interior surfaces of the stuffing tube to prevent product smear. The linking apparatus includes a pair of loop members carrying pinching members thereon. The pinching members are constructed of a moldable material and are detachably mounted on the loop members. The pinching members include pinching surfaces adapted to engage and collapse the rotating casing issuing from the encasing machine. The pinching surfaces each include at least one portion in vertical alignment with the longitudinal center line of the loop on which it is carried so that it will travel at a uniform velocity as it is carried by the loop members. A separate control means is provided for the rotation stuffing tube to permit the stuffing tube to be separately controlled as to speed independent of all other drives.

3,835,504
ELECTRIC FISH SCALER
Theodore Tripodi, 5 East St., Riverhead, N.Y. 11901
Filed June 14, 1973, Ser. No. 370,174
Int. Cl. A22c *25/02*
U.S. Cl. 17—66 **2 Claims**

An electric fish scaler having a pair of fulcrum type arms with a slotted cam follower surface at one end being actuated by an eccentric cam. One arm carries a scale removing blade at its free end. The second arm is similarly actuated for stabilizing the scaler during cutting and causing it to move in steps between cutting operations.



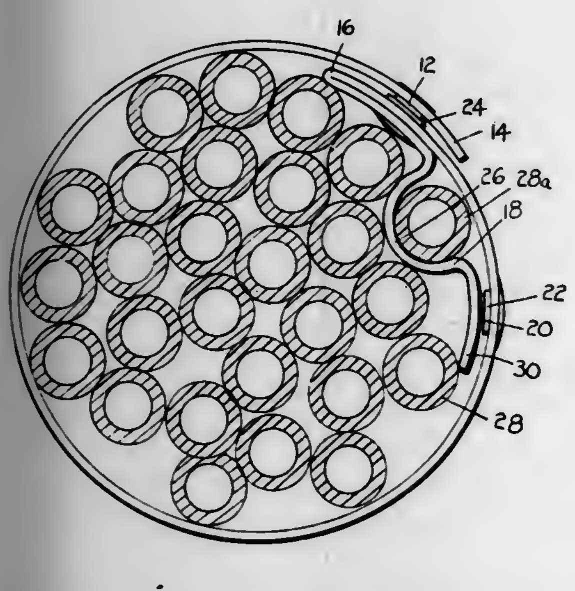
3,835,505
BINDING STRAP FOR COILED ARTICLES AND THE LIKE

George Shewbridge, 10701 S.E. Hwy. 212, Clackamas, Oreg. 97222

Filed Jan. 26, 1973, Ser. No. 326,982

Int. Cl. B65d *63/00*

U.S. Cl. 24—16 R **2 Claims**



A strap having a main body portion arranged to be wrapped around a coiled cord or the like and having fastening means at opposite ends for binding engagement around the cord. One end of the main body portion has an auxiliary body portion adapted to be secured to one end of the cord to hold such end in a fixed position in the coil.

3,835,506
BUCKLE FOR PACKAGING STRAPS

Harald Berns, Wuppertal-Elberfeld, Germany, assignor to Herkert Schlbach KG, Wuppertal, Germany

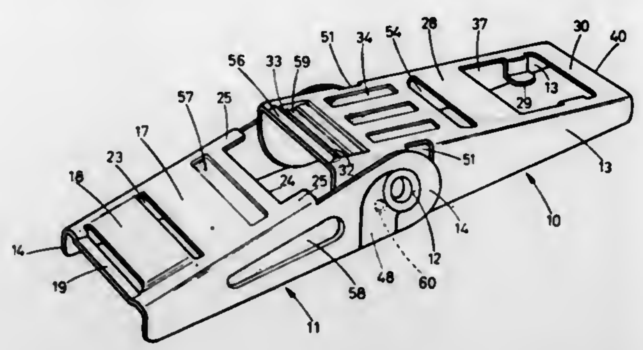
Filed June 22, 1973, Ser. No. 372,636

Claims priority, application Germany, June 27, 1972, 2231324

Int. Cl. A44b *11/25;* **A43c** *11/00*

U.S. Cl. 24—68 D **9 Claims**

A first component to which one end of a packaging strap is to be connected, is connected with a second component to which the other end of the strap is to be connected, the connecting arrangement permitting both pivotal displacement of the components relative to one another, and also relative longitudinal movement of the components between a position in which the strap is slack and a position in which the strap is tensioned.



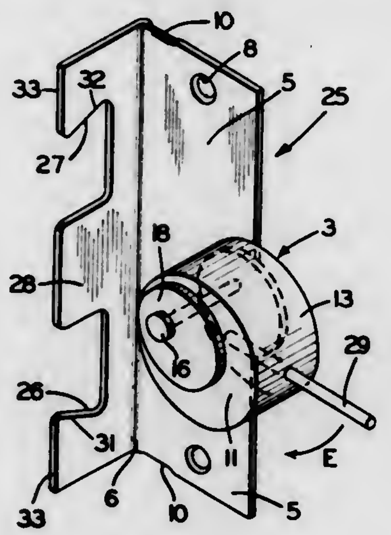
3,835,507
ROPE HOLDING DEVICE

John O. Richards, 980 Mill Cir., Alliance, Ohio 44601

Filed May 3, 1973, Ser. No. 356,849

Int. Cl. F16g *11/10*

U.S. Cl. 24—134 R **4 Claims**



A rope holding device having a resilient cylindrical-shaped cam mounted on a generally L-shaped bracket. A pair of discs is mounted on the circular ends of the cam by a pin. The pin eccentrically mounts the cam on one leg of the bracket for pivotal movement of the cam into clamping engagement with the other leg of the bracket for gripping a portion of a rope therebetween. The rope forms a groove in the cylindrical engaging surface of the cam preventing sideways disengagement of the rope, and the compression of the resilient cam by the rope maintains constant pressure on the rope preventing premature disengagement of the rope from its clamped position. A rod may extend radially outwardly from the cylindrical cam surface for locking engagement with notches formed in the clamping leg of the bracket.

3,835,508
CONNECTING MEANS

Rodney James Bini, Rosanna, Australia, assignor to George Norman & Co. Pty. Ltd., Clifton Hill, Victoria, Australia

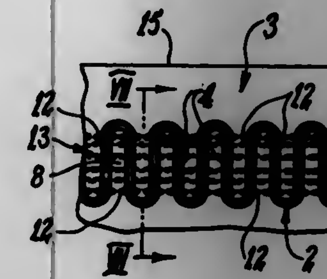
Filed Dec. 4, 1972, Ser. No. 312,105

Claims priority, application Australia, Dec. 10, 1971, 7342/71

Int. Cl. A44b *17/00*

U.S. Cl. 24—204 **10 Claims**

Connecting means for releasably attaching a sheet-like member to a support, and including a thread attached to a sheet-like member so as to have sections thereof exposed on one surface of that member. The thread sections are arranged so as to tangle with or locate within flexible hook-like elements such as those used in the well known "Velcro" fasteners. Cooperative engagement between the "Velcro" hooks and the thread sections is facilitated by having the thread sections extending transversely across a valley formed by a tuck or fold in the sheet-like member, and a tensioning thread is applied to that member to retain the tuck or fold and permit the thread sections to extend relatively loosely across the valley in the sheet-like member.



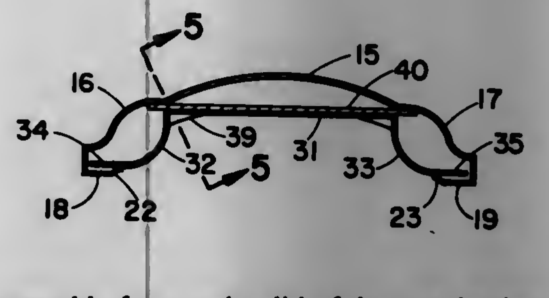
3,835,509
CASKET LID

Richard B. Esterdahl, P.O. Box 16BB, Prophetstown, Ill. 61277

Filed Jan. 31, 1973, Ser. No. 328,270

Int. Cl. A61g *17/00*

U.S. Cl. 27—19 **12 Claims**



A liner assembly for a casket lid of the type having a crown portion and laterally extending flanges extending from edges of the crown portion, the liner assembly being composed in part of a flat plate that lies inside of the casket lid in spaced-apart relation from the flanges, and a resilient liner bearing against the underside of the plate and having laterally extending edges engaging the flanges of the lid. The liner has a depth when in repose that is greater than the vertical distance between the lower surface of the plate and the horizontal flanges so that the liner is held in place.

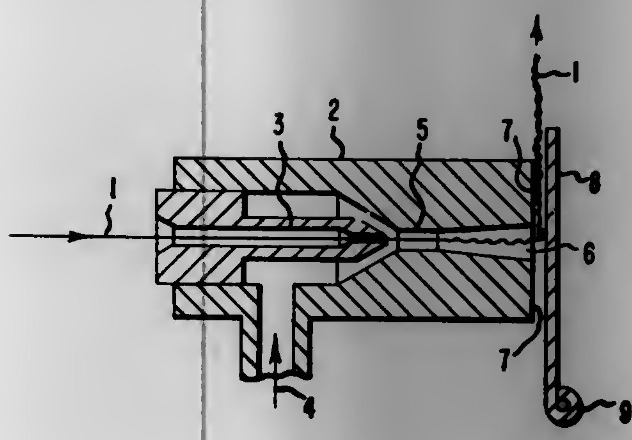
3,835,510
BAFFLE FOR TEXTURING JET AND METHOD

Manfred Gunter Koslowski, Geneva, Switzerland, assignor to E.I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 15, 1972, Ser. No. 315,563

Int. Cl. D02g *1/16*

U.S. Cl. 28—1.4 **5 Claims**



A method and apparatus to automatically adjust baffle setting for variations in processing conditions when using a yarn treating fluid jet having a baffle adjacent its outlet end. The baffle is mounted for free movement toward and away from the outlet end of the jet and defines with the adjacent outlet end surface of the jet a mutually shared area greater than the cross-sectional area of the exit of the treatment channel of the jet. The baffle is mounted at a position of equilibrium with respect to the fluid flow rate from the jet and can automatically adjust for minor changes in flow rate to maintain uniform operability.

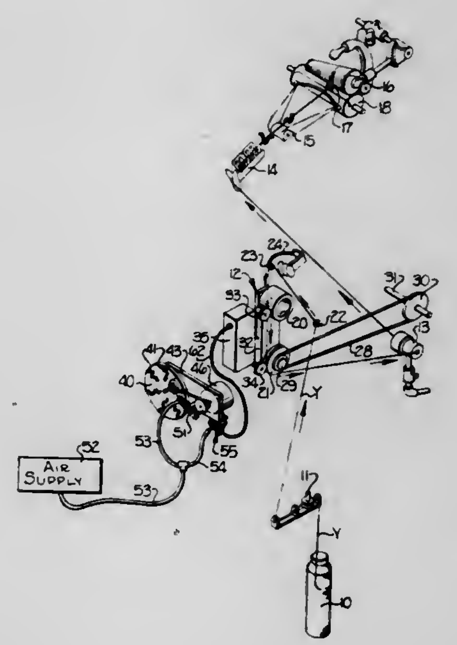
3,835,511
PROGRAMMER FOR AIR JET TEXTURING APPARATUS

Victor H. Schrader, Wilmington; Richard J. Polney, New Castle, and Peter W. Vermilyea, Newark, all of Del., assignors to Enterprise Machine and Development Corporation, New Castle, Del.

Filed Apr. 9, 1973, Ser. No. 349,425

Int. Cl. D02g *1/16*

U.S. Cl. 28—1.4 **14 Claims**



The present programmer operates to produce variations in the bulkiness along the length of air jet textured yarns by producing an irregular pattern of impulses which does not repeat for a long length of time. The programmer includes a rotatable pattern wheel having depressions in the form of substantially radially extending grooves of irregular width and configuration on one face thereof. An air nozzle sensor is supported for movement in a generally radial direction of the pattern wheel to "read" the grooves as the pattern wheel rotates and to thereby produce periods of reduced air pressure in the system. An air pressure switch is operated by these reductions in the air pressure to cause the air jet texturing unit to form irregularly spaced slubs along the length of the yarn.

3,835,512
METHOD OF PRODUCING RELIEF PATTERNED NONWOVEN TEXTILES

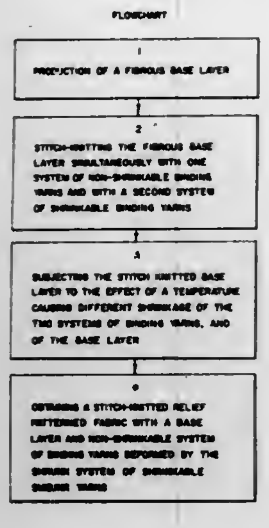
Bohumil Piller, Brno; Vladimir Lacko, Svit; Zdenek Kochta, Brno, and Bedrich Koudelka, Horakov, all of Czechoslovakia, assignors to Vyzkumny Ustav Pletarsky, Brno, Czechoslovakia

Filed Dec. 8, 1969, Ser. No. 882,967

Int. Cl. D03d *11/08;* **D06c** *23/00*

U.S. Cl. 28—72 FT **8 Claims**

A base layer of fibers or yarns is mechanically reinforced by binding yarns including two different yarns having a different and higher shrinkage coefficients than the base layer. When


FLOWCHART
1
PRODUCTION OF A FIBROUS BASE LAYER
2
STITCH-KNITTING THE FIBROUS BASE LAYER SIMULTANEOUSLY WITH ONE SYSTEM OF NON-SHRINKABLE BINDING YARNS AND WITH A SECOND SYSTEM OF SHRINKABLE BINDING YARNS
3
SUBJECTING THE STITCH KNITTED BASE LAYER TO THE EFFECT OF A TEMPERATURE CAUSING DIFFERENT SHRINKAGE OF THE TWO SYSTEMS OF BINDING YARNS, AND OF THE BASE LAYER
4
OBTAINING A STITCH-KNITTED RELIEF PATTERNED FABRIC WITH A BASE LAYER AND NON-SHRINKABLE SYSTEM OF BINDING YARNS DEFORMED BY THE SHRUNK SYSTEM OF SHRINKABLE BINDING YARNS

the fabric is shrunk, a relief pattern is produced due to the different shrinkage of the respective yarns and the base layer.

3,835,513

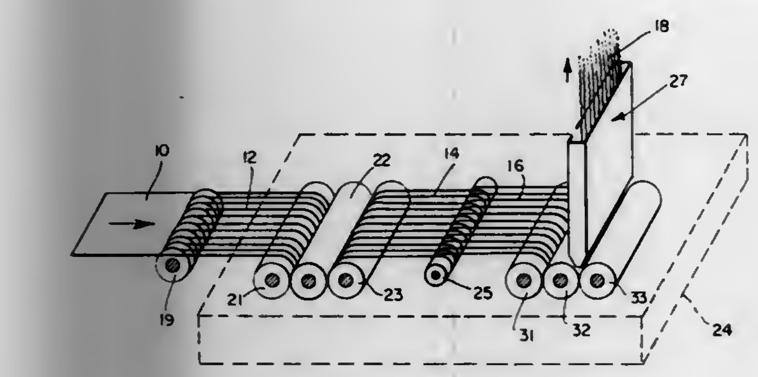
DRAW CRIMPING TEXTILE FILM STRANDS

Robert K. Stanley, 630 Meadowvale Ln., Media, Pa. 19063

Continuation-in-part of Ser. No. 124,213, March 15, 1971, Pat. No. 3,753,275, which is a continuation-in-part of Ser. No. 822,429, May 7, 1969, Pat. No. 3,570,083, which is a continuation-in-part of Ser. Nos. 678,428, Oct. 26, 1967, Pat. No. 3,462,814, and Ser. No. 302,758, July 31, 1963, Pat. No. 3,376,622, Continuation-in-part of Ser. No. 846,457, July 31, 1969, Pat. No. 3,781,952, which is a continuation-in-part of Ser. No. 835,883, June 9, 1969, Continuation-in-part of Ser. No. 650,762, July 3, 1967, abandoned, which is a continuation-in-part of Ser. No. 349,338, March 8, 1964, Pat. No. 3,348,283. This application Feb. 28, 1973, Ser. No. 336,617. The portion of the term of this patent subsequent to Aug. 21, 1990 has been disclaimed

Int. Cl. D02g *1/12*

U.S. Cl. 28—72.14 **7 Claims**



Drawable textile film strands are treated by drawing the same to increased length and compressively crimping the drawn material, both steps being carried out in essentially continuous manner with a minimum of time and space therebetween.

3,835,514

METHOD OF MAKING LAMINATED DIFFUSION BONDED BATTERY PLAQUES

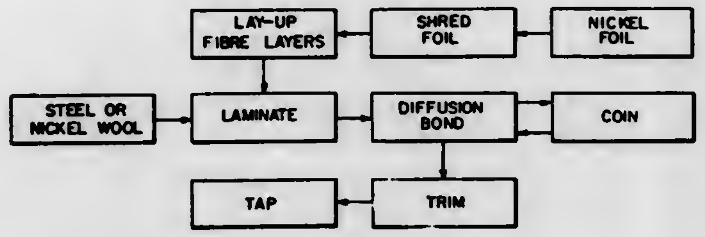
William Pollack, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Division of Ser. No. 143,770, May 17, 1971, abandoned. This application Sept. 18, 1973, Ser. No. 398,349

Int. Cl. B23p *13/00*

U.S. Cl. 29—2 **10 Claims**

A laminated, flexible metal fiber electrode plaque is made by (1) providing a first layer of substantially parallel metallic fibers having lengths greater than about 4 inches, (2) placing a second layer of substantially parallel metallic fibers having lengths greater than about 4 inches on top of and contacting the first layer, the second layer having its fibers oriented between 30° and 90° from the fibers of the first layer, (3) placing a third layer of substantially parallel metallic fibers having lengths greater than about 4 inches on top of and contacting the second layer, the third layer having its fibers oriented in the same direction as the fibers of the first layer, (4) metallurgically diffusion bonding the contact points of the fibers between the layers together, to provide, annealed, bonded plaques and bus connectors, (5) coining the annealed, bonded plaque to provide a plaque having a body portion of between 70 and 97 percent porosity and a bus connector portion of up to 70 percent porosity, by pressing the bus connectors into contact with predetermined areas of the plaque and then (6) metallurgically bonding the contact points of the plaque and bus connectors together.



3,835,515

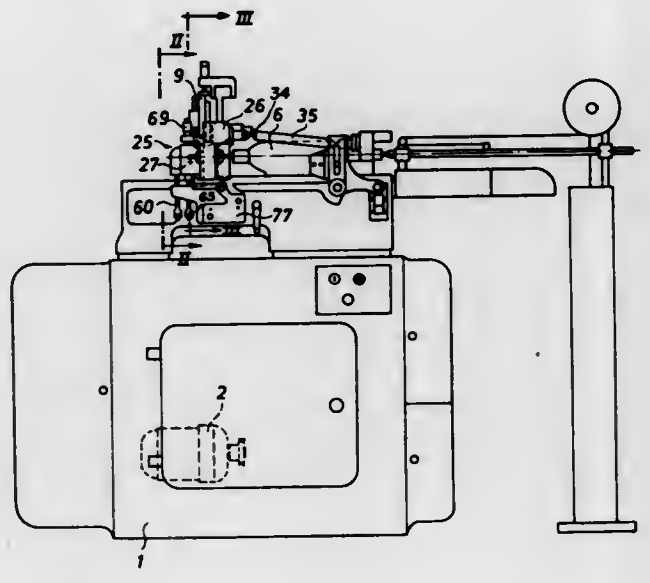
LONGITUDINAL AUTOMATIC LATHE

Gunter Kersten, D 7313 Reichenbach, Blumenstrabe 35, Reichenbach, Germany; Rudi Muller, 3 Charles Ave., Huntington, N.Y. 11743, and Franz Ray, D 7313 Reichenbach, Hermannstrabe 12, Reichenbach, Germany

Filed Sept. 8, 1972, Ser. No. 287,214

Int. Cl. B23b *7/06, 11/00*

U.S. Cl. 29—27 C **10 Claims**



A longitudinal automatic lathe comprising a plurality of turning or cutting tools, one of which is removed to allow the inclusion of a hobbing machine. This hobbing machine is disposed in the vicinity of a guide bush through which a workpiece to be machined is advanced and forms part of a hobmilling apparatus which has an axially movable milling spindle, a pivotable milling spindle housing, and a hobbing head at the end of the milling spindle. Two control cams, disposed on a control shaft rotatable by the main driving motor of the lathe, are respectively connected to the milling spindle and the spindle housing to move the milling spindle axially and pivot the spindle housing allowing high quality toothing to be achieved by accurately maneuvering the hobbing head at the milling spindle end into contact with the workpiece.

3,835,516

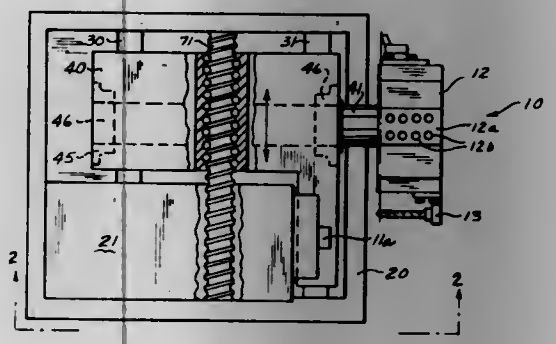
MACHINE TOOL WITH INDEXIBLE TOOL SUPPORT

Baxter T. Fullerton, Cleveland, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 148,729, June 1, 1971, abandoned. This application Sept. 28, 1972, Ser. No. 292,982

Int. Cl. B23b *3/18*

U.S. Cl. 29—47 **17 Claims**



A machine tool comprising a headstock having a rotatable spindle for supporting and rotating a workpiece. A turret mounted on the headstock and offset to one side of the spindle carries tools to work upon a workpiece in the spindle. Bearing means offset to one side of the spindle supports the turret for indexing movement about and feed movement along an axis parallel to the spindle axis and second bearing means extending to one side of the spindle housing on the machine bed supports the first bearing means and the turret for movement toward and away from the spindle axis. The bed of the machine does not project substantially beyond the spindle housing in the direction of the spindle axis and the turret projects outwardly of the bed. The turret is movable along the axis of rotation thereof a variable distance depending upon the work to be performed.

3,835,517

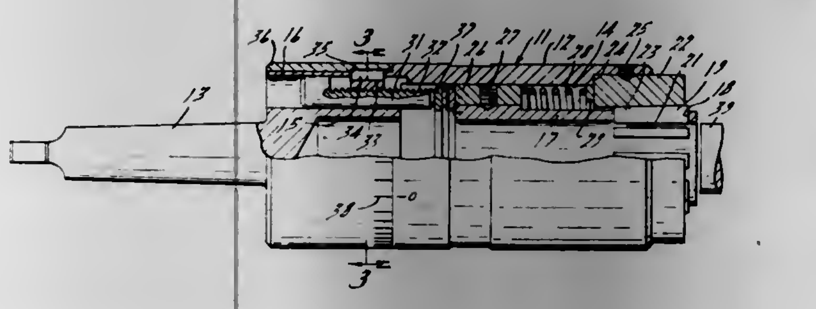
BURNISHING TOOLS FOR INTERIOR AND EXTERIOR SURFACES

William D. Walters, Pontiac, Mich., assignor to Cogsdill Tool Products, Inc., Farmington, Mich.

Filed Oct. 19, 1973, Ser. No. 408,165

Int. Cl. B24b *39/00*

U.S. Cl. 29—90 **10 Claims**



Burnishing tools for finishing the inside or outside surface of a cylindrical workpiece to a high polish has a unique adjustment for changing the diameter of the annular plane of the rollers so as to change the diameter of the finished surface of the workpiece. This embodies the use of three pins against the ends of which the cage for the rollers is urged by a spring, the pins being positioned by a nut having an internal thread in engagement with the external thread sections on the facing side of the pins. An outer collar is fixed to the nut, the turning of which rotates the nut and advances or retracts the pins.

3,835,518

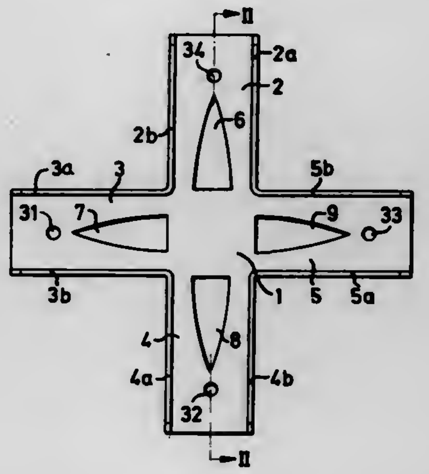
METHOD OF MANUFACTURING A FITTING USING A PUNCH AND DIE

Bjarne Jorgensen, Kirkebjerg Alle 6, 2720 Vanløse, Denmark

Filed Mar. 29, 1972, Ser. No. 239,148

Int. Cl. B23p *13/00*

U.S. Cl. 29—150 **3 Claims**



A fitting, preferably for the assembling of a box shaped assembly, which fitting has a central panel and two or more finger portions extending from said central panel. The flange portions of each of the longitudinal edges of said finger portions being bent substantially at right angles to the associated finger portions so that each of said finger portions together with the bent flange portions form a U-shaped channel which is adapted to accomodate an edge portion of a constructional board. The bending of the flange portions being carried out by a special stamping method in such a manner that each flange portion is not only integral with the associated finger portion but is also integral with the adjacent finger portion without the corners between such adjacent bent flange portions of adjacent finger portions being torn up so that particular rigid fittings are obtained.

3,835,519

METHOD OF MAKING LOW FRICTION MINIATURE GEAR DRIVE

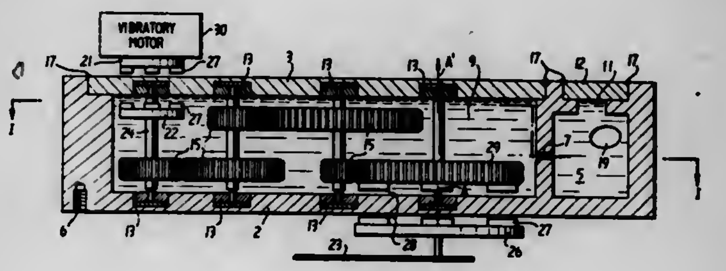
Max Hetzel, Biel, Switzerland, assignor to Societe Suisse pour l'Industrie Horlogere Management Services SA, Bienne, Switzerland

Division of Ser. No. 322,381, Jan. 10, 1973, Pat. No. 3,792,578. This application Nov. 6, 1973, Ser. No. 413,241

Claims priority, application Switzerland, Feb. 28, 1972, 2806/72

Int. Cl. B23p *13/00*

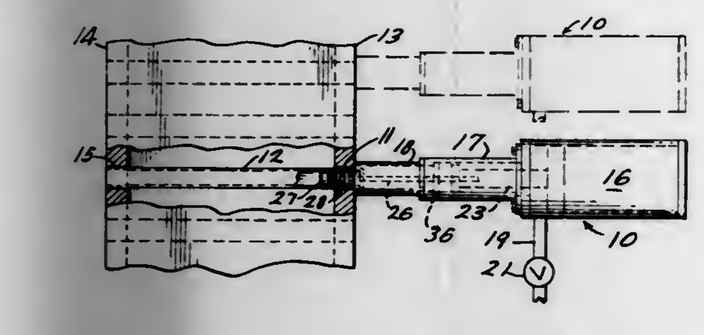
U.S. Cl. 29—177 **5 Claims**



A miniature gear drive, such as that used in clockworks, is disposed in one chamber of a housing having two chambers interconnected by a capillary channel. The chamber containing the gears is sealed except for the channel, and the entire assembly immersed in a lubricant liquid within a vacuum chamber. The vacuum chamber is evacuated and then the vacuum removed so that the lubricant completely fills both chambers of the housing. The assembly is removed from the vacuum chamber and heated whereby the liquid expands and a portion of the liquid escapes through an opening in the second housing chamber. The assembly is then cooled so that an air bubble is formed in the second housing chamber, and the second chamber is then sealed. The input power to the gear drive, and the output power therefrom are obtained by magnetic coupling through the housing. The air bubble permits expansion of the liquid within the housing due to temperature changes, but the capillary channel prevents this bubble from reaching the chamber containing the gear drive hence the gears are always completely immersed in the liquid.

3,835,520
TUBE PULLING APPARATUS

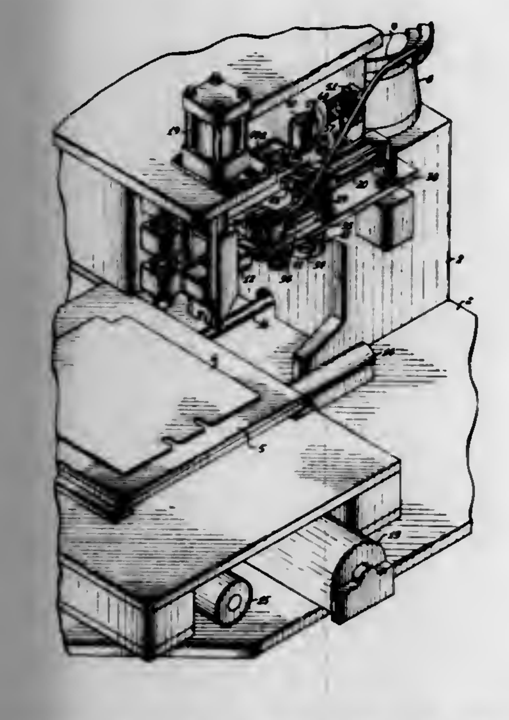
William W. Sismore, Willow Grove, Pa., assignor to Richard T. Harris, Monroe, Mich., a part interest
Filed Sept. 10, 1973, Ser. No. 396,054
Int. Cl. B23p *15/26, 19/02*
U.S. Cl. 29—202 D **8 Claims**



The invention is a tube pulling apparatus capable of removing a tube from a pair of tube sheets of a tube-in-shell heat exchanger. A hydraulic cylinder retracts a pull rod which expands a set of gripping jaws against the interior of a tube in a tube sheet. The pull rod then continues to retract while a standoff collar braces the apparatus against the tube sheet. Sufficient force is developed to overcome the hoop stresses of the tube in the tube sheet, and the stressed tube portion is pulled free of the tube sheet without damage to the tube sheet.

3,835,521
GRAVITY-FED SELECTABLE PIN INSERTION DEVICE

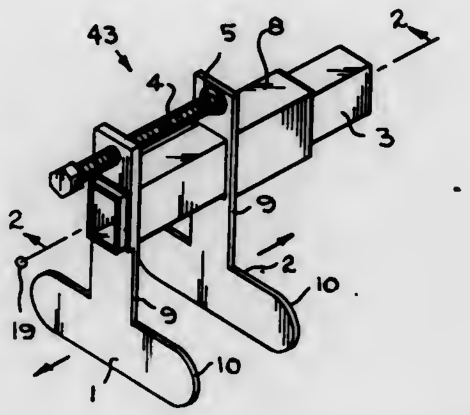
Robert O. Crump, Scottsdale, and Karl R. Bethsold, Phoenix, both of Ariz., assignors to Honeywell Information Systems, Inc., Waltham, Mass.
Filed Sept. 4, 1973, Ser. No. 393,870
Int. Cl. H05k *13/04*
U.S. Cl. 29—203 B **4 Claims**



A pin insertion device which uses gravity to feed pins into a hopper employs a plurality of partitions to align the pins with a plurality of ports in one wall of the hopper. The pins are held in alignment by the ports and by grooves in the bottom of the hopper. A plurality of pushers may be selectively activated to move selected pins through the ports into boards or other receivers which are positioned adjacent the ports.

3,835,522
DISC BRAKE SPREADER

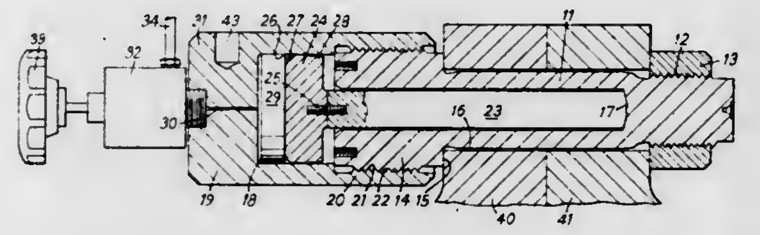
Marvin T. Ward, 918 Cohn St., Houston, Tex. 77007
Filed Jan. 12, 1973, Ser. No. 322,979
Int. Cl. B23p *19/04*
U.S. Cl. 29—239 **3 Claims**



The disc brake spreader is a piston retraction tool consisting basically of a pair of thin-plate jaws, shaped esentially like disc brake shoes, with one jaw fixed to a guide rod and the other jaw slidably mounted on the guide rod. The jaws each include an upwardly projecting portion through which they are connected by an expansion screw threaded through the immovable jaw and extending parallel to the axis of the guide rod. One end of the screw is journaled in the slidable jaw and secured thereto by a retainer which permits the jaws to move inwardly or outwardly by turning the screw.

3,835,523
SELF-STRAINING BOLTS

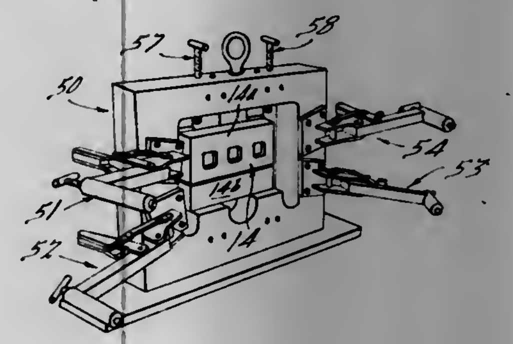
Fred Stansfield, Oldham, England, assignor to P & O Research & Development Company Limited, London, England
Filed Mar. 6, 1973, Ser. No. 338,425
Claims priority, application Great Britain, Mar. 8, 1972, 10727/72
Int. Cl. B23p *11/02*
U.S. Cl. 29—252 **9 Claims**



A self-straining bolt includes a shank and a rod of steel or like stiff rigid material which fits with clearance in an axial bore within the shank of the bolt, the bore being closed at one end. A closed cylindrical chamber is secured to the end of the bolt remote from the closed end of the bore, and a piston member which has an overall diameter greater than that of the bore, is fitted in the chamber. The piston member is a close sliding fit in the cylindrical chamber and engages the end of the rod adjacent the chamber. A disc of a resilient material with a hardness in the range of Shore hardness 10 to 100, and preferably 40 to 70, and a thickness of at least ⅜ inch, and preferably at least ½ inch, abut the working face of the piston and bears with its periphery against the cylindrical wall of the chamber so as to form a seal. A conduit extends through the wall of the chamber for connecting the chamber to a source of fluid under pressure whereby a pressure can be applied to the piston through the disc to cause the rod to press against the closed end of the bore and strain the shank of the bolt. The disc prevents fluid leaking from the chamber through the space between the piston and the cylindrical wall of the chamber.

3,835,524
METHOD OF MANUFACTURING REJUVENATED SCARFING BLOCKS

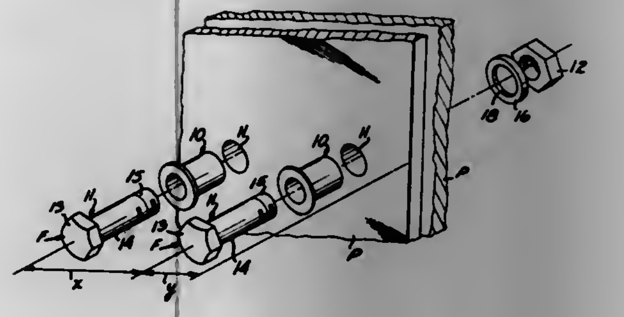
John M. Massey, Dearborn, Mich., assignor to Massey Welding Company, Dearborn, Mich.
Filed Aug. 13, 1973, Ser. No. 387,763
Int. Cl. 29 *501;* **B23p** *7/00;* **B23k** *31/02*
U.S. Cl. 29—401 **21 Claims**



A new method for manufacturing rejuvenated scarfing blocks which are used for scarfing (i.e., the heat cleaning or thermochemical conditioning of) the surfaces of steel slabs in steel mills.

3,835,525
METHOD OF FABRICATING A JOINT

John O. King, Jr., 3990 N. Ivy Rd., Atlanta, Ga. 30342
Continuation-in-part of Ser. Nos. 33,281, April 30, 1970, , and Ser. No. 882,126, Dec. 4, 1969, , which is a continuation-in-part of Ser. No. 711,368, March 7, 1968, abandoned. This application July 3, 1972, Ser. No. 268,477
Int. Cl. B23p *17/00*
U.S. Cl. 29—412 **9 Claims**

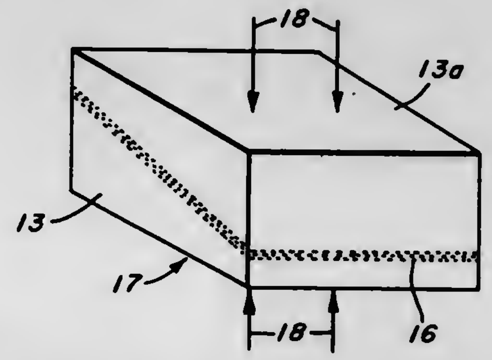


Method for forming a fastener joint in which the effective diameter of high strength fasteners utilized particularly in aerospace and marine standards is precisely enlarged, for preventing corrosive chemical reactions between the work pieces and the fastener, and for preventing fretting between composite materials and the fasteners. The method includes the steps of encircling the shank of the fastener with a metal member of a predetermined thickness so that the member is in close tolerance bearing contact with the shank of the fastener and will be in bearing contact with the aligned holes through the work pieces when the fastener is in position; and seating the member encicling the shank of the fastener by tightening the fastener against the work pieces. The metal member may be a material that is not chemically reactive with the work pieces to be fastened together to prevent the fastener from chemically reacting with the work pieces.

When the sleeve member of the invention is installed, its outside surface or the inside surface of the holes may be coated with an adhesive sealant before it is inserted into the holes so that the sleeve member is bonded to the holes and the fastener can be installed and removed without removing the sleeve member. When it is desirable that the work pieces of a joint be capable of separation, the sleeve member of the invention can be first severed to a length corresponding to the combined thickness of all of the work pieces of the joint and then the thusly severed sleeve member subdivided into segments corresponding to the individual thickness of each of the work pieces of the joint. When the subdivided sleeve member is installed in the corresponding work pieces, the joint may be subsequently separated even if the sleeve member is bonded to the work piece.

3,835,526
METHOD OF FORMING TAPERED METAL PIECES

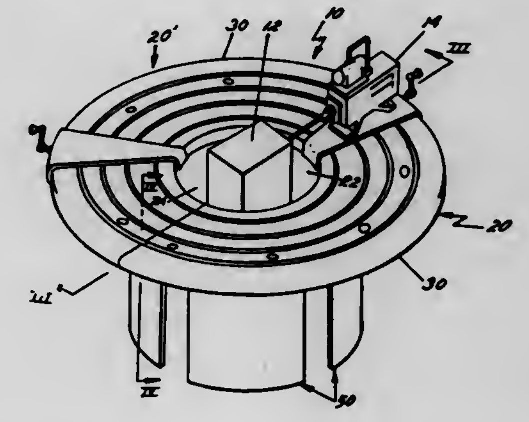
Louis J. Bartlo, Youngstowm, and Howard B. Bomberger, Jr., Canfield, both of Ohio, assignors to RMI Company, Niles, Ohio
Continuation-in-part of Ser. No. 112,160, Feb. 3, 1971, abandoned. This application Apr. 9, 1973, Ser. No. 349,586
Int. Cl. B23k *1/20*
U.S. Cl. 29—470.9 **4 Claims**



A method of forming tapered metal pieces particularly applicable to titanium. A block of the metal of uniform thickness is sawed or otherwise cut to form two wedge-shaped segments. The cut surfaces of the segments are coated with a parting compound and placed against each other. The segments are joined with a weld which extends around their abutting edges, forming a pack of uniform thickness. The pack is forged to dimensions such that it can be carried on a roller conveyor, and hot worked, after which the segments are separated.

3,835,527
MULTI-PURPOSE SUPPORT APPARATUS

Russell J. Cornair, 1083 Rolling Meadows Dr., Akron, Ohio 44313
Filed Sept. 29, 1972, Ser. No. 293,310
Int. Cl. B23p *23/00*
U.S. Cl. 29—560 **9 Claims**



A universal, multi-purpose support table for simultaneously supporting a work piece and at least one power or other tool at various horizontal and vertical positions with respect to the work piece. The table includes a top having an opening beneath which is supported a work support pan. The table top is formed from two segments, and supported by support legs, the top segments being selectively mountable in either a horizontal plane or with one mounted horizontally with the other supported vertically therefrom. Saddle-type brackets are included for removably mounting a tool radially across either the vertically or horizontally mounted top segments.

3,835,528

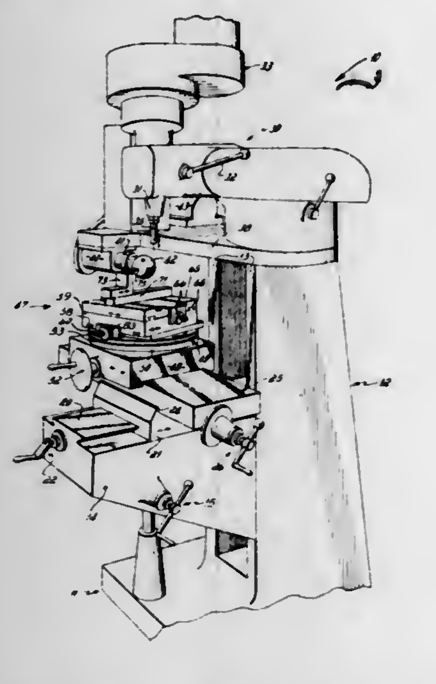
SPHERE AND ANGLE TURNING ATTACHMENT FOR MILLING MACHINES

Wayne O. Garrett, Amelia, Ohio, assignor to Hansco, Inc., Cincinnati, Ohio

Filed Sept. 10, 1973, Ser. No. 395,957

Int. Cl. B23p *23/02*

U.S. Cl. 29—560 **13 Claims**



Machinery for cutting spherical and other surfaces of revolution on a workpiece while the latter is rotated about its longitudinal axis. The cutting tool is carried by a tool post mounted on a table which is both positionable along X-Y axes in its plane and swingable about an axis perpendicular to the axis of the workpiece. This table is in turn carried by another table which is independently shiftable so that the axis of tool swinging movement may be shifted with respect to the axis of workpiece rotation.

A post or spindle is provided for rapid set-up of the tool with respect to the axis about which it is swung, the post being shiftable along an axis perpendicular to the surface of the table on which the tool is carried, between a position at which it is remote from the tool, and a set-up position in which its side surface can be engaged by the cutting edge for accurate positioning of the latter.

3,835,529

GAS DETECTING DEVICE AND METHOD OF MAKING SAME

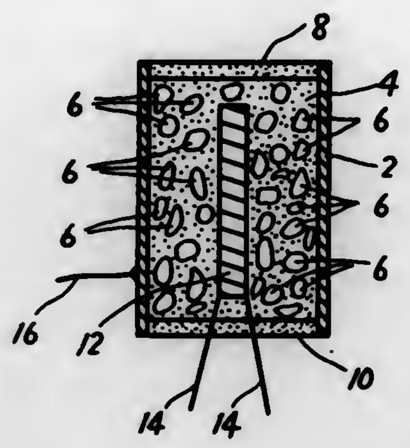
Naoyoshi Taguchi, 6-3-2 chome, Hyuga Tauai-ku, Kobe, Japan

Division of Ser. No. 74,749, Sept. 23, 1970, Pat. No. 3,732,519. This application Apr. 24, 1972, Ser. No. 246,606

Int. Cl. B01j *17/00*

U.S. Cl. 29—570 **3 Claims**

A gas detecting device formed of a porous, highly permeable, metal oxide semiconductor formed by mixing semiconductor particles with inorganic materials which will render the semiconductor highly porous or by intermixing the semiconductor with materials which can be evaporated or otherwise removed by heating to a temperature below the sintering temperature of the semiconductor. The resultant semiconductor material is contained within a suitable housing that will permit gases to flow readily through the semiconductor and appropriate electrodes are affixed to the semiconductor to measure a change in resistance in the presence of reducing gases.



Heating means may be utilized to stabilize the resistance of the semiconductor material during operation and such heating means may comprise at least one of the electrodes.

3,835,530

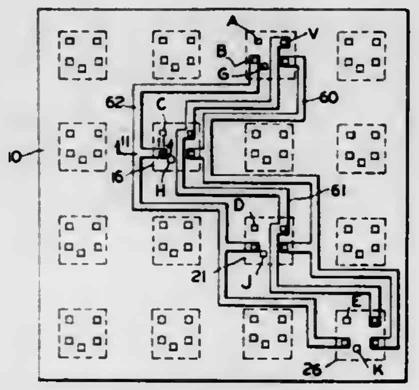
METHOD OF MAKING SEMICONDUCTOR DEVICES

Jack S. Kilby, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 645,539, June 5, 1967, Pat. No. 3,643,232, which is a continuation of Ser. No. 420,031, Dec. 21, 1964, abandoned. This application Sept. 22, 1971, Ser. No. 182,875

Int. Cl. B01j *17/00*

U.S. Cl. 29—574 **20 Claims**



A method of manufacturing semiconductor integrated circuits in complex arrays. A large number of electronic components are formed on a wafer and interconnected to define functional elements using a first metallization level. The functional elements are tested at this point, and selected ones are connected together by a second metallization level to provide the desired system.

3,835,531

METHODS OF FORMING CIRCUIT INTERCONNECTIONS

Willem Luttmer, Romiley, England, assignor to International Computers Limited, London, England

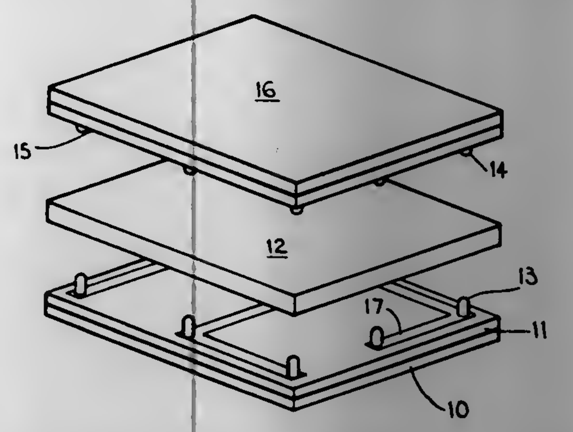
Filed June 8, 1972, Ser. No. 263,347

Claims priority, application Great Britain, June 10, 1971, 27362/71

Int. Cl. H05k *3/36*

U.S. Cl. 29—625 **6 Claims**

A method of forming circuit interconnections between adjacent circuits of a multilayer circuit structure is described in which corresponding sets of solder protrusions carried on conductive tracks of adjacent circuits are separated by a layer of uncured, heat-curable insulating material having a transient state, in which the material becomes deformable, between the uncured and the cured states. The layer is heated and the circuits are urged towards one another during the transient, deformable state of the material so that the protrusions pierce the layer, corresponding protrusions contacting one another and the heat subsequently causing the material to become cured. Finally, the contacting protrusions are fused together.



3,835,532

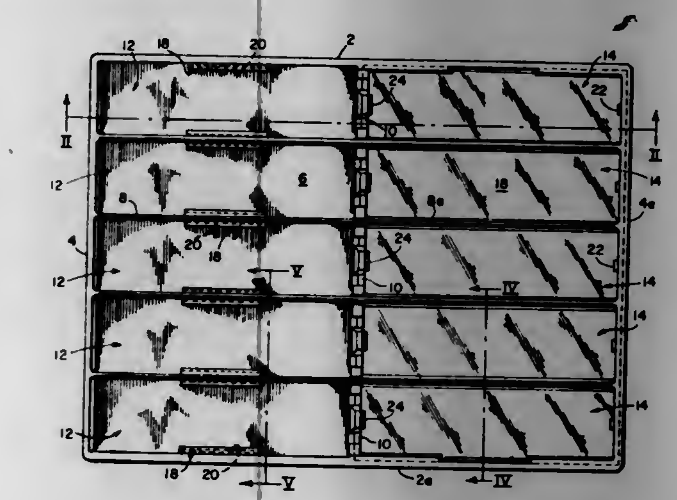
PACKAGE FOR RAZOR BLADE UNIT

Richard J. Petrillo, Norwell, Mass., assignor to The Gillette Company, Boston, Mass.

Continuation-in-part of Ser. No. 124,304, March 15, 1971, abandoned. This application Dec. 27, 1971, Ser. No. 212,352

Int. Cl. B26b *21/24;* **A45d** *27/24*

U.S. Cl. 30—40.2 **14 Claims**



This invention relates to a package for containing and dispensing razor blade units. The package further is adapted to receive a razor handle for use with the blade units in such manner as to facilitate connection of the handle to a blade unit. The package is further adapted to facilitate interchange of blade units on the handle, and finally, to act as a repository for used blade units.

3,835,533

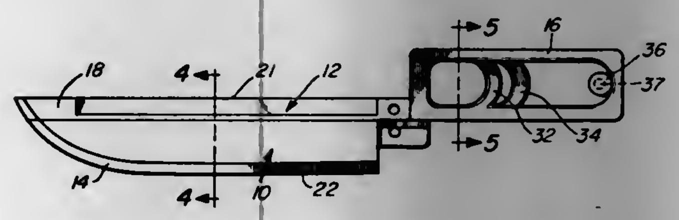
COMBINATION KNIFE & SHEAR

Peter R. Granson, 72 Ashford St., Allston, Mass. 02139

Filed Apr. 3, 1973, Ser. No. 347,368

Int. Cl. B26b *11/00*

U.S. Cl. 30—146 **11 Claims**



The implement basically comprises a pair of blade members that may be interlocked in a first position to form a knife, and that may alternatively be joined by a pivot pin to form a scissors or shear.

3,835,534

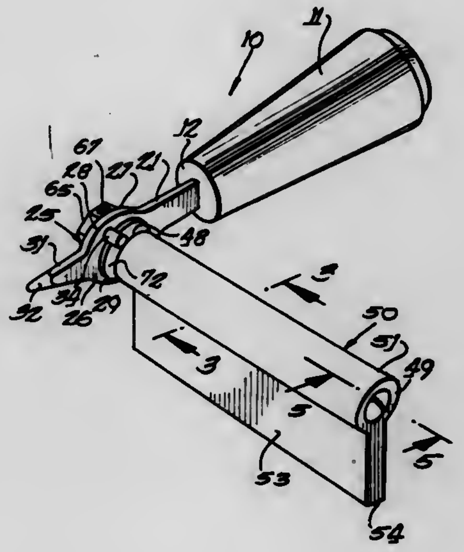
IVKO SCRAPER

Joseph J. Ivko, 1644 Magellan Dr., Sarasota, Fla. 33580

Filed Nov. 8, 1973, Ser. No. 413,872

Int. Cl. B26b *11/00;* **A47l** *13/08*

U.S. Cl. 30—169 **6 Claims**



A scraper including an elongated handle having a shank member projecting forwardly from one end thereof with a guide head formed integrally with the forward end of the shank member, the guide member of flat stock material defining flat transversely spaced front and back surfaces with curved top and bottom edges, the forwardly projecting end portion of the guide head having a tapered forwardly extending pointed member formed integrally therewith, an opening disposed centrally of the guide head and extending transversely therethrough, a pair of diametrically spaced apart pin stop members each spaced on an opposite side of the guide head opening and projecting outwardly from the front surface of the guide head, a scraping blade member adapted for detachable mounting to the guide head by use of the opening and adapted for rotation about its axis within the limits prescribed by the stop members, and a bolt adapted for securing the blade member pivotally to the guide head to permit pivotal movement of the blade thereabout when operating the scraper in a back and forth manner to clean the edges of concrete forms.

3,835,535

POLE PRUNER WITH IMPROVED CUTTING HEAD

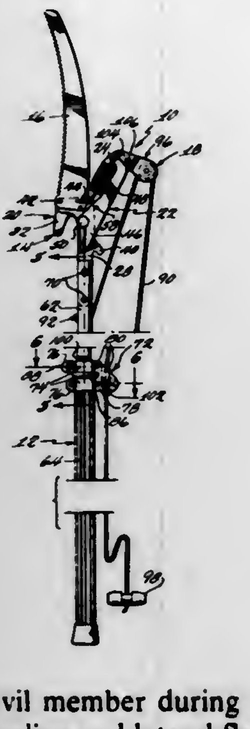
James W. Robison, Belpre, Ohio, and Harold O. Eads, Parkersburg, W. Va., assignors to McDonough Co., Parkersburg, W. Va.

Filed Aug. 20, 1973, Ser. No. 389,548

Int. Cl. B26b *13/06, 13/22*

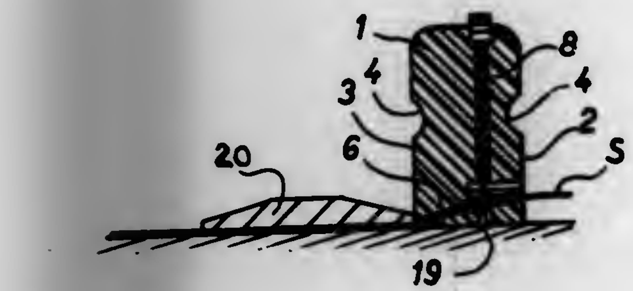
U.S. Cl. 30—249 **15 Claims**

A pole pruner having a cutting head of the single anvil type in which the cutting blade is formed of a relatively thin blade structure having an essentially single bevel construction with a non-symmetrical straight cutting edge, the cutting blade being arranged with respect to the fixed anvil member shape and location so that the free end of the cutting blade is slidably supported by the fixed anvil member during the portion of the cutting stroke where binding and lateral flexure is most likely to occur.



3,835,536
SHEET MATERIAL CUTTER

Emery Marcoux, 445a Fleury St., E., Michel, Montreal, Quebec, Canada
Filed Jan. 31, 1973, Ser. No. 328,342
Int. Cl. B26b *29/00*
U.S. Cl. 30—294 9 Claims

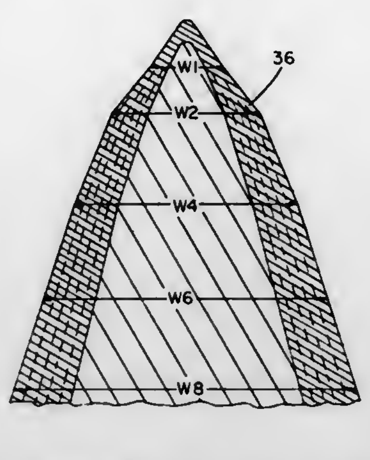


A cutter for sheets of paper or other material adapted to cooperate with a ruler of any usual type to produce straight lines cuts and including a slot for the passage of the sheet of material therethrough, the sheet passage slot is arranged to allow unhampered travel of sheet material of different thicknesses therethrough and to oppose the formation of folds into the material. The sheet passage slot enters into the body of the cutter through the bottom face and a side face thereof adjacent a straight edge of the same, such as to prevent hinderance of the sheet material between the guide or ruler and the straight edge of the cutter and also between the cutter and the support surface. In a preferred embodiment, the cutter is arranged to cut by displacement in either of two opposite longitudinal directions and to be guided by engagement of either of the two opposite sides with a ruler.

3,835,537
IMPROVED CUTTING TOOL

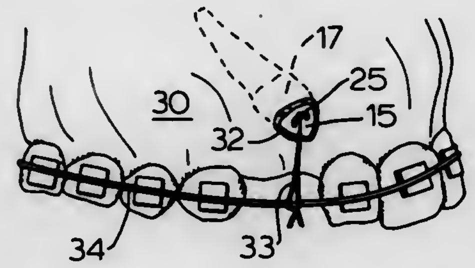
Aiyaswami S. Sastri, Stow, Mass., assignor to The Gillette Company, Boston, Mass.
Division of Ser. No. 161,158, July 9, 1971, Pat. No. 3,761,372.
This application Mar. 19, 1973, Ser. No. 342,755
Int. Cl. B26b *21/54*
U.S. Cl. 30—346.53 4 Claims

The sharpened edge of a cutting implement such as a razor blade is modified by subjecting the cutting edge to ion bombardment and strengthening material deposition steps so that a portion of the deposited strengthening material is removed, the cutting edge of the implement having a resulting tip radius of less than about 400 Angstroms and added strengthening material on the flanks so that at a distance of 6,000 Angstroms from the tip the added material has a total thickness of at least about 400 Angstroms.



3,835,538
ORTHODONTIC ONLAY AND METHOD FOR EXERTING CORRECTIVE TRACTION ON AN IMPACTED TOOTH

Michael E. Northcutt, 12720 Dianne Dr., Los Altos Hills, Calif. 94021
Filed May 8, 1972, Ser. No. 250,959
Int. Cl. A61c *3/10*
U.S. Cl. 32—14 E 17 Claims

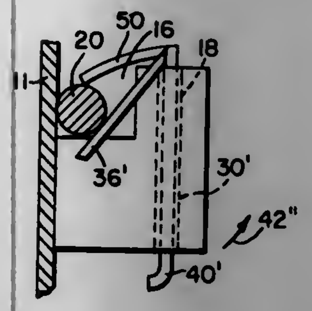


An orthodontic onlay which is cemented directly to an impacted tooth to aid in exerting corrective traction thereon. A curved base surface has a curvature substantially the same as an incisal portion of the tooth involved. The onlay has a series of openings or recesses leading from that surface toward the opposite surface for receiving and holding cement, thereby increasing the bond between the tooth and the onlay when the cement is applied. Bonding strength is increased further by plasma processing the surface, especially when the onlay is made from plastic. On its opposite surface the onlay has means for attaching a ligature.

3,835,539
ORTHODONTIC APPLIANCE

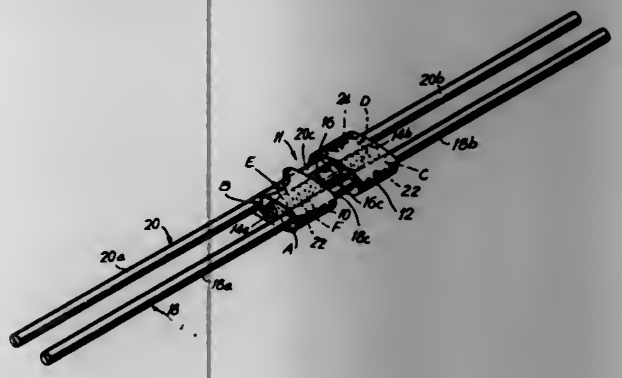
Melvin Wallshein, 8645 Bay Pky., Brooklyn, N.Y. 11230
Filed Nov. 8, 1972, Ser. No. 304,741
Int. Cl. A61c *7/00*
U.S. Cl. 32—14 A 15 Claims

A spring clip for use in association with both an arch wire and an orthodontic bracket includes a pin which is insertable through an upright retaining channel of the bracket. The length of the pin is longer than the channel and the pin is releasably secured to the bracket by a flexible free end portion which is deformable subsequent to insertion of the pin into the retaining channel. When used with an edgewise bracket having a wire containing channel in its front face, a spring clip retaining finger may be connected to an exposed free end portion of the pin which is biased to abut against the front surface of the bracket to thereby retain the arch wire within the wire retaining channel of the bracket. Alternately, or additionally, a biassing finger may be provided which is integral with the pin at an exposed free end portion thereof and which is arranged in pressure transmitting relationship with the wire when the biassing finger is flexed from a normally unstressed position on the opposite side to a stressed position on the same side of the wire as the pin.



3,835,540
ORTHOPEDIC APPLIANCE

William Biederman, Rockville Centre, N.Y., assignor to Orthodontic International Services, Inc., Wilmington, Del.
Filed Dec. 27, 1972, Ser. No. 318,877
Int. Cl. A61c *7/00*
U.S. Cl. 32—14 E 10 Claims

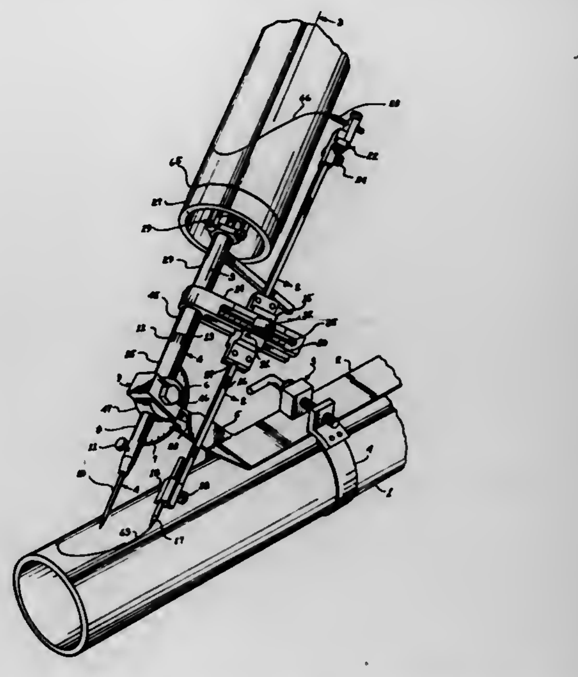


An orthopedic appliance is provided to open a midpalatal suture quickly and substantially. The appliance includes a metal construction which may be positioned in the patient's mouth so as to avoid irritation. The construction features a pair of main body sections, each including an oppositely threaded screw bore into which is threadably inserted an adjustment screw having two ends threaded in opposite directions, so that turning of the screw either brings the sections closer together or further apart depending upon the direction of turning. A pair of sectional rods straddle the adjustment screw and each rod is slidably inserted through rod bores running parallel to the threaded screw bore. The sectional construction of the rods enables their action as both slide members as the main body sections are separated and as attachment rods for mounting the appliance on the teeth of the upper jaw.

3,835,541
ELLIPSOID MARKER AND TEMPLATE TRACER

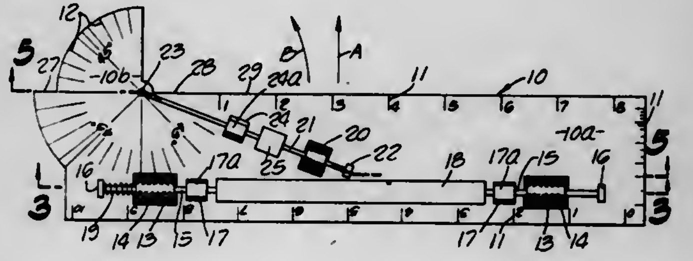
Loraine T. Whitworth, 5024 Sunkist Pl., Tucson, Ariz. 85706
Filed May 21, 1973, Ser. No. 362,109
Int. Cl. B23k *37/00*; B43l *11/00*; B23k *33/00*
U.S. Cl. 33—21 C 9 Claims

A device for determining the apertures to be cut when mating two pipes is disclosed. The device is attached to a first one of the pipes and a pointer is angularly and positionally aligned with the center of the desired pipe junction. A first marking element is rotated about the pointer at a radius corresponding to the internal radius of a second one of the pipes to mark the aperture to be formed in the first pipe. The second pipe or a replica thereof is secured by a clamp, and aligned with the pointer. A second marking element is rotated about the second pipe to mark the end cut of the second pipe. If it is not feasible to mount the second pipe, the replica, wrapped with a sheet of paper, is mounted in its place. The sheet, after being scribed by the second marking element, is used as a template to define the end cut of the second pipe. The device also includes provisions for accommodating various junction angles and pipe sizes.



3,835,542
DRAFTING INSTRUMENT

Leslie L. DeMathe, 2020 W. Alameda Ave., Anaheim, Calif. 92801
Filed Aug. 17, 1972, Ser. No. 281,315
Int. Cl. B43l *13/02*
U.S. Cl. 33—109 25 Claims

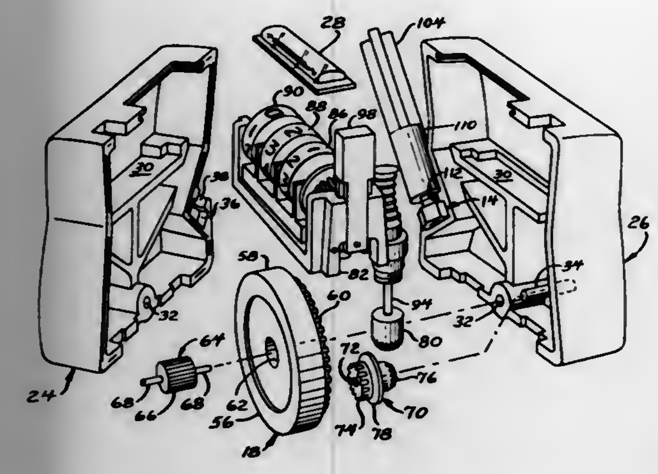


This invention provides a mobile integral drafting instrument comprising a straight edge having a first clutch mechanism to provide vertical movement thereof on a drawing media and a second clutch mechanism to provide a circular movement thereof for drawing free and predetermined angles, straight lines and curved lines without the aid of additional instruments.

3,835,543
MEASURING INSTRUMENT

Nicholas G. Polydoris, Kenilworth, and Burnell J. Wollar, Barrington, both of Ill., assignors to ENM Company, Chicago, Ill.
Continuation-in-part of Ser. No. 196,358, Nov. 8, 1971, Pat. No. 3,791,038. This application Nov. 30, 1973, Ser. No. 420,525
Int. Cl. G01b *3/12*
U.S. Cl. 33—141 E 4 Claims

A measuring instrument for measuring linear distance on a surface by rolling a wheel on the surface along the linear distance to be measured. The wheel is mounted in a housing. The wheel is drivingly connected to a counter, which indicates the distance which the wheel has rolled. The counter is calibrated to indicate linear measurement in a selected system of measurement. A fastener is mounted in the housing. A collapsible handle is releasably connected to the fastener for manipulating the measuring instrument. The handle may be selectively removed from the instrument for convenient storage and handling.



3,835,544
IMPACT-PROTECTED GEAR UNIT FOR MEASURING TOOLS

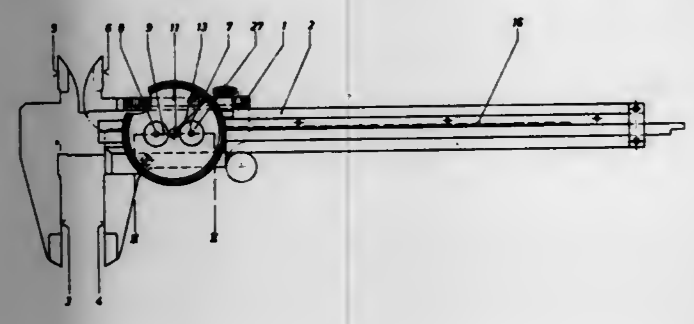
Wilhelm Schneider, Niedernhall, Germany, assignor to Schneider & Kern, Niedernhall, Germany

Continuation-in-part of Ser. No. 222,483, Feb. 1, 1972, abandoned. This application Nov. 17, 1972, Ser. No. 307,562

Claims priority, application Germany, Feb. 18, 1972, 2207601

Int. Cl. G01b *5/00*

U.S. Cl. 33—147 J **14 Claims**



A slide of a measuring tool is movable along a rack and carries at least one pinion meshing with the rack. At least one transmitting disk which is rotatable on the pinion shaft and connected by gears to the indicator shaft is further connected to the pinion by a special spring so that, when the movement of the slide is suddenly stopped, the inertia of the transmitting disk continues to turn the latter and thus also the indicator shaft for a certain distance against the action of the spring which will subsequently draw the transmitting disk and the indicator shaft back to the position which corresponds to the exact measurement made by the slide.

3,835,545
DEVICE FOR PRE-LOCATING THE THUMB AND FINGER HOLE PLACEMENTS IN A BOWLING BALL

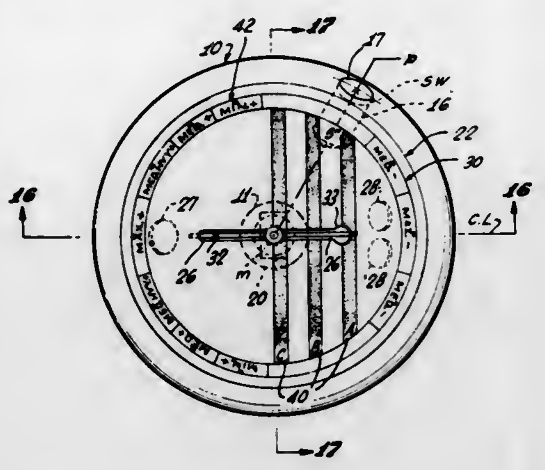
Wilson G. Taylor, Box 1421, Lake Arrowhead, Calif. 91803

Filed Apr. 19, 1973, Ser. No. 352,539

Int. Cl. G01b *3/14*

U.S. Cl. 33—174 F **5 Claims**

A device for pre-locating the finger and thumb hole placement in a bowling ball in relation to a sideward located unbalancing weight, placed in a novel predetermined position, to give a bowler a preselected ball performance irrespective of the bowler's method of delivery of the ball.



3,835,546
MEASURING DEVICE FOR CHECKING AND/OR CORRECTING THE TRANSVERSE SLOPE OF RAILWAY TRACKS

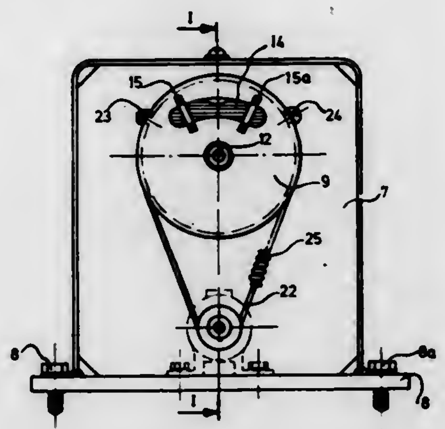
Andre Gustave Jaquet, Crissier, Switzerland, assignor to Canron, Inc., Phillipsburg, N.J.

Filed Nov. 6, 1972, Ser. No. 303,817

Claims priority, application Switzerland, Nov. 12, 1971, 16468/71

Int. Cl. B61k *9/08*

U.S. Cl. 33—338 **4 Claims**



An improved measuring device for checking and/or correcting the local transverse slope of railway tracks is disclosed. The device includes a rigid chassis having sensors positioned to rest on two lines of rails in a transverse vertical plane to the track supports, and a clinometer of the electrolytic spirit level type able to supply an electrical signal proportional to its slope in said plane. The clinometer is mounted to rotate about an axis perpendicular to the plane and is continually returned to the horizontal position by a motor which is supplied with an electrical signal from said clinometer. The motor acts simultaneously on the drive of a movable member of a transducer to supply an electrical signal proportional to the degree of rotation of the clinometer relative to the rigid chassis. This degree of rotation corresponds to the local transverse slope of the track to be measured.

3,835,547
TORSION BAR GAUGE

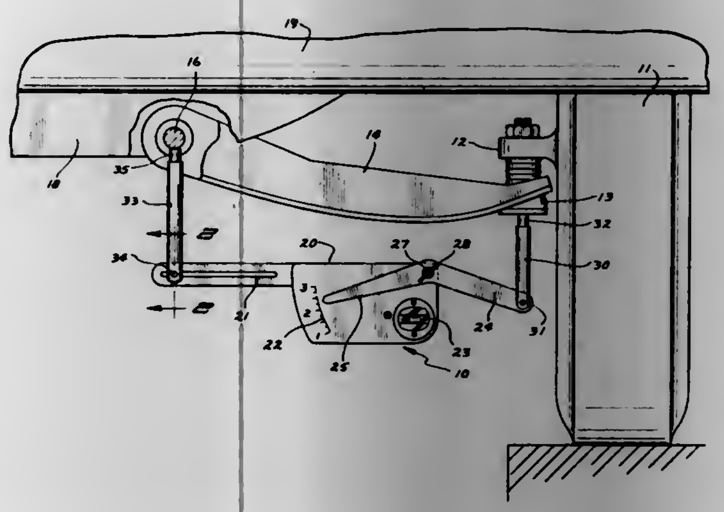
Sigurd A. Rishovd, Minneapolis, Minn., assignor to Royal Industries, Inc., Osseo, Minn.

Filed Feb. 20, 1973, Ser. No. 333,635

Int. Cl. G01c *9/28*

U.S. Cl. 33—347 **2 Claims**

A gauge for adjusting the suspension of automobiles using torsion bar suspension systems having a frame including indicia and a gravity sensing means in the form of a bubble level and which further includes a lever arm pivotally disposed having one end forming a pointer in combination with the indicia and a pair of magnetic support members, one pivotally disposed in an elongated slot in one end of the frame and the other pivotally disposed on the other end of the lever arm.



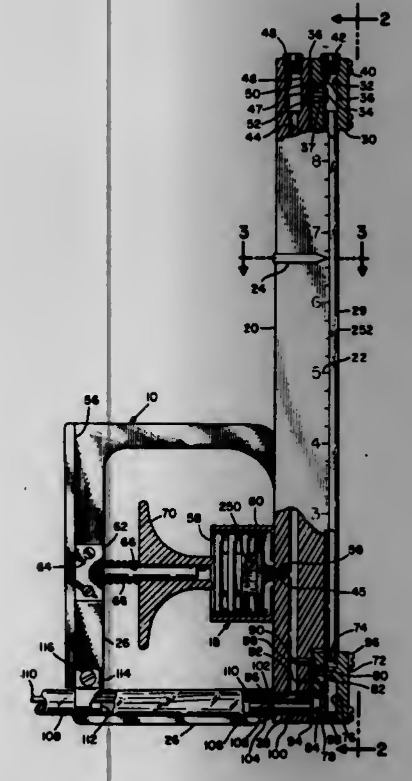
3,835,548
HYDROSTATIC LEVELING APPARATUS WITH CONTROL OPERATOR

Walter S. Gearhart, 448 Orlando Ave., State College, Pa. 16801

Filed Mar. 19, 1973, Ser. No. 342,515

Int. Cl. G01c *9/22*

U.S. Cl. 33—367 **58 Claims**



A liquid apparatus for determining level points including a reservoir assembly, a sight tube assembly, and a connecting liquid conduit is improved in order to prevent (1) the spillage or overflow of the liquid and (2) the passage of air bubbles into the conduit. Atmospheric vent valve assemblies are positioned above the liquid in the reservoir assembly and the sight tube assembly. Liquid valve assemblies are positioned adjacent the connections to the conduit on the reservoir assembly and the sight tube assembly. All four of these valve assemblies are controlled by a single remote control operator positioned on the sight tube assembly. Simplified alternative embodiments omit one or both of the valve assemblies on the reservoir assembly.

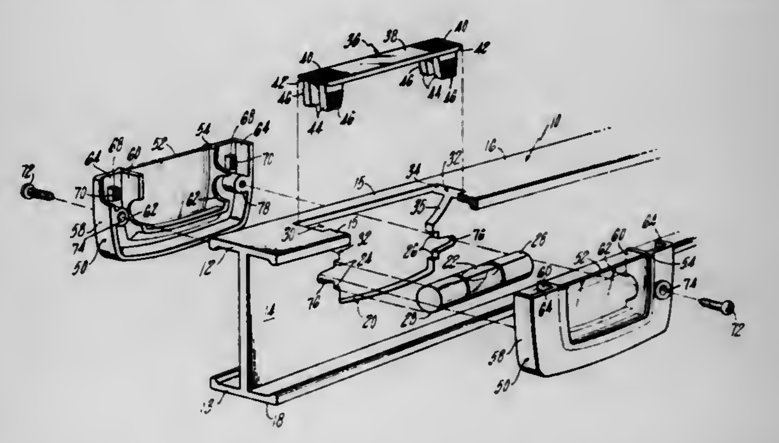
3,835,549
LEVEL VIAL STATION ASSEMBLY

Maarten C. De Jong, Canton, and Antoni P. Gutowski, New Britain, both of Conn., assignors to The Stanley Works, New Britain, Conn.

Filed Sept. 13, 1973, Ser. No. 397,083

Int. Cl. G01c *9/28*

U.S. Cl. 33—379 **4 Claims**



A level having a working surface provided with a machined opening so that a level vial mounted with its axis coincident with the central plane of the web of the level frame is visible through the opening from directly above the level. A window having downwardly depending bifurcated legs which straddle the web closes the opening and is secured in place by engagement with a pair of vial retaining caps which are fixed on the sides of the web. The outermost surfaces of the legs of the window are serrated to interlock with mating serrations of the inner walls of the vial retaining caps to accommodate dimensional variations of the machined opening and the window.

3,835,550
FREEZE-DRYING PROCESS FOR PRODUCING A DRY PLANT

Kazuko Kaneko, 5-3-7 Komazawa, Tokyo, Japan

Filed Aug. 21, 1973, Ser. No. 390,181

Claims priority, application Japan, Aug. 21, 1972, 47-83422

Int. Cl. F26b *5/06*

U.S. Cl. 34—5 **7 Claims**

A process for producing dried plants without changing their original shape which comprises substituting the water content of the plant with an organic solvent having a freeze point of −5 to 35° C and a vapor pressure of more than 4.58 mmHg at its freeze point, freezing and drying the plant.

3,835,551
HAIR DRYING HOOD

Keimpe Klaas Keimpema; Marcus Fokke Van Der Veen; Andreas Fredericus Rietveld, and Jan Andreas Schoo, all of Drachten, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

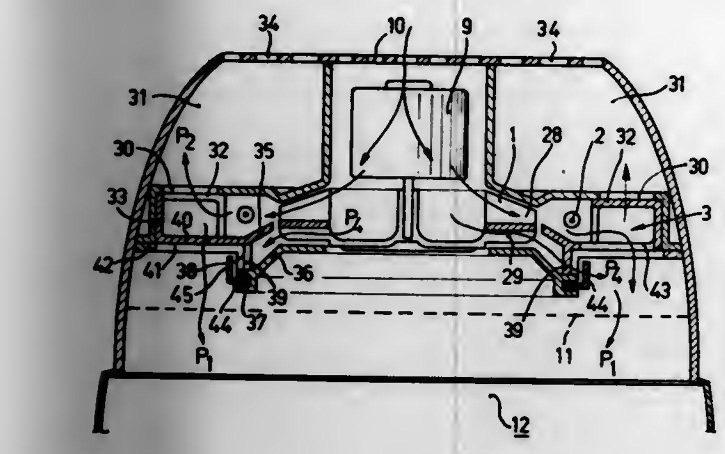
Filed July 25, 1973, Ser. No. 382,588

Claims priority, application Netherlands, Aug. 24, 1972, 7211529

Int. Cl. A45d *20/24*

U.S. Cl. 34—100 **10 Claims**

In a hair drying hood comprising a blower driven by an electric motor and a heating element, the drying conditions inside the hood can be varied by means of a bleeding device. This bleeding device permits part of the heated air to be blown directly out of the hood or to be recirculated through the blower and past the heating element. It is also possible to use the bleeding device in combination with a stream of cold air produced by the blower.



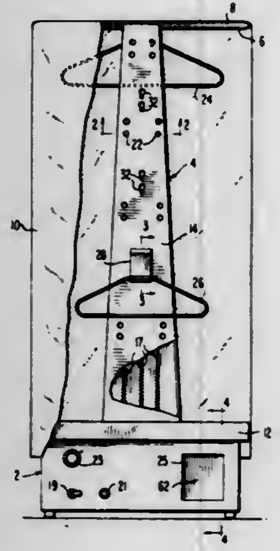
3,835,552
GARMENT HEATING APPARATUS

John G. Lord, Swarthmore, Pa., assignor to Cotton Incorporated, New York, N.Y.

Filed June 15, 1972, Ser. No. 263,061

Int. Cl. F26b *13/00*

U.S. Cl. 34—151 **6 Claims**



Garment hangers are supported by an upstanding rigid conduit which is provided with hot air discharge openings. The hanger and conduit are located within an enclosure formed in part by a flexible curtain which is supported by the conduit and has a lower portion conforming to the peripheral wall of a conduit-supporting base. A blower within the base forces air from within the conduit past heating elements and then through the hot air discharge openings into the interior of the enclosure. The heated air then either is released to the atmosphere or follows a closed path within the enclosure, returning to the inlet of the blower.

3,835,553
APPARATUS FOR TEACHING

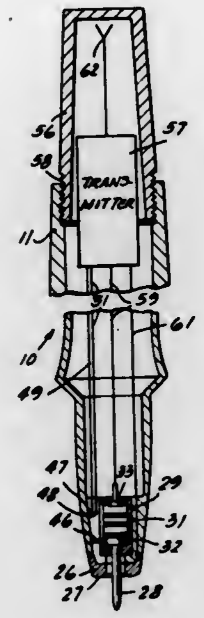
Joseph Mason Kirton, and J. Wanless Southwick, both of Bountiful, Utah, assignors to Research Enterprises, Inc., Woods Cross, Utah

Filed Jan. 12, 1973, Ser. No. 322,928

Int. Cl. G09b *7/00*

U.S. Cl. 35—9 C **2 Claims**

A teaching device having a pair of electrodes at its tip normally insulated from each other but which when placed against conductive material completes a circuit to actuate an indicator. The indicator might be in the form of a light or a counter, mounted either in the device, or remotely coupled to the device by a suitable radio transmitting means, or wiring. In certain embodiments, second means are provided for indicating when the device has been actuated by the student such that the number of actuations may be compared with the number of times that a conductive area was encountered so as to allow grading of test results to be accomplished.



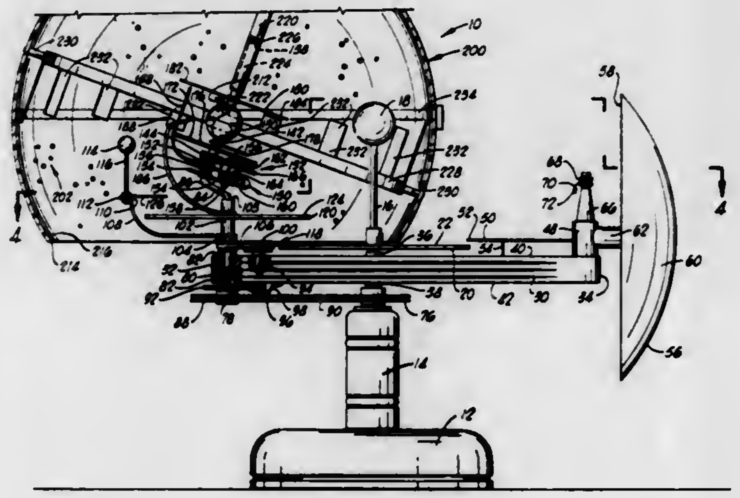
3,835,554
MINI-SCALE SPACE MECHANICS SIMULATOR

John B. Mast, Rt. 2, Box 41, Weatherford, Okla. 73096

Filed May 9, 1973, Ser. No. 358,703

Int. Cl. G09b *27/02*

U.S. Cl. 35—45 **14 Claims**



An improved space mechanics simulator having a sun model, an earth model and a moon model mounted to demonstrate the movement of each relative to the other and the relationship between the rotational speeds of each, the space simulator also including a scaled sun simulator and scaled planet models for demonstrating the relative sizes of the planet models with respect to the sun simulator and the distances therebetween. The space simulator also includes a calendar indicating plate, a moon phase indicator plate, a time chart, zodiac indicator plates, and a celestial sphere demonstrating the month, day, season, hour, the relative positions of the signs of the zodiac, phase of the moon, and the position of the various stars in rotated positions of the earth model and the moon model about the sun model.

3,835,555
LIGHTWEIGHT SHOE, IN PARTICULAR INDOOR OR LEISURE WEAR SHOE

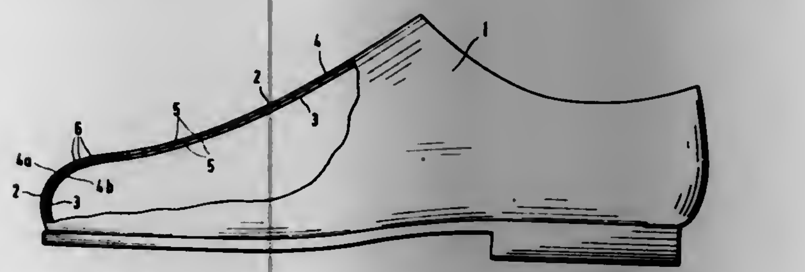
Dr. Josef Hefele, Riesheimer, Germany, assignor to Kufner Textilwerke KG

Filed Feb. 28, 1973, Ser. No. 336,475

Claims priority, application Germany, Mar. 1, 1972, 7207835

Int. Cl. A43b *1/02*

U.S. Cl. 36—9 R **8 Claims**



A shoe whereof the upper has a double layer of woven and/or textured fabrics which for mutual connection are glued to an intermediate layer, wherein the said intermediate layer consists of at least one sheet of textile fabric which is joined by a coating of hot-setting adhesive discontinuously applied on both of its sides, to the double layer.

3,835,556
BASE FOR FOOTWEAR CONTRIBUTING TO COMFORTABLE AND GRACEFUL WALKING

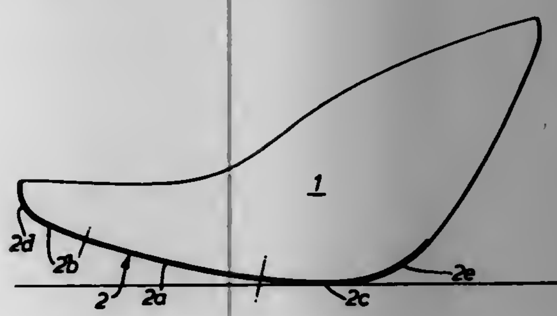
Alexander Michael Panaretos, 1 Bizaniou St., Attica, Greece

Filed Mar. 16, 1973, Ser. No. 341,940

Claims priority, application Greece, Apr. 26, 1972, 48137

Int. Cl. A43b *13/08*

U.S. Cl. 36—33 **2 Claims**



A base for articles of footwear and articles of footwear comprising such a base. Such base comprises a rigid platform of which the ground-contacting surface extends in a continuous convex curve from the front (toe) end to the rear (heel) end. Said convex curve includes a middle portion for location beneath the foot-arch of the wearer which has a radius of curvature greater than the portions of said convex curve lying either side of said middle portion.

3,835,557
HEEL INSERT FOR HIGH-HEEL SHOE

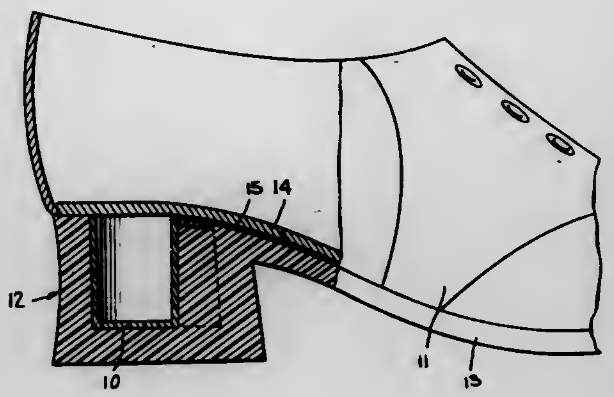
Morris Sussman, Freeport, N.Y., assignor to Shore Plastics, Inc., Freeport, N.Y.

Filed Sept. 4, 1973, Ser. No. 393,836

Int. Cl. A43b *21/00*

U.S. Cl. 36—34 A **5 Claims**

A heel insert adapted to cooperate with a stiffener shank and serving to reduce the amount of plastic material necessary to mold the heel of a high-heel shoe. The insert is preferably formed of polystyrene and is defined by a hollow, heel-shaped body having an open top which is adhered to an inner sole, the front wall of the body having a niche therein which when the heel is molded about the insert, is filled with plastic material to lock the insert within the heel. A recessed seat is formed at the upper end of the niche to receive the end of a stiffener shank which extends along the undersurface of the inner sole.



3,835,558
INSOLE

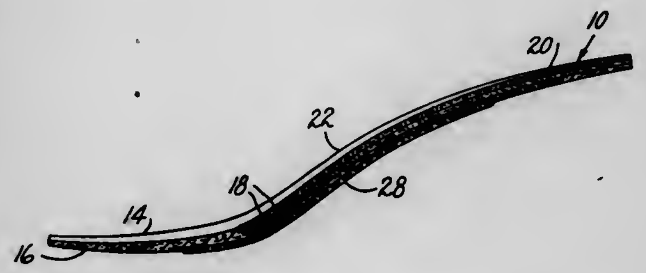
Howard B. Revill, Oadby, England, assignor to USM Corporation, Boston, Mass.

Filed Mar. 20, 1973, Ser. No. 342,999

Claims priority, application Great Britain, Mar. 25, 1972, 14107/72

Int. Cl. A43b *13/38*

U.S. Cl. 36—44 **6 Claims**



Insole of non-woven bonded fiber sheet material including a shank portion of greater stiffness and density than the forward portion in which a through layer of non-woven fiber sheet including a heat-softenable binder is associated with one or more layers of non-woven fiber sheet including binder in the heel and shank or waist portion of the insole and the layers in the heel and shank or waist portion are consolidated by heat and pressure to a unitary board-like state in the heel and shank region. The insole including the heel and shank region may be given a contour approximating the contour of a bottom of a foot in a pressing operation and may also incorporate a layer of stiff plastic sheet material.

3,835,559
MACHINE FOR IRONING TROUSERS

Gustav Kotter, 452 Melle, Meller Berg 44, Germany

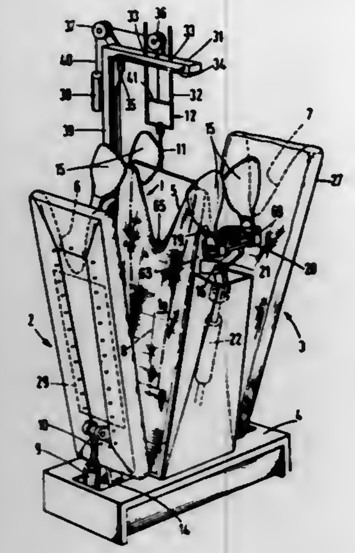
Filed Feb. 27, 1973, Ser. No. 336,330

Claims priority, application Germany, Mar. 27, 1972, 2214970

Int. Cl. D06f *71/00*

U.S. Cl. 38—21 **16 Claims**

The machine comprises an ironing plate, which is adapted to be pressed against a stationary support, or two ironing plates, which are adapted to be pressed against a stationary, intermediate body having a intermediate recess, with the legs of the trousers being interposed between the ironing plates and said body. The ironing plates and the support body are



provided with divided pressure plates, which extend substantially parallel to the creases and are disposed on both sides of the trouser seam.

3,835,560

INDEXING POINTER FOR LIST FINDERS

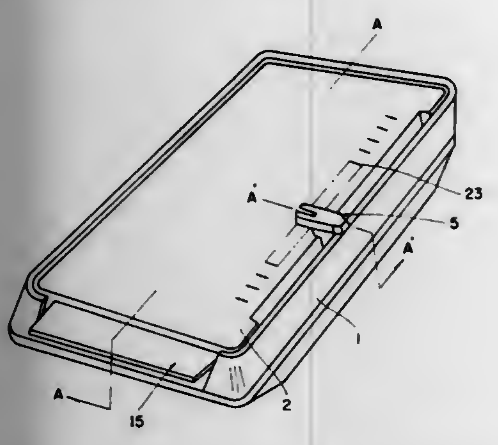
Chuzo Mori, Tokyo, Japan, assignor to Carl Manufacturing Company, Tokyo, Japan

Continuation-in-part of Ser. No. 216,645, Jan. 10, 1972, abandoned. This application Mar. 8, 1973, Ser. No. 339,190

Claims priority, application Japan, Feb. 18, 1971, 46-9190

Int. Cl. G09f ***11/00***

U.S. Cl. 40—104.01 **22 Claims**



A list finder comprises a holder having a plurality of stacked information cards mounted therein and a releasable one-piece, plastic cover pivotally mounted thereon. A U-shaped indexing pointer, composed of a flexible plastic material, is slidably mounted along an edge of the cover to selectively expose a chosen card upon release of the cover. The pointer is detachably mounted on the cover and combined guide and locating means are formed on the cover and on the pointer to facilitate such sliding and detachment desiderata. In addition, the holder preferably has a rectangular receptacle formed therein to accommodate a stack of memo sheets, beneath the information cards.

3,835,561

ANIMATING DEVICE

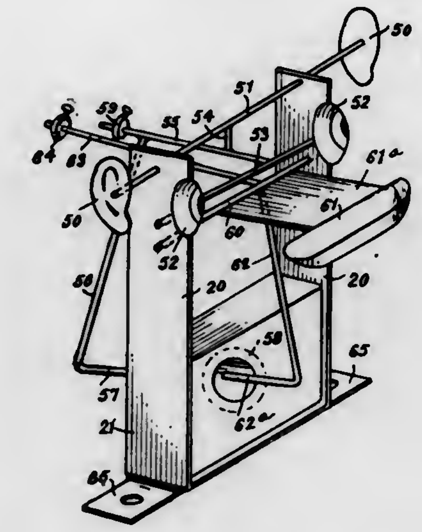
Ernest Camerino, Ft. Lauderdale, Fla., assignor to Lucian Ernest Camerino, Plantation, Fla.

Filed Apr. 10, 1973, Ser. No. 349,828

Int. Cl. G09f ***19/08***

U.S. Cl. 40—106.32 **6 Claims**

An animating device for imparting movement to parts of a doll, puppet, human or animal figure or an animated figure forming portion of a sign or display, or any other object wherein certain motion is desired. The invention contemplates the employment of one or more solenoids that are energized by a source of power such as by dry batteries which can be concealed within the body of the figure, or by other electrical means. The parts to be animated, such as the eyes, ears, lips etc. are carried by pivotal or other movably mounted pull rods such rods having integral or attached parts which constitute armatures or cores of the solenoid or solenoids so that when the solenoids are energized the parts will be moved in one direction. Retractive means, such as balance weights are provided to move the parts in a direction opposite to that in which they were moved by the energization of the solenoid or solenoids.



3,835,562

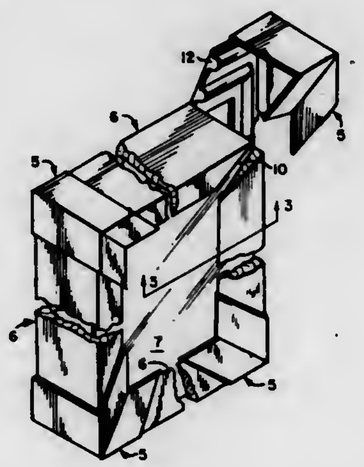
ADJUSTABLE STRUCTURES THAT FRAME OR SUPPORT PICTURES OR PANELS OF VARIOUS DIMENSIONS

Alan Thistlethwaite, 6708 Chew Ave., Philadelphia, Pa. 19119, and Arthur Weissman, 3900 Ford Rd., Apt. 4-S, Philadelphia, Pa. 19131

Filed Sept. 7, 1972, Ser. No. 287,058

Int. Cl. G09f ***1/12***

U.S. Cl. 40—155 **1 Claim**



These structures have been designed for the purpose of easily framing or supporting pictures or panels, such as paintings, posters, prints, canvas, cardboard, photos, signs, etc.

The primary goal in the design has been to embody several desirable features and advantages in a single frame, thereby producing the "optimum" design. One of these features and advantages is the ability to frame panels which vary in all three dimensions-length, width, and thickness. This eliminates the need for the retailers to maintain a large inventory of section sizes, and eliminates the need for the customer to measure the exact dimensions of his panel. Other characteristics include the relative ease of assembly, low cost and attractive appearance.

This is accomplished by providing 4 sides whose lengths may be adjusted by breaking, sawing, cutting, or otherwise severing, and by providing 4 corners which cover up any mismatch or ragged edges where the sides meet caused by the severing process. The corner pieces are also designed to provide structural integrity to the frame.

3,835,563

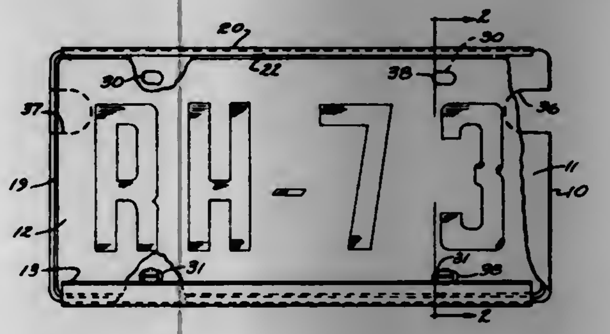
LICENSE PLATE RETAINER

Robert D. Hanstad, 1450 N. Springfield Ave., Chicago, Ill. 60651

Filed Oct. 2, 1972, Ser. No. 294,278

Int. Cl. G09f ***7/00***

U.S. Cl. 40—209 **2 Claims**



A display holder for a vehicle license-type plate having a rigid backing section and retainer flanges extending along opposite longitudinal edges of the backing section engageable with the upper and lower longitudinal edges of a plate with one of the flanges providing a slot into which a first edge of a plate is adapted to be inserted and the other flange permitting the second edge of the plate being inserted beneath the end thereof for holding the second edge, and the said other flange is provided with a camming surface which is adapted to be engaged by the second edge of the plate and resiliently moved upwardly to permit the second edge being inserted between the edge of the flange and the backing section while the first edge of the plate is held in the said slot.

3,835,564

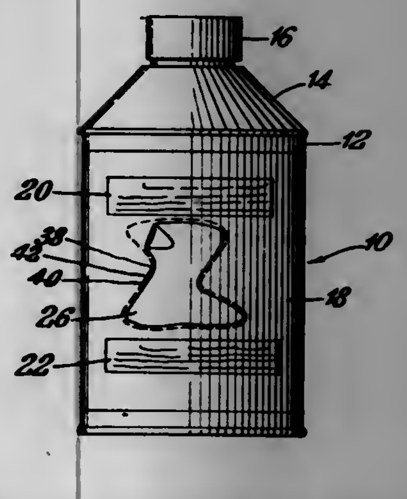
COMBINATION LABEL FOR PACKAGED PRODUCT AND PRINTED-ON REMOVABLE DECAL

Lawrence A. Gottschalk, Montrose, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 873,574, Nov. 3, 1969, Pat. No. 3,638,340. This application Oct. 29, 1971, Ser. No. 193,625The portion of the term of this patent subsequent to Feb. 1, 1989, has been disclaimed.

Int. Cl. G09f ***3/02***

U.S. Cl. 40—306 **1 Claim**



Disclosed is the novel combination of a packaged product and a label attached thereto and having a water-soluble decal printed thereon, the decal being outlined by a perforated tear line along which a part of the label bearing the decal can be torn free from the label.

3,835,565

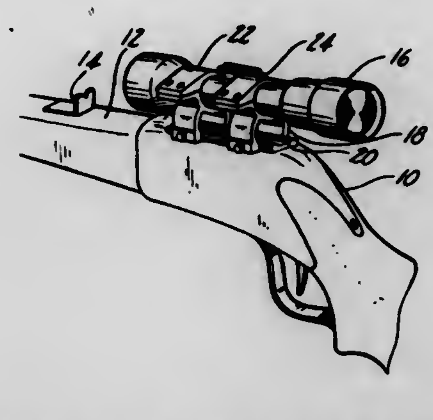
TELESCOPIC SIGHT MOUNTING

Gerald T. Weast, Hazel Park, Mich., assignor to Clear View Manufacturing Company

Filed Feb. 20, 1973, Ser. No. 333,898

Int. Cl. F41g ***1/38***

U.S. Cl. 42—1 S **3 Claims**



A mounting for supporting a telescopic sight on a base plate fastened to the receiver of a firearm having iron sights. The mounting has a pair of spaced walls with grooves mated with the side edges of the base plate, such that the user can view the iron sights along a line of sight passing between the spaced walls.

3,835,566

CYLINDER BREECH MECHANISM FOR SMALL ARMS

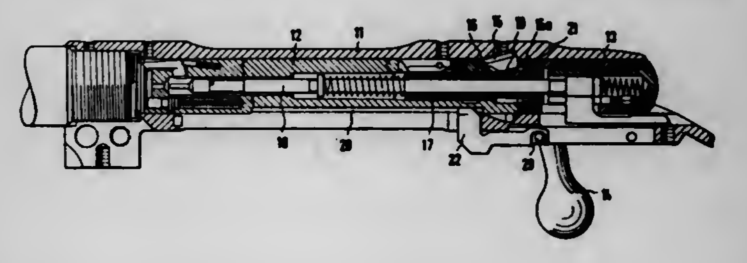
Heinz Bielfeldt, deceased, late of Eckernforde, Germany (Gerlinde Bielfeldt, heir); Christiane Diehl, Kiel, and Karsten Bielfeldt, Eckernforde, both of Germany (heirs), assignors to J. P. Sauer & Sohn GmbH, Eckernforde, Germany

Filed Apr. 26, 1973, Ser. No. 354,774

Claims priority, application Germany, June 7, 1972, 2227780

Int. Cl. F41c ***11/06;*** **F41d** ***3/00***

U.S. Cl. 42—16 **14 Claims**



A firearm includes a receiver, a barrel, a bolt slidable in the receiver, spreaders mounted in the bolt for being pivoted into a locking recess on the receiver and a locking element for shifting the spraders. The locking element includes rotatable spreader cams to extend the spreaders in response to rotation of the locking element in one direction, and includes unlocking cams operable to engage and shift the spreaders to a retracted position in response to rotation of the locking element in the opposite direction. A latch is provided to prevent the locking element from rotating relative to the bolt when the bolt is withdrawn from the receiver.

3,835,567

TROLL FISHING APPARATUS

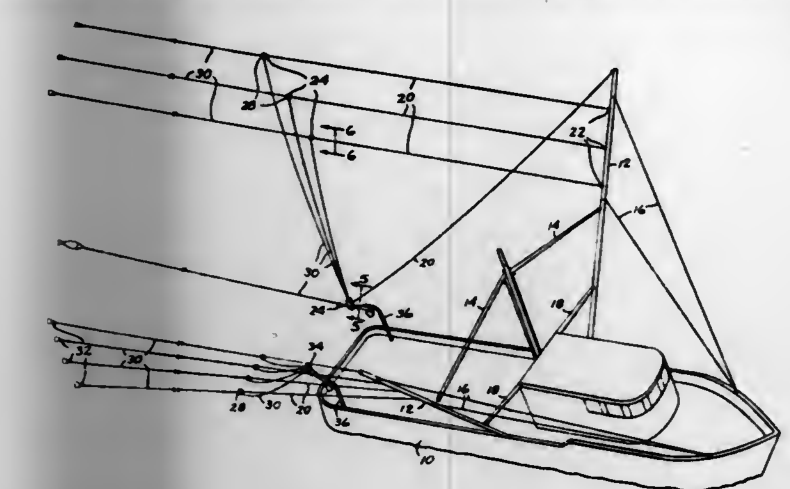
Wilbur E. Humbert, and Fred W. Humbert, both of 1914 N. Bay Dr., North Bend, Oreg.

Filed Sept. 10, 1973, Ser. No. 395,423

Int. Cl. A01k ***79/00***

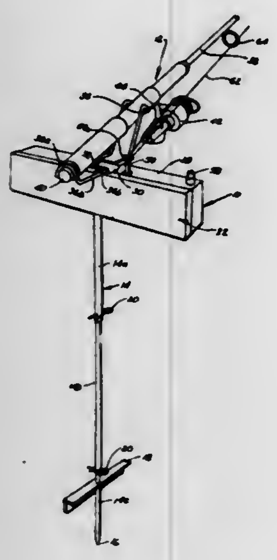
U.S. Cl. 43—6.5 **11 Claims**

Fishing apparatus for use with a trolled fishing lure having on one end a fish lure and on the other end a stop, comprising a trolled line support and receiving means positioned on the support for releasably retaining the stop in the trolling position of the line. A reel is mounted for rotation in a predetermined station relative to the support. Stop receiving means is present



on the reel for releasably retaining the stop in the retrieving position of the line. When a fish strikes, the trolled line is transferred from the support to the reel, and reeled in.

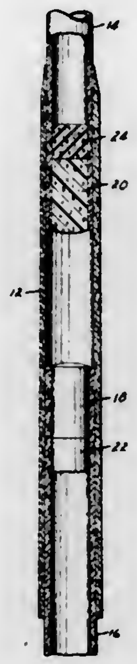
3,835,568
FISHING ROD AND REEL ASSEMBLY HOLDER
Willis C. Whitfield, 1201 W. Market St., Taylorville, Ill. 62568
Filed Aug. 29, 1973, Ser. No. 392,654
Int. Cl. A01k *97/12*
U.S. Cl. 43—17 **9 Claims**



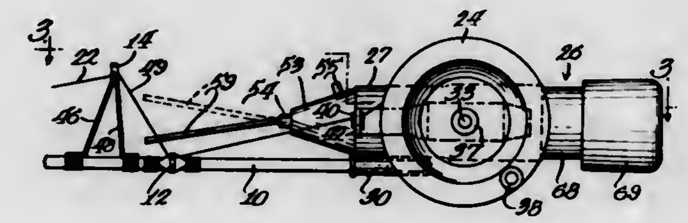
A fishing rod and reel assembly holder having means for signalling a stroke. The holder includes an upright support and an alarm box carried by the top of the upright support. Clamping means are carried by the top of the alarm box and a pair of opposed forward and reward U-shaped members, the legs of both of which are adjustably held by the clamping means, provide a rod and reel assembly support. Lever actuated switch means is mounted within the box with the lever thereof positioned through the top of the box so that the fishing line may pass from the reel around the lever and then through the eyelets on the rod and into the water. The slightest pull on the fishing line of a supported fishing rod and reel assembly by a striking fish triggers the lever, actuates the switch and initiates the alarm.

3,835,569
FIBER REINFORCED RESIN FISHING ROD
Jay W. Gould, III, Bloomington, Minn., and Phillip William Phillipson, Denver, Colo., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Nov. 9, 1973, Ser. No. 414,269
Int. Cl. A01k *87/02*
U.S. Cl. 43—18 GF **2 Claims**

A hollow two-piece fiberglass fishing rod having a tubular fiberglass ferrule in which resilient, shock absorbing, strongly fiberglass adherent adhesive plugs bond themselves to the interior of and fill the ends of the butt section that fits into the ferrule and the tip section adjacent the ferrule. The end of the butt section within the ferrule is protected against the severe stresses of casting and playing fish by the adhesive plug therein and the butt section and tip section are firmly held together aided by a partial vacuum created in the ferrule between the two adhesive plugs when there is any relative movement tending to pull the rod sections apart.



3,835,570
MOTORIZED FISHING DEVICE
Charles R. Philip, Box 116, Haugen, Wis. 54841
Filed Jan. 26, 1973, Ser. No. 326,967
Int. Cl. A01k *87/00*
U.S. Cl. 43—19.2 **14 Claims**

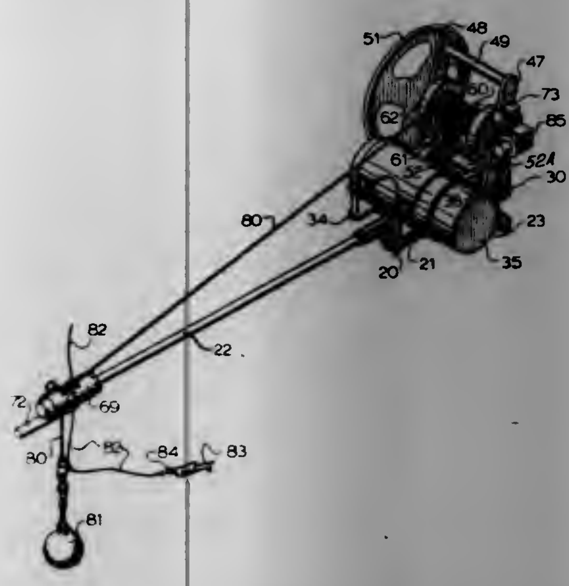


A motorized fishing device including a rod having line guides, a handle secured to the rod, a reel on the handle, a line secured to the reel and extending through the line guides on the rod, a drive motor mounted in the handle including a rotary drive shaft extending parallel to the rod, and an arm or finger having one end mounted coaxially with the shaft and an eccentric portion disposed to repeatedly strike an intermediate portion of the line on rotation of the drive shaft so that the free end of the line is rapidly jigged up and down.

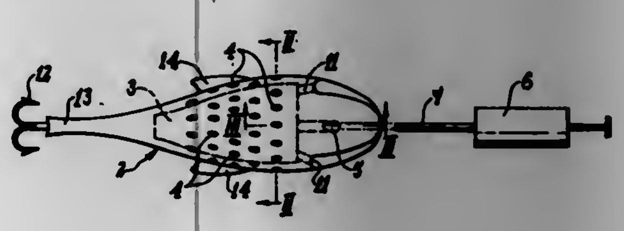
3,835,571
POWER FISHING REEL
Arthur E. Berry, 18645 Cambridge Dr., Lathrup Village, Mich. 48076
Filed Dec. 11, 1972, Ser. No. 313,864
Int. Cl. A01k *87/04, 89/02*; B65h *75/30*
U.S. Cl. 43—21 **8 Claims**

A power fishing reel having a reversible drive for raising and lowering metal line and a heavy sinker in deep-water trolling. A fishing line, bait, and hooks are releasably attached adjacent the sinker and are thus put down to the desired depth and separate from the sinker line upon a fish taking the bait. Drive is controlled by a switch so that when a fish is caught, the

fisherman throws the switch and the sinker line and sinker are pulled up by the power reel, preventing fouling of the lines by the action of the fish. The reel is provided with drive disengagement means to lower the sinker quickly by gravity, brakes to control the outrun to prevent back-lash, level-wind means, a displaceable sheave to insert the line radially, and a two position roller for leading the sinker line to the center of the sheave on either side of a boat with the roller absorbing angular changes at the sheave from pitching and rocking of the boat.



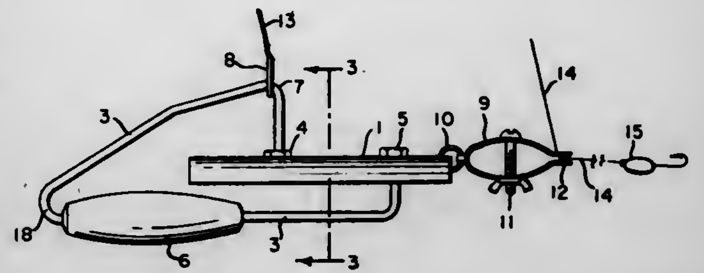
3,835,572
FISHING LURE
Reginald Mounsey, Hannon St., Sea Lake, Australia
Filed July 10, 1972, Ser. No. 269,938
Claims priority, application Australia, July 15, 1971, 5558/71; Sept. 28, 1971, 6454/71
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.06 **6 Claims**



A fishing lure formed of a body member having a chamber defined therein for receiving a dispersible bait, and at least one opening in a wall of the member to allow bait to escape from the chamber. The bait is pre-prepared and may be in any form, but is such that it will dissolve or be broken down by contact with water. The body member is arranged so that water can pass through the bait chamber so as to progressively dissolve or break down the body of bait contained therein, and carry that bait out of each escape opening. At least one barbed hook is attached to the body member. Check-valve means are mounted in the chamber to prevent inadvertent removal of the bait through the bait admitting aperture of the lure.

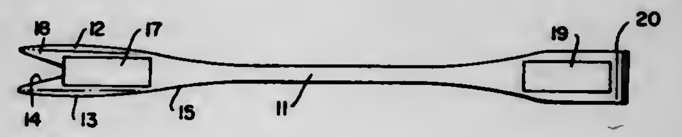
3,835,573
LINE RELEASE TROLLING PLANER
Hans J. Borchardt, 4664 Norwood, Wilmington, Del. 19803
Filed Jan. 31, 1973, Ser. No. 327,407
Int. Cl. A01k *95/00*
U.S. Cl. 43—43.12 **2 Claims**

A trolling planer comprising a rectangular plate with a freely movable line release mechanism attached to the rear end thereof. A wire frame with a weight thereon is secured to the plate and a ring, which is attached to a line secured to a vessel, is slidably mounted on the frame. The release mechanism holds a trolled fishing line in a deep submerged position until the strike of a fish detaches the fishing line from the release



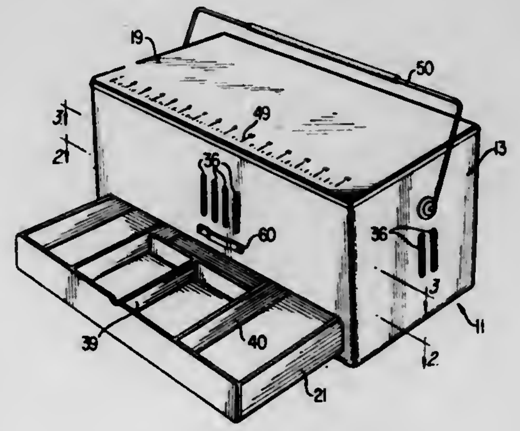
mechanism, the trolling planer being thereafter separately retrieved without interfering with the capture of the fish.

3,835,574
FISHHOOK EXTRACTOR
Ralph Russell Harwood, 1030 Chalmers, Detroit, Mich. 48215
Filed Apr. 2, 1973, Ser. No. 347,327
Int. Cl. A01k *97/00*
U.S. Cl. 43—53.5 **5 Claims**



The present invention relates to a fishhook extractor for removing a fishhook embedded in a fish's mouth comprising an elongated handle having a bifurcated end portion with a magnet disposed at said end portion for engaging and holding the fishhook.

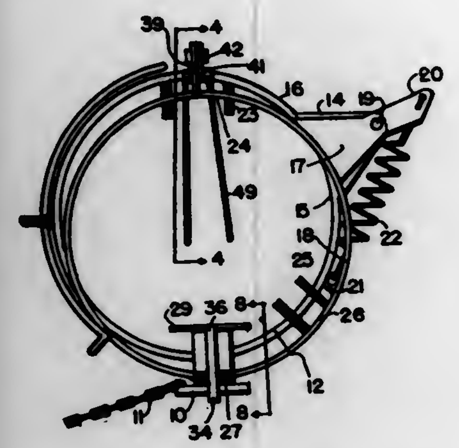
3,835,575
RENEWABLE BAIT AND TACKLE CONTAINER
Arnetta B. Kelley, Turtle Mound Rd., Eau Gallie, and Harvey C. Poe, 540 N. Harbor City Blvd., Melbourne, both of Fla.
Filed Jan. 11, 1973, Ser. No. 322,684
Int. Cl. A01k *97/00*
U.S. Cl. 43—56 **7 Claims**



The invention comprises a combination bait and tackle box characterized by a porous liner which has rounded corners at the junctions of its verticle walls to preclude bait fish from crowding into a sqaure corner and suffocating. The liner communicates with the exterior of a housing or frame therefor via openings to permit the bait fish to suck air into the liner. A battery operated aerating pump is contained in a space below the liner in the housing and the housing also includes a space for one or more drawers which are interchangeable to permit the appropriate drawer full of tackle to be selected for the type fishing to be pursued; i.e., salt water, fresh water, snook, bass, trout or the like.

3,835,576
HUMANE TRAP

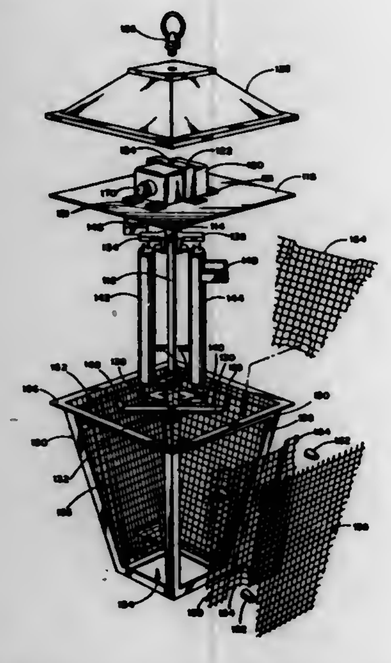
Henry William Steiner, Dryden, Ontario, Canada, assignor to Colonial Mirror and Glass Corporation
Filed June 11, 1973, Ser. No. 368,720
Int. Cl. A01m *23/26*
U.S. Cl. 43—86 **13 Claims**



The trap consists of a pair of rings pivotally secured together at one side thereof in juxtaposition one with the other. A tension spring extends between offset portions on each ring and when the rings are substantially concentric one with the other, the spring is fully extended and biassing the rings to the non-concentric or sprung position whereby an animal may be trapped between the lower portion of one ring and the upper portion of the other ring. The trap is held in concentric or set position either by means of pan or foot treadle trigger mechanism adjacent the base of the rings or by a swinging trigger mechanism between the upper sides of the rings with the trigger or actuating members extending down across the area defined by the rings. This swinging trigger can operate the trap by movement of an animal through the rings in either direction and the trap can be used on land or in the water as desired.

3,835,577
ELECTRICAL DISCHARGE INSECT CONTROL SYSTEM

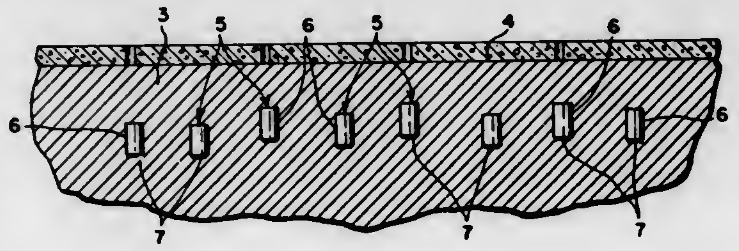
George D. Soulos, Chelmsford, Mass., assignor to Gem Insect Control, Inc., Lowell, Mass.
Filed Apr. 26, 1972, Ser. No. 247,858
Int. Cl. A01m *1/22*
U.S. Cl. 43—112 **12 Claims**



An electrical discharge, insect control system operative to attract insects to a space between inner and outer electrified screens where insect electrocution is accomplished. System elements are positioned by attachment to a rigid, central support column, vertically traversing the entire structure so as to provide a strong support which reinforces the unit against physical damage. The inner and outer wire meshes are spaced by a plurality of extended length, slippery insulators which prevent impairment of the electric field between screens from an accumulation of insects on the insulators. The outer screen is collared with rigid end bands which maintain screen shape and prevent abrasion from contact with screen edges. A simplified, yet rigid attachment system permits easy replacement of the screens and insulators as a unit when necessitated by damage.

3,835,578
METHOD OF TREATING SOIL FOR CONTROLLING TERMITES AND THE LIKE

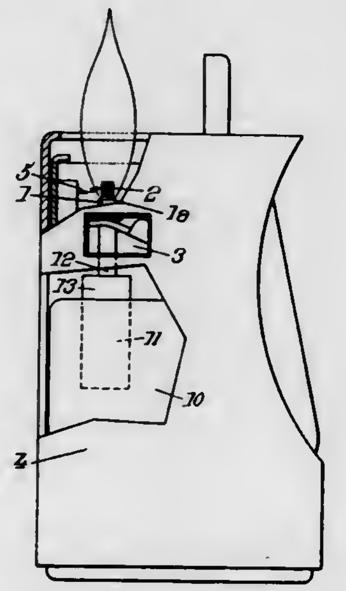
Mario J. Basile, 8512 Fifth Ave., Brooklyn, N.Y.
Continuation-in-part of Ser. No. 300,278, Oct. 24, 1972, abandoned. This application Nov. 15, 1972, Ser. No. 306,933
Int. Cl. A01m *1/20, 17/00*
U.S. Cl. 43—132 **8 Claims**



A soil is treated for termite or like control by dispersing in the soil a termite toxic insecticide in an active available state and a termite toxic insecticide in an initially unavailable state and timed to be released before complete dissipation of the immediately available insecticide. The initially unavailable insecticide is enveloped in a metal container which corrodes in the soil environment or in a synthetic organic polymeric resin envelope which is degraded to release the insecticide shortly before dissipation of the initially available insecticide to increase the time of termite inhibition in the soil, or in a metal container which corrodes and an organic polymeric resin plug, which plug is attractive to and edible by the termites.

3,835,579
GAS LIGHTERS

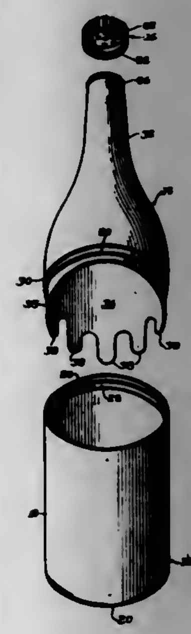
Jean Claude Beaudouin, Elbeuf, France, assignor to Flaminaire, Paris, France
Filed Mar. 20, 1973, Ser. No. 343,143
Claims priority, application France, Mar. 28, 1972, 72.10918
Int. Cl. 431 *353;* **F23d** *13/04*
U.S. Cl. 431—344 **11 Claims**



The gas lighter comprises a reservoir containing a liquefied gas, an expansion device arranged to cause this liquefied gas to pass from its liquid phase to its gaseous phase, an escape passage comprising an outlet valve, and a tubular burner. The tubular burner comprises, in the vicinity of its outlet, a bundle of parallel wires arranged axially and projecting beyond the end of the tubular burner.

3,835,580
BOTTLE SAND TOY

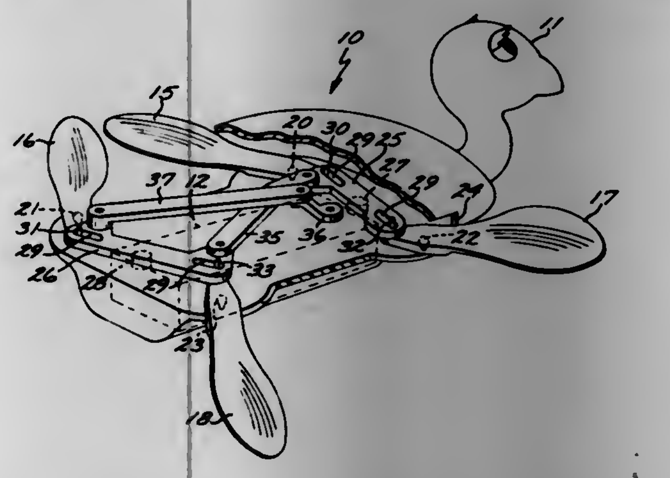
Mervyn L. Keces, Highland Park, Ill., assignor to Tarrson Company, Chicago, Ill.
Filed July 26, 1973, Ser. No. 382,647
Int. Cl. A63h *33/00*
U.S. Cl. 46—11 **2 Claims**



A child's sand toy having individual take-apart components each of which have separate utility in connection with sand play. The toy comprises a simulated soft-drink bottle having a lower base portion defining a container and an upper funnel-shaped portion having an open neck and a reticulated cap which may be selectively removed or attached to the neck.

3,835,581
SWIMMING TURTLE

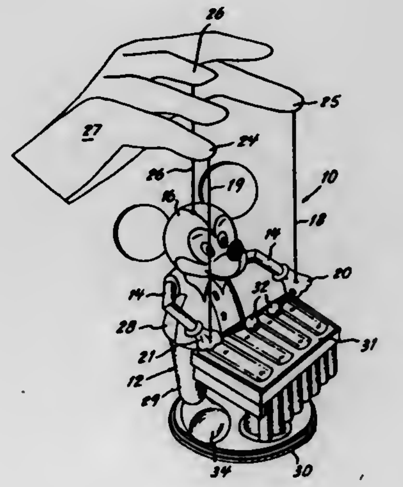
Charles K. Grieder, 700 S. Lyon, Santa Ana, Calif.
Filed Sept. 25, 1972, Ser. No. 292,061
Int. Cl. A63h *23/10*
U.S. Cl. 46—92 **12 Claims**



The present invention relates to a water toy; and more particularly relates to a turtle-like water toy whose movements simulate the turtle stroke of the real aquatic animal. The subject application discloses a mechanical linkage that causes four turtle flippers to move in a simulated turtle-like manner; thus causing the turtle-like water toy to move through the water in a turtle-like manner.

3,835,582
MARIONETTE ASSEMBLY WITH MANIPULATING GLOVE

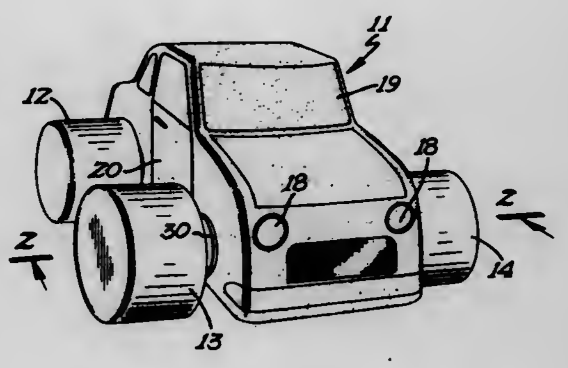
Albert Stubbmann, Franklin Lakes, N.J., assignor to Kohner Bros., Inc., Elmwood Park, N.J.
Filed Sept. 6, 1973, Ser. No 394,954
Int. Cl. A63h *7/00*
U.S. Cl. 46—126 **4 Claims**



A marionette assembly having the figure actuating cords detachably anchored to the extremities of the finger sections of an interchangable (right/left hand) glove.

3,835,583
WHEELED TOY

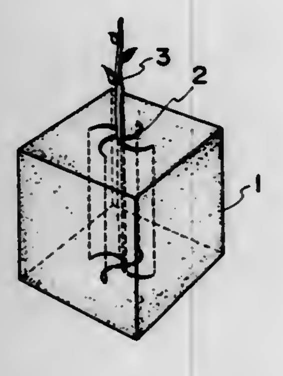
Raymond J. Manning, 450 Edmund Ave., St. Paul, Minn. 55103
Filed Oct. 16, 1972, Ser. No. 297,946
Int. Cl. A63h *11/10*
U.S. Cl. 46—201 **8 Claims**



A soft resilient wheeled toy formed of a body of foamed resilient compressible material and relatively wide wheels of the same material which are secured to the body by hubs and axle members which do not extend outwardly to the outer surfaces of the wheels. Because of the construction, there are no hard surfaces to engage furniture or the user of the toy. The wheels are preferably of a width at least one-fifth of the width of the body of the toy. The toy may simulate in appearance any of various automotive vehicles or it may simulate some animal such as a worm. In the latter case, the body may consist of two parts pivotally connected together with at least one wheel adjacent the pivotal connection and eccentrically mounted so that as the toy is moved along, the body parts move with respect to each other.

3,835,584
SYNTHETIC FORM RESIN PROPAGATION BED FOR PLANTS CUTTING

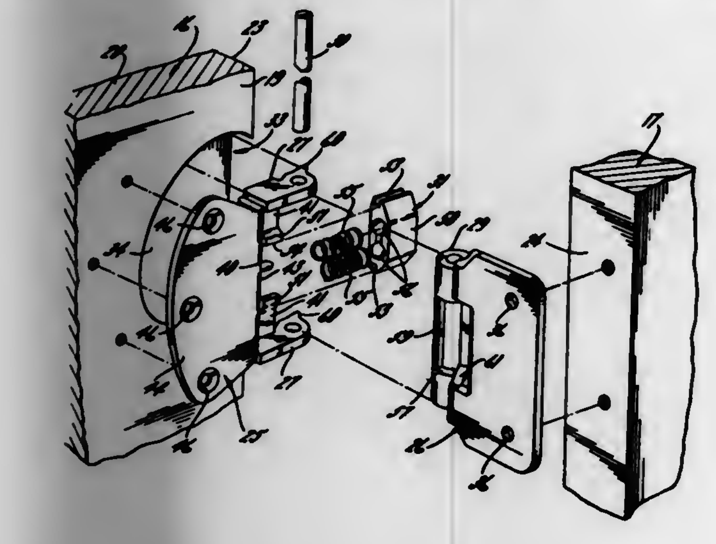
Munenari Shimazu, 4-943-20, Matsumi-cho, Kanagawa-ku, Yokohama, Japan
Filed Dec. 20, 1972, Ser. No. 316,922
Claims priority, application Japan, Jan. 7, 1972, 47-5139
Int. Cl. A01g *9/02*
U.S. Cl. 47—37 **3 Claims**



A synthetic foam resin propagation bed for plant cuttings provided by a block of spongy synthetic resin having a longitudinal slot of a χ-shape cross section capable of receiving a plant graft therein to be water-propagated.

3,835,585
SELF-CLOSING HINGE

Lloyd L. Anderson, and Richard J. King, both of Rockford, Ill., assignors to Amerock Corporation, Rockford, Ill.
Filed Oct. 11, 1972, Ser. No. 296,623
Int. Cl. E05d *7/00*
U.S. Cl. 49—398 **12 Claims**

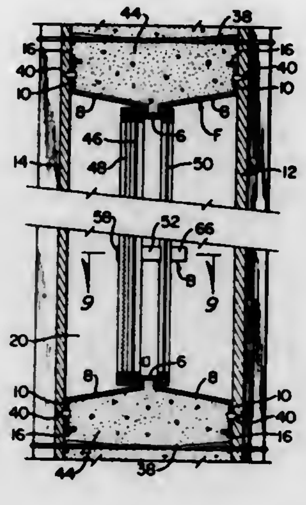


The hinge pin and self-closing mechanism of a self-closing hinge are compactly received in a slot in the inner side of a cabinet door and are concealed from view from the front of the cabinet. In one embodiment, the hinge may be quickly attached to and detached from the door.

3,835,586
KNOCK-DOWN WINDOW FRAME

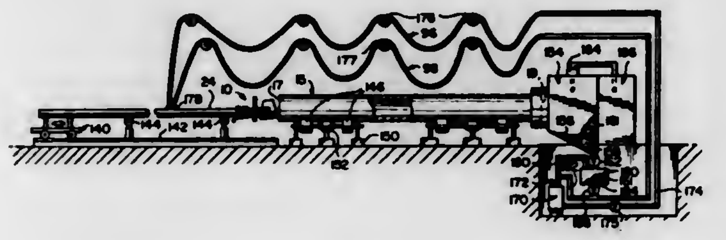
H. Gordon Gates, Denver, and Robert Brendel, Aurora, both of Colo., assignors to Gates & Sons, Inc., Denver, Colo.
Filed June 21, 1973, Ser. No. 372,290
Int. Cl. E06b *3/32*
U.S. Cl. 49—463 **6 Claims**

A knock-down completely reversible, basement window frame is provided having identical top and bottom rails and identical side rails which have slots and tabs at the ends thereof for fitting together to form a rigid window frame. The frame has a central bead for receiving a spring clip which holds both a window sash and screen and a storm sash with the window sash and screen being positioned on the outside of the bead and the storm sash on the inside of the bead so that rain striking the outside of the window sash will run down the bead and back out of the window frame rather than to the inside. A fastener is formed integrally with the upper and lower rails for attaching the window frame within forms for pouring a concrete wall.



3,835,587
PIPE CLEANING APPARATUS AND METHOD

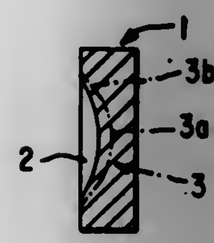
Wayne Culver Hall, Jr., 20100 S. Beavercreek Rd., Oregon City, Oreg. 97045
Filed July 3, 1973, Ser. No. 376,237
Int. Cl. B24c *1/00, 3/16*
U.S. Cl. 51—9 **10 Claims**



An apparatus and method for cleaning the interior surface of pipes by throwing abrasive material into contact with the internal surface of the pipe from blades on a wheel moving longitudinally through the pipe wherein the blades are rotating about an axis which is transverse to the longitudinal axis of the pipe and wherein the pipe is rotated about its longitudinal axis. Air under pressure, issuing from a tube moving with the wheel, is introduced into the pipe in a direction from one end of the pipe to the other so that the abrasive material and the material abraded from the pipe are moved along the pipe and expelled from an open end of the pipe during the cleaning operation. One embodiment of the apparatus includes a carriage movable into and out of the pipe, a wheel rotatably mounted on the forward portion of the carriage and having blades thereon, a pneumatic conveyor for supplying the wheel with abrasive material, a shield mounted behind the wheel for substantially closing one end of the pipe, an arcuate tube mounted to the carriage for feeding air into the pipe, and power rollers for supporting the pipe and rotating it about its longitudinal axis. The rotating wheel is inserted in one open end of the pipe and, as it is moved therethrough, the air under pressure is introduced into the pipe and moves the abrasive material and the material abraded from the pipe along the pipe and out the opposite open end of the pipe. The abrasive material is then separated from the material abraded from the pipe for reuse on subsequent pipes.

3,835,588
LENTICULAR CONTACT LENSE LATHE

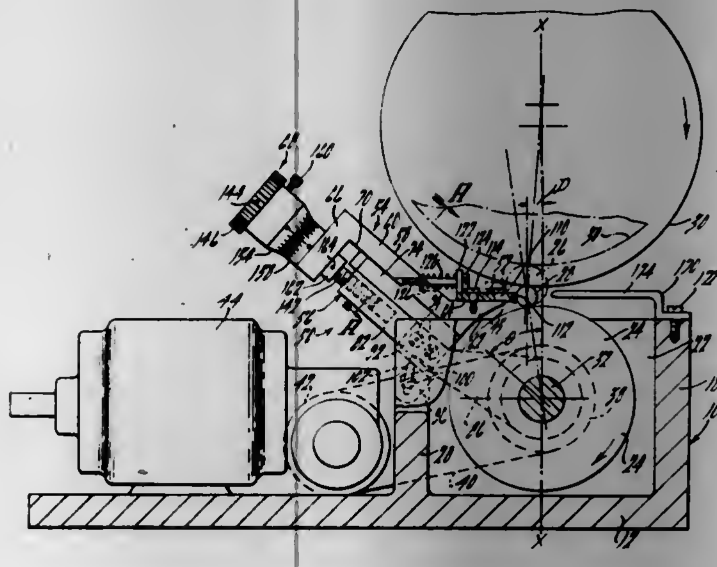
Keith A. Whitham, Cheektowaga, N.Y., assignor to Warner-Lambert Company, Morris Plains, N.J.
Filed Mar. 5, 1973, Ser. No. 338,245
Int. Cl. B24b *1/00, 13/00*
U.S. Cl. 51—58 **12 Claims**



A process for shaping lenticular contact lenses comprising the steps of casting a lense blank with a cast surface shaped to fit over the cornea and of shaping the opposite surface by first shaping the central portion of the optical surface by generating a curvature of the desired radius, and thereafter shaping the peripheral or outer portion of the optical surface by generating a curvature of the other desired radius. The steps are carried out sequentially and automatically on a novel machine. The machine comprises a tool holder mounted on a slidable support pivoted around a first pivot pin. The first pivot pin is supported on a second slidable support pivoted around a second pivot pin. The adjustable swing of the supports determine the multiple curvatures of the optical surface. The pivoted supports are moved sequentially and automatically by interconnecting them with a lost motion connection, whereby one support and the tool pivots freely to generate one curvature until the lost motion is taken up and then the other support and tool pivots to generate the other curvature.

3,835,589
CENTERLESS GRINDING FIXTURE FOR SYNTHETIC CRYSTAL RODS AND THE LIKE

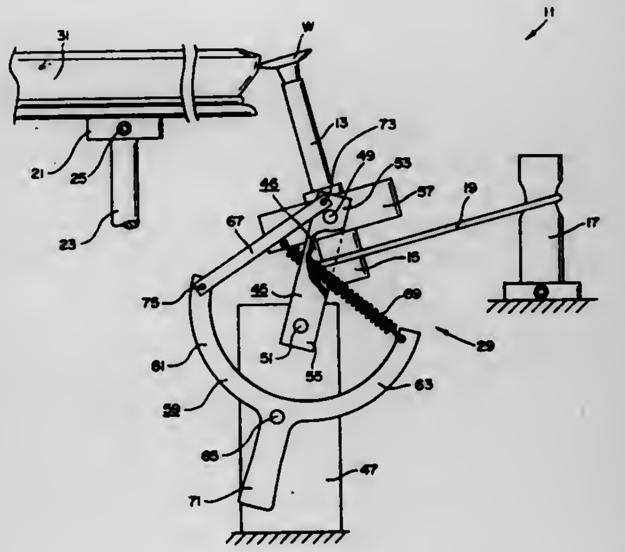
Emanuel Silverman, 14401 Hartsook, Oak Park, Mich. 91403
Filed Sept. 6, 1972, Ser. No. 286,549
Int. Cl. B24b *5/18*
U.S. Cl. 51—103 WH **12 Claims**



A centerless grinding fixture for grinding rough, out of round rods to roundness and predetermined dimension by a grinding wheel, the fixture and wheel being movable relative to each other in a plane transversely of the rod. A rod support roll, a base support for the roll, a guide member extending longitudinally above the roll and below the grinding wheel for resiliently contacting the rod and capable of reacting away from the rod for altering the pattern of feed of the rod past the grinding wheel, carrying means for the guide member adjustable by a screw member along an axis making an acute angle of between 40° to 50° with a plane containing the axes of the grind wheel and roll whereby the guide member may be moved downwardly relative to the roll and inwardly relative to said plane to effect trueing of the rod and a reduction in its size while maintaining said resilient contact of the guide member with respect to the rod in a tangent plane substantially paralleling said plane through the axes of the grinding wheel and roll. Supporting means for the carrying means mounted on the roll support and which may be pivoted about the axis of the roll for adjusting said acute angle.

3,835,590
CONTACT LENS EDGE MODIFYING MACHINE

Jacob Hoffman, 670 Waring Rd., Memphis, Tenn. 38122
Filed Feb. 12, 1973, Ser. No. 331,955
Int. Cl. B24b *13/00*
U.S. Cl. 51—105 LG **2 Claims**

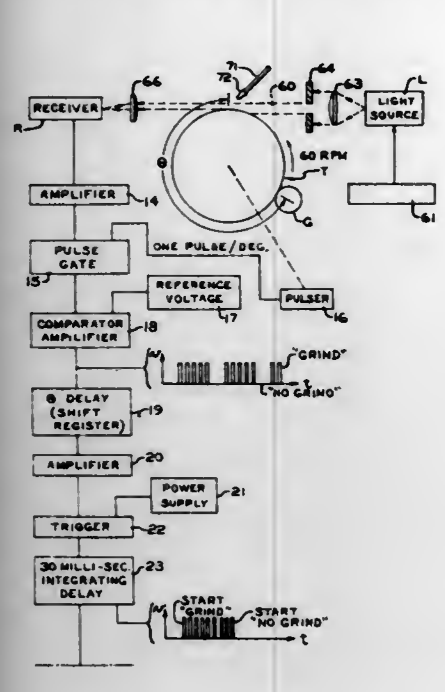


An improved contact lens edge modifying machine including structure for positioning the lens to a first position wherein the anterior part of the lens is polished, to a second position wherein the apex part of the lens edge is polished, and to a third position wherein the posterior part of the lens edge is polished. The machine includes a peculiar polishing wheel which has three lens engaging surfaces adjacent the periphery thereof and which are angularly displaced one from the other to respectively engage the anterior, apex, and posterior parts of the lens edge when the structure for positioning the lens is selectively moved to the first, second, and third positions.

3,835,591
METHOD AND APPARATUS FOR CORRECTING DIMENSIONAL VARIATION IN A ROTATING TIRE

Francis J. Cimprich, Canton, Ohio, assignor to The B.F. Goodrich Company, Akron, Ohio
Filed May 14, 1973, Ser. No. 359,739
Int. Cl. B24b *49/06, 49/12*
U.S. Cl. 51—106 R **12 Claims**

The method and apparatus for reducing the radial run-out of a rotating tire by grinding or cutting from the tread a portion thereof as determined by noncontacting optical inspection system which provides an electrical signal proportional to the amount of radial run-out, which controls such grinding or cutting. A jet air stream is cooperative with the inspection system to assure a true signal is received unaffected by the heat generated by the grinding or cutting operation. The electrical signal from the inspection system is fed to a comparator which compares the signal with preset limits and thereafter can control the grinding or cutting operation.



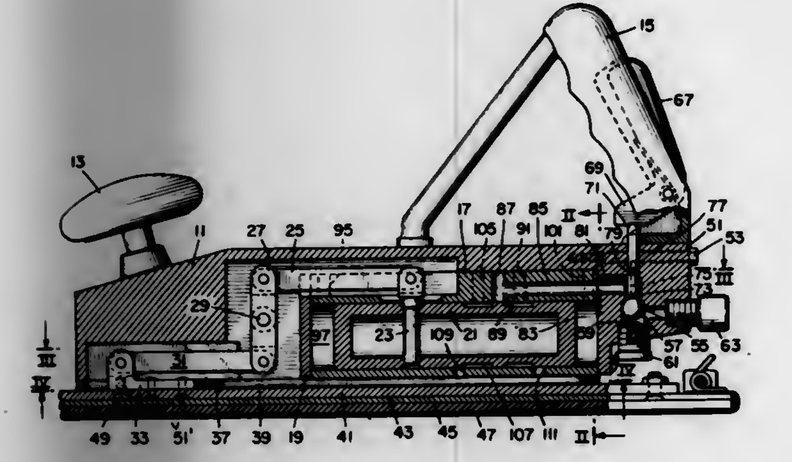
3,835,592
MECHANISM FOR DRIVING RECIPROCATING TOOL

Kunio A. Sumida, Los Angeles, Calif., assignor to Leonard U. Shapiro, St. Paul, Minn.

Continuation-in-part of Ser. No. 84,786, Oct. 28, 1970, abandoned. This application Apr. 13, 1972, Ser. No. 243,610

Int. Cl. B24b *23/04*

U.S. Cl. 51—170 TL **21 Claims**



A reciprocating, air-driven mechanism comprising, in one embodiment, a center-seeking piston connected to an oscillatably pivoted linkage which drives a material working tool. Air is delivered to the opposite ends of the piston at different stages of its reciprocation through the use of peripheral grooves on the piston and selected passages in the surrounding cylinder. An operator-actuated valve includes passages through which air may initially be delivered to one end of the piston so as to move it off center when operation of the tool is initiated. In a second embodiment, the air may be delivered to the piston by means of a single valve which is actuated by a piston-driven system to alternately communicate each piston-end with incoming and exhaust air passages. In either embodiment, as the piston is reciprocated, air exhausted from the non-driving end of the piston flows between a bearing plate and a shoe bar to create an air bearing and to pressurize the interior of the tool to prevent contamination thereof by particles of the material upon which the tool is working.

3,835,593
APPARATUS FOR DISPLACING GRINDING SURFACE OF THROW-AWAY TIP

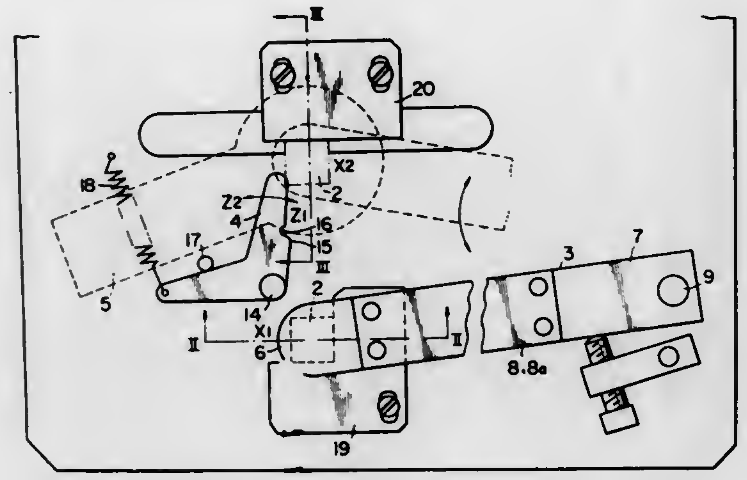
Junnosuke Yamashita, and Hideo Negishi, both of Tokyo, Japan, assignors to Mitsubishi Kinzoku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed Nov. 17, 1972, Ser. No. 307,632

Claims priority, application Japan, Nov. 20, 1971, 46-92728

Int. Cl. B24b *41/06*

U.S. Cl. 51—216 ND **7 Claims**



Apparatus for displacing grinding surfaces of a throw-away tip provided on the grinding table of a grinding machine having as its principal components: a feeding arm, an indexing pawl, and pushing device, all being inter-related to carry forward and backward as well as to place the throw-away tip between and at the feeding and grinding positions by the reciprocating movement of the feeding arm.

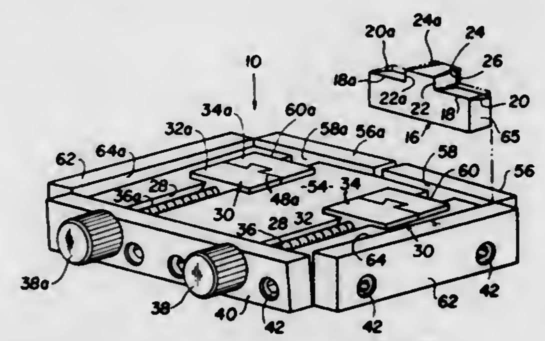
3,835,594
TOOLMAKER'S VISE

Eigard Szulman, 24 Osborne Rd., West Hempstead, N.Y. 11552

Filed May 23, 1973, Ser. No. 363,068

Int. Cl. B23q *3/02*; **B24b** *3/34*; **B25b** *1/24*

U.S. Cl. 51—220 **12 Claims**



A toolmaker's vise for clamping die sections between surfaces having predetermined angular positions to produce the desired cutting or rake angle on the die section when the same are subsequently worked upon by a cutting tool.

3,835,595
APPARATUS FOR ADJUSTING THE POSITION OF A FRONT COVER FOR A GRINDING WHEEL GUARD

Susumu Oshima, Okazaki, and Hidetoshi Takahashi, Kariya, both of Japan, assignors to Toyoda Koki Kabushiki Kaisha Kariya-shi, Aichi-Pref, Japan

Filed , Ser. No. 267,080

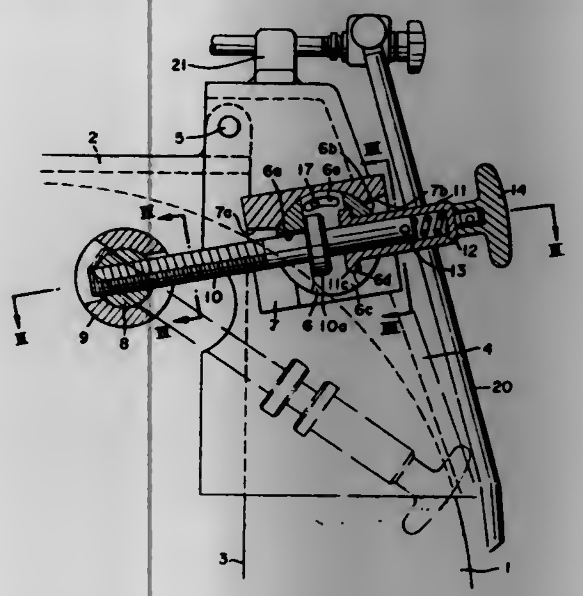
Claims priority, application Japan, July 29, 1971, 46-56903

Int. Cl. B24b *55/04*

U.S. Cl. 51—268 **4 Claims**

An apparatus for adjusting the position of a front cover for a grinding wheel guard comprises the front cover being pivotally

mounted by a hinged pin at the front upper part of the grinding wheel guard, a first revolving member being secured to the front cover with its axis in parallel relation with the hinged pin, a second revolving member being secured to the grinding wheel guard with its axis in parallel relation to the hinged pin, and an adjusting screw having a flange biased against one of the first and second revolving members and being connected to the other of the first and second revolving members and to a handle. The first revolving member is connected to the front cover for limited relative rotation with respect thereto by a pin and slot arrangement, whereby upon movement of the first revolving member in the axial direction of the adjusting screw, the front cover is turned either in a clockwise or counterclockwise direction.



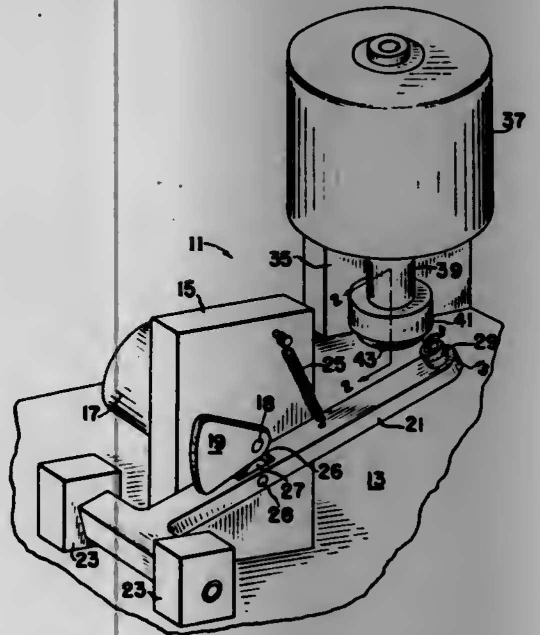
3,835,596
APPARATUS FOR AND METHOD OF REMOVING MATERIAL FROM A FLEXIBLE CONTACT LENS

Richard J. Wrue, Rochester, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Aug. 10, 1972, Ser. No. 279,554

Int. Cl. B24b *1/00*

U.S. Cl. 51—284 **5 Claims**



Apparatus for contouring the edge of a lens of hydrophillic hydrogel material while in its anhydrous state and secured or firmly supported in a lens mold. The lens, which together with the mold constitute an assembly, has an edge adjacent but inwardly spaced from the face of the mold. The apparatus includes a rotatable shaft which has a material removing surface in the form of a finely textured sphere secured to its free end. The lens and mold assembly is supported on the free end of a pivotable arm that is spring biased into engagement with a rotatable cam. Rotation of the cam permits movement of the arm between a first position where the lens and its supporting mold are spaced from the material removing surface and a second position where the edge of the lens is placed in engagement with the material removing surface and removed by abrading.

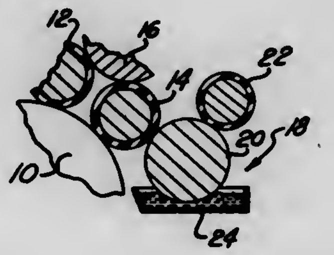
3,835,597
METHOD OF MANUFACTURING A HYDROPHILIC DAMPENING ROLL

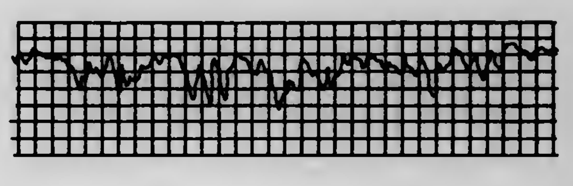
Joseph J. Wasil, Parma Heights, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio

Filed Nov. 24, 1972, Ser. No. 309,209

Int. Cl. B24b *1/00*; **B41f** *1/46*

U.S. Cl. 51—289 **1 Claim**





Method of manufacturing a hydrophilic roll in which a hard metal is ground during manufacturing to provide a polished finish, the finish measured to determine the number of peaks and valleys and grinding continued with a finer grinding wheel until the peaks and valleys which exceed 5 micro-inches from a center line for the peaks and valleys are less than ten per inch of length and those which deviate more than 2.5 micro-inch from the center line number less than 100 per inch. The roll is then treated to render it hydrophilic.

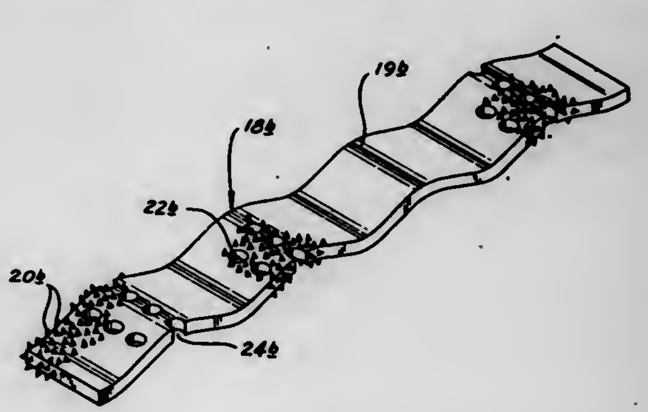
3,835,598
ABRASION TOOL

Alton E. Tobey, 2203 Mission St., Santa Cruz, Calif. 95060

Filed June 8, 1972, Ser. No. 260,996

Int. Cl. B24d *11/00*

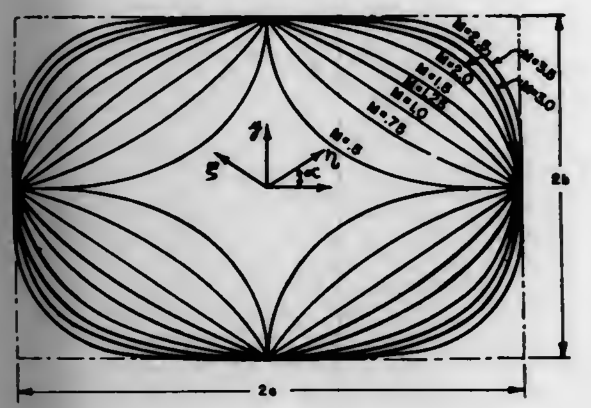
U.S. Cl. 51—396 **1 Claim**



An abrasion tool for removing incrustation from the interior surfaces of passages, openings, and conduits such as the cooling passages through the exhaust manifold of a marine engine. The tool includes an elongated metal core that is both relatively stiff and flexible, and the core is provided therealong with a plurality of recesses adapted to receive therein incrustation loosened from the interior surfaces of such passage. Substantially all of the exposed surfaces of the core are covered or coated with outwardly projecting abrasion elements in the form of grit (such as a metalic carbide) that is brazed, adhesively attached, or otherwise bonded to the core so as to be rigidly related thereto.

3,835,599
ROOF CONSTRUCTION

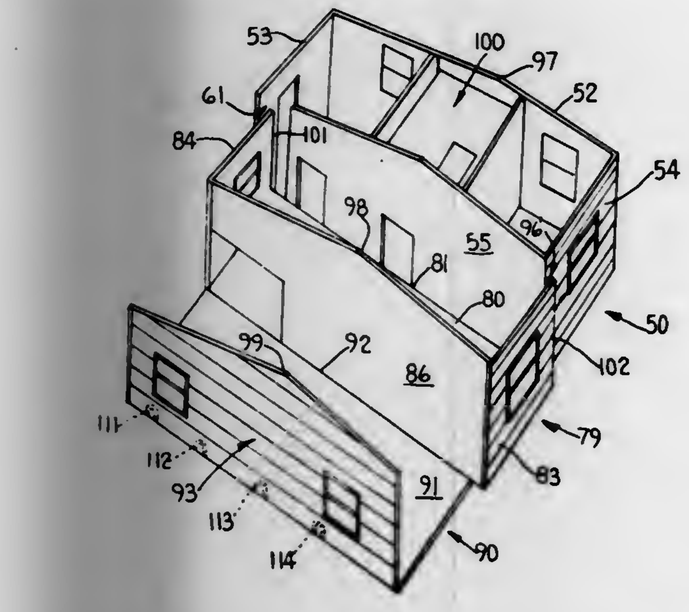
David H. Geiger, 788 Riverside Dr., New York, N.Y. 10032
Continuation of Ser. No. 80,048, Oct. 12, 1970, abandoned.
This application Jan. 10, 1973, Ser. No. 322,531
Claims priority, application Japan, May 3, 1970, 45-37445
Int. Cl. E04b *1/345*
U.S. Cl. 52—2 **10 Claims**



A roof comprises a ring conforming in plan to a closed curve, a plurality of sets of cables with the cables of each set extending in plan parallel to an axis of skewed symmetry of the closed curve, and a membrane attached to the cables which by means of inflation lifts the cables so as to pre-tension the roof and form a domed surface.

3,835,600
HOUSING PACKAGE DESIGNED TO BE CONVEYED BY ONE VEHICLE

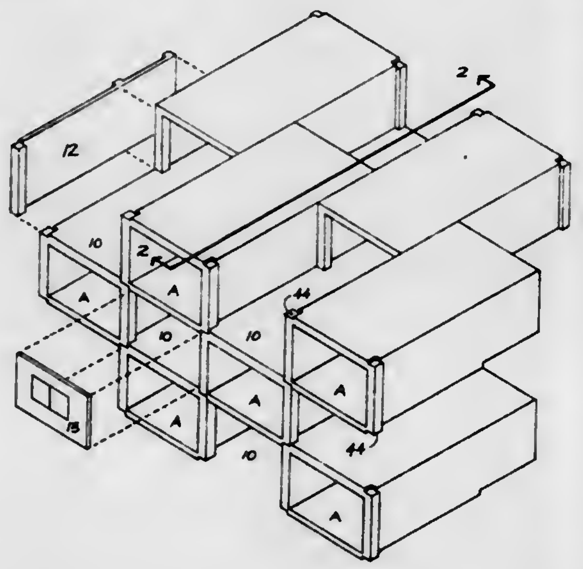
Arthur H. Padula, Millburn, N.J.; William G. Meyer, St. Petersburg, and John V. Hollowell, Sarasota, both of Fla., assignors to American National Housing Corp., Newark, N.J.
Filed June 22, 1972, Ser. No. 265,323
Int. Cl. E04b *1/344*
U.S. Cl. 52—67 **17 Claims**



A mass-produced house designed to be nested and folded into a compact package for conveyance by one vehicle and unloadable therefrom as a nearly-completed house on the building site, and made of light but strong panels and floor bases, comprises a utility section having a floor base and including, in already-erected condition on the base, a long outer wall, a long inner wall, two shorter outer walls, and inner walls forming a kitchen, an adjacent bathroom, and an additional room adjacent the bathroom, and including necessary utilities. The package also includes a second section having a floor base and including, in already-erected condition on the base, a long wall and two shorter outer walls. The second section is designed to nest with the utility section with the shorter walls of both sections being disposed in overlying relation. The two sections are desirably hinged, and a third section may be added in nesting relation.

3,835,601
MODULAR CONSTRUCTION SYSTEM

Edward D. Kelbish, 280 Vanderbilt Ave., New York, N.Y. 11205
Continuation-in-part of Ser. No. 176,549, Aug. 31, 1971, Pat. No. 3,716,954. This application Jan. 10, 1973, Ser. No. 322,505
Int. Cl. E04g *1/04*
U.S. Cl. 52—79 **17 Claims**



A modular construction system which utilizes a plurality of preformed box-shaped modular units, which include a factory installation of all kitchens, bathrooms, closets, interior partitions, stairs needed for the proper functioning of the enclosed spaces.

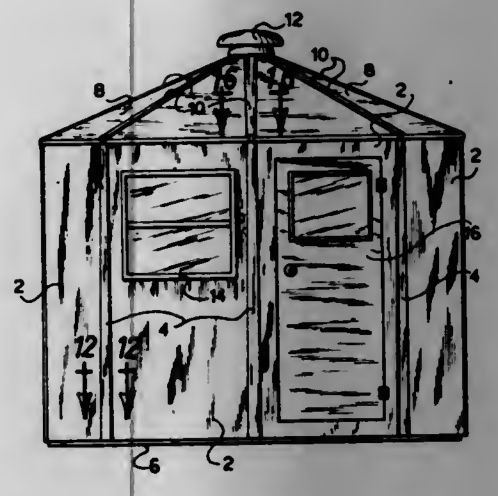
These modular units are stacked in a predetermined manner to form a variety of efficient, easily planned multi-level residential buildings which maximize the advantages of both overlapped and staggered modular assembly.

In some embodiments the preformed box-shaped units have support columns cast with the side walls and in other embodiments the units include load-bearing side walls in the areas of the unit overlap. In some embodiments the overlapped and staggered areas of the building are jointly formed by the individual modules and in other embodiments the areas are separately formed by the individual modules.

3,835,602
PREFABRICATED AND DEMOUNTABLE BUILDING

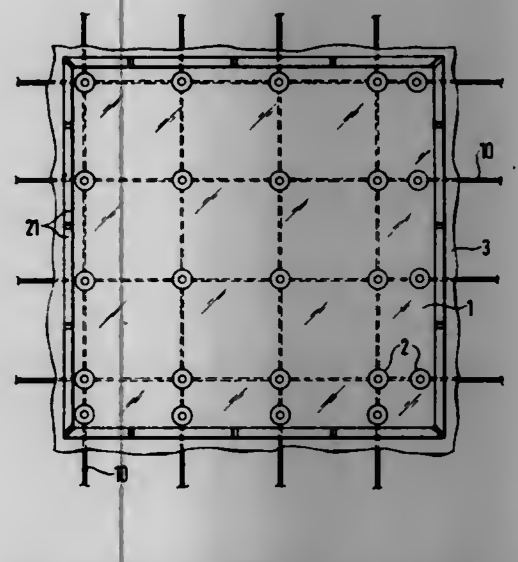
Elmer W. Tuuri, Muskoka Lakes, Ontario, Canada
Filed Nov. 13, 1972, Ser. No. 306,366
Claims priority, application Canada, Nov. 22, 1971, 128257
Int. Cl. E04b *1/343*
U.S. Cl. 52—82 **8 Claims**

A prefabricated and demountable building structure is disclosed. The structure provides for ready transportation and quick and easy assembly and disassembly in a minimum of time without the necessity of having to provide various tools to assist in the erection or demounting. The unit consists of a floor assembly having a central floor disc and a number of floor segments which interlock with the disc and with adjacent floor segments. Wall segments which are generally rectangular in side view fit together to form a wall enclosure which interlocks with the floor assembly. A roof assembly consists of a number of individual roof segments which interlock with adjacent roof segments and also interlock with the wall enclosure. The roof assembly is capped by a suitable vent or bonnet arrangement to hold all of the various roof segments in sturdy relationship. The vertical edges of the wall segments are provided with outstanding flanges which form a double flange to receive a wedge clamp to hold adjacent segments securely together. The double flange increases downwardly in width to receive a tapering wedge clamp which is slid over the double flange. The roof segments are likewise provided with flanges on their side or radial edges which butt together to form a double flange with the double flange increasing in width inwardly to receive a tapering roof wedge clamp. A suitable door and/or windows may be provided in selected one of the various wall segments.



3,835,603
MEANS FOR COVERING THE ROOF-LIKE AREAS OF SUPPORTING STRUCTURES

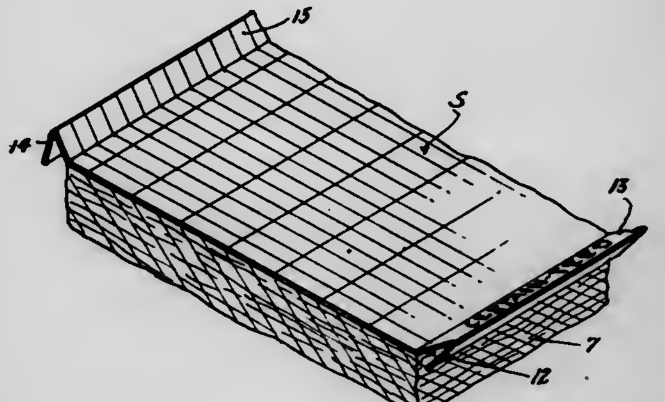
Fritz Schnebel, D-8201 Greimelburg 75a, Post Frasdorf, Germany
Filed Mar. 24, 1971, Ser. No. 127,631
Claims priority, application Germany, Apr. 3, 1970, P 20 16 089.8
Int. Cl. E04b *7/14*
U.S. Cl. 52—83 **8 Claims**



Means for covering the roof-like area of a supporting structure such as a stretched cable net comprising a plurality of juxtaposed spaced cover plates secured to the cable net or the like, a plurality of permanently flexible connector assemblies distributed over the surface area of the cover plates and securing the cover plates to the points of intersection of the cable net and permanently elastic sealing strips capable of giving in all directions and connected to the edges of the cover plates to provide a weather-tight seal between the cover plates.

3,835,604
BUILDING INSULATION WITH DECORATIVE FACING

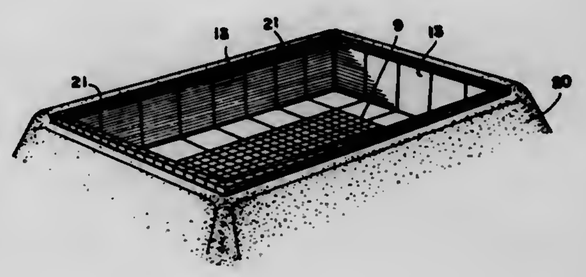
George A. Hoffmann, Jr., Wayne, Pa., assignor to Certain-Feed Products Corporation, Valley Forge, Pa.
Continuation of Ser. No. 106,084, Jan. 13, 1971, abandoned.
This application Dec. 14, 1972, Ser. No. 315,015
Int. Cl. E04b *1/62*
U.S. Cl. 52—105 **8 Claims**



Building insulation comprising a strip of fibrous blanket with a facing sheet secured thereto, the facing sheet having nailing flanges or lip portions projecting beyond the side edges of the blanket strip to provide for mounting of the insulation upon spaced studs or other supports and further having a decorative pattern extended throughout a portion of the area of the sheet, the decoration being extended over one of the projecting lips, but the other projecting lip being undecorated and carrying name and/or instruction indicia.

3,835,605
PREFABRICATED WATER TANK

Chozaburo Ueno, Chiba, Japan, assignor to Kawasaki Steel Corporation, Kobe-shi, Hyogo-Ken, Japan
Continuation-in-part of Ser. No. 697,773, Jan. 15, 1968, Pat. No. 3,500,602, and a continuation-in-part of Ser. No. 3,796, Jan. 19, 1970, Pat. No. 3,629,985. This application July 6, 1971, Ser. No. 160,031The portion of the term of this patent subsequent to Mar. 17, 1987, has been disclaimed.
Int. Cl. E02d *27/46*; **E04h** *7/02*
U.S. Cl. 52—169 **2 Claims**

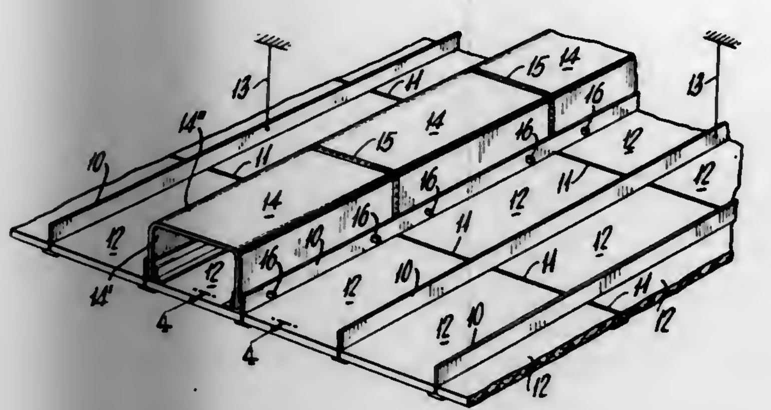


A lightweight water tank construction having side walls and a grid base, the grid base being formed of a plurality of connecting plates, channel members and capping members designed so as to allow the bottom structure to relatively shift to absorb forces created by ground swelling or water pressure.

3,835,606
COMBINATION CEILING TILE AND AIR DUCT STRUCTURE

Milton Liberman, 65 Seawane Rd., East Rockaway, N.Y. 11697
Filed May 22, 1972, Ser. No. 255,652
Int. Cl. E04f *17/08*; **F24f** *13/06*
U.S. Cl. 52—220 **17 Claims**

A heating and air conditioning duct system for installation in drop ceilings utilizing T-bar construction wherein ducts are formed of a suitable insulating light weight material and secured to ceiling tiles to provide the completed duct which can then be placed in position on the T-bars as in the case of conventional ceiling tiles. Bends and reducing sections may also be pre-fabricated so that the entire air distribution system can be installed in the course of installation of the ceiling and without the need for special sheet metal work which involves considerable time and expense.



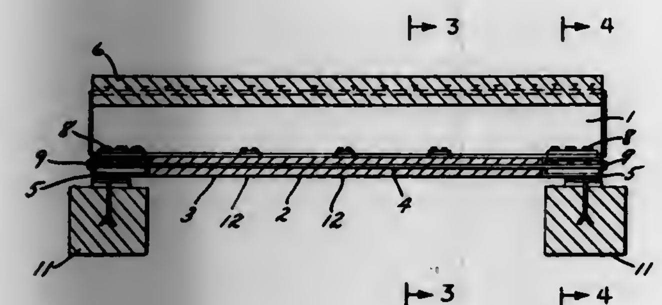
3,835,607
REINFORCED GIRDERS OF STEEL AND CONCRETE

Norbert Raaber, Haupstrasse 87a, 8010 Graz-Waltendorf, Austria

Filed Apr. 13, 1972, Ser. No. 243,578

Int. Cl. E04c ***3/293***

U.S. Cl. 52—223 **3 Claims**



The invention relates to a reinforced girder, in particular of steel and concrete, in which the concrete is prestressed to avoid cracks being formed therein due to tensile stresses. The invention also discloses a method for the production of such girders.

3,835,608
FIBERGLASS POUR-IN-PLACE FORM

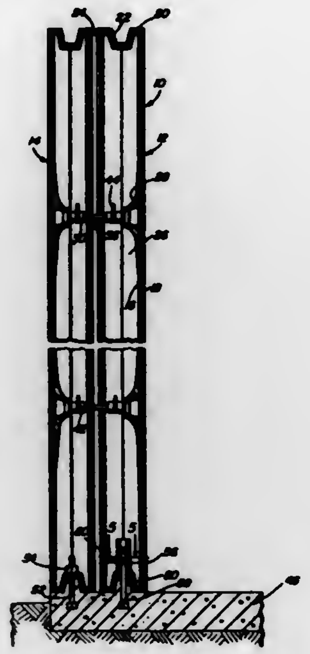
Bobby G. Johnson, 1109 N. Elizabeth, Durham, N.C. 27702

Filed Feb. 2, 1972, Ser. No. 222,872

Int. Cl. E04b ***2/40***

U.S. Cl. 52—426 **6 Claims**

A form including a pair of panels releasably connected to each other to define a cavity for receiving flowable and hardenable material with each panel constructed of glass fiber reinforced plastic material having any suitable finish surface on the exterior thereof with the panels including a reinforcing grid on the inner surface thereof for rigidifying the same. The panels are interconnected by tie rods detachably connected with the reinforcing members with the periphery of each panel including a channel by which the panel may be connected to a supporting structure or to other similar panels by employing a key member that is received in facing channels.



3,835,609
TILE AND MANUFACTURING PROCESS THEREFOR

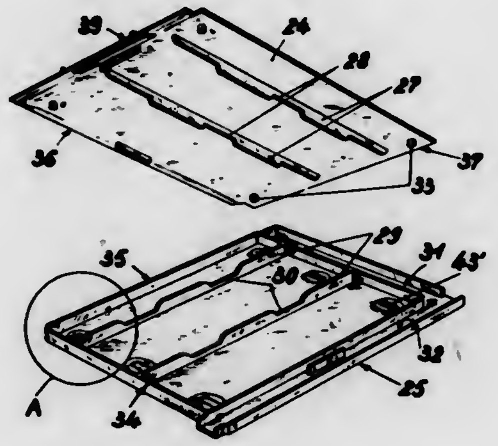
Joseph Oscar, 84 Ave. de Paris, 78 Juziers, France

Filed June 20, 1972, Ser. No. 264,581

Claims priority, application France, June 25, 1971, 71.23206; Apr. 11, 1972, 72.12627

Int. Cl. E04d ***3/35***

U.S. Cl. 52—478 **3 Claims**



A hollow tile with independent means permitting its attachment to the usual battens and means of mutual attachment which keep said tiles from being raised by the action of the wind, and which do so with no exterior fixation device such as nails and the like.

3,835,610
JOINT FOR JOINING STRUCTURAL MEMBERS

Ronald Ernest Harper, Monkton Combe, and Michael James Mole, Corsham, both of England, assignors to Arkana Limited, Bath, England

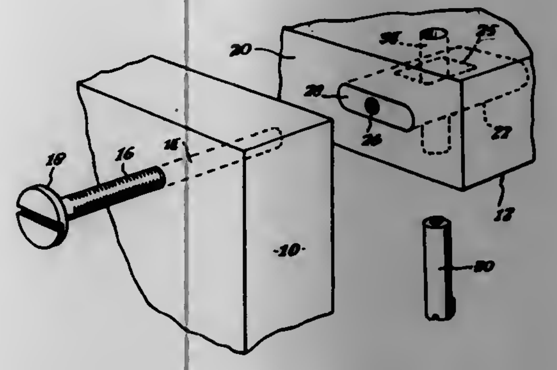
Filed June 28, 1972, Ser. No. 267,199

Int. Cl. F16b ***12/24***

U.S. Cl. 52—755 **11 Claims**

Structural members are connected by a joining device which is attached to one of the members and has an insert part

projecting therefrom for insertion into a cavity in another structural member. The insert part has a shoulder arranged to lie within the cavity facing the first structural member, and a pin passes through an aperture in the second structural member to abut with the shoulder to retain the insert part within the cavity. The pin preferably has a cross-section shape so as to urge the insert part further into the cavity on rotation of the pin. The device may be attached to the first structural member by screw means.



3,835,611
SOLID HEAT INSULATION PANEL FOR BUILDING

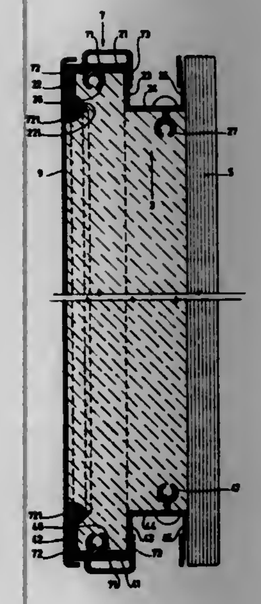
Jean G. Villeger, 95 Ave. du Grand Marin, Lesigny, France

Filed Nov. 12, 1971, Ser. No. 198,270

Claims priority, application France, Nov. 30, 1970, 70.42960

Int. Cl. E04b ***2/28;*** **E04c** ***3/34***

U.S. Cl. 52—621 **4 Claims**



A structural heat insulation panel formed of a frame and two facings in which the frame comprises four profiles in the form of U-shaped members having a core perpendicular to the facings and two wings parallel to the facings and which includes a heat insulation and sealing joint having a central portion applied to the core for tightness and a forward portion applied to the front wing for heat insulation.

3,835,612
SCAFFOLDING

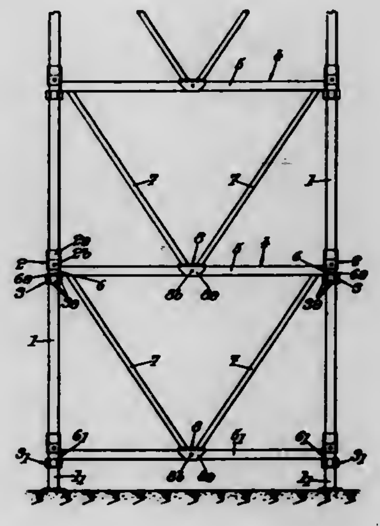
Bernard Beziat, Carrieres-sur-Seine, France, assignor to Societe Nouvelle Des Echafaudages Tublaires Mills, Le Bourget, France

Filed Aug. 21, 1972, Ser. No. 282,147

Claims priority, application France, Sept. 16, 1971, 71.33431

Int. Cl. E04g ***1/14***

U.S. Cl. 52—638 **12 Claims**



Load bearing scaffolding comprises uprights connected by bracing frames. Each frame comprises a cross-member releasably connectable to an adjacent frame.

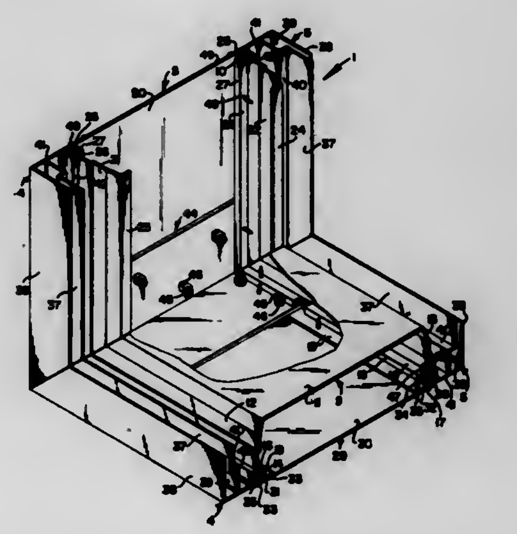
3,835,613
SIGN FRAME ASSEMBLY

David W. Davies, Jr., Leawood, Kans., assignor to Carter-Waters Corporation, Kansas City, Mo.

Filed Mar. 26, 1973, Ser. No. 344,881

Int. Cl. G09f ***13/04***

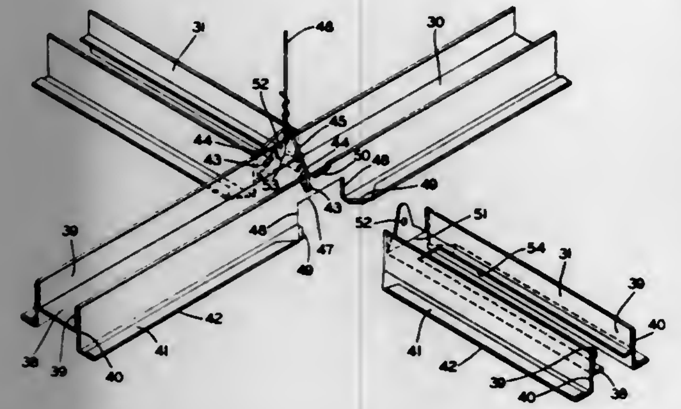
U.S. Cl. 52—656 **5 Claims**



A frame assembly for an internally illuminated sign having a low profile appearance and a minimum of exposed frame wherein the frame assembly includes a lower access frame member, a pair of laterally spaced side frame members, and an upper frame member each having a front and a rear retainer mounted thereon and adapted to receive and retain an edge portion of a respective display face therein. The lower, side, and upper frame members each have walls defining a front and a rear outwardly open recess each adapted to receive and engage a projection extending from a respective front and rear retainer. The lower, side, and upper frame members and the retainers thereon each have respective portions thereof substantially coplanar one with the other to define respective exterior edges of the frame assembly.

3,835,614
SUSPENSION SYSTEM

Lucien R. Downing, Jr., Avon Lake, Ohio, assignor to Donn Products, Inc., Westlake, Ohio
Filed Sept. 16, 1971, Ser. No. 181,121
Int. Cl. E04b *5/52*
U.S. Cl. 52—666 **2 Claims**



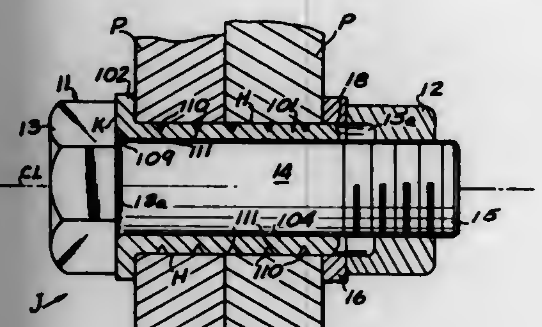
A suspended ceiling system includes flanged runners having exposed surfaces in planes other than those of the flanges, and may have such runners intersected by similar or different members to form a supporting grid. The spaces between runners or grid members are filled with ceiling panels or light fixtures which may be planar or non-planar shapes, such as recessed truncated pyramids.

Runners having recessed central planes are connected at intersections by lifting a vertical tongue into the space between folded metal sheets of the intersected runner and bending the tongue to lock the joint. Runners having projecting central planes are connected at intersections by cross-shaped inserts which may be weakened to accommodate excessive thermal expansion in case of fire.

Special connecting clips are provided for joining dissimilar grid members and for joining the parts of truncated pyramid frames. Other clips are used to locate partition supporting channels.

3,835,615
FASTENER JOINT CONSTRUCTION

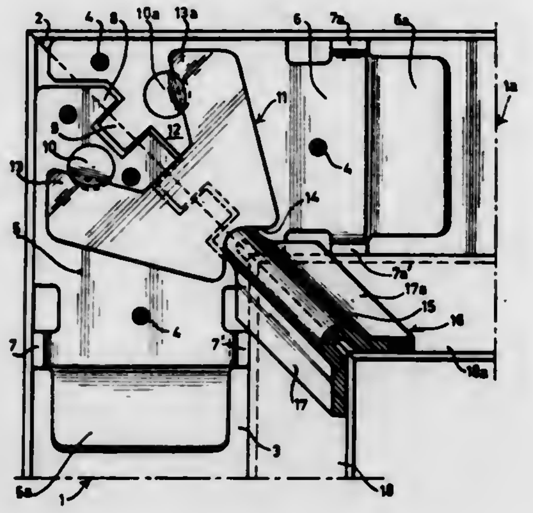
John O. King, Jr., 3990 N. Ivy Rd., Atlanta, Ga. 30342
Continuation-in-part of Ser. No. 33,281, April 30, 1970, abandoned, which is a continuation-in-part of Ser. No. 711,368, March 7, 1968, abandoned. This application July 3, 1972, Ser. No. 268,478
Int. Cl. F16b *5/00*
U.S. Cl. 52—758 D **24 Claims**



A joint assembly including work pieces with aligned holes of a prescribed diameter therethrough, a fastener in the holes and having a shank portion a prescribed amount less in diameter than the holes, and a metal sleeve member positioned between the shank portion of the fastener and the work pieces within the holes and in bearing contact with both the shank portion and the work pieces. The sleeve member includes a tubular side wall encircling the shank and substantially filling the space between the shank and the work pieces. The thickness of the tubular wall is nominally 0.008 or 0.016 inch. The metal sleeve member should preferably be made of a material similar in strength to that of the work pieces. For the high strength requirements of the aerospace industry the metal sleeve member should have a Brinell Hardness Number of at least 60 and/or a yield strength in excess of 20,000 p.s.i. The sleeve member may also be provided with a outwardly extending head flange at one end thereof and the tubular wall may be circumferentially grooved at longitudinally spaced intervals to allow the length of the wall to be adjusted by removal of excess material and to provide sealant reservoirs along the length of the tubular wall adjacent the work pieces about the aligned holes. The distal end of the tubular side wall may be tapered inwardly to provide a self-centering capability as the sleeve member is inserted into the holes, especially in interference.

3,835,616
SEAL JOINT BETWEEN TWO IDENTICAL PROFILED SECTIONS AND THE ASSOCIATED MITRE-JOINT CONSTRUCTION

Gijsbertus L. Van Wieringen, Amersfoort, Netherlands, assignor to N.V. Nederlandse Metaalindustrie Polynorm, Bunschoten, Netherlands
Filed Oct. 26, 1972, Ser. No. 301,217
Int. Cl. F16b *3/00*
U.S. Cl. 52—758 H **4 Claims**



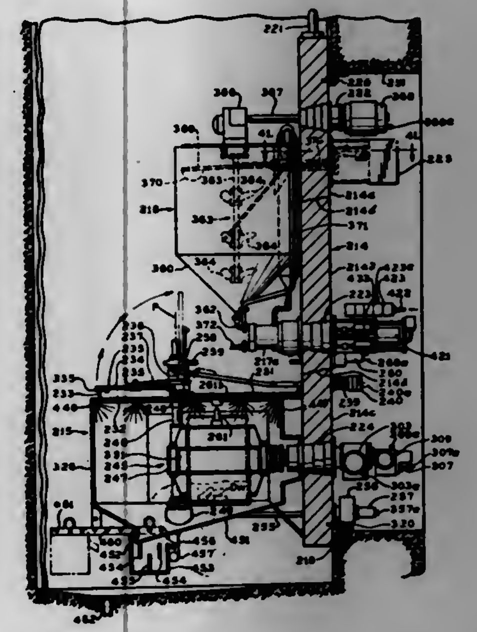
A method for sealingly connecting two identical sections of a door frame or the like one adjoining the other at a mitre-angle of 45°, the clamping means for drawing the adjoining flanges of the profiled sections one to the other being clamped between abutments provided on said flanges and the webs of the profiled sections adjoining each other at the mitre-joint, a part of said clamping means extending over the webs.

3,835,617
METHOD AND APPARATUS FOR FILLING AND CLOSING CONTAINERS

Arthur J. Stock, Lakewood; Donald E. Christofer, Willowick, and Joseph E. Brinza, Euclid, all of Ohio, assignors to Stock Equipment Company, Cleveland, Ohio
Filed Sept. 20, 1971, Ser. No. 182,088
Int. Cl. B65b *3/00, 55/24, 29/00*
U.S. Cl. 53—21 **25 Claims**

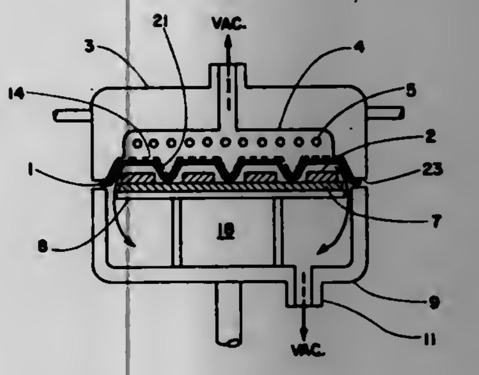
Systems, apparatus and methods are disclosed for disposing of radioactive waste materials by placing them into a container such as a steel drum, together with cement or other solidifying agent and water or other suitable liquid in amounts sufficient to provide eventually a solidified mixture of predetermined amounts of cement or other solidifying agent and radioactive material, closing the drum, agitating the mixture in the drum for mixing the contents, and then storing the drum for at least a period of time sufficient to permit partial decay of radioactive materials or to await available time for shipment. Also disclosed are remotely controlled apparatus

for handling both empty and filled drums, for placing the drums in and removing drums from enclosed drumming equipment where they have been filled and agitated, for accurately placing the drums containing radioactive material in storage, and for removing the drums from storage and loading them on a vehicle for transportation. All of these operations are done by remote control with a high degree of safety to the operators and maintenance personnel from radiation and freedom of the ambience from radiation pollution.



3,835,618
APPARATUS FOR PRODUCING VACUUM SKIN PACKAGES IN MULTIPLES

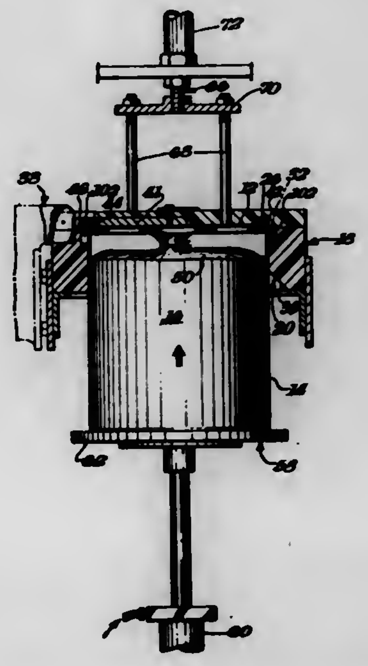
Richard Russell Perdue, Greer, S.C., assignor to W. R. Grace & Co., Duncan, S.C.
Filed Jan. 22, 1973, Ser. No. 325,295
Int. Cl. B65b *31/02*
U.S. Cl. 53—112 A **4 Claims**



Thermoplastic film is drawn by differential air pressure against a multiplicity of concave interior surfaces of the upper portion of a vacuum chamber; the film is then heated by surface contact; then, after evacuation of the chamber in which has been placed a multiplicity of products spaced upon a backing board, differential air pressure is used to blow the film down over each of the products and against the backing board completely around each of the products thereby sealing the film to the board; and, subsequently, the board and film are cut to provide a multiplicity of individually sealed, vacuum skin packages. By this method and apparatus the prior art problem of "draping" and "webbing", i.e., the failure of the film to contact the board or seal to itself between relatively tall, adjacent products, is eliminated.

3,835,619
APPARATUS FOR ASSEMBLING TUBULAR CARTONS

Howard Reisman, c/o J. Reisman & Sons, Inc., Rt. 130, Pennsauken, N.J. 08110
Continuation-in-part of Ser. No. 302,264, Oct. 30, 1972, , and a continuation-in-part of Ser. No. 328,479, Jan. 31, 1973,. This application Aug. 29, 1973, Ser. No. 392,476
Int. Cl. B65b *7/28*
U.S. Cl. 53—138 R **22 Claims**

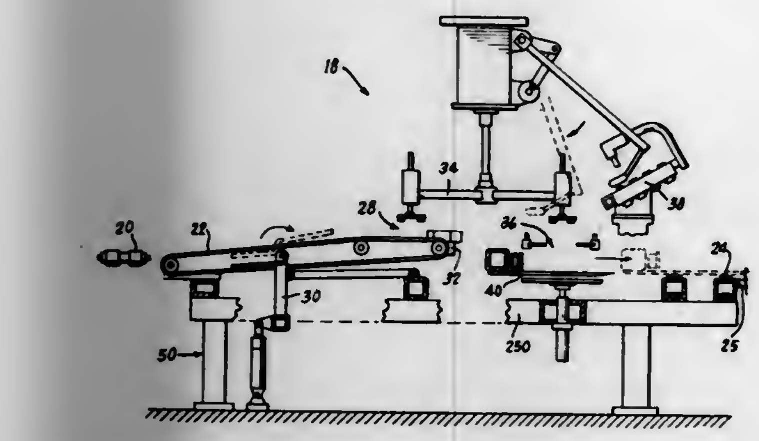


The lids of tubular cartons are assembled and secured into the ends of paperboard tubular cartons by disposing them in a recessed block against a prominent surface which is spaced from the sidewalls of the recess by an annular groove. Tabs, provided on the lids, engage into notches extending from the recess into the wall of the block to maintain the peripheries of the lids evenly spaced within the annular groove. When the tubular walls are pushed into the annular groove around the lids, the tabs are inwardly deflected through the notches within the walls. The tabs are secured to the walls by power-operated staplers which react against anvils disposed within the prominent surface. The block has its recess facing up in a manual form of the apparatus for assembling the first lid within the walls. The lids are manually laid on the prominent surface with their tabs inserted in exposed notches, before manual insertion of the tubular wall around it. The staplers are actuated by microswitches in the base of the annular groove contacted by the leading edge of the tubular wall. The second or carton sealing lid is assembled by a substantially automatic version of the apparatus in which the block is inverted with its recess facing down. The filled cartons are fed upwardly upon a pneumatically operated elevator. Lids are previously inserted within the recess from a lid storage magazine by a reciprocating carriage which pushes against the tabs of the lids to successively slide them through a slit in the side of the block against the prominent surface.

3,835,620
APPARATUS FOR STACKING PANELS OR THE LIKE

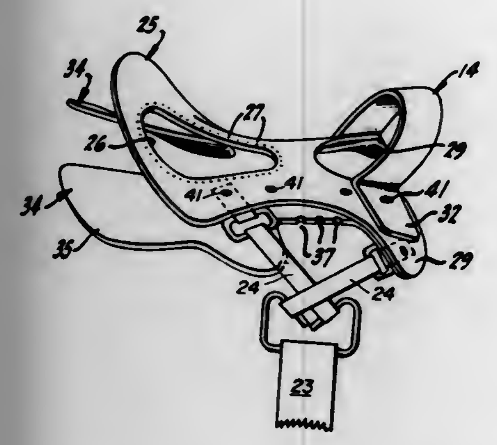
Duane A. Boltz, East Brunswick, N.J.; James J. Gardner, Hamilton, and Charles F. Hautau, Oxford, both of Ohio, assignors to Alcan Aluminum Corporation, Cleveland, Ohio
Filed Jan. 2, 1973, Ser. No. 320,662
Int. Cl. B65b *35/50, 35/56*
U.S. Cl. 53—157 **10 Claims**

Apparatus for automatically stacking metal siding panels for packaging, with successive panels in the stack inverted and/or laterally offset relative to each other so that their formed longitudinal edges are interfitted, and with protective sheets of paper interleaved between successive panels. The apparatus includes a conveyor for advancing the panels laterally, a plurality of heads with rotary arms movable into and out of a position for engaging and inverting panels advancing along the conveyor;, rotatable stop members at the end of the conveyor for arresting an advancing panel in any selected one of a plurality of positions spaced slightly apart from each other, and a plurality of indexing arms for successively gripping each arrested panel by suction and advancing it a fixed distance to a stacking locality where the indexing arms deposit the panels in parallel superposed relation, so that successive panels in the stack are laterally offset in correspondence with the spacing between the positions in which they are respectively arrested by the stop members. Sheets of paper to be interleaved with the panels are successively supplied to, and held on, a vacuum table adjacent the stacking locality; a movable wand operating in synchronism with the indexing arms picks up a sheet from the vacuum table, conveys it to the stacking locality, and deposits it on the uppermost panel at that locality, i.e. between deposit of successive panels on the stack. Successive adherence of the paper to the vacuum table and the wand, and release of the paper from the table and the wand, are effected by the reversible application of suction and air blasts to the paper through the table and the wand. Means are also provided for depositing a completed stack of panels on a carton blank and folding the blank around the panels.



3,835,621
SADDLE CONSTRUCTION, SEAT MEMBER FOR USE THEREIN, AND METHOD

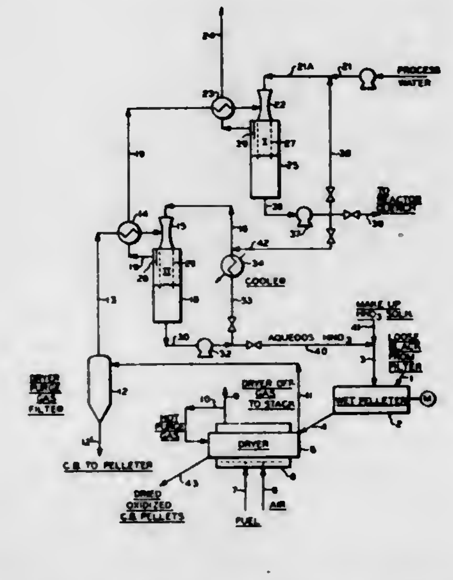
Matthias Gorenschek, 2784 Foothill Rd., Santa Barbara, Calif. 93105
Filed Aug. 14, 1972, Ser. No. 280,191
Int. Cl. B68c *01/02*
U.S. Cl. 54—44 **10 Claims**



A saddle with a flexible saddletree contained therein having a sheet-like seat member and having resilient padding on the underside allowing a continuous conforming fit to the back of a horse as the back of the horse changes shape due to muscle movement while the horse is in motion. The saddle has a pommel-like member in the forward portion and the rear of the seat is moved forward to provide a straight line dimension from the rear of the seat to the lower rear of the pommel-like member in the range of 8 to 14 inches. The forward portion of the seat is generally at the level of the seat, and in no event more than 1 ½ inches above the seat level. The shortening of the seat places a rider forward and the lowering of the forward portion of the seat removes the tendency for the rider to slide backward. The rider position is stabilized over the horse's withers without the necessity for an upper chest strap and the rider is placed in a position of minimum vertical motion when the horse is in motion.

3,835,622
REMOVAL OF NITROGEN OXIDES FROM CARBON BLACK PELLET DRYER PURGE GAS

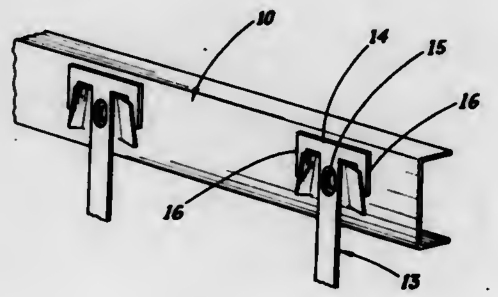
Eulas W. Henderson, Toledo, Ohio, assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Apr. 27, 1973, Ser. No. 354,982
Int. Cl. B01d *53/14*
U.S. Cl. 55—48 **4 Claims**



A combination of steps for removing nitrogen oxides from carbon black pellet dryer purge gas which, upon filtration, is scrubbed first with aqueous nitric acid solution and then with process water, the liquids being admixed, preferably, with aid of a jet venturi mixer and also in one modification the purge gas being heat interchanged with vent gas from at least one of the scrubbers to cool the purge gas before it is contacted with the scrubbing medium.

3,835,623
ELECTRODE SUPPORT APPARATUS FOR ELECTRICAL PRECIPITATORS

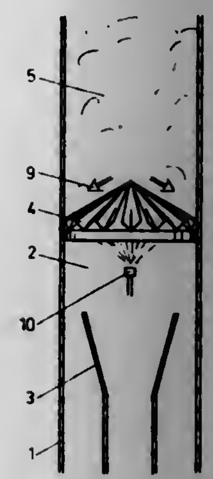
Richard L. Kline, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.
Filed Mar. 27, 1972, Ser. No. 238,247
Int. Cl. B03c *3/41, 3/86*
U.S. Cl. 55—148 **3 Claims**



An apparatus for supporting and electrically connecting a discharge electrode of an electrical precipitator, the apparatus comprising a support channel having a set of receiving tabs and in combination therewith an electrode hanger configured to be removably received by said tabs to electrically connect and support an attached electrode.

3,835,624
GAS TREATMENT APPARATUS

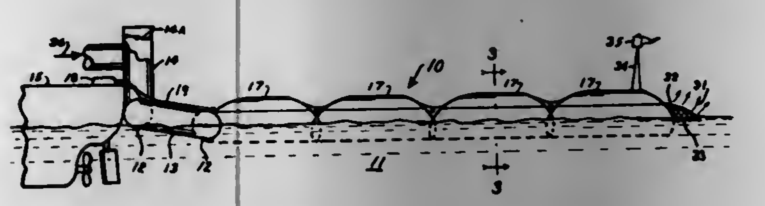
Leif Arne Ahlborg, Saltsjo-Boo, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden
Filed Aug. 27, 1971, Ser. No. 175,655
Claims priority, application Sweden, Aug. 28, 1970, 11703/70
Int. Cl. B01d *47/04*
U.S. Cl. 55—220 **12 Claims**



The gas to be purified is caused to flow upward in a vertical passage through a foam layer supported by perforated means situated in the gas passage. The perforated foam-supporting means comprises a conical element having open channels on its upper surface and forming openings for through-flow of the gas between these channels.

3,835,625
POLLUTION-REDUCING FLOATING EXHAUST

Cecil E. Williams, 334 Awini Pl., Honolulu, Hawaii 96825
Filed July 20, 1973, Ser. No. 381,260
Int. Cl. B01d *47/06*
U.S. Cl. 55—259 **14 Claims**

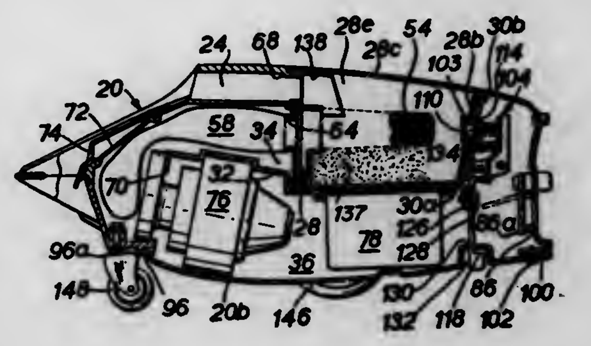


An articulated floating exhaust stack trails behind a ship to cool exhaust and to remove particulated matter. Exhaust flows through a universal joint to multiple articulated sections and contacts water along the bases of the trailing sections. Water sprays within the sections cool and wash the gases. Baffles slow and lengthen flow. Waves clean channels, baffles, and filters.

3,835,626
VACUUM CLEANER

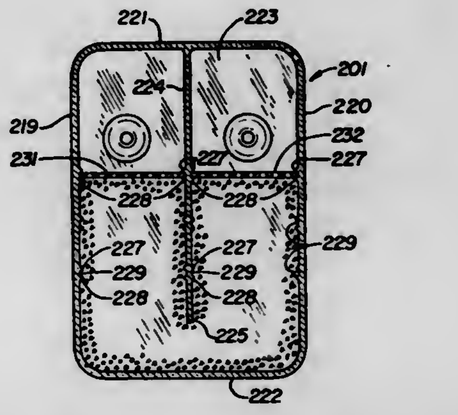
Yuji Miyake; Hideo Kashiwara, and Jun Mizukawa, all of Hyogo, Japan, assignors to Sanyo Electric Co. Ltd., Osaka, Japan
Continuation of Ser. No. 806,974, March 13, 1969, abandoned. This application Nov. 4, 1971, Ser. No. 195,802
Int. Cl. B01d *50/00*
U.S. Cl. 55—319 **9 Claims**

A vacuum cleaner including a two-stage filtering system positioned within a cleaner body for filtering the air before it passes through an electric motor fan unit. The two-stage filtering system comprises a first dust collecting receptacle having incorporated therein a filtering screen of a relatively large mesh size and detachably positioned within the cleaner body. The filtering system further includes a second filtering member of fine mesh size located immediately downstream of the first dust collecting receptacle within the cleaner body with its inlet opening communicating with the outlet opening of the first receptacle. Air with entrained dirt and dust particles taken into the cleaner body passes initially through the first receptacle where dust having a relatively large size is filtered from the air stream by the filtering screen and through the second filtering member where fine dust particles are removed from the air flow.



3,835,627
DISPOSABLE APPARATUS FOR CIRCLE ABSORPTION SYSTEM

Gale E. Dryden, Indianapolis, Ind., assignor to Dryden Corporation, Indianapolis, Ind.
Continuation of Ser. No. 131,873, April 7, 1971, abandoned. This application Jan. 31, 1973, Ser. No. 328,311
Int. Cl. B01d *53/04*
U.S. Cl. 55—387 **3 Claims**

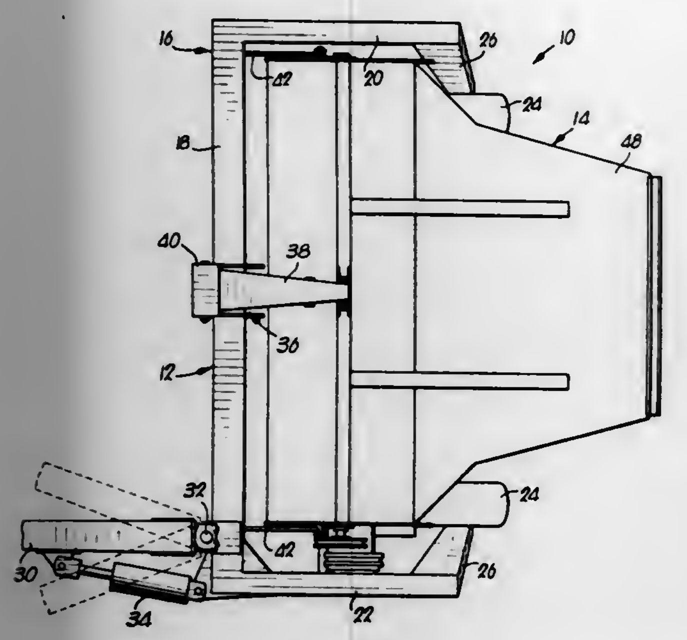


A circle absorption system for anesthesia, including a gas machine, a carbon dioxide absorbing canister, a gas supply hose thereto, rebreathing hoses and a mask connected thereto, absorbing medium therein, and a four way coupling having a pair of one way directional valves, a bleed valve and an outlet for receiving a rebreathing bag. The canister is rectangular in configuration and has recessed fittings for receiving the various hoses. The canister has a plate-groove arrangement whereby the size of chambers within the canister may be readily controlled while allowing quick and easy assembly of the canister.

3,835,628
HEADER FRAME

Cecil L. Case, Newton, Kans.; Robert L. Elder, Yukon, Okla., and Ferol S. Fell, Hesston, Kans., assignors to Hesston Corporation, Hesston, Kans.
Continuation-in-part of Ser. No. 161,688, July 12, 1971, Pat. No. 3,716,972. This application Jan. 10, 1973, Ser. No. 322,412
Int. Cl. A01d *45/02*
U.S. Cl. 56—14.4 **11 Claims**

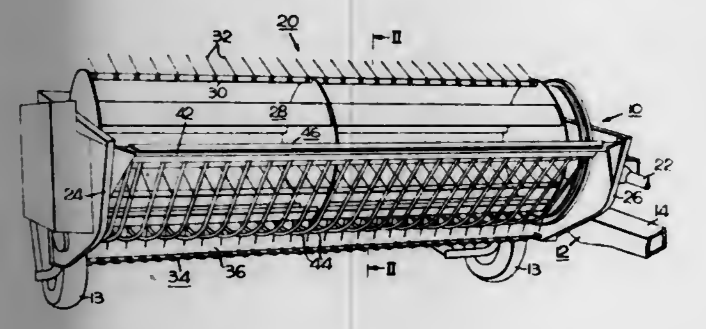
A header support frame, universally adapted for use with ground-working and crop-handling headers of various kinds and configurations, has a rearwardly opening, generally U-shaped main section supported above its ground-engaging wheels by virtue of a pair of rearwardly and inwardly inclined struts at the rearmost ends of each side beam of the section. The header selected for use is shiftably carried within the area thus defined by the frame section, the struts, and the wheels by a power lift assembly projecting into the open area from a crossbeam at the forward end of the frame section. A horizontally swingable tongue is coupled with the section at the forward end thereof for attaching the frame and its supported header to a towing vehicle.



3,835,629
CROP CONDITIONERS

John R. Rosendahl, New Berlin, Wis.; Willard W. Lay, Stephenville, Tex., and Paul H. Harrer, La Porte, Ind., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Mar. 8, 1973, Ser. No. 339,319
Int. Cl. A01d *57/26*
U.S. Cl. 56—14.4 **4 Claims**

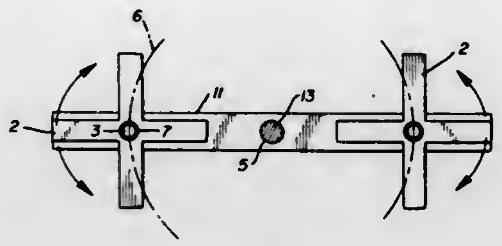


The invention relates to an agricultural hay harvesting machine of the mower-conditioner-windrower type having a main, wheeled frame extending in a fore and aft direction, a header subframe pivotally mounted on the main frame and including a header mounted on such subframe, a reel mounted over the floor of such header and wherein such floor has a sickle bar mechanism on the forward end thereof and a pair of cooperating crusher rolls mounted adjacent to the rear of such floor, a lean bar transversely extending across the forward end of the header, crop hold down and guiding tines attached to such lean bar and extending rearwardly between such reel and such floor to a position adjacent the bight of such crusher rolls for guiding crop material from such sickle bar to such crushing rolls.

3,835,630
ORBITAL PLANETARY MULTIBLADED REVOLVING CUTTER BLADES

Roland George Victor von der Au, P.O. Box 185, Halfway House, South Africa

Filed Nov. 6, 1972, Ser. No. 304,243
Int. Cl. A01d *55/18*
U.S. Cl. 56—295 **2 Claims**



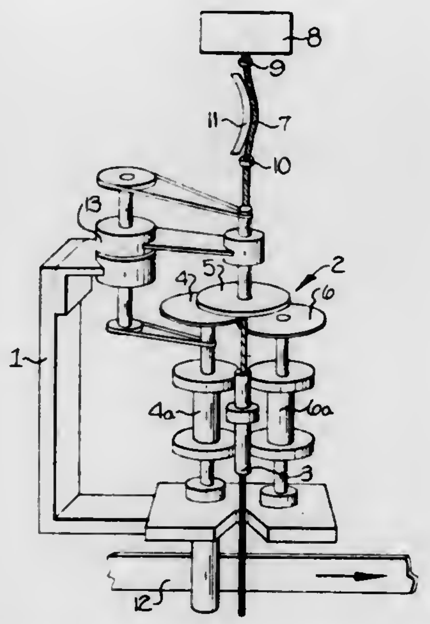
The orbital planetary multibladed revolving cutter blades are designed to be fitted to mowing and cutting machines, that mow or cut grass or vegetation, to provide an improved cutting action. Independant blade elements rotate past each other in a counter revolving direction.

Because the blades move in close proximity to each other a scissors action takes place, providing a better cutting action.

3,835,631
APPARATUS AND METHOD FOR TREATING THERMOPLASTIC YARNS

Heinz Schippers, Remscheid, Germany, assignor to Barmag-Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany

Filed Dec. 15, 1972, Ser. No. 315,545
Claims priority, application Germany, Dec. 23, 1971, 2164061
Int. Cl. D02g *1/02, 1/04*
U.S. Cl. 57—34 HS **8 Claims**

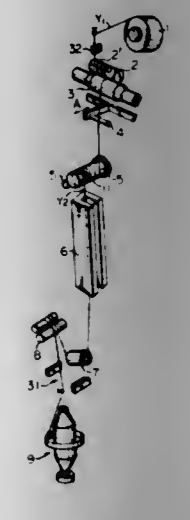


An apparatus for treating a thermoplastic, synthetic yarn at a high rate of production, whereby the treated yarn has a high degree of crimp resulting in an enhanced, uniform bulk throughout the length thereof. The apparatus comprises means for heating the yarn to a substantially plastic state, a friction-type false-twist unit positioned to receive the yarn in advance of the friction-type false-twist unit, a pin-type false-twist unit positioned to receive the yarn from the friction-type false-twist unit while at least a portion of the yarn remains plastic for imparting additional false-twist in the same direction as the false-twist inserted by the friction-type false-twist unit. This additional false-twist is applied between the friction-type false-twist unit and the pin-type false-twist unit and the net twist inserted by the friction-type false-twist unit and the pin-type false-twist unit substantially equals the total twist desired to be applied to said yarn.

3,835,632
DRAW-TEXTURING APPARATUS

Takashi Kishida, and Masateru Terano, both of Mihara, Japan, assignors to Teijin Limited, Osaka, Japan

Filed Oct. 23, 1973, Ser. No. 408,322
Claims priority, application Japan, Oct. 30, 1972, 47-107844
Int. Cl. D02g *1/02*
U.S. Cl. 57—34 HS **7 Claims**



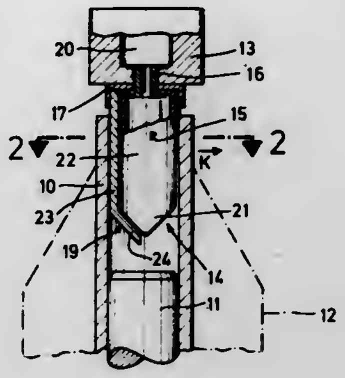
Undrawn filamentary yarns of thermoplastic synthetic fibers are drawn and false twisted, eliminating undesirable features such as short term flashes and non-uniformity of dyeability on the resulting yarns, by means of a draw-texturing apparatus wherein a pin is disposed at a position in the proximity of a yarn passage between a feed roller and a first delivery roller paired with a separate roller, so that the pin crosses the yarn passage and the axis of the delivery roller transversely and the pin is reciprocated in the direction of said axis and wherein means for positively preventing twist run-back into the upstream yarn passage beyond said first delivery roller is mounted.

3,835,633
GRIPPER FOR YARN CARRIERS AND THE LIKE

Konrad Klein, Ebersbach-Sulpach, Germany, assignor to Zinser-Textilmaschinen GmbH, Postfach, Germany

Filed Apr. 30, 1973, Ser. No. 355,873
Int. Cl. D01h *9/00;* **B66c** *1/46*
U.S. Cl. 57—52 **10 Claims**

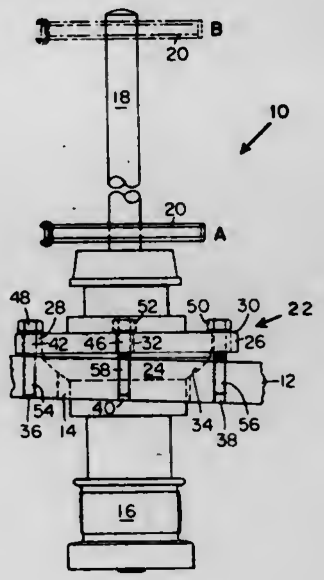
A gripper, installed on a gripper carrier, for gripping a yarn carrier (spool, bobbin and the like) is provided with a substantially rigid downwardly extending wall member having an exterior surface. The wall member is fixedly connected to a gripper carrier. The wall member, with a hollow element expandable under fluid pressure, can be inserted into the open interior of a yarn carrier. The external surface of the wall member forms a partial region of the circumference of the gripper. The hollow element is positioned adjacent the wall member and, in one embodiment, is formed in part by the wall member. Upon expansion of the hollow member under fluid pressure, the exterior surface of the wall and at least portions of the hollow member contact the interior surface of the yarn carrier.



3,835,634
SPINDLE MOUNTING

Gordon C. Anderson, Clemson, and Frank E. Brooks, Seneca, both of S.C., assignors to Saco-Lowell Corporation, Easley, S.C.

Filed Oct. 9, 1973, Ser. No. 404,833
Int. Cl. D01h *7/10, 7/08*
U.S. Cl. 57—130 **11 Claims**



Disclosed is a spindle mounting means carried in part by the spindle rail in the form of a convex spherical seat surface at the spindle receiving orifice and more than two joining holes thereabout which are threaded, and in part by the spindle assembly in the form of an encircling mounting member rigidly fixed thereto having a complementary convex seat surface for abutment with the rail seat and a laterally extending flange extending outwardly from the seat, the flange having a similar number and spacing of joining holes which are not threaded but are of larger diameter than the joining holes of the rail, and a similar number of joining and fixing members in the form of bolts which are passed through the wider flange holes and threaded and tightened into the rail holes, whereby spindle plumbing using this construction is achievable within five to fifteen seconds versus five to fifteen minutes with prior art constructions.

3,835,635

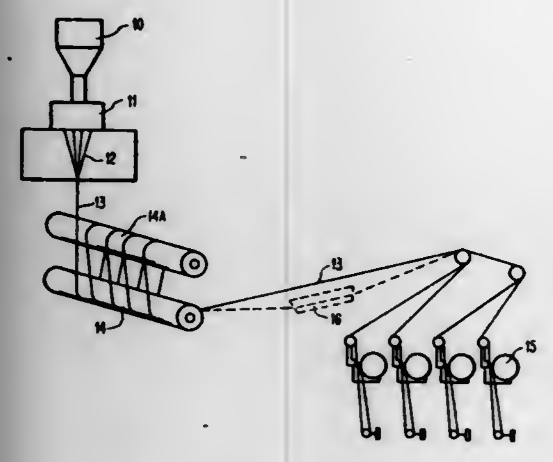
BASTING THREAD WITH REDUCING SHRINKABILITY AND HIGH SOLVENT REACTIVITY AND METHOD OF PRODUCING THE SAME

Homer S. Myers, Santurce, P.R., assignor to Fibrex Corp., Humacao, P.R.

Filed Aug. 18, 1972, Ser. No. 281,957

Int. Cl. D02g *3/46;* D02j *1/22;* D01d *5/16*

U.S. Cl. 57—140 R **4 Claims**



A polycarbonate basting thread which has high solvent reactivity to perchlorethylene and a reduced shrinkability when subjected to heat is disclosed. A process for manufacturing the thread is described.

3,835,636

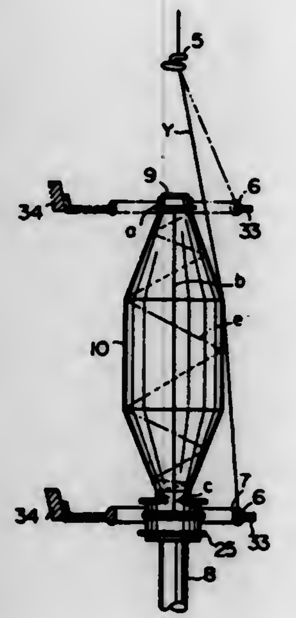
PROCESS FOR WINDING SYNTHETIC YARN

Hajime Nakanishi, and Kohei Kawashima, both of Matsuyama, Japan, assignors to Teijin Limited, Osaka, Japan

Filed Nov. 6, 1972, Ser. No. 303,871

Int. Cl. D01h *9/02;* B65h *54/86*

U.S. Cl. 57—156 **5 Claims**



The present invention is to provide an improved yarn winding process in a drawtwister for drawing, twisting and packaging synthetic yarn, particularly a yarn winding process when the drawtwister is brought to a standstill.

When a package is completed and the drawtwister is to be stopped, a ring is moved to the uppermost end of a bobbin with a full package to wind irregular yarn occuring while the machine is being stopped. In this state the machine is temporarily stopped and thereafter rerun for a short time to lower the ring to a waste spool at the base of the spindle to wind the irregular yarn on the waste spool and the machine is completely stopped.

3,835,637

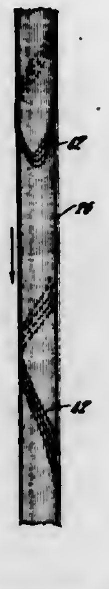
YARNS INCLUDING FIBROUS GLASS STRANDS AND METHODS OF THEIR PRODUCTION

Robert G. Russell, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 6, 1971, Ser. No. 205,041

Int. Cl. D02g *3/04, 3/18*

U.S. Cl. 57—140 BY **3 Claims**



This invention relates to simple, novelty and combination yarns including base or core strands of fibrous glass filaments with integrated and texturized characteristics derived from successively cutting some or all of the filaments of the strands, twisting the strands and supplementally entangling other, preferably fibrous, elements or organic or inorganic nature such as paper, cotton, rubber, synthetics, glass, or asbestos with the base strands for bulking and covering the strands and adding diverse properties thereto, the elements being held to the strands by wrapping of the ends of the cut filaments and ends of cut filaments or strands of the added elements, and by extra size or binder applied to the full assembly of materials.

3,835,638

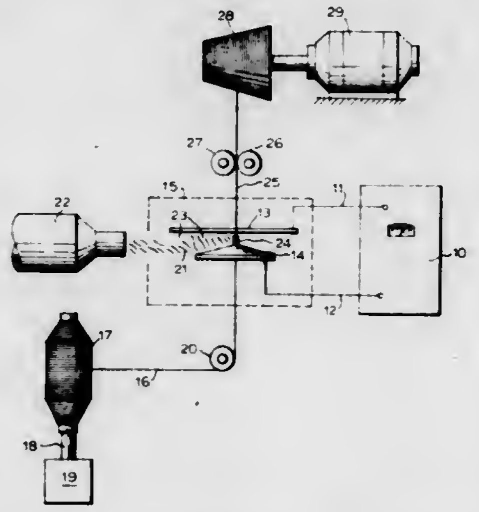
PROCESS FOR PRODUCING CORE YARN

Mayer Mayer, Jr., New Orleans; James I. Kotter; Harold L. Salaun, Jr., both of Metairie, and Roger S. Brown, New Orleans, all of La., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Division of Ser. No. 132,953, April 12, 1971, Pat. No. 3,696,600. This application Mar. 15, 1972, Ser. No. 235,074

Int. Cl. D02g *3/36, 3/38*

U.S. Cl. 57—144 **1 Claim**



This invention relates to a process for the continuous formation of various types of core yarn. Specifically this invention relates to the use of electrostatic, physical and chemical means for producing a core yarn. More specifically, this invention relates to a process for electrostatically, peripherally surfacing or plating a coring element with individual fibers to produce a core yarn. Still more specifically this invention relates to a process for electrostatically, peripherally surfacing or sheathing a coring element with individual fibers and means for treating the coring element with a crosslinking chemical formulation to permanently set the yarn configuration.

3,835,639

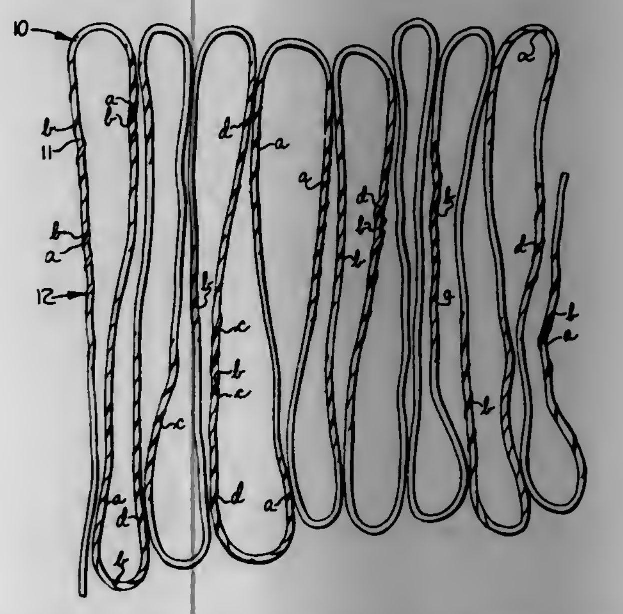
METHOD OF MAKING NOVELTY YARN

Johnathan L. Rhyne, Lincolnton, N.C., assignor to Paul C. Rhyne and Joseph M. Rhyne, both of Lincolnton, N.C., a part interest to each

Division of Ser. No. 205,887, Dec. 8, 1971, Pat. No. 3,778,992. This application Nov. 1, 1973, Ser. No. 411,781

Int. Cl. D02g *3/34;* D01h *1/12*

U.S. Cl. 57—156 **7 Claims**



A method of making novelty yarn in which a plurality of slivers are formed into a composite strand by directing the slivers through at least one drafting zone concurrently with which a plurality of pretwisted auxiliary strands are fed into the drafting zone and are stretched and broken into relatively short varying lengths randomly arranged along the composite drafted strand, after which the composite strand is drafted and twisted to form a novelty yarn thereof.

3,835,640

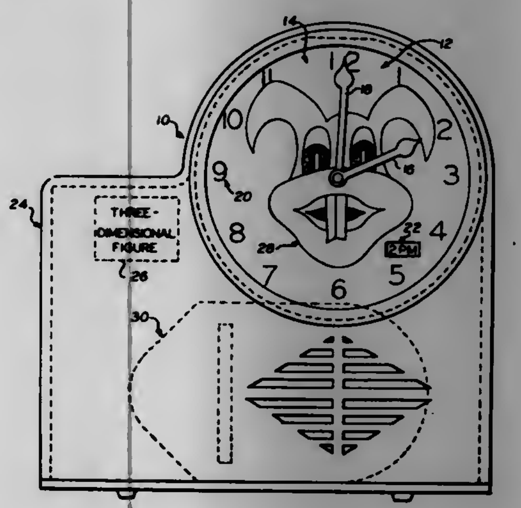
TALKING ALARM CLOCK

Alexander W. Hughes, Jr., 19 Wardell Cir., Oceanport, N.J. 07757

Filed Oct. 9, 1973, Ser. No. 404,172

Int. Cl. G04c *21/28*

U.S. Cl. 58—14 **5 Claims**



The method and apparatus for providing a wake-up alarm signal from an alarm clock having a face for displaying time indicia thereon and an identifiable character having an associated voice characteristic adjacent the time display wherein a prerecorded spoken wake-up message corresponding to and identifiable with this character for simulating a voice associated therewith as said wake-up alarm signal is provided at a preset time in response to the arming of an alarm circuit. This message may be repetitiveley provided until the alarm circuit is disabled. The message may be reproduced from a record by the engagement of the transducer, such as a needle, with a diaphragm. When the alarm circuit is disabled, a member on the alarm switch engages the diaphragm to disengage the contact between the diaphragm and the needle, the message can no longer be reproduced until such engagement is reestablished by movement of the switch to arm the alarm circuit. The needle is spring loaded to return to starting point of the message when the diaphragm is disengaged from contact with the needle.

3,835,641

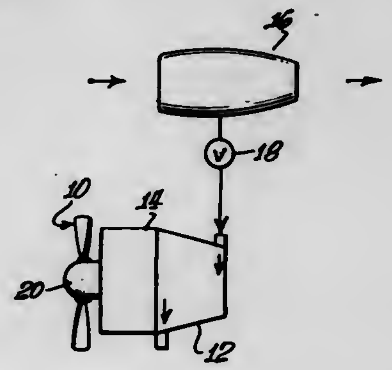
RAM FLUID TURBINE

Joseph A. Goodrich, Torrance, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Sept. 28, 1970, Ser. No. 75,905

Int. Cl. F02c *7/02;* B64d *41/00*

U.S. Cl. 60—716 **4 Claims**



A ram fluid turbine is described which includes convenient means to check out performance of the turbine on the ground and/or to enhance its performance during operation.

3,835,642

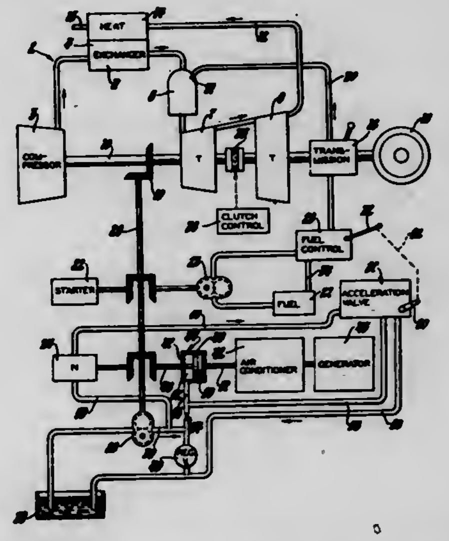
GAS TURBINE UNLOADER

Charles A. Amann, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 20, 1972, Ser. No. 308,137

Int. Cl. F02c *3/10, 7/02, 7/32*

U.S. Cl. 60—39.16 R **3 Claims**



A gas turbine engine of a gas-coupled type suited for driving a vehicle has auxiliary devices such as an air conditioning compressor and a generator driven by the gas generator turbine. To facilitate acceleration of the gas generator and thus acceleration of the vehicle from idling or low power condition, these auxiliary devices are temporarily declutched from the engine during such acceleration.

3,835,643

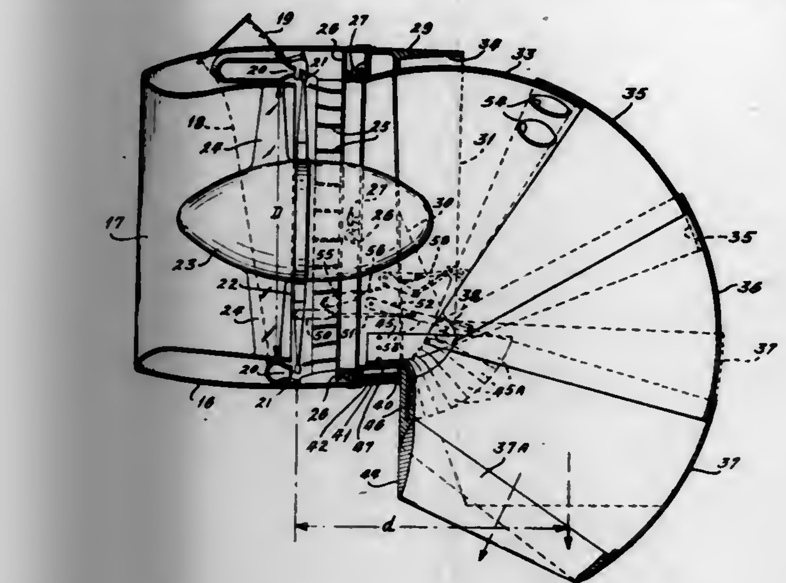
NESTED TOROID NOZZLE APPARATUS

Horacio J. De Garcia, Jr., Maryland Heights, and Vincent H. Zimmerman, Olivette, both of Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.

Filed Nov. 21, 1972, Ser. No. 308,533

Int. Cl. F02k *1/20;* **B64c** *15/08*

U.S. Cl. 60—230 **18 Claims**



A nested toroid nozzle apparatus for vertical or short takeoff aircraft in which the source of power may be a turbofan, turbotip fan, or turbojet engine thrust unit housed in an aerodynamically clean nacelle. The nacelle also carries the nozzle components making it possible to integrate the continuity of lift and cruise thrust throughout the range required to convert from vertical lift to forward acceleration and into cruise flight. The nozzle components provide a close coupling between the thrust fan plane and the centerline of the downwardly vectored thrust. The nozzle components have a toroidal shape for maximum nozzle efficiency, compactness and lightweight, assumption of primary thrust loads in hoop tension, and diffuser designed for minimum pressure losses during the vectored lift mode and conventional cruise mode.

3,835,644

REGENERATIVELY COOLED ROCKET COMPUSTION CHAMBER AND THRUST NOVEL ASSEMBLY

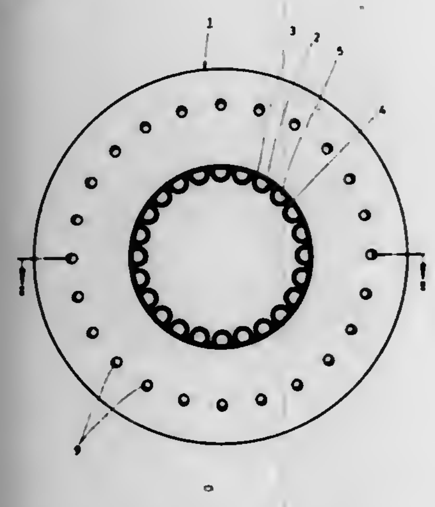
Karl Butter, Munich, and Kuno Knauer, Moosach, both of Germany, assignors to Messerschmitt-Bolkow Blohm GmbH, Munich, Germany

Division of Ser. No. 123,535, March 12, 1971, Pat. No. 3,738,916. This application Mar. 15, 1973, Ser. No. 341,361

Claims priority, application Germany, Mar. 28, 1970, 2015024

Int. Cl. F02k *11/02*

U.S. Cl. 60—267 **2 Claims**



A rocket combustion chamber or thrust nozzle asembly having an inner layer of substantially uniform thickness which has a plurality of wall bridges or ribs and cooling channels or recesses on the outer surface thereof and an outer layer also of substantially uniform thickness secured to the outer surface of the inner layer.

3,835,645

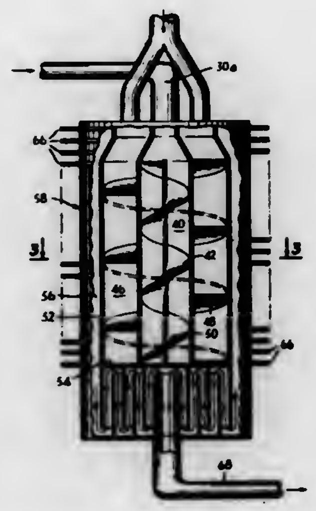
METHOD AND SYSTEM FOR REDUCING POLLUTANTS FROM ENGINE EXHAUST

Jose C. Zoleta, 54 169th St., Elmhurst, N.Y. 11373

Filed Feb. 8, 1973, Ser. No. 330,754

Int. Cl. F01n *3/10*

U.S. Cl. 60—274 **5 Claims**



A method for eliminating pollutants in the operation of an internal combustion engine is disclosed. The engine is operated so that only enriched hydrocarbon and carbon monoxide pollutants are produced during engine operation, there being no nitrogen oxide produced. The hydrocarbons and carbon monoxide are then reacted with ozone to convert them to water and carbon dioxide. A system for eliminating pollutants in the operation of a vehicle also is disclosed.

3,835,646

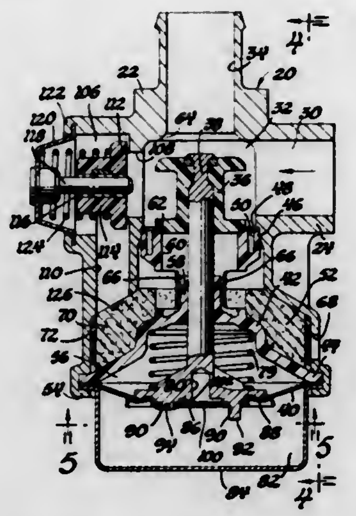
AIR FLOW CONTROL UNIT

Ernst L. Ranft, Webster; Gordon R. Paddock, and Jeremiah J. Murray, both of Rochester, all of N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 27, 1972, Ser. No. 301,619

Int. Cl. F02b *75/10;* **F16k** *51/00*

U.S. Cl. 60—290 **10 Claims**



In a system for delivering air from an air pump to an exhaust system for an internal combustion engine, an air flow control unit has pressure relief and anti-backfire valves which divert some or all of the air flow away from the exhaust system and instead discharge it directly to the atmosphere. An annular silencing chamber is integrated within the air flow control unit housing and is provided with a needled polyester fiber felt to silence the noise of the diverted air flow.

3,835,647

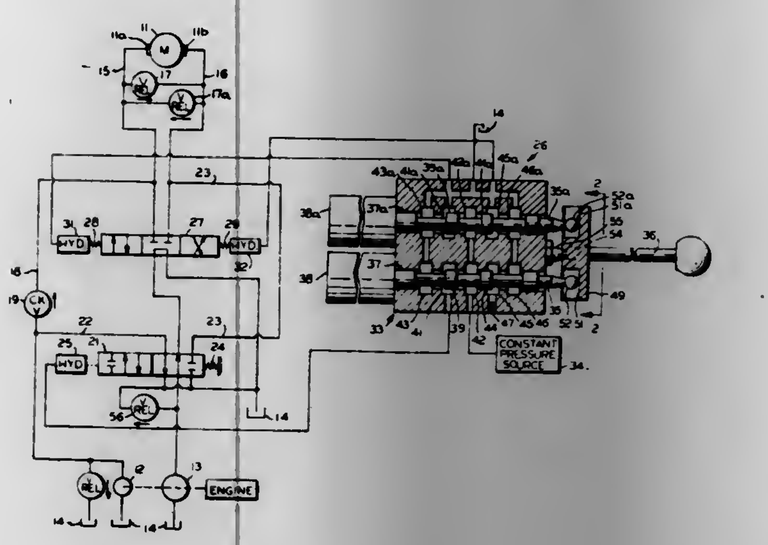
MULTIPLE SPEED HYDRAULIC DRIVE CIRCUIT

Theron M. Huffman, Paw Paw, Mich., assignor to General Signal Corporation, Rochester, N.Y.

Filed Jan. 27, 1972, Ser. No. 221,343

Int. Cl. F15b *15/18*

U.S. Cl. 60—486 **10 Claims**



The disclosure concerns a hydraulic power circuit particularly suited for use in driving the elevator of an earth-moving scraper, and which affords three driving speeds in the forward direction and one driving speed in reverse. The circuit preferably employs two fixed displacement pumps of different capacities, and a pair of pilot operated control valves which selectively cause the output of either or both pumps to be delivered to the drive motor. The control valves are so arranged that they may be incorporated in a single, conventional valve body, and that neither has to be sized to handle the combined outputs of both pumps.

3,835,648

HEATER FOR HOT-GAS ENGINE

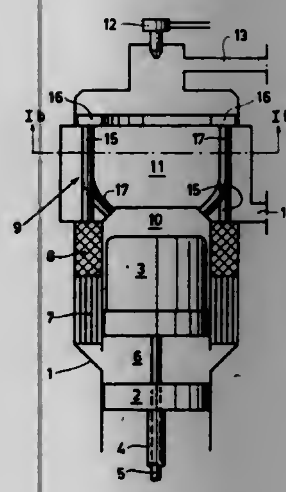
Anton Marie Nederlof, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 22, 1972, Ser. No. 308,766

Claims priority, application Netherlands, Dec. 11, 1971, 7117032

Int. Cl. F02g *1/06*

U.S. Cl. 60—524 **4 Claims**



A hot-gas engine having a heater comprising at least one row of pipes arranged in a circle around a space for combustion gases, at least one pipe being wider than the remaining pipes in a radial direction of the circle.

3,835,649

HYDROPNEUMATIC CHUCK ACTUATING DEVICE

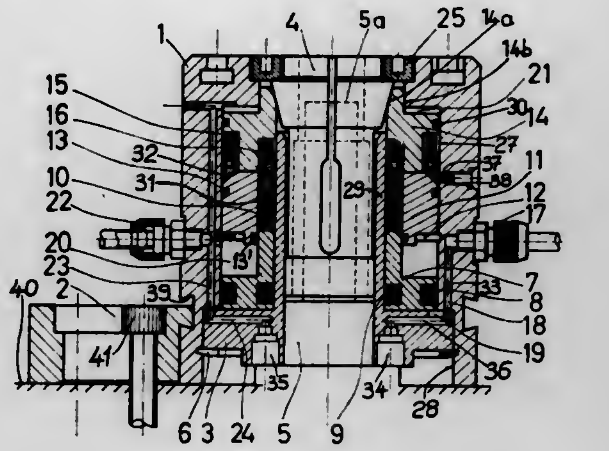
Claude Le Testu, 20 rue des Buttes, 74300 Cluses, France

Filed May 29, 1973, Ser. No. 364,245

Claims priority, application France, May 29, 1972, 72.19407

Int. Cl. F15b *7/00*

U.S. Cl. 60—560 **1 Claim**



A hydropneumatic chuck-actuating device comprises a double walled tubular body with a central bore adapted to receive a chuck and an annular chamber defined between the walls of the body. The annular chamber is divided by a fixed annular piece into parts of different transverse cross-sectional area. Primary and secondary annular pistons are slidably mounted in the annular chamber about a hydraulic fluid, in a manner to multiply a pneumatic force applied on the primary piston into a greater force on the secondary piston which actuates closing of the chuck. Opening of the chuck is provided by simultaneously pneumatically acting on the two pistons.

3,835,650

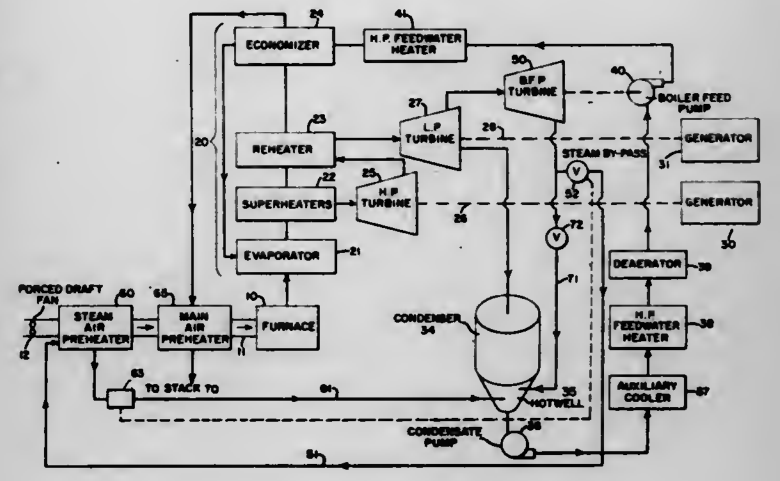
STEAM AIR PREHEATER FOR A STEAM BOILER SYSTEM

Stephen Chesmejef, Lunenburg, Mass., assignor to General Electric Company, Schenectady, N.Y.

Filed May 3, 1973, Ser. No. 356,706

Int. Cl. F01k *7/44*

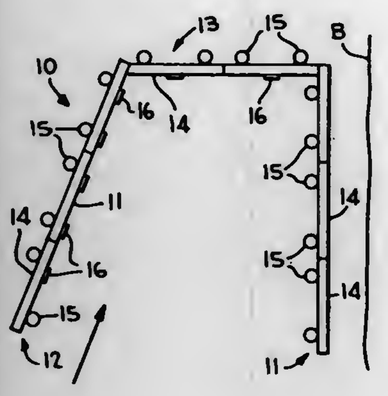
U.S. Cl. 60—690 **4 Claims**



A steam boiler system includes a steam air preheater disposed in inlet ducting for preheating intake air. A boiler feed pump provides high-pressure water to a boiler which in turn produces steam to drive a main turbine. Exhaust flow from the turbine is routed directly to a main condenser, with the exception of a small extraction flow which is used to drive a boiler feed pump turbine. Prior to returning to the condenser, the boiler feed pump turbine exhaust is conducted through the steam air preheater. As system conditions demand, the boiler feed pump turbine exhaust is sent directly to the condenser without going through the steam air preheater.

3,835,651
LITTORAL FLOW TRAP OR BASIN

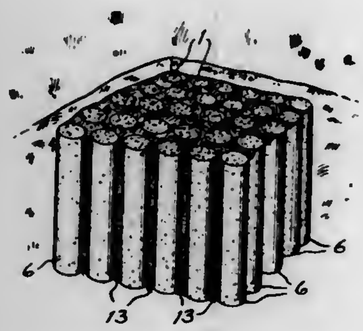
Arthur B. Butterworth, deceased, late of Smithfield, Va., and Roland A. McCoy, executor, Hampton, Va., assignors to Helen Libbey Butterworth, Smithfield, Va.
Filed Oct. 27, 1972, Ser. No. 301,514
Int. Cl. E02b *3/06*
U.S. Cl. 61—4 **5 Claims**



A littoral flow trap or basin designed to effect the build-up of a beach and to prevent future erosion, including interconnecting inshore and offshore bulkheads open to the littoral flow direction for trapping gravel material and the like therewithin.

3,835,652
RUBBISH DISPOSAL METHOD

Walter Hignite, N59 W 14272 Bobolink Ave., Menomonee Falls, Wis. 53051
Continuation of Ser. No. 95,060, Dec. 4, 1970, abandoned. This application Sept. 18, 1972, Ser. No. 289,765
Int. Cl. B65g *65/28;* **E02d** *15/00*
U.S. Cl. 61—35 **1 Claim**

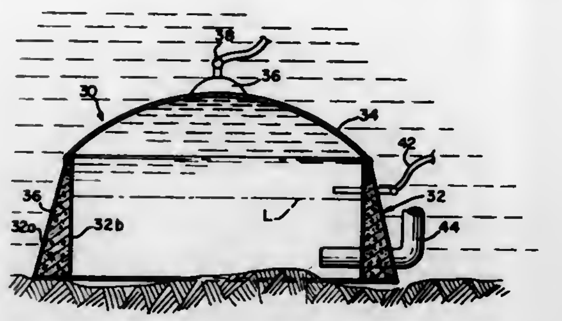


Rubbish is disposed of by drilling a plurality of large vertical holes in a large area of land having relatively firm soil. Small charges of loose rubbish are dumped into each hole. After each charge is dumped, the rubbish is compacted, as by hammering and/or downward compression. The area may then be covered with soil. To provide stability, the holes are drilled to a point above the water table, and adjacent holes are spaced and separated by a substantial mass of soil.

3,835,653
UNDERWATER STORAGE DEVICE

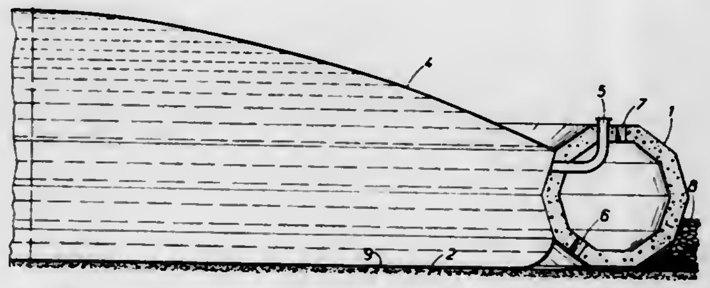
Charles M. Hix, Jr., Bryan, Tex., assignor to Arcadia Refining Company, Tyler, Tex.
Division of Ser. No. 879,653, Nov. 25, 1969, Pat. No. 3,675,427. This application Sept. 24, 1971, Ser. No. 183,712
Int. Cl. B65g *5/00;* **E02b** *17/00*
U.S. Cl. 61—46.5 **5 Claims**

An underwater storage device for storing fluids lighter than water wherein a tank is formed of a cylindrical wall having a top closure and an open bottom so that the fluids will enter into the tank and pass upwards toward the top closure. The tank is adapted to be positioned in the water without any rigid restraints.



3,835,654
SUBMERSIBLE TANKS CONTAINING OIL OR SIMILAR LIQUIDS

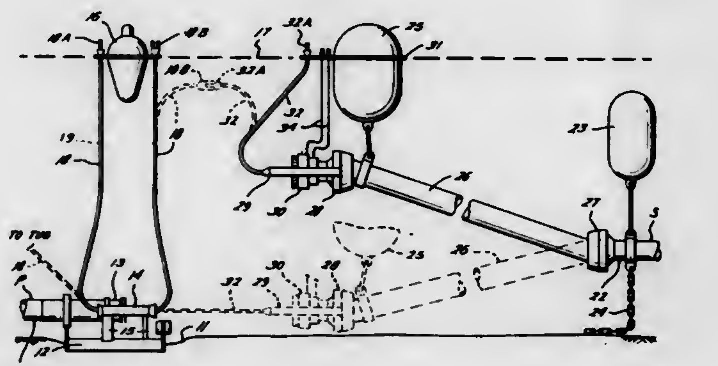
Claude J. Lehanneur, Le Vesinet, France, assignor to Campenon Bernard Europe, Paris, France
Filed Sept. 8, 1972, Ser. No. 287,237
Claims priority, application France, Sept. 9, 1971, 71.32557
Int. Cl. B65d *89/06;* **B65g** *5/00*
U.S. Cl. 61—46.5 **15 Claims**



Tank for containing oil or a similar liquid, which is immersed in the sea. This tank comprises a ring of tore shape and hollow section, which lies on the ground, and at least one elastic membrane peripherally attached to the ring for delimiting the space where oil is introduced.

3,835,655
METHOD AND APPARATUS FOR CONNECTING SUBSEA FLOW LINES

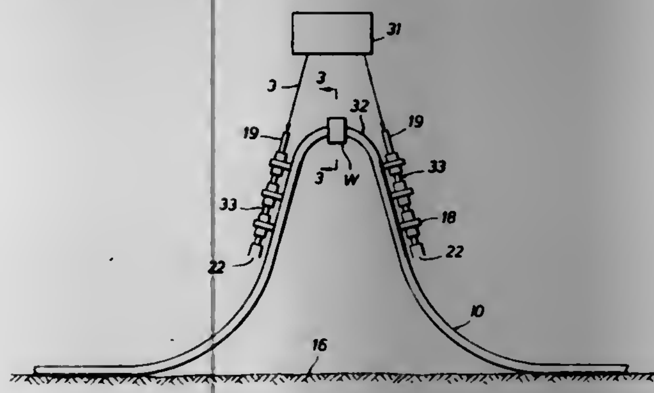
John P. Oliver, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.
Filed June 27, 1972, Ser. No. 266,701
Int. Cl. F16l *35/00*
U.S. Cl. 61—72.3 **11 Claims**



Apparatus and method are disclosed for remotely joining two subsea flow lines, such as two portions of a subsea pipeline. One of the pipeline portions is generally laid prior to connection with the other pipeline portion and a first marker buoy detachably supports a tow line portion passing from the marker buoy, through a guide member mounted on an end of said one pipeline portion and back to the marker buoy. A second tow line portion is connected between an end of the other pipeline portion to be laid and a second marker buoy. During the pipeline connection operation, the tow line portions are connected together, the to-be-laid pipeline portion lowered in the water until adjacent the first laid pipeline portion, and the connected tow line pulled until the pipeline portions are joined. Mating parts of a remotely actuated collet connector are provided on the ends of pipeline portions to be joined, and these parts are guided into place during joining for providing a sealed connection.

3,835,656
METHOD AND APPARATUS FOR SUPPLYING TEMPORARY BUOYANCY TO AN UNDERWATER PIPELINE

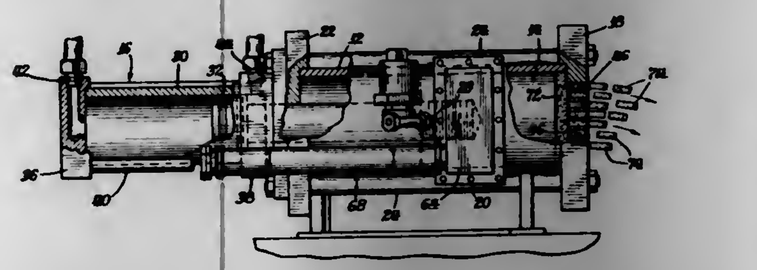
David C. McDermott, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.
Filed Sept. 1, 1972, Ser. No. 285,945
Int. Cl. B63b *35/04;* **F16l** *1/00*
U.S. Cl. 61—72.3 **8 Claims**



Temporary buoyancy is supplied to a submarine pipeline by connecting one or more sections of interconnected thin walled pipe members to a submarine pipeline such that a compressed gas may be supplied to the thin walled members enabling the net weight in water of combined pipes to be controlled to approximately zero. The compressed gas is ultimately replaced by water as a result of manipulations performed at the water surface.

3,835,657
CARBON DIOXIDE EXTRUDED PELLETS

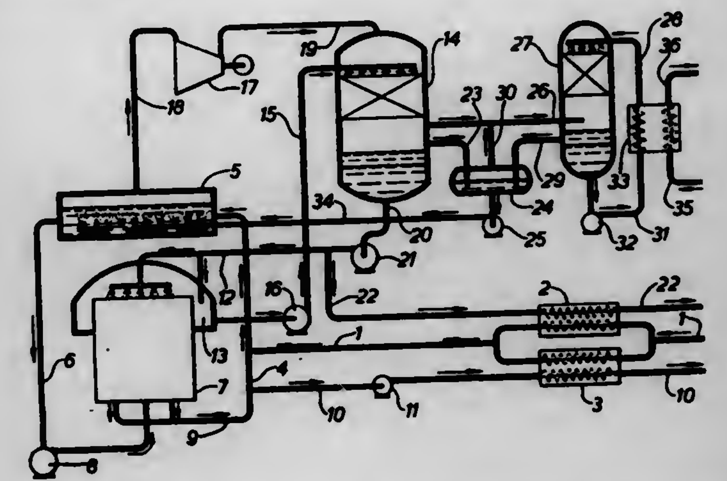
John A. Scudder, Homewood, Ill., assignor to Chemetron Corporation, Chicago, Ill.
Filed Oct. 26, 1971, Ser. No. 192,138
Int. Cl. F25j *1/00*
U.S. Cl. 62—35 **1 Claim**



Apparatus for producing carbon dioxide extrusions such as pellets by flashing carbon dioxide liquid to form carbon dioxide snow and vapor in a chamber. A reciprocating piston in the cylinder compresses the snow material and extrudes compacted carbon dioxide snow through extrusion orifices at one end of the chamber. The chamber is constructed with openings in the lateral wall to permit part of the snow to be ejected therethrough into a snow retaining box, the snow in the box being employed as a porous filter to separate the vapor from the snow within the chamber.

3,835,658
FREEZE CRYSTALLIZATION OF SALINE WATER WITH A DIRECT CONTACT REFRIGERANT

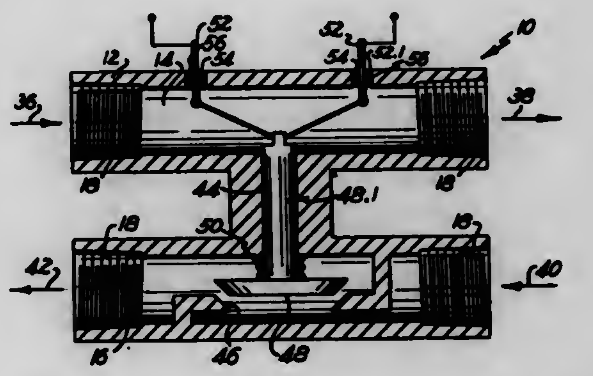
John Henry Wilson, Stockport, England, assignor to United Kingdom Atomic Energy Authority, London, England
Filed Jan. 31, 1973, Ser. No. 328,368
Claims priority, application Great Britain, Feb. 11, 1972, 6409/72
Int. Cl. B01d *9/04*
U.S. Cl. 62—58 **7 Claims**



A method and apparatus for the desalination of saline water by freezing in which a mixture of ice and concentrated saline water is formed by cooling the saline water by heat exchange with an evaporating liquid refrigerant, the ice is separated from the concentrated saline water and melted, and at least a portion of the evaporated refrigerant is reliquified by heat exchange with an aqueous solution which is itself cooled by heat exchange with liquid methane or liquid natural gas.

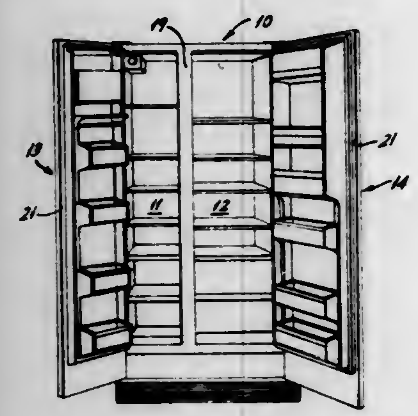
3,835,659
THERMAL EXPANSION VALVE REFRIGERATION SYSTEMS

Lyle E. McBride, Jr., Norton, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Apr. 16, 1973, Ser. No. 351,749
Int. Cl. F25b *41/04*
U.S. Cl. 62—202 **7 Claims**



This disclosure relates to a compact, reliable and inexpensive expansion valve for use in a refrigeration system. The valve has one passage to be arranged between the evaporator and the compressor of the refrigeration system and has a second passage to be arranged between the condenser and evaporator in the system. A valve member disposed in the second passage is spring biased to normally close that passage and a wire of a selected nickel-titanium alloy or the like is connected to the valve member and disposed in the first valve passage, this wire being adapted to abruptly contract in length for moving the valve member to open the second valve passage when the wire is heated above a selected transition temperature. A small electrical current is directed through the wire so that, when sufficient refrigerant has been released into the evaporator through the second valve passage, droplets of liquid refrigerant in the atmosphere moving from the evaporator to the compressor of the refrigeration system through the first valve passage cool the alloy wire and permit the noted spring bias to move the valve member to close the second valve passage. However, when no liquid droplets of refrigerant are present in the noted atmosphere, the alloy wire is heated to the noted temperature by the electrical current flowing through the wire, the wire then contracting in length for opening the second valve passage to allow more liquid refrigerant to enter the evaporator.

3,835,660
REFRIGERATOR CABINET CONSTRUCTION
Howard S. Franck, Oxford, Ohio, assignor to Philco-Ford Corporation, Blue Bell, Pa.
Filed Jan. 12, 1973, Ser. No. 322,976
Int. Cl. F25b *47/00*
U.S. Cl. 62—277 **3 Claims**

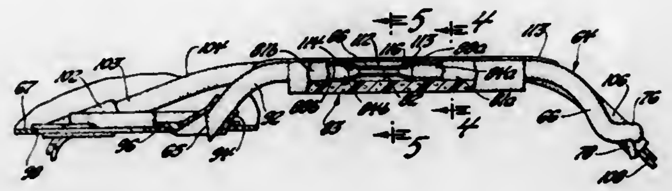


Refrigerator cabinet construction including an outer shell and a double compartment inner liner formed from a single sheet of thermoplastic material and having, in the general plane of the doors, a mullion provided between the two compartments and against which adjacent edges of the doors are adapted to seal. A portion of the hot gas line from the refrigerator condenser system extends along the rear surface of the mullion, between the adjacent side walls of the two compartments, to prevent condensation upon the exterior surface of said mullion by insuring that it is maintained at a temperature above the dew point of the ambient air. A strip of semi-flexible material of high magnetic permeability extends along the length of the mullion and has said dew point compensator tubing secured in high heat exchange relation with its rearwardly presented surface. During manufacture of the refrigerator the forwardly presented surface of said strip is maintained in intimate contact with the interior surface of the mullion through the agency of elongated magnetic means which is disposed adjacent the outer surface of the mullion during assembly of the cabinet, and particularly during foaming of insulation in the space between the inner liner and outer shell. The foamed-in-place insulation presses against the resilient strip and maintains it in good thermal relation with the interior surface of the mullion, after the magnetic means has been removed.

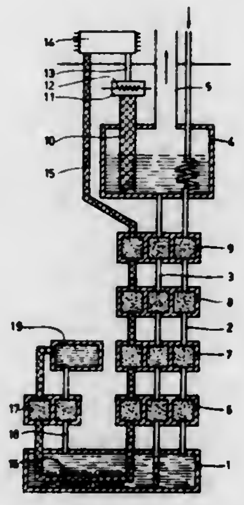
In the resultant cabinet construction the intimate contact between the strip of material of high permeability and the interior surface of the mullion insures high heat exhange relation between the dew point compensator tube and the mullion, the strip at the same time being available as an armature, permitting use of door sealing gaskets of the magnetic type.

3,835,661
AUTOMATIC ICE MAKER WATER LINE WITH MENISCUS CONTROL
Donald P. Kochendorfer, and Charles C. Whistler, Jr., both of Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich.
Filed Sept. 20, 1973, Ser. No. 398,932
Int. Cl. F25c *5/18*
U.S. Cl. 62—340 **3 Claims**

A water supply conduit extending through the insulation of a refrigerator top wall with its outlet nozzle positioned above the freezing tray of an ice maker. The conduit has its intermediate generally horizontally disposed portion formed with a reduced tubular throat such that the receding movement of the meniscus of the liquid in the conduit stops at the downstream side of the throat when the water line flow is shut off by valve means, to control the positioning of the water change and thereby prevent water drippage from the conduit outlet to obviate ice blockage of the line.

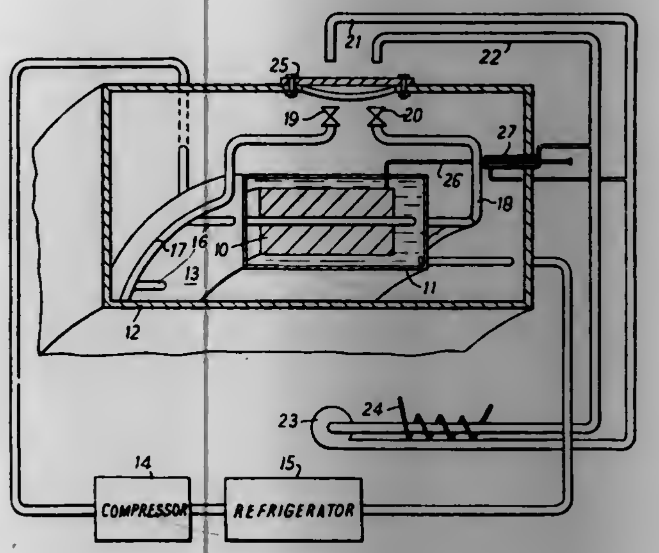


3,835,662
DEVICE FOR TRANSPORTING HEAT FROM A LOWER TO A HIGHER TEMPERATURE LEVEL
Frans Adrianus Staas, and Adrianus Petrus Severijns, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Mar. 14, 1973, Ser. No. 340,954
Claims priority, application Netherlands, Mar. 18, 1972, 7203659
Int. Cl. F25b
U.S. Cl. 62—467 **2 Claims**



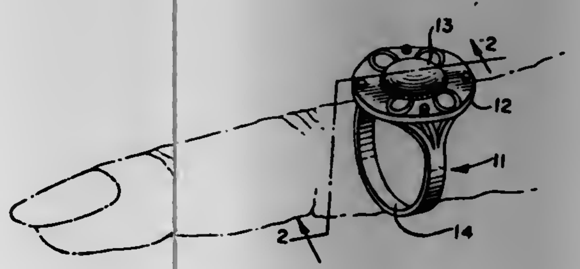
A device for transporting heat between two temperature levels which are situated below 1°K, provided with a mixing chamber having an inlet duct for the supply of a medium flow consisting mainly of ^{3}He. The mixing chamber is connected, via a connection duct which is in heat-exchange with the inlet duct, to an evaporation reservoir. The mixing chamber, the connection duct and the evaporation reservoir contain a mixture of ^{4}He and ^{3}He during operation. The evaporation reservoir is provided with an outlet for mainly ^{3}He in the vapour phase, and the device furthermore comprises at least one superleak, one side of which opens into and near the bottom of the evaporation reservoir. Its other side communicates with a space provided with a heating device, the said space communicating, via a narrow duct and a cooler, with a duct in which a number of superleaks are arranged. Between the super-leaks heat-exchanging chambers are arranged which exchange heat with the connection duct and the inlet duct. The other end of this inlet duct opens into the upper part of a second mixing chamber. The first and the second mixing chamber are interconnected by a further connection duct which opens into the lower part of the second and into the upper part of the first mixing chamber.

3,835,663
SUPERCONDUCTING DYNAMO-ELECTRIC MACHINES
Anthony Derek Appleton, and Frank Tinlin, both of Newcastle Upon Tyne, England, assignors to International Research & Development Company Limited, Tyne, England
Filed Apr. 27, 1973, Ser. No. 354,985
Claims priority, application Great Britain, May 1, 1972, 20189/72
Int. Cl. F25b *31/00*
U.S. Cl. 62—505 **2 Claims**



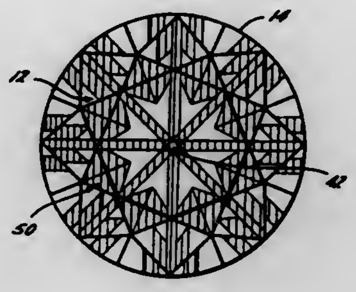
A homopolar dynamo-electric machine having a stationary superconducting field winding contained in a cryostat through which liquid helium is circulated by a main cooling circuit is provided with an auxiliary cooling circuit to allow the winding to operate at partial load in the event of failure of the main cooling circuit or of the vacuum insulation of the cryostat.

3,835,664
RING WITH MAGNETICALLY SECURED SHIM HELD BY ADHESIVELY SECURED MEMBER
Alice F. Nesbit, 725 Grove St. N., St. Petersburg, Fla. 33701
Filed Feb. 25, 1974, Ser. No. 445,810
Int. Cl. A44c *9/02*
U.S. Cl. 63—15.6 **8 Claims**



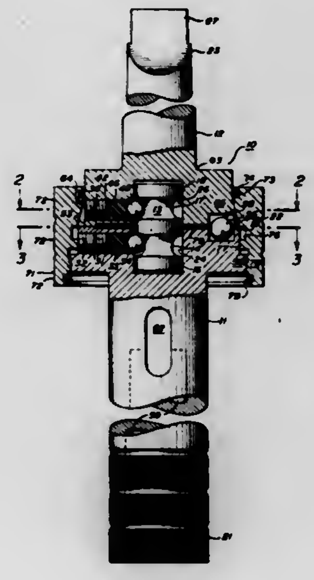
Means for reducing the diameter of a finger ring to produce a fit secure and comfortable for the wearer. The ring is fitted with a relatively flat member directly beneath the setting facing inwardly of the ring. This member may be constructed of a magnetic material or may be of a material such as iron which is attracted to a magnet. The member is secured by means of a suitable adhesive or by soldering or the like. In order to reduce the diameter size of the ring, a disc-like shim, which may be a magnet, is positioned on the underside of the secured member. The shim, is not adhesively secured but is secured to the member by magnetic attraction so that if the member is a magnet, the shim need not be, but can be of an attractable material. Shims of varying sizes may be employed so that the diameter of the ring may be modified over considerable reductions.

3,835,665
FACETED GEM WITH EMBEDDED MEANS FOR PRODUCING VARIABLE PATTERN
George Behrman Kitchel, 3801 Kirby Dr., Room 458, Houston, Tex. 77006
Filed Apr. 13, 1973, Ser. No. 350,919
Int. Cl. A44c *17/00*
U.S. Cl. 63—32 **5 Claims**



The invention includes a substance embedded within the faceted pavilion of a stone causing a dispersed pattern to appear in the faceted crown of the stone.

3,835,666
VERSATILE TOOL HOLDER
John T. Hoffman, 1604 E. Greenleaf St., Allentown, Pa. 18103
Filed Aug. 30, 1973, Ser. No. 393,075
Int. Cl. F16d *3/00*
U.S. Cl. 64—6 **7 Claims**

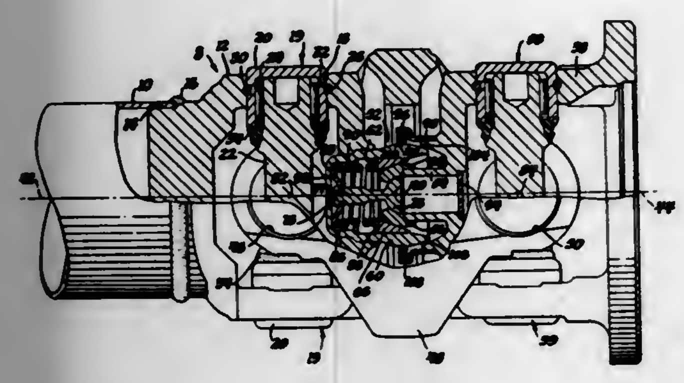


This invention is directed to a tool holder, which can be made both floating and rigid, for use vertically in a drill press, or horizontally in a milling machine or lathe. The novel tool holder provides for designs which allow for the feed pressure to exactly centralize with and equal the coupling pressure.

3,835,667
DOUBLE CARDAN UNIVERSAL JOINT WITH IMPROVED CENTERING MEANS
Kenneth K. King, Saginaw, and Robert L. White, Frankenmuth, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed July 12, 1973, Ser. No. 378,789
Int. Cl. F16d *3/26*
U.S. Cl. 64—17 R **5 Claims**

A double Cardan universal joint has a centering means in which the ball seat is biased into engagement with the centering ball with a constant spring force. Specifically, a movable ball seat is biased by a spring which reacts against a member which slides on the longitudinal axis of the yoke carrying the ball seat and which pivots on the yoke carrying the fixed centering ball about the centering ball center.

An improved sealing arrangement is also disclosed. Specifically, a synthetic rubber lip seal seals against the major diameter portion of an outer spherical surface on a sleeve carrying the ball seat. Such an arrangement removes the synthetic rubber lip seal from the heat generated by the centering ball and ball seat and minimizes the flexure of the lip seal during joint operation.



3,835,668
COMBINED KNITTING FEED AND TRANSFER FEED CIRCULAR KNITTING MACHINE

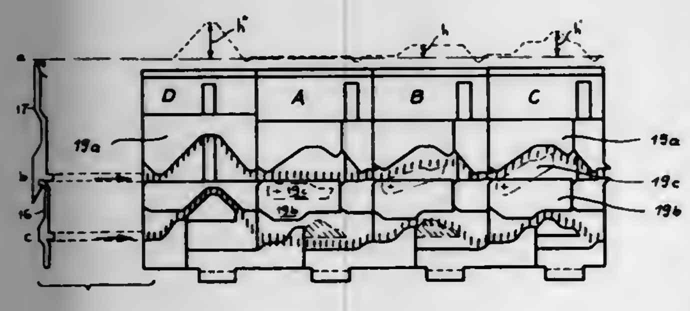
Alfred Schiebel, Rottenburg; Falk Kuhn, Kiebingen; Hermann Beuter, and Alfred Planck, Jr., both of Rottenburg, all of Germany, assignors to Fouquet-Werk Frauz & Planck, Rottenburg am Neckar, Germany

Filed Apr. 24, 1972, Ser. No. 246,651

Claims priority, application Germany, Apr. 22, 1971, 2119530

Int. Cl. D04b *9/06, 9/26*

U.S. Cl. 66—19 **9 Claims**



Both the cylinder and dial cam structures are formed with needle butt raceways defining respective needle curves, and are sub-divided into segments which are all of similar angular extent, some of the segments of the cylinder and dial cam structures being formed with raceways which provide for knitting feeds, and others with raceways providing transfer feeds; the segments are individually removably mounted on the machine, and the needle raceways in the segments are so arranged that the terminal portions thereof match adjacent raceways to permit selective interchange and placement of segments in accordance with desired knitting patterns; to provide for selective disabling of blanking or eliminator drums of Jacquard drum selectors, in both knitting feeds and transfer feeds, a pair of cam rings provide for mechanical index control of the pattern drum of the Jacquard selector, and electrically operated, solenoid controlled interlocks are provided to control indexing of the blanking drum, which can be done in accordance with a programmed pattern.

3,835,669
PATTERNING MECHANISMS FOR KNITTING MACHINES

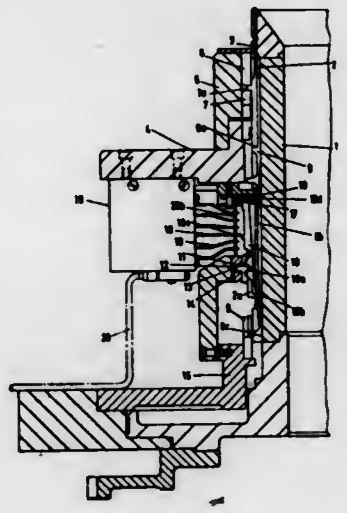
Peter Michael Findlay; Sidney Clifford Savage; John Michael Klee, and Joseph Eric Gamble, all of Leicester, England, assignors to Wildt Mellor Bromley Limited, Leicester, England

Filed Apr. 5, 1972, Ser. No. 241,115

Claims priority, application Great Britain, Apr. 8, 1971, 9132/71; May 14, 1971, 15072/71

Int. Cl. D04b *15/78*

U.S. Cl. 66—50 R **14 Claims**



The invention relates to patterning mechanisms for modified knitting machines. It particularly relates to patterning mechanisms in the form in which the needles are lifted by jacks having lifting butts movable between a position for engagement with a lifting cam at each feed station and a position for missing the lifting cams, the lifting butts being moved to cam-missing position by rocking pressers cammed outwardly on approach to each feed station, to cause retraction of the associated jack, and the rocking pressers having, or being associated with, patterning butts which cooperate with selectors which either miss the patterning butts to retain the lifting butts in cam-missing position, or strike the patterning butts to rock the pressers to cause return of the lifting butts to the lifting cam engaging position. According to the invention, the action to operate the pressers to move the lifting butts to cam-engaging position comprises a first motion in one direction parallel with the needles, and a second motion perpendicular to the needles to complete the operation of the pressers, one of said two motions being applied to the pattern butts by the selectors, and the other being applied to the pressers by a formation fixed relative to the lifting cam.

3,835,670
NEEDLE BED TRANSLATION CONTROL ASSEMBLY

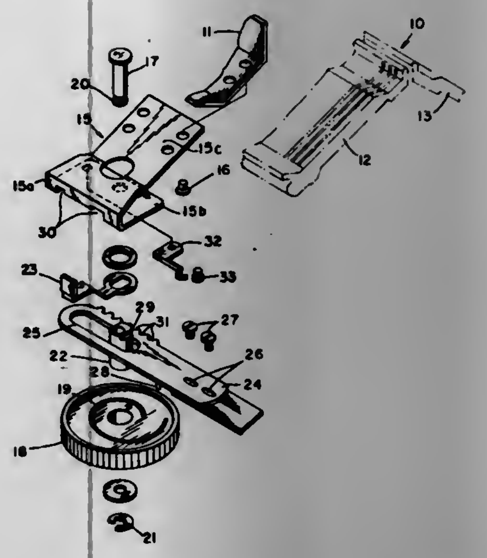
Howard David Rogers, Westfield; John Charles Cariddi, Saddlebrook, and Henry Schaeflern, Pittstown, all of N.J., assignors to The Singer Company, New York, N.Y.

Filed Aug. 30, 1973, Ser. No. 393,083

Int. Cl. D04b *7/00, 7/20*

U.S. Cl. 66—69 **5 Claims**

A needle bed translation control assembly for a home knitting machine comprising a mounting bracket carried by the needle bed, a dial cam with a cam groove therein, a link member fixed to the frame of the machine having a pin thereon adapted to ride within said groove, rotation of said dial cam resulting in predetermined translational movement of said needle bed.



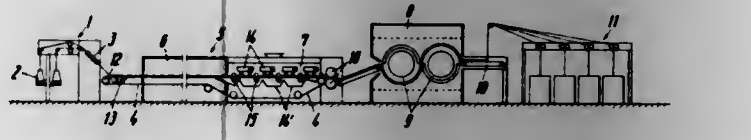
3,835,671
APPARATUS FOR THE CONTINUOUS TREATMENT, PARTICULARLY DYEING, OF FIBROUS MATERIAL

Heinz Fleissner, Egelsbach near Frankfurt/Main, and Ernst Wilhelm, Ludwigshafen, both of Germany, assignors to Vepa AG, Riehen, Switzerland

Filed Mar. 27, 1972, Ser. No. 238,332

Int. Cl. B05c *9/14*

U.S. Cl. 68—5 D **17 Claims**



A process for the continuous treatment, particularly dyeing, preferably of essentially one-dimensional fibrous material which includes the steps of first impregnating the fibrous material with a dye-containing liquid, depositing the fibrous material in the dye-impregnated condition, onto a conveying means moving at a lower speed than the delivery speed of the fibrous material carrying the fibrous material by the conveying means into a heat treatment chamber, conducting the dye-impregnated material through a heat treatment chamber for the fixation of the dye, thereafter washing the fibrous material and optionally providing it with additives on the same conveying means, drying the fibrous material likewise in a dense and compact condition, and finally taking the fibrous material off for windup or orderly deposition. Also, an apparatus for carrying out this process is disclosed.

3,835,672
DYEING APPARATUS

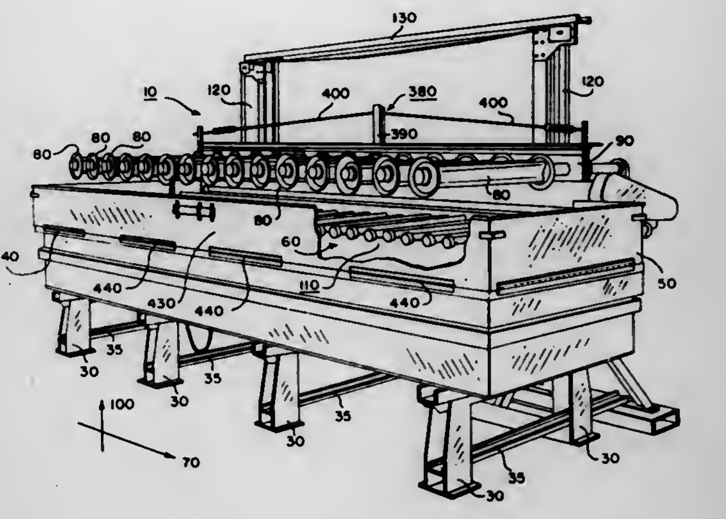
Myron E. Leslie, Wayne, Pa., assignor to Hussong-Walker-Davis Co., Philadelphia, Pa.

Filed Mar. 16, 1972, Ser. No. 235,172

Int. Cl. B05c *8/02*

U.S. Cl. 68—206 **27 Claims**

A dyeing apparatus for dyeing skeins of yarn. Yarn skeins are mounted over reels which are rotatable through varying angular displacements. The reels are mounted to a reel frame which may be vertically displaced thereby elevating or lowering the yarn carrying reels. Spray mechanisms are mounted to a base frame below and parallel each of the reels for spraying dye liquid on the skeins. The spray pattern of liquid emitted from the spray bar mechanisms is controlled to a predetermined flow angle. A bending displacement mechanism adjusts for the weight of skeins positioned on the reels and maintains the reels in a horizontal plane after being loaded. A longitudinal inclination adjusting mechanism maintains the reel frame in a horizontal plane when the longitudinal loading of the reels is unbalanced.



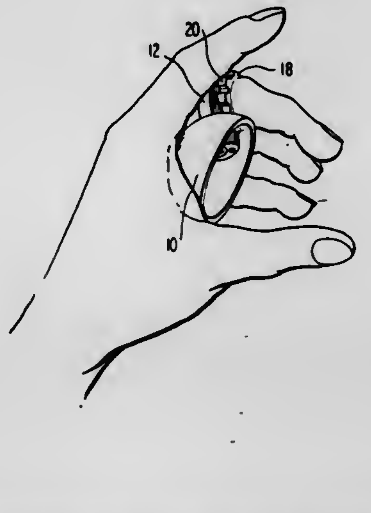
3,835,673
ANTI-SKYJACK DEVICE

Sai Kheong Kwan, 14 Bukit Tunggal Rd., Singapore, Singapore

Filed Oct. 6, 1972, Ser. No. 295,553

Int. Cl. E05b *73/00*

U.S. Cl. 70—14 **7 Claims**



The invention relates to an anti-skyjacking device which is key-locked to both hands of an individual prior to boarding an aircraft with the key then being placed with that person's luggage and not accessible until arrival at the destination airport.

3,835,674
LOCKS

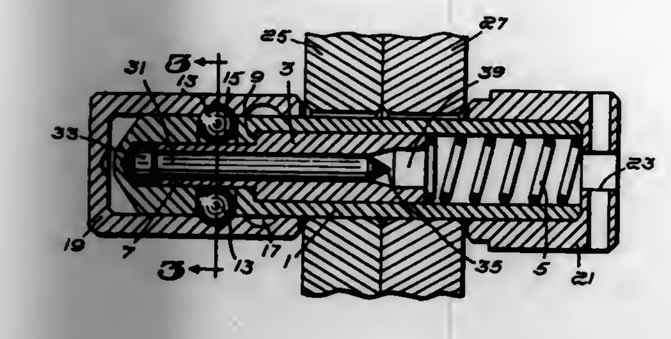
Richard Hoyt, Worcester, Mass., assignor to OMCO Inc., Holden, Mass.

Filed Apr. 20, 1973, Ser. No. 352,983

Int. Cl. E05b *67/36*

U.S. Cl. 70—34 **9 Claims**

This device is a bolt type lock for preventing tampering with gas and electric meters. A hollow body with a fixed head on one end has a cap held onto the other end by locking means held extended into the cap by a spring-loaded plunger retractible solely through a small round key hole in the head, to unlock the lock. If any tool but the authorised key is used to pull the plunger, a piece that is normally left behind when the genuine key is used is brought into position in place of the plunger and keeps the locking means extended and the lock locked.



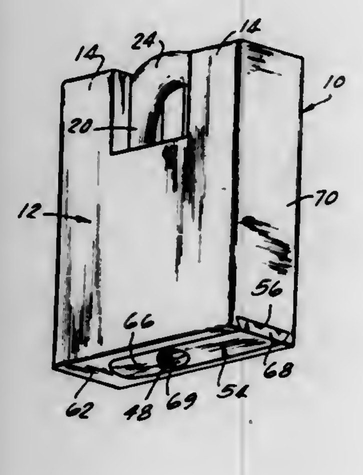
3,835,675
SECURITY PADLOCK

Guillermo W. Lippisch, Park Forest South, Ill., assignor to Junkunc Bros. American Lock Company, Crete, Ill.

Filed Mar. 23, 1973, Ser. No. 344,193

Int. Cl. E05b *67/02, 67/22*

U.S. Cl. 70—38 A **4 Claims**



A maximum security padlock having a shielding plate recessed and retained in the lock casing to minimize exposure of the lock's replaceable key cylinder permitting only limited access to the key slot therein. The shielding plate is dovetailed into a complementary recess in the bottom of the casing and cooperates therewith to provide a flush, crevice-free padlock closure case around the lock mechanism. A pair of retaining members secure the shielding plate in the casing and accommodate release of the plate, to replace the key cylinder, only when the lock is in an unlocked condition.

3,835,676
LAMINATED PADLOCK BODY WITH INCORPORATED BAND-FORMING SLAB

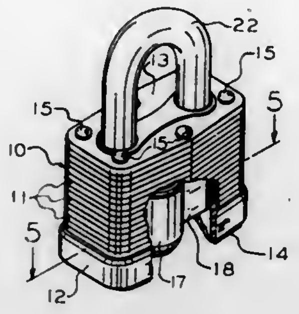
Daniel J. Foote, Milwaukee, Wis., assignor to Master Lock Company, Milwaukee, Wis.

Filed Apr. 9, 1973, Ser. No. 349,398

Int. Cl. E05b *15/16, 67/04*

U.S. Cl. 70—52 **6 Claims**

The major portion of the padlock body is formed of metallic laminations but a section of the padlock body in juxtaposition to a series of laminations is completed by a band-forming slab which projects slightly outwardly of the surfaces of the laminations to provide an annular bumper which may also carry identifying indicia. Portions of the slab are formed with openings cooperating with contiguous openings in the laminated portion of the padlock body to accommodate components of the padlock mechanism.



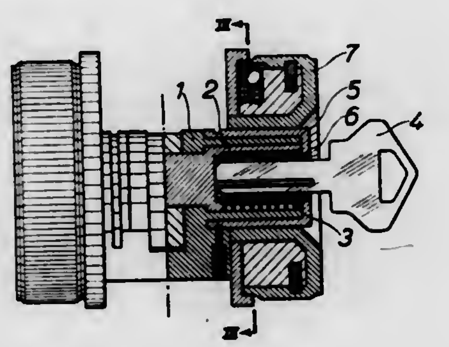
3,835,677
CYLINDER LOCK

Armas Kalervo Niilola, Maasalvantie 16 B 8, 00710, Helsinki, Finland

Filed Oct. 24, 1972, Ser. No. 300,297

Int. Cl. B60r *25/02*

U.S. Cl. 70—216 **10 Claims**



A cylinder comprising a lock case, a detent cylinder placed within the case and in this cylinder, plate-like detents, which directly or indirectly interlock the detent cylinder with the lock case until the key has been applied to shift them into the opening position, whereupon it is possible with reference to the lock case to turn the detent cylinder, which acts upon the lock bolt; and a cover sleeve placed upon the lock case. The cover sleeve is interlocked with the detent cylinder and the key is only used to move the detent plates into the opening position, whereupon the opening or locking action of the lock is accomplished by turning the cover sleeve, either indirectly or directly clockwise or counterclockwise any number of turns.

3,835,678
VEHICLE BODY COMPARTMENT PANEL PULL-DOWN MECHANISM

Barthold F. Meyer, Bloomfield Hills; Floyd I. Dully, Detroit; Bela Gergoe, Birmingham; Bohdan Kazewych, Union Lake, and Robert M. Hebert, Birmingham, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

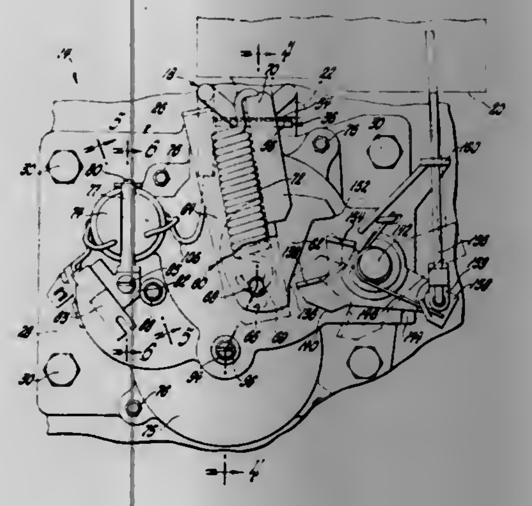
Filed Aug. 29, 1973, Ser. No. 392,535

Int. Cl. E05b *65/19, 47/00, 15/02*

U.S. Cl. 70—241 **5 Claims**

A pull-down mechanism for a vehicle body compartment panel includes a housing mounted on the vehicle body and supporting a bolt keeper that is driven in a sequenced manner

between retracted and extended positions by a linkage connected to the output of a reduction gear drive train whose input is driven by a unidirectional electric motor. The sequencing of the keeper is provided by the cooperable action of a depressible plunger responsive to latching of a panel mounted bolt assembly to the extended keeper and to key unlatching of the bolt assembly from the retracted keeper so as to actuate a switch control member that initiates driving movement of the keeper to the other position, and by a cam rotatable with the output of the gear drive train to maintain the control member actuated until the keeper reaches the other position. The linkage includes a first link rotatable with the output of the gear drive train and having stop and undetenting surfaces. A combined stop and undetenting lever on the housing is engaged by the stop surface of the link to limit reverse movement of the drive train when the keeper reaches retracted position and closes the panel, and is engaged by the undetenting surface of the link to actuate a bolt undetenting member that unlatches the bolt assembly from the keeper when the keeper is driven to extended position by actuation of a vehicle occupant compartment switch. A lost motion connection drives the cam with the output of the drive train and prevents a slight reverse movement of the drive train before the stop action of the link and lever occurs from reactuating the switch control member. An electrical grounding of a contact on the plunger to either the bolt assembly or the keeper allows normal operation of the pull-down mechanism but prevents initiation of the retracting movement of the keeper by manual depression of the plunger. A spring biased pin and slot connection of the linkage provides automatic adjustment of the keeper adjacent its retracted position so that full cycling of the mechanism is possible even if the panel cannot move all the way to closed position.



3,835,679
TIME CONTROL SAFETY LOCK FOR A SAFE OR THE LIKE WITH INDICATING MEANS OUTSIDE THE SAFE FOR INDICATING THE TIME CONTROL OF THE LOCK

Albert Heinemann, Scherzingen, and Wilhelm Opferkuch, Freiburg, both of Germany, assignors to Theodore Kromer KG, Freiburg/Br., Germany

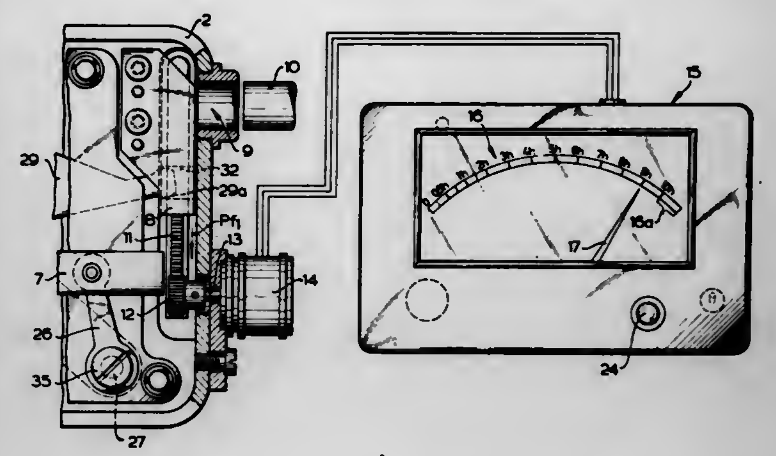
Filed Oct. 18, 1972, Ser. No. 298,786

Claims priority, application Germany, Oct. 20, 1971, ¢152221

Int. Cl. E05b *43/00*

U.S. Cl. 70—271 **13 Claims**

Time control safety lock for a safe or the like in which a blocking member is withdrawn by a clockwork mechanism during a predetermined time period out of the path of a locking member to permit opening of the safe only after elapse of said predetermined time period, and in which signalling means observable at a location outside the safe are provided to indicate the presence of the time controlled blocking member and preferably also the time period this blocking member will still remain in blocking position.



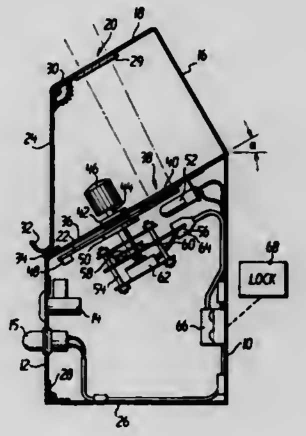
3,835,680
ELECTRONIC COMBINATION LOCK SELECTOR UNIT

Milton R. Evans, Annapolis, Md., assignor to Halliburton Company, Duncan, Okla.

Filed Jan. 4, 1973, Ser. No. 321,037

Int. Cl. E05b *49/00;* **H01b** *9/00*

U.S. Cl. 70—278 **8 Claims**



A selector unit for an electronic combination lock including a combination disc which may be selectively rotated to expose a selected digit and then depressed to provide an electrical signal indicative of that digit. The order of occurrence of the electrical signals is evaluated as the combination for lock operating purposes. The knob by which the disc is rotated and depressed is contained within an enclosure apertured to effectively shield the position of the disc from personnel other than the individual operating the lock. A hinge flap is provided for access to the knob and the enclosure effectively hides the movements of the individual's hand in rotating and depressing the disc.

3,835,681
CONTINUOUS ROLLING MILL

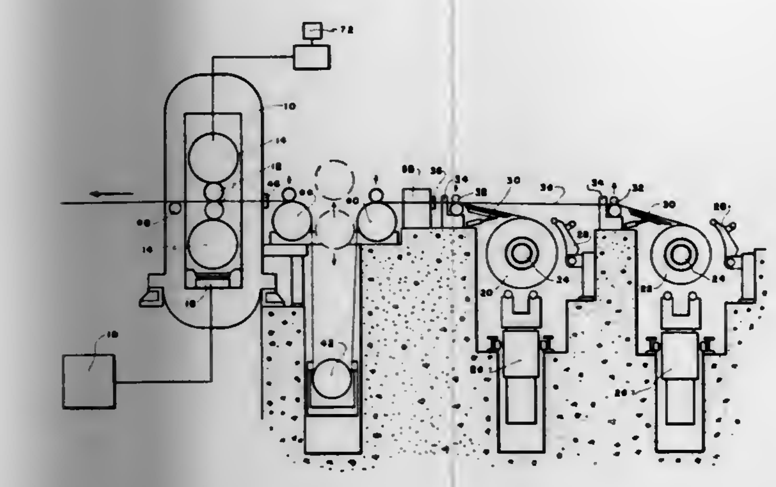
Charles Storer Shumaker, Glenshaw, Pa., assignor to Wean United, Inc., Pittsburgh, Pa.

Filed Mar. 16, 1973, Ser. No. 341,815

Int. Cl. B21b *1/28*

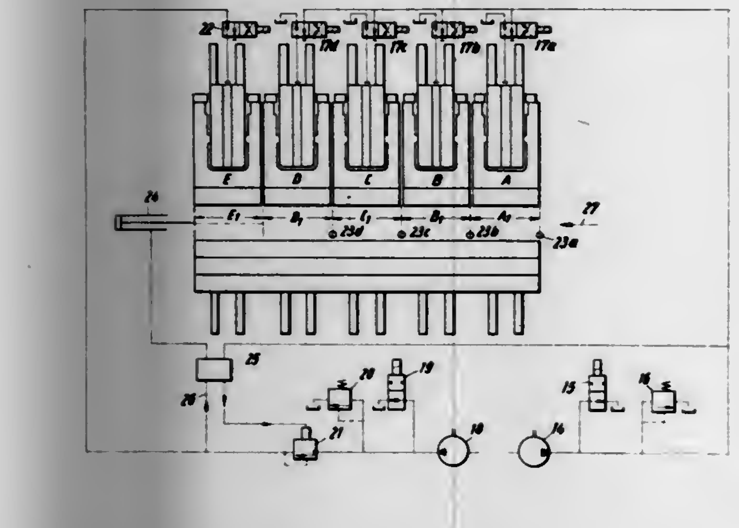
U.S. Cl. 72—10 **8 Claims**

The disclosure of this invention relates to a rolling mill arrangement that will enable coils of strip to be rolled uninterruptedly for an indefinite period of time. It illustrates a pair of payoff reels for quickly feeding succeeding coils to a spot welder or stitcher for joining succeeding coils, the time required to do this very rapid operation without interrupting the operation of the rolling mill being provided for by a single looper roller arrangement located after the welder and before the rolling mill. The mill includes a very rapid work roll separating hydraulic control that permits the weld or stitched portion of the two strips without being rolled to pass between the work rolls after which the rolls are quickly reset for rolling and tension may be quickly reestablished. If the mill includes more than one roll stand, each stand is quickly opened to allow the weld or stitch to pass between the rolls and then close to commence rolling and tensioning of the strip. At the delivery end of the mill the weld or stitch may be cut out on the fly by a flying shear without interrupting the operation of the mill.



3,835,682
HYDRAULIC PRESSES
Ronald John Elger, Bournemouth, England, assignor to Mannesmann-Meer Aktiengesellschaft, Monchengladbach, Germany

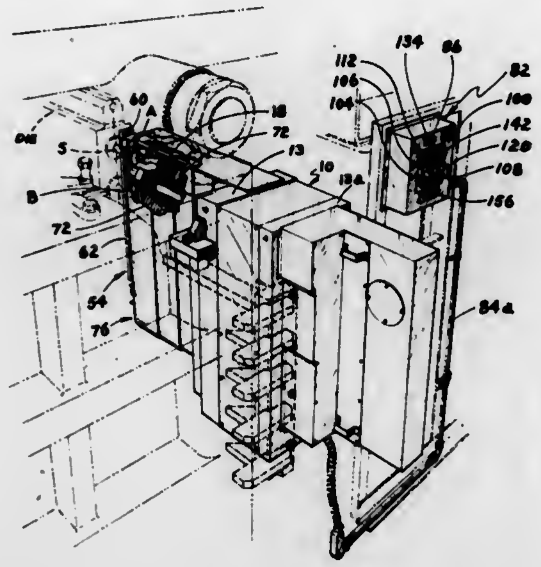
Filed Sept. 21, 1972, Ser. No. 291,087
Claims priority, application Great Britain, Sept. 24, 1971, 44713/71
Int. Cl. B21j *9/20*
U.S. Cl. 72—14 **8 Claims**



Method and apparatus for controlling a hydraulic press having a row of hydraulic cylinder/ram assemblies for applying pressure in a workpiece of elongate form. The pressure of one cylinder/ram assembly adjacent one end of the workpiece is controlled in dependence upon the ratio of the length of the end portion of that workpiece over the length of the zone covered by that one cylinder/ram assembly.

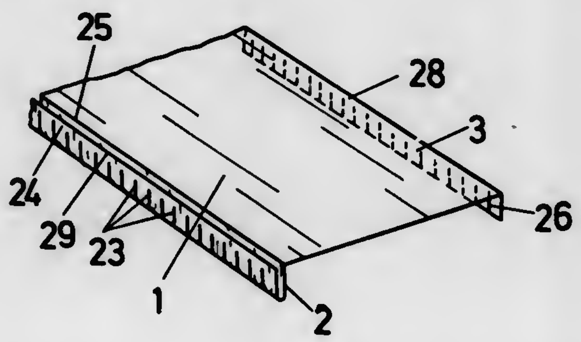
3,835,683
STOCK STOP CONTROL ASSEMBLY
Rudolph A. Bradick, 18609 St. A Clair Ave., Lakewood, Ohio 44770

Filed Jan. 5, 1973, Ser. No. 321,149
Int. Cl. B21b *31/34;* **B21j** *13/10*
U.S. Cl. 72—36 **15 Claims**



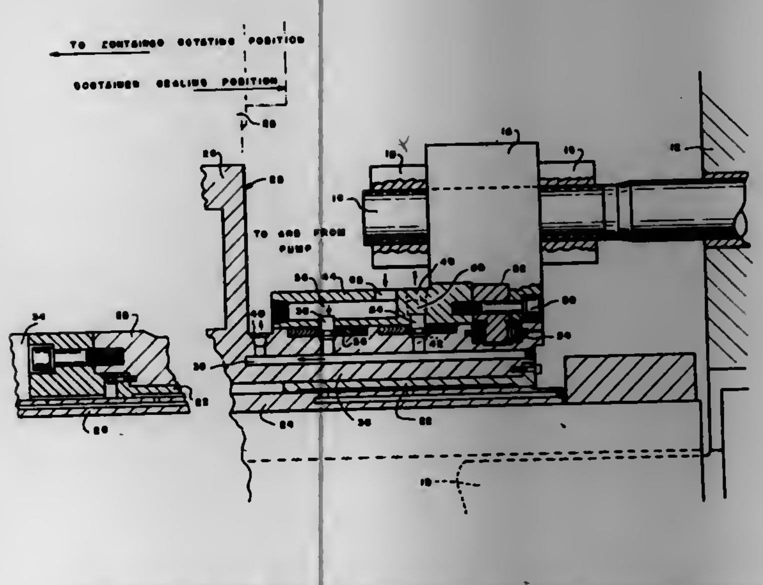
A compact stock stop control assembly for use in stock forming machines, such as for instance a metal upsetting machine, for positioning the bar or rod of stock material with respect to the work area or die area of the machine. The assembly comprises a support embodying elongated movable abutments mounted on the support with one end of each abutment being adapted for positioning a respective bar or rod of stock relative to the machine. A control panel, disposed remote from the support and movable abutments, is provided, with control mechanism for expeditiously positioning the movable abutments relative to the support, and thus providing for the remote control adjusting of the position of the stock stop abutments with respect to the work area of die area of the machine. Means are provided for locking the stock stop abutments in selected position, and means are provided for sensing the movement of the abutments and visually indicating on the control panel the distance that the stock stop abutments are positioned from the work area of the machine. The highly compact assembly is adapted for use in different types of stock forming machines, and the stock stop abutments thereof can be expeditiously controlled remote from the location of the actual stop stock abutment mechanism.

3,835,684
METHOD AND AN APPARATUS FOR MAKING TUBES
Walter Schwarz, 6020 Innsbruck, Innsbruck, Austria
Filed Feb. 16, 1973, Ser. No. 333,001
Int. Cl. B21c *37/12*
U.S. Cl. 72—50 **12 Claims**



An apparatus for forming tubes from a spirally wound metallic strip wherein one longitudinal border of the strip is bent on edge and the other border is bent to form a U-shaped fold to receive the first border. The apparatus embodying a feeding device having cutting means to notch the longitudinal borders and associated therewith a guiding means for directing said strip to a plurality of rollers for compressing the longitudinal borders together.

3,835,685
CONTAINER COOLING SYSTEM FOR PRESSES
Francis J. Kent, Wallingford, and George M. Jaworski, Narberth, both of Pa., assignors to Wean United, Inc., Pittsburgh, Pa.
Filed May 10, 1973, Ser. No. 359,153
Int. Cl. B21c *23/00*
U.S. Cl. 72—263 **6 Claims**

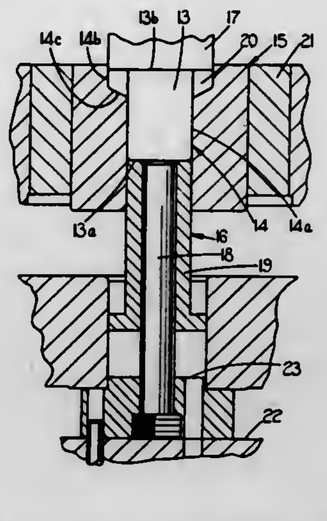


The present disclosure illustrates a cooling system for an extrusion press having three containers for carrying heated billets, the containers being succeedingly positioned in a number of different stations incident to the operation of the press. In one of these stations, the containers are cooled after extrusion. This cooling is accomplished by supporting a non-rotating but axially movable cooling jacket on the central container hub that carries the containers. Special hose systems connected to the jacket carry the cooling water to and from each container, but it is only the container in the cooling station, if cooling is required, that is cooled. This is performed by providing a valve for each container which is carried by the rotatable containers and which is separately operated when in the cooling station.

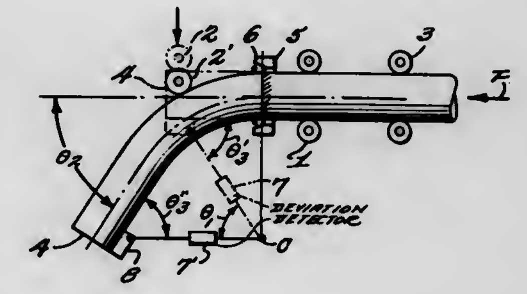
3,835,686
METHOD OF MANUFACTURING A STEEL COMPONENT HAVING A HEAD PART AND A HOLLOW SHANK PART
Ralph Leonard Joseph Lawson, and Zygmunt Jablonski, both of Birmingham, England, assignors to The Lucas Electrical Company, Limited, Birmingham, England
Filed Mar. 7, 1973, Ser. No. 338,946
Claims priority, application Great Britain, Mar. 28, 1972, 14410/72
Int. Cl. B21k *21/08*
U.S. Cl. 72—354 **8 Claims**

To manufacture a steel component having a head part and a hollow shank part, a steel slug is positioned in a die cavity having a narrow portion which defines the shape of the shank part of the required component. One end of the slug extends into the narrow portion of the die cavity and engages a first punch defining the shape of the bore in the hollow shank part, whereas the other end of the slug extends into a wide portion of the die cavity and engages a second punch.

The first and second punches are then caused to undergo relative movement towards each other so that the first punch enters the one end of the slug. As the first punch enters the slug, it produces the required bore for the shank part of the component and the region of the slug surrounding the first punch moves relative thereto substantially without constraint. Also, in entering the slug, the first punch causes metal to flow towards the other end of the slug and into the wide portion of the die cavity, which is so dimensioned that the metal is not constrained to conform to the shape of the wide portion of the die cavity.



3,835,687
DEVICE FOR DETECTING A BEND ANGLE UPON PRECISELY BENDING A METALLIC PIPE
Satoru Kubota, and Yuji Morikawa, both of Hiroshima, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sept. 13, 1972, Ser. No. 288,667
Int. Cl. B21d *7/14*
U.S. Cl. 72—369 **2 Claims**

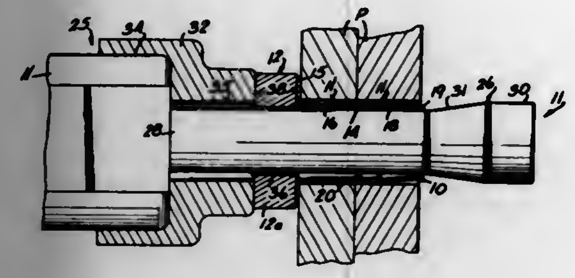


A device for detecting a bend angle upon precisely bending a metallic pipe to be used in a method for bending a pipe in which precise bending is achieved by detecting a deviation of a distance between one point on said pipe to be bent and a fixed point outside of said pipe from another distance between a predetermined locus and said fixed point by means of an arm having its opposite end portions pivotably supported at said one point and said fixed point respectively, characterized in that there is provided means for detecting a sum of a rotational angle of said arm about said fixed point as the bending proceeds since the beginning of the bending work and an angular variation at the portion of said arm joined to said pipe to obtain a true bend angle.

3,835,688
APPARATUS AND METHOD FOR SIZING HOLES
John O. King, Jr., 3990 N. Ivy Rd., Atlanta, Ga. 30342
Continuation-in-part of Ser. No. 268,478, July 3, 1972, which is a continuation-in-part of Ser. No. 33,281, April 30, 1970, abandoned, which is a continuation-in-part of Ser. No. 711,368, March 7, 1968, abandoned. This application Jan. 17, 1973, Ser. No. 324,485
Int. Cl. B21j *15/04*
U.S. Cl. 72—370 **20 Claims**

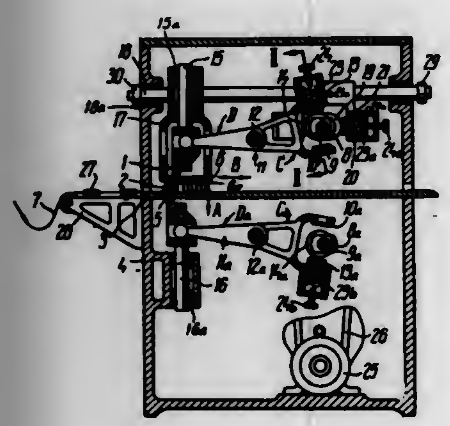
A method of sizing holes by enlarging holes through a workpieces with a mandrel and working through a seamless tubular member to enlarge the holes. The rebound of the tubular member upon enlargement is less than the material of the workpieces and is left in the holes to limit the rebound of the holes. Also disclosed is the joint produced by the above method.

A device for sizing holes is disclosed which includes a mandrel with an expansion section which is forced through a seamless tubular member while held in the holes to enlarge both the tubular member and the holes. A backup member is provided with an aperture therethrough of a diameter smaller than the inside diameter of the tubular member and which is enlarged by the mandrel simultaneously with the enlargement of the sleeve member. By providing different outside diameters and a constant inside diameter on the seamless tubular member, the workpieces may be enlarged different amounts.



3,835,689
DEVICE FOR CORRUGATION OF STRIPS
Grigory Semenovich Antonenko, ulitsa Yanvarskogo vosstania, Odessa; Avetik Artashesovich Badamian, ulitsa Goncharova, 17, kv. 51, Moscow; Grigory Borisovich Margulis, ploschad Potemkintsev, 3, kv. 2, Odessa; Ilya Alexandrovich Moroz, ulitsa Varnenskaya, 9, kv. 26, Odessa, and Mikhail Borisovich Shitsman, ulitsa Chicherina, 31, kv. 13, Odessa, all of U.S.S.R.

Filed May 10, 1972, Ser. No. 252,034
Int. Cl. B21d *13/02*
U.S. Cl. 72—385 **2 Claims**



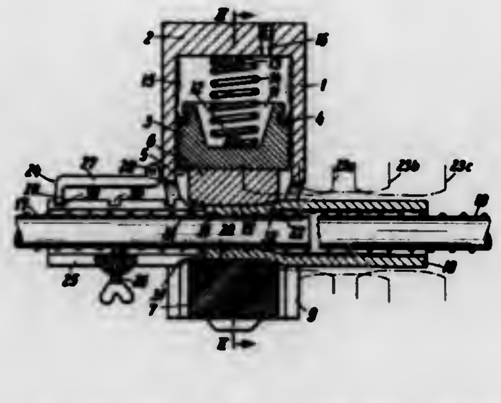
Device for corrugating strips, comprising punches linked by a driving camshaft, wherein each punch has means for withdrawing it from a cooperating forming surface at the moment of feed of the strip being corrugated. This means includes an auxiliary cam secured on the driving camshaft and a pusher interacting with said auxiliary cam, and secured on one arm of a lever whose other arm is connected to the punch, said lever being adapted for transmitting reciprocating motions to said punch from said camshaft.

3,835,690
DEVICE FOR CONNECTING METALLIC SLEEVES TO FINNED REINFORCING BARS
Fritz Leonhardt, Stuttgart; Volker Hahn, Leinfelden, and Werner Fastenau, Esslingen-Rudern, all of Germany, assignors to Ed. Zublin Aktiengesellschaft, Stuttgart, Germany

Division of Ser. No. 872,950, Oct. 31, 1969, abandoned. This application Oct. 26, 1971, Ser. No. 192,435

Claims priority, application Germany, Nov. 2, 1968, 1806665

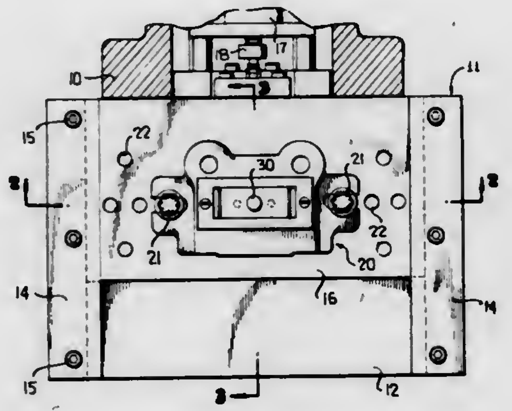
Int. Cl. B21j *9/12*
U.S. Cl. 72—415 **8 Claims**



Apparatus is disclosed for connecting sleeves to fin-equipped reinforcing bars for concrete, which bars consist of a material which is harder than the material of said sleeve. The sleeve is deformed by pressure in such a way that the fins of said reinforcing bar means press themselves into the sleeve and positively interlock therewith while the deformation of the sleeve is effected in sections over the length of the sleeve.

3,835,691
SLIDING EJECTOR PAD ATTACHMENT FOR USE WITH SLIDING BOLSTER PLATE FOR PRESSES
Thomas F. Specht, Arlington Heights, and Robert J. Babecki, Chicago, both of Ill., assignors to Union Special Corporation, Chicago, Ill.

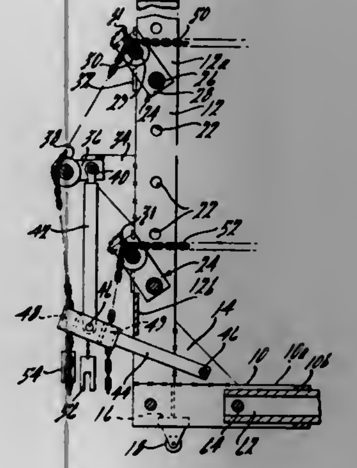
Filed June 27, 1973, Ser. No. 374,037
Int. Cl. B21d *45/00*
U.S. Cl. 72—427 **18 Claims**



This disclosure relates to an ejector pad attachment for use with a sliding bolster plate of a press and permits a movable die member carried by a sliding bolster plate to have constantly associated therewith a supporting ejector pad while at the same time permitting the movable die member and ejector pad to move as is required during the operation of the press. The ejector pad is carried by the bolster plate for movement therewith and there is provided at the work station a platen assembly which is cooperable with the ejector pad to resiliently resist the displacement of the ejector pad and an associated die member during a work forming operation and thereafter return the movable die member and ejector pad to their original positions prior to the retraction of the bolster plate.

3,835,692
VEHICLE FRAME STRAIGHTENING TOOL
Robert B. Hoffman, P.O. Box 505, Burlingame, Calif. 94010

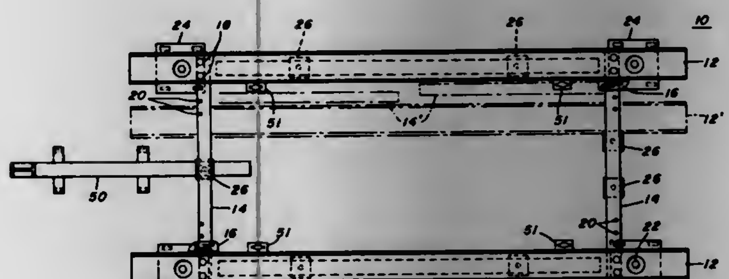
Continuation of Ser. No. 244,821, April 17, 1972. This application Mar. 4, 1974, Ser. No. 447,470
Int. Cl. B21d *1/12*
U.S. Cl. 72—442 **6 Claims**



A portable frame straightening machine in which a vertical post is fixed to one end of a horizontal beam that is adapted to be positioned under an automobile body to be straightened. A lever pivoted on the machine adjacent the bottom of the post is operated by a hydraulic ram and is capable of pulling two separate chains which pass over pulleys adjustably positioned on the vertical post.

3,835,693
COLLAPSIBLE STRAIGHTENER FOR AUTOMOBILE FRAMES
Andrew S. Majersky, R.D. No. 4, Apollo, Pa. 15613

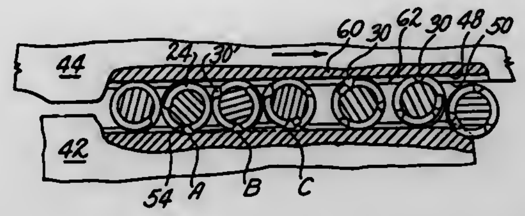
Filed Oct. 24, 1972, Ser. No. 299,809
Int. Cl. B21d *1/12*
U.S. Cl. 72—457 **6 Claims**



Improvements in an apparatus for straightening automobile frames in that the new apparatus is mobile and collapsible. The apparatus is mounted on casters and also disassembles for ease in moving and storing. It also allows for pulling the automobile frame in any direction by locating slidable and rotatable brackets on both longitudinal and transverse beams, thus allowing the pulling device to be quickly and easily mounted to enable the application of straightening force in any position around the perimeter of the automobile.

3,835,694
DIES FOR MAKING A SELF TAPPING FASTENER
Edwin J. Skierski, 35 Pilgrim Ln., Stratford, Conn. 06075

Division of Ser. No. 256,370, May 24, 1972. This application Sept. 18, 1973, Ser. No. 398,318
Int. Cl. B21h *3/06*
U.S. Cl. 72—469 **5 Claims**



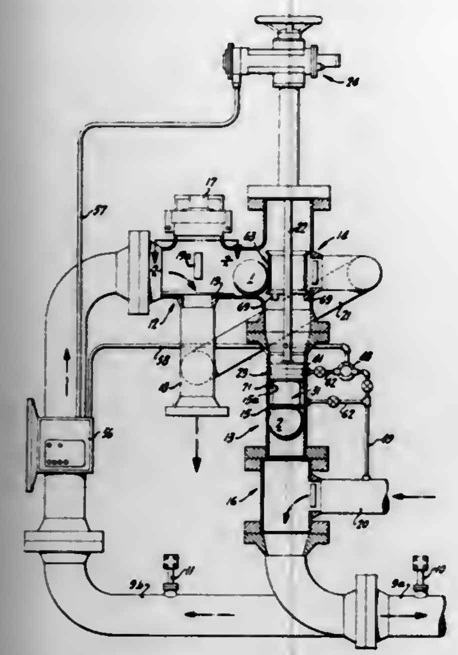
A self tapping threaded fastener, the method of making same and the rolling dies therefor wherein said fastener is adapted for assembly with a member in which a standard internal thread is formed by the fastener and in which a zero running torque or controlled prevailing torque is established between said fastener and member. A plurality of thread forming lobes are disposed on an otherwise standard, substantially fully formed thread on the tapered work entering end, wherein predetermined lobes on said tapered end proximate the shank portion are rolled such that their ultimate projection is within the envelope of the imaginary projection of the convolution of the shank thread toward the tip of said fastener. The method of making said fastener includes rolling a substantially continuous thread from said shank portion throughout said tapered work entering portion and simultaneously forming spaced apart thread forming lobes superimposed upon said thread in said work entering portion, then subsequently rerolling said threaded shank portion and said predetermined lobes on the work entering portion to the cylindrical thread convolution of said shank portion, as projected.

The dies for rolling said fastener include a first, and second rolling dies, said dies having a fastener entrance end and a fastener exit end, and disposed intermediate said ends thread forming surfaces including a plurality of parallel thread crest forming grooves and thread root forming ridges having a shank forming flat portion being bounded along one edge by an upwardly inclined tip forming surface, said first rolling die being the primary rolling die and having a shank and tip forming section including a lobe forming section wherein a plurality of regularly spaced lobe forming pockets are disposed in said thread forming grooves and ridges in said tip forming surface, a reroll support section wherein said thread forming surfaces match said shank forming flat portion and a release section, said reroll support section of a predetermined rolling length so as to reroll a predetermined number of said thread forming lobes, and a said second rolling die having shank and tip forming sections, and a reroll section so disposed as to reroll a predetermined number of said thread forming lobes.

3,835,695
METER PROVING APPARATUS AND METHOD
Marvin H. Grove, Houston, Tex., assignor to M & J Valve Company, Houston, Tex.

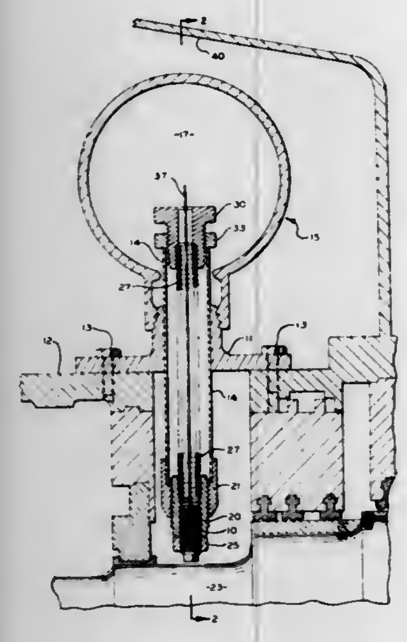
Continuation of Ser. No. 219,432, Jan. 20, 1972, abandoned. This application Apr. 7, 1972, Ser. No. 242,125
Int. Cl. G01f *25/00*
U.S. Cl. 73—3 **5 Claims**

A meter prover apparatus and method of the type making use of a metering pipe and an interchange connecting the ends of the pipe which uses a piston-like plunger having sealing means which fit into a launching sleeve interposed in the interchange, the spheres being successively moved through the sleeve and launched into the metering pipe by reciprocation of the plunger. The complete cycle is carried out in such a manner as to avoid jamming of spheres in the interchange. At the beginning and during a prover run leakage past the plunger is detected by reference to the pressure differential between the line and the space between the plunger sealing means. Also the seal integrity of each sphere can be checked to insure absence of fluid bypass about the sphere during a run.



3,835,696
MOUNTING STRUCTURE FOR VIBRATION DETECTING PROBE

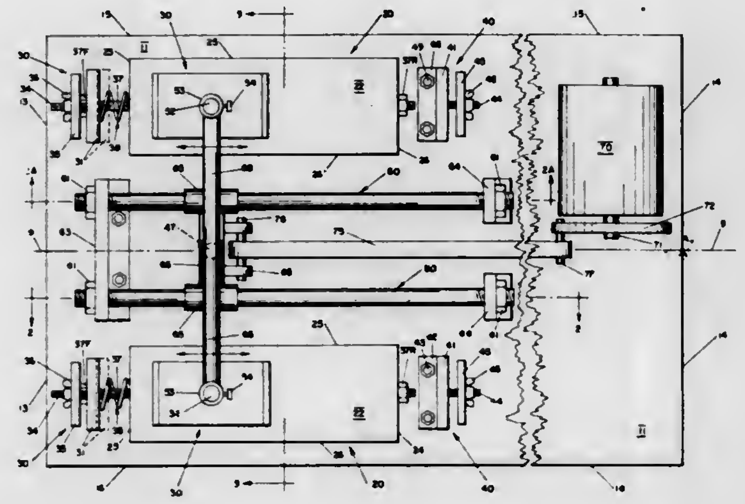
Ronald F. Amberger, Jeannette, and David M. Mizikar, Mt. Pleasant, both of Pa., assignors to Carrier Corporation, Syracuse, N.Y.
Filed July 31, 1972, Ser. No. 276,498
Int. Cl. G01h *11/00*
U.S. Cl. 73—70 **5 Claims**



A vibration detecting probe is mounted in a holder having threaded engagement with the inner end of the bore in a support fixed in the casing of the machine. The function of the probe is to detect vibration in or caused by an element of the machine rotating at high speed. A probe adjusting member is accessible externally of the outer end of the support and is fixedly connected to the probe for effecting rotation thereof for axial movement toward and from the rotating element of the machine. The probe adjuster consists of a member extending axially in the support and which is resiliently deflectable in a direction transverse to the axis thereof from a straight form to a curve form. Means is provided for applying tension in the adjuster to prevent any movement or vibration of the adjusted probe holder. Upon the probe holder being unthreaded from the support, the resilient deflectable member permits withdrawal of the probe holder from the support regardless of low clearance over the support.

3,835,697
APPARATUS FOR TESTING FABRICS AND OTHER SHEET MATERIALS

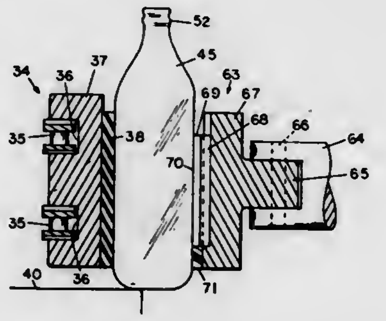
Charles Schneider, and George A. Goodman, both of Omaha, Nebr., assignors to Charles, Inc., Council Bluffs, Iowa
Filed June 4, 1973, Ser. No. 366,708
Int. Cl. G01n *3/56*
U.S. Cl. 73—7 **9 Claims**



Apparatus for testing fabrics and the like for wearability and generally comprises a generally horizontally extending base member including a broad upper surface, an anvil member having a longitudinally extending lofty upper-side, clamp means at the two anvil ends for removably attaching the test fabric in stretched condition above the anvil upper-side, a shoe member overlying the anvil and adapted to firmly downwardly abut the test fabric, powering means ultimately attached to the shoe member for causing repeated longitudinally reciprocatable movement thereof over a lengthy time period while abutting the test fabric, and other desirable features for implementing the apparatus purposes. For preferred apparatus embodiments, a pair of transversely separated anvil members are employed whereby the same kind of woven fabric can be tested simultaneously for wearability both in the warp and weft directions of the test fabrics.

3,835,698
TESTER HEAD

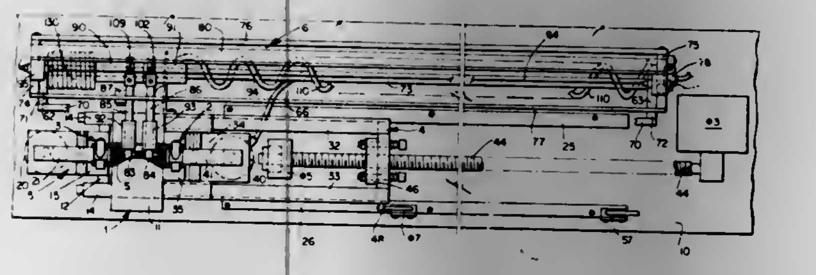
Anthony T. Zappia, 7576 Ivywood Dr., Apt. A, Indianapolis, Ind. 46250
Continuation of Ser. No. 272,692, July 17, 1972, , which is a division of Ser. No. 126,563, March 22, 1971, Pat. No. 3,777,556. This application Oct. 15, 1973, Ser. No. 406,278
Int. Cl. G01n *3/08*
U.S. Cl. 73—94 **3 Claims**



Apparatus for impressing a transaxial crushing force of predetermined value successively upon a series of substantially identical pieces of frangible ware for the purpose of discarding pieces of defective strength, including a pneumatically-loaded presser head in opposed registration with a vertically disposed face of a conveyor or impeller, the same being so disposed that pieces of ware, while being subjected to transaxial pressure, are supported in unstable condition upon a moving platform so that, upon fracture of a piece of ware, substantially all fragments of such piece will fall from the platform, means being provided for cooperation with the upper regions of undamaged ware to support such ware against toppling from the platform. The active face of the presser head is formed of synthetic material, that portion thereof below a level at least equal to the transaxial dimension of a piece of ware above the platform having a coefficient of friction significantly less than that of the portion of the face above that level to facilitate the free movement of a prostrate ware piece past the presser head.

3,835,699
LONG STROKE TESTING MACHINE

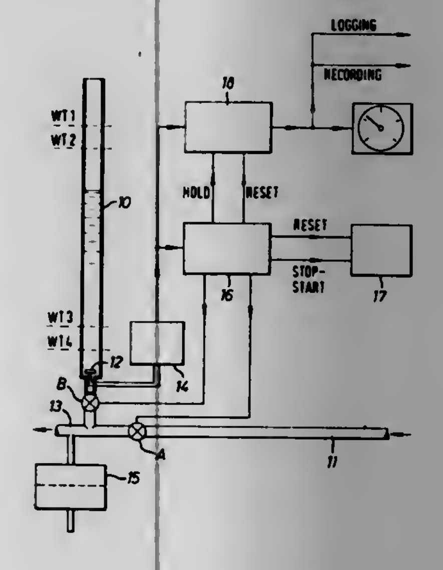
Robert S. Strimel, Penllyn, Pa., assignor to Tinius Olsen Testing Machine Co., Inc., Willow Grove, Pa.
Filed Sept. 27, 1973, Ser. No. 401,203
Int. Cl. G01n *3/08*
U.S. Cl. 73—95 **8 Claims**



Machine for tension-testing specimens of the type which elongate or strain several times their original length.

3,835,700
FUEL METER

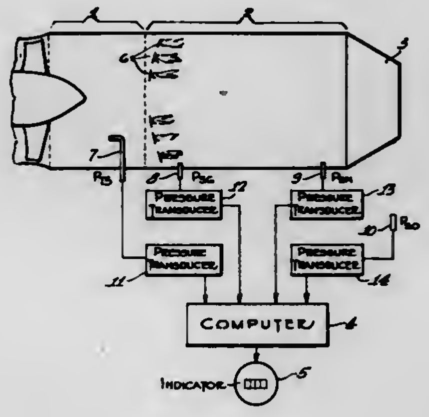
Peter Dennis Gamble, Mickleover, England, assignor to The Lubrizol Corporation, Wickliffe, Ohio
Filed June 28, 1973, Ser. No. 374,374
Claims priority, application Great Britain, July 12, 1972, 32627/72
Int. Cl. G01f *1/04*
U.S. Cl. 73—113 **9 Claims**



A meter for fuel or other liquid using an upstanding precision bore for containing the liquid and a pressure transducer disposed in the lower part of the tube to generate electrical signals dependent on the liquid level of the same. A control system and trip means registers the time elapsing as liquid is withdrawn from the tube between two selected liquid levels, to cause the tube to be refilled at a further level and to disable the meter and actuate an alarm at a fourth level signal. An electronic differentiator provides rate of change signals from the pressure dependent signals for logging, indication and the like, and the output of the differentiator can be held at a selected level signal for the refilling of the tube.

3,835,701
METHOD AND APPARATUS FOR DETERMINING THE THRUST OF A JET ENGINE

John R. B. Murphy, Kanata, Ontario, Canada, and Edelbert G. Plett, Belle Mead, N.J., assignors to Canada Data Canada, Ltd., Ontario, Canada
Filed Jan. 31, 1972, Ser. No. 222,225
Claims priority, application Canada, Oct. 29, 1971, 126454
Int. Cl. G01m *15/00*
U.S. Cl. 73—117.4 **4 Claims**

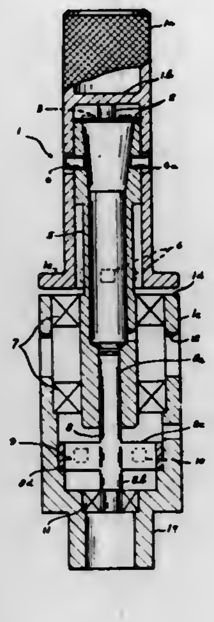


Apparatus is known for determining gross thrust in jet engines by measuring various internal pressures, including measurement of total pressure at the nozzle entrance by means of an immersed probe. The immersed probe has a very short life when an afterburner is used in the engine. The apparatus for the invention is able to determine total pressure at the nozzle entrance, without an immersed probe, from the total pressure in the diffuser and the static pressure at the nozzle entrance. Another embodiment makes use of an additional static pressure in the flameholder region. Also, the invention is for determining the gross thrust of an engine and it distinguishes between an engine with a nozzle operating in a choked condition and an unchoked condition.

3,835,702
MULTI-AXIS BIO-MECHANICAL FORCE MEASURING DEVICE

Robert E. Van Patten, Kettering, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Sept. 13, 1973, Ser. No. 396,967
Int. Cl. G01l *5/22*
U.S. Cl. 73—133 R **9 Claims**

A hand grip device positionable on an aircraft control stick and having built-in force-measuring means for separating and measuring various force vectors being developed while maneuvering the aircraft into various positions and including an upper housing rigidly mounting therewithin a tension/compression-force measuring diaphragm unit and the upper end portion of a bending moment-measuring column member affixed to the diaphragm unit, and a lower housing mounting the lower end portion of the column member in constraining bear-



ing elements and a torsion gage assembly having a spindle with an upper end fixed within the column member-lower end and a lower end thrust bearing mounted in the lower housing.

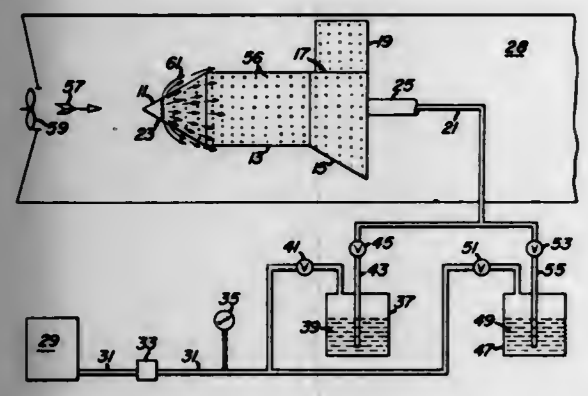
3,835,703
FLOW VISUALIZATION USING COLOR REVERSIBLE DYES

Clarence C. Bush, Bel Air, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 21, 1973, Ser. No. 362,568

Int. Cl. G01m *9/00*

U.S. Cl. 73—147 **6 Claims**



A system for surface flow visualization using color reversible dyes comprising an aerodynamic test model positioned in an air tunnel. The model has means for conducting an activating and erasing fluids to the nose of system. The surface of the model has been covered with a paint which has been impregnated with the color reversible dye.

In operation, the tunnel's airstream entrains droplets of an activating fluid which is conducted from a source to the surface of the model. The droplets of entrained fluid impinges on the model thereby affecting a color change which indicates local direction of surface flow. The flow pattern is dried and photographed. Said flow pattern may be subsequently removed by an erasing fluid and a new one formed.

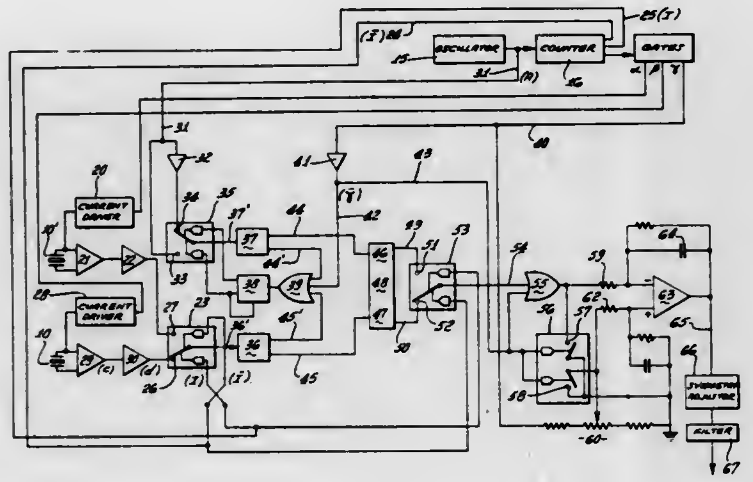
3,835,704
FLUID FLOW METERS

Shmuel Elazar, and Dee J. Neville, both of Oxnard, Calif., assignors to Statham Instruments, Inc., Oxnard, Calif.

Filed July 22, 1971, Ser. No. 165,069

Int. Cl. G01f *1/00*

U.S. Cl. 73—194 A **6 Claims**



A fluid flow meter employing a single pair of sonic signal transducers and methods for alternately energizing each of said transducers to convert them alternately into sonic generators and receptors and receiving and algebraically summing the output of said transducers acting as receptors as a function of fluid velocity.

3,835,705
FLOWMETER

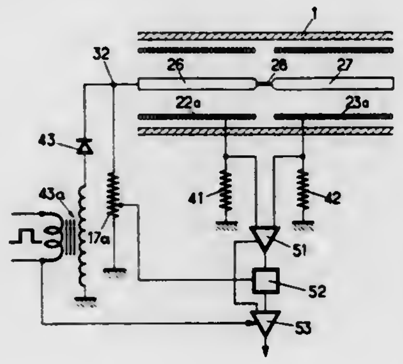
Huguette Micheline Mary Nadot Hadjidjanian, Pavil Lon-Sous-Bois, France, assignor to Societe Civile Le Brin, S/Marne, France

Filed May 12, 1972, Ser. No. 252,565

Claims priority, application France, May 19, 1971, 71.18280

Int. Cl. G01f *1/00*

U.S. Cl. 73—194 F **11 Claims**



Gauge for measuring the mass flow of a gas comprising means for producing a corona discharge of ions in response to high voltage pulses, at least two collecting electrodes for receiving said ions, means for measuring the difference in the number of ions reaching two of said electrodes, and electronic means for interrupting said measurement at variable intervals so that the length of time during which the measurement is carried out is less than the length of time between two successive high voltage pulses.

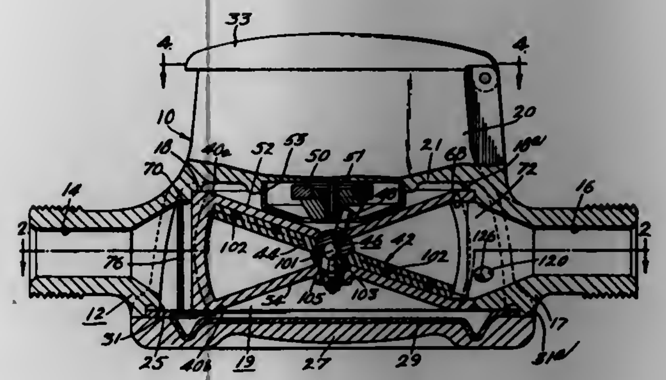
3,835,706
FLUID METER

Andrew Varga, 1603 E. Cardeza St., Philadelphia, Pa. 19150

Continuation of Ser. No. 115,201, Feb. 16, 1971, abandoned, which is a division of Ser. No. 663,265, Aug. 25, 1967, Pat. No. 3,564,919. This application Jan. 26, 1973, Ser. No. 327,201

Int. Cl. G01f *1/02, 3/12*

U.S. Cl. 73—254 **11 Claims**



In a positive displacement fluid meter provided with bypass port means, accuracy of compensation for internal leakage paths, A_1C_1, is improved by placing the leakage compensator means totally within the meter and in the internal fluid flow path so that differential fluid pressure, ΔP, causing fluid flow through the measuring chamber also causes flow through the leakage compensator, A_pC_p, as required by the expression for total flow $Q_t = \sqrt{2G\Delta P}\,(A_mC_m + A_1C_1 + A_pC_p)$. As need requires, the leakage compensator may be an integral part of the measuring chamber assembly or the interior of the meter casing. In the former the measuring chamber assembly may be compensated during manufacture prior to assembly and allows interchangeability of measuring chamber assemblies. In the latter arrangement measuring chamber assemblies without integral compensators are used. In both arrangements adjustments may be made while installed in the meter casing by removing the bottom cover and liner seal. This total meter configuration provides for design simplicity, minimal parts, ease of manufacturing, maintenance.

3,835,707
DEVICE FOR SURVEYING THE CONFIGURATION OF AN IMMERSED PIPE DURING ITS LAYING

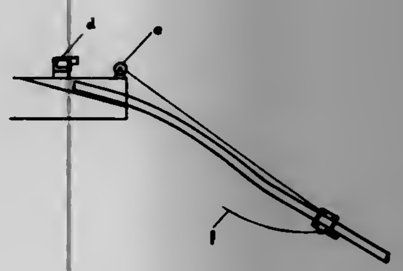
Giovanni Rosa, and Angelo Canepa, both of San Donato Milanese, Italy, assignors to SAIPEM, S.p.A., San Donato Milanese, Italy

Filed Nov. 10, 1972, Ser. No. 305,470

Claims priority, application Italy, Nov. 17, 1971, 31193/71

Int. Cl. G01c *19/76*

U.S. Cl. 73—291 **2 Claims**



An apparatus for surveying the configuration of a submarine pipeline during its laying including a carriage carrying depth sensing and distance sensing means and adapted to be rolled along the pipe between the pipe laying ship and the bottom of the body of water. Depth and distance are simultaneously recorded.

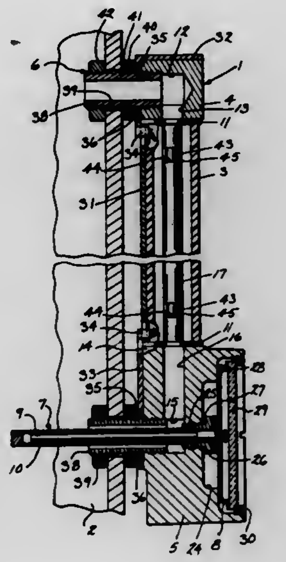
3,835,708
COMBINED LIQUID LEVEL AND TEMPERATURE GAUGE

Donald G. Gruett, Manitowoc, Wis., assignor to Oil-Rite Corporation, Manitowoc, Wis.

Filed July 21, 1972, Ser. No. 273,988

Int. Cl. G01f *23/02*

U.S. Cl. 73—292 **2 Claims**



The combined liquid level and temperature gauge of this invention includes an assembly of opposed hollow end members having a tubular sight member interposed therebetween and communicating therewith. The assembly is secured together by means disposed interiorly of the sight member and connecting the opposed end members. The lower of the end members is adapted to house a thermometer unit having a sensing stem disposed in a well which projects rearwardly from the end member into the tank. Fastener means connect at least the lower of the end members to the tank for mounting the gauge assembly onto the tank and placing the liquid contents of the tank in communication with the sight member.

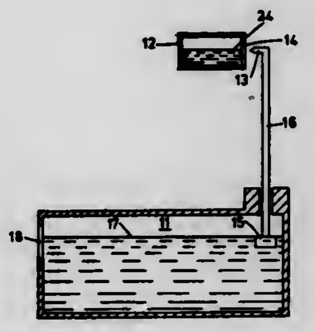
3,835,709
LIQUID LEVEL INDICATORS

Kenneth Watson, Yeovil, England, assignor to Westland Aircraft Limited, Yeovil, Somerset, England

Filed Sept. 5, 1972, Ser. No. 286,322

Int. Cl. G01f *23/02, 23/10*

U.S. Cl. 73—311 **11 Claims**



The invention discloses a liquid level indicating means which provides a continuous indication of the level of liquid monitored in a container relative a datum level during attitude changes of the container. A second smaller container has a liquid therein corresponding to the volumetric ratio of the ratio of liquid in the first container. Indicator means for the two containers provide a means to compare the monitored levels. The container may be of non-uniform internal shape.

3,835,710

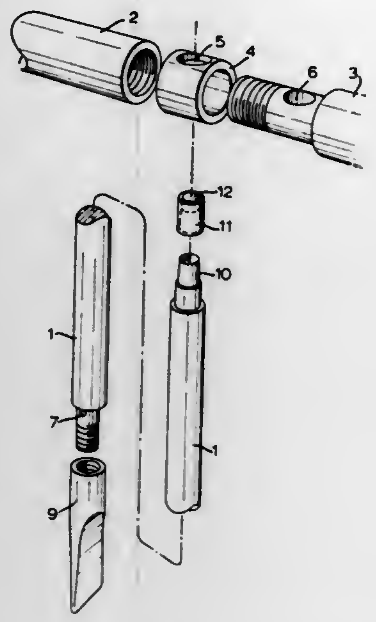
GEO-CHEMICAL EXPLORATION METHOD

Louis August Pogorski, 660 Eglinton Ave. West, Toronto, Ontario, Canada

Filed May 3, 1971, Ser. No. 139,347

Int. Cl. G01n *1/22*

U.S. Cl. 73—421.5 R **5 Claims**



This is a method for prospecting for hydrocarbon, bitumen and radioactive mineral deposits by collecting relatively small subsurface soil gas samples and analysing same to determine areas of anomalously high helium content therein. The samples are collected by using a long slender shaft capable of being driven into the ground which has a capillary bore running substantially its entire length. The inlet to the lower end of the capillary bore is controlled by a cap which may be opened or closed by turning the shaft when the device is in the ground and the upper end of the bore is sealed by a septum comprising a flexible sleeve fitting over the end of the shaft and a flexible plug closing the sleeve. The sample is collected in a container having a sharpened hollow tube as an inlet port. The sharpened tube may be inserted through the flexible plug to communicate with the capillary bore of the shaft for withdrawing a gas sample from the subsurface soil. The container is the type which may be deformed into a collapsed configuration and will return to its expanded configuration to draw in a gas sample.

3,835,711

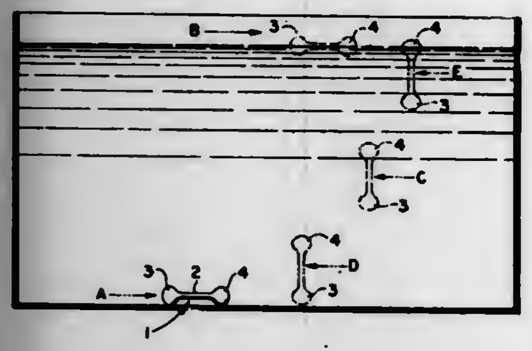
DEVICE FOR MEASURING SPECIFIC GRAVITY OF LIQUIDS

William E. Kelley, Euclid, Ohio, assignor to Aquarium Systems, Inc., Eastlake, Ohio

Filed June 25, 1973, Ser. No. 372,947

Int. Cl. G01n *9/12*

U.S. Cl. 73—444 **10 Claims**



Device consists of an elongated body portion weighted on opposite ends thereof. The density of the body portion is preferably less than the desired density or density range of the liquid medium whose density is to be measured, whereas the density of the weighted ends of the device is greater so that the average density of the entire device falls within the desired density range of the liquid medium. Alternatively, the body portion may be more dense than the liquid medium to be measured and the ends unweighted by plugs of lower density than the liquid medium to be measured. The ends of the device are also slightly unbalanced whereby when the device is placed in a liquid medium of the desired density range, the device will become suspended within the liquid medium below the surface of a vertical position with the heavier end down and the lighter end up. If the density of the liquid medium increases or decreases, the device will so indicate by correspondingly rising or falling within the liquid medium. If the density of the liquid medium becomes quite low, the device will sink to the bottom with both ends resting on the bottom, whereas if the density of the liquid medium becomes quite high, the device will float to the top of the liquid medium with both ends floating on top of the water, thereby indicating at a glance the approximate density range of the liquid medium.

3,835,712

WHEEL BALANCING APPARATUS

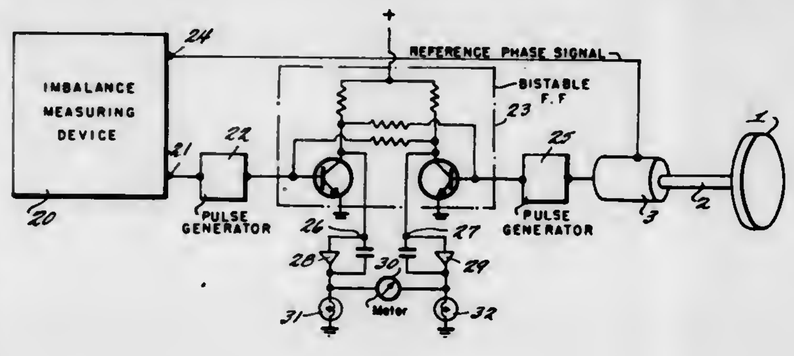
Richard Muller, Worfelden, Germany, assignor to Gebr. Hofman KG, Darmstadt, Germany

Filed Feb. 28, 1973, Ser. No. 336,895

Claims priority, application Germany, Mar. 20, 1972, 2213449

Int. Cl. G01m *1/22*

U.S. Cl. 73—462 **3 Claims**



An apparatus for balancing a rotary body with a balancing spindle for carrying the rotary body to be balanced, means for measuring and storing the angular position of unbalance of the rotary body, a phase displacement device non-rotatably connected to the balancing spindle and in operation receiving a reference phase signal from the measuring means and delivering an output voltage whose phase position represents a measurement of the angular position of unbalance, and an indicator comprising a scale for indicating only a part of the whole angular range of 360°, which part is adjacent to the value zero on the scale, a pointer which can be set to the value zero on the scale by rotation of the phase displacement means and the rotary body, for rotating the rotary body into the correct position for a balancing operation, and two illuminatable direction-indicator means, the brightness of illumination of each of the direction-indicator means being independently controllable by the output voltage of the phase displacement means and by the stored measurement value in said measuring means, whereby any difference in the brightness of illumination of each of the direction-indicator means indicates the direction in which the rotary body must be rotated to move it towards the correct position and to bring the pointer into the range of the scale.

3,835,713

KEY SLIDE MECHANISM FOR A PUSHBUTTON RADIO RECEIVER

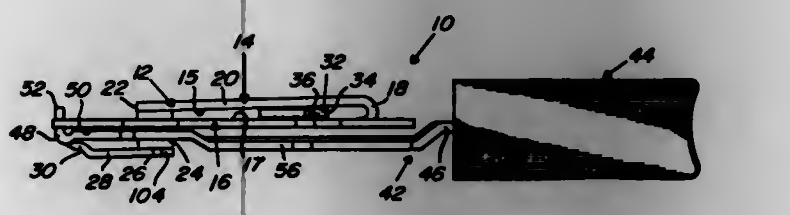
Emery E. Olah, Schaumburg, Ill., assignor to Motorola, Inc., Chicago, Ill.

Filed July 12, 1973, Ser. No. 378,762

Int. Cl. F16h *35/18*

U.S. Cl. 74—10.33 **12 Claims**

A key slide mechanism for a pushbutton radio receiver, includes a locking lever assembly having first and second legs extending parallel to each other and joined together at a first end with first surfaces thereof being in opposing relation. The opposite end of the second one of the legs is bent into a U-shape and extends transverse the legs and partially encircles the first leg. The extreme free end of the second leg extends parallel to the first leg adjacent the surface thereof opposite the first-mentioned surface. A memory cam is mounted for rotation between the first surfaces of the legs. A pushbutton actuator rod has one end extending between the free end of the second leg and the opposite surface of the first leg. The opposite end of the pushbutton rod is separated from the legs of the locking lever assembly and is mounted in the radio tuner housing separately and independently therefrom to minimize interaction therebetween upon depression of the pushbutton actuator rod. Movement of the actuator rod to force the one end thereof into engagement with the extreme free end of the second leg, forces the first and second legs together to capture the memory cam in a preselected position corresponding to a predetermined frequency setting of the radio receiver and to join the actuator rod and locking lever assembly at the corresponding ends thereof so that the actuator rod and locking lever assembly move as a unit thereafter to recall the frequency setting each time the pushbutton actuator rod is depressed. Movement of the actuator rod in the opposite direction, separates the one end thereof and the extreme free end of the second leg to permit rotation of the memory cam for resetting.



3,835,714

DEVICE COMPRISING A LIQUID-SUPPORTED ROLLING DIAPHRAGM SEAL

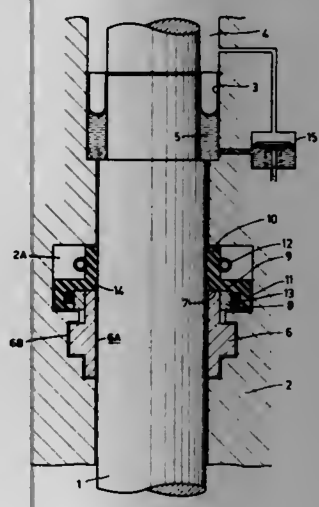
Herman Henricus Maria van der Aa; Robby Van Giessel, and Gregorius Theodorus Maria Neelen, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 13, 1972, Ser. No. 243,661

Claims priority, application Netherlands, Apr. 21, 1971, 715348

Int. Cl. F16j *15/52*

U.S. Cl. 74—18.2 **4 Claims**



A device comprising a liquid-supported rolling diaphragm seal between two relatively reciprocating elements, further including a flexible metal sleeve between the two elements, and a clamping ring urging the sleeve radially against one of said elements.

3,835,715

HAMMER DRILL MECHANISM

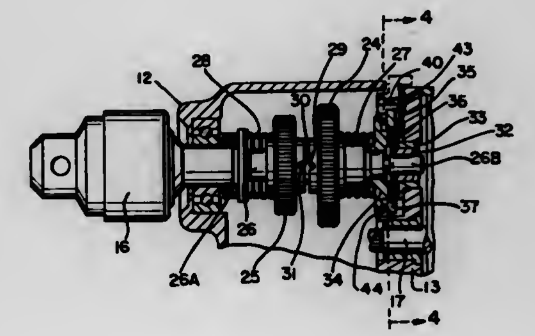
Harold George Howell, Bedfont, England, assignor to The Black and Decker Manufacturing Company, Towson, Md.

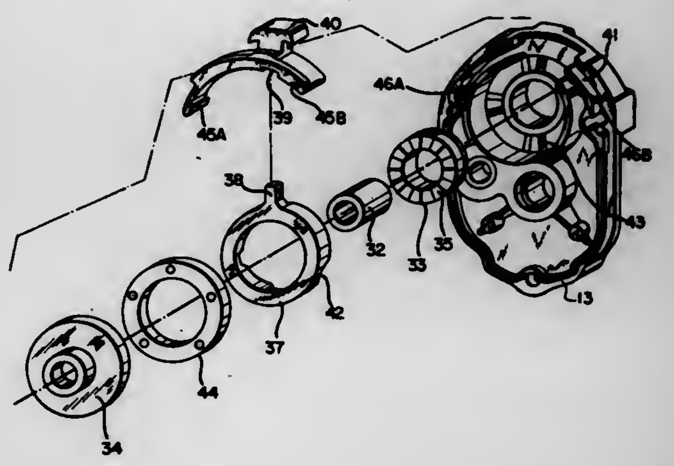
Filed June 28, 1973, Ser. No. 374,565

Claims priority, application Great Britain, July 13, 1972, 32743/72

Int. Cl. F16h *21/06*

U.S. Cl. 74—22 R **9 Claims**





A portable electric tool is adapted for drilling or hammer-drilling operations. The hammer-drilling mechanism is simple, reliable, easy to adjust, and facilitates low-cost high-volume manufacture of the tool. Additionally, a two-speed gearing is provided, such that the tool has four modes of operation: low-speed drilling; low-speed hammer-drilling; high-speed drilling; or high-speed hammer-drilling.

3,835,716

CRANK-DRIVEN RECIPROCATING MECHANISMS

Leslie Mark Ballamy, Hallams Court, Blackheath, England

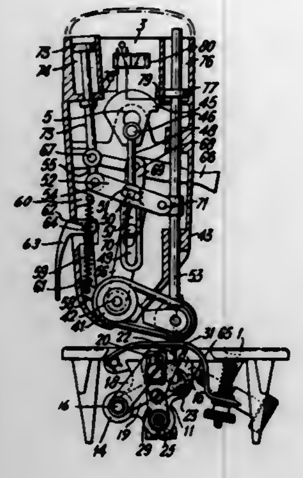
Filed Oct. 20, 1971, Ser. No. 190,889

Claims priority, application Great Britain, Oct. 23, 1970, 50460/70

Int. Cl. F16h *21/32*

U.S. Cl. 74—40 **16 Claims**

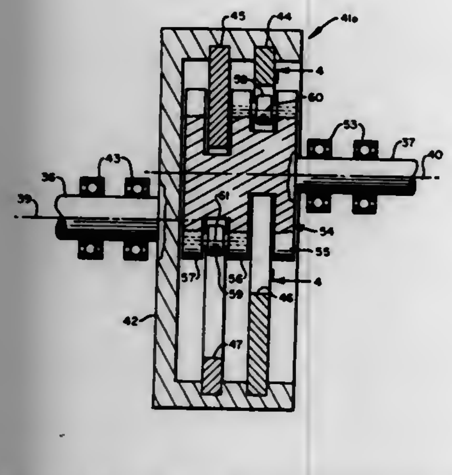
A crank driven reciprocating mechanism comprising a driven crank device, a connecting rod articulated to the eccentric crank of the crank device and carrying a shackle pin, and a shackle disposed transversely of the rod articulated to a fixable member on one side of the rod and on the other side of the rod to a reciprocable member and having between its ends a longitudinal slot engaged by the shackle pin. This



mechanism can be used as the needle bar drive and if desired to drive the fabric feed mechanism of a stitching machine such as a tufting machine or a sewing machine.

3,835,717
GEARLESS INTERMITTENT MOTION DEVICE

Rome R. Rudolph, 4113 Lee Rd., Gibsonia, Pa. 15044
Filed Apr. 5, 1973, Ser. No. 347,991
Int. Cl. F16h *21/48*
U.S. Cl. 74—70 **8 Claims**



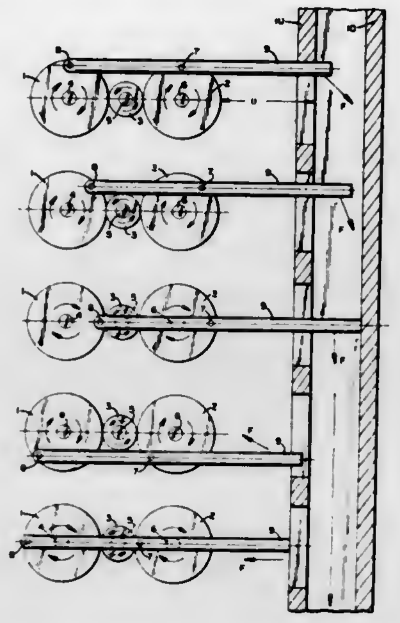
A gearless device for producing intermittent output from a single continuous input. The device incorporates a conjugate pair of endless internal cam surfaces secured to the input shaft which rotates at a constant angular velocity. Cam followers, supported by the output shaft, engage the cam surfaces and are angularly displaced thereby to produce, at the output shaft, a motion period followed by a dwell period. The conjugate pair of cam surfaces and the cam followers may be arranged to provide output oscillation or output indexing.

3,835,718
IMPELLER MECHANISM

Thomas B. Wilson, Jr., 10481 Randall St., Orange, Calif. 92669
Filed July 24, 1972, Ser. No. 261,264
Int. Cl. F16h *33/10*
U.S. Cl. 74—86 **8 Claims**

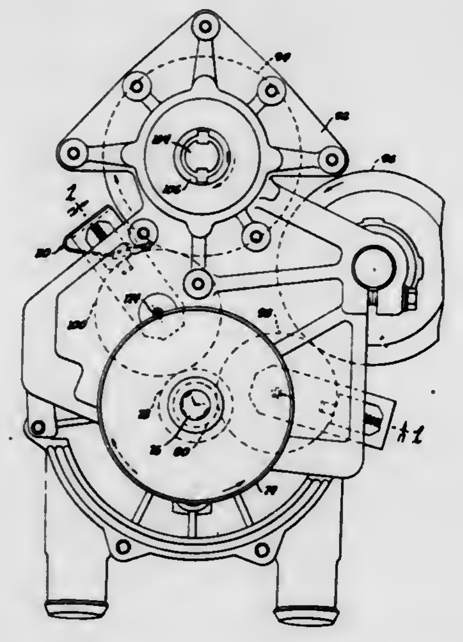
Impeller mechanism with an output which imparts a cyclic motion to a blade of variable configuration which results in the production of a predominant component of force or pressure when the blade is in contact with various substances into which it can penetrate or to which it can attach itself. The impeller mechanism consists of a minimum of two cranks constrained to rotate in a prescribed angular relationship to each other and with a blade of variable configuration attached to and free to rotate about the crank handles. Supporting structure, bearings, sealing mechanisms, covers and other ancillaries complete the impeller mechanism and adapt it to specific functional applications.

In a separate configuration, with the blade constrained to move along one axis only, the impeller mechanism is operated backwards by deriving energy from an expanding fluid to function as a prime mover or engine. Because of the unique configuration low pressure operation of the unit is possible with potentially great benefits to the environment by utilization of closed thermodynamic cycles or reduction of pollutants in conventional thermodynamic cycles.



3,835,719
ROLL RETRACTOR FOR ROLLER DRIVE MECHANISM

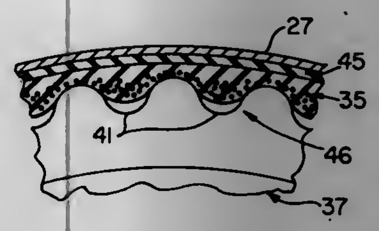
James A. Bernard, Dayton, and Byron L. Brucken, Miamisburg, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.
Filed Apr. 18, 1973, Ser. No. 352,194
Int. Cl. F16h *13/00*
U.S. Cl. 74—208 **7 Claims**



A roller drive agitating and spinning mechanism has an improved device for retracting a roller from the drive train when the roller is not transmitting power. The retractor device has a pad of ultra-high molecular weight polyethylene which is spring-biased against the roller surface of polyurethane at an angle to cause the roller to retract. The pad also serves to wipe wear debris and other foreign matter from the roller surface during operation of the mechanism to maintain the roller surface smooth and clean.

3,835,720
ENDLESS POWER TRANSMISSION BELT AND METHOD OF MAKING SAME

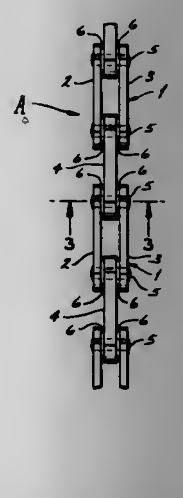
David G. Fisher, and Jerry W. Hill, both of Springfield, Mo., assignors to Dayco Corporation, Dayton, Ohio
Filed Aug. 10, 1973, Ser. No. 387,420
Int. Cl. F16g *1/28*
U.S. Cl. 74—231 C **20 Claims**



An endless power transmission belt and method of making same is provided wherein such belt is adapted to be operated in an endless path and comprises a tension section, a load-carrying section, and a compression section having a plurality of teeth arranged transverse the endless path with each of the teeth having a plurality of parallel randomly dispersed strength members each extending completely across its associated tooth with the randomly dispersed members increasing the transverse rigidity of the belt as well as providing nonsymmetrical patterns for the strength members which tend to prevent the development of shear planes and thereby prevent premature belt failure.

3,835,721
CHAIN CONSTRUCTION

George O. Hoffstetter, 999 W. Lake Dr., Jerseyville, Ill. 62052
Filed Nov. 21, 1972, Ser. No. 308,486
Int. Cl. F16g *13/02*
U.S. Cl. 74—245 R **7 Claims**

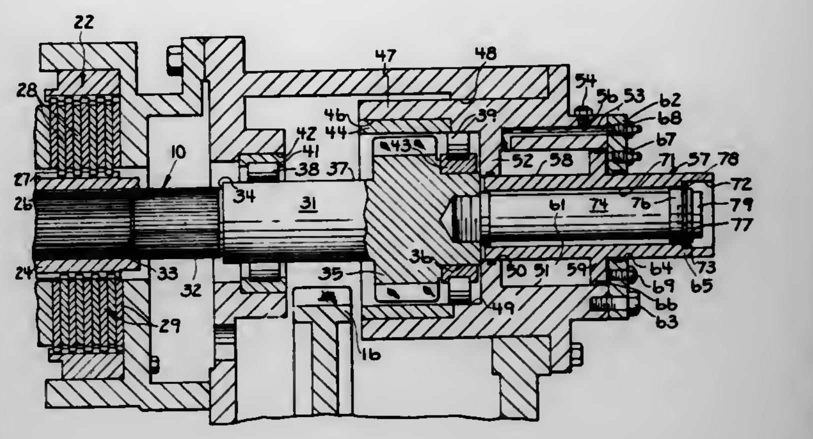


In a chain, comprising a series of links pivotally held together by means of a pin to provide for flexibility of use, a spacer is provided intermediate each linking member held together by said pin for the purpose of preventing their contiguous contact.

3,835,722
QUICK DISCONNECT DEVICE FOR POWER TRAINS

August H. Bertram, and Calvin L. Miller, both of Aurora, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Mar. 28, 1973, Ser. No. 345,791
Int. Cl. F16h *57/00*
U.S. Cl. 74—405 **14 Claims**

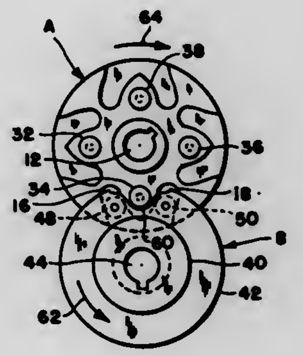
A power train comprises a pair of spur gears normally maintained in meshed relationship to transmit power therebetween. A piston is secured to a shaft, having one of the gears secured thereon, to selectively move the shaft axially to



disengage the gears upon pressurization of an actuating chamber associated with the piston.

3,835,723
INTERMITTENT MOTION DEVICE

Zugel Martin J., Cleveland, Ohio, assignor to Cyclo Index Corporation, Cleveland, Ohio
Filed Sept. 4, 1973, Ser. No. 393,716
Int. Cl. F16h *55/04, 27/04*; B23q *17/02*
U.S. Cl. 74—436 **5 Claims**

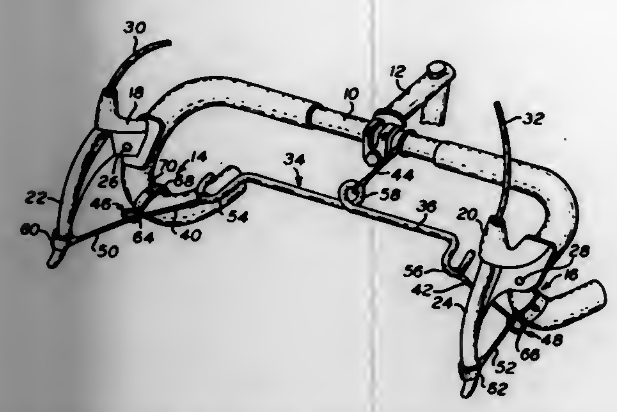


An indexing mechanism includes a rotable driven device having slots and a rotatable driving device having pins engageable with the slots for accelerating and decelerating the driven device. The driven device has rollers engageable with the outer periphery of the driving device for locking the driven device against rotation when it is not being indexed by the pins.

3,835,724
AUXILIARY BICYCLE BRAKE DEVICE

William B. Hoffman, 67 Ships Point Ln., Oyster Bay, N.Y. 11771
Continuation-in-part of Ser. No. 316,234, Dec. 18, 1972, Pat. No. 3,760,648. This application Aug. 29, 1973, Ser. No. 392,568
Int. Cl. B62l *3/02*; G05g *13/00*
U.S. Cl. 74—489 **12 Claims**

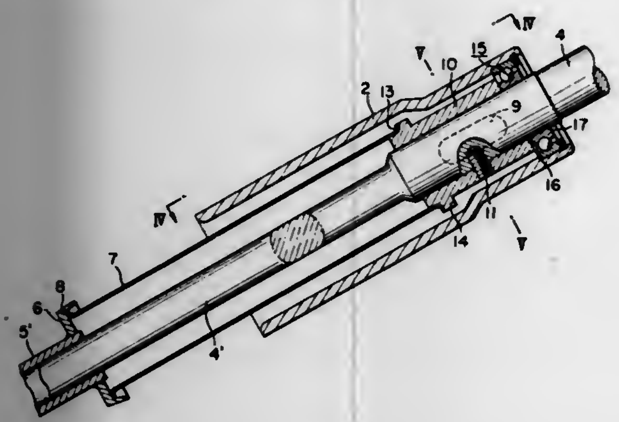
A braking device for use on a bicycle handle of the type used on racing bicycles which consists of an auxiliary brake located in a position to be grasped by a bicycle rider while having his hands on the cross bar of the bicycle handle bar rather than on the end handles. The auxiliary brake is mounted in position by flexible mounting means which flexibly connect the auxiliary brake to the pivotal brake handle



levers, whereby the auxiliary brake may be grasped by a rider to apply the brakes while the rider has his hands on the cross bar or other locations of the bicycle handle.

3,835,725
STEERING ASSEMBLY OF A MOTOR VEHICLE

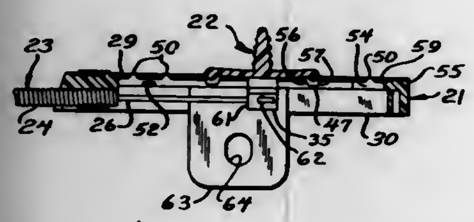
Hirosuke Furusho, Hyogo, and Shigetaka Fukui, Osaka, both of Japan, assignors to Daihatsu Kogyo Kabushiki Kaisha, Osaka, Japan
Filed Apr. 4, 1973, Ser. No. 347,627
Claims priority, application Japan, Apr. 11, 1972, 47-36200
Int. Cl. B62d *1/18*
U.S. Cl. 74—492 **1 Claim**



A sleeve is fixed to an upper shaft portion of a steering shaft consisting of upper and lower shaft portions, and this sleeve is used for two purposes, that is to say, for receiving a key operated member of a handle lock device on a supporting member fixed to the body of the motor vehicle, and for supporting an upper end of a collapsible energy absorbing member which is supported at its lower end by the lower shaft portion of the steering shaft.

3,835,726
LAWN MOWER CONTROL

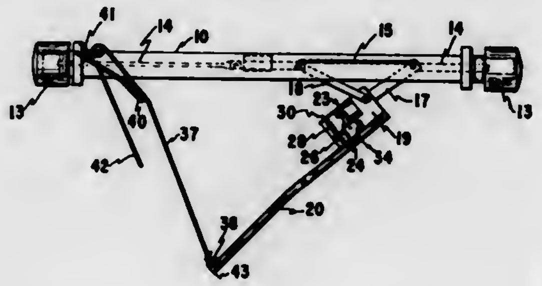
Ted Gregory, Mundelein, Ill., assignor to Arens Controls, Inc., Evanston, Ill.
Filed Jan. 12, 1973, Ser. No. 323,286
Int. Cl. F16c *1/10*
U.S. Cl. 74—501 P **3 Claims**



A Bowden cable control for lawn mower engines and the like is provided. The control includes a control plate and a control knob; a retaining flange is integrally formed with the knob to engage the underside of the plate. Embossments formed at the ends of the knob stress the knob to provide a resilient slide control action throughout a wide range of environmental conditions.

3,835,727
STEPPED TOGGLE MECHANISM

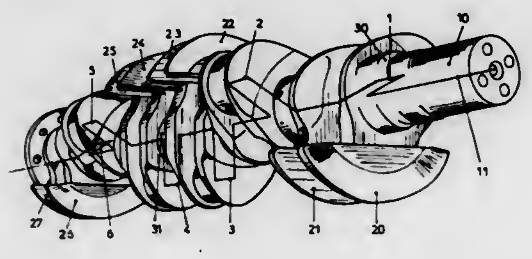
Henry L. Sundermann, Rt. 4 Box 79, Sioux Falls, S. Dak. 57101
Division of Ser. No. 211,907, Dec. 27, 1971, Pat. No. 3,780,833. This application June 26, 1973, Ser. No. 373,886
Int. Cl. G05g *1/04*
U.S. Cl. 74—520 **4 Claims**



A stepped toggle mechanism having two principal links for expanding movement and a stepped release mechanism adapted to allow subsequent similar movements of an operating arm to first expand the toggle to a set position and then to release it.

3,835,728
BALANCING DEVICE FOR A SIX CRANKPIN CRANKSHAFT

Michel Bernard, Lyon, France, assignor to Automobiles M. Berliet, Lyon (Rhone), France
Filed July 6, 1973, Ser. No. 377,009
Claims priority, application France, July 7, 1972, 72.25654
Int. Cl. F16c *3/00*
U.S. Cl. 74—603 **3 Claims**

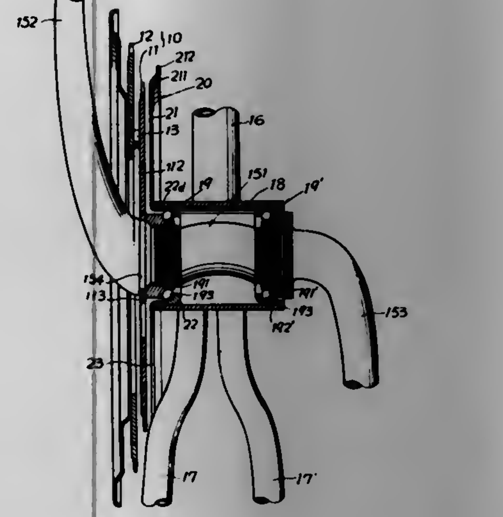


The arrangement of the weights for balancing a crankshaft having six crankpins is such that the middle balance weights are offset by an angle of 60 degrees with respect to the end crankpins and are diametrically opposed to the middle crankpins. The middle balance weights are diametrically opposed to the end balance weights and are identical thereto. All of the balance weights have the same symmetric longitudinal axis.

3,835,729
MEANS FOR PREVENTING DRIVING CHAIN FROM COMING OFF MULTI-SPEED TRANSMISSION FRONT GEAR FOR BICYCLE

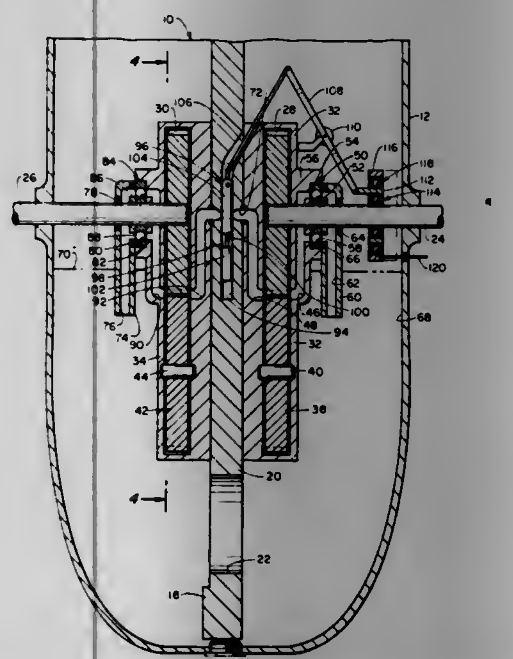
Satoshi Tarutani, c/o Shimano Industrial Co., Ltd., 77, 3-cho, Oimatsu, Sakai-shi, Osaka Prefecture, Japan
Filed Nov. 24, 1972, Ser. No. 308,943
Claims priority, application Japan, Nov. 27, 1971, 46-111684
Int. Cl. F16p *1/00*
U.S. Cl. 74—611 **8 Claims**

In a multi-speed transmission front gear system mounted on a bicycle crank shaft for rotation therewith, the gear system at least two different dent-numbered sprocket wheels, a discoidal chain guard member having a larger diameter than that of the minimum dent-numbered lower speed sprocket wheel, a fitting flange adapted to support the lower speed sprocket wheel on the foremost end of a hub which supports the crank shaft thereon and a cutout is formed on the fitting flange for accommodating member so that a driving chain for transmitting the rotation of the crank shaft to a rear wheel is prevented from coming off the lower speed sprocket wheel and can be automatically brought into engagement with the lower speed sprocket wheel even if it has slipped off the sprocket wheel.



3,835,730
HYDRAULICALLY CONTROLLED NON-SLIP DIFFERENTIAL

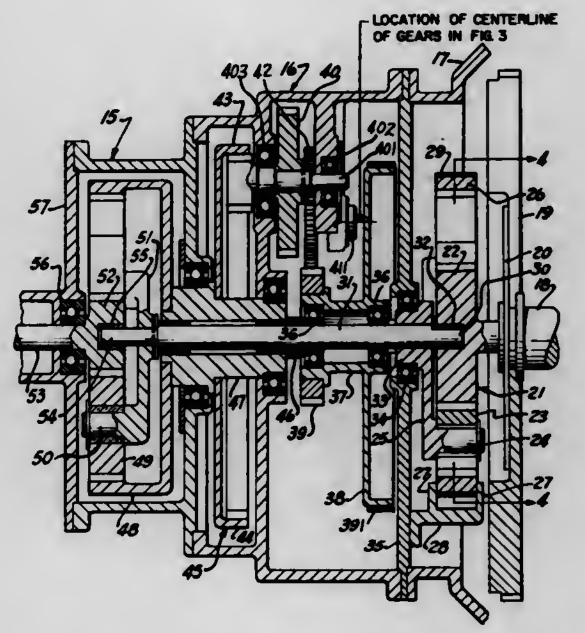
J. C. Pemberton, 9920 Sunset, La Mesa, Calif. 92041
Filed Aug. 4, 1972, Ser. No. 278,157
Int. Cl. F16h *35/04*
U.S. Cl. 74—650 **6 Claims**



A differential mechanism wherein the power input to the differential is divided and transmitted to dual output axle shafts through a hydraulic pumping assembly, the hydraulic pumping assembly being composed of a separate pump for each axle shaft. The outputs of the two pumps are interconnected through a manually operable valve to close the flow between the outputs of the two pumps. If free fluid flow is permitted between the outputs of the pumps, the differential mechanism functions as a conventional differential. If the flow between the outputs of the two pumps is blocked by the valve, the differential action is deleted and the engine is geared directly to each driving wheel.

3,835,731
POWER TRANSMISSION APPARATUS

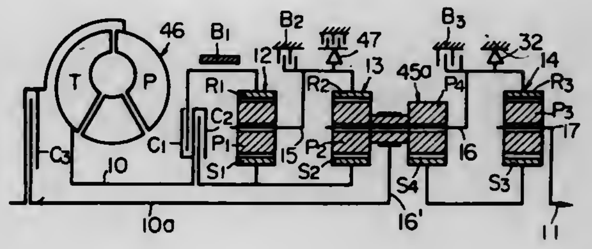
William S. Herzog, 18800 Almaden Rd., San Jose, Calif. 95120
Continuation-in-part of Ser. No. 77,594, Oct. 2, 1970, abandoned. This application Aug. 18, 1972, Ser. No. 281,912
Int. Cl. F16h *37/06, 57/10*
U.S. Cl. 74—682 **4 Claims**



Power transmission apparatus including conventional means for enabling manual or automatic shifting of ratios from a suitable low gear ratio to a direct drive ratio and an internal overdrive means for enabling the drive ratio to vary automatically in accordance with the vehicle load so that the relationship between vehicle load and engine torque is maintained in the most favorable condition at all points in the cruise range. This is accomplished by means of an additional reaction gear train which automatically varies the overdrive ratio in accordance with the applied load.

3,835,732
GEAR TRAIN ARRANGEMENTS

Yoichi Mori, Yokohama; Nobuo Okazaki, Chigasaki; Kunio Ohtsuka, and Tetsuya Iijima, both of Tokyo, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama City, Japan
Division of Ser. No. 30,496, April 21, 1970, Pat. No. 3,701,293. This application Sept. 13, 1972, Ser. No. 288,552
Claims priority, application Japan, July 14, 1969, 44-55068
Int. Cl. F16h *47/08, 57/10*
U.S. Cl. 74—688 **4 Claims**



Gear train arrangements for transmitting a power from a driving source to a driven member at more than three speeds in one direction and another speed in the opposite direction, the gear train arrangements using basically three planetary gear sets and at least five friction elements such as clutches and brakes which are selectively actuated to selectively engage the rotary members of the three planetary gear sets to deliver an output power at the above said speeds. The gear train arrangements are specifically adapted for use in an automatic transmission system of a motor vehicle using a torque converter or fluid coupling.

3,835,733
INTERNAL COMBUSTION ENGINE TORQUE MEASURING APPARATUS PROVIDING AN ELECTRICAL CONTROL SIGNAL

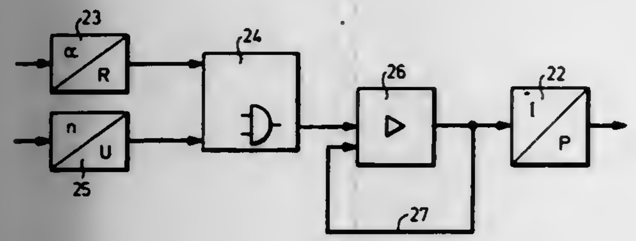
Bert Wurst, Moglingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Oct. 20, 1972, Ser. No. 299,516

Claims priority, application Germany, Dec. 22, 1971, 2163808

Int. Cl. B60k *21/00*

U.S. Cl. 74—866 **12 Claims**



A control valve which varies the hydraulic pressure of an automatic transmission in proportion to the engine torque, instead of being controlled by the intake manifold vacuum, is controlled by an electrical signal which is a composite of a signal proportional to engine speed, and a signal representative of the position of the accelerator pedal. Engine speed signals are derived from distributor signals, the speed signals then being modulated by a factor dependent upon the position of the accelerator pedal or of the throttle.

3,835,734
CUTTING TOOLS

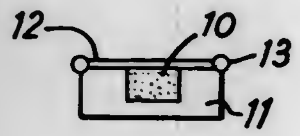
George Arthur, and Derek James Brown, both of Newcastle-upon-Tyne, England, assignors to International Research & Development Company Limited, Fossway, Newcastle upon Tyne NE6 2YD, England

Filed July 11, 1972, Ser. No. 270,628

Claims priority, application Great Britain July 14, 1971, 33111/71, Nov. 26, 1971, 55049/71

Int. Cl. B21k *21/00*

U.S. Cl. 76—101 A **4 Claims**



A method of manufacturing a cutting tool such as a hacksaw blade in which a tool steel body in solid or powder form is encased in a low alloy steel container and hot rolled to develop a bond between the body and the container, after which part of the container is machined away to expose a tool steel cutting edge.

3,835,735
MANEUVERING ACCESSORY FOR U-JOINT OF SOCKET WRENCHES

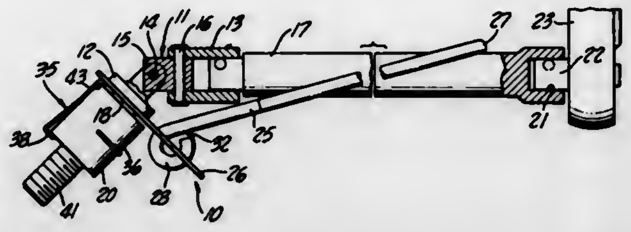
Harry A. Carr, 2934 Camintio, La Crescentia, Calif. 91214

Continuation-in-part of Ser. No. 159,800, July 6, 1971, abandoned, which is a continuation-in-part of Ser. No. 9,810, Feb. 9, 1970, abandoned. This application Jan. 4, 1973, Ser. No. 320,867

Int. Cl. B25b *13/00*

U.S. Cl. 81—177 UJ **10 Claims**

A two-piece manipulating accessory adapted to be detachably coupled to the shank of any conventional socket wrench U-joint by the socket fitting and including a handle manipulatable lengthwise of the wrench handle to pivot a socket fitting mounted on the shank thereby to guide the socket relative to fasteners located in cramped and remote locations.



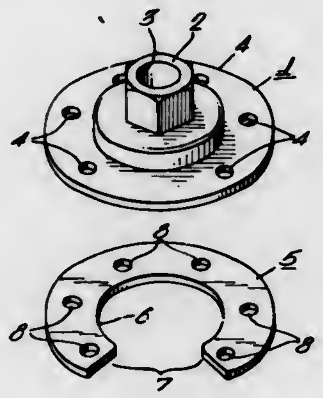
3,835,736
VALVE ACTUATING MEANS

George E. Campbell, Jr., Glen Riddle, and Julius Lerner, Broomall, both of Pa., assignors to Sun Oil Company of Pennsylvania, Philadelphia, Pa.

Filed Mar. 14, 1973, Ser. No. 341,225

Int. Cl. B25b *13/58*

U.S. Cl. 81—180 R **6 Claims**



A rigid adapter member, provided with a non-circular wrenching surface which is adapted to mate with a similar non-circular wrenching surface provided in a ratchet wrench, is non-rotatably secured to the handwheel of a valve which is to be actuated.

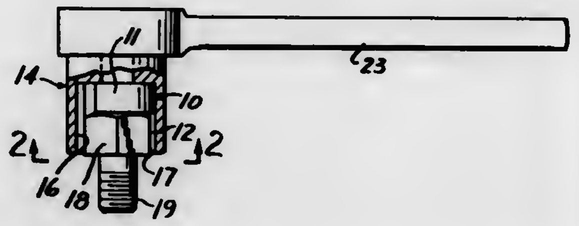
3,835,737
KEEPER FOR SOCKET WRENCHES

Harry A. Carr, 2934 El Caminito, La Crescenta, Calif. 91214

Continuation of Ser. No. 187,684, Oct. 8, 1971, abandoned. This application June 8, 1973, Ser. No. 368,211

Int. Cl. B25b *13/58*

U.S. Cl. 81—180 R **13 Claims**



A keeper accessory for use on a conventional wrench socket without need for alterations to hold a fastener captive in the socket while being manipulated into and out of an assembly position. The one-piece resilient accessory is frictionally engageable with the interior wall surface of the socket to retain the accessory in place and includes an extension positioned to have compressive frictional engagement with the hex face of a fastener to hold the latter seated in the wrench socket deliberately released therefrom.

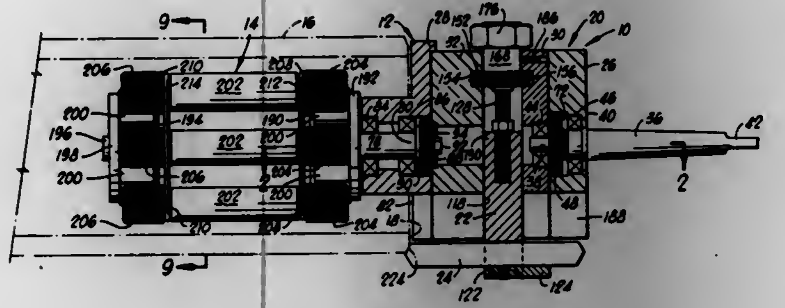
3,835,738
INTERNALLY MOUNTING PIPE BEVELING MACHINE

Jerome B. Kellum, and Bill Smith, both of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed Aug. 13, 1973, Ser. No. 387,779

Int. Cl. B23b *3/24*

U.S. Cl. 82—4 C **8 Claims**



A machine for beveling or otherwise finishing the end face of a pipe. The machine includes a supporting assembly positionable within the pipe for securely fastening the machine to the pipe in response to the application of rotary driving power to the machine. The machine further includes a planetary gear train for revolving a cutting tool about an axis coaxial with the axis of the pipe, and a tool driving gear train responsive to the planetary gear train for providing radial advance of the cutting tool along the end face of the pipe simultaneously with the revolution of the cutting tool by the machine.

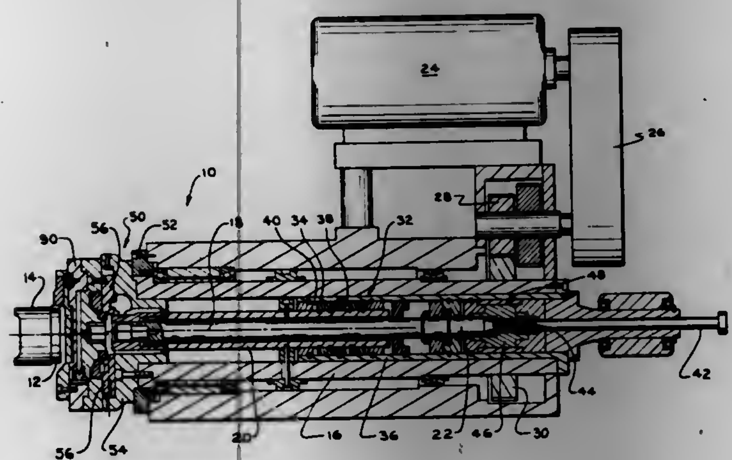
3,835,739
MACHINING APPARATUS

James C. Trees, Sterling Heights, Mich., assignor to LaSalle Machine Tool, Inc., Warren, Mich.

Filed June 15, 1973, Ser. No. 370,474

Int. Cl. B23b *5/00, 3/00, 3/28*

U.S. Cl. 82—20 **13 Claims**



Apparatus for machining parts, such as pistons, comprising a main spindle having an axis, a tool holding head movably mounted on one end of the spindle, a plurality of tools mounted in a circular formation on the head at positions spaced radially outwardly from the axis and a cross slide for moving the head transversely of the axis so that the tools thereon are movable between concentric and eccentric positions relative to the spindle axis. When the tools are in their concentric positions, a workpiece can be centered on the spindle axis in a clearance relation with the tools. When the cross slide is actuated to move the tool head toward the eccentric position, one of the tools is moved into machining engagement with the workpiece. The tool head is rotatable on the spindle to index the tools and is readily removable from the spindle for tool replacement purposes.

3,835,740
METHOD AND APPARATUS FOR CUTTING INTO SECTIONS THE CASTINGS PRODUCED BY A CONTINUOUS ROTARY CASTING MACHINE

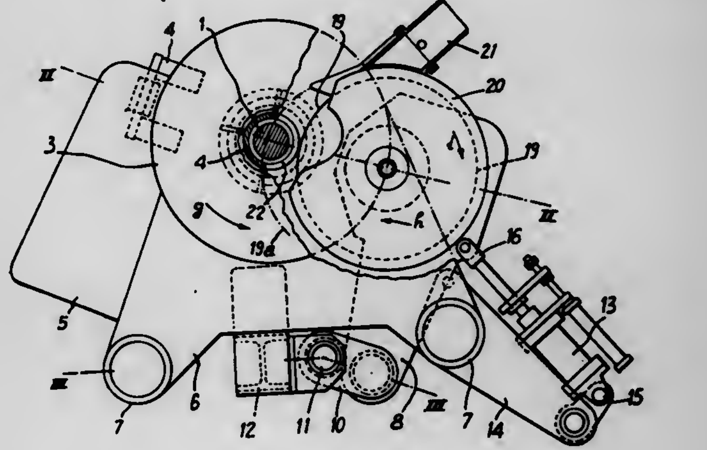
Pierre Peytavin, Neuilly-sur-Seine, and Louis Babel, Savigny-les-Bois, both of France, assignors to Societe Civile d'Etudes de Centrifugation, Paris, France

Filed Jan. 31, 1972, Ser. No. 222,080

Claims priority, application France, Feb. 5, 1971, 71.03953

Int. Cl. B23b *1/00, 37/00;* **B22d** *23/00*

U.S. Cl. 82—47 **3 Claims**



Method and apparatus for cutting into sections a metal casting being continuously withdrawn from a rotary continuous casting machine by utilizing a rotary saw which advances parallel to the casting and is biased against the casting so as to produce an annular cut of increasing depth until the section is severed.

3,835,741
DEVICE FOR CUTTING SHEET MATERIAL

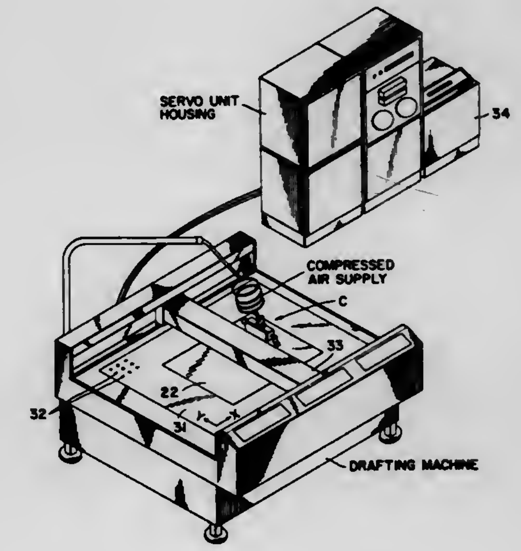
Gunnar Walter Anderson, and Willie Eriksen, Oslo, both of Norway, assignors to Sentralinstitutt for industrielli forskning, Oslo and A/S Kongsberg Vapenfabrikk, Kongsberg, both of, Norway, part interest to each

Filed June 15, 1972, Ser. No. 263,290

Claims priority, application Norway, June 16, 1971, 2266/71

Int. Cl. D06h *7/00;* **B26d** *1/10*

U.S. Cl. 83—71 **6 Claims**



A cutterhead for mounting in a numerically controlled machine moving the head in a desired path along a cardboard or thin metal sheet material. The cutter head has a cutting tool in the form of a punch having a circular cross-section and reciprocating at a frequency of at least 25,000 cycles per minute.

3,835,742

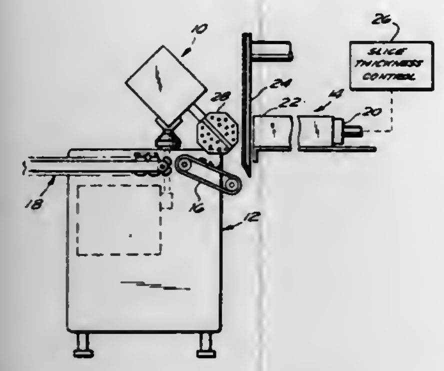
APPARATUS FOR STACKING AND WEIGHING SLICED FOOD PRODUCTS

Robert J. Spooner, Essex, Conn., assignor to Cashin Systems Corp., Williston Park, N.Y.

Filed Aug. 22, 1972, Ser. No. 282,651

Int. Cl. B26d *4/56*

U.S. Cl. 83—77 **4 Claims**



Apparatus is provided for stacking and weighing slices of cold cuts coming from the discharge end of a slicing machine. The apparatus is initially set to receive slices in stack form on a stacker. A scale is operatively connected to the stacker to register the weight after a preselected amount of slices are collected on the stacker. In one embodiment the scale actuates the stacker to transfer the stack of slices when it attains the desired weight. The scale in another embodiment serves to feed back appropriate signals to the feeding mechanism of the slicing machine to adjust sliced thickness to compensate for over or under weight slices or stacks registered by the scale. In this embodiment a preset count of slices are stacked before the weight is registered. The scale may also serve to actuate a reject mechanism for isolating those stacks not within the prescribed weight tolerances.

3,835,743

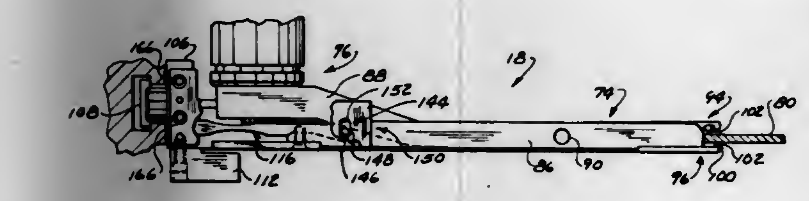
PUNCH PRESS WORKHOLDER

Victor E. Taylor, Phoenixville; Wallace R. Choate, Norristown; Stanley Banachowski, Collegeville; Robert W. Johnson, Philadelphia, and Robert C. Faison, Ridley Park, all of Pa., assignors to The Warner & Swasey Company, Cleveland, Ohio

Filed June 6, 1973, Ser. No. 367,523

Int. Cl. B26d *7/02*

U.S. Cl. 83—146 **13 Claims**



An improved punch press workholder has a relatively high flexural rigidity in the X and Y directions and a relatively low flexural rigidity in the Z direction. The high flexural rigidity of the workholder in the X and Y directions enables it to hold a work sheet accurately in place during punching operations. The low flexural rigidity in the Z direction enables the work sheet to assume a proper position relative to a die under the influence of forces applied to the work sheet by a punch. The workholder includes a gripper having an upper or movable pivot arm which is pivotally connected with a lower or fixed pivot arm. A resiliently yieldable connection is integrally formed with the fixed pivot arm and connects the fixed pivot arm with a rigid base. The resiliently yieldable connection has a generally rectangular cross-sectional configuration with a small dimension measured in a direction parallel to the Z axis and a relatively large dimension measured in a direction parallel to the X axis so that the yieldable connection has a high flexural rigidity in the X direction and a low flexural rigidity in the Z direction.

3,835,744

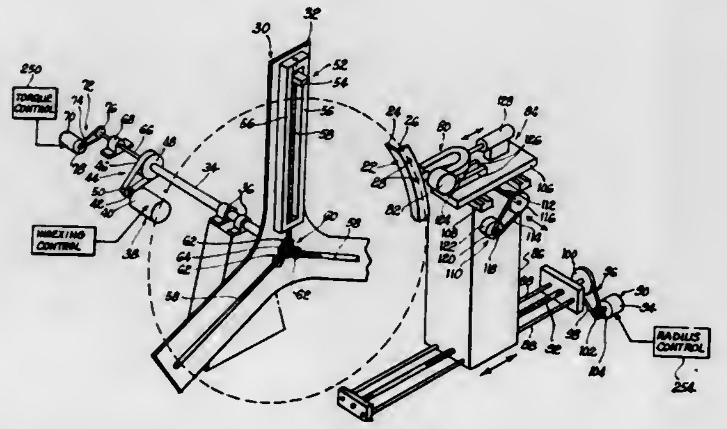
MACHINE FOR FORMING HOLES IN ANGLE RINGS OR THE LIKE

William H. Wendt, III, River Forest, Ill., assignor to Chicago Metal Mfg., Co., Chicago, Ill.

Filed Mar. 12, 1973, Ser. No. 339,821

Int. Cl. B26d *5/20, 5/30, 7/06*

U.S. Cl. 83—267 **30 Claims**



The disclosed machine comprises a rotatable indexing head for holding an angle ring or the like preferably in a vertical plane. The indexing head is rotatable about a horizontal axis and is provided with a motor drive whereby the indexing head can be turned to successive positions at which holes are to be formed in the angle ring. Three jaws are slidably mounted on the indexing head to engage and clamp the ring. The jaws are operated by lead screws fitted with bevel gears which engage an axial bevel gear having a motor drive for operating the jaws. A punch or other suitable device is provided to punch the successive holes. The punch is mounted on a set of compound carriages whereby the punch can be moved radially and axially into and out of punching relation to the ring. The carriages are power operated and are arranged so that the pitch circle radius of the holes can be precisely controlled. An automatic electronic control system may be employed to control the indexing, clamping and punch positioning drives.

3,835,745

ARRANGEMENT FOR UNLOADING A FILM CARTRIDGE

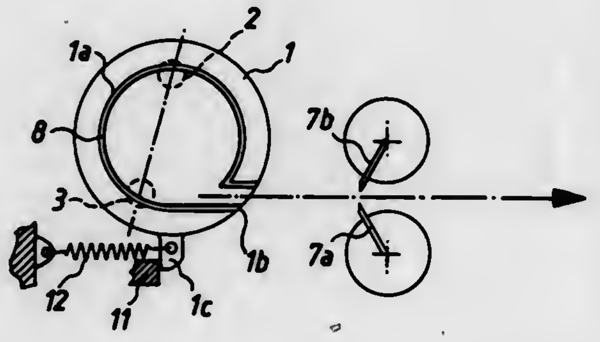
Prithwis Basu, Munich; Guenter Neumann, Gruenwald, and Jani Gaudek, Sallach Nr., all of Germany, assignors to AGFA Gevaert AG, Muenichen, Germany

Filed Nov. 1, 1973, Ser. No. 414,616

Claims priority, application Germany, Nov. 2, 1972, 2253707

Int. Cl. G03d *15/00*

U.S. Cl. 83—285 **8 Claims**



A receiver is dimensioned to coaxially accommodate a film cartridge and is provided with a slot-shaped opening which registers with an outlet slot of the film cartridge when the cartridge is so accommodated in the receiver. The receiver is pivoted for pivotal movement about an axis which is laterally offset with reference to the axes of the receiver and the cartridge, and a cutting arrangement is provided outside the opening of the receiver in the path of the film being withdrawn through the same. The cutting arrangement is connected with the receiver in such a manner that when the receiver pivots beyond a certain extent under the pull of film being withdrawn, the cutting arrangement will cut the film.

3,835,746

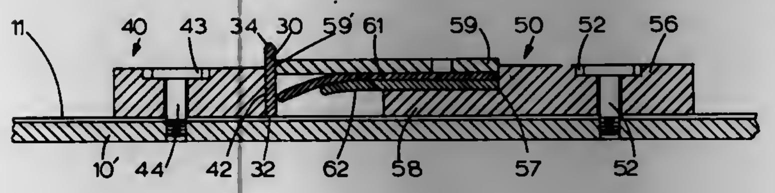
DIE ASSEMBLY AND RULE MOUNTING MEANS THEREFOR

William O. Young, Jr.; Ebun A. Surka, and Walter J. Quattlebaum, all of Spartanburg, S.C., assignors to Young Engineering Inc., Spartanburg, S.C.

Filed Apr. 30, 1973, Ser. No. 355,465

Int. Cl. B26f *1/38*

U.S. Cl. 83—346 **26 Claims**



An improved die assembly having easily replaceable rule is disclosed and claimed herein. A plate or roll directly receives one or more sections of rule according to a predetermined design or shape. The rule is thin elongated strip metal having a flat underside and a upperside that is sharp, radiused or otherwise prepared to perform a particular function on a material. The flat underside of the cutting rule is directly in contact with the backing plate or roll or a resilient cover positioned thereon. Removable, resilient mounting means apply a spring force against the rule to hold same against a rigid support in proper position for die cutting, creasing or the like. Removability of the resilient mounting means permits ready replacement of damaged or dulled cutting rule without any undue expense or appreciable production loss. Mounting means for the rule are also claimed, and include a rigid support and a resilient support to receive rule therebetween. The resilient support has at least one spring secured thereto and extending outwardly therefrom. The end of the support when in position defines the thickness of the rule and the spring system extends outwardly therefrom. The spring system is deformed by the rule upon insertion of the rule from above and continually applies a spring force against the rule to hold same in place.

3,835,747

FABRIC WEB HOLD-DOWN APPARATUS FOR TAILORING MACHINES

Bruno Bystron, Ingolstadt, Germany, assignor to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Ingolstadt, Germany

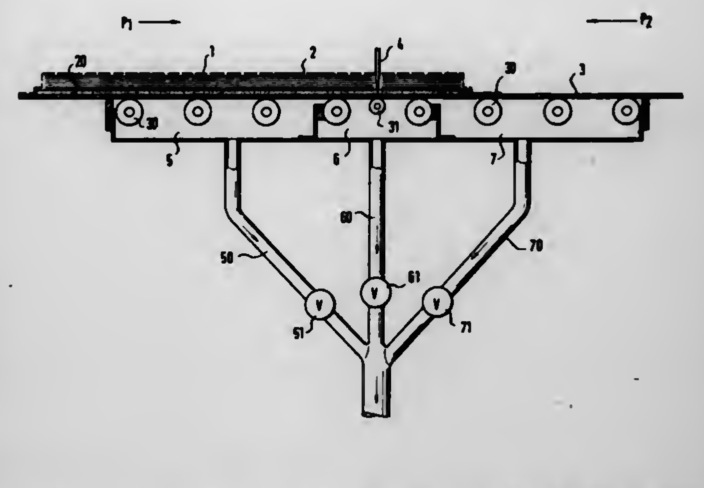
Filed Aug. 1, 1973, Ser. No. 384,562

Claims priority, application Germany, Aug. 5, 1972, 2238746

Int. Cl. D06h *7/24*

U.S. Cl. 83—422 **3 Claims**

A fabric lay-up is held against the upper side of a porous carrier adjacent to a cutting tool by suction applied by vacuum chambers at the opposite carrier side. A series of vacuum chambers are located adjacent to the cutting tool, each being partially evacuated to a different subatmospheric pressure than adjacent chambers, the most reduced pressure being in the chamber directly opposite the cutting tool. The subatmospheric pressures in the other chambers are always higher fore and aft of the lowest pressure chamber. The carrier may be reciprocated, and the vacuum chamber series may be fixed relative to the cutting tool in the direction of carrier reciprocation. Alternatively, the cutting tool may be reciprocable relative to a stationary vacuum chamber series, and chamber-evacuating means may be operable to change the absolute subatmospheric pressures, though not their relative pressure differentials, in synchronism with such reciprocation.



3,835,748

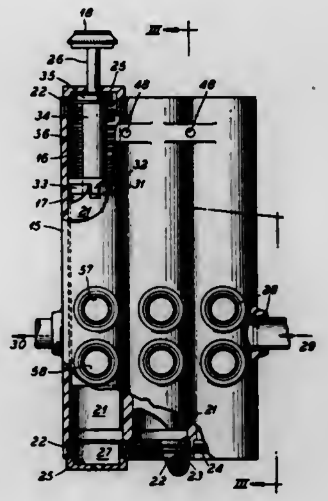
MUSICAL INSTRUMENT

Robert Dale Olson, Fullerton, Calif., assignor to Chicago Musical Instrument Co., Lincolnwood, Ill.

Filed Jan. 26, 1973, Ser. No. 326,614

Int. Cl. G10d *7/10*

U.S. Cl. 84—388 **9 Claims**



A musical instrument such as a trumpet has a mouthpiece crook and a bell crook that can be selectively manually detached from a unified valve assembly which employs a unitary molded plastic housing having separate lined bores for the valves.

3,835,749

WEAPON LAUNCHING ROCKETS AND METHOD TO USE THE SAME

Pierre Andre Joneaux, Avenue Pinel 6, Asnieres, France

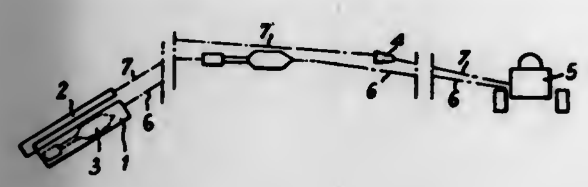
Filed Oct. 25, 1963, Ser. No. 319,074

Claims priority, application France, Oct. 26, 1962, 913553

Int. Cl. F41f *3/04*

U.S. Cl. 89—1.8 **1 Claim**

A weapon including in combination, a rocket launcher and a gun attached to said launcher with its axis parallel to that of the launcher to move with said rocket launcher, an artillery tracer projectile for firing from said gun constructed to be crushed upon impact with a target to deposit tracer material thereon which continues to burn, and a rocket provided with guidance means for following said tracer projectile through the entirety of its path to impact the position of said deposited tracer material, wherein said guidance means comprises means rotating the rocket about its axis through its trajectory and at least two guidance devices each including a pair of aerodynamic flaps externally and symmetrically arranged on the rocket about an axial plane and independently movable, a lens positioned on said rocket with its optical axis parallel to the axis of the rocket to receive radiant energy from said tracer material as the rocket is launched to follow the path of said projectile, two radiant energy detector cells each symmetrically placed upon two equal sectors of one circle located in the focal plane of said lens with planes identical to that of the corresponding said aerodynamic flaps, insulating sectors smaller than said detector cells spaced between the cells on said circle, amplifiers coupled to the two cells, and control means responsive to the amplifiers for moving said corresponding flaps proportional to the currents generated in the respective detector cells.



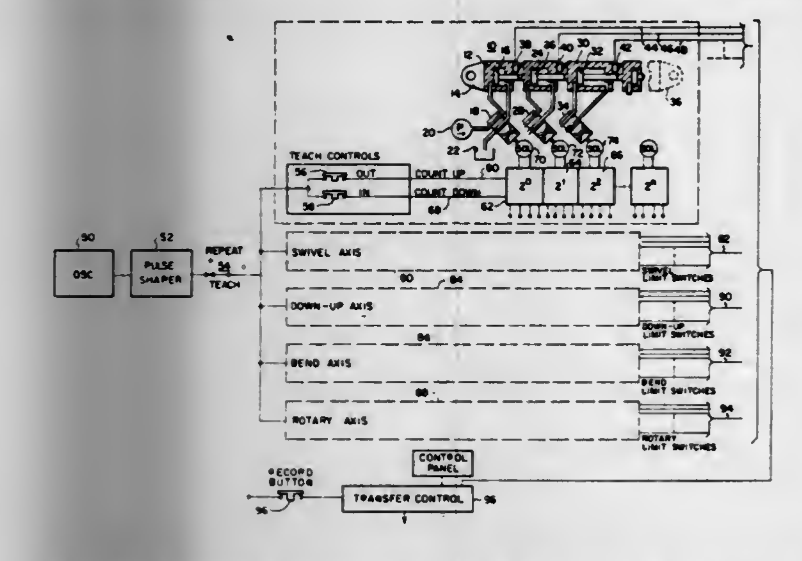
3,835,750
RECORD-PLAYBACK MANIPULATOR SYSTEM UTILIZING HYDRAULIC MICROBIT ACTUATORS

Maurice J. Dunne, Fairfield, Conn., assignor to Unimation, Inc., Bethel, Conn.

Filed May 14, 1973, Ser. No. 359,697

Int. Cl. F15b *11/18*

U.S. Cl. 91—35 **11 Claims**



A pulse generator common to all of the controlled axes of the manipulator arm is employed to develop a stream of pulses which may be selectively applied to the count up or count down lead of a bidirectional counter. Individual stages of the counter control individual pressure sensitive hydraulic actuators which are arranged in a series and have binary related strokes. Accordingly, the arm is moved in each axis in response to the pulse stream and at a rate corresponding to the rate of occurrence of pulses in said stream during the initial teaching operation. A series of limit switches are employed to detect the physical position of the series of actuators during the repeat mode of operation of the manipulator. These limit switches are also employed to set each bi-directional counter to an initial setting corresponding to the physical position of the arm on start up so that undesired movement of the arm at start up time is avoided.

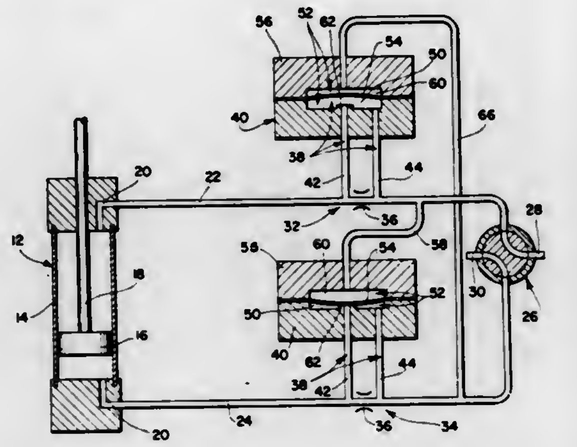
3,835,751
FLUID OPERATED SYSTEM

Larry Clyde Cowan, Jamestown, R.I., assignor to Leesona Corporation, Warwick, R.I.

Continuation of Ser. No. 186,845, Oct. 6, 1971, abandoned. This application July 5, 1973, Ser. No. 376,589

Int. Cl. F15b *11/08, 13/042*

U.S. Cl. 91—420 **4 Claims**



A fluid operated system controls a reversible fluid operated apparatus and is herein described in the form of a speed control system for a reversible motor such as a double-acting cylinder housing a piston. The piston is selectively driven in either of opposite directions by a pressurized operating fluid introduced into one end of the cylinder while the opposite end of the cylinder is vented. Control devices in conduits opening into opposite ends of the cylinder regulate the piston speed. If desired only one of the conduits may be provided with a control device so that the piston moves at maximum speed in one direction and more slowly in the opposite direction.

Each control device includes a restriction to the flow of fluid through the associated conduit, and has a by-pass with a fluid piloted diaphragm valve about the restriction, the fluid pilot operatively communicating with the opposite conduit. When operating fluid passes through one of the conduits to operate the cylinder, the valve associated with the other conduit is piloted closed so that fluid vented from the cylinder passes through the restriction of the other conduit, thus retarding the venting rate of the fluid and slowing movement of the piston. If desired, one or both restrictions may be of a variable type.

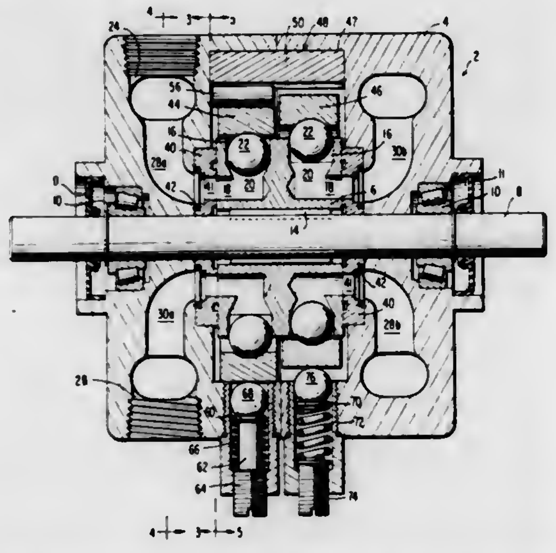
3,835,752
CONTROL FOR BALL PISTON FLUID TRANSMISSION DEVICE

Michael D'Amata, 1200 E. Main St., Waukesha, Wis. 53186

Filed Sept. 28, 1972, Ser. No. 292,897

Int. Cl. F01b *13/06*

U.S. Cl. 91—492 **5 Claims**



A ball piston pump or motor having in the rotor thereof two rows of cylinders is provided with two reaction rings which engage against a swivel so that one reaction ring causes the pistons engaging it to move oppositely from the pistons engaging the other ring. A control for the reaction rings determines stroke length and maximum pressure.

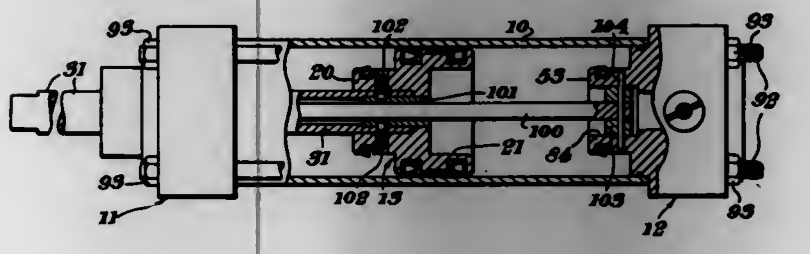
3,835,753
AIR CYLINDER

Alan Donald Bunyard, Burrell Rd., Haywards Heath, Sussex, England

Filed Sept. 19, 1972, Ser. No. 290,322

Int. Cl. F01b *11/02*

U.S. Cl. 92—85 **8 Claims**



An air cylinder whose piston has a male boss and a female recess which are coaxial and which coact with complementary female recess and male boss, respectively, on the relevent end caps to provide cushioning. Two air ports are formed in each end cap and connecting tubes connect the air port in one end cap to the opposite end of the cylinder via the other end cap. The air ports not required are blanked off with screwed plugs. Thus, air connections can be made to either end cap.

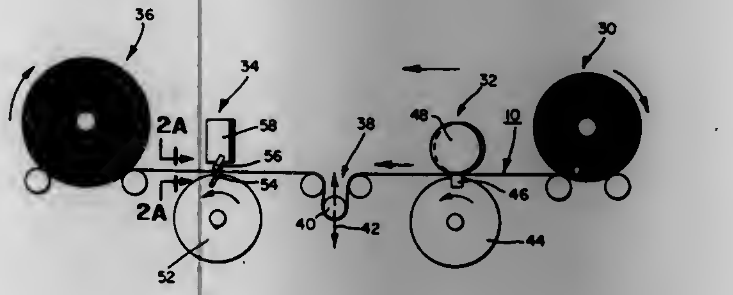
3,835,754
METHOD FOR CREATING LINES OF WEAKNESS IN THREAD-REINFORCED STRUCTURES

Roman Lewyckyj, Philadelphia, Pa., assignor to Scott Paper Company, Philadelphia, Pa.

Division of Ser. No. 91,240, Nov. 20, 1970, Pat. No. 3,716,132. This application Dec. 29, 1972, Ser. No. 319,862

Int. Cl. B31d *3/00*

U.S. Cl. 93—1 TS **11 Claims**



A laminated structure comprising at least one ply of cellulosic wadding with reinforcing threads secured thereto has a plurality of spaced lines of perforations separating discrete sheets of the laminated structure. Each line of perforations is defined by a series of spaced, discrete cuts spaced apart by uncut regions. The tensile strength of segments of reinforcing threads disposed in the uncut regions is substantially lower than the tensile strength of segments of reinforcing threads disposed outside of the uncut regions to thereby define lines of weakness along the lines of perforations. Method and apparatus for creating the above-described lines of weakness in the laminated structure by applying a crushing force in at least uncut regions to substantially weaken the segments of reinforcing threads disposed in the uncut regions.

3,835,755
BAG TIE DISPENSER

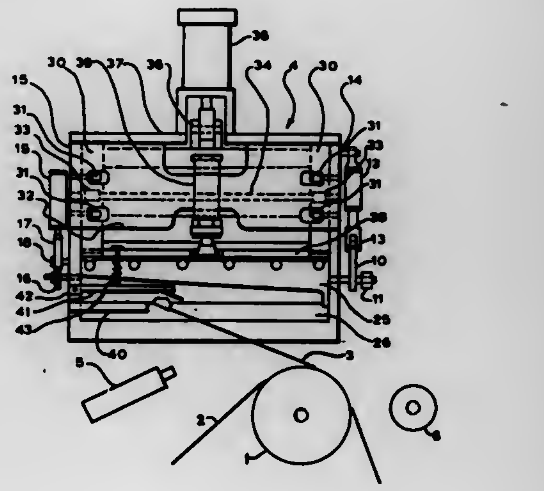
Elwyn David Jones, Beloeil, Quebec, Canada, assignor to Canadian Industries Limited, Montreal, Quebec, Canada

Filed Mar. 21, 1973, Ser. No. 343,451

Claims priority, application Great Britain, Apr. 10, 1972, 16401/72

Int. Cl. B31b *1/90*

U.S. Cl. 93—8 WA **8 Claims**



An apparatus that cuts a strip of plastic film from a length of film advanced by a film metering device, applies a drop of adhesive to the strip and forces the adhesives bearing side of the strip into contact with the surface of a plastic bag, thus providing an attached bag tie. The apparatus is suitable for use at the output of a bag making machine, means being provided to attach the bag tie to a moving bag in correct register with the bag mouth.

3,835,756
BAG-MAKING MACHINE

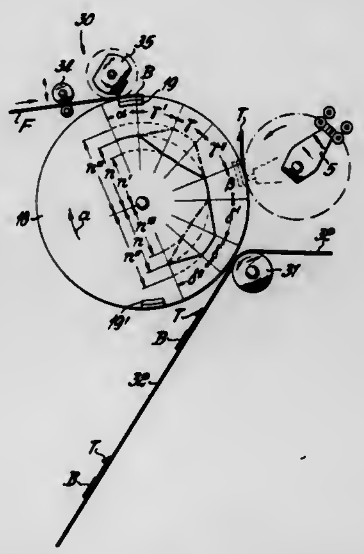
Frank Bosse, Ibbenburden-Dorenthe, Germany, assignor to Windmoller & Holscher, Lingerich, Germany

Filed Oct. 4, 1973, Ser. No. 403,484

Claims priority, application Germany, Oct. 4, 1972, 2248613

Int. Cl. B31b *1/86*

U.S. Cl. 93—8 WA **8 Claims**

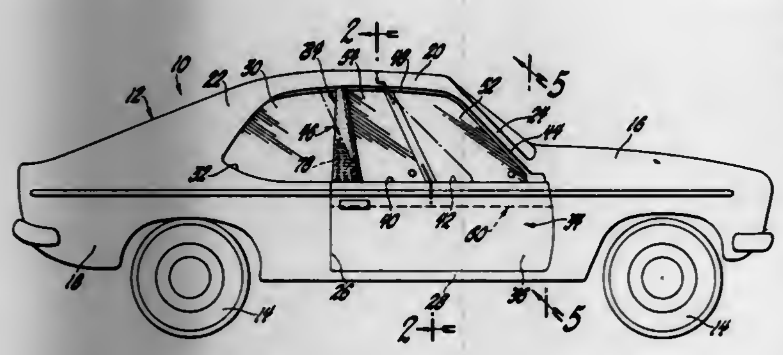


In the manufacture of carrier bags, a continuously travelling web of bag-making material is provided at intervals with carrier handles which are stuck thereto by means of reinforcing sheets. The reinforcing sheets are successively fed to a rotary transfer drum with which the web of bag-making material is in contact. The reinforcing sheets are coated with adhesive on one side. During rotation of the transfer drum, and before each reinforcing sheet makes contact with the web of bag-making material, a carrying handle is fed to the transfer drum at the location where a reinforcing sheet is being held on it. To enable the pitch of the carrying handles on the web to be varied without changing the transfer drum, the latter is turned by variable gearing.

3,835,757

VEHICLE BODY CONSTRUCTION

Horacio Shakespear, West Bloomfield, and James A. Steele, Birmingham, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Mar. 5, 1973, Ser. No. 338,308
Int. Cl. B60h *1/24*
U.S. Cl. 98—2 **2 Claims**

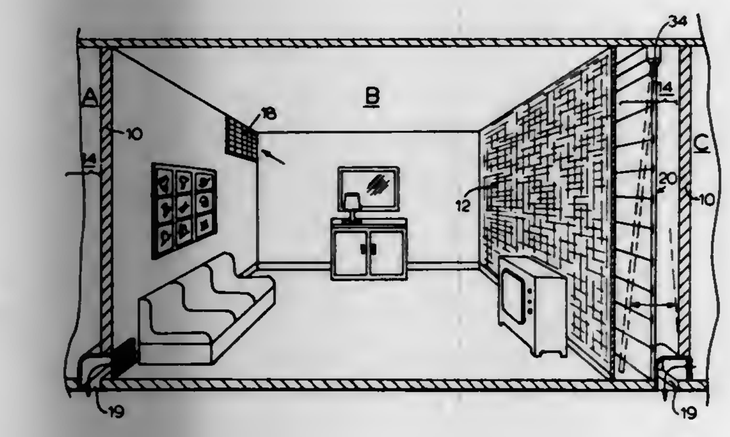


A body construction wherein vehicle structural, fresh air ventilation, heating, and side window defrosting are performed by a single element. In particular, a side guard beam rigidly disposed on the door of the vehicle defines a closed conduit. Fresh air intake louvers on a rear frame portion of a window opening in the door convey fresh air from outside the vehicle into the closed conduit which then conveys the fresh air to the interior of the vehicle through a plurality of ducts. Also, heated air from the vehicle's heater is conveyed to the closed conduit which then transmits the heated air to either the interior of the vehicle and/or the side windows through a plurality of adjustable diffusers. Concurrently, in the closed position of the door, the beam functions to maintain the integrity of the passenger compartment against side impact loading.

3,835,758

DWELLING SPACE AIR CONDITION CONTROL AND AIR CHANGE CONTROL SYSTEM

John B. Bean, 120 Henning Dr., Orchard Park, N.Y. 14127
Filed Sept. 13, 1973, Ser. No. 397,171
Int. Cl. F24f *13/00*
U.S. Cl. 98—33 **17 Claims**

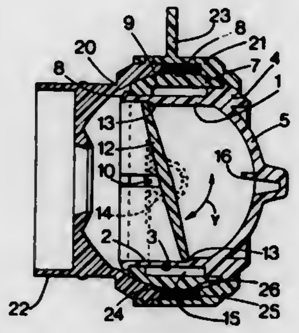


Inside of or adjacent to one end or other wall of a dwelling room or the like there is provided an air-pervious "false" wall spaced in advance of the true wall thereof, thereby defining therebetween a plenum space. Throughout a substantial portion of its extent the false wall comprises a readily air-pervious fabrication, such as for example an extremely loosely woven fabric of natural or synthetic fibers or wire strands or the like; or a parallel strand curtain; or some other highly perforate fabrication such as a punched sheet member or the like. In any case the false wall is preferably decoratively equivalent to the viewed surface of a conventionally decorated room wall. Supply air inlet means are provided in one-way open system communication with the plenum space; the air supply thereto being beneficiated/"conditioned" (heated, cooled, humidified, dehumidified, filtered, etc.) either externally of or within the plenum space. The invention features provision within a plenum space as aforesaid a positive air displacement/transport device which only leisurely moves the beneficiated air through the false wall and thence through the dwelling spaced towards an outlet remote from the false wall. Because of its air-pervious nature the false wall "breathes" a room-wide diffused supply of suitably beneficiated air into and through the room for temperature/humidity/filter control thereof; silently, and without perceptible draft effects.

3,835,759

VENTILATING NOZZLE INCLUDING A UNIVERSALLY SWIVELLABLE NOZZLE MEMBER

Jeffrey Neil Lloyd, Bedworth, England, assignor to Clear Hooters Limited, Bedworth, Warwickshire, England
Filed Mar. 27, 1973, Ser. No. 345,273
Claims priority, application Great Britain, Apr. 4, 1972, 15309/72
Int. Cl. F24f *13/00*
U.S. Cl. 98—40 A **6 Claims**



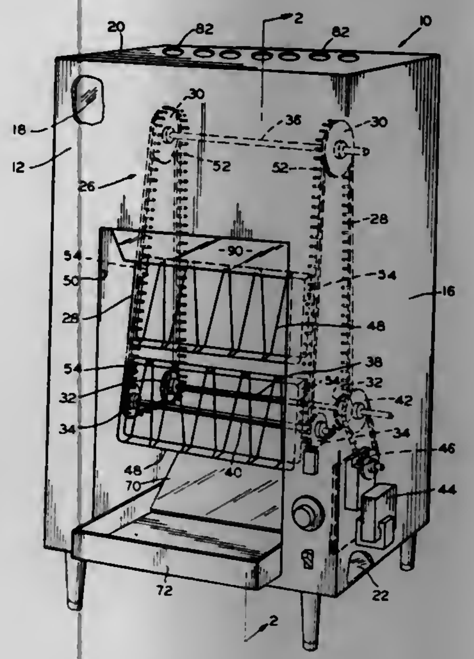
A ventilating nozzle in which a tubular nozzle member is swivellable universally in a tubular housing. The nozzle member contains an obturating member adjustable to vary the effective flow of air through the nozzle member. A sleeve mounted on the nozzle member for relative rotation therebetween but restrained by the housing from rotational movement about its axis is connected by gearing to the obturating member, whereby rotational movement of the nozzle member within the sleeve will effect opening or closing of the obturating member according to the direction of the rotational movement.

3,835,760

APPARATUS FOR TOASTING BREAD-LIKE ARTICLES

John F. Rekesius, Point Pleasant, N.J., assignor to Savory Equipment, Inc., Neptune, N.J.
Filed Apr. 9, 1973, Ser. No. 348,922
Int. Cl. A47j *37/08*
U.S. Cl. 99—331 **18 Claims**

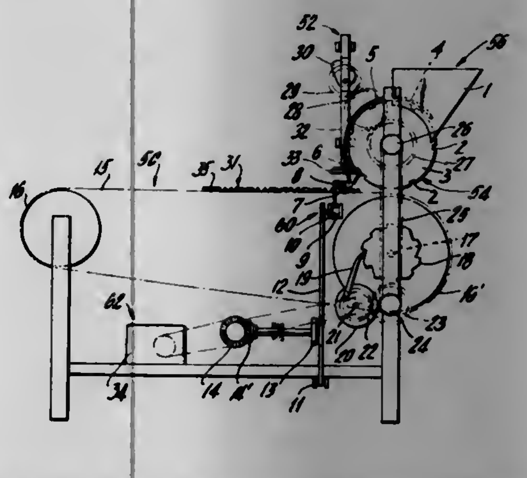
Apparatus for toasting bread-like articles is disclosed comprising a housing providing a toasting chamber in which electrical heating elements are disposed together with an endless conveyor operable to receive and carry articles to be toasted past the heating elements. The housing has an entrance opening for introducing articles onto the conveyor and when the articles have been toasted they are discharged from the conveyor for removal from the apparatus. The housing is provided with a discharge opening in the top wall thereof and adjacent the rear wall of the housing, and a flue arrangement is provided within the housing to induce hot air in the housing to flow through the discharge opening. Flow of hot air through the flue induces ambient air to flow into the toasting chamber through the product entrance, beneath the conveyor and heating elements and thence upwardly toward the top of the chamber. A temperature sensing element is disposed in the housing in the path of ambient air flow and is responsive to the temperature sensed to cause energization and de-energization of the heating elements.



3,835,761

SKEWERING MACHINE

Takeharu Yamanaka, No. 1-26, 3 Chome Inchinotani-cho, Suma-Ku, Kobe City, Japan
Filed June 18, 1973, Ser. No. 370,843
Int. Cl. A47j *37/04*
U.S. Cl. 99—421 H **5 Claims**

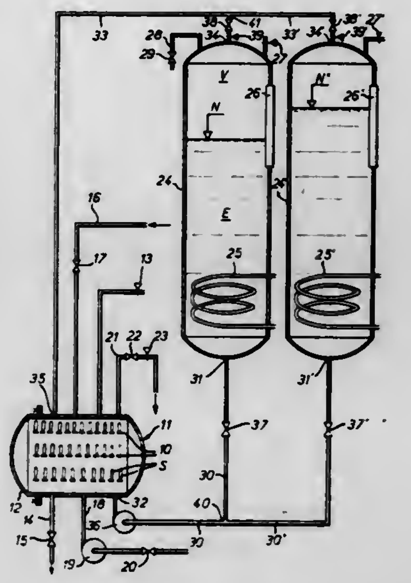


A machine for skewering pieces of materials, particularly foods such as meat, onions, etc., comprises a first conveyor having a series of supporting plates for receiving the material and each including guide means for guiding a skewer for movement thereacross. The plates are advanced one at a time into association with a presser which presses the material downwardly on the plate and holds the material in position while skewer rods are fed from a second conveyor into alignment with the guide means on the plates and then pushed through the material which is being pressed on the plates. The skewers are fed in succession from a hopper supply onto the second conveyor where the skewers are arranged in spaced relationship and fed by the second conveyor into association with a slide mechanism which pushes each skewer transversely through a guide of a guide plate carrying the material to be skewered and which is located at a presser station. The conveyors and the skewer supply system and the presser are all driven in timed relationship by a single drive motor.

3,835,762

DEVICE FOR THE STERILIZATION OF FOOD PRODUCTS IN FLEXIBLE PACKAGES

Michel Rambaud, Paris, France, assignor to Etablessements Gatineau S.A., Villers-Cotterets, France
Filed Mar. 10, 1972, Ser. No. 233,462
Claims priority, application France, Mar. 29, 1971, 71.10877, July 12, 1971, 71.25427
Int. Cl. B65b *55/02;* **A23l** *3/12*
U.S. Cl. 99—483 **9 Claims**

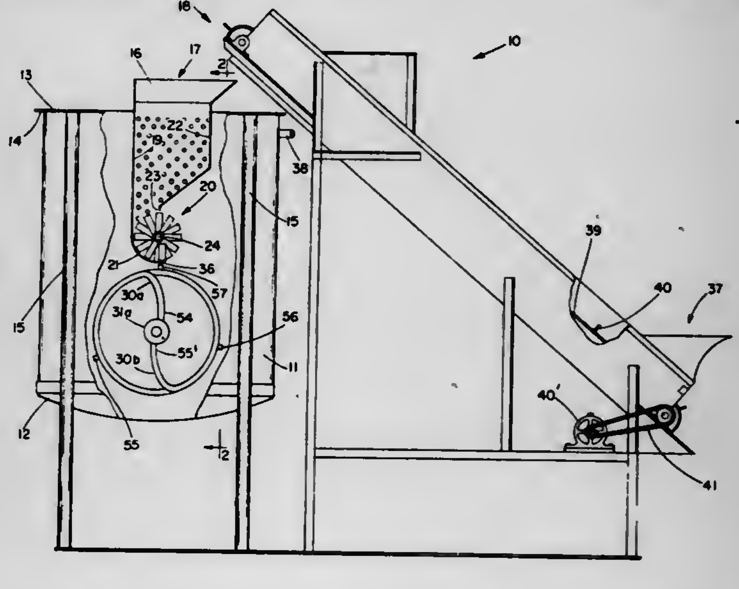


A device for the sterilization of food products in flexible packages, e.g., preserves, comprising at least one autoclave adapted to hold said preserves for treatment, in which the said autoclave is associated with two hermetically-closed heated tanks intended to be partly filled with water, upper conduits and lower conduits being provided for coupling respectively together the top portions and the bottom portions of said autoclave and said tanks, and further comprising pumping means adapted to effect the circulation of hot water in a closed pressurized circuit through the said autoclave, so as to effect a heat treatment in two successive periods and at two different temperatures. The apparatus is particularly suitable for the treatment of raw scraped potatoes packed under vacuum in transparent plastic bags.

3,835,763

METHOD AND APPARATUS FOR OBTAINING TOMATO JUICE WHILE MINIMIZING ENZYMIC ACTION

Walter L. Prosser, Indianapolis, Ind., assignor to F. H. Langsenkamp Company, Indianapolis, Ind.
Filed Jan. 23, 1973, Ser. No. 326,116
Int. Cl. A23n *1/02*
U.S. Cl. 99—495 **5 Claims**



A method and apparatus for obtaining juices from tomatoes by heating the tomatoes to minimize enzymic action. The method includes the steps of heating the tomatoes to a minimum temperature of 190° Fahrenheit or higher and then chopping the tomatoes so as to allow the juices to flow into a vat. The apparatus has a rotatable heating element mounted within a vat receiving the tomatoes through a chute. A rotating cutter is mounted to the vat immediately adjacent the bottom open end of the chute and immediately above the heating element. A conveyor drops the tomatoes into the chute which are then heated by the heated juices circulated within the vat prior to cutting.

3,835,764

APPARATUS FOR PRODUCING FROZEN MEAT CUBES, HAMBURGERS AND SIMILAR UNITS

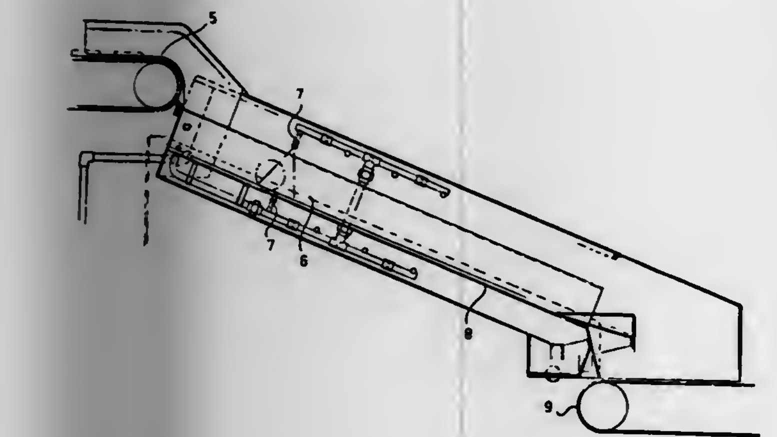
Goran Stig Londahl, and Lars Inge Eek, both of Halsingborg, Sweden, assignors to Frigoscandia Contracting AB, Halsingborg, Sweden

Continuation of Ser. No. 183,347, Sept. 24, 1971. This application July 25, 1973, Ser. No. 382,507

Claims priority, application Sweden, Sept. 30, 1970, 13237/70

Int. Cl. A23l *3/36*

U.S. Cl. 99—517 **2 Claims**



An apparatus for producing frozen meat cubes, hamburgers and similar units comprises a freezing device in which the units are subjected to a reduction of temperature to far below 0°C, and a glazing device arranged after the freezing device, in which cold water is caused to freeze to a glazing on the surfaces of the units. The glazing device comprises a feeding device which imparts to the units leaving the freezing device a relative movement with respect to said device during the feed, and cold water nozzles arranged above and below the path of the feeding device for the units.

3,835,765

APPARATUS FOR DESTONING AND HALVING FRUIT

Giordano Tomelleri, Verona, Italy, assignor to FMC Corporation, San Jose, Calif.

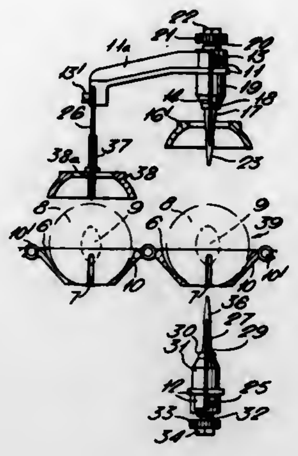
Filed Aug. 3, 1972, Ser. No. 277,910

Claims priority, application Italy, Dec. 30, 1971, 84994/71

Int. Cl. A23n *3/08*

U.S. Cl. 99—553 **3 Claims**

A destoning and halving apparatus for peaches and like fruit with large stones, comprising an intermittently travelling conveyor receiving the fruit, a first or destoning position in which two pairs of blades are partly inserted in the fruit from opposite directions to hold it firmly, a pair of forked knives, one between each pair of blades, are inserted so as to surround the stone and are then rotated to free it, whereupon the blades and knives are removed from the fruit which is transferred to a second or halving position where it is cut completely in half by further linearly-moving blades.



3,835,766

DEVICE FOR HUSKING GRAINS

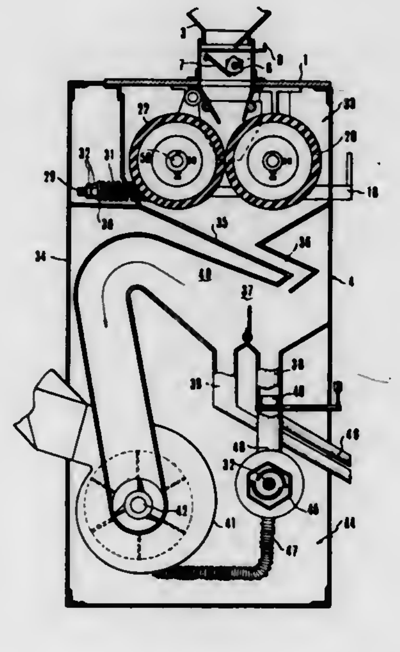
Toshihiko Satake, 2-38 Nishihon-machi, Saijyo-cho, Kamo-gun, Hiroshima-ken, Japan

Filed Mar. 29, 1972, Ser. No. 229,437

Claims priority, application Japan, Nov. 23, 1971, 46-93973

Int. Cl. A45e *41/02*

U.S. Cl. 99—618 **6 Claims**



In a device for husking grains, its support mechanism for hulling rolls and its casing defining a husking chamber, said device being assembled in its entirety as a rectangular parallelepiped.

3,835,767

REFUSE COMPACTOR

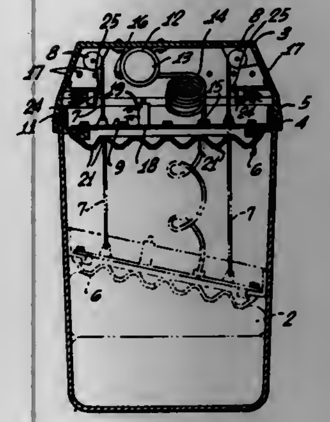
Robert A. Peterson, 8756 33rd Ave., Kenosha, Wis. 53740

Continuation-in-part of Ser. No. 254,067, May 17, 1972, abandoned. This application Aug. 10, 1973, Ser. No. 387,463

Int. Cl. B30b *15/16*

U.S. Cl. 100—53 **27 Claims**

A refuse container interiorly movably mounts a pressure plate to bear against the material being compacted, the container and plate defining a collapsable chamber. An endless seal carried at the periphery of the plate is responsive to a differential of external and internal pressures, induced by a vacuum pump that reduces the internal pressure of the enclosed volume of the collapsable chamber, to hermetically seal the chamber to effect compacting movement of the pressure plate. A vacuum breaker means is provided to equalize the internal and external pressures after completion of a compacting cycle, e.g., after a predetermined length of compacting stroke of the pressure plate, to permit retraction of the plate to a position of readiness for a successive compacting cycle. The process may be automatically controlled, e.g., by an electro-mechanical circuit. The container may be an element that is selectively separable from an assembly consisting of all the other elements of the invention.



3,835,768

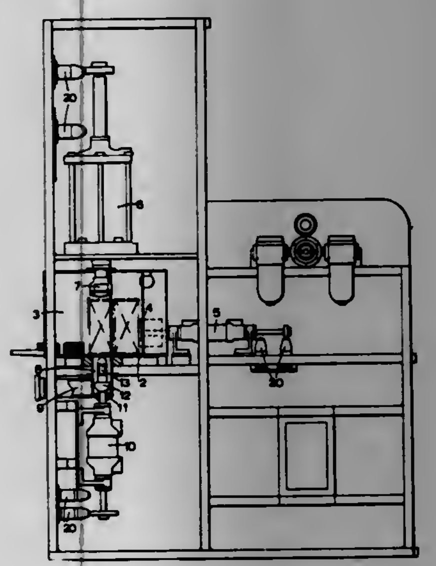
CAN CRUSHERS

Leonard Kidson, Bourne End, England, assignor to Hunt Brothers (Oldbury) Limited, Worcestershire, England

Filed Jan. 12, 1973, Ser. No. 323,077

Int. Cl. B30b *9/00*

U.S. Cl. 100—94 **3 Claims**



A can crusher comprises piercing means operative to pierce the underside of a metal can so as to form an opening or openings in the underside of the can, and crushing means operative to crush the pierced can so as to cause or assist in causing the contents of the can to be expelled through the opening or openings. The piercing means includes a piercing tool which is formed with an overhanging portion, preferably in the form of a barb, such that when the tool pierces the underside of the can to form an opening in it, that portion enters the can, and when the tool is subsequently withdrawn through the opening the overhanging portion pulls downwards the adjacent part of the can bordering the opening. The tool may be of symmetrical form with a tapering head, a shank of constant width, and a stock provided with a threaded stud by means of which the tool is mounted in the crusher.

3,835,769

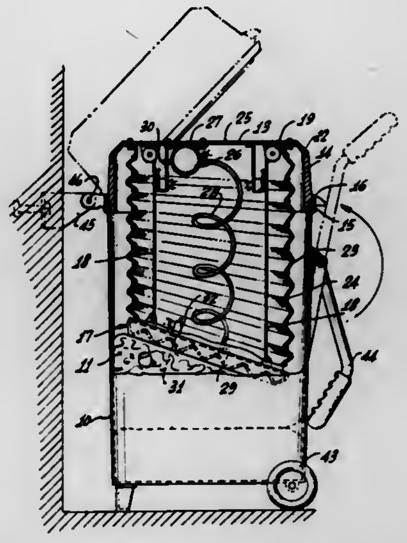
REFUSE COMPACTOR

Robert A. Peterson, 8756 33rd Ave., Kenosha, Wis. 53140

Continuation-in-part of Ser. No. 254,067, May 17, 1972, abandoned. This application Aug. 10, 1973, Ser. No. 387,436

Int. Cl. B30b *1/32, 15/16*

U.S. Cl. 100—227 **23 Claims**



The cover of a refuse container, adapted to be sealed upon the container, is internally provided with a bellows having a pressure plate to bear against the material being compacted as the plate moves downwardly in the container in response to expansion of the bellows. The plate assembly and container define a collapsible chamber from which air is evacuated by a power means to reduce the internal pressure while air at atmospheric pressure expands the inside of the bellows. Automatic means to vent the evacuated collapsible chamber to atmosphere is provided in a control system that includes the power means to evacuate air. The container may be independent of the other elements of the invention and may be supported for translatory movement in and out of operative connection to the power means and cover whereby a plurality of containers may be employed with a single power system.

3,835,770

COMPACT FLYING PRINTER

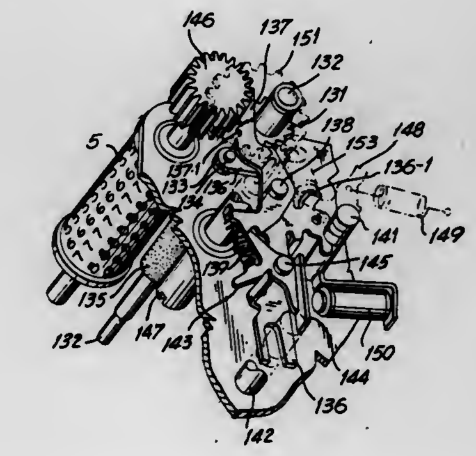
Tadayoshi Shimodaira, Suwa, and Yoshifumi Gomi, Chino, both of Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo and Shinshu Seiki Kabushiki Kaisha, Nagano-ken, both of, Japan

Division of Ser. No. 118,427, Feb. 24, 1971. This application Apr. 28, 1972, Ser. No. 248,368

Claims priority, application Japan, Feb. 27, 1970, 45-16451

Int. Cl. B41j *11/00*

U.S. Cl. 101—93 C **11 Claims**



A compact flying printer having a continuously rotating print drum and ratchet wheel, a trigger lever positionable to be struck by a tooth of said ratchet wheel and a hammer lever driven by said trigger lever and provided with a print hammer at its end. The trigger lever is formed with a linear guide portion for regulating the motion thereof and an energy transmitting portion projected for transmitting energy from said ratchet wheel to said hammer lever.

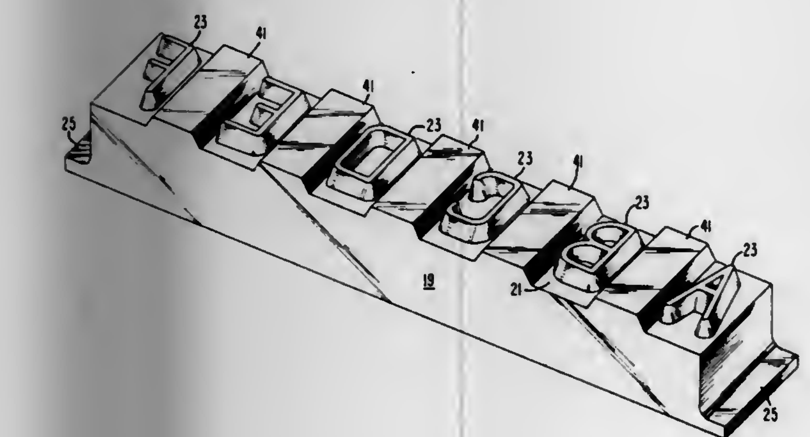
3,835,771
PRINT TRAIN PERMITTING ACCELERATED PRINTING SPEEDS IN A LINE PRINTER

John W. Funk, Plymouth; Eugene L. Merlino, Jr., Dearborn Heights; Stephen Barasch, Westland, and Daniel J. Woods, Plymouth, all of Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed May 2, 1973, Ser. No. 356,393

Int. Cl. B41j *7/06*

U.S. Cl. 101—111 **4 Claims**



A print train of predetermined length and comprised of a plurality of type carrying blocks is provided with an increased number of hammer impactable type characters to thereby enable the realization of significantly accelerated printing speeds, the type blocks being individually and alternately driven to advance a toothed belt to which the blocks are separately coupled around a pair of rotatable sprockets, said accelerated printing speeds being realized without an accompanying degradation of printing quality resulting from the closer spacing of the adjacent characters, means being provided to shield the characters adjacent to an impacted character against the striking force of the hammer associated with such impacted character.

3,835,772
COMPENSATING IMPRESSION ROLLER MOUNT FOR STENCIL DUPLICATOR

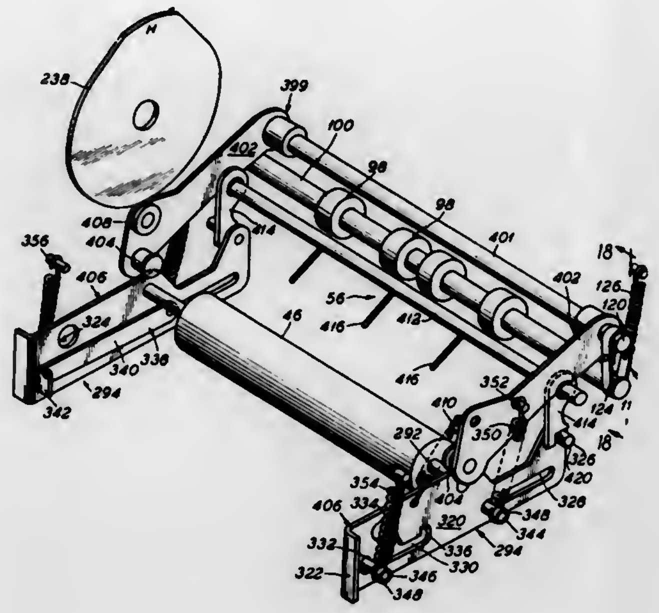
Edward M. Springer, Chicago, Ill., assignor to Heyer Inc., Chicago, Ill.

Filed Oct. 6, 1971, Ser. No. 186,956

Int. Cl. B41l *13/06*

U.S. Cl. 101—116 **9 Claims**

A stencil duplicating machine including two independently pivotably impression roll mounting brackets which are adjustably biased to vary the contact pressure between the impression roll and the duplicator drum. The impression roll shaft is mounted with a clearance fit in the brackets so as to allow limited radial movement of the shaft with respect to the bracket to provide uniform contact pressure between the roller and the drum and to compensate for any misalignment. The shaft is also spring biased between the brackets so as to be easily removable.



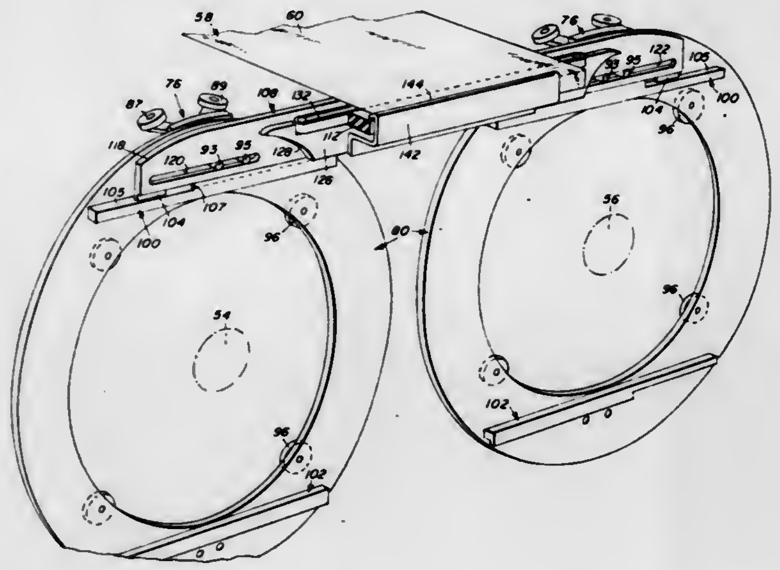
3,835,773
PRINTING APPARATUS

Michael Vasilantone, 147 E. First Ave., Roselle, N.J. 07203

Filed Apr. 26, 1972, Ser. No. 247,835

Int. Cl. B41l *13/08;* **F16h** *7/10*

U.S. Cl. 101—122 **12 Claims**



A continuous screen printing apparatus of the type having an endless screen mounted on spaced parallel cylinders for printing insignia on a flexible web supported on a movable platen adjacent said screen. Means are provided for laterally and longitudinally adjusting the tautness of the screen and for maintaining the screen taut in the area between the rolls.

3,835,774
DEVICE IN OFFSET PRINTING PRESSES FOR CONTROLLING THE SUPPLY OF DAMPENING LIQUID TO DAMPENING EQUIPMENT OF THE PRESSES

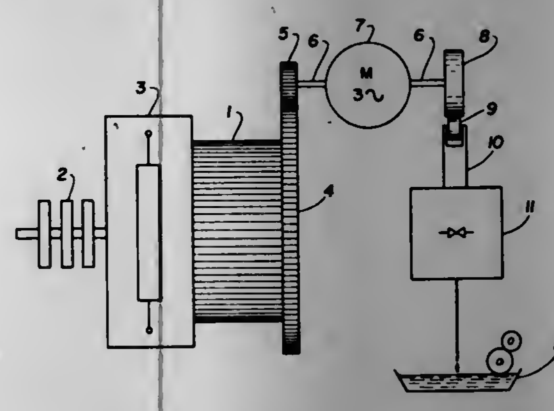
Heinrich Heidt, Neckarsteinach, Germany, assignor to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany

Filed Nov. 21, 1972, Ser. No. 308,342

Claims priority, application Germany, Nov. 22, 1971, 2157778

Int. Cl. B41l *25/12;* **B41f** *7/32*

U.S. Cl. 101—148 **5 Claims**



Offset printing press having a main motor and dampening equipment includes a device for automatically controlling a supply of dampening liquid to the dampening equipment. The device includes an adjusting motor which has a rotary shaft and which is connected to the main motor for controlling the rotary speed thereof, a control cam secured to the shaft, as for example, illustrated in U.S. Pat. No. 2,561,837, and control member means operatively engageable by the control cam for determining the amount of liquid supplied from a source thereof to the dampening equipment.

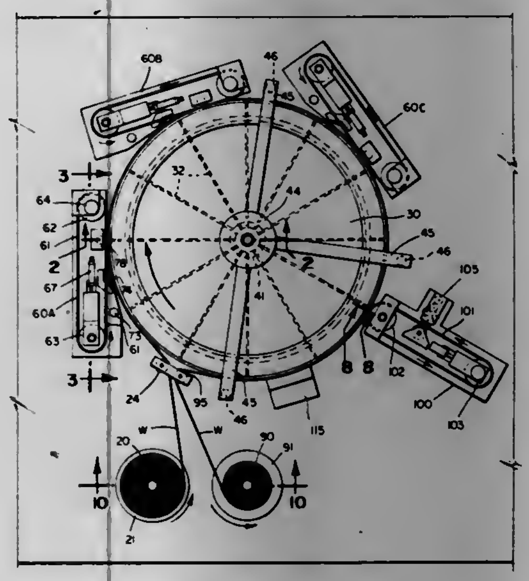
3,835,775
GRAVURE PRINTING PRESS WITH ENDLESS PRINTING BELTS

Robert C. Benton, 18 Canoebrook Dr., Princeton Junction, N.J. 08550

Filed Oct. 10, 1972, Ser. No. 296,003

Int. Cl. B41f *9/02*

U.S. Cl. 101—151 **14 Claims**



A printing press includes a large drum driven rotatably. A continuous printing web, of paper or other material, is wound about the circumferential surface of the drum and pulled by the drum from a supply reel and delivered to a driven take-up reel. A plurality of printing units are positioned about the circumferential surface of the rotatable drum at spaced-apart locations. One or more of these units may be gravure units, as for printing different colors. These gravure units include endless gravure belts driven at a speed corresponding to that of the peripheral surface of the drum. The length of the gravure belt is variable, thereby to provide a variable cut off or image length. Floating pressure rollers press the gravure belts against the printing web and against the drum periphery. Alignment means are provided for aligning the gravure belts with the drum.

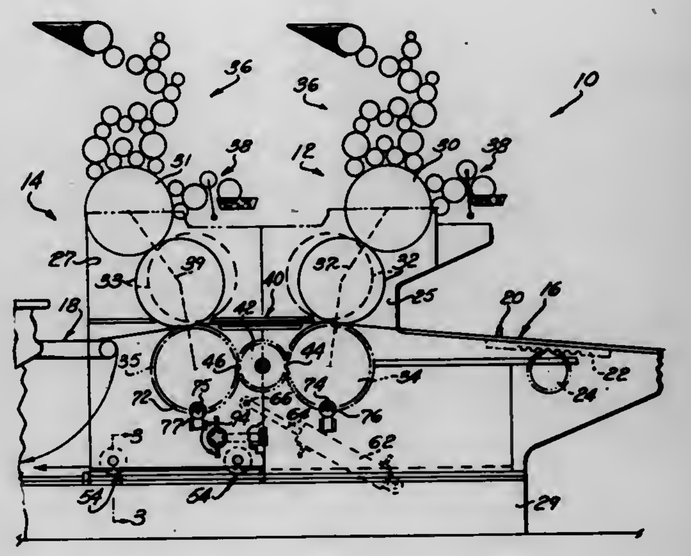
3,835,776
MULTI-UNIT ROTARY PRESS

William H. Weidman, Independence, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio

Filed Dec. 28, 1970, Ser. No. 101,826

Int. Cl. B41f *7/06*

U.S. Cl. 101—183 **24 Claims**



A sheet fed multi-unit metal decorating press in which a pair of printing units with diverging cylinder stacks are arranged back-to-back so that sheets pass directly from unit to unit with the forward edge of a sheet entering the nip of the second unit before the rear edge of the sheet passes from the nip of the first unit. The second unit is mounted for roll-back movement relative to the first unit to facilitate make-ready and clean-up operations on the first unit. A registration adjusting mechanism is provided to shift the entire second unit relative to the first for final precise adjustment of the second unit image to the first unit image. Registry of the sheets as they pass from the first unit to the second is maintained by a transfer guide unit positioned between the two units and which directs the sheets in a generally horizontal path from one unit to the next. The guide unit defines a controlled locus over which the sheets pass and is operative to confine the sheets to the desired locus by placing a controlled bend in the sheets.

3,835,777
INK DENSITY CONTROL SYSTEM

Algirdas J. Krygeris, Richmond Heights, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio

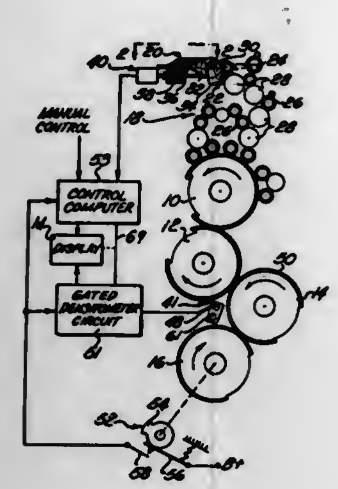
Filed Jan. 16, 1973, Ser. No. 324,113

Int. Cl. B41c *7/08*

U.S. Cl. 101—350 **53 Claims**

Control of ink supply in a printing press in accordance with sensing of the density of ink being printed on imprint-receiving material, wherein sensing measurements are made and smoothed by considering previous printing press cycles and wherein the smoothed measurement is compared to a desired predetermined standard density and the ink feed is adjusted accordingly.

Erratic density measurements are automatically identified and disregarded. Interaction between adjacent ink adjustment keys of the ink feed mechanism is automatically taken into account, and lift-off of keys from an ink fountain blade of the mechanism is prevented. Proportional, derivative, and integral control signals are produced and combined to provide a composite control signal for the ink feed. The invention may be implemented by analog or digital embodiments.



3,835,778

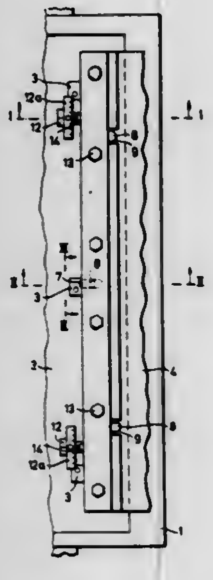
DEVICE FOR ATTACHING AND ADJUSTING FLEXIBLE PRINTING PLATES ON PRINTING CYLINDERS

Erich Bock, Dortmund, Germany, assignor to Register Systems GmbH, Dartmund, Germany

Filed Sept. 14, 1973, Ser. No. 397,365

Int. Cl. B41f *1/28*

U.S. Cl. 101—415.1 **9 Claims**



A printing plate is adjustably secured to a printing cylinder by clamping bars which are adjustably mounted in an axially extending recess of the printing cylinder and which are configured to grip opposite ends of a printing plate for assuring proper alignment of registration marks on the printing plate and on the printing cylinder. A first pair of clamping bars which are adapted to first have an edge of the printing plate clamped therebetween are equipped with a pin and slot arrangement located at substantially the longitudinal center of the clamping bars. A pair of adjustment screw means are located at opposite ends of the clamping bars to permit adjustment of the ends circumferentially of the printing cylinder. The adjustment screw means are provided with indicator means to indicate the adjusted position of the clamping bars and, after the clamping bars have been placed in their adjusted position, the slotted portion of the centrally located pin and slot arrangement is axially fixed relative to the printing cylinder. The slot is configured to extend in its longitudinal direction circumferentially of the cylinder and the pin, which is spring mounted to the clamping bars, extends radially into the slot.

3,835,779

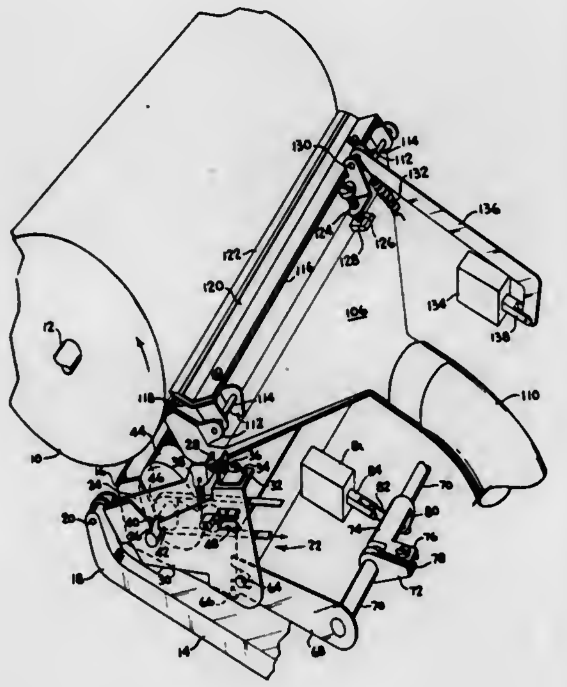
APPARATUS FOR AUTOMATICALLY CLEANING THE BLANKET CYLINDER OF AN OFFSET PRINTER

William A. Ross, Darien; John W. Bach, Stamford, and Warren E. Olson, New Canaan, all of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

Filed Jan. 26, 1973, Ser. No. 327,149

Int. Cl. B41f *35/06*; **B41l** *41/06*

U.S. Cl. 101—425 **11 Claims**



A scrub roller which has a solvent absorbing surface is partially immersed in an ink solvent reservoir. Apparatus is provided for automatically lifting the scrub roller into engagement with the blanket roll where it rotates in an opposite direction thereto to scrub the inked surface. Thereafter, it is withdrawn and a wiper blade is automatically advanced against the surface of the blanket roll. A vacuum header adjacent the wiper blade removes the used solvent to waste.

3,835,780

PROCESS OF PRINTING BY DRIOGRAPHY

Robert F. Gracia, Scituate; Richard A. Laughrey, Woburn, and Paul F. Tuohey, Quincy, all of Mass., assignors to Itek Corporation, Lexington, Mass.

Division of Ser. No. 54,627, July 13, 1970, Pat. No. 3,807,304, and a continuation-in-part of Ser. No. 744,631, July 15, 1968, abandoned. This application May 16, 1973, Ser. No. 360,875

Int. Cl. G03f *7/02*

U.S. Cl. 101—454 **31 Claims**

A metallic base photographic plate having images adherently and preferably conductively bonded to the metallic support is produced by contacting with metal image forming materials such as a photographic physical developer and imaging medium comprising a physically developable image. A preferred process is one utilizing a copy medium capable of being rapidly processed and having a layer of a photoconductor-binder emulsion on a roughened metallic support and a physical developer capable of producing an image adherently and conductively bonded to the metallic support. The plate produced by this invention is especially useful as a printing plate, having the capability of producing high resolutions and continuous tone prints.

3,835,781

METHOD FOR OBTAINING PHOTOGRAPHIC REPRODUCTIONS IN COLOR

John Buckland Erdell, 50 Morningside Dr., Brooklyn, N.Y. 10025

Filed Mar. 13, 1972, Ser. No. 233,944

Int. Cl. B41m *5/00*; **B41n** *3/00*; **G03f** *1/00*

U.S. Cl. 101—464 **4 Claims**

Process for exhibiting and evaluating the effects of variation in dye concentration on the saturation and hue of dyes useful in color photography, dye imbibition transfer processes. The process comprises preparing a crossed step wedge on a dye transfer matrix film, dyeing the processed matrix in a given transfer dye solution, and transferring the crossed step wedge dye images to a reception material. The density, saturation and hue of any individual step of the transferred dye images is referenced to any other step of the positive dye wedge by relative exposure indicia in each step. The crossed step wedge dye positive serves as a relative exposure guide for producing positive color prints from non-color negatives using imbibition dye transfer processes.

3,835,782

PRODUCT AND METHOD

George L. Griffith, Coopersburg, and Donald W. Edwards, Lehighton, both of Pa., assignors to Commercial Solvents Corporation, New York, N.Y.

Filed Sept. 22, 1972, Ser. No. 291,171

Int. Cl. C06c *5/04*

U.S. Cl. 102—27 R **23 Claims**

An explosive device including means permitting identification of the explosive source or manufacturer even following detonation, and a method of identifying the source or manufacturer of an explosive device even after detonation thereof. A luminescent material is added to the explosive device having a non-thermal emission of electromagnetic radiation upon excitation which uniquely identifies the source or manufacturer of the explosive. The luminescent material may be pulverized and mixed with the explosive material within the device. Alternatively, the luminescent material may be added to the exterior of the explosive device. Following detonation of the explosive device, the area around the detonation is activated or excited, and the luminescent material is identified from the resulting luminescent radiation.

3,835,783

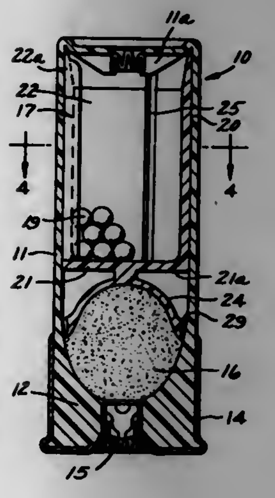
SHOT CONTAINER WAD FOR HARD SHOT

Roger J. Curran, Stratford, Conn., assignor to Remington Arms Company, Inc., Bridgeport, Conn.

Filed Dec. 4, 1972, Ser. No. 311,689

Int. Cl. F42b *7/08*

U.S. Cl. 102—42 C **19 Claims**



The petals of a shot container portion of a shotshell wad have internal flanges on longitudinal edges thereof. The flanges assure that the proper position of the petals will be obtained and maintained when the wad is inserted in a shotshell. The increased radial thickness at the flanges and the interaction of adjacent flanges with the shot particles prevents shot particles from squeezing through a slit and scoring the bore of a shotgun upon firing. A thin obturating cup, molded integrally to the base of the shot container, collapses against the base of the shot container to provide cushioning upon firing, seal gases behind the wad and add thickness to the base of the shot container to prevent penetration of shot particles therethrough. The minimizing of materials permitted by the multi-functional wad components allows maximum loads of powder and shot to be used.

3,835,784

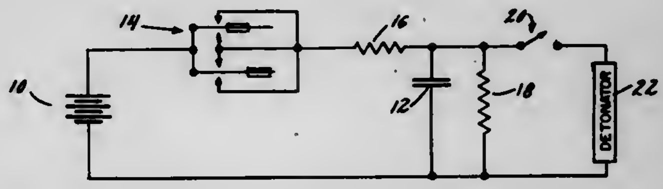
MINE FUZE

Harold C. Miller; Wilbert W. Cranford, Jr., both of Chicago, and James J. Brophy, Western Springs, all of Ill., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed July 23, 1956, Ser. No. 599,664

Int. Cl. F42c *15/14*; **F42b** *23/26*

U.S. Cl. 102—70.2 R **2 Claims**



1. An anti-tank mine fuze comprising in combination: a capacitor; means responsive to vibration for applying electrical energy to the capacitor; a detonator; and means responsive to a changing magnetic field for connecting the capacitor to the detonator, said means responsive to a changing magnetic field including a frame, a rotor mounted for rotation about its axis on the frame, the rotor having a magnet and a commutator, and a brush mounted on the frame in electrical contact with the commutator.

3,835,785

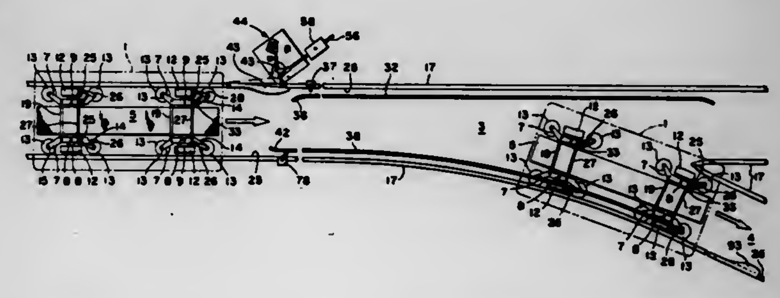
SWITCHING APPARATUS FOR TRANSPORTATION SYSTEM

Gerald D. Kirschner, Akron, and William H. Woessner, Canton, both of Ohio, assignors to The Goodyear Tire and Rubber Company, Sunnit, Ohio

Filed Nov. 26, 1973, Ser. No. 418,926

Int. Cl. E01b *26/00*

U.S. Cl. 104—130 **19 Claims**

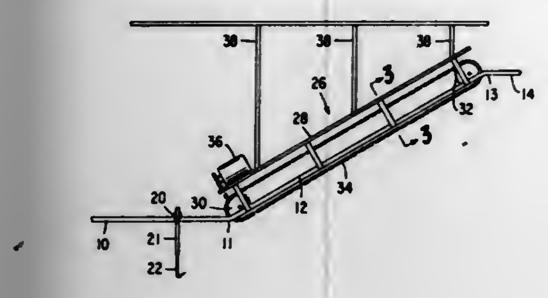


A switching apparatus for a vehicle steered by guide wheels in preloaded rolling engagement with guide rails at the sides of the vehicle path. Interconnected switch wheels at opposite sides of the vehicle are selectively directed into rolling engagement with switch rails extending along the sides of intersecting vehicle paths at the junction of the paths. A ramp on one side of the vehicle path is provided to urge the switch wheels under pressure into engagement with a switch rail on the opposite side of the vehicle. The ramp may be moved into and out of switching position by a locking toggle linkage to hold the switching position of the ramp when the ramp actuating power is off.

3,835,786
SIDE FINGER CONVEYOR

James C. McIllwain, 1215 Ridgeway Dr., Richardson, Tex. 75080

Filed Feb. 20, 1973, Ser. No. 333,535
Int. Cl. B61b *13/06*
U.S. Cl. 104—172 S **7 Claims**

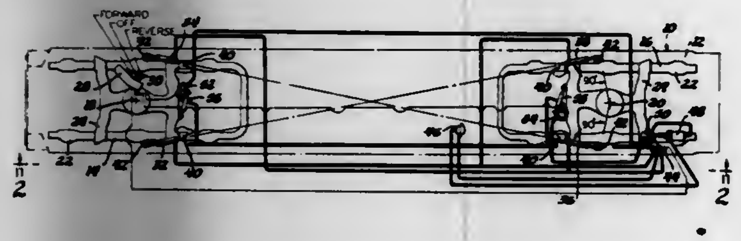


An overhead track conveyor elevator wherein a section of a rail forms a ramp in an inclined open bottom frame arch interiorly supporting the rail from one side of the arch. An endless belt is interiorly supported from the other side of the arch with one run parallel to but lower than the bottom of the rail with rigid fingers extending laterally from the belt to a location below said rail. Guide structure engages the belt from top and bottom over the length of the one run to stabilize the belt and force the fingers to follow an undeviating course below the rail. Drive means propels the belt whereby the fingers engage any depending load carried by the rail in travel between the levels of the ends of the belt.

3,835,787
RAILWAY TRUCK POSITIONING APPARATUS

Henry A. Marta, La Grange Park, Ill., and Curtis A. Swenson, Forest Lake, Minn., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 24, 1972, Ser. No. 309,170
Int. Cl. B61f *5/24, 5/50, 13/00*
U.S. Cl. 105—176 **5 Claims**

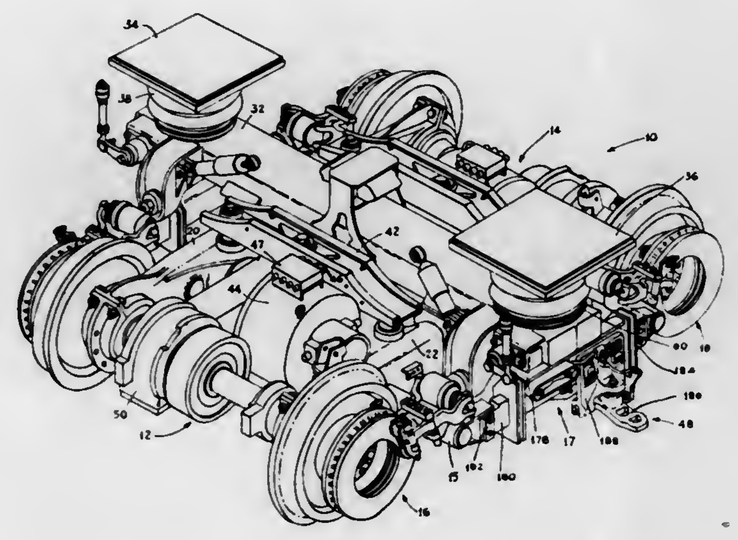


Truck guiding means for reducing flange loads of railway vehicle wheels due to skewing of the trucks during curve negotiation. In a preferred embodiment, the powered trucks of a diesel electric locomotive are connected with hydraulic cylinders controlled by a combination of pneumatic and electric control devices. The cylinders are actuated to apply guiding forces or moments to the trucks at predetermined rotational positions during curve negotiation. The guiding forces are applied in amounts and directions to oppose and reduce the frictional forces which cause skewing of the trucks during curve negotiation, thereby reducing the wheel flange and rail wear resulting therefrom. The application of the guiding forces is controlled both as a function of the direction of truck rotation in a curve and the direction of locomotive movement. The hydraulic cylinders are arranged in pairs which act simultaneously on both locomotive trucks and are located in approximate alignment with a vertical plane diagonally traversing the locomotive body. With this arrangement, reaction forces of the cylinders on the car body yield little or no rotational moments which could result in undesired transverse loads being applied to the trucks through the locomotive body.

3,835,788
ELECTRICALLY INSULATED RAILWAY CAR TRUCK

John M. Paul, Holland; William C. Heisler, Glenside, and George W. Else, Warminster, all of Pa., assignors to The Budd Company, Philadelphia, Pa.

Filed May 31, 1972, Ser. No. 258,141
Int. Cl. B60l *5/38;* **B61c** *9/50;* **B61f** *3/04*
U.S. Cl. 105—182 E **7 Claims**

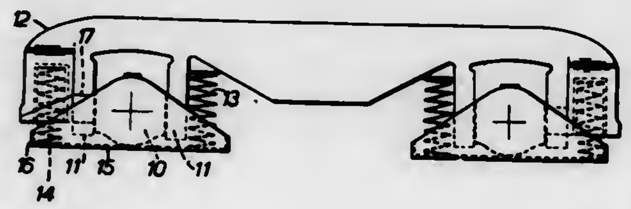


An electrically insulated railway car truck for carrying a car body includes an electric motor adapted to drive the truck by means of power from the third rail. The spacing of the electric motor, wiring arrangement and bolster position with respect to the third rail minimize the likelihood of flash-over or shorting of the electrical power to the truck or car body.

3,835,789
SNUBBED RAILWAY BOGIES

Frederick William Sinclair, Gloucester, England, assignor to Gloucester Railway Carriage Wagon Company Limited, Gloucester, England

Filed July 28, 1971, Ser. No. 166,808
Int. Cl. B61f *5/30, 5/46, 5/50*
U.S. Cl. 105—224 R **9 Claims**



In a suspension for a railway bogie or fourwheeled wagon an axlebox assembly has a face riding against a pedestal guide and supports the frame assembly through a suspension spring. A friction damper in the pedestal guide engages the face in line horizontally with the axle bearing. An upper spring abutment is supported by the frame assembly through to the pedestal by an inclined downwardly facing wedge surface so that the spring force loading the abutment results in a lateral force applied to the damper and rising in the axlebox assembly may comprise an axlebox in an inverted saddle suspended from a beam on or above the axlebox and frictionally engaged by the damper. The saddle provides for relative lateral movement of the axlebox. The spring abutment is provided by a pot-like spring housing with an integral surrounding collar with an upwardly facing wedge surface. The wedge surfaces engage frictionally or are separated by bonded rubber pads in combine shear and compression.

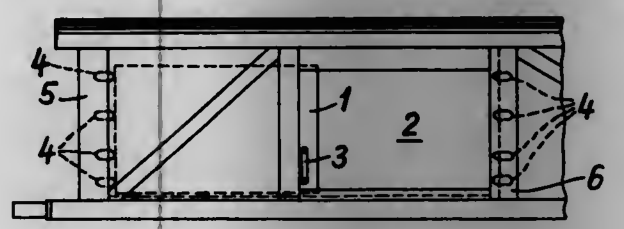
3,835,790
END ABUTMENTS FOR SLIDING DOORS

Wilhelm Schwarz; Henricus Tromp, and Winfried Heinz, all of Wilhelmshaven, Germany, assignors to Fried. Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany

Filed Apr. 10, 1973, Ser. No. 349,763

Claims priority, application Germany, Apr. 21, 1972, 7215206

Int. Cl. F16f *1/37*
U.S. Cl. 105—285 **6 Claims**

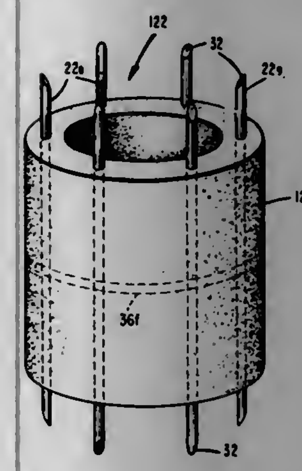


An end abutment for a sliding door, especially of a railway freight car, which abutment includes a cellular body of synthetic material having a cross sectionally greater diameter section for insertion into a door frame fitting and also having a cross sectionally shorter diameter section axially projecting from said cross sectionally greater diameter section.

3,835,791
PRESS-ON PALLET SUPPORT

Dwight C. Brown, 5712 N. 20th St., Arlington, Va. 22205

Filed Sept. 7, 1972, Ser. No. 286,892
Int. Cl. B65d *19/00*
U.S. Cl. 108—51 **10 Claims**



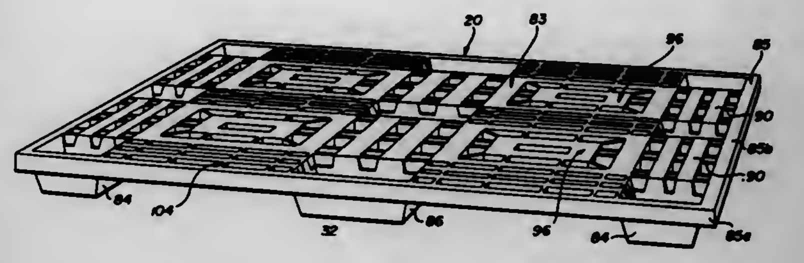
Metal supports of open frame or slatted construction for self-fastening to a wooden or composition decking of a pallet to provide support for the deck. Each support has a plurality of prongs extending from at least one end of an open frame upright wall to penetrate into the pallet decking during construction of the pallet. The walls of the support member may be tapered so as to facilitate the nesting of a plurality of like supports to reduce storage space requirements and increase ease of handling prior to use in assembly of the pallet.

3,835,792
PALLET CONSTRUCTION

Thomas Parker Wharton, 1001 Pembrook Dr., Neenah, Wis. 54956

Continuation-in-part of Ser. No. 131,087, April 5, 1971, Pat. No. 3,702,100. This application Oct. 30, 1972, Ser. No. 302,340
Int. Cl. B65d *19/18;* **A47b** *19/38*
U.S. Cl. 108—51 **3 Claims**

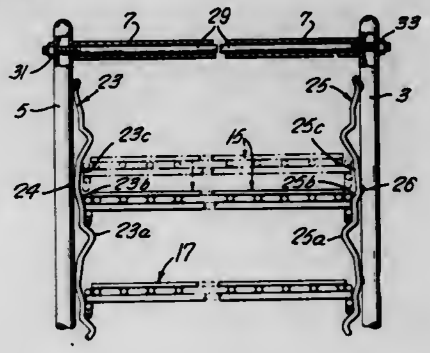
The invention relates to lightweight, reusable, molded plastic pallets used for support and transport of articles stacked thereon. The pallet has top and bottom decks, each having a generally corrugated structure, the transverse cross-sectional contour of the corrugations preferably being trapezoidal in shape, and both being provided with a plurality of feet, the feet on the top deck extending from the bottom face thereof and complementary feet extending from the top face of the bottom deck, the aligned feet of the top and bottom decks being adapted to be fastened together, permanently or disconnectedly, to form a space between the two decks for receiving the tines of a fork-lift loading apparatus, such as a lift truck.



3,835,793
RIGID STRUCTURE FOR SHELVING UNIT

Norman H. Goddard, Chateauguay Center, Quebec, Canada, assignor to JCN Wire Industries Ltd., Quebec, Canada

Filed June 18, 1973, Ser. No. 371,070
Int. Cl. A47b *57/06*
U.S. Cl. 108—109 **6 Claims**



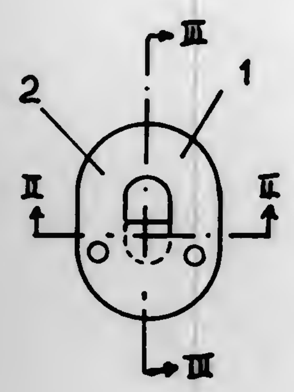
The invention relates to a novel rigid structure for a knock-down shelving arrangement. The structure includes two side frame members which include shelf-retaining means at the ends of the structure. The retaining means at each end face each other and comprise a plurality of retaining units. Each unit consists of a shelf-supporting protrusion, a resilient shelf-locking portion, and a shelf-clearing portion. The space between a pair of facing clearing portions is greater than the width of the shelf and the space between a pair of locking portions is less than this width. The space between a pair of protrusions is substantially less than the shelf width. Thus, a shelf can be inserted into the structure through the end of the structure in the space between clearing portions. It is then locked into place by forcing it into the locking space, and the supporting portion supports the shelf when it is carrying a load. With this arrangement, shelves can be spaced closely one on top of the other, and it is possible to remove a bottom or middle shelf without removing the shelves above or below the bottom or middle shelf.

3,835,794
ARRANGEMENT FOR DETACHABLY INTERCONNECTING ELEMENTS

Yngve Adolf Eugen Wassberg, and Sven-Ake Gustaf-Adolf Wassberg, both of Linkoping, Sweden, assignors to Wa-Konsult Wassberg & Wassberg AB, Linkoping, Sweden

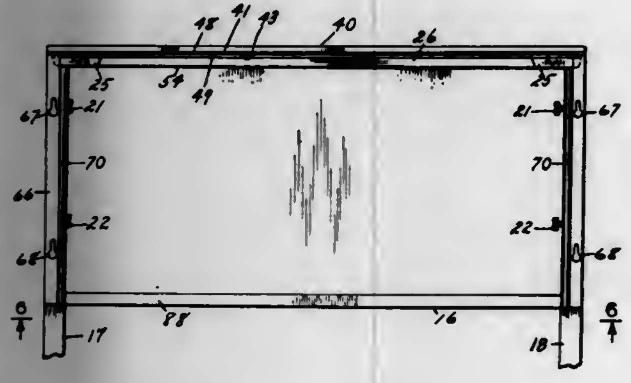
Filed Sept. 22, 1972, Ser. No. 291,603
Int. Cl. A47b *3/06*
U.S. Cl. 108—153 **2 Claims**

An arrangement suitable for detachably securing shelves in a bookcase or the like wherein a step is provided for supporting each shelf on an outward extremity which includes a hook which engages behind a lip formed by an opening in a retainer plate overlapping a recess in each shelf, the engagement being by insertion of the hook in the opening of the retainer plate



and turning through a right angle, finally providing a dowel in a hole in the shelf and step so that when the dowel is fitted across the mutual surfaces between the step and shelf the step and shelf are interlocked.

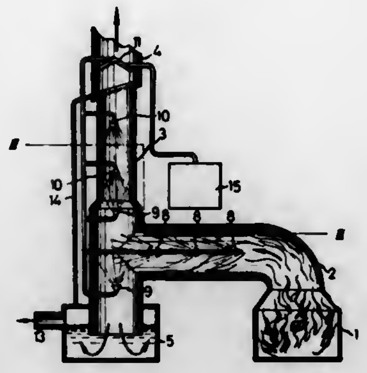
3,835,795
RAPID ASSEMBLY TABLE CONSTRUCTION
Nat Levenberg, 2 Windsor Pl., Lynbrook, N.Y. 11563
Filed Jan. 5, 1973, Ser. No. 321,320
Int. Cl. A47b *3/06*
U.S. Cl. 108—157 **1 Claim**



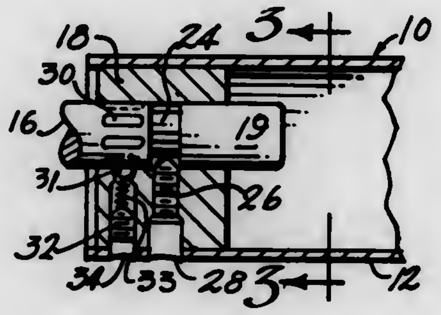
A rapidly assemblable table construction in which the top, side and front elements are conveniently integrated from separated condition in the absence of tools, thereby enabling the table to be stored or shipped with the separated elements in superimposed condition. When in assembled condition, locking means associated with a top panel operates to prevent disengagement of plural interconnecting means, and assures rigidity of the composite structure.

3,835,796
EXHAUST SMOKE PURIFYING APPARATUS FOR INCINERATORS
Yasuhiro Sanga, 19-26, 5-chome, Shakujii-cho, Nerimaku, Tokyo, Japan
Filed Dec. 13, 1973, Ser. No. 424,217
Int. Cl. B01d *47/06*
U.S. Cl. 110—119 **4 Claims**

An exhaust gas cleaner for incinerators comprising a horizontal purifying duct horizontally extending from an incinerating furnace and provided with internal spray nozzles for spraying water in the direction of flow of the exhaust smoke, a vertical duct and provided with internal spray nozzles for upwardly spraying water and also internal spray nozzles for downwardly spraying water, the top portion of the vertical cleaner duct being provided with a baffle purifier, and a drain tank provided below the vertical purifying duct.



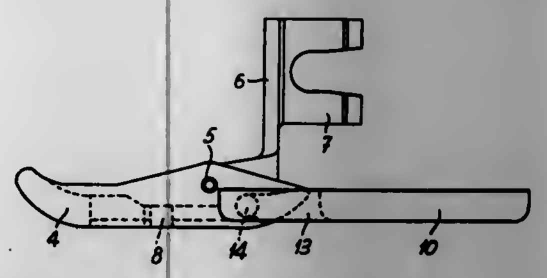
3,835,797
PATTERN CONTROL FOR TUFTING MACHINES
Aud J. Franks, Rt. No. 7, Rocky Face, Ga. 30740, and Will A. Johnson, P.O. Box 843, Lafayette, Ga. 30728
Filed Nov. 11, 1971, Ser. No. 197,714
Int. Cl. D05c *15/32*
U.S. Cl. 112—79 A **3 Claims**



A yarn control roller arrangement for varying the amount of yarn supplied to the tufting needles at different times to vary the pattern tufted. A large metal roller is eccentrically supported on opposite ends on respective short end shafts which are concentrically mounted in journal bearings on the frame of the tufting machine and eccentrically attached to the end of the roller by insertion in a metal plug held by set screws in the hollow steel roller. The end of the short shaft in the roller has a series of peripheral grooves each representing a position. The individual yarns are led side-by-side along the length of the roller on opposite sides thereof and the eccentric rotation of the roller on each revolution bends the yarns outwardly from the axis of the shaft thereby delivering more or less yarn depending upon the position.

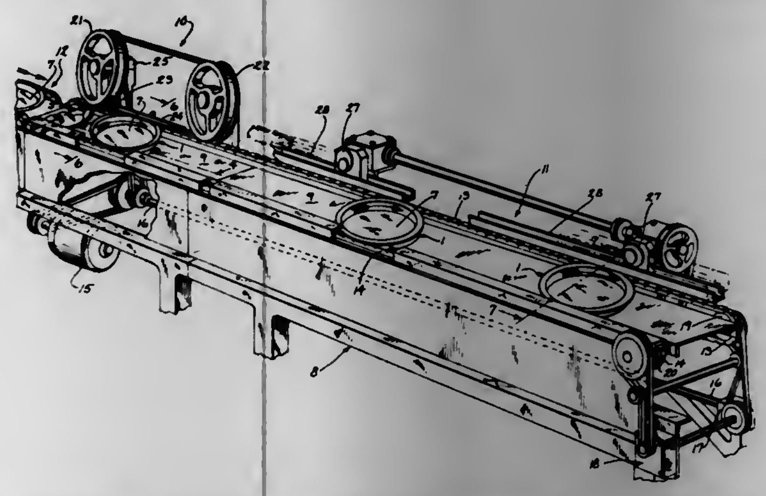
3,835,798
ASSEMBLY COMPRISING A PRESSER FOOT AND A GRADUATED RULE
Marcel Fresard, Petit-Lancy, Geneva, Switzerland, assignor to Melfina S.A., Fribourg, Switzerland
Filed Mar. 29, 1973, Ser. No. 345,852
Claims priority, application Switzerland, Apr. 7, 1972, 5112/72
Int. Cl. D05b *29/00, 35/12*
U.S. Cl. 112—150 **8 Claims**

An assembly comprising a presser foot and at least one graduated rule consisting of a plate hingedly secured to the sole portion of the presser foot and extending prolongation of said sole portion and in the same plane, the hinge axis extending in a direction transverse to said sole portion, the main advantage being that the presser foot is equally suitable for satin



stitch, buttonholing and normal or straight stitch sewing operations without changing the presser foot when passing from satin stitch sewing to straight stitch sewing.

3,835,799
IN-LINE CRIMPING DEVICE FOR RIGID FOIL CONTAINERS
R. Carl Huth, Milwaukee, and William McCoy, Brookfield, both of Wis., assignors to Robert A. Johnston Company, Inc., Milwaukee, Wis.
Filed July 12, 1972, Ser. No. 270,938
Int. Cl. B21d *19/12*
U.S. Cl. 113—1 E **17 Claims**



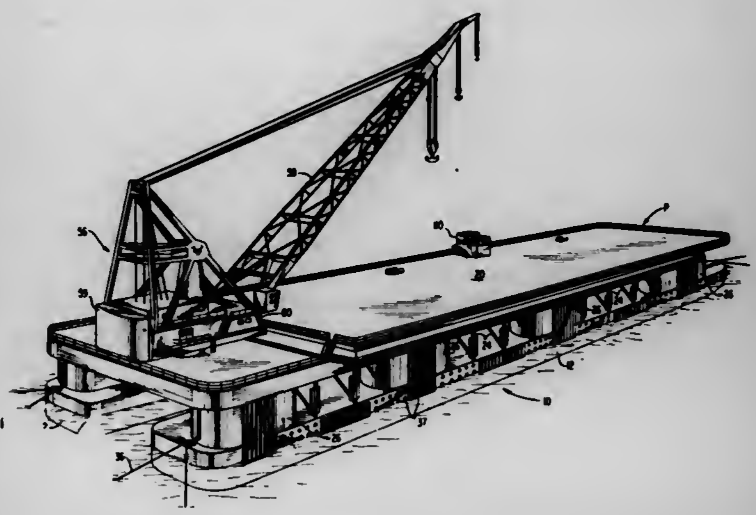
An in-line crimping device for rigid foil containers, such as pie pans, includes a longitudinal conveyor. Oppositely disposed container drive belts are disposed along the conveyor and are engaged by the peripheral portions of the containers. The belts cooperate so that the containers rotate as they move continuously down the line. During this travel, their upwardly extending crimping flanges are engaged by one or more angularly disposed crimping members which apply radially inward angular pressure progressively to the flanges to bend the latter toward final position. This engagement by the crimping members is continuous throughout at least one complete revolution of the pan to assure full crimping action on the entire pan circumference.

When a crimping member is used on only one side of the pan, means are provided to prevent flip-up of the opposite pan side.

Several stages of crimping may be included in the machine, and the final crimp may be accomplished by a vertically movable eccentrically driven crimping member.

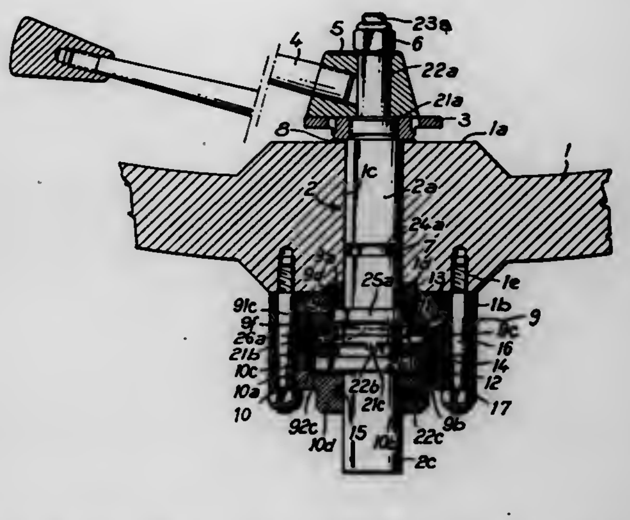
3,835,800
TWIN HULL SEMI-SUBMERSIBLE DERRICK BARGE
Samuel Harry Lloyd, III, Mill Valley, and Yorman Goren, Los Angeles, both of Calif., assignors to Santa Fe Drilling Company, Santa Fe Spring, Calif.
Continuation of Ser. No. 705,175, Feb. 13, 1968, abandoned. This application July 9, 1971, Ser. No. 161,865
Int. Cl. B63b *35/02, 27/10*
U.S. Cl. 114—.5 R **60 Claims**

The derrick barge comprises a pair of laterally spaced elongated hulls having a plurality of upstanding columns spaced therealong supporting a working platform and a heavy duty derrick or crane in spaced relation above the hulls. The hulls bouyantly support the vessel including its deck load in the floating condition with the hulls having freeboard. The hulls have ballast compartments to submerge the hulls and portions of the stabilizing columns to a distance of approximately one-half the effective height of the stabilizing columns to maintain the vessel in a semisubmerged floating condition with the platform and derrick elevated above the waterline. However, the vessel also may be ballasted or deballasted to submerge or



emerge to a greater or lesser extent from the semisubmerged condition such that the distance between the mean water surface and either the underside of the deck or top side of the hull is not less than 0.75 of the mean wave height. The columns stabilize the vessel in the semisubmerged condition about roll and pitch axes. The heavy duty derrick is located adjacent the stern portion of the vessel with its vertical axis of rotation intersecting the vessel centerline. This novel twin hull column stabilized derrick barge arrangement has excellent motion minimizing characteristics under wave action in operations at sea.

3,835,801
DEVICE FOR ROTATING PASSAGE THROUGH A WALL SUBJECT TO DIFFERENT PRESSURES ON EITHER SIDE
Pierre Yvon David, La Valette, and Gilbert Marius Martin, La Seyne, both of France, assignors to Republic of France as represented by the State Minister charged with National Defence Delegation Ministerielle pour l'Armement, Bureau des Prevets et Inventions, Paris, France
Filed Sept. 20, 1973, Ser. No. 399,155
Claims priority, application France, Sept. 25, 1972, 72.33817
Int. Cl. B63g *8/00;* **F16j** *15/50*
U.S. Cl. 114—16 R **8 Claims**



For effecting control from one side of a wall of a member on the other side thereof, such as through the pressure hull of a submarine, an arrangement is provided wherein a rotary shaft passes through a bore in the wall and a separate housing mounted on the high pressure side about the axis of the bore, such that driver and driven members can be coupled to the ends of the shaft. The housing is formed with a cavity, and the shaft comprises first and second shaft elements axially separable but rotatably coupled with each other. The second shaft element extends from the housing cavity away from the wall and has a shoulder in the housing cavity facing toward the wall, and bearing rotatably against a thrust bearing disposed in the housing between the wall and the shoulder. The housing and the wall bore are sealed so as to be fluid tight. The housing, which comprises a housing body and a removable cap, is coupled to the high pressure side of the wall, such as by threaded rods, bolts, etc. The arrangement permits the opening in the wall to take the form of a simple smooth bore, with the necessary machining of shoulders and other arrangements for ensuring sealing and resisting pressure being done on the separate housing. The arrangement also limits the transmission of nonrotative stresses from the second shaft element on the high pressure side to the first shaft element, which extends into the low pressure area. The arrangement also facilitates repair after damage.

3,835,802
MARINE CARGO VESSEL

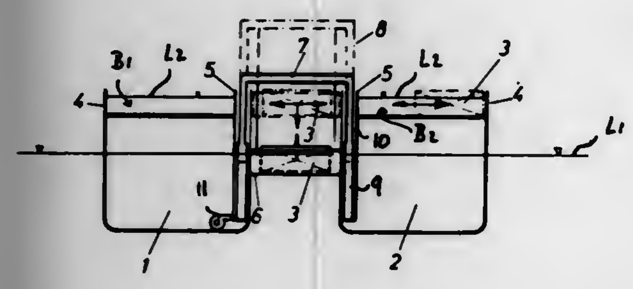
Louis Antoine Vernede; Leopold Nitzki, both of Bremen; Heinrich Liedke, Bremen-Osterholz, and Friedrich Schror, Bremen, all of Germany, assignors to Aktien-Gesellschaft "-Weser", Bremen, Germany

Filed Apr. 30, 1971, Ser. No. 138,951

Claims priority, application Germany, May 2, 1970, 2021653

Int. Cl. B63b *35/00, 1/12*

U.S. Cl. 114—43.5 **13 Claims**



A marine cargo vessel has two parallel hulls which are connected by a bridging structure. At least some of the interior decks in the hulls can be flooded and sluice gates in the hulls connect the interior decks with the exterior of the hulls at a level above the water line. An outwardly open receptacle capable of containing water and containing at least one floatable container at a time, can be moved vertically from the water line to the level of the sluice gates through which it can be placed in communication with the interior of the floodable decks. Thus, containers can be floated into and out of the decks for loading and unloading.

3,835,803
TRIMMING PIPE SYSTEM FOR FREE-FLOWING CARGOES

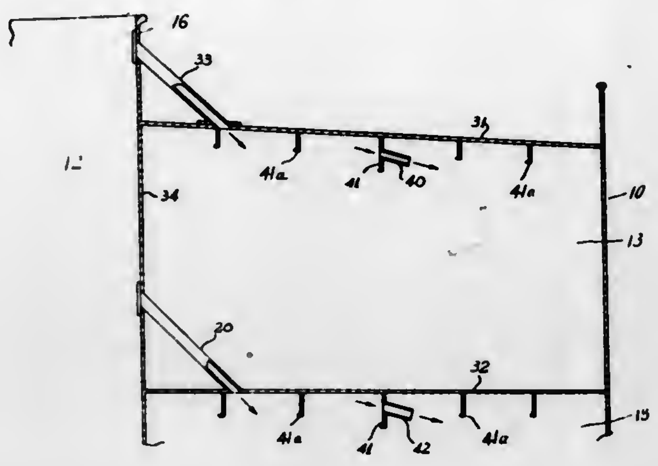
George Thomas Richardson Campbell, Tokyo, Japan, assignor to Algoship International Limited, Nassau, Bahamas

Filed Apr. 25, 1972, Ser. No. 247,341

Int. Cl. B63b *25/02*

U.S. Cl. 114—73 **3 Claims**

A vessel has a hull with decks defining cargo holds, and loading hatches for the holds extend through the decks. Open-ended trimming pipes slant downwardly and outwardly from walls of the hatches to communicate with the holds at points spaced outwardly from the hatches. The decks are supported at their underside by substantially horizontal girders, and additional open-ended trimming pipes extend through the girders so that free-flowing cargo deposited through the hatches into the holds also flows through the two sets of trimming pipes for trimming of the cargo in regions of the holds remote from the hatches.



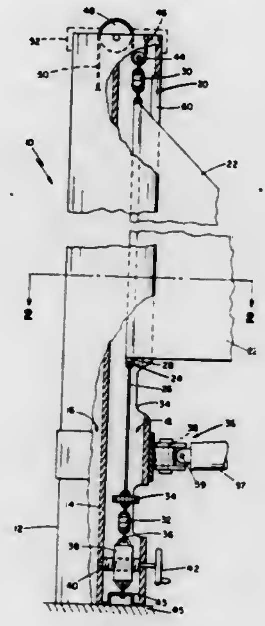
3,835,804
SAIL FURLING

Patrick T. Jackson, Oak Point, Boothbay Harbor, Maine 04538

Filed Feb. 1, 1973, Ser. No. 328,779

Int. Cl. B63h *9/04*

U.S. Cl. 114—107 **6 Claims**



In a sailboat having a mast, a boom, and a sail furlable upon an upright wind-up member such as a rotatable cable to which the luff of the sail is affixed, the improvement wherein the mast comprises a rigid shell providing a vertically disposed interior chamber having an extended vertical opening therein facing aft the wind-up member being disposed within the chamber and the edges of the opening furnishing lengthwise support to the luff of the sail at all boom positions.

3,835,805
THRUSTER UNIT

Owen George Slade, Isle of Wight, England, assignor to J. Samuel White & Company Limited, Hampshire, England

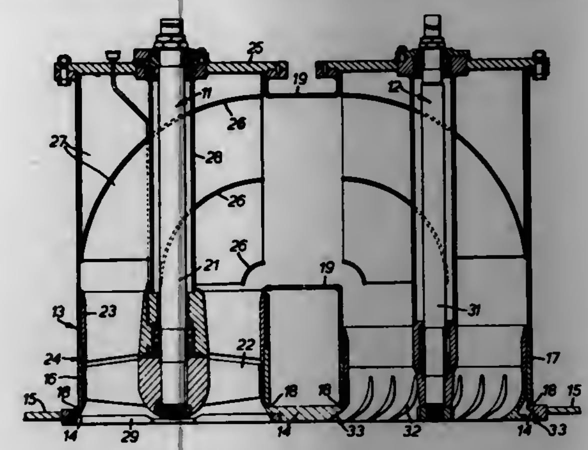
Filed June 4, 1973, Ser. No. 366,777

Claims priority, application Great Britain, June 5, 1972, 26080/72

Int. Cl. B63h *25/46*

U.S. Cl. 114—151 **6 Claims**

This invention is a bow thruster for a ship and consists of a design enabling the movable components to be easily withdrawn for repair or replacement. A rotary pump and a rotary deflector each consisting of a rotor and a stator are each a slide fit in a corresponding vertical passage in a unitary housing which is a permanent fixture in the ship's hull, together with a cross passage joining the vertical passages at the top. Either the pump, or the deflector, or both, can be slid out of its vertical passage for maintenance and that can be done from above without having to go into dry dock.



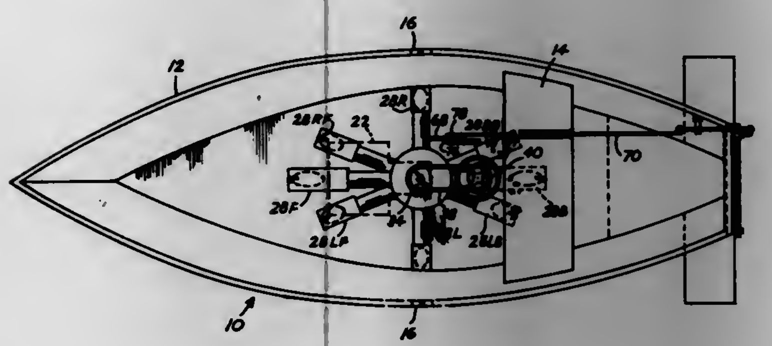
3,835,806
POWER PROPULSION MEANS FOR BOATS

Robert D. Rice, 380 Murphy Creek Rd., Grants Pass, Oreg. 97526

Filed Apr. 26, 1973, Ser. No. 354,679

Int. Cl. B63h *11/08*

U.S. Cl. 115—12 R **9 Claims**



A small boat, preferably of a type known as a drift boat, is equipped, in the vicinity of the center of mass of the boat and its fixed contents, with a motor-driven pump having a casing and an impeller which drives water upward in the casing. The casing is formed to admit water to the bottom of the pump chamber and discharge it from the top of the pump chamber. The intake and discharge passages terminate at a common level, however, for selective communication with stationary intake and discharge conduits which radiate from the pump perimeter and terminate at their outer ends below water level. The pump casing is rotatable for selectively placing different diametrically opposite fixed conduits selectively in communication with the intake and discharge passages of the pump, respectively. According to the orientation of the pump casing, any fixed conduit may be caused to serve as an intake conduit with a diametricallly opposite fixed conduit serving as a discharge conduit.

3,835,807
SHALLOW WATER DRIVE LINK CONTROL

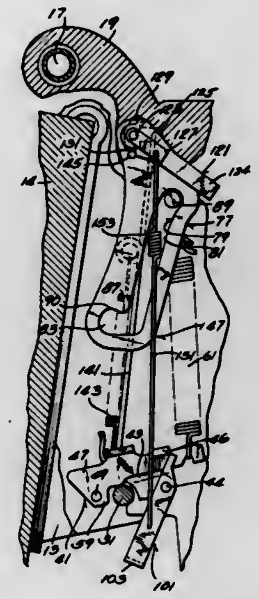
Don F. Kueny, 2716 Brnot Ave., Waukegan, Ill. 60085

Filed Aug. 6, 1973, Ser. No. 386,082

Int. Cl. B63h *21/26*

U.S. Cl. 115—41 R **10 Claims**

Disclosed herein is a marine propulsion device including a reverse lock movably mounted on a swivel bracket for releasable engagement with a thrust pin to retain the swivel bracket in normal operating position, a shallow water drive link mounted on the swivel bracket for movement relative to a position for releasable engagement with the thrust pin to retain the swivel swivel bracket in the shallow water drive position, and a selectively operable control mechanism mounted on the swivel bracket and including an element operably connected to the reverse lock, and to the shallow water drive link for controlling releasable engagement of the thrust pin by the reverse lock and for displacing the shallow water drive link relative to a position affording releasable engagement with the thrust pin.



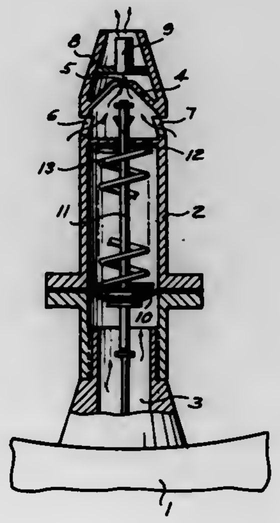
3,835,808
LOW PRESSURE WARNING SYSTEM FOR A TIRE

Peter Stevens, Mississauga, Ontario, Canada, assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Dec. 18, 1973, Ser. No. 426,100

Int. Cl. B60c *23/02*

U.S. Cl. 116—34 R **1 Claim**

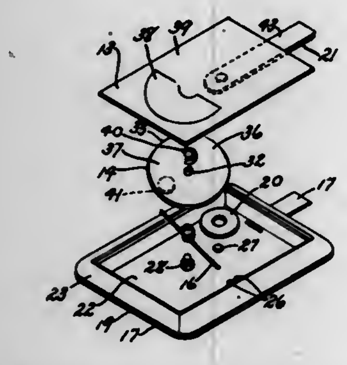


A low pressure warning system for a wheel mounted tire comprises a housing on the tire having a first opening at one end thereof into the tire. A closing member extends across the housing at the opposite end thereof. A second opening is provided in the closing member. A plurality of openings are formed through the housing adjacent the closing member admitting air into the housing. The housing has a free end extending beyond the closing member. An air-operated whistle is mounted in the housing in the free end thereof. A diaphragm is mounted in the housing and extends thereacross. A pin is supported by the diaphragm and movable therewith. The pin extends substantially coaxially through the housing to the area of the second opening thereof. A spring retainer is mounted in the housing and extends thereacross. A spring having a predetermined force is coaxially positioned around the pin and extends between the spring retainer and the diaphragm. When the pressure of air in the tire is at least the proper pressure, the force of air on the diaphragm equals the force of the spring on the diaphragm and the diaphragm retains the end of the pin in the second hole thereby preventing air from flowing from the opening in the housing through the second opening and through the whistle. When the pressure of air in the tire is less than the proper pressure, the force of the spring is greater than the force of air on the diaphragm and the diaphragm moves the pin out of the second opening thereby permitting air due to the rotary motion of the wheel mounted tire to flow from the openings in the housing through the second opening and through the whistle to sound an audible alarm.

3,835,809
DAMAGE INDICATOR

Harry Sinn, Jr., 116-05 227th St., Cambria Heights, N.Y. 11411

Filed June 21, 1973, Ser. No. 372,096
Int. Cl. G01p *15/02*
U.S. Cl. 116—114 AH **7 Claims**

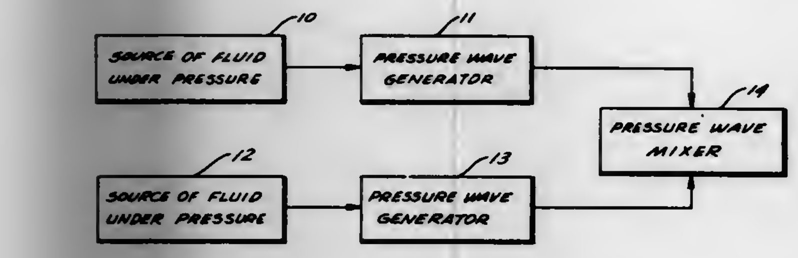


A damage indicating device which has a safety tab keeping it in a "loaded" condition until it is attached to a container. The device has means urging an indicator to show that the container has been subjected to stress in excess of a predetermined amount, and inertia activated means which releases the indicator.

3,835,810
PRESSURE WAVE MIXING

Nathaniel Hughes, Corona Del Mar, Calif., assignor to Energy Sciences Incorporated, El Segundo, Calif.

Continuation-in-part of Ser. Nos. 855,321, Sept. 4, 1969, abandoned, and Ser. No. 85,911, Nov. 2, 1970, abandoned, and Ser. No. 111,995, Feb. 2, 1971, and Ser. No. 158,915, July 1, 1971, and Ser. No. 189,206, Oct. 14, 1971, abandoned. This application Jan. 12, 1972, Ser. No. 217,124
Int. Cl. B06b *3/00*
U.S. Cl. 116—137 A **40 Claims**

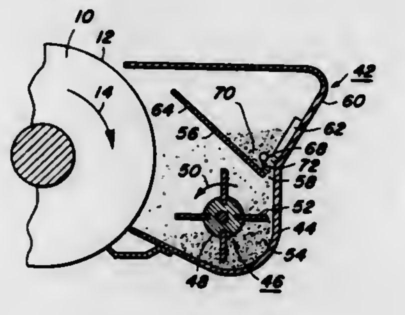


The propagating range and/or energizing capability of pressure waves are enhanced by mixing pressure waves from a plurality of sources. The wavelengths of the pressure waves and the physical dimensions of the mixing arrangement are related to each other. In a first embodiment, coherent sonic waves are coupled to the inlets of a plurality of passages having cross-sectional dimensions related to the wavelength of the sonic waves, and the sonic waves emanating from the outlets of the passages are combined. The outlets of adjacent passages are preferably spaced from each other a distance related to the wavelength. In a second embodiment, coherent shock waves produced by two supersonic nozzles are combined at a point of intersection; the nozzles are dimensioned to produce shock waves having related wavelengths. In a third embodiment, coherent shock waves produced by a supersonic nozzle and the pressure pulses characteristic of a simple orifice are combined at a point of intersection; the orifice is dimensioned so the wavelengths of the shock waves and the pressure pulses are related. In the second and third embodiments, the point of intersection is preferably spaced from the sources a distance that is related to the wavelengths. In a fourth embodiment, coherent shock waves produced by a supersonic nozzle and pressure waves characteristic of a simple orifice are combined in a resonant cavity having rectangular cross-sectional dimensions that are related to the wavelengths.

3,835,811
DEVELOPMENT APPARATUS FOR ELECTROPHOTOGRAPHIC PRINTING MACHINE

Yoshio Eto, Omiya, Japan, assignor to Xerox Corporation, Stamford, Conn.

Filed Sept. 18, 1972, Ser. No. 290,195
Int. Cl. G03g *13/08*
U.S. Cl. 118—637 **4 Claims**



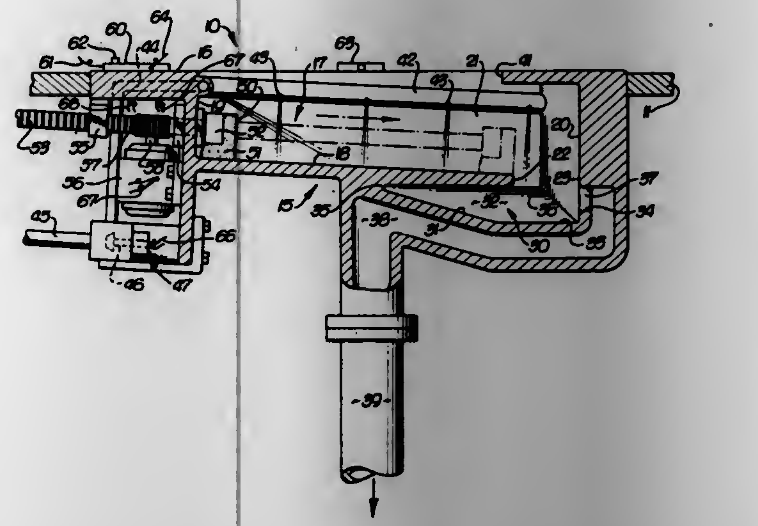
An apparatus in which toner particles are deposited on an image bearing member having an electrostatic latent image recorded thereon for producing a viewable powder image thereof. Carrier granules flow from a storage region to a discharge region and are intermingled thereat with toner particles. The resulting mix of carrier granules and toner particles is directed to cascade over the image bearing member creating a toner powder image on the electrostatic latent image recorded thereon.

3,835,812
ANIMAL TOILET

Cyril H. Edwards, 25336 Coulston St., Loma Linda, Calif. 92354

Filed Jan. 16, 1973, Ser. No. 324,226
Int. Cl. A01k *29/00*
U.S. Cl. 119—1 **12 Claims**

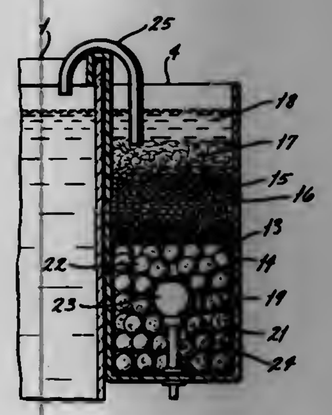
An animal toilet suitable for installation indoors or outdoors by connection to a conventional plumbing system includes a toilet bowl having a substantially flat bottom in which a dog may stand while relieving itself and is arranged to clean animal excrement from the toilet bowl by simultaneously flushing and wiping the bowl to move the excrement into a discharge outlet. The toilet may be arranged for automatic actuation.



3,835,813
FILTRATION AND CIRCULATION SYSTEM AND APPARATUS THEREFORE

Louis N. Katz, 13415 Land O'Woods Dr., St. Louis, Mo. 63141

Filed July 18, 1973, Ser. No. 380,228
Int. Cl. A01k *63/00*
U.S. Cl. 119—5 **3 Claims**



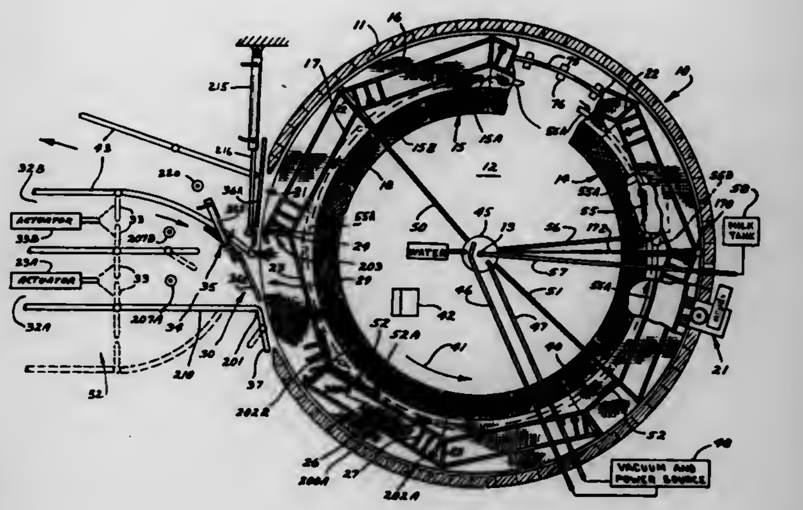
A balanced system for purifying aquatic media and maintaining aquatic specimens which comprises biological filtration, mechanical filtration and algae propagation.

3,835,814
ROTATING MILKING PLATFORM

Leonard D. Jacobs, North Loup, Nebr., and Robert H. Bennett, St. Charles, Ill., assignors to Circle Milking, Inc., Jamestown, N. Dak.

Filed July 14, 1972, Ser. No. 271,787
Int. Cl. A01j *05/00*
U.S. Cl. 119—14.04 **20 Claims**

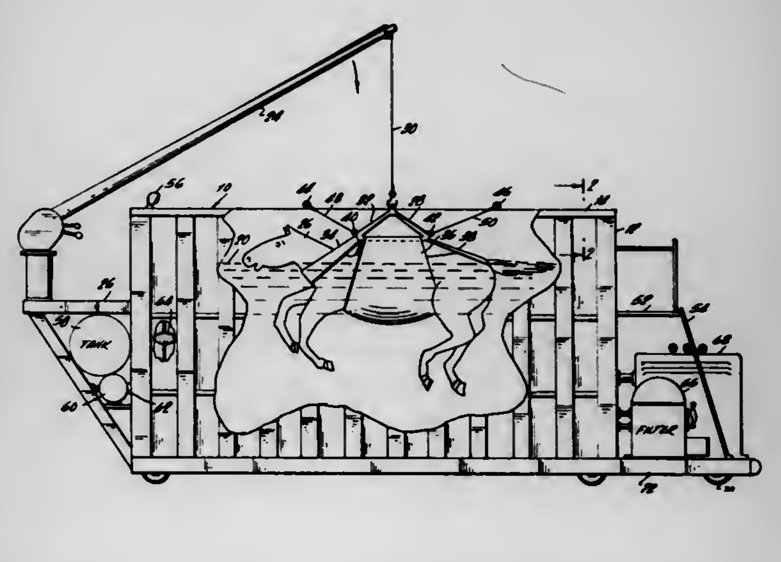
The present invention relates to a rotating milking platform for use in a milking parlor wherein the cows move onto a rotating platform, and the cows ride around on the platform while they are milked. A unique drive and support construction for the common friction individual stall portions of the platform which carries the cows is disclosed. The drive compensates for irregularities in the platform. In addition controls for regulating the entry and exit of the cows to and from the platform are provided. Also, means are provided on the platform to cleanse the interior side walls of the parlor as the platform rotates.



3,835,815
THERAPEUTIC CONDITIONER FOR HORSES

Richard Matthews, Bayshore, N.Y., assignor to John Di Maio, Bayshore, N.Y.

Filed May 23, 1973, Ser. No. 362,941
Int. Cl. A61d *11/00*
U.S. Cl. 119—158 **4 Claims**



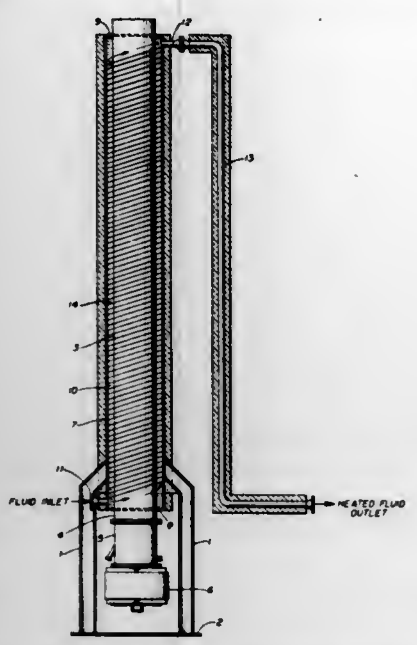
A therapeutic conditioner for horses comprising a water fillable open tank and having a hoist and a sling assembly for the purpose of lifting and holding a horse in the tank while the horse swims. Guide ropes extend from the sling assembly to the periphery of the tank and serve to maintain the position of the horse relative to the tank. A tank and a pump are provided for storing and introducing cleaning and medicating solutions into the water in the tank.

3,835,816
HEATER

Charles R. Ferrin, Tulsa, Okla., assignor to Combustion Engineering, Inc., New York, N.Y.

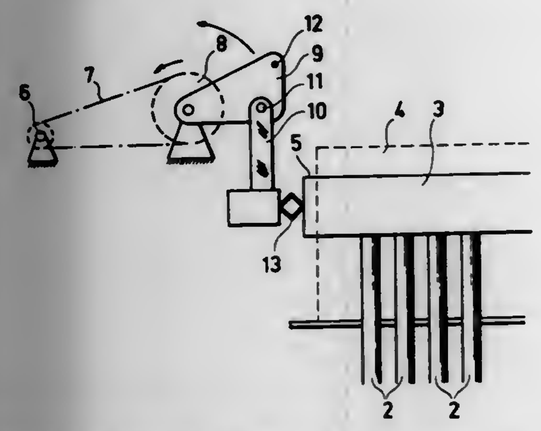
Filed May 2, 1973, Ser. No. 356,692
Int. Cl. F22b *7/00*
U.S. Cl. 122—156 **2 Claims**

An elongated tube has a burner discharging products of combustion through its length. A layer of fluid to be heated is flowed over the outside of the firetube. Diverting structure is placed on the outside wall of the firetube to keep the flow rate of the fluid above a predetermined minimum and extend the surface of the firetube for heat dissipation into the fluids as a control of the film temperature of the fluid.



3,835,817
APPARATUS FOR OUTSIDE CLEANING OF BOILER TUBES

Jorma Aarne Kullervo Tuomaala, Karhula, Finland, assignor to A. Ahlstrom Osakeyhtio, Noormarkku, Finland
Filed Aug. 21, 1972, Ser. No. 282,053
Claims priority, application Finland, Aug. 19, 1971, 2316/71
Int. Cl. F28g *7/00*
U.S. Cl. 122—379 5 Claims

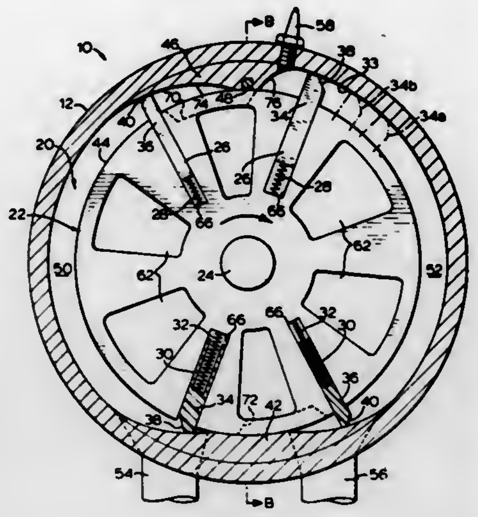


There is provided a device for outside cleaning of boiler tubes and similar, wherein the tubes are imparted to mechanical impulses or vibration within the frequency range of 200 – 2,000 Hz, suitable at about 1,000 Hz. The mechanical impulse is directed at the tubes or a part thereof immediately connected to the tubes. Such mechanical vibration may be created with the help of a striking hammer provided with a suitable spring system to give the desired frequency or with the help of, e.g., a periodically working thyristor-guided magnetic vibrator.

3,835,818
METHOD OF OPERATING A ROTARY PISTON INTERNAL COMBUSTION ENGINE

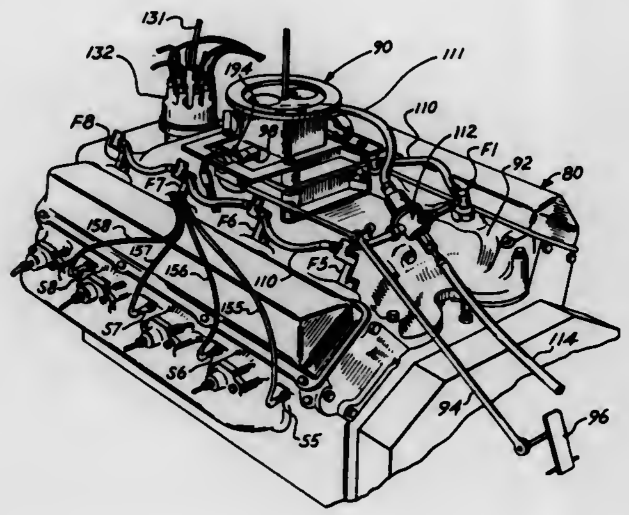
Herbert C. Catherwood, 329 Upper Sherman Ave., No. 2, Hamilton 53, Ontario, Canada
Division of Ser. No. 263,463, June 16, 1972, Pat. No. 3,791,353. This application Sept. 10, 1973, Ser. No. 396,075
Int. Cl. F02b *53/02*
U.S. Cl. 123—8.33 2 Claims

A rotary internal combustion engine is operated to achieve smooth and efficient power output. A compressed air-fuel mixture which has been subjected to turbulence is transferred from one zone to an ignition zone wherein it is ignited. The ignited mixture increases in volume in regular manner to impart rotation of the rotor after the ignition. The expansion of the ignited mixture causes exhaustion of the mixture ignited on the previous cycle.



3,835,819
DIGITAL ENGINE CONTROL APPARATUS AND METHOD

Robert L. Anderson, Jr., Pittsburgh, Pa., assignor to Essex International, Inc., Fort Wayne, Ind.
Filed Dec. 29, 1972, Ser. No. 319,345
Int. Cl. F02m *52/00*
U.S. Cl. 123—32 EA 51 Claims

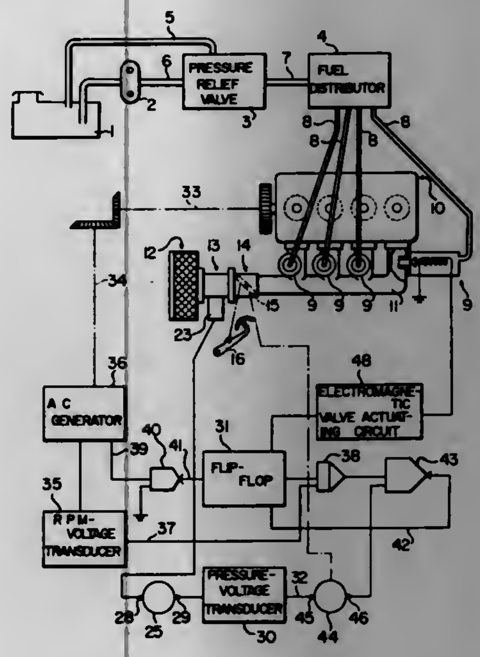


The disclosure describes digital apparatus and a digital method for operating a multicylinder internal combustion engine having spark plugs that are fired in response to an electrical fire signal and having fuel injectors that are opened to admit a quantity of fuel in response to an electrical fuel signal having a duration determined by the speed of the engine and the position of a throttle controlled by an operator of the engine.

3,835,820
FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINE

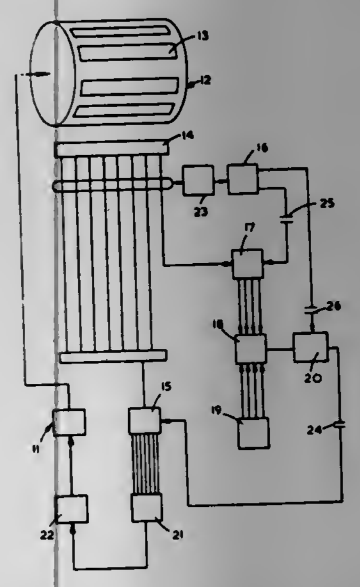
Hideya Fujisawa, Kariya, Japan, assignor to Nipponsenso Co. Ltd., Aichi-ken, Japan
Filed June 16, 1972, Ser. No. 263,618
Claims priority, application Japan, June 17, 1971, 46-43607
Int. Cl. F02m *51/02;* F02d *5/02*
U.S. Cl. 123—32 6 Claims

This fuel injection system for internal combustion engines includes first means for generating a DC voltage proportional to the weight flow rate of air taken into an engine, second means for generating a sawtooth voltage which is synchronized with the working cycle of the engine and whose slope varies with the rotational speed of the engine, third means for comparing the output voltages of said first and second means and generating a pulse corresponding to the amount of fuel required for each engine cylinder per operating cycle of the engine, and at least one electromagnetic valve operable in response to a pulse generated by said third means.



3,835,821
PETROL INJECTION SYSTEMS FOR INTERNAL COMBUSTION ENGINES

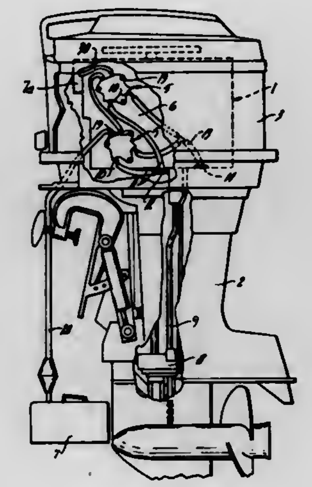
William Frank Hill, Stafford, and Roger Edward Cattermole, Leicester, both of England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England
Continuation-in-part of Ser. No. 69,614, Sept. 4, 1970, abandoned. This application July 27, 1972, Ser. No. 275,825
Int. Cl. F02b *3/00*
U.S. Cl. 123—32 EA 4 Claims



A petrol injection system for an internal combustion engine has a memory device on which are stored a plurality of sets of information, each set containing a number of coded signals and each of the coded signals representing a different fuel requirement. The delivery of fuel is controlled by a control device in which is stored a control signal which is changed from time to time, but is always obtained from the memory device. One significant signal fed to the engine is used to determine from which sets the signal fed to the control device is obtained, and another significant parameter of the engine is used to determine which coded signal from the chosen set is fed from the memory device to the control device.

3,835,822
COOLED FUEL PUMP FOR INTERNAL COMBUSTION ENGINES

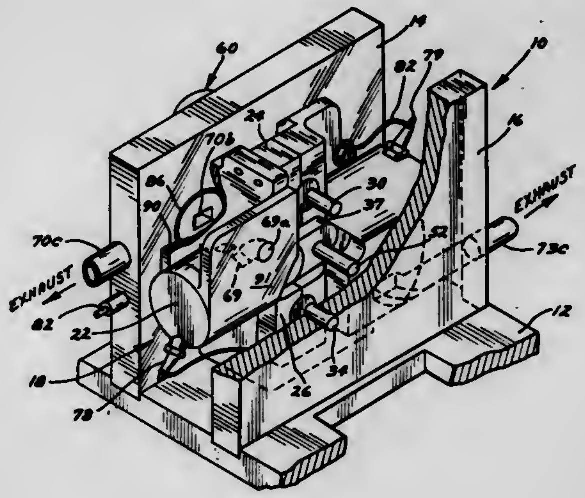
John L. Mickle, and Norman E. Horn, both of Oshkosh, Wis., assignors to Brunswick Corporation, Chicago, Ill.
Filed Aug. 16, 1972, Ser. No. 281,037
Int. Cl. F01p *11/00*
U.S. Cl. 123—41.31 9 Claims



A fuel pump for water-cooled marine engines includes a cast aluminum housing. A water cooling tube is embedded in the housing connected directly to the inlet of the main cooling system for the engine such that upon initial starting of the engine, cooling water is immediately supplied to the fuel pump to reduce its temperature, and thereby eliminate vapor lock conditions. The tube may be formed of suitable material to minimize electrolytic conditions with respect to the cast housing and prevent possible leakage of water into the fuel system.

3,835,823
ORBITAL SEALED CHAMBER ENGINE

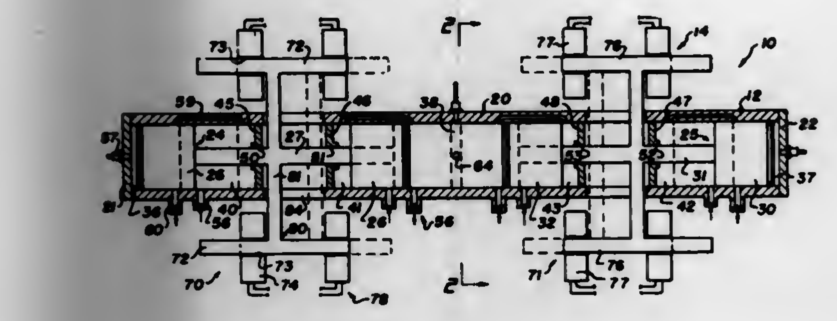
Robert C. Miller, Rt. 1, Box 258, Frederic, Wis. 54837
Continuation-in-part of Ser. No. 243,987, April 14, 1972, abandoned. This application May 7, 1973, Ser. No. 357,797
Int. Cl. F02b *59/00*
U.S. Cl. 123—42 5 Claims



An orbital sealed chamber engine comprising a two stroke single cycle engine in which the engine block and the two headed piston therein are respectively mounted and arranged to move in orbital paths in direction oppositely one another including a pressurized exhaust system utilizing functionally coordinated ports of the cylinder, the engine block and the engine block supporting frame.

3,835,824
FREE PISTON ENGINE

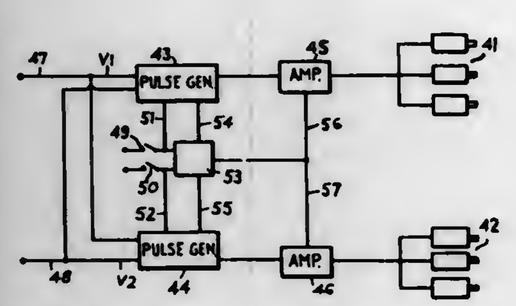
Ronald A. MacDonald, 24-448 Seymour St., Vancouver, British Columbia, Canada
Filed Jan. 22, 1973, Ser. No. 325,838
Int. Cl. F02b *71/00*
U.S. Cl. 123—46 R **2 Claims**



A free piston engine is provided which has a pair of opposed piston units mounted for reciprocation in a cylindrical sleeve. The engine has a large combustion chamber between the piston units and a small combustion chamber at each end of the sleeve. The arrangement provides for compression within the large chamber as a result of the simultaneous firing of explosive charges within the small chambers and, conversely, compression within the small chambers as a result of the firing of an explosive charge within the large cylinder.

3,835,825
INTERNAL COMBUSTION ENGINES

Albert Edward Baxendale, and Edward John Young, both of Coventry, England, assignors to Brico Engineering Limited, Coventry, Warwickshire, England
Division of Ser. No. 89,279, Nov. 13, 1970, Pat. No. 3,702,603. This application May 26, 1972, Ser. No. 257,243
Claims priority, application Great Britain, Nov. 21, 1969, 57186/69
Int. Cl. F02d *33/00, 11/10;* **F02b** *49/00*
U.S. Cl. 123—97 B **3 Claims**

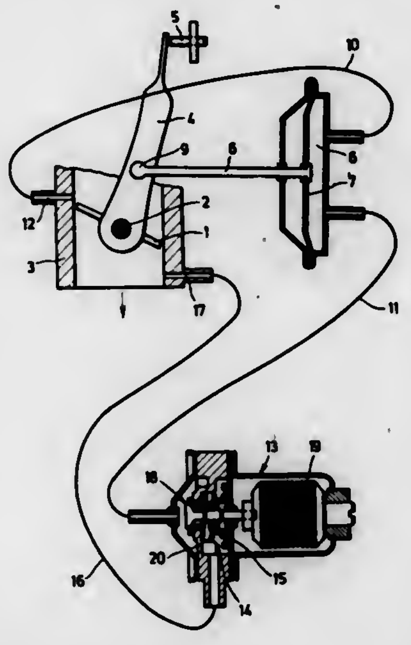


An internal combustion engine is provided with valve means for admitting air to the engine inlet manifold downstream of the throttle valve, and the valve means is operative to pass air to the inlet manifold under engine over-run conditions when the throttle valve is closed, the supply of fuel is cut-off and the engine speed is substantially above idling speed.

There is also described a fuel injection system having a plurality of fuel injection valves arranged to supply fuel to an engine and including means which are operative, after the supply of fuel has been cut-off during engine over-run conditions, to deliver fuel to the engine via a plurality of the fuel injection valves simultaneously.

3,835,826
INTERNAL COMBUSTION ENGINE

Rudolf Beckmann, and Dietrich Seelmann-Eggebert, both of Wolfsburg, Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany
Filed Oct. 23, 1970, Ser. No. 83,521
Claims priority, application Germany, Nov. 3, 1969, 1955031
Int. Cl. F02d *11/08*
U.S. Cl. 123—103 E **8 Claims**

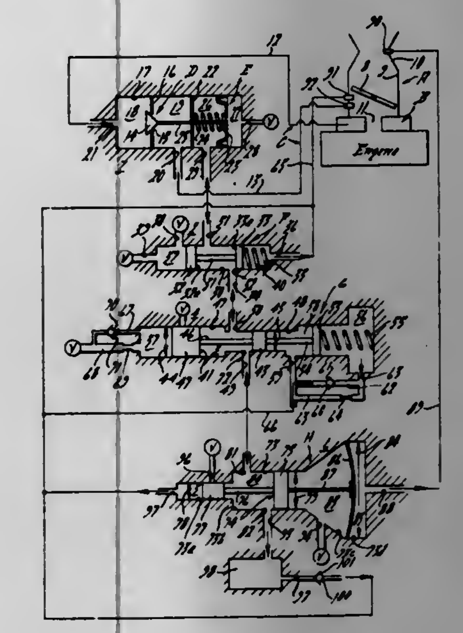


In an internal combustion engine having an air inlet pipe and a throttle valve rotatably mounted in the pipe on a shaft, a damper device having a housing and a yieldable wall therein which together with the housing defines a pressure chamber, a passage leading from the pressure chamber to a calibrated opening in the air inlet pipe, the opening being arranged adjacent the throttle valve such that the latter sweeps over the opening during acceleration of the engine, a drag lever operatively connected with the throttle valve, the yieldable wall and the lever being mechanically connected whereby the wall is adapted to move the lever into an end position during acceleration and during operation under load of the engine, and to release the lever from the end position at a slowed-down rate in accordance with the speed of change in air pressure determined by the size of the calibrated opening, to thereby cause a slowed-down closing of the throttle valve.

3,835,827
EXHAUST AND GAS RECIRCULATING SYSTEM

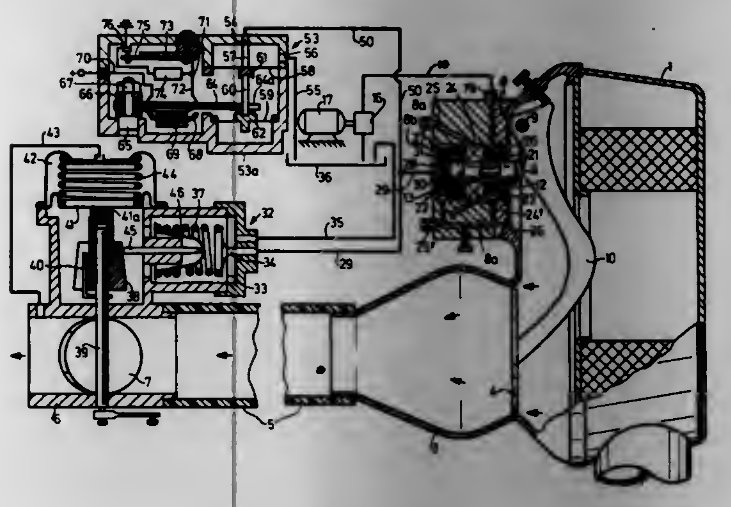
James H. Wolgemuth, Warren, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Jan. 29, 1973, Ser. No. 327,280
Int. Cl. F02m *25/06*
U.S. Cl. 123—119 A **7 Claims**

An exhaust gas recirculation system is disclosed employing a primary control valve having a vacuum operated servo mechanism for controlling the admission of recirculating gases. The servo mechanism is operated in response to a modulated vacuum signal derived principally from intake manifold vacuum. Modulation of the vacuum signal is achieved by three control means connected in series, one of which functions in response to a differential between carbureted venturi vacuum and the intake manifold vacuum, another control means operates to prevent communication of the vacuum signal to the servo mechanism during prolonged steady or nearly steady conditions of the engine, yet another control means is effective to prevent communication of the vacuum signal during wide-open throttle conditions of the engine carburetor.



3,835,828
FUEL SUPPLY SYSTEM

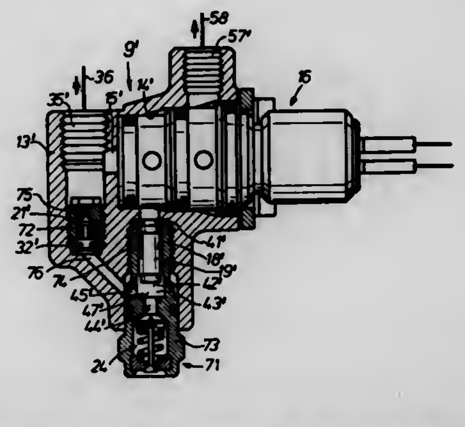
Heinrich Knapp, Leonberg-Silberberg, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Aug. 9, 1973, Ser. No. 386,980
Claims priority, application Germany, Sept. 7, 1972, 2243921
Int. Cl. F02m *69/00*
U.S. Cl. 123—119 R **4 Claims**



In a fuel supply system for an externally ignited internal combustion engine with compression of the fuel/air mixture, in which air flow-measuring means and a randomly operable throttle valve are arranged successively in the air intake suction pipe of the engine, and the meauring means is moved, in proportion to the air amount flowing through the suction pipe, against an at least substantially constant resetting force and thereby displaces the movable member of a distributing valve arranged in the fuel line in order to meter a fuel amount proportional to the air amount, and wherein a pressure liquid of at least substantially constant pressure, which is continuously delivered through a pressure line, serves to transmit the resetting force and acts upon a control slide valve to effect the resetting, the pressure of the liquid being variable by means of at least one regulated pressure control valve which is controlled in dependence on characteristic engine data, there is described an improved control cell adapted for temperature-dependent operation and which comprises a cell housing, bimetallic spring means, and heat-conducting tongue means jointly mounted in the housing for the conduction of heat from the tongue means to the bimetallic spring means and insulated against heat losses to the housing, electrical heating means associated with the tongue means, and fuel pressure regulating means comprising a control spring mounted in the housing, the bimetallic spring means being adapted for engaging the control spring and reducing the force of the spring at temperatures below the operational temperature of the engine.

3,835,829
FUEL INJECTION APPARATUS FOR INTERNAL COMBUSTION ENGINES

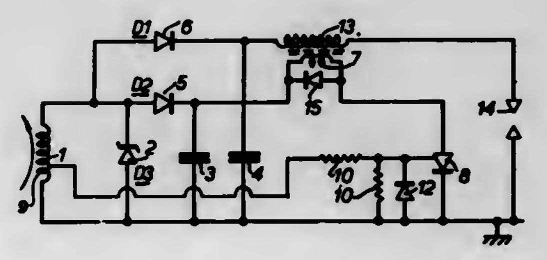
Heinz Links, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed May 23, 1972, Ser. No. 256,126
Claims priority, application Germany, May 28, 1971, 2126653
Int. Cl. F02m *39/00;* **F02b** *3/00*
U.S. Cl. 123—139 E **6 Claims**



There is described a pump-and-nozzle assembly which forms part of a fuel injection apparatus serving an internal combustion engine and which includes a reciprocating pump piston performing its injection strokes by virtue of hydraulic pressure intermittently applied thereto in a controlled manner. Between two injection strokes the pump work chamber is charged with pressurized fuel through a supply valve and a throttle which causes the charging period to be substantially longer than the injection period. The supply valve is biased closed by a spring pressure which, together with the maximum charging pressure prevailing in the pump work chamber, is at most equal to the fuel supply pressure which, in turn, is greater than the opening pressure of the fuel injection valve disposed downstream of and in communication with the pump work chamber.

3,835,830
SPARK IGNITION SYSTEMS

Robert Shepherd, Ilford, England, assignor to Plessey Handel und Investments A.G., Zug, Switzerland
Filed Aug. 14, 1972, Ser. No. 280,286
Claims priority, application Great Britain, Aug. 17, 1971, 38638/71
Int. Cl. F02p *3/06*
U.S. Cl. 123—148 E **1 Claim**



A spark generator or ignition system in which an arc is struck by applying an E.H.T. voltage pulse, of some thousands of volts, across a spark gap, and maintaining the spark by the current from the discharge of a capacitor charged only to an H.T. voltage (typically 400v), which produces spark intensifying energy.

3,835,831
AUTOMATIC COLD STARTING DEVICES FOR INTERNAL COMBUSTION ENGINES

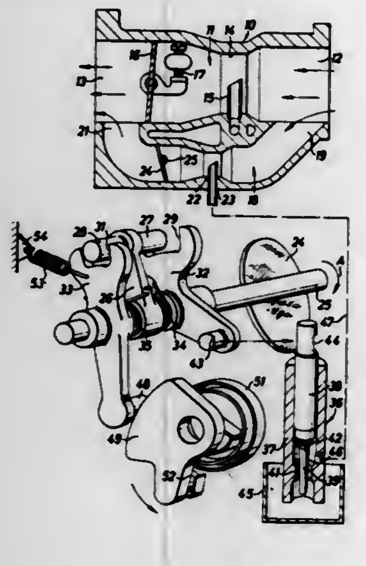
Gray Ernest Donald Ross, Wiggington, England, assignor to The Zenith Carburetter Company Limited, Middlesex, England

Filed Apr. 12, 1972, Ser. No. 243,312

Claims priority, application Great Britain, Apr. 15, 1971, 9459/71

Int. Cl. F02m *1/04, 1/10*

U.S. Cl. 123—179 G **9 Claims**



An automatic cold starting device for an internal combustion engine comprises, in an auxiliary passage leading into the main induction passage through which fuel/air mixture is normally supplied to the engine downstream of the main throttle valve, a second throttle valve and a fuel supply source controlled by a fuel valve, the second throttle valve and fuel valve being fully open when the engine is cold, being initially partly closed by suction in the auxiliary passage when the engine starts, and being then controlled for progressive further closing by a temperature sensitive device responsive to engine temperature.

3,835,832
SELF-CLEANING BURNER COVER, ESPECIALLY FOR HOUSEHOLD APPLIANCES

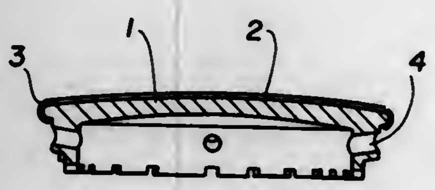
Friedrich Welcker, (585) Hohenlimburg, Im Sonnenwinkel 28, Germany

Filed May 21, 1973, Ser. No. 362,537

Claims priority, application Germany, May 26, 1972, 2225530

Int. Cl. F24c *15/14*

U.S. Cl. 126—215 **8 Claims**



The present burner cover is provided on its top surface with a sheet metal cover layer which is either flanged or crimped around the edge of the cover or the cover has a recess in its top to receive the sheet metal layer, whereby the edge of the cover is preferably upset inwardly to hold the layer in position. The layer is made of a material having an expansion coefficient and heat conductivity larger than the cover itself, whereby an air space is formed between the cover layer during heating due to the bulging of the cover layer which will contract again when the burner is shut off to facilitate the removal of food spills.

3,835,833
METHOD FOR OBTAINING NEUROPHYSIOLOGICAL EFFECTS

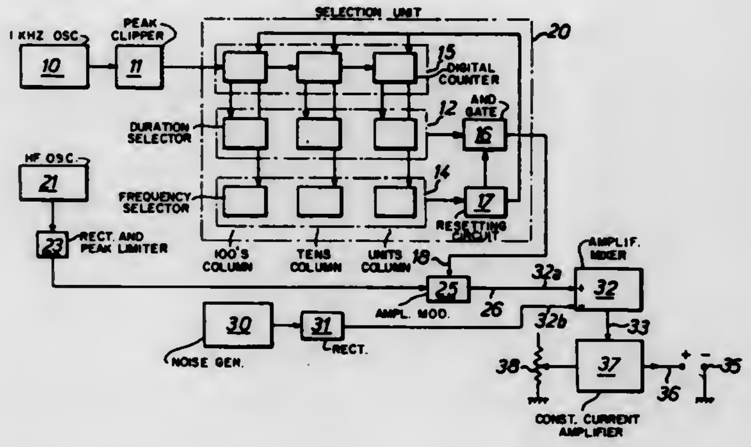
Aime Limoge, 83 Rue Pierre Demours, Paris, France (75017)

Filed Sept. 21, 1972, Ser. No. 290,804

Claims priority, application France, Sept. 24, 1971, 71.34365

Int. Cl. A61n *1/36*

U.S. Cl. 128—1 C **5 Claims**



A method and apparatus for obtaining neurophysiological effects on the central and/or peripheral systems of a patient. Electrodes are suitably positioned on the body of the patient and a composite electric signal is applied at the electrodes. The composite signal is formed by the superpositioning of two signals: a first signal which is a rectified high-frequency carrier modulated in amplitude to about 100 percent by substantially square-shaped pulses whose duration, amplitude and frequency are chosen according to the neurophysiological effects desidered, and a second signal which has a relatively white noise spectrum. The mean value of the first electric signal has a predetermined sign which is opposite the sign of the mean value of the second electric signal.

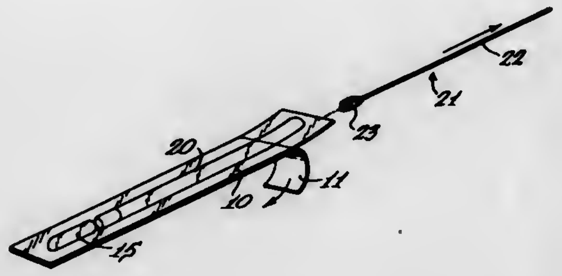
3,835,834
CULTURE TRANSPORTER

James B. Brown, 1 Seneca Pl., Greenwich, Conn. 06830, and James D. Bailey, 2107 N. Edward, Decatur, Ill. 62526

Filed Feb. 24, 1972, Ser. No. 229,007

Int. Cl. A61b *10/00*

U.S. Cl. 128—2 W **10 Claims**



A culture transporter having a pair of recesses formed in a body member to receive respectively, a culture medium and a culture swab with a closing strip secured to the body member to seal off the recesses one from the other for a completely sterile package with provision for removal and use of the culture swab in collecting a culture and return of the culture swab to the culture transporter with resealing thereof. A fracturable seal between said recesses permits flow of the culture medium to the tip of the swab to maintain the swab moist and the culture in a live condition until laboratory tests are performed on the culture. The body member and closing strip both have a generally planar configuration with the closing strip having an exposed flat face which may bear desired indicia. A tubular member of absorbent material is located at an end of the culture swab recess adjacent the culture medium recess to surround the culture swab tip whereby upon fracture of the seal between said recesses, the culture medium may flow to the tubular member which retains the culture medium and assists in retaining the culture swab tip in a moist condition.

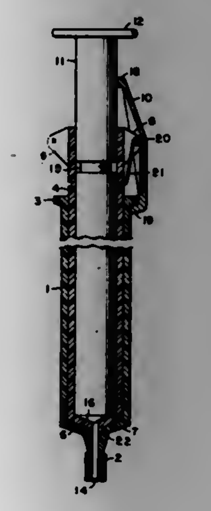
3,835,835
TWO COMPARTMENT LOCKING SAMPLING SYRINGE

Ronald J. Thompson, Lexington, Ky., and Robert D. MacKenzie, Cincinnati, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

Filed Nov. 7, 1972, Ser. No. 304,563

Int. Cl. A61b *5/14;* **A61m** *5/22*

U.S. Cl. 128—2 F **3 Claims**



A multi-barrel syringe for drawing blood from a vein which is characterized by having a plunger member, an intermediate plunger-barrel member, an outer barrel member and releasable locking mechanism to fix the intermediate plunger-barrel to the outer barrel and to release the two members from their fixed relationship on predetermined movement of the plunger member while at the same time fixing the said intermediate plunger-barrel to said plunger whereby the intermediate member acts as a plunger and causes formation of a chamber for receiving blood between said outer barrel and said intermediate plunger-barrel member as the plunger member is withdrawn.

3,835,836
COMPRESSION OPTHALMODYNAMOMETER

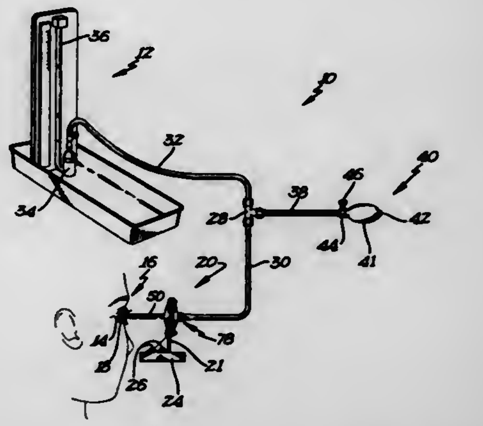
Yale C. Kanter, 1756 Rome Ave., St. Paul, Minn. 55116, and Bruce A. Nemer, 8901 W. 34th St., Minneapolis, Minn. 55426

Continuation of Ser. No. 147,430, May 27, 1971, abandoned. This application June 21, 1973, Ser. No. 372,198

Int. Cl. A61b *5/02*

U.S. Cl. 128—2 T **9 Claims**

A compression ophthalmodynamometer for measuring blood pressure in the human eye in conjunction with a mercury manometer is disclosed. The instrument includes a hand-held rubber compressor bulb having one-way valves for providing air under pressure, an air-pressure-to-proportional-contact-force transducer, and tubes which simultaneously conduct the air under pressure to both the manometer and the transducer. The manaometer gives an indication of the pressure of the air while, simultaneously, the transducer applies a force proportional to the pressure of the air to the surface of the eye through a foot-plate contact with the surface of the eye. One embodiment of the transducer includes a hollow body separated into halves by a diaphragm. An air pressure chamber is defined within the hollow body between one surface of the diaphragm and the portion of the transducer housing which is adjacent the input to the transducer from the bulb. A rod extends between the second surface of the diaphragm and the foot-plate in contact with the eye to convey air pressure created forces from the diaphragm to the foot-plate and thus to the surface of the eye.



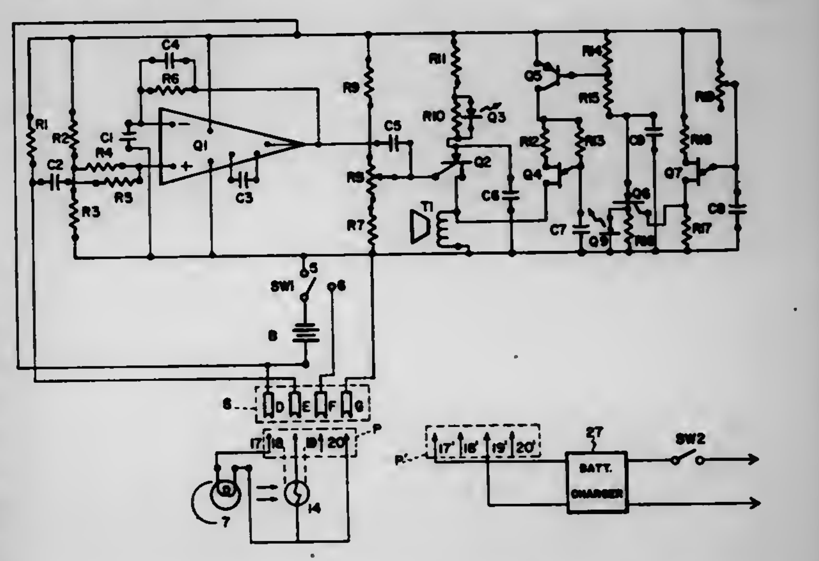
3,835,837
HUMAN PULSE RATE MEASURING APPARATUS

Sandford C. Peek, 111 Summer St., Hingham, Mass. 02043

Filed Sept. 13, 1972, Ser. No. 288,713

Int. Cl. A61b *5/02*

U.S. Cl. 128—2.05 P **4 Claims**



The specification describes a portable human pulse rate indicator and measuring apparatus which provides an indication of human pulse rate and a timing indication so that both absolute pulse rate and pulse rate changes may be detected. Noise immunity is provided by the use of an LDR detector having poor high frequency response and through the use of low pass filters. The sensor employed utilizes light passing through an extremity of the human hand to the LDR detector providing both accurate generation of the pulse signal and virtual elimination of the generation of artifacts.

3,835,838
APPARATUS FOR DETECTING CARDIOVASCULAR DISEASES

Jean Rameil, Paris, France, assignor to International Contacts Inventors Anstalt, Vaduz, Liechtenstein

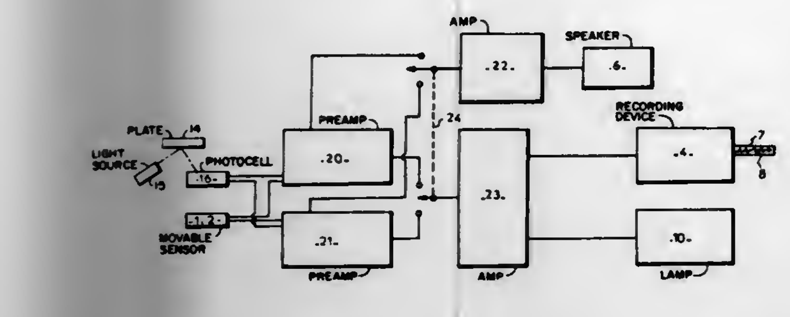
Filed Oct. 12, 1972, Ser. No. 296,866

Claims priority, application Belgium, Oct. 12, 1971, 773808; Oct. 4, 1972, 122724

Int. Cl. A61b *5/02*

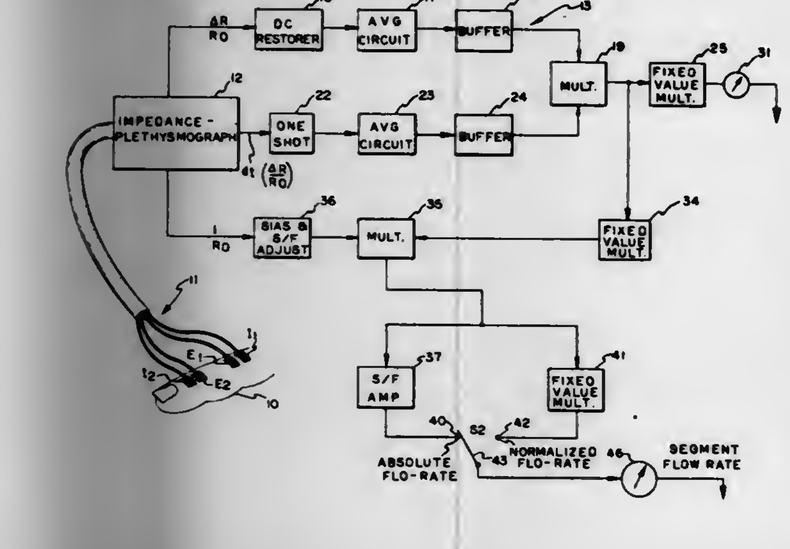
U.S. Cl. 128—2.05 P **10 Claims**

Apparatus for public use adapted to detect cardiovascular diseases by checking the heart pulsations and comprising a sensitive plate arranged on the front side of the apparatus and having marks for positioning the fingers of the user on said plate in combination with means for detecting and transducing the blood pulsations in the arteries of the finger tips of the user, means for amplifying electric signals delivered by said transducing means and means connected to the output of said amplifying means for sound, visual and/or graphical display of said amplified signals.



3,835,839
IMPEDANCE PLETHYSMOGRAPH AND FLOW RATE COMPUTER ADJUNCT AND METHOD FOR USE THEREWITH

Larry E. Brown, Walnut Creek, Calif., assignor to Systron Donner Corporation, Concord, Calif.
Filed Dec. 8, 1972, Ser. No. 313,399
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 F **12 Claims**

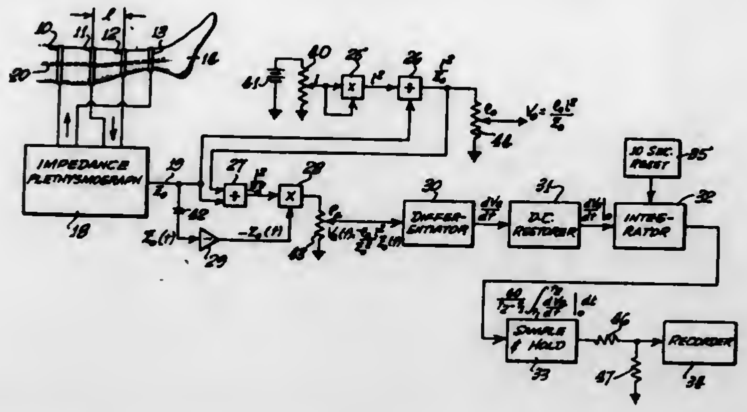


A computer adjunct for use with an impedance plethysmograph which provides signals related to impedance in a biological segment. Circuit means are included for converting the pulsatile plethysmograph signals to average DC levels and for combining them to provide a signal related to blood hydraulic-flow rate through the biological segment. An adjustable amplifier is provided within the computer for interposing a signal having a predetermined value for providing a normalized signal related to flow rate per volumetric unit of the biological segment. The combination is capable of such measurements for calf segments or thoracic segments.

3,835,840
IMPEDANCE PLETHYSMOGRAPHY METHOD AND APPARATUS

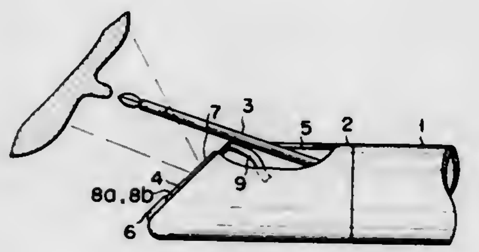
Bruce E. Mount, Diamond Bar, Calif., assignor to City of Hope, Los Angeles, Calif.
Filed Sept. 27, 1973, Ser. No. 401,407
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 V **11 Claims**

Apparatus and method for noninvasive measurement of volume rate of flow of blood in an artery. A system using an impedance plethysmograph to measure the impedance of a body section, and circuitry having the impedance signal as an input for developing an output signal proportional to the volume rate of blood flow.



3,835,841
OBLIQUE VIEW TYPE ENDOSCOPE

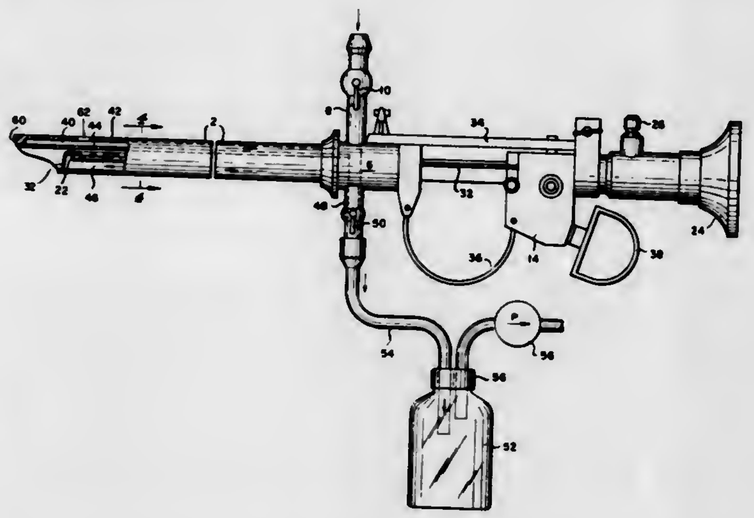
Masaaki Terada, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed May 31, 1973, Ser. No. 365,619
Int. Cl. A61b *1/12*
U.S. Cl. 128—5 **7 Claims**



An oblique view type endoscope whose distal end has an inclined end plane provided with a view window to bring a view field obliquely upward, wherein forceps is positioned on the upper side of the distal end to have the end of the forceps brought into the view field.

3,835,842
ENDOSCOPE WITH CONTINUOUS IRRIGATION

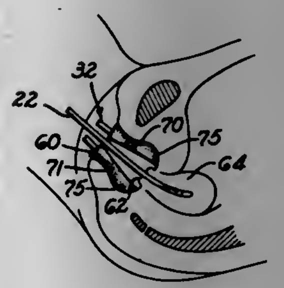
Jose J. Iglesias, 1341 North Ave., Elizabeth, N.J. 07208
Continuation-in-part of Ser. No. 268,806, July 3, 1972, and a continuation-in-part of Ser. No. 368,186, June 8, 1973,. This application Sept. 20, 1973, Ser. No. 399,197
Int. Cl. A61b *1/30*
U.S. Cl. 128—7 **13 Claims**



Urological endoscopic instruments known before this invention do not permit continuous clear vision of the operative field because such vision is periodically obscured by the turbid fluid produced at the operative field. The invention produces continuous clear vision of the operative field by causing continuous inflow of clear irrigating fluid to the operative field and continuous outflow of turbid fluid from the operative field, thus providing a continuously flowing system which is provided by two conduits, one for inflowing clear fluid having its outflow port within the beak of the sheath and below and in front of the objective lens of the telescope which forms part of the instrument, and one for turbid outflowing fluid from the operative field having its inlet port in the exterior of the sheath above the objective lens and to the rear of the beak, so that the inflowing clear fluid must pass through the operative field to reach the inlet port of the outflow conduit, the outflow of fluid being maintained by suction applied to the outflow conduit.

3,835,843
MEDICAL INSTRUMENTS

Harvey Karman, 336 Fowling St., Playa del Rey, Calif. 90291
Division of Ser. No. 157,196, June 28, 1971, Pat. No. 3,769,980, which is a continuation-in-part of Ser. No. 65,816, Aug. 21, 1970, abandoned. This application May 7, 1973, Ser. No. 358,128
Int. Cl. A61b *1/32*
U.S. Cl. 128—17 **8 Claims**

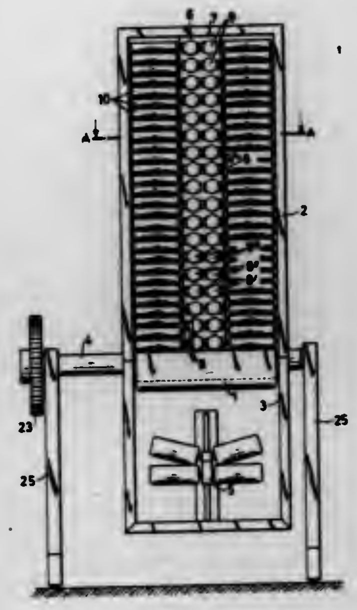


A combination of disposable medical instruments is provided which can be used when performing an abortion including a speculum comprising metal jaw members and disposable plastic tip members. The plastic tip members are fitted on the jaw members in snap-fit relationship and are shaped so that they adequately expose the cervix and tend to bring it forward toward the vaginal opening. A disposable currette or cannula for a suction aspirator is also provided and comprises a tube of plastic material which is sufficiently flexible to permit relatively easy bending of the tube during use and yet sufficiently rigid to maintain the desired tubular configuration during such bending. The tube is provided at its operative end with a pair of holes on opposite sides thereof, each of a size sufficient to pass the embryonic tissue therethrough.

3,835,844
APPARATUS FOR STRETCHING THE SPINE

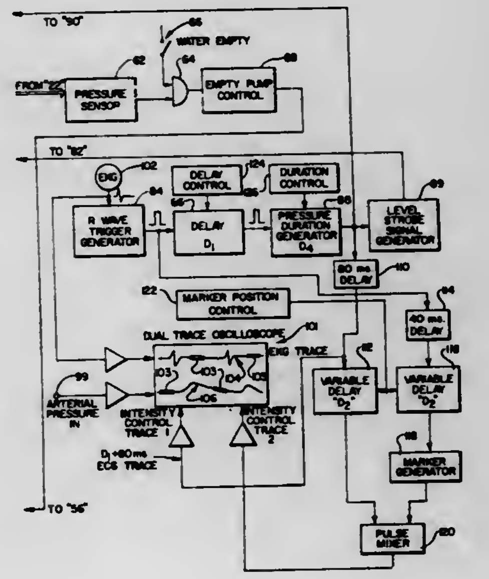
Friedrich Lang, Landau/Pfalz, Germany, assignor to Lang Weyland GmbH, Landau/Pfalz, Germany
Filed Apr. 6, 1973, Ser. No. 348,490
Claims priority, application Germany, May 29, 1972, 2226073; Oct. 24, 1972, 2252095
Int. Cl. A61h *1/00*
U.S. Cl. 128—33 **11 Claims**

An apparatus for stretching and massaging the spinal column of a human being comprises a chair with a backrest and leg support, with the backrest enclosing a small obtuse angle with the seat, the leg support being parallel to the backrest, and two rows of vibrators arranged closely spaced along the entire length of the backrest in the center thereof.



3,835,845
CARDIAC SYNCHRONIZATION SYSTEM AND METHOD

Charles E. Maher, Brockton, Mass., assignor to Medical Innovations, Inc., Waltham, Mass.
Filed Oct. 24, 1972, Ser. No. 300,290
Int. Cl. A61h *9/00*
U.S. Cl. 128—64 **8 Claims**



Improved internal circulatory assist apparatus comprising control means whereby the optimum synchronization of the assist apparatus with the beat of the heart can be effectively achieved while using any of a plurality of parts of the body as monitor sites for obtaining an arterial signal representative of the patient's heartbeat. The control means consists of a marker means, such as a pip on an oscilloscope, which is adjustable by variable-delay circuitry throughout a range equal to the time difference between the sensing of a selected cardiac event at an earliest-reacting monitoring site and the sensing of a selected cardiac event at a later-reacting monitoring site.

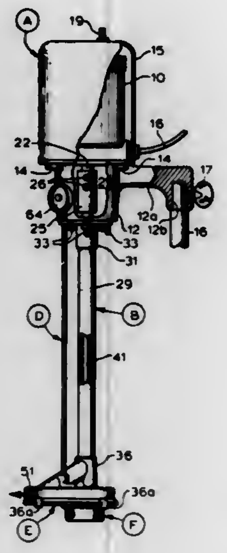
3,835,846
EASILY DISASSEMBLED AND CLEANABLE HYDROTHERAPY PUMP

Curtis E. Kurtz, Arlington Heights, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed June 28, 1973, Ser. No. 374,280

Int. Cl. A61h *9/00*

U.S. Cl. 128—66 **8 Claims**



The disclosed hydrotherapy pump, which is used to effect water agitation in a whirlpool tank, may be quickly and easily disassembled without the aid of any tools, after which all of the water-contacting surfaces will be exposed to permit simplified brush cleaning and sterilizing.

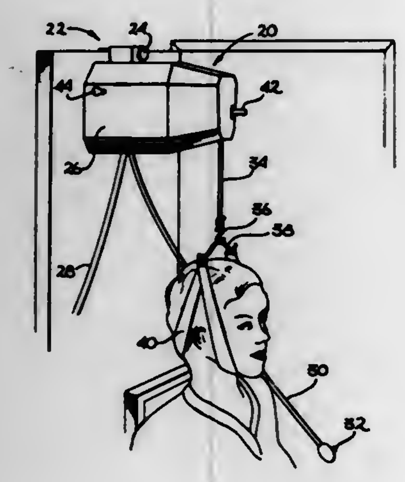
3,835,847
PORTABLE INTERMITTENT ORTHOPEDIC TRACTION DEVICE

Fenter Willie Smith, 1133 Coronada Ave., West Covina, Calif. 91790

Filed July 3, 1972, Ser. No. 268,565

Int. Cl. A61h *1/02*

U.S. Cl. 128—75 **2 Claims**



A portable intermittent orthopedic traction device for applying vertical or horizontal cervical traction and horizontal pelvic traction. The device utilizes a reversible motor assembly to apply traction controllable in amount by a simple lever control for a short time period. Thereafter, the motor reverses, relieving the traction for a second short time period whereupon the cycle is again initiated and traction reapplied. A time delay relay provides the timing for the system and a quick release is provided so as to allow the rapid extension or withdrawal of the tension line to a desired position. The device is adapted to connect to a door or bed in a simple and convenient manner.

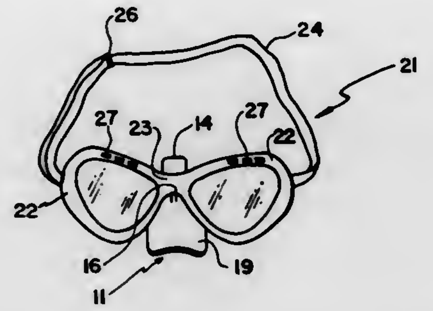
3,835,848
PERICRANIAL SPLINT AND RETAINER ASSEMBLY

Robert E. Berner, 28 Mansanita Rd., Atherton, Calif. 94025

Filed June 11, 1973, Ser. No. 368,873

Int. Cl. A61f *5/08*

U.S. Cl. 128—76 C **2 Claims**



A malleable metal nasal piece is formed to assume a shape which will maintain a desired shape for the wearer's traumatized nose. The final formation of the nasal piece is performed while the nasal piece is adjacent to the wearer's nose. An adjustable elastic pericranial band is attached to a goggle type retention piece having a central member connecting eye pieces. The central member bears against a bridge area on the nasal piece for maintaining pressure between the nasal piece and the wearer's nose when the pericranial band is adjusted to be in tension. A small projection extends from the bridge area of the nasal piece for positioning the central member on the nasal piece.

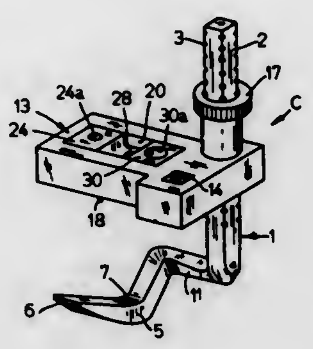
3,835,849
BONE CLAMP AND ADJUSTABLE DRILL GUIDE

George McGuire, Rt. 2, Orange Ln., Depere, Wis. 54115

Filed Jan. 26, 1973, Ser. No. 327,137

Int. Cl. A61f *5/04*

U.S. Cl. 128—92 EB **7 Claims**



A bone clamp for aiding a surgeon in positioning bones and securing them together and having means for properly orientating drills so that aligned holes may be drilled through the two bones, and also having means for locating the screw to be inserted through the bones to hold them together. One member of the clamp includes a generally V-shaped portion which can be inserted under the innermost bone so that the latter can be accurately located with respect to the guide means for positioning the drills and screw.

3,835,850
INTRAUTERINE CONTRACEPTIVE DEVICE

Irwin S. Lerner, Greenwich, Conn., assignor to A. H. Robins Company, Incorporated, Richmond, Va.

Filed Jan. 7, 1972, Ser. No. 216,047

Int. Cl. A61f *5/46*

U.S. Cl. 128—130 **66 Claims**

An intrauterine contraceptive device made from plastic and having a perimetral ring with or without a central membrane and including short inwardly directed spurs located on each of the side portions of the perimetral ring. In addition to the inner spurs, other spurs may be located on the outer side of the perimetral ring. The outer spurs preferably have a retrograde inclination and are of decreasing length from a nose portion of the perimetral ring toward the tail portion, the nose portion being slightly wider than the tail portion providing the IUD with an inverted pear shaped outline when viewed in plan. A marker and extraction string or line is preferably secured at the nose portion but can be secured to the tail portion. Between adjacent inner spurs and between adjacent outer spurs, thin webs may be utilized to provide increased IUD surface area. The webs may or may not be secured to the spurs and may terminate between or beyond the spurs. Internal of the perimetral ring is preferably a membrane joining portions of the ring. Preferably, the membrane should provide openings at least adjacent the nose and the tail to enable use of certain types of inserters. The membrane may be secured at both sides or both ends or it may be secured by a plurality of intermediate narrow membrane portions spaced around the interior of the perimetral portion.

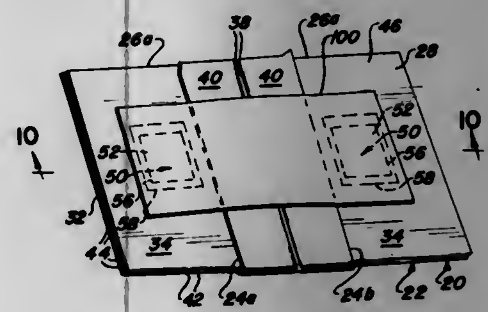
3,835,851
FENESTRATED DRAPE WITH RETAINING MEANS

Frank K. Villari, 1104 S. Maple, Oak Park, Ill. 60304

Continuation of Ser. No. 228,857, Feb. 24, 1972, abandoned. This application Nov. 26, 1973, Ser. No. 419,024

Int. Cl. A61f *13/00*

U.S. Cl. 128—132 D **7 Claims**



An improved folded drape of the type wherein the drape is provided with adhesive means for securing the drape to the body of a patient, the adhesive means being on outwardly facing surfaces of panels of the drape when in its folded state prior to use, and having a strip-restraining means preventing unfolding of the panels during preparatory maipulation of the drape prior to application over a patient's body extending from and in releasable, covering contact with the adhesive means on one of the panels to and in releasable, covering contact with the adhesive means on another panel.

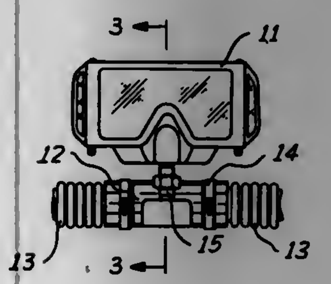
3,835,852
UNDERWATER BREATHING APPARATUS

Robert Alfred Anderson, 18458 Aguiro St., Huntington Beach, Calif. 91745

Filed Jan. 18, 1973, Ser. No. 324,859

Int. Cl. A62b *7/04;* **A61m** *15/00*

U.S. Cl. 128—146.5 **1 Claim**



Breathing apparatus including a conventional diving mask and a separate mouthpiece to which breathing conduits are connected. The mouthpiece includes protrusions to be gripped by the mouth of the user. A duct connects and communicates the mouthpiece and the facemask and has a disconnect therein of a type that could easily be separated and includes one-way valves in the respective separated ends that prevents seepage into the mask or mouthpiece.

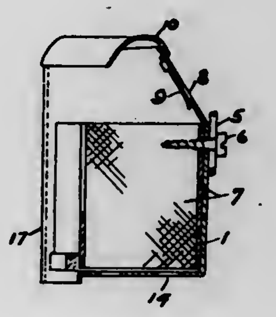
3,835,853
BREATH WARMING DEVICES

Edgar P. Turner, Box 70, Scotch Plains, N.J. 07076

Filed Nov. 16, 1971, Ser. No. 199,141

Int. Cl. A61m *16/00*

U.S. Cl. 128—212 **2 Claims**



This invention pertains to breath warming devices and particularly of the self contained type wherein heat and moisture from the exhaled breath is utilized to warm and humidify the ensuing inhaled breath. Under arctic conditions air of temperature as low as minus 50 degrees F. may be inhaled. Under such conditions approximately 44 percent of the total heat generated within the body is lost through breathing.

Previous attempts to develop self contained breath warming devices have met with discouragement because at low ambient temperatures ice and frost formation tends to block the air flow and render the device inoperable. The subject invention discloses a design which is free of such difficulty. The design employed in the device incorporates an automatic valve which opens responsive to increasing air friction within the device when frost or ice begin to obstruct the air flow therethrough. The valve operates only to bypass a portion of inhalation air while leaving the flow and volume of exhaled air unaffected. The amount of heat recovered from exhalation thus remains constant whereas the demand for heat to warm inhaled air is decreased when ice begins to form in the unit. Due to this change in heat balance further ice does not form, and the device remains operative despite very low ambient temperature. Also shown are additional features of novel nature particularly related to improvement of means for effecting efficient and comfortable mounting and fit of the device relative to the face of the wearer.

3,835,854
CATHETER ADVANCING DEVICE WITH NIP ROLLERS

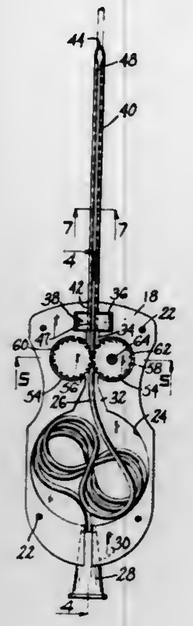
Warren R. Jewett, Orange, Conn., assignor to Jewett-Ashley Holding Corp., Milford, Conn.

Continuation of Ser. No. 15,039, Feb. 27, 1970, abandoned. This application Oct. 6, 1972, Ser. No. 296,204The portion of the term of this patent subsequent to Sept. 17, 1974, has been disclaimed.

Int. Cl. A61m *5/00*

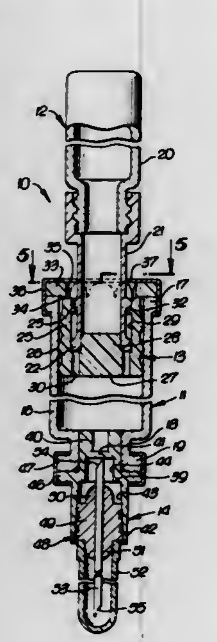
U.S. Cl. 128—214.4 **13 Claims**

A device for inserting a catheter into a body such as a vessel, vein, artery or channel comprising a housing member adapted to receive a flexible catheter and having a hollow needle for guiding the catheter. A drive moves the catheter through this needle.



3,835,855
MULTI-CHAMBERED SYRINGE

Courtland Hilyard Barr, Jr., 4910 Vineta Ave., La Canada, Calif. 91011
Filed Oct. 10, 1972, Ser. No. 295,864
Int. Cl. A61m *5/18*
U.S. Cl. 128—218 M **8 Claims**

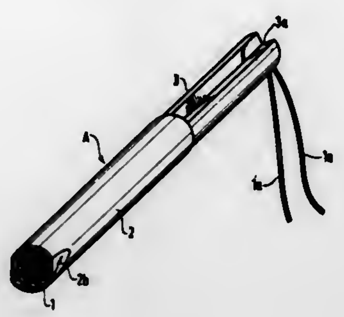


A syringe having two reservoirs each adapted to contain a separate material, the materials being normally incompatible, having means whereby said materials can be mixed together in the syringe without affecting their sterile condition, and having means whereby the mixture of such materials can be ejected from the syringe.

3,835,856
TAMPON APPLICATOR

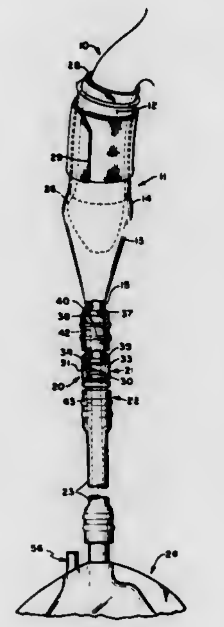
Niels Warncke, Metzkausen, Germany, assignor to Dr. Carl Hahn GmbH, Dusseldorf, Germany
Filed Feb. 26, 1973, Ser. No. 336,105
Claims priority, application Germany, Feb. 29, 1972, 7207682
Int. Cl. A61f *13/20, 15/00*
U.S. Cl. 128—263 **13 Claims**

An improvement in a tampon applicator comprising applicator sleeve, said sleeve comprising an insertion end adapted to carry a tampon and a rearward portion adapted to house the tampon ejector, a tampon ejector housed within said rearward portion and ridable in said sleeve, the improvement wherein said insertion end has at least one flat portion in the sleeve to define a tampon applicator with a cross-sectional area less than said rearward portion; and improvement in such tampon applicator wherein said tampon ejector has a radially, inwardly directed V-shaped indentation and is otherwise tubular, said ejector made from a resilient, yieldable material which tends to return said tampon ejector to one wherein its cross-section is circular.



3,835,857
MALE URINAL DEVICE

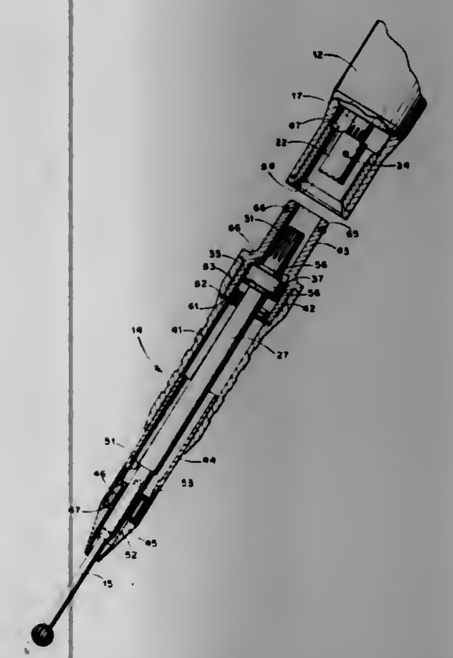
Crit H. Rogers, III, Bloomington, Minn., and Joseph Sarto Rocheleau, Jr., Tiller, Oreg., assignors to Rogers Industries, Inc., Minneapolis, Minn.
Filed Feb. 12, 1973, Ser. No. 331,684
Int. Cl. A61f *5/44*
U.S. Cl. 128—295 **7 Claims**



A male urinal device in which the possibility of any backup of urine around the penis is minimized. The urinal device comprises a urine receptacle connected through a flexible tube to a sheath adapted to be placed over and secured to the penis of the user, the sheath consisting of a thin body portion of resilient material of a thickness between 0.005 and 0.012 inches and relatively large and rigid conical and tubular portions integrally formed with said body portion and of a thickness of between 0.050 and 0.100 inches. There is preferably a bulbous portion formed by extending the conical portion in the direction of the body portion sufficiently that the internal diameter of the conical portion where it joins the body portion is greater than the normal diameter of the body portion, thus providing the bulbous portion without resulting in reentry curves between the body portion and the tube. The conical portion has an internal volume sufficient to accommodate sudden discharges of urine resulting from artificial stimulation of the bladder. The receptacle has a vent therein for escape of air but not of urine as urine enters the receptacle. The receptacle can be disconnected from the sheath by a detachable coupling in the tubing, said detachable coupling having a relatively uniform diameter therein which at no point is less than the internal diameter of the tube.

3,835,858
SURGICAL AIR DRILL

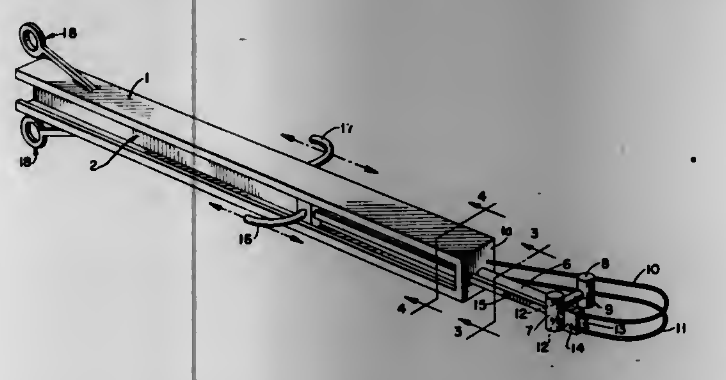
Clarence A. Hagen, Long Beach, Calif., assignor to Edward Weck & Company, Inc., Long Island, N.Y.
Filed Sept. 5, 1972, Ser. No. 286,465
Int. Cl. A61b *17/00*
U.S. Cl. 128—305 **1 Claim**



An improved surgical air drill having a novel, detachable hand piece assembly with an integral cutting burr. The hand piece is interchangeable with others having different burrs or cutting heads and may be removed and replaced while the drill motor is operating at full speed. The particular configuration of the coupling between the motor and the hand piece permits such interchanging to be accomplished with ease while assuring that the burr remains axially true.

3,835,859
SURGICAL INSTRUMENT

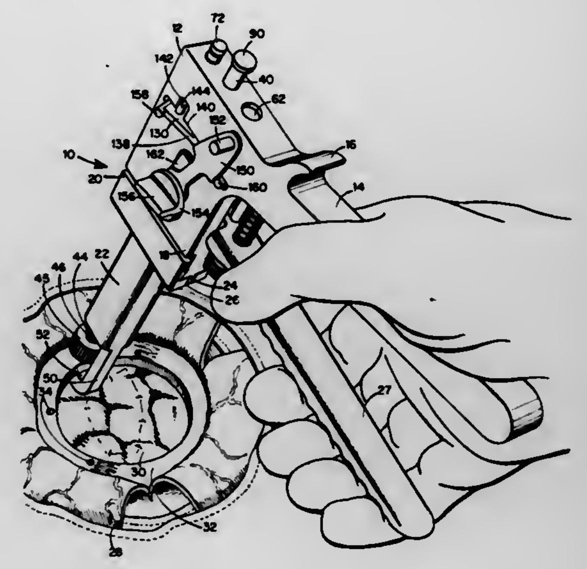
Robert R. Roberts, Rt. No. 1, Frederick, Md. 21701, and Leo J. DiGioia, 18916 Diary Rd., Gaithersburg, Md. 20760
Filed Feb. 22, 1973, Ser. No. 334,726
Int. Cl. A61b *17/32*
U.S. Cl. 128—305 **9 Claims**



A surgical instrument including a flexible track operatively connected to a handle and adapted to be extended therefrom into a knee cavity to conform to the interior configuration of the knee cavity, and a blade slidably mounted on the track and constrained to move thereon for cutting damaged or broken cartilage from the knee cavity.

3,835,860
SURGICAL BONE PUNCH

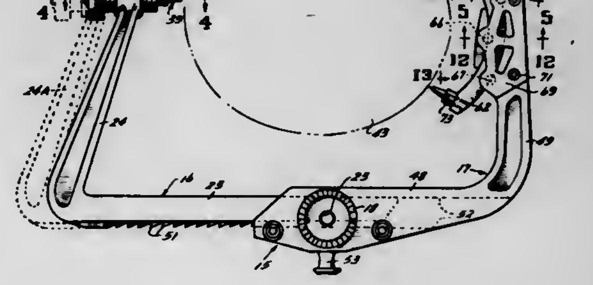
Henry D. Garretson, 517 Tiffany Ln., Louisville, Ky. 40207
Filed June 21, 1973, Ser. No. 372,029
Int. Cl. A61b *17/16;* **B26f** *1/14*
U.S. Cl. 128—310 **16 Claims**



A surgical instrument for punching holes in bone or other substantially solid matter such as cartilaginous tissue. A relatively easy to operate trigger mechanism permits a very large force to be applied to the punch to penetrate the bone. The punch is advanced incrementally by means of a ratchet mechanism, and a reversible floating ratchet assembly permits the instrument to supply substantially the same force to an elongated surgical punch for both driving and retracting purposes. The device may also be used for cutting hard tissue or shaping other materials such as surgical metal plates due to the large forces which it is capable of developing.

3,835,861
SURGICAL HEAD CLAMP

George Kees, Jr., Alexandria, Ky., and Horst R. Hickmann, Anderson Twp., Hamilton City, Ohio, assignors to Kees Surgical Specialty Company, Cincinnati, Ohio
Filed Dec. 8, 1972, Ser. No. 313,333
Int. Cl. A61b *19/00;* **A61g** *13/00*
U.S. Cl. 128—346 **5 Claims**



A surgical head clamp including two L-shaped main sections in which rack teeth on a first arm of one section are engaged by a pawl carried by a first arm of the other section. The main sections are arranged with the first arms thereof in sliding relation. Opposed head engaging means are disposed on second arms of the main sections. A single head engaging means is mounted on one of the second arms. The head engaging means on the other second arm includes a pair of pins mounted at opposite ends of an arcuate bar. The arcuate bar is slidably mounted on said other second arm.

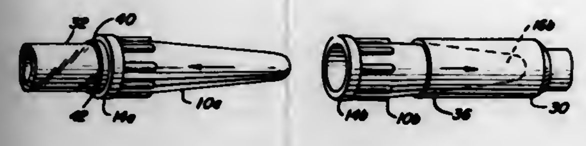
3,835,862
STERILE CAPS FOR A LIQUID DRAINAGE SYSTEM AND METHOD

Frank K. Villari, Oak Park, Ill., assignor to The Kendall Company, Walpole, Mass.

Filed Feb. 20, 1973, Ser. No. 333,909

Int. Cl. A61m *25/00*

U.S. Cl. 128—349 R **13 Claims**



A pair of sterile nestable closure caps having a female end and a male end, and a method of aseptically protecting the interconnectable ends of first and second tubes in a liquid drainage system with the caps. In the method, the ends of the first and second tubes are disconnected, the end of the second tube is inserted into the female end of the sterile nested caps, and the male end of the sterile nested caps is inserted into the end of the first tube to close the ends of the first and second tubes. The nested caps are then separated, whereby the ends of the disconnected first and second tubes are aseptically closed by the caps.

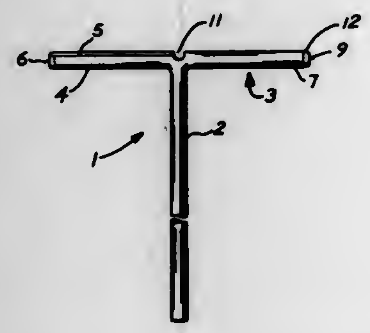
3,835,863
T TUBE

Edward M. Goldberg, Glencoe, and Seymour Bazell, Morton Grove, both of Ill., assignors to MPC/KurgiSil, Skokie, Ill.

Filed May 15, 1973, Ser. No. 360,579

Int. Cl. A61m *25/00*

U.S. Cl. 128—350 R **3 Claims**



A flexible surgical T tube with a continuous open slit extending across the top of the cross tube is disclosed. This improved T tube allows the tube to be removed from a duct after surgical implantation by simple non-surgical withdrawal while minimizing wound stress and trauma in the duct.

3,835,864
INTRA-CARDIAC STIMULATOR

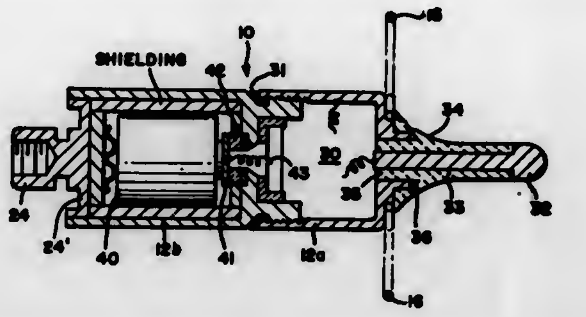
Ned S. Rasor, and Joseph William Spickler, both of Dayton, Ohio, assignors to Rasor Associates, Inc., Dayton, Ohio

Filed Sept. 21, 1970, Ser. No. 73,809

Int. Cl. A61n *1/36*

U.S. Cl. 128—419 P **7 Claims**

A stimulator device for insertion in a living body and having particular advantage for intra-cardiac use comprising a structure having a body form of a size and configuration to enable its transvenous or transarterial insertion, the surface of said body form providing electrode means for contact with a portion of the living body to be stimulated by said electrode means, and means mounted to project outwardly of and peripherally of said body form including anchor portions locating in a position displaced from said electrode means and providing means for engaging in portions of said living body to establish said electrode means in a required position of use, said electrode means having in connection therewith means to energize the same once said body form is located in its required position of use.



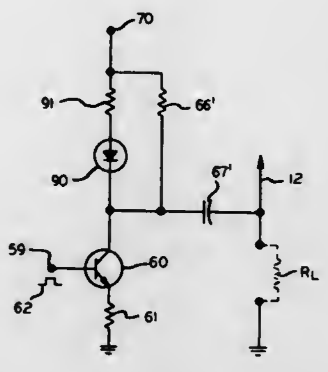
3,835,865
BODY ORGAN STIMULATOR

David Lee Bowers, Wauwatosa, Wis., assignor to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 53,842, July 10, 1970, abandoned. This application July 7, 1972, Ser. No. 269,611

Int. Cl. A61n *1/36*

U.S. Cl. 128—419 P **8 Claims**



The output circuit of an electric stimulator is connected to an organ such as the heart through a coupling capacitor. A semiconductor switch is triggered with a short pulse so that it partly discharges the capacitor and stimulates the organ. Immediately following the turn off of the first switch, a second switch is activated to recharge the capacitor to its initial state during which time reverse current is delivered momentarily to the heart. In one embodiment, after the first switch turns off to terminate the discharge of the capacitor which stimulates the heart, the current through the heart is reversed immediately by recharging the capacitor through a diode which is connected to a supply line and is in series with the capacitor and the heart. Turn-off of the first switch starts the diode conducting heavily. A high input impedance detector determines whether there is a natural electric signal on the organ and turns on a generator which provides the trigger pulse if there is no natural signal. The circuit is arranged so that the detector and output circuit present a high impedance to the organ.

3,835,866
PANTY GIRDLE WITH STRETCHABLE LEG SUPPORT

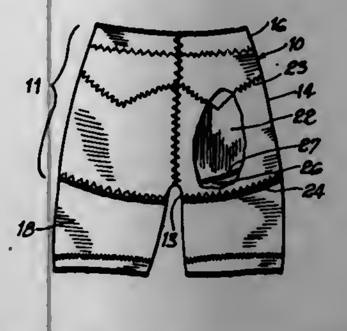
Juanita L. Brooks, Los Angeles, Calif., assignor to Sears, Roebuck and Co., Chicago, Ill.

Filed Jan. 18, 1974, Ser. No. 434,658

Int. Cl. A41c *1/00*

U.S. Cl. 128—547 **9 Claims**

An article of intimate wearing apparel for females of the panty girdle type, wherein a vertically stretchable elastic back panel supports the back leg portions of the article and provides extensibility to the back leg portions relatively independently of the main body portion of the article upon flexing of the article by the wearer. The main body portion of the article is adapted to extend over the buttocks of the wearer and preferably normally covers the elastic back panel when the article is in use in an unflexed condition.



3,835,867
WIGS

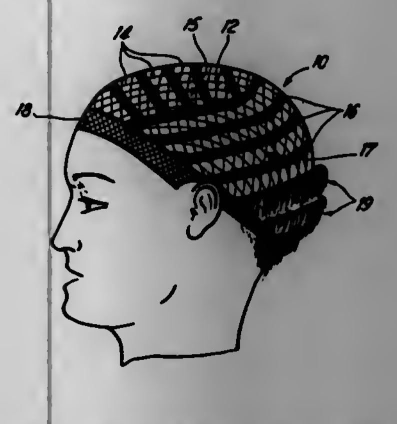
Rene Molinario, Paris, France, assignor to Molinario S.A., Paris, France

Filed Aug. 19, 1971, Ser. No. 173,205

Claims priority, application France, Aug. 21, 1970, 70.30812

Int. Cl. A41g *3/00*

U.S. Cl. 132—5 **3 Claims**



A wig comprising a cap of elastic net formed of alternating zones of fine and wide mesh, strips of hairs being attached only to the fine mesh zones. The strips are formed from a number of hairs attached transversely to at least one thin elastic support.

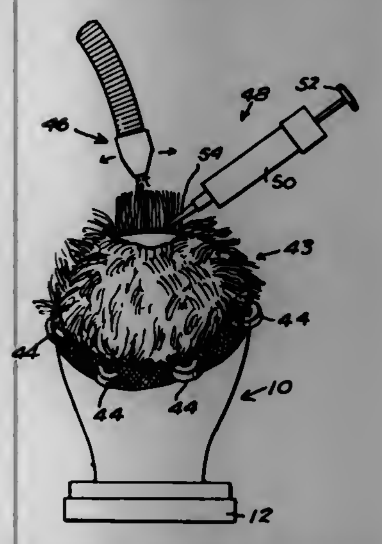
3,835,868
METHOD AND APPARATUS FOR MAKING HAIRPIECES

Walter Heck, 5260 Schaefer Rd., Dearborn, Mich. 48126

Filed May 16, 1973, Ser. No. 360,655

Int. Cl. A41g *3/00*

U.S. Cl. 132—5 **23 Claims**



Foundation fabric with attached hair strands is fitted over a heated human head shaped form. The strands are drawn by a vacuum to an erect position in which they extend away from the fabric at an abrupt angle. Liquid resin is applied to the bases of the erect strands by a syringe and is partially cured by the heat to tacky condition. The form is then heated to a higher temperature to completely cure the resin with the strands emerging therefrom at an abrupt angle.

The form is hollow and has internal electrical resistance heating elements. When the form is made of a ferromagnetic metal, magnets are provided for securing the fabric to the form while applying the liquid resin.

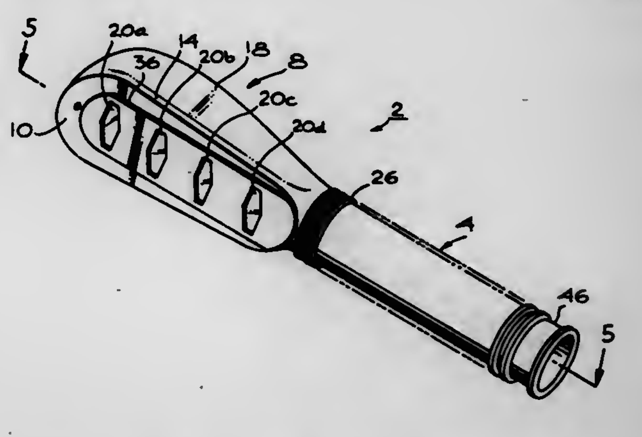
3,835,869
AIR GUIDE AND HAIR BRUSH SUPPORT DEVICE

Martin Newman, 1203 N. Sweetzer, Los Angeles, Calif. 90060, and Alvin L. Frankel, 6038 W. 75th St., Los Angeles, Calif. 90045

Filed June 27, 1973, Ser. No. 374,271

Int. Cl. A45d *20/50*

U.S. Cl. 132—9 **8 Claims**



An air guide and hair brush support device is provided which has a hollow handle contiguous at one end with a hollow enclosure. The hollow enclosure has a bottom wall containing a plurality of vents. Air guide means are disposed within the enclosure for defining separate air channels to each of the vents whereby each vent is in separate air flow communication with the hollow handle. The bottom wall of the enclosure is adapted to releasably support a hair brush unit which is provided with openings which overlap the vents in the bottom wall. The hollow handle, which is provided with a plurality of spaced grooves, is connected, at its outer end, to a portable hair dryer through a flexible air conduit.

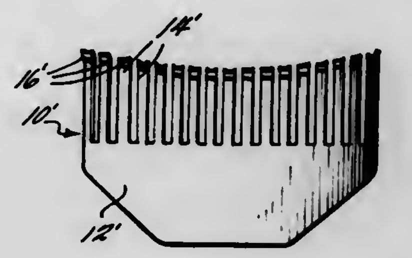
3,835,870
HAIR TREATING INSTRUMENT AND METHOD

Willmar K. Sick, 34 Village Sq., The Village of Cross Keys, Baltimore, Md. 21210

Filed Oct. 2, 1972, Ser. No. 294,078

Int. Cl. A45d *24/00*

U.S. Cl. 132—160 **5 Claims**



A comb for use in streaking or highlighting hair with bleach or dye has parallel side-by-side teeth disposed in a curved plane approximating the curvature of the head and curved radially outwardly at their outer ends to define foot portions. In use the comb is placed at an angle to the scalp, with the foot portions of the teeth holding strands of hair against the scalp. Alternate strands of hair are manually lifted between the teeth for treatment with bleach or dye.

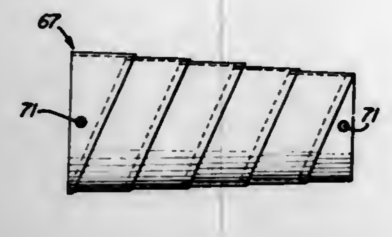
3,835,871
COLLAPSIBLE COSMETIC HAIR ROLLER

Frank A. Roccanova, Brooklyn, N.Y., assignor to Phenomenon Productions, Inc., Brooklyn, N.Y.

Division of Ser. No. 161,069, July 9, 1971, abandoned. This application Jan. 2, 1973, Ser. No. 320,635

Int. Cl. A45d *2/02*

U.S. Cl. 132—39 **2 Claims**



A collapsible cosmetic hair roller consisting of a multiplicity of telescoping sections of generally cylindrical shape which interlock edge to edge upon extension to a preselected desired length and nest section within section upon collapse.

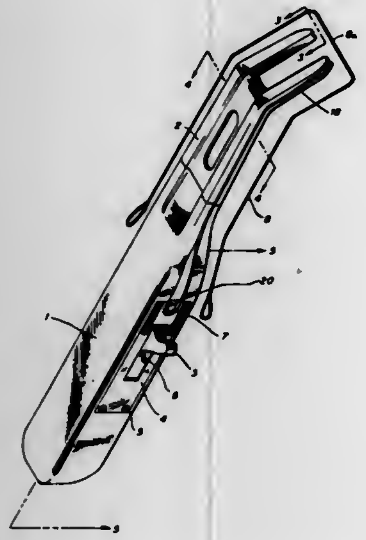
3,835,872
DENTAL CLEANING DEVICE

Heston C. Daniel, 6955 N. Academy Blvd., Colorado Springs, Colo. 80907

Filed Nov. 16, 1972, Ser. No. 307,194

Int. Cl. A61c *12/00*

U.S. Cl. 132—92 R **1 Claim**



Apparatus for holding and tightening a flexible cord for dental cleaning, comprising a handle having a detachable yoke for tautly supporting a run of said cord and a pair of anchor pins carried by the handle, one of which is attached to a reciprocable trigger mounted in the handle for tensioning the cord.

3,835,873
METHOD FOR THE PRODUCTION OF A MIXTURE WITH CONSTANT COMPONENT COMPOSITION MADE OF SEVERAL STARTING MATERIALS, AND A REGULATING DEVICE FOR CARRYING OUT THE METHOD

Hubert Wildpaner, Bensberg-Frankenforst, Germany, assignor to Klockner-Humboldt-Deutz Aktiengesellschaft, Koln, Germany

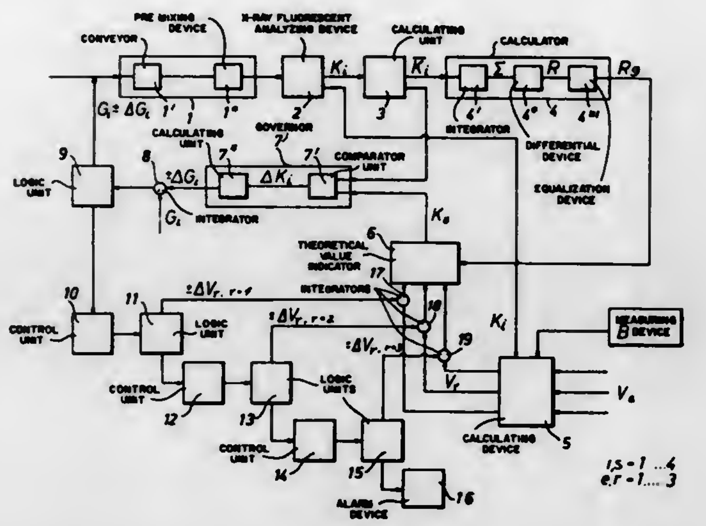
Filed Nov. 13, 1972, Ser. No. 306,040

Claims priority, application Germany, Nov. 13, 1971, 2156498

Int. Cl. C04b *7/38*

U.S. Cl. 137—3 **10 Claims**

A method of producing a mixture with constant component composition from a plurality of starting materials, each of which contains a portion of the components of the required composition, the starting materials being premixed in dosages, preferably analyzed by an X-ray fluorescence process and supplied to a homogenization means, the dosaging of the starting materials further taking place within a predetermined dosage range in dependence upon the premixture component composition established in the analysis and under maintenance of predetermined component proportions, while upon passing beyond the predetermined dosage range of one of the starting materials upwardly or downwardly, at least one of the predetermined component proportions is stepwise changed until the predetermined dosage range has been restored. The invention also includes means for carrying out said method.



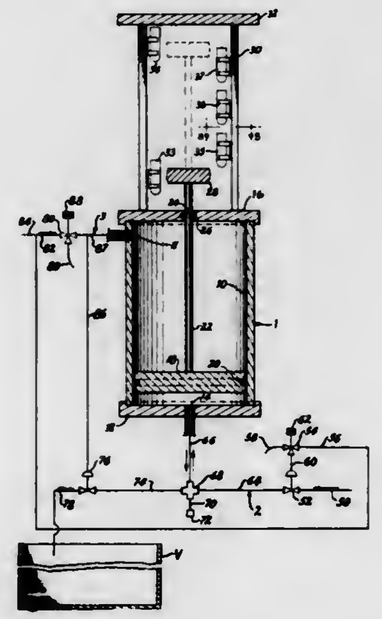
3,835,874
METHOD OF INTRODUCING LIQUID DOSES

Frank Dellasala, 1459 59th St., Brooklyn, N.Y. 11219

Division of Ser. No. 692,874, Dec. 22, 1967, Pat. No. 3,570,524. This application June 9, 1970, Ser. No. 44,795

Int. Cl. F16k *51/00*

U.S. Cl. 137—15 **4 Claims**



Method of introducing accurately measured doses of liquid that may, if desired, be varied in size into a product in process of being manufactured by use of a measuring chamber that is filled with the liquid to a level corresponding to the predetermined dose and delivering the dose by superatmospheric pressure displacement. The method is preferably carried out by the use of apparatus which includes a measuring cylinder, a fluid-tight piston movable therein to selected heights to measure out a dose of selected variable size and means to force the liquid into a discharge line leading to the product being made by applying force to the piston in the direction of the opening into the discharge line. The method is particularly useful in dosing a slurry in which the solid particles are kept suspended by agitation before and during the dosing operations. A water flush of the apparatus after each dosing may also be carried out. The method can be used for dosing two or more products or batches of the same product by providing branch delivery lines connected with the delivery line from the measuring cylinder. The operation can be automated, manual or a combination of both.

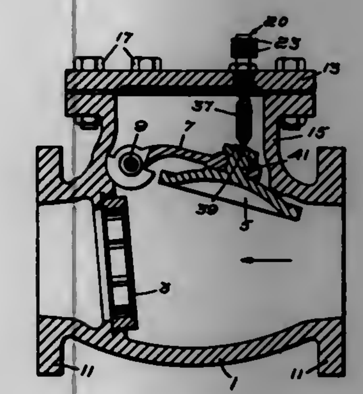
3,835,875
SAFETY CHECK VALVES FOR GAS LINES

Lynn H. Morse, Venice, Fla., assignor to OMCO Inc., Holden, Mass.

Filed Apr. 20, 1973, Ser. No. 352,982

Int. Cl. F16k *17/38*

U.S. Cl. 137—75 **1 Claim**



This device is an improvement on prior types of heat-actuated safety check valves for gas supply lines which hold the valve member from closing by use of fusible metal restraining means linking the valve member to its housing. Here the fusible metal is formed as a solid body retained in a hollow plug screwed through the valve housing, with an open-coil spring imbedded in the fusible metal and forming a flexible linkage between the fusible metal and the valve member holding the valve open.

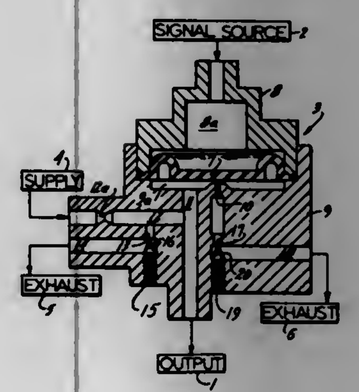
3,835,876
FLUID SIGNAL LIMITING DEVICE

Richard N. Laakaniemi, and Robert R. Stahl, both of Milwaukee, Wis., assignors to Johnson Service Company, Milwaukee, Wis.

Filed Nov. 18, 1971, Ser. No. 199,893

Int. Cl. G05d *16/00*

U.S. Cl. 137—82 **7 Claims**



A pneumatic signal limiter includes an integrated fluidic repeater and variable restrictor assembly having a pair of telescoping interconnected input and output body members with opposing and complementary recessed faces defining an input chamber and an output chamber to opposite sides of a diaphragm. The output portion includes an exhaust orifice and passageway within which a variable low limit restrictor is mounted to control the exhaust flow. The output body further includes an output passageway and intersecting exhaust passageway with an adjustable high limit restrictor connected directly to the exhaust passageway. The supply is connected to the output passageway in series with a restrictor through the intersecting passageway or a separate connection. Each restrictor is a needle valve which is adjustably secured within the housing with a conical point within a related limiter orifice. The threaded pin valve member has a relatively small cone angle and very fine adjusting threads. A closed loop control system includes a controller connected to sensors from a controlled variable source and from a master variable source through limiters. The controller is connected via a limiter to a control apparatus for the controlled variable unit.

3,835,877
NIPPING-SHUTTLE FOR WEAVING

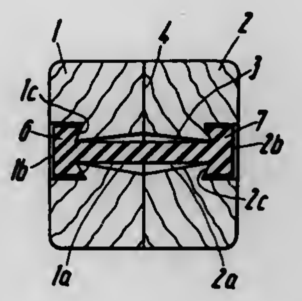
Rudolf Rietzler, Ramsdorf, Germany, assignor to Franz Schulten, Weberei-und-Bekleidungswerke, Ramsdorf, Germany

Filed Feb. 5, 1973, Ser. No. 329,829

Claims priority, application Germany, Apr. 25, 1972, 2220232

Int. Cl. D03j *5/08*

U.S. Cl. 139—207 **6 Claims**



A weaving shuttle in which a bobbin is removably retained between separable clamping portions and in which the separable portions are retained in clamping relation by a transverse, elastic pin, under tension, the pin extending through co-axial bore portions of the clamping portions and the clamping portions and the bores converging from a mating plane of juxtaposed clamping parts to facilitate introduction of retention heads at opposite ends of the pin; the pin heads having inner annular undercut portions for providing a relief when compressing the pin head through outer ends of the converging bores and cooperating with complimentary seats in enlarged recesses opening into outer sides of the respective clamping parts in which the recesses have a convergent shoulder portion tending to retain the heads in the recesses; the pin being of uniform cross section or having a central enlarged portion, the central enlargement being double-consent toward the heads; the central enlargement preventing lateral twisting of the cooperating clamping portions.

3,835,878
SHUTOFF VALVE WITH LEAK INDICATING MEANS

Helfried Braidt, Edward Potzl-Gasse, Vienna 1190, and Johann Figl, Fleischmanngasse 4, Vienna 1040, both of Austria

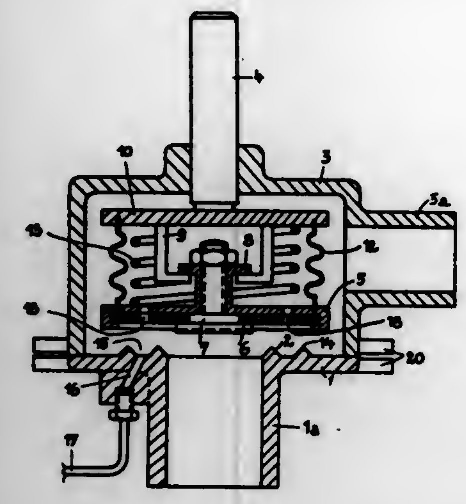
Filed Feb. 2, 1973, Ser. No. 329,173

Claims priority, application Austria, Feb. 4, 1972, 934/72

Int. Cl. F16k *25/02;* **G01m** *3/28*

U.S. Cl. 137—246.13 **4 Claims**

Leaks between the valve head and the valve seat of a shutoff valve are detected by providing an air containing housing attached to the valve head and moving therewith into a shut position in respect of a valve seat. The air pressure in the housing increases during the valve shutting movement and a



chamber closed by engagement of the valve head and the valve seat when the valve is shut is in communication with the interior of the housing and the exterior of the valve so that pressure changes due to a leak between the valve seat and valve head may be measured.

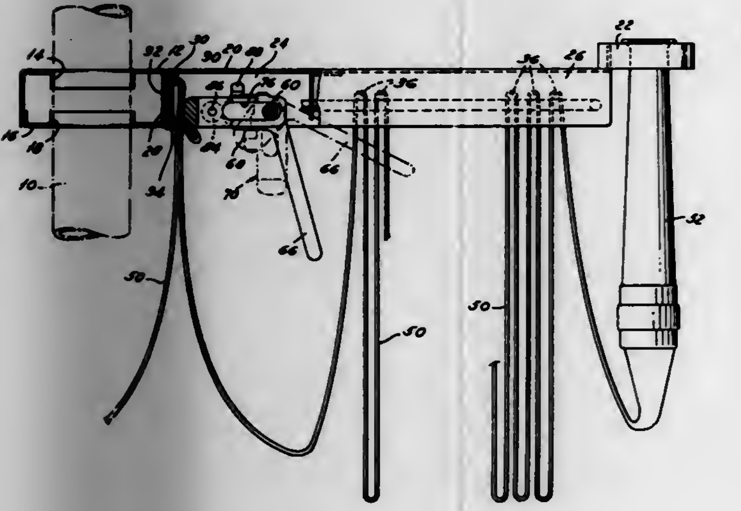
3,835,879
HOSE RACK ASSEMBLY

Charles J. Thoman, Wauseon, Ohio, assignor to Seco Manufacturing, Inc., Wauseon, Ohio

Filed Apr. 9, 1973, Ser. No. 349,076

Int. Cl. B65h ***75/46***

U.S. Cl. 137—355.18 **9 Claims**



A Hose Rack Assembly for providing a water cut-off clamp at the root end of the hose to permit hose extension and remote release including a pivoted hose rack and a clamp at the proximal end of the rack for closing off the hose passage. Includes a pivoted hose clamp bar in conjunction with a clamp actuator adapted for manual clamping and hose tension release, the clamp bar being shiftable to adapt to varying thickness and types of hose.

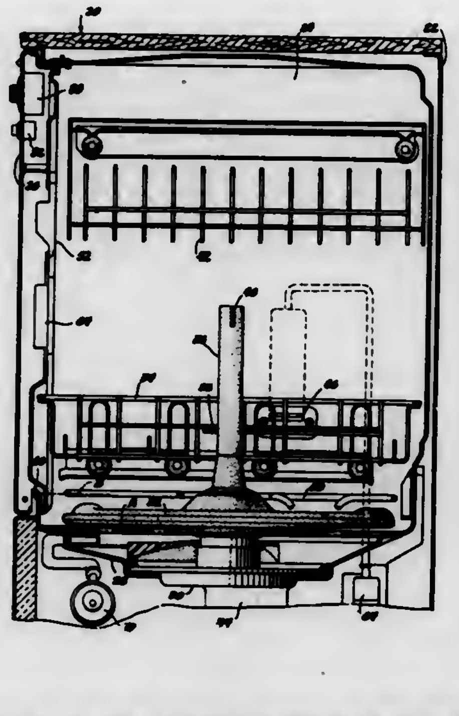
3,835,880
DISHWASHER FILL SYSTEM

Robert E. Hoffman, Centerville, and Carl J. Wright, Bellbrook, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 10, 1973, Ser. No. 387,522

Int. Cl. F16k ***21/18***

U.S. Cl. 137—387 **5 Claims**



A domestic dishwasher is provided with a combined time and fill level control system which insures a proper fill level throughout a wide range of reasonably available domestic water supply pressures, guards against floods occasioned by a clogged drain and malfunctioning timer or water level switch and assures the advance of a dishwashing cycle irrespective of fill level where domestic water supply pressures are unreasonably low. The system includes a continuously running timer during fill having a timer controlled fill switch connected in series with a pressure actuated water level switch. The pressure switch controls fill when the dishwasher is supplied with water at normal supply pressures and guards against floods occasioned by a clogged drain and malfunctioning timer. The timer controls fill to advance the cycle by shunting the pressure switch when the dishwasher is supplied with water at unreasonably low supply pressures and guards against floods occasioned by a malfunctioning pressure switch by opening the fill switch.

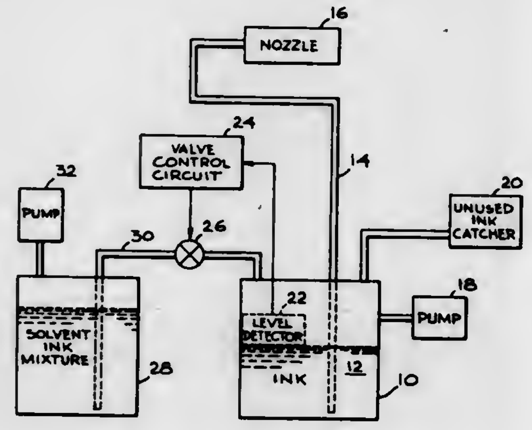
3,835,881
METHOD FOR CONTROLLING INK CHARACTERISTICS

Henry A. Dal, Mount Prospect, and Robert I. Keur, Niles, both of Ill., assignors to A. B. Dick Company, Chicago, Ill.

Filed Dec. 29, 1972, Ser. No. 319,852

Int. Cl. F16k ***31/02***

U.S. Cl. 137—389 **6 Claims**



In the operation of an ink jet printing system which recycles unused ink, changes in the formulation of the ink being used for printing which can cause deterioration of printing, is avoided by an arrangement for sensing the amount of ink in an ink reservoir and replenishing it when below a predetermined level, with a solvent-ink mixture which restores the ink in the reservoir to a proper formulation.

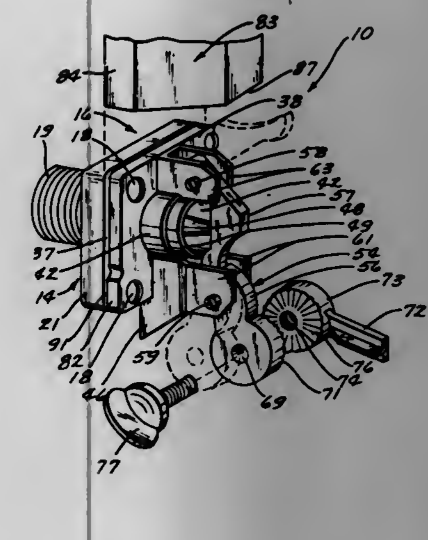
3,835,882
FLOAT VALVE ASSEMBLY

Bernard A. Barker, Monticello, Iowa, and Ronald L. Daggett, Madison, Wis., assignors to Franklin Equipment, Inc., Monticello, Iowa

Filed Oct. 15, 1973, Ser. No. 406,607

Int. Cl. F16k ***31/26***

U.S. Cl. 137—445 **6 Claims**



The valve assembly is of an all plastic construction and requires no tools for normal disassembly and service purposes. A valve plunger having a replaceable and reversible seat member is actuated by a pair of coacting pivoted lever members which are moved by a float arm unit to valve opening and closing positions. On manual movement of the lever members to a third servicing position the valve plunger is readily removable from the valve assembly for servicing or replacement of the seat member thereon.

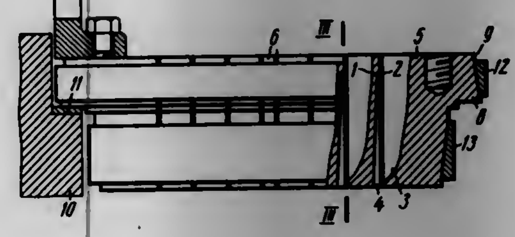
3,835,883
STRAIGHTWAY VALVE

Mark Isaakovich Frenkel, ulitsa Karbysheva, 6, korpus 2, kv. 20, Leningrad, U.S.S.R.

Filed Aug. 15, 1973, Ser. No. 388,419

Int. Cl. F16k ***15/16***

U.S. Cl. 137—512.1 **5 Claims**



A straightway valve for compressors in which there is provided a disk defined by flat seats and elastic plates clasped or clamped by shrink rings. The valve has a supporting shoulder for installation in a compressor cylinder. One of the shrink rings is mounted upon the lateral surface of the shoulder.

As a result, the valve has a comparatively low height and, consequently, a comparatively low resistance and dead-zone volume and is suitable for use in high-speed compressors.

3,835,884
NEGATIVE PRESSURE CIRCUIT ARRANGEMENT HAVING A CHECK VALVE

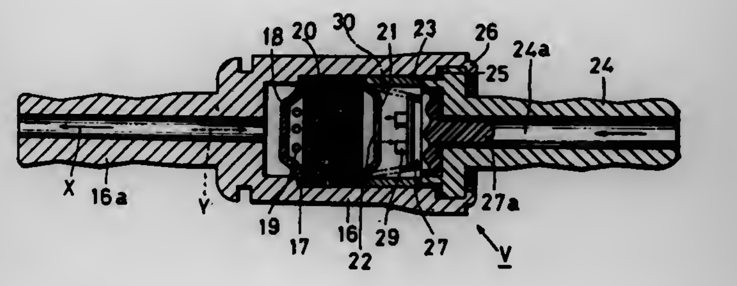
Masakazu Ishikawa, and Sadayoshi Itou, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabioshiki Kaisha, Toyota-shi, Japan

Filed Dec. 7, 1972, Ser. No. 312,930

Claims priority, application Japan, Sept. 11, 1972, 47-91124

Int. Cl. F16k ***15/06***

U.S. Cl. 137—550 **2 Claims**



A negative pressure generating arrangement for an operably associated internal combustion engine and booster brake system for a motor-vehicle, and more particularly, a check valve for use in such an arrangement to permit the flow of a clean fluid in one direction therethrough and prevent the flow of an impure fluid tending to flow therethrough in the opposite direction, the check valve including a filter for removing impurities from the impure fluid prior to its reaching a valve member to thereby maintain the valve member in a clean condition.

3,835,885
ARRANGEMENT FOR METERED FLOW OF LIQUIDS

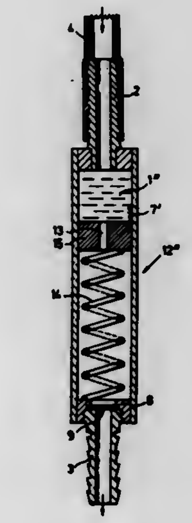
Artur Kreyenberg, Langenharmerweg, Germany, assignor to Johannes Bockemuehl, Gummersbach-Derschlag, Germany

Filed Oct. 17, 1972, Ser. No. 298,275

Claims priority, application Germany, Oct. 18, 1971, 2151786

Int. Cl. G01p ***5/14***

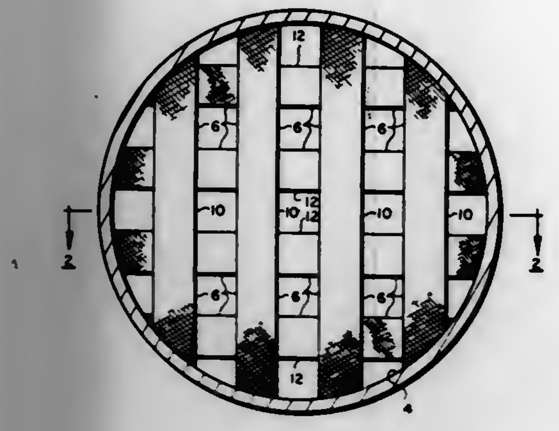
U.S. Cl. 137—551 **6 Claims**



A housing has a chamber provided with an upper inlet connected with a liquid supply, and with an outlet connectable with a user. A pressure indicator is located in the chamber, and a set of washers is provided which can alternately be inserted into the chamber in the region of the outlet to extend across the entire cross-sectional area of the chamber, with each washer having a different flowthrough opening, so that depending upon the size of the opening the flow through the chamber per unit of time can be predetermined.

3,835,886
POROUS TUBE INJECTOR

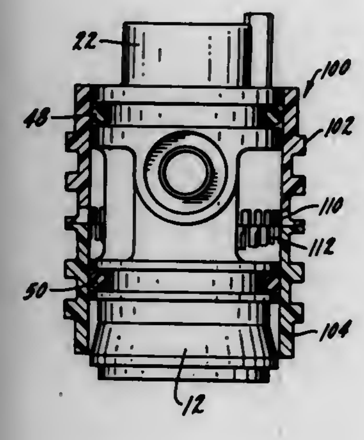
Lawrence J. Zajac, Thousand Oaks, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.
Filed Dec. 14, 1972, Ser. No. 315,038
Int. Cl. F16k *19/00*
U.S. Cl. 137—604 **7 Claims**



A fluid injection system for uniformly mixing gases comprising a primary gas conduit; and a plurality of banks of injector tubes with each of said tubes formed with a plurality of radial openings communicating the interior of said tubes with the interior of said conduit, said tubes extending transversely across said conduit with the tubes of each of said banks extending perpendicular to the tubes of each adjacent bank and having the number of tubes in each bank and the size and spacing of said tubes determined so as to provide the maximum tube area possible while maintaining a predetermined minimum Reynolds number of primary gas flowing through said primary gas conduit and ensuring sufficient cooling of said tubes to maintain structural integrity.

3,835,887
VALVE CONSTRUCTION WITH WATER MODULATION

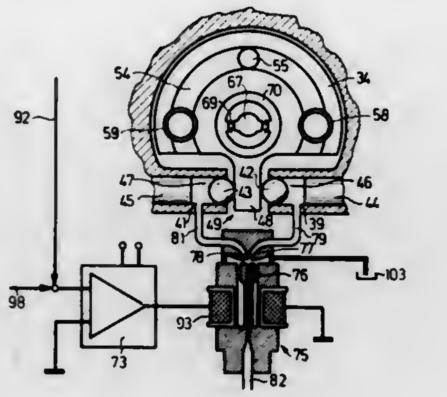
Paul A. Mongerson, Elyria, and Alfred M. Moen, Grafton, both of Ohio, assignors to Stanadyne, Inc., Windsor, Conn., by said Mongerson
Continuation-in-part of Ser. No. 167,239, July 29, 1971. This application Feb. 7, 1973, Ser. No. 330,445
Int. Cl. F16k *11/07*
U.S. Cl. 137—625.41 **5 Claims**



A mixing valve including a body member having inlet passages terminating on the exterior thereof in spaced relation, one from another. A handle member is movable on the body member and defines a mixing chamber. The handle member and body member cooperate to modulate the fluid passing to the mixing chamber to provide a greater degree of handle rotation in the comfort zone.

3,835,888
ELECTRO HYDRAULIC SERVO CONTROL VALVE

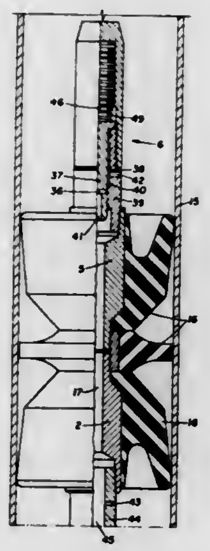
Volkmar Leutner, Hemmingen, and Roman Romes, Friolzheim, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Nov. 3, 1972, Ser. No. 303,634
Claims priority, application Germany, Dec. 7, 1971, 2160490; Dec. 7, 1971, 2160488; Dec. 7, 1971, 2160489
Int. Cl. F15b *13/043*
U.S. Cl. 137—625.61 **16 Claims**



An electro hydraulic servo valve has a valve slide plate mounted in a housing for angular movement between positions in which inlet and outlet conduits and consumer conduits are connected and disconnected. The permanent magnet of a transmitter turns with the valve slide plate and cooperates with flux responsive elements so that a first signal representing the position of the valve slide plate is generated, and supplied to a first input of a differential amplifier whose second input receives a second signal representing a desired position of the valve slide plate. The differential amplifier forms a differential signal representing the difference between the desired and actual positions which is supplied to the electric input of an electro fluidic transducer whose fluidic output controls a hydraulic setting motor to move the valve slide plate from the actual position to the desired position.

3,835,889
EXPANDABLE PIPELINE PLUG

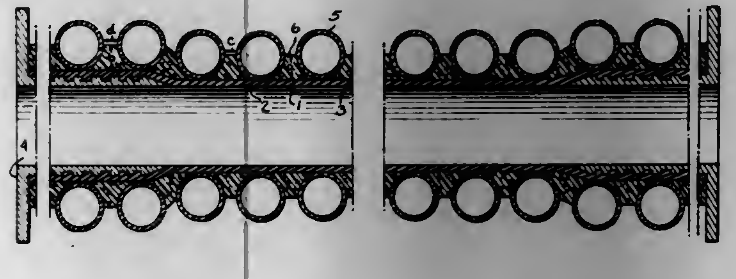
Walter E. Hyde, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.
Filed Mar. 31, 1972, Ser. No. 240,071
Int. Cl. F16l *55/12*
U.S. Cl. 138—93 **9 Claims**



A pipeline leak locator plug having an expanding seal means responsive to hydrostatic pressure differential, a seal body with elastomeric sealing cups and a pair of hydrostatically operated valves; one valve being positioned between the expanding seal means and the seal body and the other valve positioned on the opposite side of the seal body. The valves operate in response to hydrostatic pressure in the pipeline and cooperate to allow the leak locator plug to be flowed down the line to a desired position and the expanding seal means to be activated, thereby dividing the section of pipeline into two fluidically sealed units whereby the location of a leak in the pipeline can be determined.

3,835,890
BUOYANT LIQUID-CONVEYING HOSE

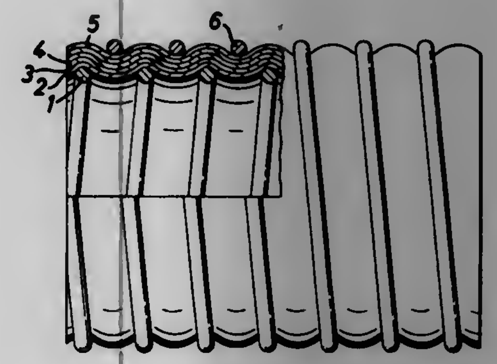
Angelo S. Miceli, Detroit, Mich., assignor to Uniroyal, Inc., New York, N.Y.
Filed Mar. 29, 1973, Ser. No. 346,207
Int. Cl. F16l *11/12*
U.S. Cl. 138—103 **6 Claims**



A buoyant liquid-conveying hose which minimizes loss in buoyancy due to physical damage of the buoyancy material and which minimizes any decrease in the volume of the buoyancy material caused by ambient conditions of temperature and external pressure. The hose comprises a hose body and a plurality of rigid buoyant annuluses and a plurality of resilient buoyant spacer annuluses of closed cell expanded plastic material between the rigid annuluses and adherent to the hose body and having lateral surfaces complementary to the surfaces of the rigid annuluses.

3,835,891
FLEXIBLE HOSE

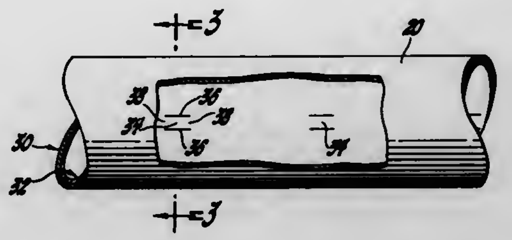
Joseph White, Manchester, England, assignor to Compoflex Company Limited, Lancashire, England
Filed May 20, 1971, Ser. No. 145,392
Claim priority, application Great Britain, June 2, 1970, 26636/70
Int. Cl. F16l *11/10*
U.S. Cl. 138—125 **8 Claims**



The invention relates to a hose or tube which has an inner lining which consists of an inner helical wire with at least one layer of fluorinated ethylene propylene copolymer superposed thereon. The inner wire is preferably coated with fluorinated ethylene propylene copolymer of polytetrafluoroethylene. For the conveyance of chemicals layers of polypropylene fabric and polypropylene film are laid on the copolymer and for the conveyance of high temperature substances asbestos cloth and polypropylene fabric. The whole is encased in an outer cover coated with PVC and surrounded by wire.

3,835,892
DOUBLE WALL EXHAUST PIPE

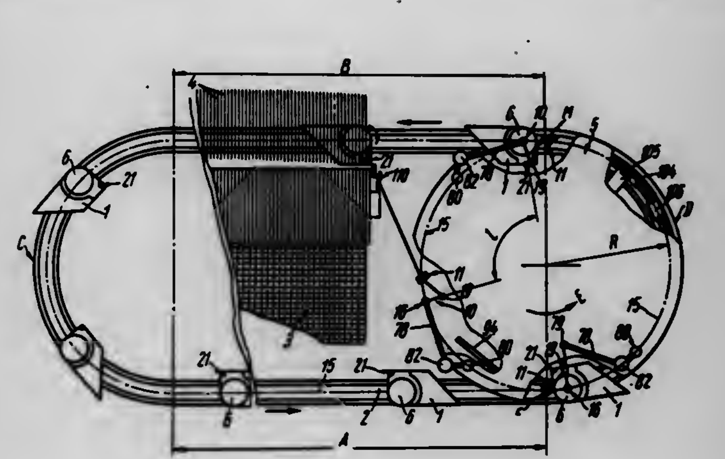
Robert C. Keller, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 24, 1972, Ser. No. 309,421
Int. Cl. F16l *9/18*
U.S. Cl. 138—178 **2 Claims**



A double wall exhaust pipe comprising inner and outer conduits includes a plurality of inwardly lanced strips on the inner conduit which are reformed to their original position. The lanced strips yield upon pressure buildup between the conduits to allow pressure venting while maintaining a double wall thickness resistance to corrosion.

3,835,893
DEVICE FOR WINDING WEFT THREAD ON THE SPOOLS OF WEFT CARRIERS IN TRAVELLING WAVE LOOMS

Alexandr Lvovich Galperin, ulitsa Moldagulovoi, 10, korpus 3, kv. 166; Albert Semenovich Serebryannikov, ulitsa Krasikova 3, korpus 2, kv. 63; Alexandr Alexandrovich Zabotin, Profsojuznaya ulitsa, 96 kv. 85; Eduard Arshakovich Onikov, ulitsa Panferova 5, korpus 2, kv. 106, all of Moscow; Vladimir Iosifovich Lukoshkov, Kooperativnaya ulitsa, 19, kv. 33, Shuya Ivanovskoi Oblasti; Valeryan Petrovich Lileev, ulitsa Nagornaya 46/48, korpus 20, kv. 2, Moscow; Evgeny Dmitrievich Loschilin, Kashirskoe shosse, 36, kv. 87, Domodedovo Moskovskoi Oblasti; Zinovy Yakovlevich Rutkevich, Medvedkovo, 8 kvartal, korpus 18, kv. 21, Moscow; Boris Alexandrovich Sakharov, ulitsa Krzhizhanovskogo, 24/35, korpus 6, kv. 404, Moscow, and Roman Antolievich German, ulitsa Davydkovskaya, 30, kv. 50, Moscow, all of U.S.S.R.
Filed July 2, 1973, Ser. No. 375,862
Int. Cl. D03d *47/26;* **D03j** *1/12*
U.S. Cl. 139—12 **10 Claims**

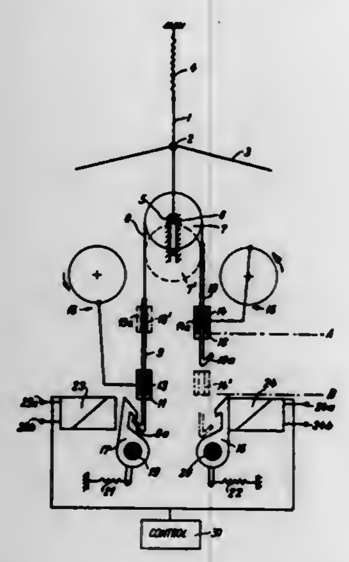


The device for winding weft thread on the spools of weft carriers is intended for use in travelling wave looms, wherein the weft carriers are driven by an endless chain conveyor.

In the device, employed as the winding means is a rotatable hollow tube mounted in a rotary plate and carrying a thread guide whose outlet hole is located within the weft carrier at the level of the spool. Rotation of both the hollow tube and the plate, is imparted from the main shaft of the loom. The chain conveyor that moves the weft carriers is driven by U-shaped on the rotary plate. After winding the weft thread on the spools the hollow tube with the thread guide is stopped in a position, wherein the weft thread is laid into the thread tensioner of the weft carrier, moving towards the shed of the loom, and then into a weft end grip arranged on the plate, whereupon the weft thread is cut off near the thread tensioner. This enables a continuous control of the weft thread position and the cut-off weft end to be reliably gripped.

3,835,894
APPARATUS FOR MOVING THREAD GUIDE DEVICES OF TEXTILE MACHINES

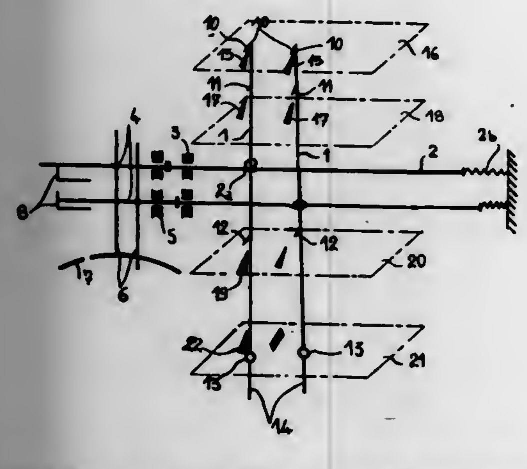
Francisco Speich, Frick, Switzerland, assignor to Jakob Muller, Frick, Germany
Filed Jan. 12, 1973, Ser. No. 323,211
Claims priority, application Switzerland, Jan. 25, 1972, 1095/72
Int. Cl. D03c *13/00, 3/20*
U.S. Cl. 139—55 **7 Claims**



An apparatus for moving thread guide devices of textile machines wherein two traction elements are provided which move to-and-fro in a translatory fashion in opposition to one another between two terminal positions, these traction elements being coupled with one another by a connection element and via the latter acting upon the thread guide devices. A stationary retaining or holding element is associated with each traction element and each such retaining element selectively retains the associated traction element in one terminal position in accordance with a control program.

3,835,895
LOOM JACQUARDS OF THE DOUBLE-LIFT TYPE

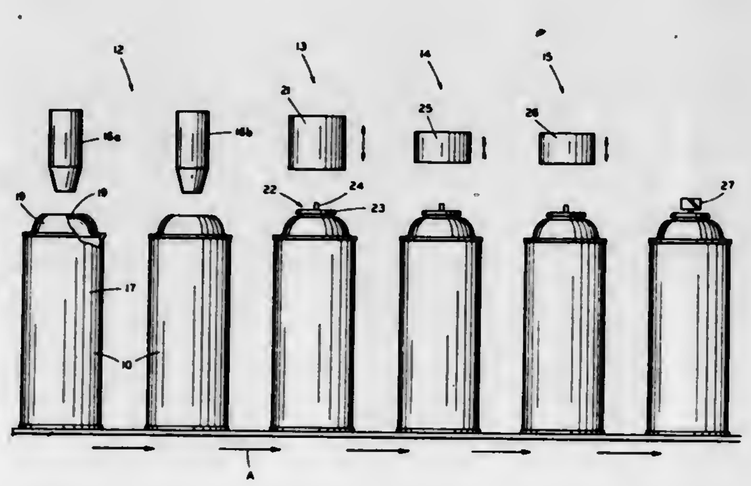
Dario Bassi, Venissieux, France, assignor to Verdol S.A., Caluire (Rhone), France
Filed Mar. 26, 1973, Ser. No. 344,825
Claims priority, application France, Apr. 11, 1972, 72.13495
Int. Cl. D03c *3/06*
U.S. Cl. 139—65 **4 Claims**



In a double-lift jacquard with two superposed movable knife frames and a lower stationary open-shed frame, each of the double hooks comprises a single substantially straight rod-like branch rotatable about its axis; two superposed main beaks each cooperating with one of the movable frames under control of the needle associated with the hook, these main beaks being directed substantially at 90° from each other about the axis of the branch in such manner that when one main beak is caught by a transverse knife of the corresponding movable frame the other main beak is brought by rotation of the hook about the axis of the branch, to an ineffective lateral position at which it cannot be caught by the other movable frame; and a lower open-shed supporting beak adapted to cooperate either with the stationary open-shed frame at the raised position of the hook if same is to remain raised at the next stroke of the loom, or with a transverse bar of a stationary guiding and supporting grid disposed below the open-shed frame, the said open-shed supporting beak being directed along the bissectrix of the main beaks about the axis of the branch in such manner that when it supports the hook the main beaks thereof are at 45° to the knives of the movable frames and may be caught by any of them under control of the needle.

3,835,896
METHOD OF FILLING AEROSOL SPRAY CANS

Thomas J. Smrt, 4N671 Rt. 59, Bartlett, Ill. 60103
Filed Jan. 2, 1973, Ser. No. 320,148
Int. Cl. B65b *1/04, 3/04*
U.S. Cl. 141—3 **9 Claims**

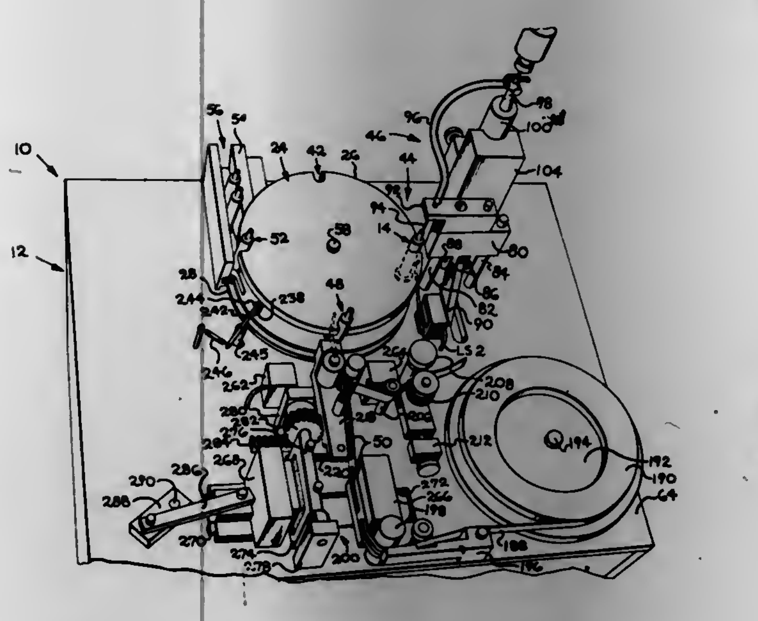


A method of filling aerosol spray cans with paint or other marking material so that the can is able to spray marking material in a well-defined stripe having substantially sharp edges. The can is filled with paint, capped with a valve, and pressurized with aerosol propellant in the conventional manner. The valve is then opened to release some of the propellant but substantially no marking material. The time of opening the valve varies depending on the type of marking material in the can, but the time generally is between about 1 to 60 seconds and usually between about 5 to 25 seconds.

3,835,897
APPARATUS FOR FILLING AND LABELING CONTAINERS

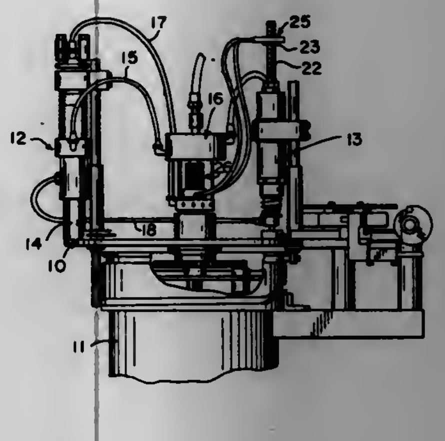
Larry C. Gess, 1255 Fir Dr., Mich. 43612
Filed Oct. 18, 1971, Ser. No. 190,210
Int. Cl. B65b *3/12, 43/50;* **B65c** *3/14*
U.S. Cl. 141—98 **12 Claims**

This invention relates to apparatus for filling and labeling medicinal syringes. The apparatus includes a pump arrangement for filling individual syringes automatically and includes a mechanical adjustment for easily changing the amount of medicinal liquid fed to each syringe. The individual syringes are then labeled with appropriate indicia showing the contents. The labels are printed at the same time with the same apparatus to assure that the proper labels are applied to the proper syringes. The labels are fed into the path of the syringes and wrap around the syringe barrels with the free ends of the labels then pressed together behind the syringes.



3,835,898
REMOTELY ADJUSTABLE FILLING HEAD

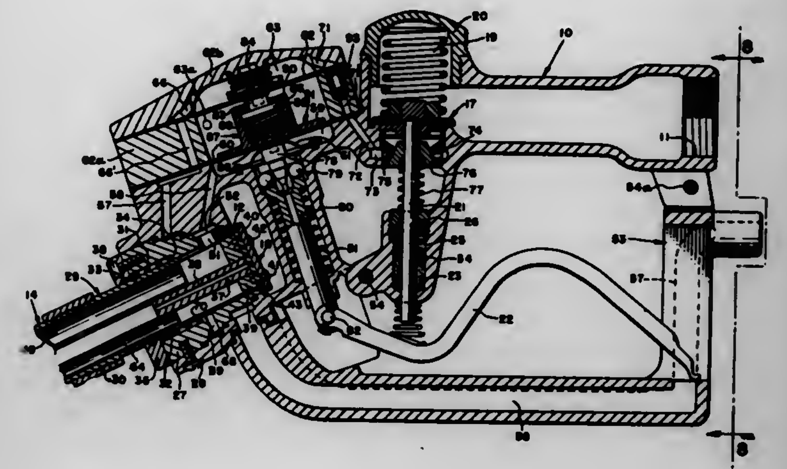
George E. Leonard, Davenport, Iowa, assignor to The Kartridge Pak Co., Davenport, Iowa
Filed Nov. 13, 1972, Ser. No. 306,017
Int. Cl. B65b *43/50*
U.S. Cl. 141—152 **12 Claims**



Apparatus for remote adjustment of a filling head on a rotary filling machine to vary the quantity of material to be metered into a container during a filling operation. The apparatus includes a pneumatically operated ratchet nut on the filling head connected through a rotary union on the filling machine to a control panel for generating air signals to incrementally drive the ratchet nut.

3,835,899
LIQUID DISPENSING NOZZLE

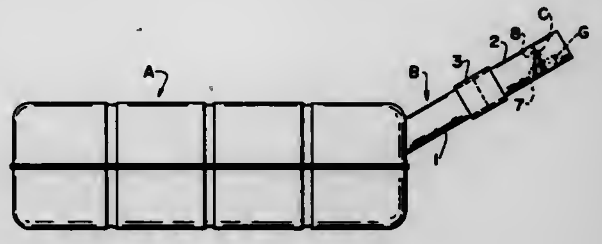
Charles A. Holder, Jr., 1434 Castleberry, Cincinnati, Ohio 45223
Continuation of Ser. No. 68,154, Aug. 31, 1970, abandoned.
This application Nov. 13, 1972, Ser. No. 306,051
Int. Cl. B65b *3/18*
U.S. Cl. 141—214 **26 Claims**



A fuel dispensing nozzle has a sealing member slidably supported on a spout of the nozzle to seal a tank in which the spout is disposed. The nozzle has an arrangement to recover the vapors from the tank being filled. When the vapor pressure in the tank exceeds a predetermined pressure, fuel flow to the tank is stopped. The fuel flow also is stopped when the liquid in the tank exceeds a predetermined level.

3,835,900
NON-LEAK SAFETY VALVE IN FILLING LINE FOR VEHICLE GASOLINE TANK

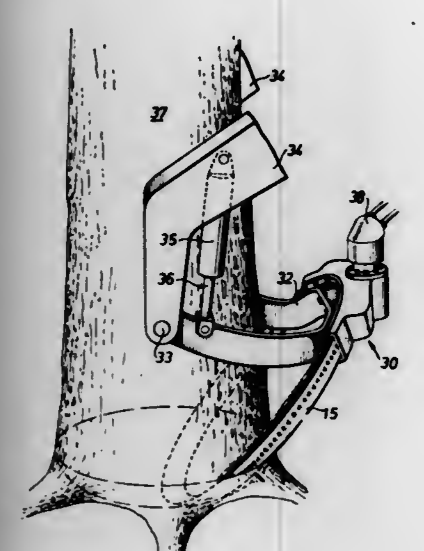
Thomas A. Godbier, 22475 Cameron St., Castro Valley, Calif. 94546
Filed Feb. 27, 1973, Ser. No. 336,252
Int. Cl. B65d *29/02*
U.S. Cl. 141—348 **2 Claims**



A non-leak safety valve placed in the filling line for a vehicle gasoline tank and comprising a flexible sealing disc that normally extends across the filling line for a vehicle gasoline tank to prevent the escape of gasoline from the tank should the vehicle tip over due to an accident. Novel means is provided for permitting the upper portion of the flexible sealing disc to be bent inwardly by the delivery nozzle of a gasoline pump hose for opening the valve when an operator inserts the end of the nozzle into the tank filling line and presses the nozzle against the flexible sealing disc. Novel means is also provided for guiding the nozzle as it enters the tank filling line so that it will only contact the upper portion of the flexible disc for swinging it inwardly. Spring means returns the disc to closed position when the nozzle is retracted.

3,835,901
TREE FELLING DEVICE

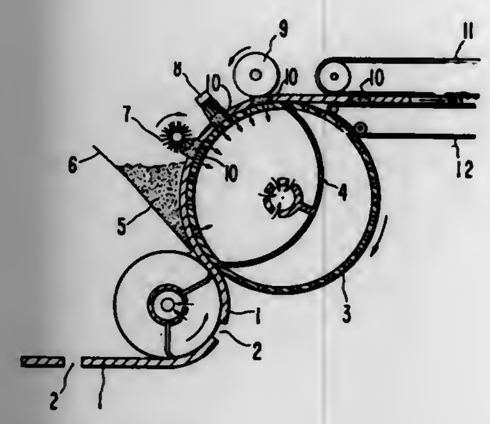
Karl-Erik A. Jonsson, Floraplan 14, 802 28 Gavle, Sweden
Filed Nov. 13, 1973, Ser. No. 415,395
Claims priority, application Sweden, Dec. 11, 1972, 16099/72
Int. Cl. A01g *23/08*
U.S. Cl. 144—34 R **9 Claims**



A rotary saw ring formed as an annular segment of a spherical bowl and adapted to be swung around the centre of an imagined sphere, in which said segment ring is included.

3,835,902
METHOD OF COMPOSING WIDE CONTINUOUS BANDS OF VENEER

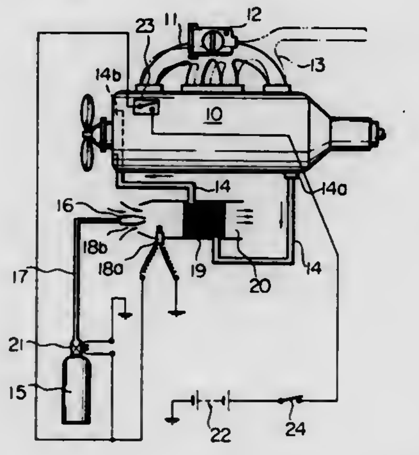
Armin Elmendorf, Palo Alto, Calif., assignor to Elmendorf Research, Inc., Palo Alto, Calif.
Filed Jan. 26, 1973, Ser. No. 326,627
Int. Cl. B27g *11/00*
U.S. Cl. 144—310 B **13 Claims**



A method of composing veneer strips to form a continuous band in which proximal edges of adjacent pairs of strips may not be parallel. The strips are moved along a predetermined path and are separated to present gaps therebetween. The gaps are filled with a filler comprised of wood particles coated with a binder so that the mass of particles projects outwardly from at least one side of each gap. The particle mass in each gap is compacted under heat and pressure to the same thickness as the adjacent strips so that the filler is bonded to the edges of the strips. A flash of filler is formed on and is bonded to the surface of each adjacent strip at the edge of the strip to increase the connection between the filler and the strip. In a preferred embodiment of the invention, the particle masses are directed into the gaps by suction.

3,835,903
APPARATUS FOR WARMING COOLING AND/OR LUBRICATING MEDIA OF INTERNAL COMBUSTION ENGINES

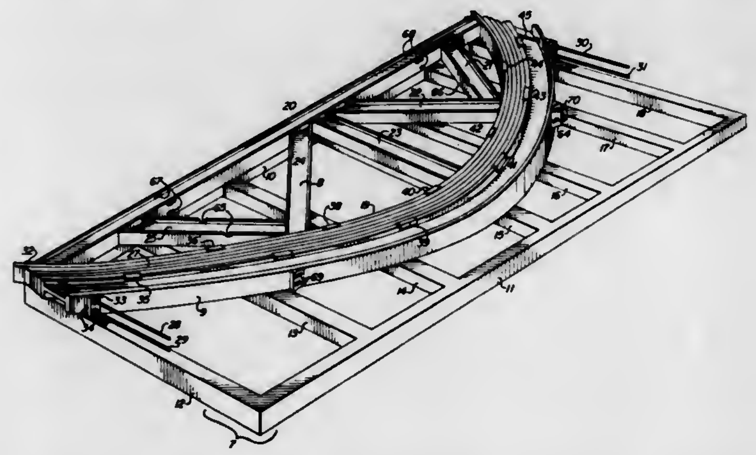
Kenji Masaki, Yokosuka, and Hiroshi Nishimura, Kawasaki, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama City, Japan
Filed Apr. 29, 1971, Ser. No. 138,520
Claims priority, application Japan, May 11, 1970, 45-39250
Int. Cl. B60h *3/04*
U.S. Cl. 165—23 **21 Claims**



An apparatus is provided for positively warming a cooling medium and/or lubricating medium for gasoline-powered internal combustion engines of motor vehicles thereby to reduce concentrations of unburned hydrocarbons and carbon-monoxides in the engine exhaust gases emitted when the engine is running cold or being warmed up. The apparatus includes a combustor for combusting a supplied fuel into hot gases and a heat exchanging means which is in contact with portions of the cooling and/or lubricating media. The combustor is controlled by an electric control means which is responsive to a variation in the temperature of the cooling or lubricating medium so that the hot gases are produced therein when the temperature of the medium is lower than a level which is predetermined empirically in consideration of the concentrations of the unburned hydrocarbons and carbon-monoxides which would otherwise be emitted before the temperature of the cooling or lubricating media reaches a satisfactory operating temperature. The fuel to be supplied to the combustor may be a liquefied fuel gas stored in an independent container or a usual fuel supplied from a fuel circuit for the engine.

3,835,904
APPARATUS FOR LAMINATING WOODEN STRIPS

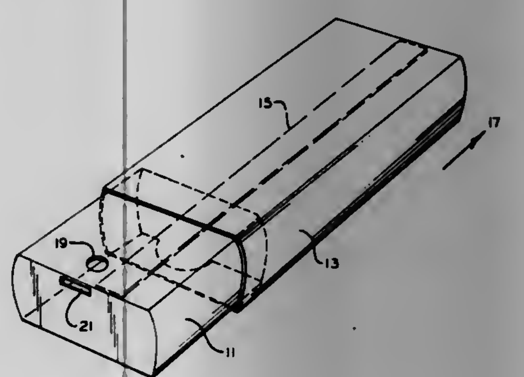
John S. Sumner, 728 N. Sawtelle Ave., Tucson, Ariz. 85716
Filed Apr. 5, 1973, Ser. No. 348,334
Int. Cl. B27g *11/00;* **B27h** *1/00*
U.S. Cl. 144—313 **16 Claims**



An apparatus for forming laminated beams by pressing freshly glued strips against a rigid frame or elastic beam by an elastic steel beam. The elastic steel beam is provided with a radius of curvature somewhat different from that of the rigid frame so that when the beam is pressed against the laminated strips a bending movement is present over the full length of the beam, which bending movement produces a substantially uniform pressure against the laminated strips. Pressure blocks are provided which are adjustable in position along the length of the laminated strips.

3,835,905
CAMERA CASE FOR A POCKET CAMERA

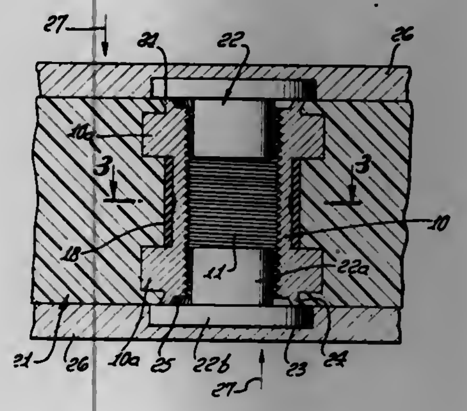
Harry Spruyt, New York, N.Y., and Louis S. Hoffman, Morristown, N.J., assignors to Colorcraft Corporation, Durham, N.C.
Filed July 6, 1973, Ser. No. 376,939
Int. Cl. A45c *11/38*
U.S. Cl. 150—52 J **10 Claims**



A camera case for a pocket camera is formed of top and bottom vinyl covers with the top part of the cover sized so that it fits snugly on the end of the camera. The top and bottom are attached to each other with an elastic band which is heat sealed into each thereby permitting removal of the bottom portion when it is desired to use the camera.

3,835,906
PLASTIC SLEEVE ENCAPSULATED FASTENER LOCKING INSERT AND ASSEMBLY

Robert W. Dietlein, 2904 Harmony Pl., La Crescenta, Calif. 91214
Filed July 17, 1972, Ser. No. 272,284
Int. Cl. F16b *39/284*
U.S. Cl. 151—21 B **5 Claims**



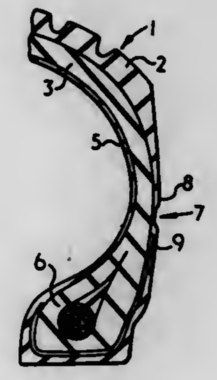
An insert assembly, for receiving and retaining a screw fastener, is adapted to be mounted by structure closely enveloping the assembly, and comprises:

a. a metallic insert sleeve having an interior thread to receive the fastener thread, the sleeve having a wall portion deformed toward the bore interior so that the sleeve thread develops frictional interference with the fastener thread, and

b. a plastic jacket fitting closely about the sleeve and over the deformed portion so as to provide space therebetween for resilient outward expansion of the deformed wall portion in response to advancing reception of the fastener thread into the sleeve thread and despite close envelopment of the jacket by the retention structure.

3,835,907
PNEUMATIC TIRES

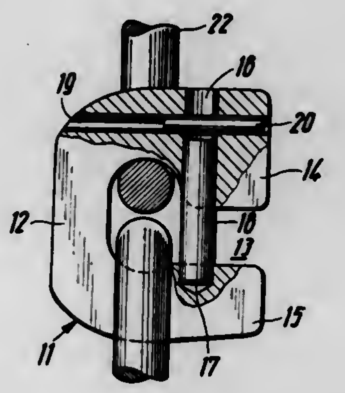
Albert A. Bishton, Birmingham, England, assignor to The Dunlop Company Limited, London, England
Continuation of Ser. No. 837,588, June 30, 1969, abandoned. This application Sept. 29, 1971, Ser. No. 184,928
Claims priority, application Great Britain, July 11, 1968, 33012/68
Int. Cl. B60c *19/06*
U.S. Cl. 152—153 **7 Claims**



A tubeless tire, especially for an aircraft provided with venting means in the sidewall and/or bead regions comprising one or more substantially continuous circumferential grooves of a depth so as to leave only a thin layer of thickness 1mm, or less of rubber externally of the reinforcing cords of the tire, each groove being provided with a plurality of penetrations each of a depth of about 2–3 cords.

3,835,908
LINK ELEMENT FOR CHAINS

Hansjorg Rieger, Langerstrasse 90, 708 Aalen, Wurttemberg, and Erhard Alfred Weidler, Jahnstrasse 32, 7084 Unterkochen/Wurttemberg, Germany
Filed Feb. 13, 1973, Ser. No. 332,070
Claims priority, application Germany, Feb. 18, 1972, 2208509
Int. Cl. B60c *27/06*
U.S. Cl. 152—243 **4 Claims**



The invention relates to a link element for chains, in particular tire chains, consisting of an open substantially C-shaped body member, of which the sections, defining an insert slot for the joining elements of chain strands to be coupled together, form aligned openings for receiving a locking element for bridging the insert slot.

3,835,909

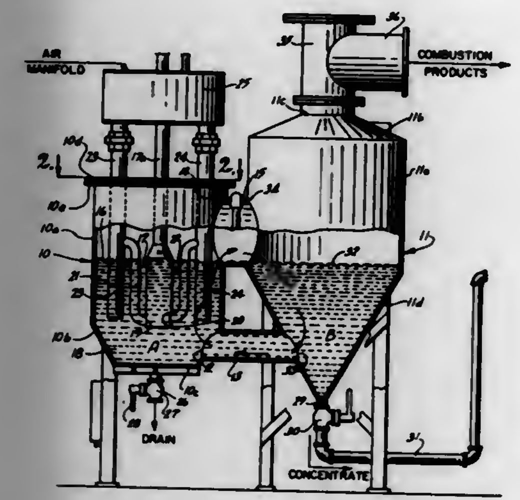
METHODS AND APPARATUS FOR SUBMERGED COMBUSTION (WITH AIR POLLUTION CONTROL)

Clarence J. Douglas; Walter L. Young, and Jack H. Phillips, all of Tulsa, Okla., assignors to Ozark-Mahoning Company, Tulsa, Okla.

Filed May 15, 1972, Ser. No. 253,541

Int. Cl. B01d *1/14*; **F24h** *1/20*; **B01d** *1/00*; **F02m** *25/10*; **B01d** *47/02*

U.S. Cl. 159—16 A **9 Claims**



Improvements in submerged combustion evaporators and heaters particularly adapted to the heating and evaporation of various heat sensitive solutions, including both methods and apparatus therefor;

Improved apparatus and methods for the discharge of products of combustion from the combustion chamber of a submerged burner into and through the body of a heat-sensitive solution, said discharge handled in such manner as to reduce air pollution resulting from the practice of the submerged combustion process with respect to the given solution, as well as improve the effectiveness of the burner, per se, and the submerged combustion process.

3,835,910

LIQUID EVAPORATOR AND OPERATION PROCESS THEREFOR

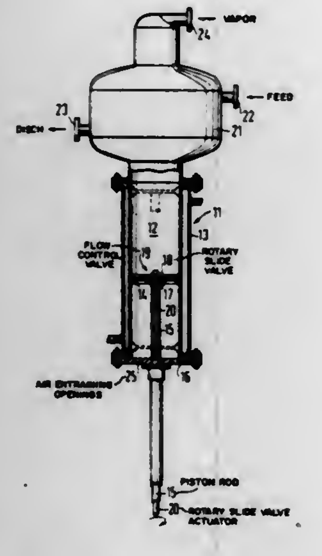
Helmut Westphal, Offenbach am Main, Germany, assignor to Georg Westphal Ing. KG, Offenbach am Main, Germany

Filed Dec. 14, 1972, Ser. No. 314,924

Claims priority, application Germany, Dec. 17, 1971, 2162838

Int. Cl. C10b *43/00*; **B01b; B01d** *1/100, 11/00*

U.S. Cl. 159—23 **2 Claims**



Known liquid evaporator vessels are provided with removing means for removing depositions from the inner sides of the walls of the vessel. The removing means do not directly contact the walls so that they can only delay the formation of depositions on the walls.

It is the object of this invention to provide improved removing means for removing solid depositions from the inner sides of the walls of the evaporator vessel.

3,835,911

ELECTRICALLY OPERABLE DRIVE ARRANGEMENT FOR VENETIAN BLINDS

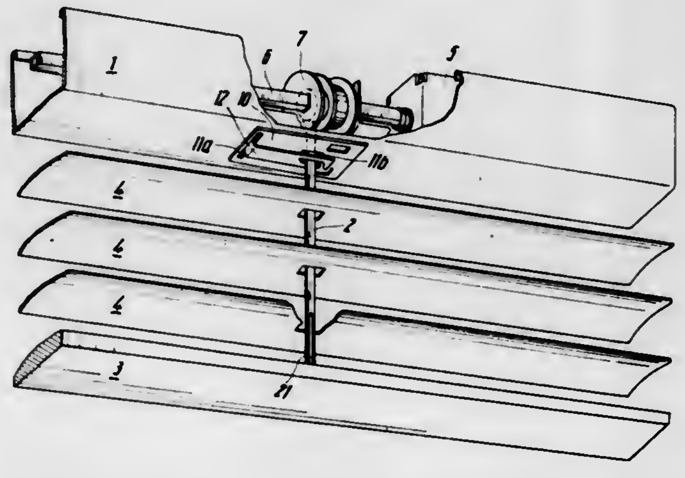
Wilfried Horst, Oldenburg; Heiko Coldewey, Jeddeloh; Mario Ammazzalorso, Wardenburg, and Emil Schuppler, Oldenburg, all of Germany, assignors to Firma Justin Huppe, Oldenburg, Germany

Filed Dec. 4, 1972, Ser. No. 311,762

Claims priority, application Germany, Jan. 13, 1972, 7201069[U]

Int. Cl. E06b *9/30*

U.S. Cl. 160—168 **7 Claims**



The invention relates to an electrically operable drive arrangement for venetian blinds with at least one draw tape which tape is wound up or down by a motor located in the header. Switches in the header are operated by a feeler which moves respectively perpendicular to or parallel to the tape as the tape moves from its normal tangential position on the take-up roller upon bottoming of the blind, or when the blind reaches fully raised position.

3,835,912

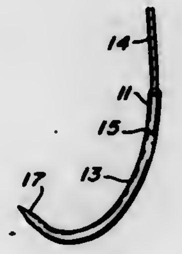
METHOD OF JOINING A FILAMENT TO A METAL ROD

Paul A. Kristensen, St. James, and William F. Simon, Duluth, both of Minn., assignors to S.K.S. Limited, Barbados, British W. Indies

Filed June 25, 1973, Ser. No. 373,399

Int. Cl. B21g *3/18*

U.S. Cl. 163—5 **12 Claims**



A metal tube is butted against a metal rod. The rod and tube are welded together using a laser energy source. A filament is inserted into the tube and secured therein. The rod may then be sharpened to serve as a needle.

3,835,913

INVESTMENT CASTING

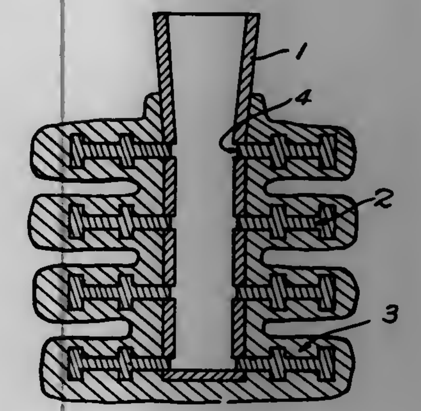
William Jacob Vandemark, Strongville, and Michael Stuart Wood, Olmsted Falls, both of Ohio, assignors to Foseco International Limited, Birmingham, England

Filed Apr. 21, 1972, Ser. No. 246,204

Claims priority, application Great Britain, Apr. 22, 1971, 10859/71

Int. Cl. B22c *9/02*

U.S. Cl. 164—35 **1 Claim**



In investment casting part or all of the usual central wax sump and feeder is replaced by a refractory sleeve of heat-insulating or exothermic material, into which one or more wax patterns are fitted.

3,835,914

PROCESS FOR PRODUCING METALLIC ARTICLES BY ELECTROSLAG REMELTING

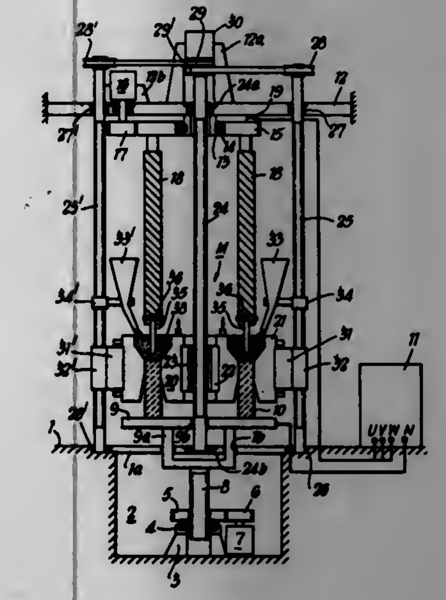
Akira Ujiie, Kobe, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 12, 1973, Ser. No. 331,707

Claims priority, application Japan, Mar. 1, 1972, 47-20563

Int. Cl. B22d *27/02*

U.S. Cl. 164—52 **4 Claims**



A method of forming a bath of molten slage for use in the production of metallic articles by an electroslag melting process which method comprises connecting non-consumable electrodes to the lower ends of metallic electrodes to be melted in the electroslag melting process, filling a mould to be used in the electroslag melting process with flux so that the lower ends, at least, of the non-consumable electrodes, are below the level of the flux and passing an electric current between adjacent ones of the non-consumable electrodes, whereby the flux is melted to form the bath of molten slag. Then, the non-consumable electrodes are disconnected from the metallic electrodes and the latter have their lower ends dipped into the molten slag pool and begin to become consumed.

3,835,915

ARRANGEMENT FOR USE IN MAKING SLAB INGOTS BY ELECTRIC SLAG-REFINING

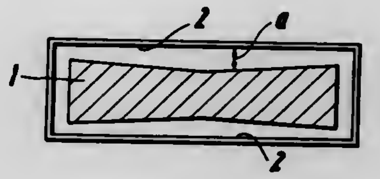
Wolfgang W. Holzgruber, Kapfenberg; Peter J. V. Machner, Leoben, and Ludwig Schwarz, Kapfenberg, all of Austria, assignors to Gebr. Bohler & Co. AG., Vienna, Kapfenberg, Austria

Filed Apr. 26, 1972, Ser. No. 247,576

Claims priority, application Germany, Aug. 30, 1971, 2143302

Int. Cl. B22d *27/02*

U.S. Cl. 164—252 **11 Claims**



The arrangement comprises an ingot mold having inside surfaces which define an elongated horizontal cross-section. The horizontal cross-section has a pair of long sides each of which has a central portion and outer portions. Fusible electrode means extend in said ingot mold and are horizontally spaced from said inside surfaces at said central portions by a larger distance than at said outer portions.

3,835,916

APPARATUS FOR ELECTROSLAG REMELTING TO PRODUCE TUBULAR BODIES

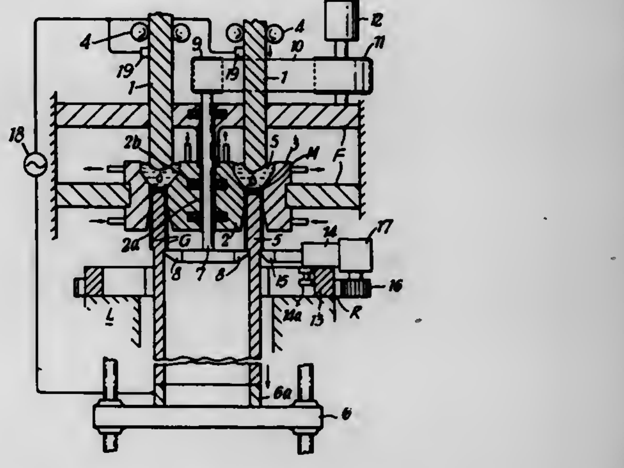
Akira Ujiie, Kobe, Japan, assignor to Mitsubishi Jukogyo Kabushik Kaisha, Tokyo, Japan

Filed Jan. 5, 1973, Ser. No. 321,305

Claims priority, application Japan, Jan. 17, 1972, 47-6215

Int. Cl. B22d *27/02*

U.S. Cl. 164—252 **7 Claims**



The invention relates to apparatus suitable for use in the production of metallic tubes in which slag, scale and irregularities on the inner and outer walls of the metallic tube are removed immediately after the metallic tube is formed. The apparatus comprises the following features:

1. a mould which comprises a core mould and an outer mould, the core mould and the outer mould being situated to delimit an annular space therebetween;
2. means for continuously feeding a plurality of metal electrodes into the annular space;
3. means for supplying an electric current to the metal electrodes to melt the electrodes and form a bath of molten metal in the annular space;
4. drawing means for continuously drawing from the mould a metallic tube as it is formed on cooling of the molten metal in the mould; and
5. cutting means for removing slag, scale and irregularities on the inner and preferably also the outer wall of the mecallic tube immediately after the metallic tube is withdrawn from the mould by the drawing means.

3,835,917

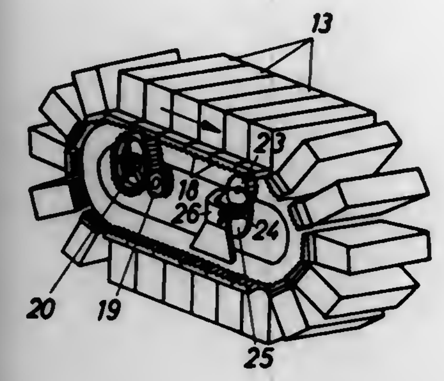
CONTINUOUS CASTING OF NON-FERROUS METALS

Ivan Gyongyos, Montana, Switzerland, assignor to Prolizenz AG, Chur, Switzerland

Continuation of Ser. No. 309,800, Nov. 27, 1972, abandoned. This application Mar. 1, 1974, Ser. No. 447,151

Int. Cl. B22d *11/06*

U.S. Cl. 164—279 **4 Claims**



A continuous casting machine is disclosed of the kind having a mold formed by a cooperating pair of endless sets of articulated mold blocks which are driven at the same speed so that over an advancing portion of their run they engage with each other and define between them a moving mold cavitiy. The advancing portion of the run of the blocks is straight and inclined to the horizontal at 45° or less. The blocks of the lower set move downwards as they leave the advancing portion of the run, and to prevent their weight from pulling apart the blocks occupying the advancing portion of the run, a brake is provided at the downstream end of the advancing portion of the run. The action of the brake opposes the pull exerted by the weight of the blocks leaving the advancing portion.

3,835,918

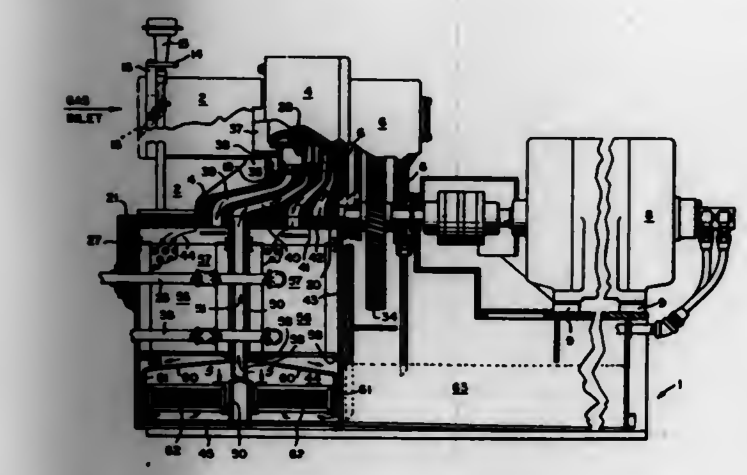
COMPRESSOR BASE AND INTERCOOLERS

Karol Pilarczyk, Loudonville, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Division of Ser. No. 44,034, June 8, 1970, Pat. No. 3,644,054. This application Nov. 29, 1971, Ser. No. 202,981

Int. Cl. F04d *29/58;* **F04c** *29/04;* **F04d** *17/08*

U.S. Cl. 165—47 **5 Claims**



A base containing a pair of identical heat exchangers, demisters and separators has rigidly mounted thereon a cast multi-stage compressor casing provided with integral air inlet and discharge passages in direct communication with corresponding passages in the top wall of the base for providing the intercooling between stages. Fluid passes through the intercoolers by moving downwardly through the heat exchangers, downwardly through restricted nozzles and reversely upwardly for separating condensation, upwardly through the demisters and through central partition walls forming central manifold chambers. The liquid connections for the intercoolers may be uncoupled at one end for sliding the intercoolers off shelves from the opposite end. A telescopic resilient coupling between the casing inlet to the rotor and an inlet housing rigidly coupled to a fluid supply will prevent transmission of forces therebetween. The base further mounts the drive structure for the compressor and carries an oil sump below the drive structure.

3,835,919

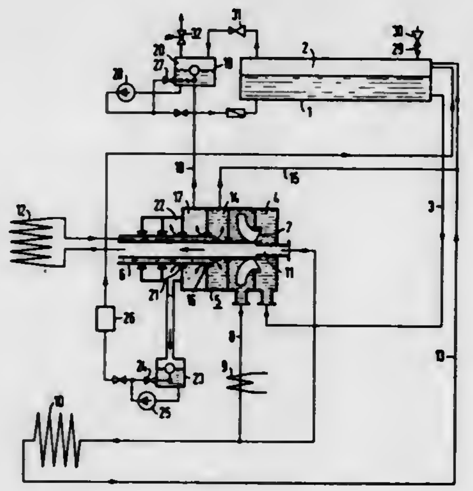
DEVICE FOR COOLING ELECTRIC MACHINES, PARTICULARLY TURBOGENERATORS

Dietrich Lambrecht, and Erich Weghaupt, both of Mulheim, Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mulheim (Ruhr), Germany

Filed Feb. 20, 1973, Ser. No. 333,703

Int. Cl. F24h *3/00*

U.S. Cl. 165—47 **5 Claims**



To cool turbogenerators having water-cooled stator and rotor windings and a cooling-water connecting head at the end of the rotor shaft, an intermediate tank containing a gas cushion maintained at a pressure slightly higher than atmospheric is interposed between a main water tank that is at elevated pressure and a water chamber that is at reduced pressure and is located adjacent a cooling-water discharge chamber. Water accumulating in the intermediate tank is fed back to the main water tank by a booster pump.

3,835,920

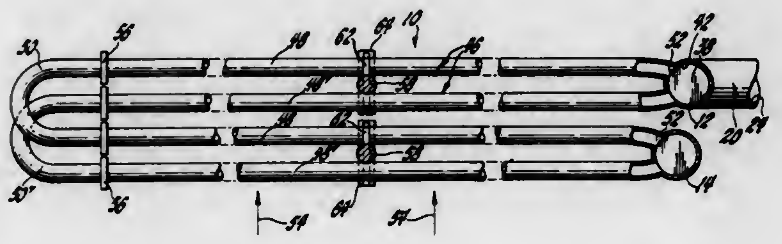
COMPACT FLUID HEAT EXCHANGER

James R. Mondt, Pontiac, Mich., assignor to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 228,207, Feb. 22, 1972, abandoned. This application July 27, 1972, Ser. No. 275,715

Int. Cl. F28f *7/00*

U.S. Cl. 165—81 **2 Claims**



A tubular type heat exchanger having two vertical header tanks with one of the header tanks having fluid inlet and outlet fittings on opposite ends. A partition separates the interior of this header tank into an inlet portion and an outlet portion. U-shaped tubes extend in a horizontal direction between the tanks, passing fluid from the inlet portion of the first tank to the interior of the second header tank and then back to the outlet portion of the first tank. Individual rectangular fins are brazed to the tubes in planar relation for spacing the tubes horizontally and vertically. The edges of the rectangular collar members are separated a predetermined distance from corresponding edges of adjacent collar members for preventing binding engagement therebetween when the collars thermally expand in response to exposure of fluid having a temperature of about 2,500°F. Vertical retention rods which extend adjacent the tubes have pins engaging the underside of the tubes for supporting the tubes vertically while simultaneously preventing distortion of the tubes in a horizontal direction normal to the tube's axis.

3,835,921

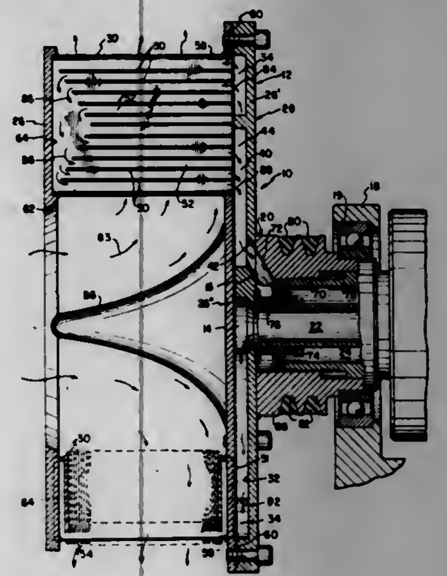
ROTATABLE HEAT EXCHANGER

George N. Faris, New York, N.Y., and Nicholas Howard Des Champs, Whippany, N.J., assignors to Donbar Development Corporation, New York, N.Y.

Filed Feb. 1, 1973, Ser. No. 328,686

Int. Cl. F28d *11/00;* **F28g** *5/00*

U.S. Cl. 165—86 **7 Claims**



A rotary heat exchanger including a plurality of hollow blades fixed to the periphery of a rotatably mounted member oriented to serve as means for providing forced circulation of ambient air in a radial direction upon rotation. Passages are formed in the rotatable member which receive the preheated or precooled thermal fluid from external equipment and distribute such fluid to the hollow blades within which the fluid circulates causing heat transfer to ambient fluid. The thermal fluid is then directed to collection passages in the rotatable member from which the fluid exits and returns to the external equipment. In one embodiment, the distribution and collection passages are formed to obtain a reduced pressure drop and a compact device. In another embodiment, a stator is provided enabling the heat exchanger to function as a pump for circulating the thermal fluid.

3,835,922

HEAT EXCHANGER FOR FLUENT MASSES

Rudolf Raths, Kilchberg, Switzerland, assignor to Chocolade fabriken Lindt & Sprungli Aktiengesellschaft, Kilchberg, Switzerland

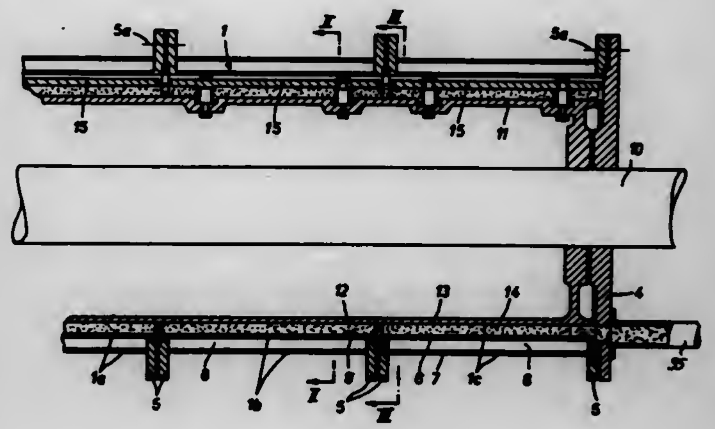
Filed Mar. 21, 1973, Ser. No. 343,406

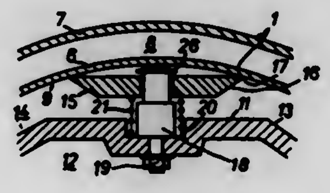
Claims priority, application Germany, Mar. 30, 1972, 2215536

Int. Cl. F28f *17/00;* **F28g** *3/12*

U.S. Cl. 165—94 **9 Claims**

A heat exchanger for flowable or fluent masses or media, comprising a hollow cylinder surrounded by a cooling or heating jacket, and a rotor coaxially arranged with respect to the hollow cylinder, rotatable relative thereto, and bounding together with the hollow cylinder a gap. The rotor carries scraper or stripper elements cooperating with the heat exchange surface of the hollow cylinder at the gap, these scraper elements serving to prevent the deposition of particles of the media at the surface. The scraper elements are constructed as plates arranged parallel to tangential planes of the rotor, these plates being radially displaceably guided at the rotor. The plates can be pressed by elastic means against the heat exchange surface of the hollow cylinder so that they bear thereagainst by means of two parallel lengthwise extending edges.





3,835,923

HEAT EXCHANGER FOR FLUID MEDIA HAVING UNEQUAL SURFACE CONDUCTANCES

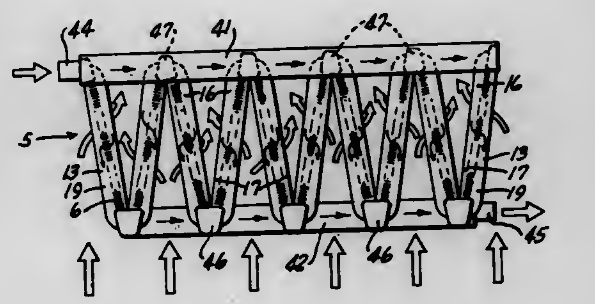
Ove Bertil Platell, Sigtuna, Sweden, assignor to Saab-Scania Aktiebolag, Linkoping, Sweden

Filed Sept. 10, 1973, Ser. No. 395,923

Claims priority, application Sweden, Sept. 13, 1972, 11835/72

Int. Cl. F28f *1/42*

U.S. Cl. 165—179 **5 Claims**



A heat exchanger module comprises thin heat transfer element strips, arranged in a row, parallel to one another, with their surfaces in opposing spaced apart relationship. Opposing spaced apart wall elements bridge adjacent strips, well inwardly of their ends, to cooperate with the strips in defining a row of short, laterally adjacent flow passages. Elongated inlet and outlet manifolds, each extending along the whole row of flow passages, cause internal fluid to flow through all of the flow passages in parallel. Portions of the strips outward of the wall elements comprise fins across which external fluid flows. Both fluids flow parallel to strip surfaces, hence pressure drops are low.

3,835,924

MARINE RISER ORIENTATION DEVICE

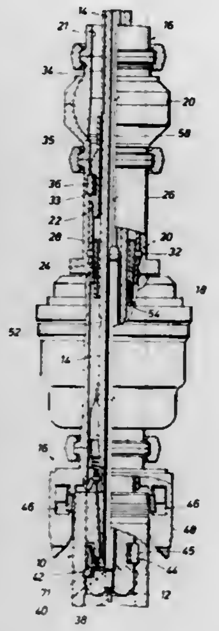
James C. Albers; Gerald E. Pfenning, both of New Orleans, La., and Adrian P. Anderson, The Hague, Netherlands, assignors to Shell Oil Company, New York, N.Y.

Filed Jan. 10, 1973, Ser. No. 322,596

Claims priority, application Great Britain, Jan. 10, 1972, 1112/72

Int. Cl. E21c *19/00*

U.S. Cl. 166—.5 **11 Claims**



A marine riser orientation device enables equipment to be landed on an underwater wellhead without the use of guidelines by providing a sleeve slidably mounted on a tubular orienting member, said sleeve having means to achieve the desired angular position with said tubular member and means to orient the sleeve with respect to the riser. Third means are provided on the tubular orienting member to achieve the desired angular relationship with respect to the underwater wellhead.

3,835,925

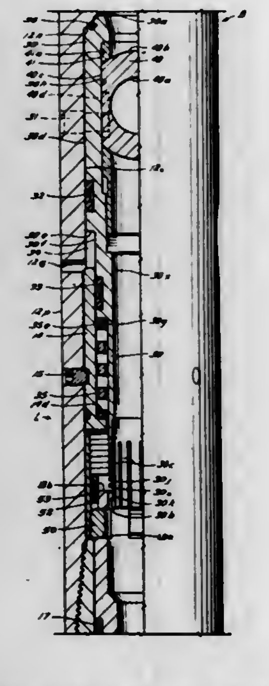
SURFACE CONTROLLED FLOAT VALVE AND INSIDE BLOWOUT PREVENTER DRILLING TOOL

James D. Mott, Houston, Tex., assignor to Hydril Company, Houston, Tex.

Filed May 14, 1973, Ser. No. 359,685

Int. Cl. E21b *43/12*

U.S. Cl. 166—73 **18 Claims**



A full bore opening rotatable ball valve inside blow-out preventer well tool adapted for connection in a well conduit to automatically control undesired flow in the bore therethrough and including a releasable locking means for holding the ball valve in open position when running the tool into the well bore and which is released by a predetermined manipulation of the drilling string to enable the well pressure responsive operation of the ball valve.

3,835,926

METHODS FOR SEALING SUBTERRANEAN EARTH FORMATIONS

Clarence C. Clement, Jr., Odessa, Tex., assignor to Halliburton Company, Duncan, Okla.

Filed Aug. 13, 1973, Ser. No. 387,881

Int. Cl. E21b *33/138*

U.S. Cl. 166—292 **11 Claims**

This invention relates to cement compositions having thixotropic properties and to squeeze cementing methods of sealing subterranean earth formations using such compositions.

3,835,927

PROCESS OF REMOVING SULFUR FROM FLUIDS

Bernardus A. Oude Alink; Robert R. Annand, and Derek Redmore, all of St. Louis, Mo., assignors to Petrolite Corporation, Wilmington, Del.

Division of Ser. No. 46,465, June 15, 1970, abandoned. This application June 22, 1972, Ser. No. 265,242

Int. Cl. E21b *43/00*

U.S. Cl. 166—304 **12 Claims**

A method of inhibiting, preventing, reducing, and/or reversing sulfur plugging which comprises treating sulfur-containing fluids in oil and gas wells, such as petroleum (and/or fluids containing a component which converts to sulfur), with a reactant compound capable of combining with sulfur to produce products which are soluble or dispersible in the sulfur-containing fluids. This process is illustrated by the use of olefins as the reactive compound, and more particularly by the use of an olefin capable of reacting with sulfur to form 1,2-dithiole-3-thiones.

3,835,928

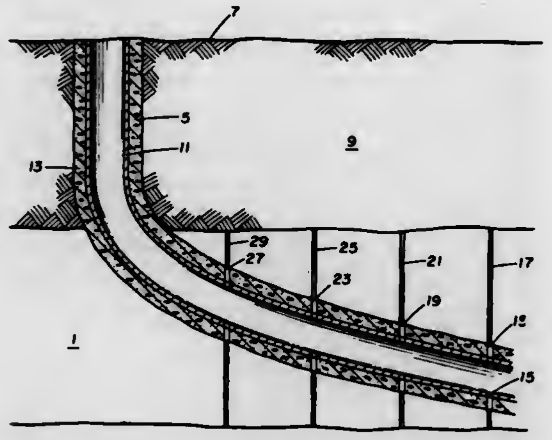
METHOD OF CREATING A PLURALITY OF FRACTURES FROM A DEVIATED WELL

Malcolm K. Strubhar, Irving, and Edwin E. Glenn, Jr., Dallas, both of Tex., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Aug. 20, 1973, Ser. No. 389,853

Int. Cl. E21b *43/26, 43/27*

U.S. Cl. 166—308 **5 Claims**



This specification discloses a method of forming from a deviated well a plurality of vertically disposed fractures spaced a substantial distance apart in a subterranean formation having a known preferred fracture orientation. A deviated well is provided which extends from the surface of the earth and penetrates the subterranean formation at an angle of at least 10° measured from the vertical. The well is oriented such that it penetrates the subterranean formation in a direction transversely of the preferred fracture orientation. A first fracture initiation point is formed to establish fluid communication between the interior of the well and the subterranean formation. Hydraulic pressure is applied through the first fracture initiation point to the subterranean formation to form and propagate a first vertically disposed fracture into the formation in the direction of the preferred fracture orientation. Thereafter, a second fracture initiation point is formed at a predetermined horizontal distance from the first fracture initiation point. The second fracture initiation point is isolated from fluid communication with the first fracture initiation point and hydraulic pressure is applied through the second point to the subterranean formation to form and propagate a second vertically disposed fracture into the formation in the direction of the preferred fracture orientation. This procedure may be repeated as desired to form from the deviated well other vertically disposed fractures which extend into the formation in the direction of the preferred fracture orientation.

3,835,929

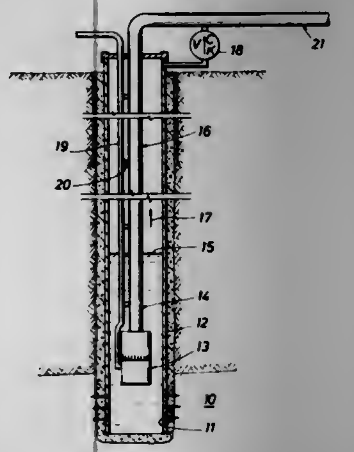
METHOD AND APPARATUS FOR PROTECTING ELECTRICAL CABLE FOR DOWNHOLE ELECTRICAL PUMP SERVICE

George O. Suman, Jr., Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Aug. 17, 1972, Ser. No. 281,575

Int. Cl. E21b *43/00, 33/03*

U.S. Cl. 166—315 **2 Claims**



Leak proof protection is provided for electrical cable used in supplying power to electrically driven pumps installed in subterranean wells by inserting the cable into length(s) of coiled tubing and including seal means at the lower end.

3,835,930

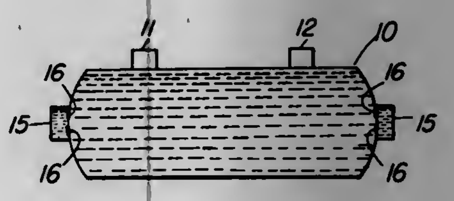
STORAGE AND TRANSPORT SYSTEM

Edward P. Denigan, Jr., Hopewell, and Donnell A. Ballard, Princeton, both of N.J., assignors to Oxirane Corporation, Princeton, N.J.

Filed May 30, 1973, Ser. No. 365,136

Int. Cl. A62c *35/54*

U.S. Cl. 169—66 **18 Claims**



System for reducing hazards in storing and transporting hazardous material. Container for material includes a chamber containing a phlegmatizer for the material. Chamber has a seal melting, rupturing or releasing at a temperature substantially below the self-accelerating decomposition temperature of the hazardous material, to release the phlegmatizer into the material.

3,835,931

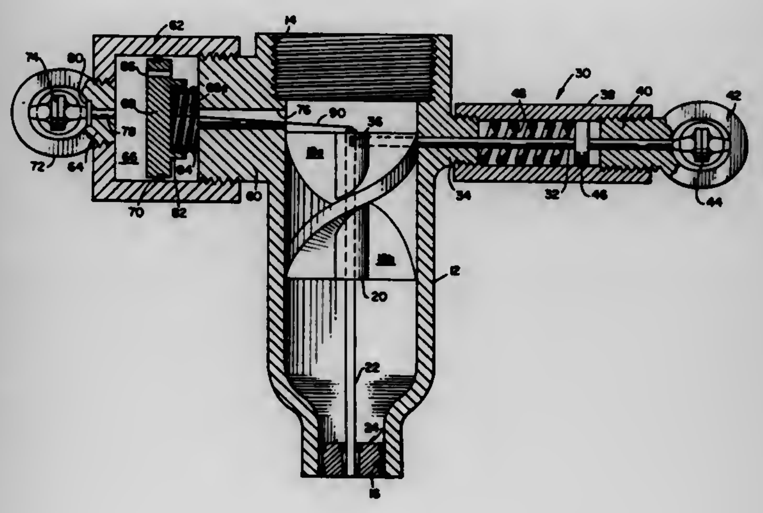
DISCHARGE HEAD AND FIRE PROTECTION SYSTEM UTILIZING SAME WHEREBY THE HEAD IS ACTUATABLE IN RESPONSE TO TWO SEPARATE TEMPERATURES

William L. Livingston, 283 Norwood St., Sharon, Mass. 02067

Continuation-in-part of Ser. No. 256,820, May 25, 1972, abandoned, which is a continuation of Ser. No. 160,715, July 8, 1971, abandoned. This application Nov. 2, 1973, Ser. No. 412,417

Int. Cl. A62c *37/08*

U.S. Cl. 169—70 **39 Claims**



A discharge head for use in a fire protection system wherein the head is normally closed and a fire responsive device is adapted to open same in response to a first predetermined fire condition. A second fire responsive device opens the head in response to a second predetermined fire condition and a control selectively controls the operation of the first and second fire responsive devices.

3,835,932

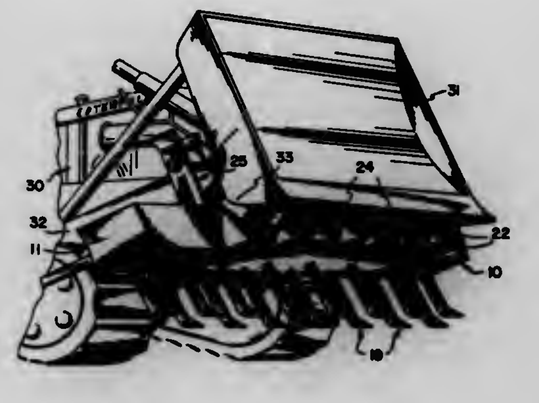
SCARIFIER-PULVERIZER

Donald R. Mitchell, 1937 W. 24th St., Apt. 6B, Emporia, Kans. 66801

Filed Oct. 27, 1972, Ser. No. 301,412

Int. Cl. A01b *49/02*

U.S. Cl. 172—197 **4 Claims**



A scarifying and pulverizing implement for mounting on earth-working equipment in which such implement has a plurality of adjustably mounted ripper teeth for penetrating the soil, an inclined front face for rolling and crushing the uplifted soil, and a plurality of spaced plates extending forwardly from the inclined face prohibiting extensive lateral displacement of the pulverized soil.

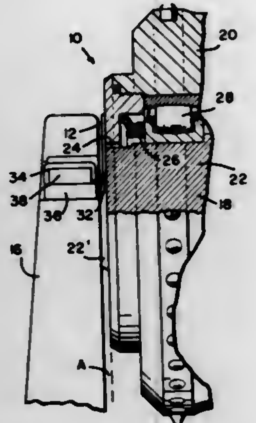
3,835,933
SHIELDING MEANS

William D. Coski, Mercer Island, Wash., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed June 27, 1973, Ser. No. 374,109

Int. Cl. A01b *33/12*; F16c *33/76*

U.S. Cl. 172—518 **15 Claims**



The means comprises a flat plate having a mounting limb carried at substantially a right angle, for mounting thereof to a shaft support so that the plate will close upon an axial end of an earth cutter rotatably carried on the shaft. Thus, a clearance space defined between the earth cutter and the shaft is shielded against the entry of dust, rock chips, mud, water and such detritus. The shielding means is designed to prolong the life of bearing seals, and bearings as well, especially where such are in earth cutter use.

3,835,934
IMPACT WRENCH WITH AUTOMATIC SHUT-OFF

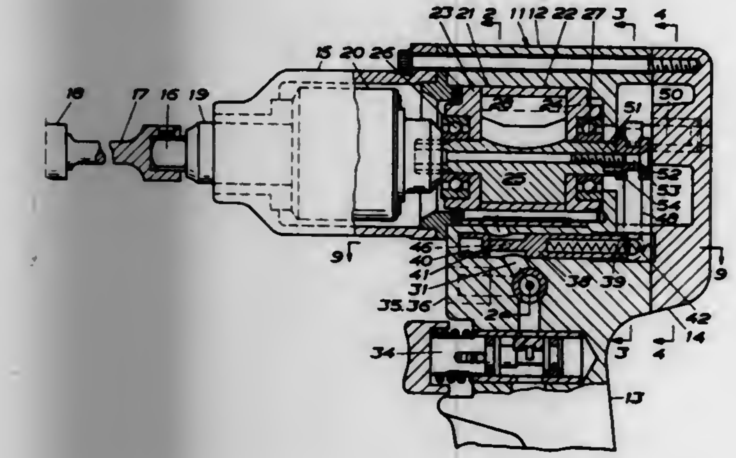
Knut Christian Schoeps, Nacka, and Tommy Henning Bruno Gustavsson, Skarholmen, both of Sweden, assignors to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Feb. 1, 1973, Ser. No. 328,679

Claims priority, application Sweden, Feb. 4, 1972, 1300/72

Int. Cl. B25b *23/14*

U.S. Cl. 173—12 **16 Claims**



In an impact wrench, the rotor of a pneumatic sliding vane motor and the hammer are inter-connected to rotate conjointly. On the rear stub shaft of the rotor there is formed an inner race for a ball. A pivot-mounted arm forms an outer race for the ball, and the races diverge in the direction of the rotary impacts so that, at its rolling movement created by the rebound of the hammer, the ball forces the arm to swing. At a pre-determined magnitude of the rebound, the arm forces a trigger for a shut-off valve to release the shut-off valve for movement into its position for shutting off the supply of motive fluid, and the motor stops.

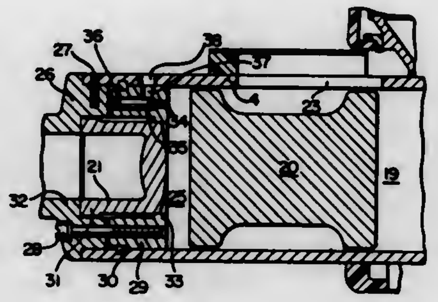
3,835,935
IDLING SYSTEM FOR POWER HAMMER

Daniel Harrison Sides, New Freedom, Pa., and Robert Gordon Moores, Jr., Cockeysville, Md., assignors to The Black and Decker Manufacturing Company, Towson, Md.

Filed Mar. 19, 1973, Ser. No. 342,865

Int. Cl. B25d *9/08*, *11/04*

U.S. Cl. 173—14 **11 Claims**



An electric paving breaker is described which includes an electric motor, a crank and piston driven by the motor, and a ram driven by the piston which delivers energy to a tool bit to produce a hammering output. An improved idling system to prevent the piston from driving the ram unless a tool bit is in place is described.

3,835,936
DRILLING MACHINE SUSPENSION

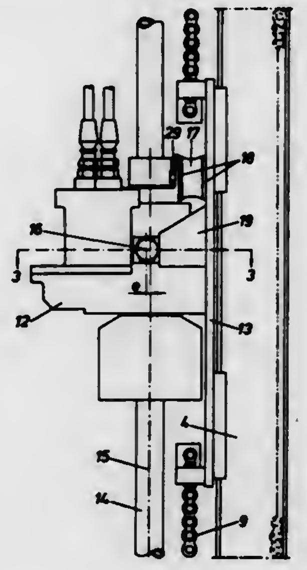
John Arne Lagerstedt, Skarholmen, and Jan Edvard Persson, Nacka, both of Sweden, assignors to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Sept. 26, 1973, Ser. No. 400,825

Claims priority, application Sweden, Oct. 6, 1972, 12988/72

Int. Cl. E21c *1/00*, *5/06*

U.S. Cl. 173—162 **3 Claims**



A drilling machine is mounted on a slide which is movable along a feed beam. The drilling machine is connected to the slide by means of a hinge which is situated farther from the feed beam than the drill axis defined by the drilling machine. Furthermore an elastic element has been provided between the drilling machine and the slide, the stiffness of the elastic element being such that the direction of the drill axis is independent of the applied feed force.

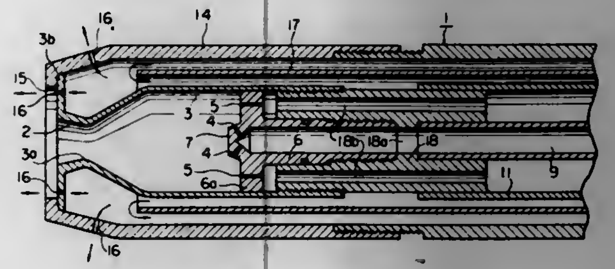
3,835,937
DRILLING AND CUTTING SUBMARINE ROCKS

Zenjiro Hokao, Tokorozawa; Teijiro Shibata, and Siro Yasukabe, both of Tokyo, all of Japan, assignors to Tobishima Kensetsu Kabushiki Kaisha, Tokyo, Japan

Filed May 9, 1973, Ser. No. 358,812

Int. Cl. E21b *7/14*

U.S. Cl. 175—6 **1 Claim**



A flame jet produced by the combustion of a kerosene-oxygen mixture in a combustion chamber is projected against an underwater rock thereby to drill or cut the rock by spalling or melting. The flame jet is projected at a pressure of at least 10 atmospheres higher than the water pressure at the rock being drilled or cut. Cooling water is supplied to cool the combustion chamber walls and the parts of the rock in the vicinity of the flame jet.

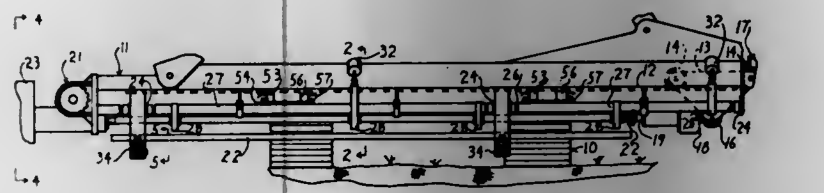
3,835,938
DRILLING APPARATUS

David L. Moody, Oneonta, and James B. Loftis, Remlap, both of Ala., assignors to Joy Manufacturing Company, Pittsburgh, Pa.

Filed May 17, 1973, Ser. No. 361,019

Int. Cl. E21b *19/14*

U.S. Cl. 175—52 **7 Claims**



A carriage movable by a power unit along a track carrying a drive shaft connected sequentially to a plurality of drill rods. The drill rods are supplied by spaced apart transversely movable rack assemblies having upwardly opening spaced recesses therein. Transverse, spaced apart support arms are mounted for pivotal movement in vertical planes about a common axis selectively to an upper position in alignment with the drive shaft and to a lower position beneath the drill rods carried by the rack assembly. The rack assemblies are moved to position drill rods sequentially in alignment with the path of movement of the support arms.

3,835,939
WELL DRILLING

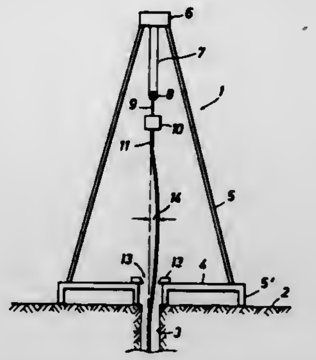
Robert H. McEntire, Plano, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

Filed Sept. 18, 1972, Ser. No. 289,830

Int. Cl. E21b *17/10*

U.S. Cl. 175—65 **8 Claims**

A method and apparatus for physically restraining a drill string at various points above the earth's surface and below the apparatus for rotating the drill string to prevent substantial lateral displacement of the drill string during rotation thereof for drilling purposes.



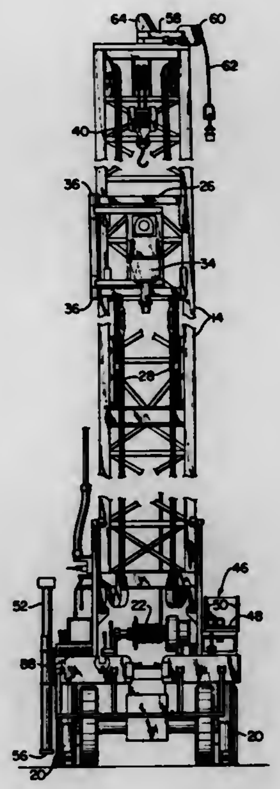
3,835,940
EARTH DRILLING APPARATUS AND METHOD

Henry A. Winter, Jr., Denver, Colo., assignor to Smith International Inc., Newport Beach, Calif.

Filed Mar. 23, 1973, Ser. No. 344,357

Int. Cl. E21b *19/14*, *3/00*; E21c *1/00*

U.S. Cl. 175—85 **9 Claims**



Earth drilling apparatus of the generally conventional type comprising a wheel supported vehicle having a pivoted derrick or mast which is moveable between a substantially horizontal transport position above the vehicle and a substantially vertical drilling position adjacent the rear end of the vehicle, the mast having a rectilinearly moveable carriage supporting a drilling head. It is characterized by a longitudinal drill pipe storage compartment adjacent one side of the vehicle, a pivoted boom at the top of the mast for transferring a drill pipe from the storage compartment to a temporary vertical holding position, the drilling head being pivotally mounted to its carriage for movement above the upper end of the holding position at which the pipe is connected to the drilling head, the drilling head and its attached pipe then being moveable to drilling position, this procedure continuing until the drilling reaches a desired depth. In the removal of the pipe string, the drilling head is moved to an inoperative clearing position laterally of the drill pipe axis and a traveling hoist block, moveable along such axis, is attached to the uppermost pipe of the string. The string is then elevated one pipe increment, the uppermost pipe disconnected from the string therebelow, and the hoist block lowered. At or near the commencement of lowering, the lower end of the disconnected pipe is manually guided into the rear end of the storage compartment and as the traveling hoist block lowers, it slides forwardly into the storage compartment to its original position therein.

3,835,941

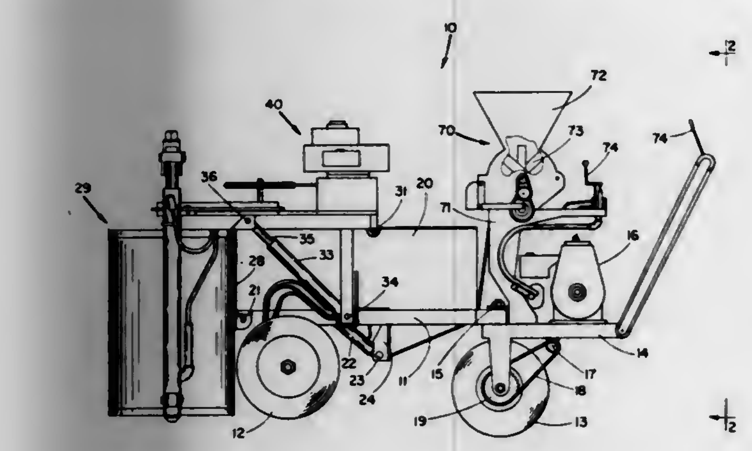
HOLE DRILLING APPARATUS WITH DIRT RECEIVING AND STORING MEANS

Junior Keith King, R.R. 1, Box 106A, Russiaville, Ind. 46979

Filed Aug. 20, 1973, Ser. No. 389,864

Int. Cl. E21b *3/02, 41/00*

U.S. Cl. 175—88 **7 Claims**



A device for digging holes in the ground and for receiving and storing the dirt removed from the holes. An auger is rotatably mounted to a frame and is drivable downwardly into the ground. A bin is pivotally mounted to the frame and is positioned adjacent a dirt receiving holder surrounding the auger. Means are provided for conveying the dirt from the holder to the bin. Means are also provided for emptying the dirt from the bin. Branch cutting means are mounted to the frame for cutting branches with the cuttings then falling into the bin. Driving means are mounted to the frame for the horizontal movement of the apparatus across the ground.

3,835,942

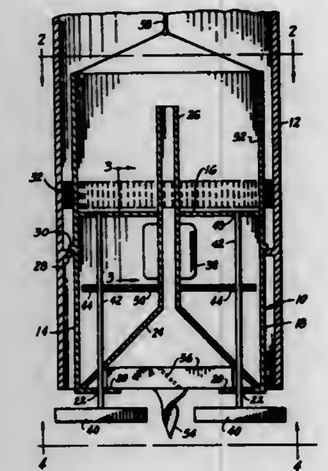
EARTH BORING DEVICE

Samuel S. Leonardi, 1245 Northwest 7th Ter., Fort Lauderdale, Fla. 33311

Filed Mar. 30, 1973, Ser. No. 346,714

Int. Cl. E21b *3/10;* **E21c** *1/00*

U.S. Cl. 175—96 **20 Claims**



Earth boring device for sinking a well casing in which a housing rotates within the well casing, the housing carrying circumferentially spaced, diametrically disposed, cutters which excavate an annular bore below the well casing. The cutters are capable of being moved to a position radially inward of the well casing, permitting the raising of the housing from the bottom of the excavated well within the well casing.

3,835,943

DRILLING APPARATUS AND ADAPTOR ASSEMBLY FOR SUCH APPARATUS

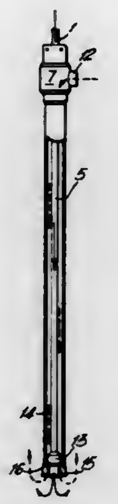
Richard Nicholas Bray, Farthings, Restwell Ave., Cranleigh, England

Filed Feb. 22, 1973, Ser. No. 334,609

Claims priority, application Great Britain, Feb. 25, 1972, 8846/72

Int. Cl. E21b *5/00*

U.S. Cl. 175—173 **8 Claims**



The invention relates to drilling apparatus having an inner drill string and a surrounding outer drill string, which strings can be advanced simultaneously. Instead of these strings being rigidly coupled for simultaneous advance under a rotary percussive action, the inner drill string is connected to a first adaptor which is slidable but non-rotatable in a second adaptor to which the outer drill string is connected so that when the first adaptor is rotatively and percussively driven, the second adaptor and its associated outer drill string are rotatively driven. Percussion is preferably transmitted to the bit of the outer drill string by arranging the bit of the inner string to strike the outer bit, but alternatively or additionally the first adaptor may hammer the second adaptor.

3,835,944

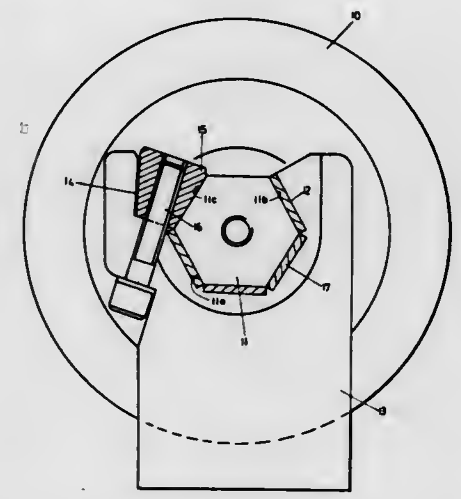
CUTTING UNIT FOR USE ON ROCK BORING MACHINES

Henry Bingham, Springs, South Africa, assignor to Hard Metals Limited, Transvaal, South Africa

Filed June 12, 1973, Ser. No. 365,793

Int. Cl. E21b *9/12;* **E21c** *13/12*

U.S. Cl. 175—364 **3 Claims**



A rock-boring machine of the type comprising rotatable headplate having a plurality of cutting units mounted on the front face of the headplate. Each cutting unit includes a cutter journalled for rotation on a shaft. The ends of the shaft are hexagonal in cross-section and are supported in complementally-slotted saddles to prevent rotation of the shaft in the saddles. The shaft is locked in the saddles by means of a single locking member at each end of the shaft. Each locking member is secured to a saddle and is adapted to bear against one of the surfaces of the hexagonal ends of the shaft.

3,835,945

DEVICE FOR WEIGHING RUNNING VEHICLE

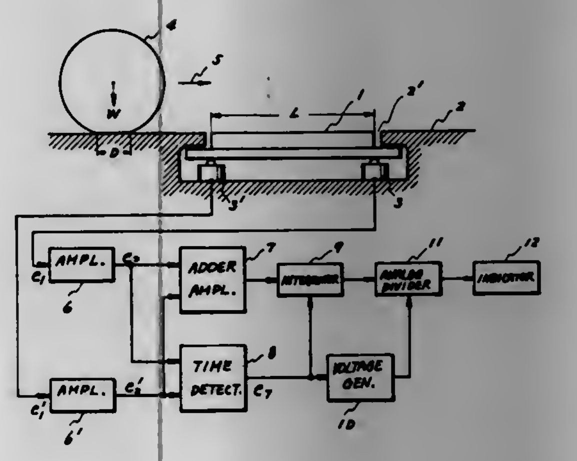
Masami Yamanaka, Miki, and Yasutoshi Masuda, Ashiya, both of Japan, assignors to Yamato Scale Company, Limited, Hyogo-ken, Japan

Filed Jan. 14, 1974, Ser. No. 433,261

Claims priority, application Japan, Mar. 12, 1973, 48-28655

Int. Cl. G01g *19/02*

U.S. Cl. 177—134 **4 Claims**



A device for measuring the weight of a moving vehicle by measuring either the wheel load or axle load and avoiding inaccuracies due to vibration through the use of means for producing two signals proportioned to the downward force on the near and far edges of a platform as the wheel or wheels pass over it and then averaging the weight for a period initiated when the ratio of said signals has a first value and terminating when the ratio of said signals has a second value.

3,835,946

PLATFORM SCALE

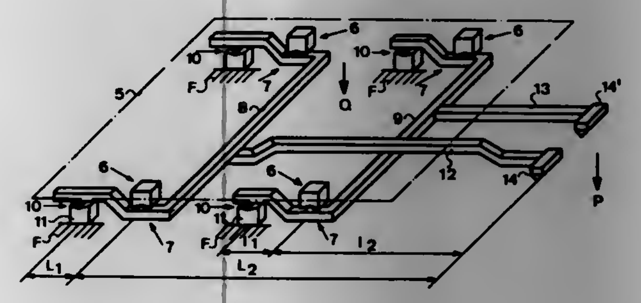
Erhard Mettler, Zollikon, Switzerland, assignor to Mettler Instruments AG, Greifensee, Switzerland

Filed Sept. 4, 1973, Ser. No. 394,085

Claims priority, application Switzerland, Sept. 29, 1972, 14290/72

Int. Cl. G01g *21/08*

U.S. Cl. 177—256 **9 Claims**



Weighing apparatus of the platform scale type, characterized by the provision of load lever means including a pair of parallel load levers of unequal lengths for transmitting the vertical movement of the platform to weighing means mounted on one side thereof. Each load lever is connected at a first end with the frame of the apparatus, the other ends of the levers being connected with the weighing means. The load force of the platform is applied to an intermediate point on each of the levers adjacent their first ends, the ratio of the distance between said intermediate point and said first lever end to the distance between the intermediate point and the other lever end being the same for each lever. Preferably the said other ends of the load levers are connected with the weighing means by means including a pair of knife edges having a common horizontal line normal to the lever axes, the first ends of the levers extending under the platform means.

3,835,947

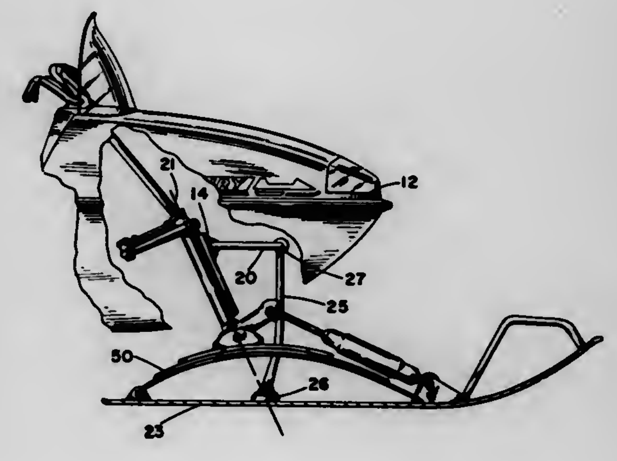
TORSION BAR STABILIZING SYSTEM FOR SNOWMOBILES

Charles F. Alexander, Jr., Oshkosh, Wis., assignor to Brunswick Corporation, Skokie, Ill.

Filed Nov. 27, 1973, Ser. No. 419,345

Int. Cl. B62m *27/02*

U.S. Cl. 180—5 R **7 Claims**



An anti-roll torsion bar stabilizing system for a snowmobile including a laterally disposed torsion bar attached to the frame including lever arms extending generally forwardly thereof. Links pivotally attach the torsion bar arms to the skis and angle inwardly of the skis so that the system reacts to both vertical and horizontal displacement of the skis during operation.

3,835,948

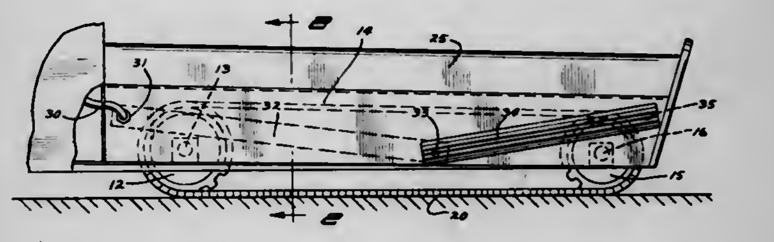
LIQUID COOLING SYSTEM FOR USE ON SNOWMOBILES

Marley J. Duclo, Brooten, Minn., assignor to HVP, Inc., Crosby, Minn.

Filed Dec. 15, 1972, Ser. No. 315,278

Int. Cl. B62m *27/02;* **B62k** *11/04*

U.S. Cl. 180—5 R **7 Claims**



A cooling system for the engine coolant of a liquid cooled snowmobile engine. The cooling system is provided as a substitute for or a supplement to a conventional radiator normally used with internal combustion, liquid cooled engines. The cooling system comprises elongated tubes mounted adjacent the tunnel used for the snowmobile drive track whereby snow will drop directly onto the tubes to remove heat from the coolant at a relatively high rate as the snow is changed into a liquid.

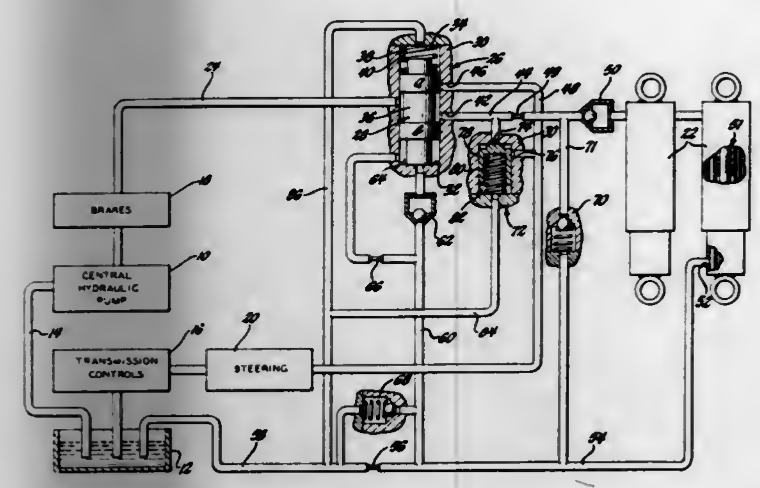
3,835,949
HYDRAULIC LEVELING CONTROL SYSTEM

James E. Whelan, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 19, 1973, Ser. No. 407,897

Int. Cl. B60g *17/00*

U.S. Cl. 180—41 **4 Claims**



Control system including hydraulically operated vehicle levelers in which there is intermittent back pressure from the levelers on the supply pump and in which there is a control valve responsive to height signals from the levelers to direct pressure fluid to the levelers when the levelers are below level height and which directs fluid to a circuit bypassing the levelers when the levelers are above level height to thereby reduce pressure and volume requirements from the supply pump.

3,835,950
APPARATUS FOR CONTROLLING THE SPEED AND SPACING OF VEHICLES

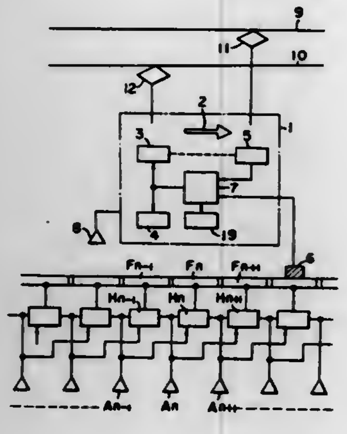
Tetsumasa Asano; Hiroshi Takamiya, and Yoshinobu Morimoto, all of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 25, 1972, Ser. No. 291,621

Claims priority, application Japan, Sept. 23, 1971, 46-74309; Oct. 26, 1971, 46-84925; Oct. 28, 1971, 46-85857; Dec. 1, 1971, 46-96956; Oct. 23, 1971, 46-84201; Oct. 26, 1971, 46-84923; Oct. 29, 1971, 46-86127; Oct. 29, 1971, 46-86126; Oct. 27, 1971, 46-85289; Oct. 27, 1971, 46-85290

Int. Cl. B60t *7/18*

U.S. Cl. 180—98 **12 Claims**



The fail-safe system for controlling separate vehicles running on a track, path or roadway permits both high vehicle speeds and high traffic densities. The system includes devices for measuring the speed of a lead vehicle and also the spacing between vehicles. A control system is provided which develops a control signal proportional to the square root of the sum of a signal proportional to the vehicle spacing and a signal proportional to the square of the lead vehicle speed. Alternatively, the control system may provide a control signal proportional to the sum of signals proportional to the lead vehicle speed and to the square root of the vehicle spacing. These control signals are used to regulate the speed and following distance of vehicles behind the lead vehicle. Various other alternative embodiments of the invention are disclosed, as are several növel features such as an emergency braking system.

3,835,951
SEMITRAILER-LIKE MOTOR VEHICLE WITH AIR CUSHION TRAILER FOR TRANSPORTATION OF LOADS

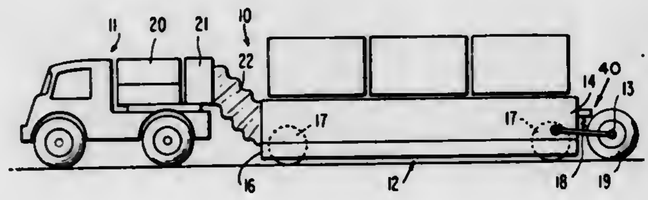
Eberhard Hundt, Stuttgart, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Dec. 23, 1971, Ser. No. 211,536

Claims priority, application Germany, Dec. 23, 1970, 2063479

Int. Cl. B60v *3/02*

U.S. Cl. 180—119 **25 Claims**



A semitrailer-like motor vehicle for the transportation of loads, for example, of containers in which the load carrier is constructed in the manner of an air cushion vehicle and the towing vehicle includes a blower driven from an internal combustion engine for producing the air cushion of the semitrailer-like load carrier; the towing vehicle is so connected with the load carrier that the pressurized air and driving forces can be transmitted; the load carrier includes also a trailing axle structure with wheels thereon adapted to be braked.

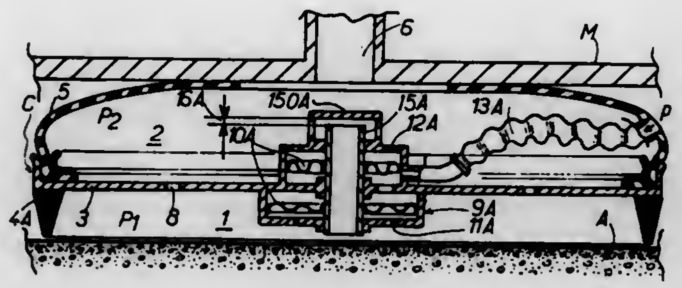
3,835,952
ATTITUDE COMPENSATION METHOD AND SYSTEM FOR GROUND-EFFECT MACHINES

Francis Marie Jean Croix-Marie, Chatillon, and Daniel Jean-Marie Dubois, Gif-sur-Yvette, both of France, assignors to Bertin & Cie, Plaisir, France

Filed Jan. 26, 1973, Ser. No. 326,787

Int. Cl. B60v *1/00*

U.S. Cl. 180—118 **11 Claims**



A ground-effect machine is designed for travelling along a bearing surface through the medium of a lift cushion system provided with a suspension system which includes a deformable pneumatic chamber interposed between the machine frame and the cushion proper. This cushion and this chamber have an associated fluid circuit which may comprise a passage intercommunicating them and which is so designed that the cushion pressure or lift pressure is, depending on the type of ground-effect machine, either greater or smaller than ambient pressure but in any event closer thereto than the pneumatic chamber pressure or suspension pressure.

This attitude of this ground-effect machine is compensated through regulation of these lift and suspension pressures in order to maintain their ratio at a predetermined value, by detecting any deviation of their actual ratio from said predetermined value, and by restoring it thereto with a relatively long response time through variation - modulated as a function of the detected deviation - of a pressure loss provided at a convenient location of the above-mentioned fluid circuit, preferably at the intercommunicating passage.

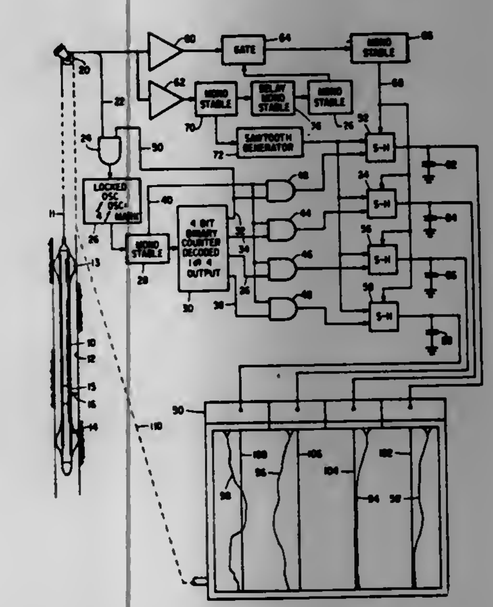
3,835,953
ACOUSTIC CALIPER LOGGING

Gerald C. Summers, Dallas, Tex., assignor to Simplec Mfg. Co., Inc., Dallas, Tex.

Filed Jan. 26, 1973, Ser. No. 326,771

Int. Cl. G01v *1/40*

U.S. Cl. 181—0.5 BE **13 Claims**



Acoustic pulses transmitted horizontally from a unit in a borehole are reflected at the borehole walls and the reflections are detected. Time functions representative of travel time of the reflected pulse are then recorded on segmented bases representing limited spaced apart segments of the borehole wall but in a continuous traverse of a path along such wall. In one embodiment, four vertical segments are continuously traversed. In another embodiment, horizontal segments at each of a plurality of successively deeper locations, preferably uniformly spaced, are continuously traversed.

3,835,954
APPARATUS FOR INDUCING SHEAR WAVES IN THE EARTH

Pierre Claude Layotte, Royan, France, assignor to Institut Francais du Petrole, des Carburants et Lubrifiants, Rueil-Malmaison, France

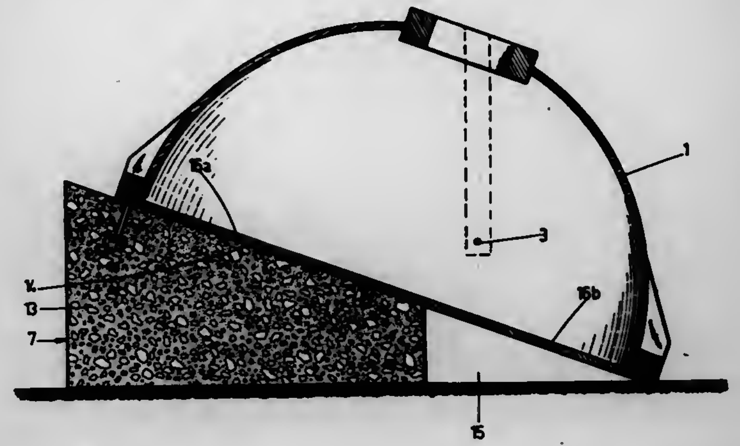
Filed Feb. 2, 1972, Ser. No. 223,682

Claims priority, application France, Feb. 5, 1971, 71.04041

Int. Cl. G01v *1/10*

U.S. Cl. 181—.5 EC **20 Claims**

Apparatus for inducing shear waves in the earth, comprising a rigid enclosure including a dome-shaped wall and a surface for coupling to the earth, means for detonating an explosive charge in said enclosure under such conditions as to create a lateral dissymmetry of the explosive forces applied to said wall in order to produce a lateral resultant force parallel to said coupling surface and means for transmitting said resultant force to the ground, thereby inducing shear waves therein.



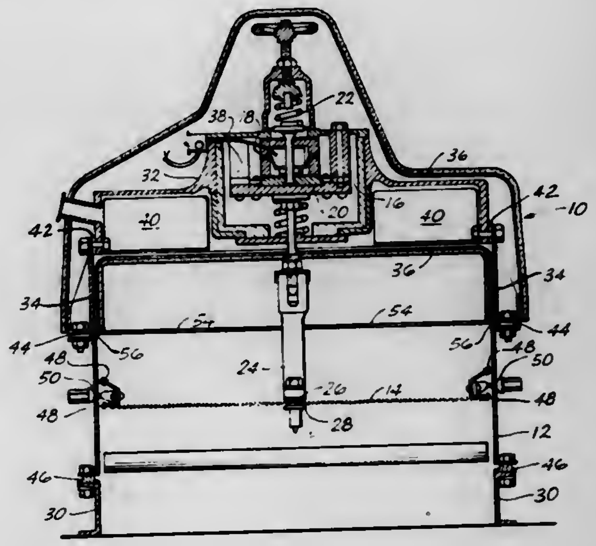
3,835,955
NOISE REDUCING APPARATUS FOR A VIBRATING SCREEN SIFTING MACHINE

Richard Ernest Harkness, Hudson, Ohio, assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Nov. 14, 1973, Ser. No. 415,696

Int. Cl. E04b *1/84*

U.S. Cl. 181—33 K **5 Claims**



Noise reducing apparatus for a vibrating screen sifting machine including a jacket made of lead-impregnated plastic and expanded cellular material for the housing of the vibrating mechanism, a mastic material coating on the outer surface of the screen frame, and rubber inserts between various of the metal components.

3,835,956
INTAKE SILENCER FOR AN INTERNAL COMBUSTION ENGINE

Nozumu Kishira, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata-shi, Japan

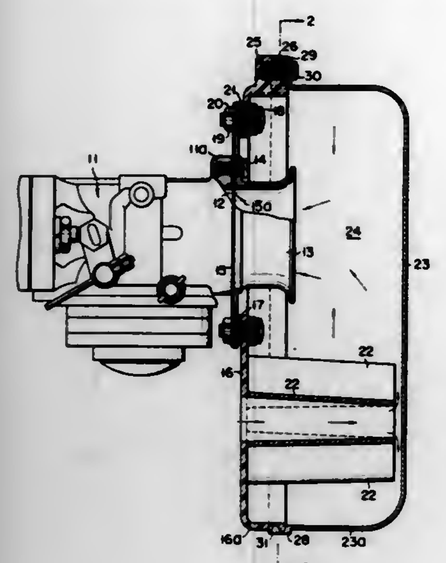
Filed May 11, 1973, Ser. No. 359,303

Claims priority, application Japan, May 13, 1972, 47-55724

Int. Cl. F01n *1/00*

U.S. Cl. 181—35 A **9 Claims**

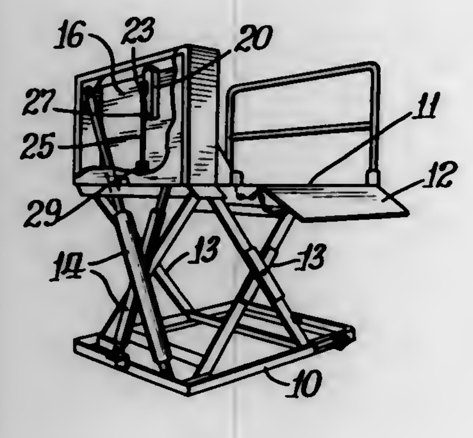
An intake silencer for an internal combustion engine disposed on the intake side of a carburetor has an expansion chamber formed by a base board and a cover which are shaped like a pan, and in which there are disposed air horns connected to the carburetor and silencer tubes introducing



the external air into the chamber. The base board and silencer tubes are integrally molded with synthetic resin.

3,835,957
DEFLECTION SAFETY CONTROL FOR PLATFORM OF VERTICAL RISING LIFT

Lawrence I. Richards, Elk Grove Village, Ill., assignor to Autoquip Corporation, Chicago, Ill.
Filed Apr. 13, 1973, Ser. No. 350,678
Int. Cl. E04g *1/18*
U.S. Cl. 182—19 **5 Claims**

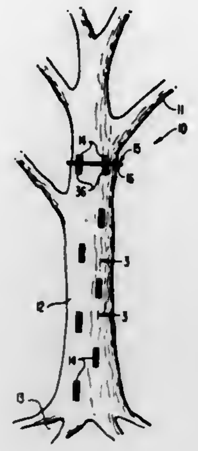


A deflection safety control for the platform of a scissors lift comprises a pendulum mounted on the platform and having a switch actuated by a part of the pendulum extending above the pivot point.

3,835,958
PORTABLE STEP AND A STAND FOR USE IN HUNTING WILDLIFE INCLUDING THE SAME

Arnold C. Hegele, 401 W. Locust St., Canton, Ill. 61520
Filed July 31, 1973, Ser. No. 384,238
Int. Cl. E06c *9/04*
U.S. Cl. 182—92 **14 Claims**

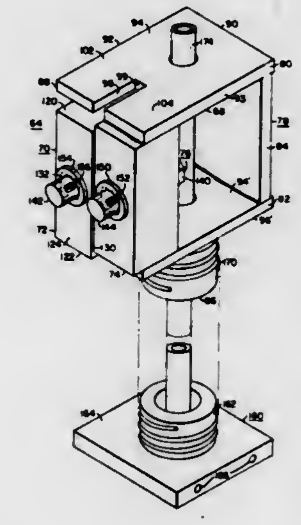
Portable steps are provided which are adapted to be detachably mounted on the trunk of a tree at progressively increasing heights to thereby allow the tree to be easily climbed. The invention also provides a stand for use in hunting wildlife which includes a plurality of the portable steps detachably mounted on the trunk of a tree at progressively increasing heights and arranged whereby a person climbing the tree may step from a lower step to the next higher step and thereby climb the tree from the ground level to the desired stand height. In a preferred embodiment, a seat is provided including an elongated seating member which is supported by at least two of the steps arranged circumferentially on the tree trunk in spaced relationship at approximately the same height.



The portable steps are especially useful in constructing temporary deer stands and the equipment needed therefor may be easily transported from one location to another by a deer hunter to take advantage of the best hunting conditions.

3,835,959
ELEVATOR SYSTEM

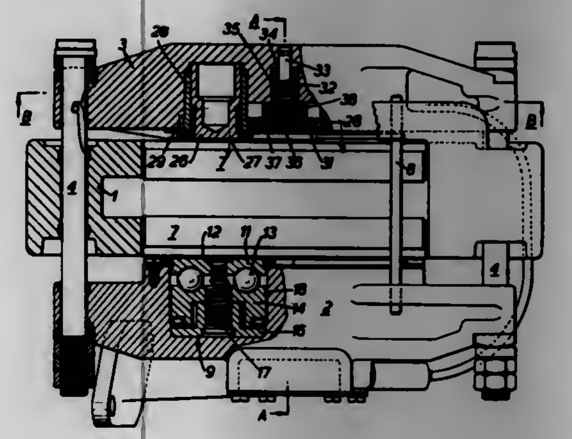
Frederick Solymos, Glen Ridge, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Apr. 2, 1973, Ser. No. 347,285
Int. Cl. B66b *11/00*
U.S. Cl. 187—22 **13 Claims**



An elevator system having a car and counterweight interconnected by hoisting and compensating roping. A drive associated with the hoisting roping moves the car and counterweight in guided paths relative to floors of a building, while a compensator sheave tensions and guides the compensating roping. The compensator sheave includes braking apparatus which allows the compensator sheave to freely move with the compensating roping between predetermined vertical limits, automatically adjust for permanent stretch of the hoisting roping while maintaining the predetermined vertical limits of free movement, and to limit upward movement beyond a predetermined limit. The braking apparatus includes brake shoe members carried by the compensator sheave, and fixed guide rail members, with the brake shoe members being biased to grip the guide rail members with a parallelogram squeezing action.

3,835,960
IMPROVEMENTS IN OR RELATING TO DISC BRAKES

Norman Sidney Moss, Birmingham, England, assignor to Girling Limited, Birmingham, England
Continuation of Ser. No. 864,639, Oct. 8, 1969, abandoned. This application Dec. 16, 1971, Ser. No. 208,990
Claims priority, application Great Britain, Oct. 11, 1968, 48419/68
Int. Cl. F16d *65/56*
U.S. Cl. 188—71.9 **5 Claims**



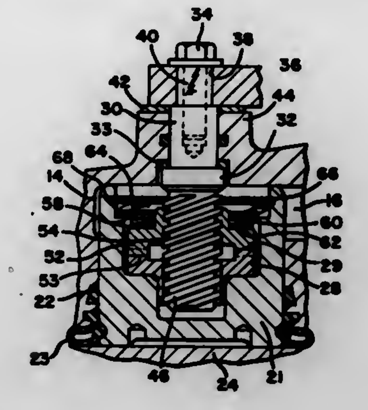
A reaction type disc brake having mechanical actuation means in which a pair of mechanical actuators is arranged to act on one brake pad, being spaced apart circumferentially in relation to the brake disc and operated simultaneously by a common actuating member. Another feature resides in the provision of such a brake in which one pad is directly actuated by mechanical means, and automatic adjustment means are arranged to act on the other pad, thereby separating in construction the actuation and the automatic adjustment means.

A further aspect of the invention is the provision of a reaction type disc brake in which the yoke structure is in three portions. The centre portion is mounted in use directly upon the vehicle structure and guides the brake pads for movement towards and away from the brake disc. Inboard and outboard yoke sections are coupled together by tie rod means and the mechanical actuating mechanism is mounted on one or other of these outer yoke sections so that clamping forces arising during brake actuation are transmitted by the two outer yoke sections to the tie rods, without being transmitted to the centre yoke section, whereas drag forces arising during braking are taken entirely by the centre yoke section without being transmitted to the inboard and outboard yoke sections or the tie rods. This arrangement ensures that no principle stresses greater than the stresses due to the individual reactions are developed in the structural components of the yoke.

3,835,961
DISK TYPE BRAKE

Thomas F. Troester, Dayton, and Russell E. Rike, Bellbrook, both of Ohio, assignors to Dayton-Walther Corporation, Dayton, Ohio
Filed May 7, 1973, Ser. No. 357,891
Int. Cl. F16d *65/56*
U.S. Cl. 188—71.9 **11 Claims**

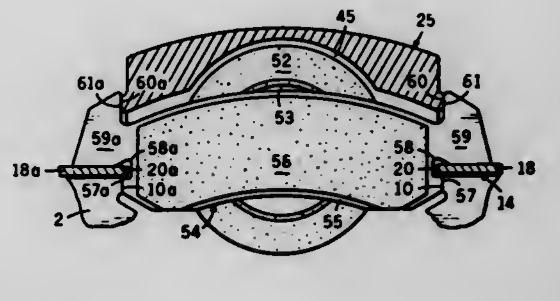
A disk brake which includes automatic compensation for wearing of the brake pads and provides a mechanical system for applying the brake or holding the brake in place after actuation by the hydraulic system. The brake piston is movable relative to a threaded shaft. The piston has an annular toothed surface for like engagement with a rotatable pressure member



threaded on the shaft. On adjustment overtravel of the piston, the toothed surfaces separate, allowing a finger spring to rotate the pressure member and adjust the brake.

3,835,962
BRAKE SHOE

Edward J. Falk, St. Louis, Mo., assignor to Wagner Electric Corporation, Newark, N.J.
Continuation of Ser. No. 244,585, April 17, 1972, abandoned, which is a division of Ser. No. 82,332, Oct. 20, 1970, Pat. No. 3,768,604. This application Aug. 15, 1973, Ser. No. 388,475
Int. Cl. F16d *65/04*
U.S. Cl. 188—73.1 **2 Claims**

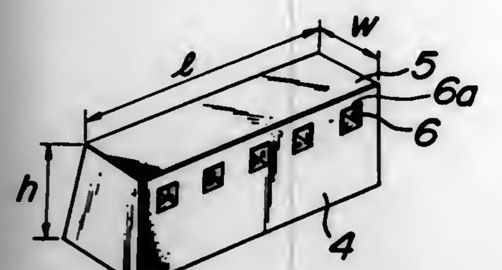


A spot disc brake having a support defining a fixed closed loop member substantially about a chordal portion of a rotatable disc, and a cylinder portion slidably anchored on the closed loop member adjacent one side of the disc and including a caliper portion extending over the disc chordal portion and slidably anchored on the closed loop member adjacent to the other side of the disc for moving a pair of opposed friction members into frictional engagement with the one and other sides of the disc at the chordal portion thereof. At least one of the friction members is provided with anchoring extensions embracing the caliper for transmitting braking torque thereto, and each anchoring extension having a supporting portion for engagement with the loop member to oppose deflection thereof.

3,835,963
FRICTION PIECE FOR BICYCLE RIM BRAKES

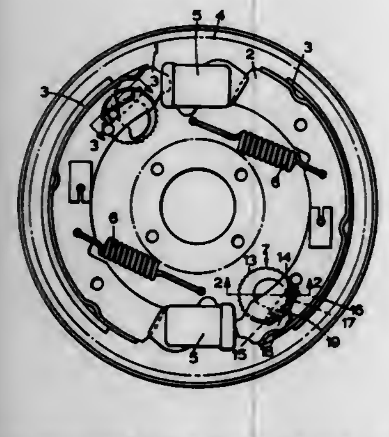
Kiyoshi Ohtani, Ageo, Japan, assignor to Bridgestone Cycle Industry Co., Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 227,467, Feb. 18, 1972, , which is a continuation of Ser. No. 4,343, Jan. 20, 1970, abandoned. This application Oct. 11, 1973, Ser. No. 405,600
Int. Cl. F16d *65/02*
U.S. Cl. 188—73.1 **7 Claims**

A friction piece for bicycle rim brakes, consisting of an elongated rubber body, e.g., with a trapezoidal lateral cross section. The body has a planar frictional contact surface engageable with a bicycle rim and a plurality of mutually spaced lateral holes which are bored in said body in the proximity of the frictional contact surface. A planar edge surface is formed on that part of each lateral hole which is closest to the frictional contact surface, said planar edge extending in parallel to the frictional contact surface with a distance of 2 mm or more therefrom.



3,835,964
SHOE-DRUM BRAKES

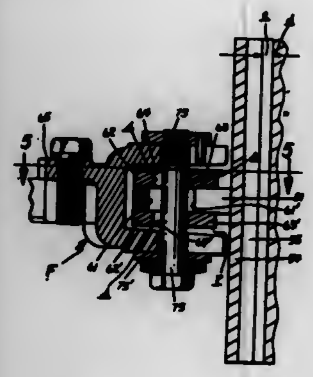
Hugh Grenville Margetts, Leamington Spa, England, assignor to Girling Limited, Birmingham, England
Filed Oct. 26, 1972, Ser. No. 301,058
Claims priority, application Great Britain Oct. 28, 1971, 50062/71; Oct. 28, 1971, 50063/71
Int. Cl. F16d *65/58*
U.S. Cl. 188—79.5 GT **8 Claims**



An adjuster for internal shoe drum brakes includes a dished pressing rotatably mounted on the back-plate of the brake, the side wall of the pressing providing a cam surface engaging with a pin extending from a shoe and the periphery of the pressing providing ratchet teeth engaging with a pawl movable with the shoe.

3,835,965
FRICTION-TYPE BRAKE ADJUSTMENT DEVICE

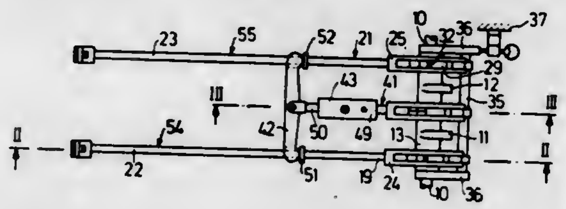
Richard A. Doversberger, Peoria, Ill., assignor to Westinghouse Air Brake Company, Peoria, Ill.
Filed Feb. 20, 1973, Ser. No. 333,583
Int. Cl. F16d *65/54*
U.S. Cl. 188—79.5 GT **11 Claims**



A friction-type brake adjustment device for maintaining a brake shoe in predetermined spacial relationship with a brake drum incorporating: a substantially U-shaped bracket for receiving the brake shoe web having a slot therein: and a stop member received within said slot and carried by and frictionally engaged with said bracket. Sets of guide bars outline the side edges of said slot, one set engages the stop member for urging same toward the brake drum in direct proportion to the wear of the brake lining, and the other set engages the stop member for preventing the return of said brake shoe to its original position.

3,835,966
BRAKING ARRANGEMENT

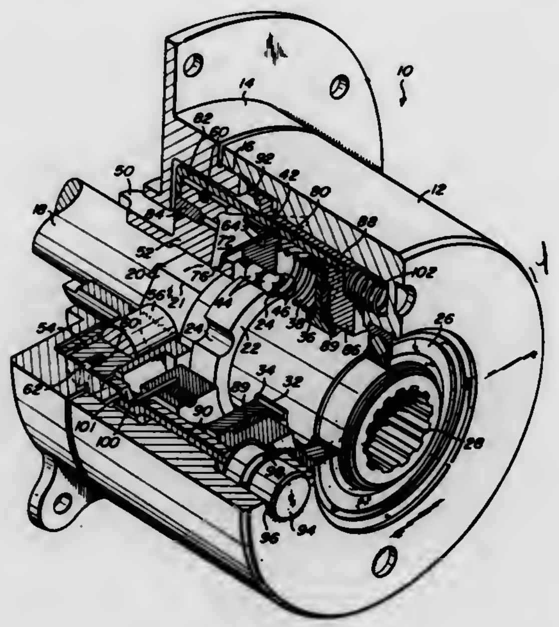
Gunther Schwerin, Moglingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed June 19, 1973, Ser. No. 371,565
Claims priority, application Germany, July 1, 1972, 2232373
Int. Cl. F16d *63/00*
U.S. Cl. 188—106 F **13 Claims**



A mechanical braking system is provided in a motor vehicle and a hydraulic braking system is provided in a trailer for the motor vehicle. A pair of separately journalled brake pedals are provided in the motor vehicle, and linkage rods connect each of the brake pedals with a component of the mechanical braking system. A coupling arrangement is movable between a first position in which it enforces joint movement of the brake pedals, and a second position in which it permits individual movements thereof. A second connecting arrangement connects the brake pedals with the hydraulic braking system only when the coupling arrangement is in its first position.

3,835,967
TORQUE LIMITER

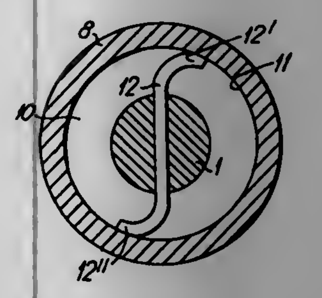
Richard H. Kerr, Springfield, Ohio, assignor to Kelsey-Haynes Company, Springfield, Ohio
Filed June 29, 1973, Ser. No. 375,054
Int. Cl. B60t *7/12*
U.S. Cl. 188—134 **28 Claims**



A system for preventing application of excessive force or torque to a system by locking the system when some predetermined amount of overload is applied thereto. The system is comprised of an input assembly including an input shaft, an output assembly including an output shaft and a pivot member interposed and transmitting drive between the input and output assemblies. In the event of an overload, the pivot member, which may be in the form of a pin or pins or a triangular member, pivots and permits limited rotational movement of the assemblies with respect to each other; thereby allowing camming surfaces carried on the input shaft to cam brake shoes carried by the output assembly into braking engagement with the inner, brake drum surface of the system casing.

3,835,968
ADJUSTING DEVICE FOR DRUM BRAKES

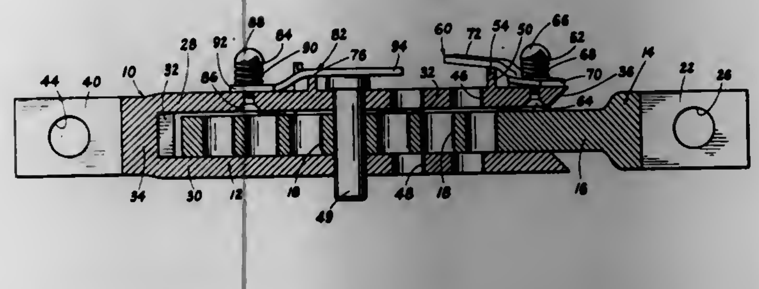
Hermann Seip, Bad Vilbek, Germany, assignor to ITT Industries, New York, N.Y.
Filed May 3, 1973, Ser. No. 356,981
Claims priority, application Germany, July 28, 1972, 2237050
Int. Cl. F16d *65/54*
U.S. Cl. 188—196 P **4 Claims**



This adjusting device compensates for brake lining wear in an internal brake shoe drum brake. Known adjusting devices for internal brake shoes have the disadvantage that a considerable force is necessary for actuation. In addition, there is a great likelihood of corrosion. The present invention relates to an adjusting device with an adjustable eccentric which requires smaller adjusting forces and is protected from corrosion. The improvement is achieved by providing a sealing arrangement in the eccentric to prevent corrosion and a frictional jamming element in the form of an S-shaped spring. This spring is prestressed with its ends lying against the inner wall of an inner bore of the adjusting eccentric. This spring is rigidly connected with the brake backing plate through intermediary components.

3,835,969
QUICK SLACK ADJUSTER FOR LOCOMOTIVE BRAKES

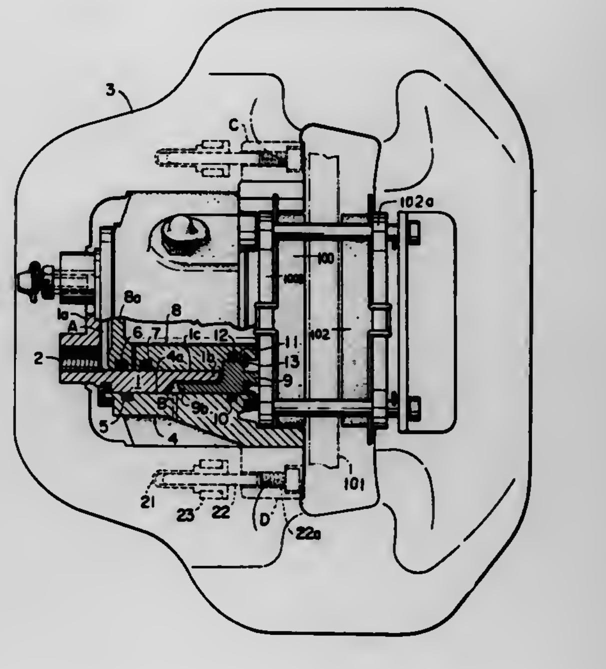
Roy H. Touchstone, P.O. Box 2003, Jackson, Tenn. 30801
Filed Nov. 27, 1972, Ser. No. 309,683
Int. Cl. F16d *65/44*
U.S. Cl. 188—197 **5 Claims**



A brake adjustment device for locomotives wherein slack in the brake mechanism may be quickly and easily adjusted, and the brake shoes may be quickly removed and replaced when they have become sufficiently worn, or are otherwise damaged or in need of repair. The adjustment device includes an apertured slide bar connected with the brake lever of a locomotive wheel and extending through a housing secured to the brake lever of an adjacent or in line locomotive wheel whereby the adjuster may be utilized in much the same manner as a turnbuckle for quickly adjusting the brakes. In addition, the slide bar device facilitates release of the brake lever to provide for a quick clearance between the brake shoe and wheel, thus reducing the time required for the replacement of worn brake shoes.

3,835,970
BRAKE CYLINDER ASSEMBLY

Tetsuo Haraikawa, Funabashi, Japan, assignor to Tokico Ltd., Kanagawa-ken, Japan
Filed Dec. 18, 1972, Ser. No. 316,400
Int. Cl. B60t *11/00*
U.S. Cl. 188—345 **3 Claims**

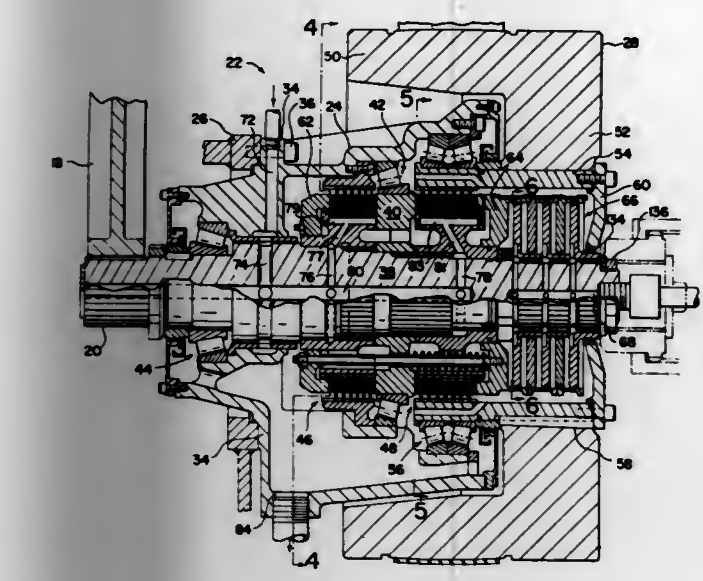


A brake cylinder unit for a hydraulic brake arrangement having first and second braking systems in which there is provided a single cylinder having at least two pistons slidable therein, with two hydraulically independent pressure chambers provided within the cylinder and defined by the pistons, the pistons are kept in mutual and partially overlapped relationship regardless of service or off-service conditions of the brake cylinder unit and a substantially Z-shaped gap provided between the two pistons when viewed in axial section and in the form of an annular space when viewed in cross section, with such gap serving as one of the hydraulic pressure chambers of the brake cylinder unit.

3,835,971
FLUID OPERATED CLUTCH AND BRAKE

Edwin A. Spanke, Oak Forest; Louis F. Carrieri, La Grange Park, and Melvin H. Francey, Palos Heights, all of Ill., assignors to Gulf & Western Manufacturing Company, New York, N.Y.
Filed Aug. 29, 1973, Ser. No. 392,681
Int. Cl. F16d *67/04*
U.S. Cl. 192—18 A **10 Claims**

A press drive mechanism is disclosed having brake and clutch disc assemblies concentric with respect to the output shaft of the mechanism, and a concentric fluid operated piston-cylinder assembly for alternately actuating the brake and clutch mechanisms. Air actuated and hydraulic fluid actuated piston and cylinder arrangements are disclosed, and an arrangement is disclosed for incremental rotation of the output shaft when the brake mechanism is actuated.



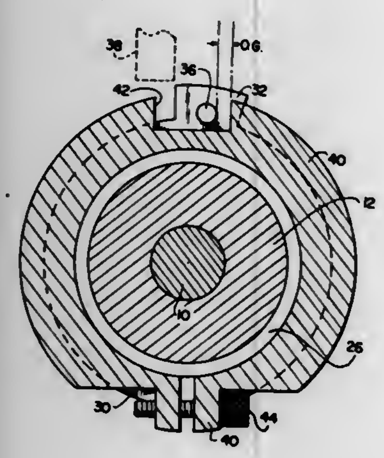
3,835,972
ADJUSTING COLLAR FOR SINGLE REVOLUTION SPRING CLUTCH

Elton L. Helander, Guilford, Conn., assignor to Helander Products, Inc., Clinton, Conn.

Filed Dec. 26, 1972, Ser. No. 318,572

Int. Cl. F16d *11/06*

U.S. Cl. 192—26 **1 Claim**



The single revolution spring clutch comprises a spring wrapped around adjacent input and output hubs, a release collar for releasing the spring from coupling engagement with the input hub when the collar is stopped from rotating with the clutch assembly and a clamp type adjusting collar. The adjusting collar is clamped on the output hub and coupled, by means of a pin and slot, to the release collar. The angular relationship between the release collar and the output hub can be conveniently varied after the clutch is mounted on the shaft of a machine. The adjusting collar is clamped to that end of the spring which is wrapped on the output hub and serves to clamp this end of the spring to the output hub. The adjustment is accomplished by loosening the adjusting collar, rotating the release collar to the desired position and retightening the adjusting collar.

3,835,973
TORQUE LIMITING DEVICE

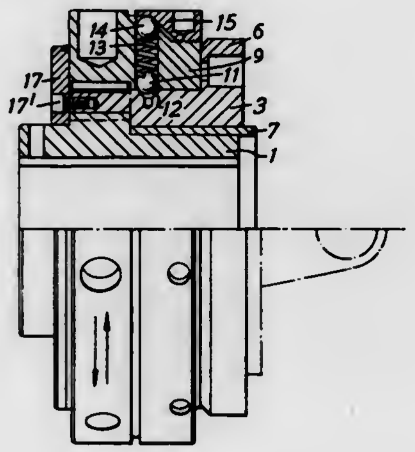
George Roderick Derham Braggins, Virginia Water, and Donald Humphrey Pooley, Woodley, both of England, assignors to The Wellman Bibby Company Limited, Staines, Middlesex, England

Filed Sept. 25, 1972, Ser. No. 291,800

Claims priority, application Great Britain, Sept. 30, 1971, 45555/71

Int. Cl. F16d *43/20*

U.S. Cl. 192—56 R **12 Claims**



In a torque limiting device, torque is transmitted between first and second coaxial torque members by a rolling element. The rolling element is seated in a seating in the first torque member and located in an aperture in the second torque member. The rolling element is held in its seating by a cam surface on a locking member and on overload, is movable in the aperture out of the seating by moving the locking member in a circumferential direction against a resilient bias.

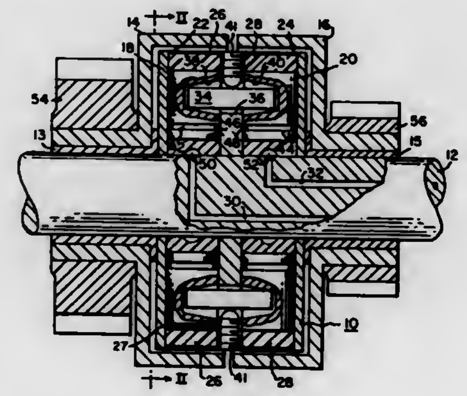
3,835,974
INTERNAL CLUTCH

Charles E. Kraus, Austin, Tex., assignor to Excelermatic, Inc., Austin, Tex.

Filed Jan. 5, 1973, Ser. No. 321,293

Int. Cl. F16d *19/00*

U.S. Cl. 192—87.15 **10 Claims**



An internal clutch for coupling a rotatable disc with either one of rotatable annular members closely surrounding different portions of the disc, wherein a number of pistons are disposed in radial cylinders formed in each portion of the disc and means are provided for selectively forcing the pistons in either portion of the disc toward the respective annular member for frictional engagement thereof with the disc.

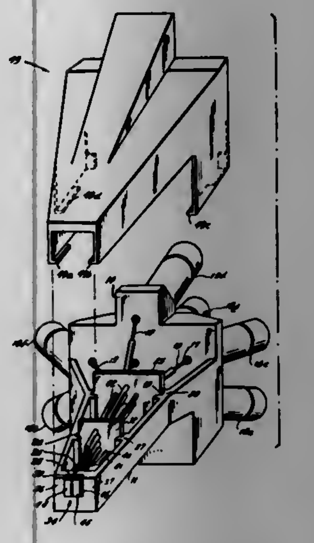
3,835,975
PRINTER HEAD ASSEMBLY

Robert Howard, 20 Redwood Dr., Roslyn, N.Y. 11576

Continuation of Ser. No. 179,457, Sept. 10, 1971, , which is a continuation of Ser. No. 37,815, May 15, 1970, abandoned. This application Aug. 2, 1973, Ser. No. 385,157

Int. Cl. B41j *3/10*

U.S. Cl. 197—1 R **3 Claims**



A solenoid assembly for use in high speed printers of the dot matrix type wherein the solenoid construction is of such a design as to be extremely lightweight and capable of high speed operation so as to cooperate with the printer head assembly to provide a compact, lightweight design adapted to be moved at high rates of speed across a paper document. The solenoid armature is biased by a circular shaped biasing spring which is prevented from bending beyond its flat shape when it abuts against the interior surface of the solenoid assembly end cap.

3,835,976
DEVICE FOR MOVING A PRINT ELEMENT CARRIER IN TYPEWRITERS

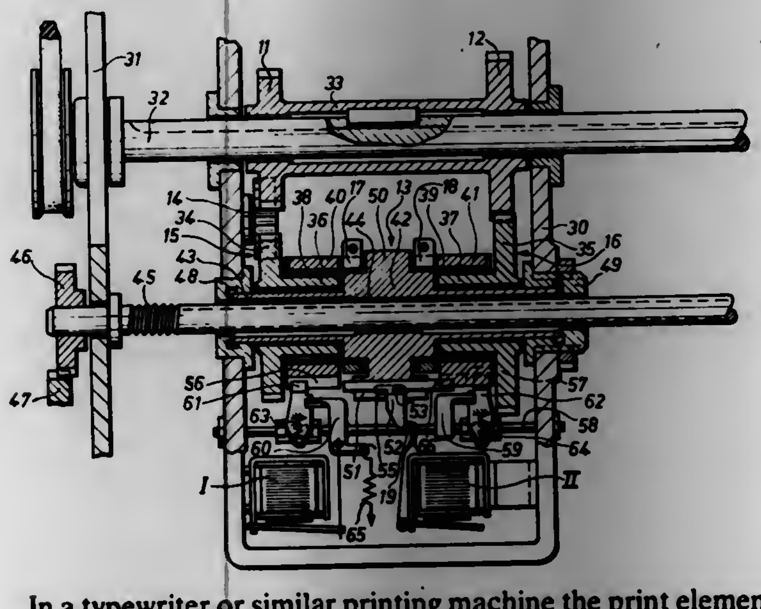
Herbert Behrens, Neuenburg, and Gunther Wohlbier, Grafschaft, both of Germany, assignors to Olympia Werke A.G., Wilhelmshaven, Germany

Filed Aug. 21, 1973, Ser. No. 390,204

Claims priority, application Germany, Aug. 30, 1972, 2242663

Int. Cl. B41j *19/00*

U.S. Cl. 197—82 **15 Claims**



In a typewriter or similar printing machine the print element carrier is moved by virtue of the cooperation between a lead screw stationarily supported in the machine frame and a rotatable nut member supported in the print element carrier and threadedly engaging the lead screw. The print element carrier supports a clutch which has two inputs including driven components continuously rotated in opposite directions. An escapement mechanism, when in its normal, non-actuated condition, locks both inputs for preventing any driving torque to be transmitted to the nut member by either continuously driven component. A two-position selector mechanism locks either the one or the other input. When the escapement mechanism is actuated, the latter is withdrawn from both inputs and, as a result, a driving torque is transmitted to the nut member solely by that clutch input which is not locked by the selector mechanism.

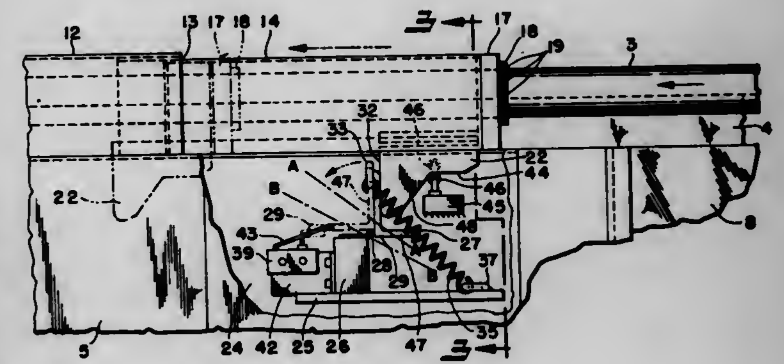
3,835,977
HANDRAIL GUARD

John H. Hewitt, Tallmadge, and Deane W. Richardson, Worthington, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed June 25, 1973, Ser. No. 373,109

Int. Cl. B66b *9/12*

U.S. Cl. 198—16 R **14 Claims**



A handrail guard for a passenger conveyor balustrade having a handrail cover movable along the handrail by objects on the handrail to prevent injury to the objects and conveyor. A spring mechanism resists initial movement of the cover and then releases the cover for substantially free movement for a short period of time during which the conveyor is stopped by a switch mechanism connected to the spring mechanism. A sensory and deflecting warning means is carried by the cover to expedite the removal of objects from the handrail during the initial movement of the cover and thereby reduce the shutdown time of the conveyor.

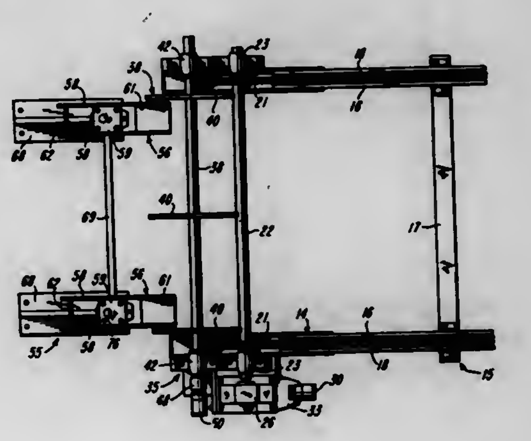
3,835,978
LOG TRANSFER APPARATUS

George W. Hartzell, and Robert J. Gunnerman, both of Piqua, Ohio, assignors to Hartzell Industries, Inc., Piqua, Ohio

Continuation-in-part of Ser. No. 152,751, June 14, 1971, Pat. No. 3,747,455. This application Oct. 30, 1972, Ser. No. 301,992

Int. Cl. B65g *47/08*

U.S. Cl. 198—22 R **5 Claims**

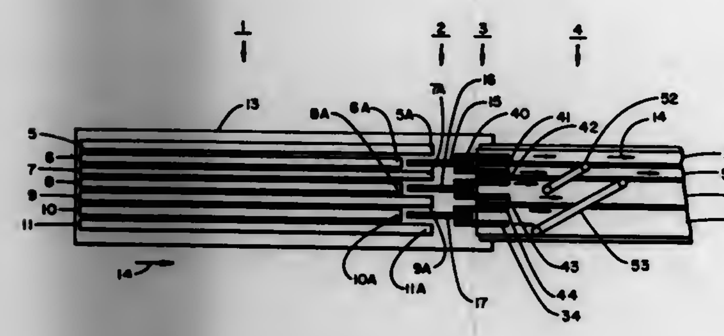


A supply of logs are successively transferred from an endless deck conveyor to a sawmill carriage by a log transfer rotor and log positioning cradles. The rotor includes a shaft supporting a plurality of axially spaced transfer elements each having diametrically opposed recesses for receiving logs. The log positioning cradles are arranged in parallel relation to the rotor and are supported for vertical movement by corresponding fluid cylinders. The log transfer rotor and deck conveyor are independently driven by corresponding motors which are operated in timed relation by an automatic control system.

3,835,979
ARTICLE HANDLING MACHINE

Rodney K. Calvert, Dunwoody, and Alton J. Fishback, Austell, both of Ga., assignors to The Mead Corporation, Dayton, Ohio

Filed Apr. 30, 1973, Ser. No. 355,522
Int. Cl. B65g *47/26*
U.S. Cl. 198—30 **7 Claims**

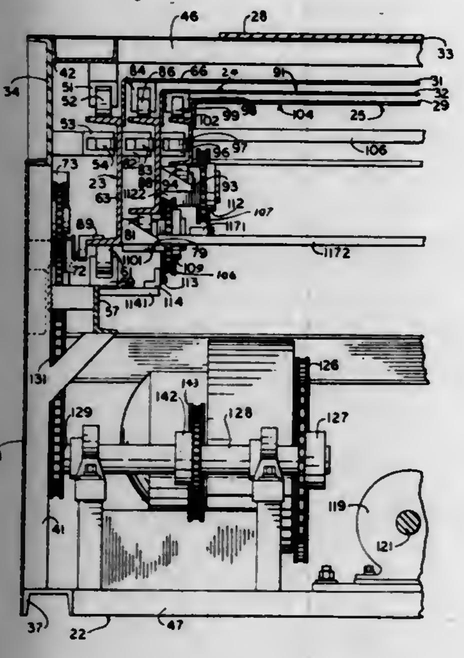


An article handling machine receives a plurality of rows of articles moving at a given velocity and effects a reorientation of the rows of articles into a lesser number of rows in a controlled and orderly fashion. Metering means receives the articles from a plurality of conveyor means and regulates the movement thereof in sequence in a predetermined manner and accelerating means engages the articles and substantially increases the velocity of movement thereof thereby increasing the space between the articles. Converger means then engages the articles and imparts transverse movement thereto relative to the direction of movement imparted by the accelerating means so as to cause the articles to accummulate in sequence on an outfeed conveyor.

3,835,980
CONVEYOR WITH EXTENDIBLE BOOMS

James Brooks, Jr., Green Township, Hamilton County, Ohio, assignor to Jack McDonald, Cincinnati, Ohio

Filed Mar. 20, 1973, Ser. No. 342,998
Int. Cl. B65g *15/26*
U.S. Cl. 198—139 **6 Claims**



A conveyor structure which comprises a base and a plurality of booms mounted thereon. The booms are interconnected to move in and out together. A belt travels on upper plates of the base and booms. A belt take-up carriage is connected to boom advancing means so that the length of the portion of the belt on the upper plates is increased as the booms are extended and reduced as the booms are retracted.

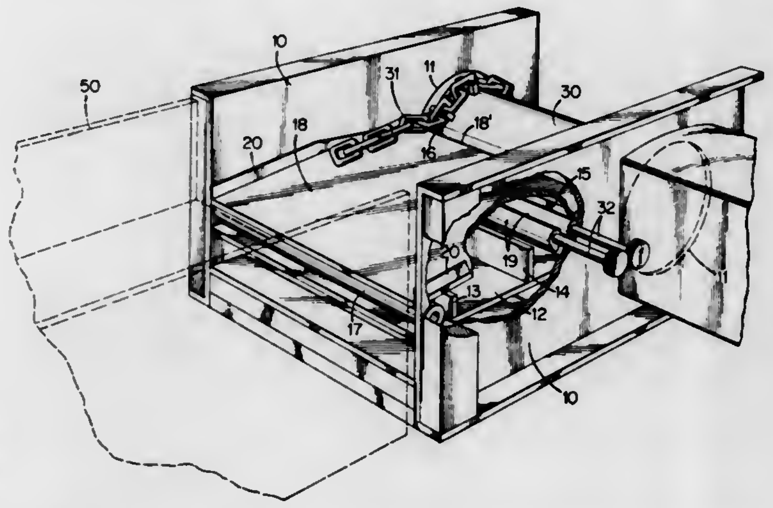
3,835,981
FRAME ASSEMBLIES FOR USE WITH SCRAPER-CHAIN CONVEYORS

Werner Rafael, Altlunen, Germany, assignor to Gewerkschaft Eisenhutte Westfalia, Westfalia, Germany

Filed Aug. 22, 1972, Ser. No. 282,716

Claims priority, application Germany, Sept. 1, 1971, 2143648

Int. Cl. B65g *15/60*
U.S. Cl. 198—204 **8 Claims**



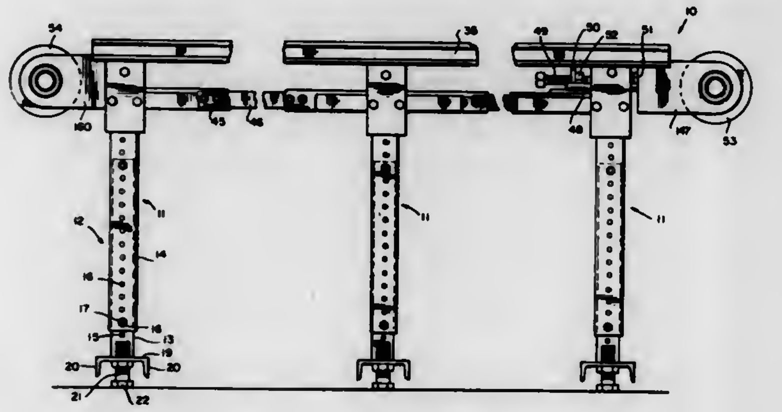
A frame assembly for a scraper-chain conveyor and having two parallel side walls attached together with transverse walls. The side walls have apertures therein for receiving bearings of a chain drum or wheels. One or more horizontal wall is welded between the side walls and a plurality of upright reinforcing ribs are in turn welded to the horizontal wall. The rib nearest the apertures carries a chain deflecting/guiding member.

A plate, adjustable in relation to the side walls, is pivotably supported at the end of the assembly for attachment to a conveyor. The plate is inclined in relation to the horizontal wall and the ribs are located between the plate and the horizontal wall. The plate is supported on adjustable eccentrics or the like used to enable the position of the plate to be altered in accordance with the diameter of the drum or wheels accommodated by the assembly.

3,835,982
MODULAR CONVEYOR STAND

Anthony T. Zappia, 7576 Ivywood Dr., Indianapolis, Ind. 46250

Filed July 2, 1973, Ser. No. 375,653
Int. Cl. B65g *15/60*
U.S. Cl. 198—204 **10 Claims**



A conveyor stand and a conveyor system in which such stands are used to support an endless conveyor strand, together with other elements, all readily assemblable with such stands to produce, from a few kinds of stock parts, any one of a great variety of conveyor systems, the assembling being readily accomplished at the site of proposed use of the conveyor system.

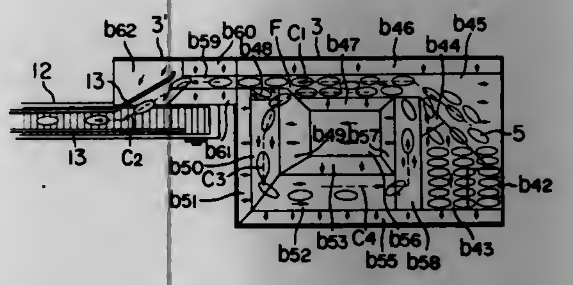
3,835,983
METHOD AND APPARATUS FOR CONVEYANCE OF GOODS BY VIBRATING PLATES

Taro Horii, Hamamatsu, Japan, assignor to Maki Manufacturing Co., Ltd., Shizuoka-ken, Japan

Filed Nov. 12, 1971, Ser. No. 198,106

Claims priority, application Japan, Apr. 22, 1971, 46-26348; Aug. 16, 1971, 46-62150

Int. Cl. B65g *27/04*
U.S. Cl. 198—220 BA **1 Claim**

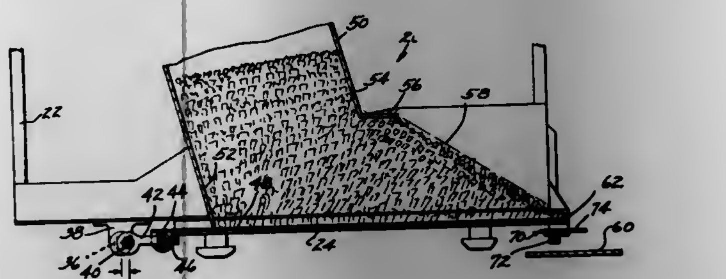


A method for conveyance of goods by vibration, and a transportation mat, in which a transportation mat, having an assemblage of many needle-like, bar-like, or fin-like elastic projections, planted closely together and aslant in a certain direction relative to the perpendicular to the surface of a vibrating plate, is arranged on such surface with the projections slanting in conformity with the conveyance pattern of the goods to be conveyed, to control the conveyance condition of goods, such as moving, change of direction, gathering, distribution, alignment, pooling, or others.

3,835,984
RECIPROCATING FEEDER

Alston L. Reed, 1046 Midway, Northbrook, Ill. 60062

Filed Nov. 24, 1972, Ser. No. 309,609
Int. Cl. B65g *27/00*
U.S. Cl. 198—220 BA **9 Claims**



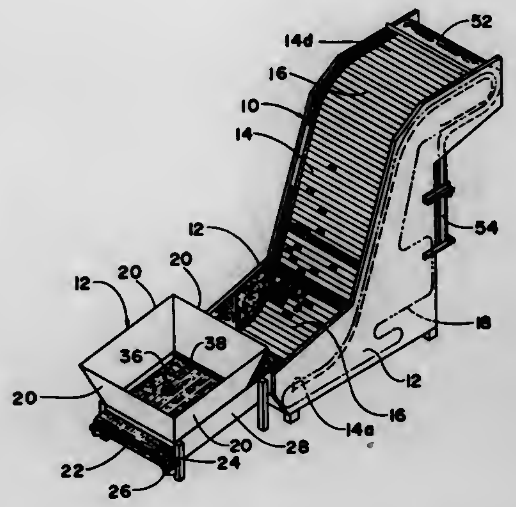
A reciprocating feeder for feeding coal or the like from a hopper onto a conveyor belt. The discharge end of the reciprocating feeder is provided with a shaped plate to even out the dumping of the coal or the like onto the belt so that a more or less continuous supply of coal is provided on the belt rather than discrete piles or lumps as in the prior art.

3,835,985
VACUUM ASSIST CAN UNSCRAMBLER

Ralph Ketchum Johnson, Palo Alto, Calif., assignor to Wiebe Manufacturing, Inc., Palo Alto, Calif.

Filed June 19, 1972, Ser. No. 264,382
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 AA **9 Claims**

Apparatus for orienting randomly disposed cylindrical containers on a conveyer having a stationary incline bed which has two perforated portions across the bed with vacuum suction at the perforated portion, and having parallel guide rods horizontally spanning the incline bed and movable up the incline face pushing containers randomly disposed between the guide rods. The guide rods, which are spatially displaced

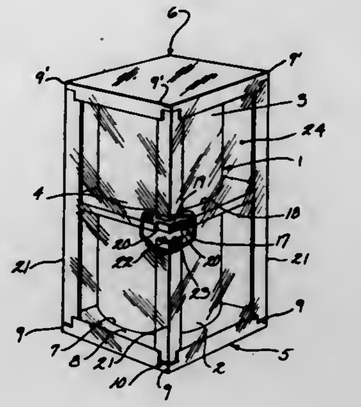


from the incline bed, move immediately adjacent the bed at the perforated portions, dropping containers having their cylindrical surface against the incline bed and retaining containers having their ends against the incline bed with assistance from the vacuum suction at the perforated portion.

3,835,986
COMPOSITE PACKAGE

Donald J. Le Beau, Bourbonnais, Ill., assignor to A. O. Smith Corporation, Milwaukee, Wis.

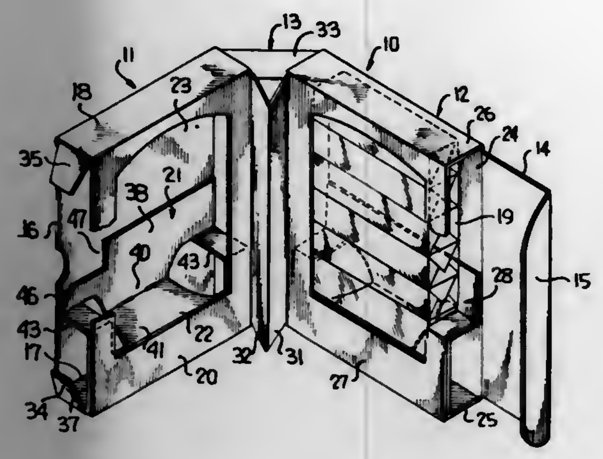
Filed Jan. 30, 1973, Ser. No. 328,084
Int. Cl. B65d *65/16, 81/00, 85/00*
U.S. Cl. 206—320 **7 Claims**



A composite package for enclosing a cylindrically shaped object such as a water heater. Substantially rectangular end members provide locating depressions to receive the ends of the cylindrical object while a substantially rectangular intermediate member provides a circular opening and encircles an intermediate portion of the cylindrical object. Four elongated reinforcing members are positioned to engage locating notches formed at the corners of the intermediate member and extend toward and are positioned within corner depressions formed within the end members. A bi-axially oriented heat shrunk synthetic transparent film is extended externally around the end, intermediate and reinforcing members to hold such members in assembled relation and protect the cylindrical object while permitting visual inspection thereof.

3,835,987
STORY BOOK CARTON LOCKING ASSEMBLY

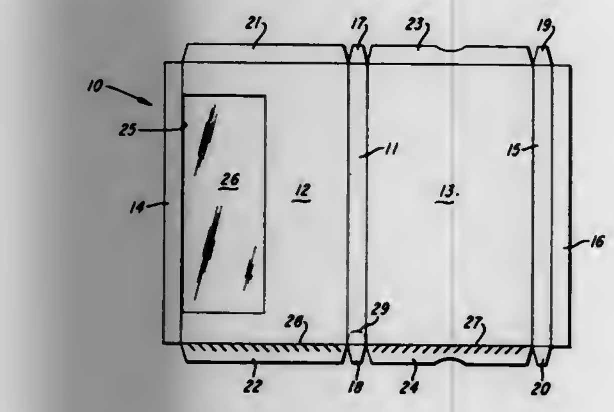
Lawrence J. Growney, Pearl River, N.Y., assignor to Federal Paper Board Company, Inc., Montvale, N.J.
Filed Dec. 19, 1969, Ser. No. 886,586
Int. Cl. B65d *5/50*
U.S. Cl. 206—45.11 **6 Claims**



This disclosure relates to a carton in the form of a story book wherein the carton includes first and second sections hinged together opening in a book opening-like action with the first section being of a hollow construction for receiving a product therein and including inner and outer panels with a support panel assembly interconnecting the inner and outer panels, the support panel assembly having a free edge portion disposed in face-to-face readily separable relation to the inner face of the outer panel along a free edge of the outer panel remote from the second section and cooperating therewith to define a locking flap anchoring slot, the formation of the anchoring slot utilizing solely the support panel assembly in conjunction with the outer panel while at the same time in no way detracting from the function of the support panel assembly.

3,835,988
WINDOW CARTON

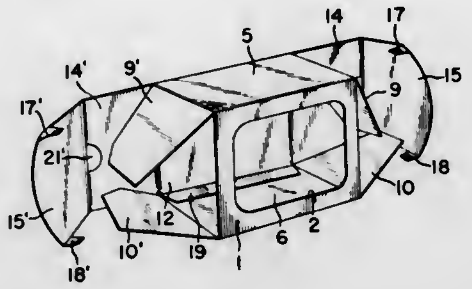
Kenneth T. Buttery, Kalamazoo, Mich., assignor to Brown Company, Kalamazoo, Mich.
Filed Aug. 24, 1972, Ser. No. 283,535
Int. Cl. B65d *5/02, 65/18*
U.S. Cl. 206—45.31 **12 Claims**



A paperboard carton having a generally rectangular cross-section is made up of a plurality of interconnected panels. One of the panels is provided with a window opening therein and situated from the edge of the panel at a distance less than the width of an adjacent panel. Each adjacent panel having an edge within a distance of less than the width of said adjacent panel from said window opening is made up of at least three thicknesses of paperboard extending the full length of the panel.

3,835,989
CARTON WITH TWO COVERS

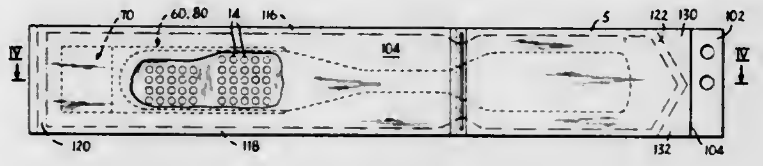
Takahisa Mori, Itami, and Izuru Matsubara, Hirakata, both of Japan, assignors to The Ezaki Glico Kabushiki Kaisha, Osaka-fu and Dai Nippon Printing Company Limited, Tokyo, both of, Japan
Filed Mar. 2, 1973, Ser. No. 337,549
Claims priority, application Japan, Apr. 27, 1972, 47-49823[U]
Int. Cl. B65d *5/72*
U.S. Cl. 206—45.31 **6 Claims**



A carton with two covers including a bottom plate provided with a pair of cover plates connected respectively to each side-end thereof through the intermediate of an outer side-plate, said cover plates having a width slightly wider than a half of the width of a top plate so that they cooperate with by each other to close or open, as required, the emptying passage defined on the top plate by being inserted inwardly through a gap defined between the top plate and the inner side-plate.

3,835,990
THERMOMETER PACKAGING

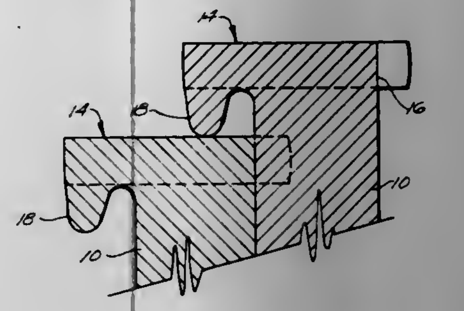
Zsigmond L. Sagi, Parsippany; Robert C. Comer, Rockaway; Norman Andersen, Totowa; John R. Burtha, Essex Falls, all of N.J., and Samuel Pertchik, Long Beach, N.Y., assignors to Bio-Medical Sciences Incorporated, Fairfield, N.J.
Filed Oct. 25, 1972, Ser. No. 300,495
Int. Cl. G01k *11/08*
U.S. Cl. 206—306 **11 Claims**



A sterile thermometer package in which a generally flat disposable type thermometer is packaged is disclosed. The package comprises an envelope of first and second flat strips of material having vapor impervious and heat sealable character which are heat sealed together in a continuous heat seal course encircling the thermometer. A removable shield is disposed in the thermometer and is designed to maintain the thermometer operative indicating components separated until required for use, the shield having a pull tab thereon with which peeling removal of the same is initiated, the tab being anchored within and to the envelope on one end of the latter. To remove the thermometer from the package, the envelope is opened at the other end thereof to expose the thermometer handle and the thermometer then is removed from the envelope by pulling force applied to the thermometer such pulling action effecting removal of the shield within the package during course of the thermometer removal from the package. Further during removal of the thermometer from the package, a presser comb unit presses the operative elements in the indicating end of the thermometer into operative communication.

3,835,991
NAIL AND METHOD AND APPARATUS FOR MAKING SAME

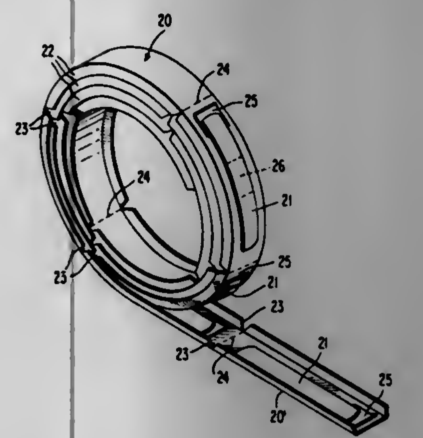
Carl T. Brecht, Cincinnati, Ohio, assignor to Senco Products, Inc., Cincinnati, Ohio
Filed Sept. 15, 1972, Ser. No. 289,487
Int. Cl. B65d *73/02*
U.S. Cl. 206—343 **3 Claims**



Nail for use in magazine fed nailing machine having a notched head and a depending abutment on the underside of the head so that when a plurality of nails are aligned in a strip with the shank of one nail engaged in the notch of the preceding nail, the depending abutment will space the heads of adjacent nails apart in the direction of driving.

3,835,992
BANDAGE DISPENSING PACKAGE

John Q. Adams, IV, 1206 Foxcroft Rd., Richmond, Va. 23229
Filed Oct. 24, 1972, Ser. No. 300,149
Int. Cl. A61l *15/00;* **B65d** *85/67*
U.S. Cl. 206—390 **8 Claims**

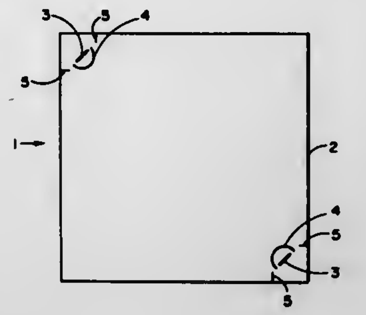


An elongated strip carrier for a plurality of bandages serves as a clean storage package for the bandages and also aids greatly in the dispensing of individual bandages as they are needed. Bandages may be mounted on one or two sides of the carrier strip and the strip may be coiled or otherwise formed into a compact storage body. The awkward handling of individually wrapped small bandages is avoided.

3,835,993
FILM SHEET DISPENSING

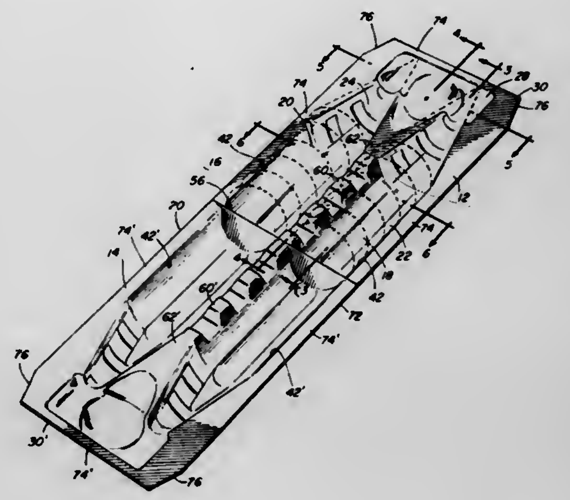
Milton A. Howe, Jr., 505 Perrin Dr., Spartanburg, S.C. 29302; Everett H. Dexter, 613 Holly Spring Rd., Lyman, S.C. 29365, and Eugene D. Thompson, 212 Dallwood Dr., Greenville, S.C. 29609
Filed Feb. 14, 1972, Ser. No. 225,820
Int. Cl. B65d *83/00*
U.S. Cl. 206—451 **5 Claims**

This invention is an apparatus for dispensing film sheets which are used for wrapping hamburgers, sandwiches, or other products which must be hand wrapped quickly. The film sheets are stacked and stapled at at least one corner with cooperating slits cut in the film near the staple. The sheets can be easily and rapidly torn from the stack with the remaining film held firmly by the staple so that film fragments do not contaminate the product. A dispensing tray is provided which further secures the stack of film sheets. Products can be wrapped by placing them on the top sheet of film and lapping the corners over the product so the sheet is torn from the staple thereby wrapping the product as the sheets are dispensed.



3,835,994
CONE PACKAGE

Paul Davis, Swampscott; David Schneider, Lexington, both of Mass., and Paul Hollinger, Pikesville, Md., assignors to Sweetheart Plastics, Inc., Wilmington, Mass.
Filed May 18, 1972, Ser. No. 254,481
Int. Cl. B65d *81/16, 85/30*
U.S. Cl. 206—499 **9 Claims**



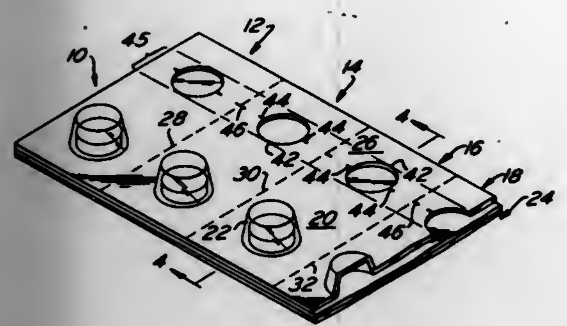
A package for ice cream cones including a pair of generally rectangular complementary panels made of an expanded foam plastic material with each panel having a pocket which corresponds in shape to the shape of a number of nested ice cream cones. The panels completely enclose the cones in the pockets when oriented in face to face relation, and the assembled cones and panels fit in a box which is smaller in thickness than the assembly so as to preload the cone package to prevent movement of the cones in the box.

ERRATUM

For Class 206—519 see:
Patent No. 3,836,042

3,835,995
TAMPERPROOF PACKAGE

Russell R. Haines, Cherry Hill, N.J., assignor to PACO Packaging, Inc., Pennsauken, N.J.
Filed July 12, 1972, Ser. No. 270,877
Int. Cl. B65d *83/04, 17/24*
U.S. Cl. 206—42 **5 Claims**



A tamperproof package having a plastic carrier heat-sealed to a laminate except for a transverse zone is disclosed. A tear-off strip beginning at the transverse zone must be torn off before the laminate may be separated from the carrier layer to prevent access to a product in a pocket on the carrier.

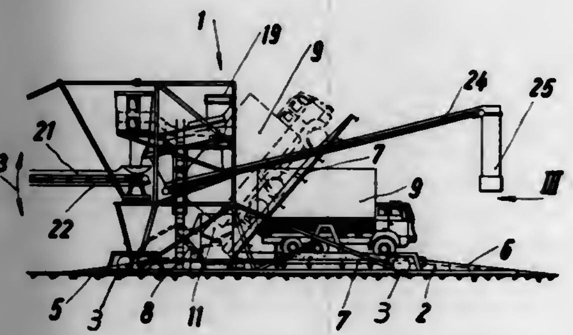
3,835,996
PROCESS FOR THE ELECTROSTATIC SEPARATION OF CLAY CONTAINING CRUDE POTASSIUM SALTS

Arno Singewald, Kassel; Gunter Fricke, Neuhof, and Detlef Jung, Meitingen, all of Germany, assignors to Kali and Salz AG, Kassel, Germany
Filed Aug. 22, 1972, Ser. No. 282,839
Int. Cl. B03b *1/04*
U.S. Cl. 209—9 **9 Claims**

Crude argillaceous potassium salts are separated by first subjecting the crude salt to a conditioning with 2,6-dinitrophenol or a mixture of said dinitrophenol, a halogenocarboxylic acid and water and thereafter the thus-conditioned salt is passed through an electrostatic separator in which a warm atmosphere is maintained, thereby producing a separation of the particles of the salt into two fractions, one containing clay and rock salt at the positive electrode and the other containing sylvite and kieserite at the negative electrode of the electrostatic separator.

3,835,997
MOBILE DEVICE FOR RECEPTION, PRECLEANING AND PILING OF BEETS

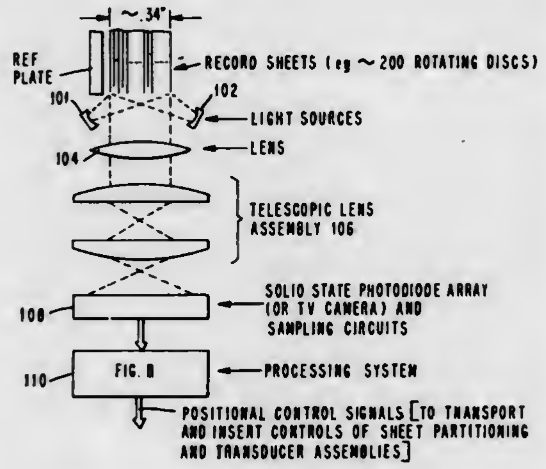
Heinrich Hartmann; Siegfried Stelter, both of Hondelage, and Heinz-Gunter Trelewsky, Braunschweig, all of Germany, assignors to Braunschweigische Maschinebauanstalt, Braunschweig, Germany
Filed Mar. 22, 1973, Ser. No. 343,862
Claims priority, application Germany, June 2, 1972, 2226740
Int. Cl. B07c *1/04*
U.S. Cl. 209—73 **10 Claims**



A mobile device for reception, precleaning and piling of sugar beets using an end-tipping device as discharging equipment for beet delivering vehicles, a precleaning device for dirt separation and a laterally and vertically sluable overhand beam with a conveyer to pile the sugar beets. A folded flap is arranged between the tipping platform and the ramp for the end-tipper and forming a part of the passable bottom of the tipper in its lower position. In its upward position the flap defines a collecting area in combination with one lateral wall at the outside of the tipper for receiving the sugar beets falling off the dumping vehicle which is immediately emptied from beets by a conveyer in the bottom area. This conveyer moves the beets into an intermediate bin so that the tipper is ready for a further discharging operation during which the intermediate bin is emptied and the conveyer in the bottom area transports the beets in a direction transverse of the length of the end-tipper.

3,835,998
EDGE LOCATING APPARATUS

Richard O. Cobb, and James Lipp, both of Poughkeepsie, N.Y., assignors to International Business Machine Corporation, Armonk, N.Y.
Filed July 2, 1973, Ser. No. 375,985
Int. Cl. B07c *5/342*
U.S. Cl. 209—111.7 **17 Claims**

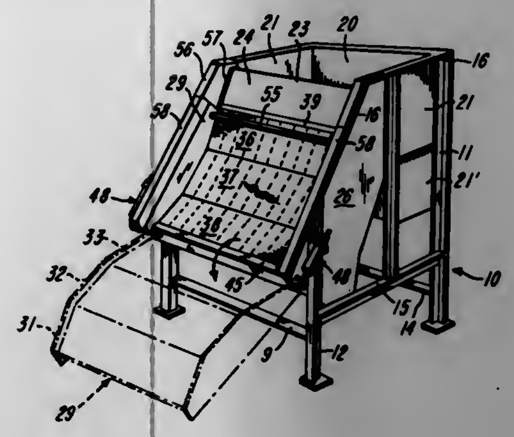

~.34"
REF PLATE
RECORD SHEETS (eg ~ 200 ROTATING DISCS)
101
102
LIGHT SOURCES
104
LENS
TELESCOPIC LENS ASSEMBLY 106
108
SOLID STATE PHOTODIODE ARRAY (OR TV CAMERA) AND SAMPLING CIRCUITS
110
FIG. 8
PROCESSING SYSTEM
POSITIONAL CONTROL SIGNALS [TO TRANSPORT AND INSERT CONTROLS OF SHEET PARTITIONING AND TRANSDUCER ASSEMBLIES]

Flexible storage sheets of a laminar file assembly are sensed in multiple by stationary sensors. Resultant signals are used to control operation of a partitioning blade mechanism relative to randomly selected sheet interfaces and to verify integrity of such operation. Sheets unmasked by a cursor mask registered with the blade tip are sensed in multiple by stationary optics and photoelectronics. The photoelectronic signals are repeatedly sampled, staticized and counted by shifting and counting electronics. The count derived from each sample represents the instantaneous location of the blade tip relative to the sheets. The counts are used to indicate: sheet stability (e.g., for predictive or extrapolative control relative to continually moving sheets), instantaneous location of a specific sheet interface relative to the partitioning mechanism and/or integrity of a partitioning operation currently in progress. Due to the multiple sensing organization subject apparatus is virtually insensitive to transient error in the sensors or electronics. Errors are not cumulative since the count derived from each sample represents a complete information (addressing) entity.

3,835,999
SCREEN UNITS USED FOR DEWATERING AND CLASSIFYING THE CONTENTS OF A LIQUID SLURRY

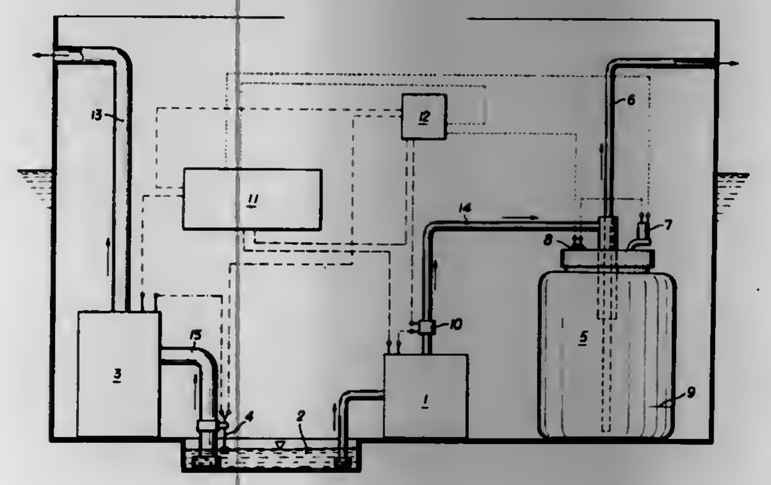
William P. Moore, Springfield, Ohio, assignor to The Bauer Bros. Co., Springfield, Ohio
Filed Oct. 18, 1972, Ser. No. 298,476
Int. Cl. B07b *1/28*
U.S. Cl. 209—251 **17 Claims**

Dewatering and classifying apparatus embodying a screen, presenting an inclined, preferably multi-planar, flow surface. The screen has an unique hinged support at its lower end which facilitates its mount and selective disposition for ease of maintenance and use and its readily interchangeability, as and when required.



3,836,000
PROCESS AND APPARATUS OF HANDLING WATER WHICH IS CONTAMINATED WITH AN OILLIKE LIQUID

Peter Jakubek, Brunn Am Gebirge, Austria, assignor to Fa. International Pollution Control Systems, Inc., Washington, D.C.
Filed July 8, 1971, Ser. No. 160,779
Claims priority, application Austria, July 13, 1970, 6372/70; Jan. 22, 1971, 534/71; June 3, 1971, 4826/71
Int. Cl. B01d *29/36*
U.S. Cl. 210—104 **18 Claims**

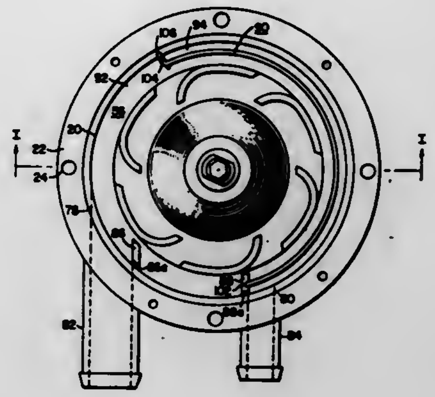


A liquid to be handled forms a body having a lower layer consisting of water substantially free of oillike liquid and an upper layer which comprises an oillike liquid. Water from said lower layer is pumped directly from said body. Liquid is pumped from said upper layer and is subjected to a separating treatment to remove oillike liquid.

3,836,001
PUMP WITH SELF-CLEANING LINT FILTER

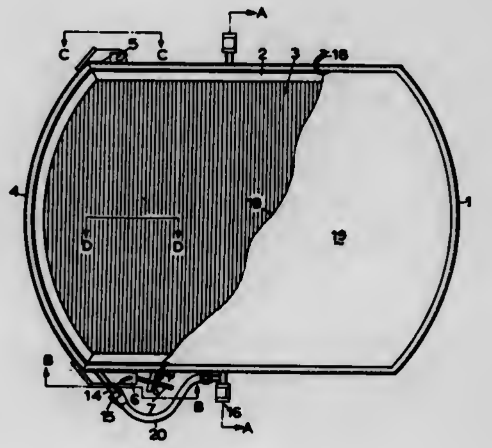
Robert L. Heldreth, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed July 19, 1972, Ser. No. 273,257
Int. Cl. B01d *35/22, 35/02*
U.S. Cl. 210—167 **7 Claims**

The invention provides a bi-directional single-impeller centrifugal pump having a filter screen enclosed within the pump housing and interposed, in the pump chamber, between the single pump inlet and one of two outlets defined in the housing for filtering the fluid pumped through the one outlet in response to the impeller rotating in one direction. When the impeller is reversed to pump the fluid through the other outlet, the particles of lint etc., retained within the pump chamber by the filter screen are then free to exit the pump as flushed therefrom by the fluid being pumped through the other outlet.



3,836,002
FILTER ELEMENTS

Colin M. Radford, Sandton, South Africa, assignor to Filtaflo (Proprietary) Limited
Filed June 1, 1973, Ser. No. 366,304
Claims priority, application South Africa, June 26, 1972, 72/4388
Int. Cl. B01d *29/04*
U.S. Cl. 210—232 **9 Claims**

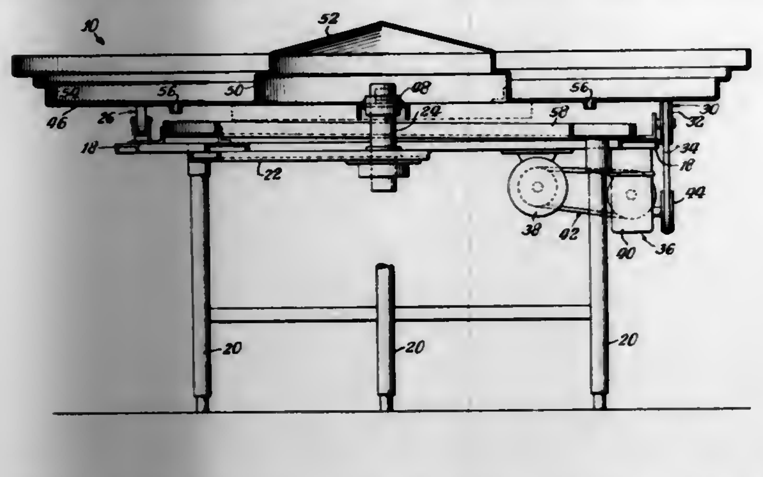


A filter element comprising a panel and a surround to the panel, the surround being shaped for support in a supporting frame of a filter assembly. The panel embodies flow paths allowing fluid flow in the general direction of the plane of the panel and communicating with a drainage channel in the surround. The latter further embodies a caulking groove adapted to retain a sheet of filter material so that the latter overlies the panel.

3,836,003
ROTATING FEED TABLE FOR DISHWARE AND THE LIKE

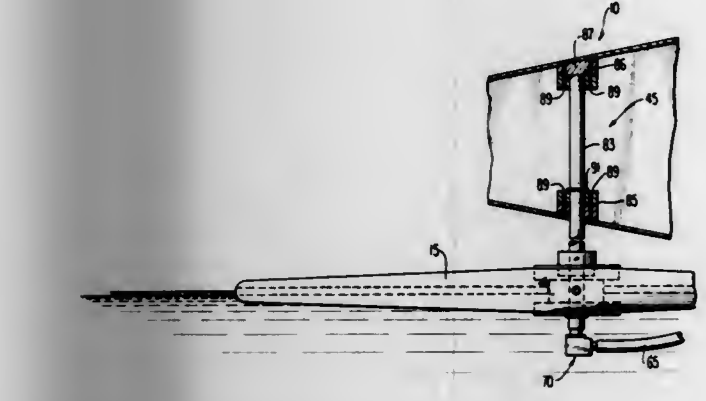
Erik O. Vilen, La Grange Park, Ill., assignor to G. S. Blakeslee & Co., Chicago, Ill.
Filed Apr. 9, 1973, Ser. No. 349,204
Int. Cl. B01d *33/00*
U.S. Cl. 210—241 **6 Claims**

A generally horizontally disposed rotatable table top is supported at three points on a pair of idler roller means and power driven roller means. Also, the table top is formed with a plurality of drain apertures, and a channel trough is located below the table top for collecting liquids flowing through the apertures and directing the same to an outlet.



3,836,004
APPARATUS FOR RECOVERING OIL SUBSTANCES FROM THE SURFACE OF A BODY OF WATER

Uncas Favret, P.O. Box 73095, Metairie, La. 70003
Filed Dec. 7, 1972, Ser. No. 312,913
Int. Cl. E02b *15/04*
U.S. Cl. 210—242 **20 Claims**

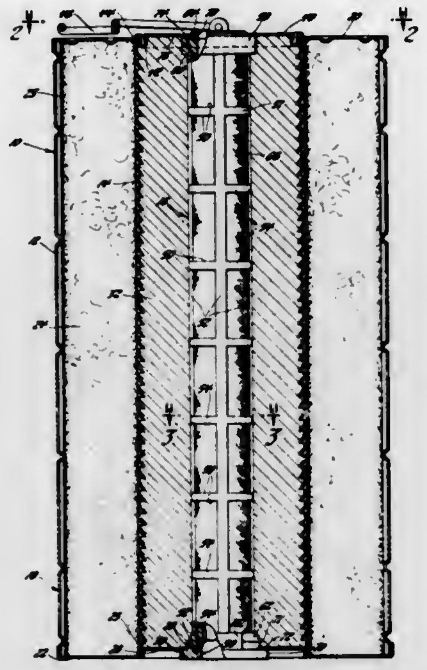


A buoyant float disposed in a body of water carries oil inlet ports at a level to withdraw primarily oily substance floating on the surface. The ports are sized relative to the size of a communicating oil collection suction chamber so as to permit impeded flow into the chamber and to aid in creation of a vortex like effect tending to withdraw fluid with a heavy concentration of oil. A remote pump connected to a portion of the float provides suction sufficient to withdraw the oily substance from the collection chamber. Where wind may tend to displace the oily substance, a sail-like wind reaction surface which is attached to the float, carries the float, and its oil inlet ports, with the displaced oily substance. The oil inlet ports are disposed so as to be carried preferably above the water level so that in the absence of an upper layer of oily substances, only air is withdrawn.

3,836,005
DRY CLEANING FILTER ELEMENT ASSEMBLY

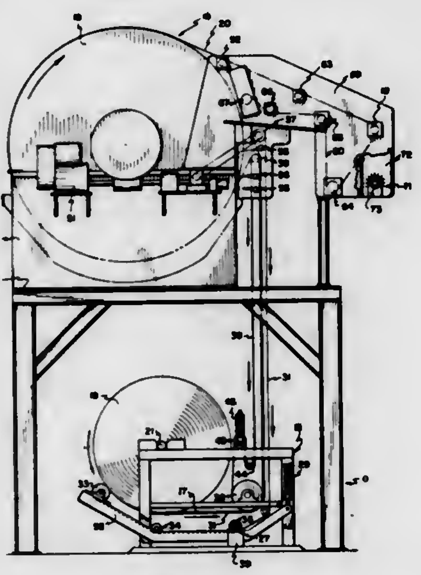
Richard J. Bauer, Davison, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Sept. 13, 1973, Ser. No. 397,064
Int. Cl. B01d *27/08*
U.S. Cl. 210—266 **9 Claims**

A replaceable filter cartridge for a dry cleaner has concentric sheet metal cylinders and granular carbon held together between the ends of the cartridge by a plastic center tube. The center tube has a continuous plastic screen integrally molded with a grid of plastic ribs. The center tube has an annular shoulder on one end thereof sealingly biasing the outside of one end of the filter cartridge to retain the carbon and a metal ferrule molded into the other end thereof and crimped to the other end of the filter cartridge to lock the filter cartridge in assembled relationship. The center tube is shorter than the sheet metal cylinders so that the dimensional stack-up maintains the center tube in tension to facilitate the sealing bias of the center tube throughout the useful life of the filter cartridge.



3,836,006
MEDIA FEED SYSTEM FOR A FILTRATION DEVICE

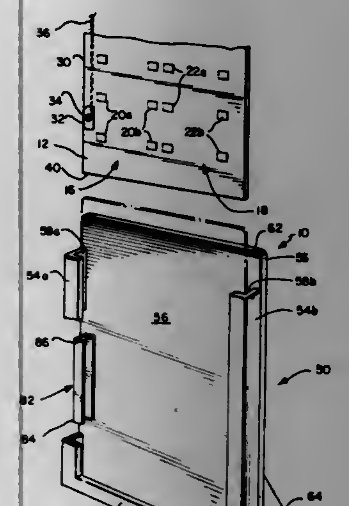
Steven S. Davis, Salt Lake City, Utah, assignor to Envirotech Corporation, Salt Lake City, Utah
Filed Mar. 16, 1973, Ser. No. 342,046
Int. Cl. B01d *33/00*
U.S. Cl. 210—387 **4 Claims**



Apparatus for feeding a lightweight continuous sheet of disposable filter medium from a large supply roll onto a rotary drum vacuum filter. The feeder includes at least one pair of endless gripper belts which are trained about rollers in face-to-face relationship to grip the disposable medium therebetween to carry it from the supply roll to the filter. The roll of filter medium is mounted in a fixed cradle, a press roller is mounted on levers to continually press against the roll of paper as it unwinds and one of the gripper belts passes over the press roll against the paper roll to unwind the filter medium and carry it into the nip between the gripper belts for delivery to and release at a location adjacent the filter. The press roller and its associated belt are arranged to contact a relatively large area of the supply roll thus effecting rotation of the supply roll to assist in unwinding.

3,836,007
EYEGLASS DISPLAY HOLDER

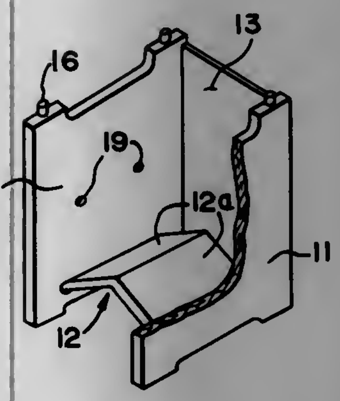
David Rosenwein, 137 S. Harper Ave., Los Angeles, Calif. 90047
Continuation-in-part of Ser. No. 253,798, May 16, 1972, abandoned. This application Mar. 7, 1973, Ser. No. 338,820
Int. Cl. A47f *7/02;* **B65d** *5/50;* **G08b** *13/14*
U.S. Cl. 211—13 **4 Claims**



An eyeglass display card is provided wherein the temples of each pair of glasses are maintained in a folded configuration thereby preventing removal of the glasses from the display card without first removing the display card from a rack or frame which also serves to maintain the display card in a generally upright position, and means are provided on the card which coact with means on the rack or frame for sounding an alarm when the card is moved toward a card removal position.

3,836,008
WINE RACK

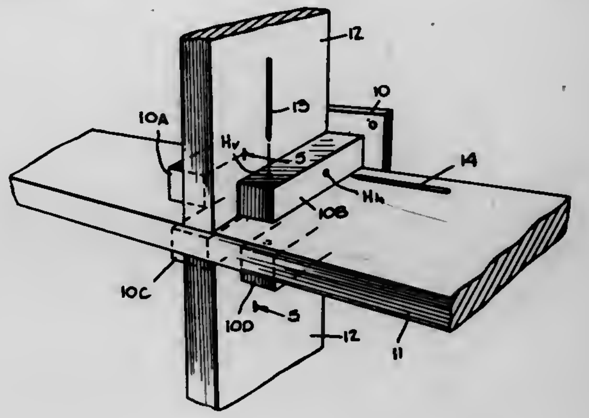
David M. Mraz, 90 Harrison Ave., Sausalito, Calif. 94965
Filed Mar. 19, 1973, Ser. No. 342,794
Int. Cl. A47b *73/00;* **A47f** *7/00*
U.S. Cl. 211—49 R **3 Claims**



A rack for storing wine comprising modules that can be assembled to provide the capacity desired. Each module is a structure including spaced vertical side panels and a bottle supporting shelf between the panels which is in the form of an inverted V as viewed from the front of the structure. Cylindrical shaped bottles of various sizes are stably supported on the shelves.

3,836,009
SHELVING SYSTEM HAVING WALL-MOUNTED FIXTURES

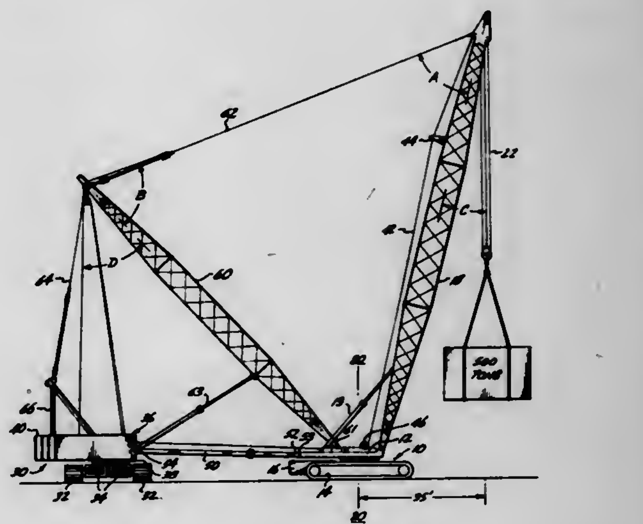
Leonard Horowitz, 30 Joralemon St., Brooklyn, N.Y. 11201, and John Tam, 73 St. Marks Pl., New York, N.Y. 10003
Filed Feb. 23, 1973, Ser. No. 335,138
Int. Cl. A47f *5/08*
U.S. Cl. 211—90 **4 Claims**



A shelving system formed by fixtures adapted to support both horizontal shelf pieces and vertical partition or divider pieces to make possible the erection of an assembly of open-ended shelves and enclosures in a variety of interesting and useful structural patterns. The fixtures are attachable to a wall at selected positions to provide support for the pieces. Each fixture is constituted by a flat mounting plate from which four cantilever arms project in an array defining a cruciform socket having a horizontal branch intersected by a vertical branch. Shelves are set up by bridging pieces between horizontally spaced fixtures, the ends of the pieces being received in the horizontal branches of the socket. Enclosures are formed by extending pieces between vertically spaced fixtures, the ends of the pieces being received in the vertical branches of the socket, the vertical pieces cooperating with horizontal pieces to define an enclosure.

3,836,010
COUNTER-BALANCED CRANE STRUCTURE

Neil F. Lampson, Kennewick, Wash., assignor to Riggers Manufacturing Company, Kennewick, Wash.
Continuation of Ser. No. 218,959, Jan. 19, 1972, abandoned. This application Aug. 27, 1973, Ser. No. 391,623
Int. Cl. B66c *23/74*
U.S. Cl. 212—49 **8 Claims**



An earth-borne crane structure having a horizontally rotatable load platform for the superstructure is associated with a laterally displaced, weighty, self-propelled mobile unit by means of a stiff spreader link operable upon circumferential movement of said mobile unit relative to said crane structure to apply torque to the load platform and rotate the same and the load borne thereby from the superstructure.

3,836,011
EXTENSIBLE BOOM

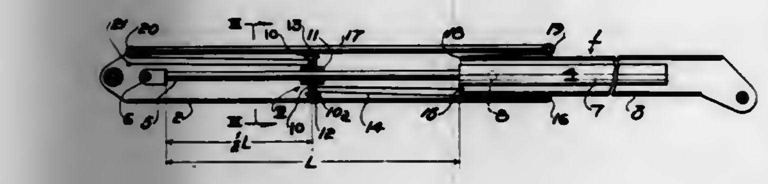
Teruya Sakamoto, 2482-70, Midori-cho, Sakaide; Takemi Nishimura, 230-14, Nonowe, Havikino, and Osamu Takarada, 1475 Omachi, Muro-cho, Kita-Gun, Kagawa, all of Japan

Division of Ser. No. 80,913, Oct. 15, 1970. This application Dec. 26, 1972, Ser. No. 318,608

Claims priority, application Japan, Jan. 31, 1970, 45-8718; Feb. 2, 1970, 45-9452

Int. Cl. B66c *23/62*

U.S. Cl. 212—144 13 Claims



In an extensible boom of the type having telescopically extensible boom members, a buckling-preventing method for hydraulic cylinder unit employed in the boom wherein an intermediate position of an optionally extended piston-rod of said cylinder unit is always supported with a buckling-preventing device having legs slidably or rotatably engaged with inner circumference of a boom member. The present invention further includes driving means for said buckling-preventing device which moves the device to said intermediate position of the piston-rod in connection with the operation of said cylinder unit.

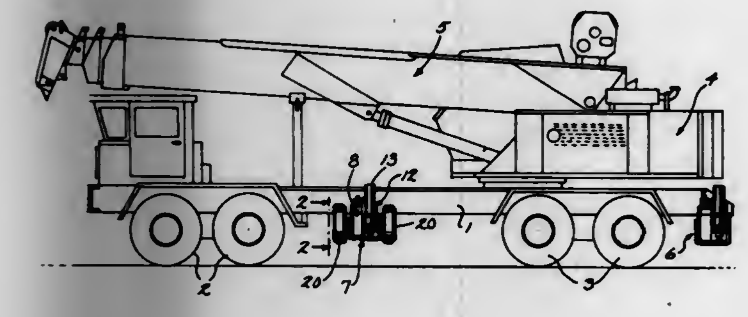
3,836,012
REMOVABLE OUTRIGGER ASSEMBLY WITH ROTATABLE JACK

Lyle D. Grider, New Berlin, Wis., and Robert J. Cleereman, Wooster, Ohio, assignors to Bucyrus-Erie Company, South Milwaukee, Wis.

Filed July 9, 1973, Ser. No. 377,515

Int. Cl. B66c *23/62*

U.S. Cl. 212—145 6 Claims



A removable extensible outrigger assembly of the type including opposite vertical jacks has one jack rotatable to a horizontal position so that the assembly can be removed sidewardly from beneath a carrying vehicle. In one embodiment, the extensible outrigger beam is split into two sections that are normally locked together; and there is a cylindrical cam connection between the extension cylinder and outer section so that extension of the cylinder when the sections are unlocked causes the outer section and jack to be extended and rotated 90°. A second embodiment is similar, but the outer section is held against extension during rotation. In a third embodiment the jack is rotated pivotally using a slotted lever connection.

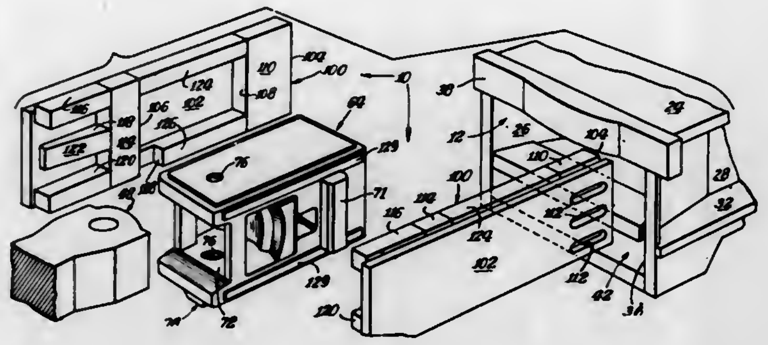
3,836,013
DRAFT GEAR POCKET ADAPTER

Vaughn T. Hawthorne, Mechanicsburg, Pa., assignor to Keystone Industries, Inc., Chicago, Ill.

Filed Dec. 13, 1972, Ser. No. 314,537

Int. Cl. B61g *9/04, 9/20*

U.S. Cl. 213—54 14 Claims



Adapter structure is used for modifying an existing, relatively large draft gear pocket in a railroad car to receive a relatively smaller replacement draft gear such as a hydraulic cushioning device. The adapter structure changes the shape and reduces the size of the pocket, provides stop means for limiting the travel of a movable portion of the replacement device, guides the movable portion as it slides in the pocket, and holds in position one end of a fixed portion of the replacement device.

3,836,014
VEHICLE LIFTING DEVICE

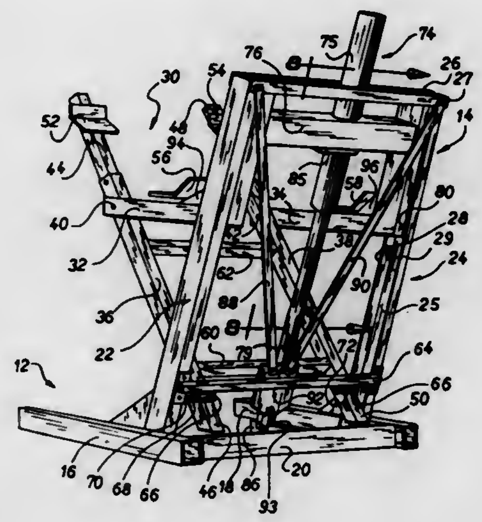
Anders Johansson, Laval, Quebec, Canada, assignor to Tor Johansson, Saltsjo-Duvnas, Sweden

Filed Sept. 15, 1972, Ser. No. 289,619

Claims priority, application Canada, Oct. 15, 1971, 125297

Int. Cl. B23g *3/18*

U.S. Cl. 214—1 A 11 Claims



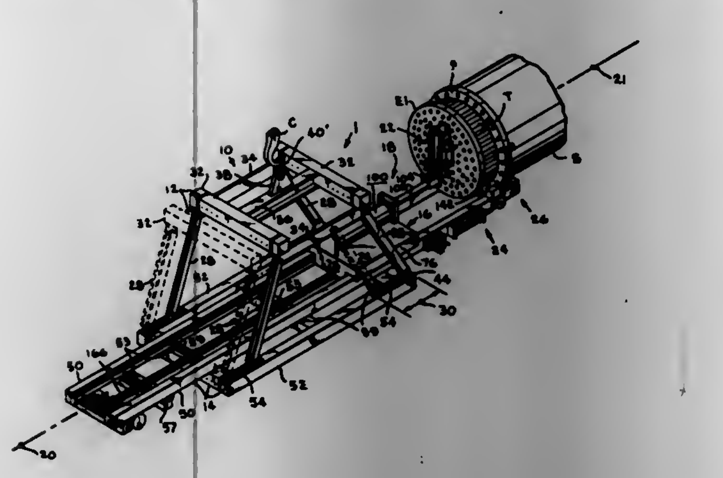
The disclosure herein describes a vehicle lifting device which comprises a supporting frame, consisting of a base portion and of an upright portion, and a lifting frame consisting of two pairs of load arms which are pivotally connected to one another so as to provide relative movement therebetween as the lifting frame is raised. Actuator means are provided for causing the vertical movement of the lifting frame, and abutment means are mounted on the upright portion of the supporting frame for causing the pivotal movement of one pair of load arms relative to the other pair. The above arrangement enables a workman to have access to all parts of the underbody of the vehicle.

3,836,015
TUBE BUNDLE EXTRACTOR

Bobby J. Travis, 345 Mayhaw St., Vidor, Tex. 77662

Filed Mar. 29, 1973, Ser. No. 345,854

U.S. Cl. 214—1 P 14 Claims



A tube bundle pulling or pushing mechanism consisting of an elongated framework adapted to be suspended from a crane hook and including a pair of rails which support the tube bundle and a car movable along the rails to pull or push the bundle. The framework consists of two parts shiftable with respect to one another, one part being a base frame including the rails, crossbeams supporting the rails and extending to either side of them, and a pair of longitudinally extending outrigger beams joining the ends of the crossbeams. The outrigger beams are holow, and slidable within each is a link beam having ears at both ends projecting upwardly through longitudinal slots in the outrigger beam.

The sliding beam belongs to the second part of the framework, the cradle, which further includes vertical tension bars joining the four ears at their lower ends and connected to a rectangular superstructure at their upper ends. The superstructure also includes a brace supporting an eye member which receives a crane hook. A pair of linear actuators disposed on the outrigger beams and having their pistons connected to the sliding beams permits the cradle to be moved relative to the base frame.

Also disclosed are novel means for connecting a pulling member which is offset from the center of a bundle of U-tubes to the end sheet of such bundle through a cluster of holes at the center of the end sheet; novel and remotely controlled means for both aligning the extractor with the heat exchanger shell and securing abutting ends of the two structures together against vertical loads; novel means for clamping such two ends together to prevent relative longitudinal movement; improved means for adjusting the width of the extractor to accommodate tube bundles of various diameters; new and improved means for remotely and safely controlling a set of dogs which depend from a movable car and selectively interlock the car with the base frame; and a plurality of auxiliary power means for moving the car along the rails relatively rapidly, after the prime mover on the car has done the major job of breaking loose from a heat exchanger a tightly fitting bundle of tubes.

3,836,016
APPARATUS FOR THE TRANSPORT AND INTERMEDIATE STORAGE OF PANEL SUPPORTS

Egon Saufhaus, Leutzel-Wiebelsbach, Germany, assignor to Carl Schenck Maschinenfabrik GmbH, Darmstadt, Germany

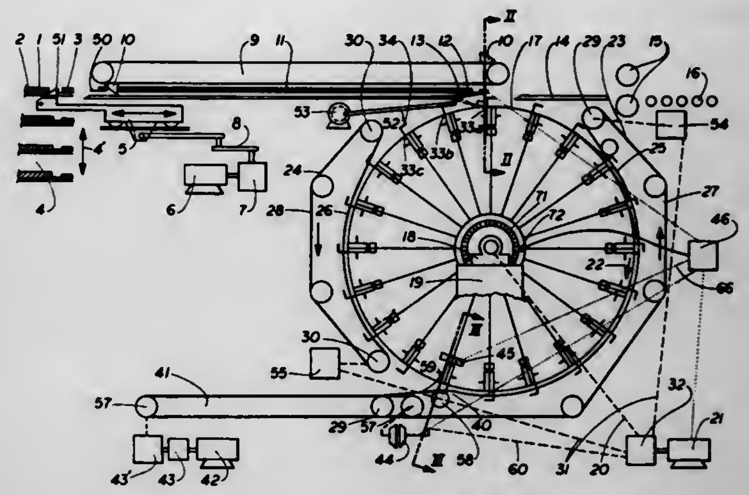
Filed July 23, 1973, Ser. No. 381,514

Claims priority, application Germany, July 27, 1972, 2236937

Int. Cl. B25j *15/04*

U.S. Cl. 214—1 B 10 Claims

A system for the separation of panel supports and panels in the production of panels, provides panel supports having head rods to which flexible sieve like members are affixed for supporting the panels. A tiltable platform releases head rods supported thereby onto a rotatable drum having a plurality of clamping positions. The drum is also provided with a transfer station for releasing the clamping means to transfer the head



rods and their respective sieve support members to a transfer belt. Control means are provided, whereby panel supports received at the platform are immediately transferred to the drum, and the panel supports are stored on the drum until called for in the manufacturing process, whereupon they are transferred from the drum at the transfer station.

3,836,017
APPARATUS FOR TRANSFERRING ARTICLES BETWEEN A CONVEYOR AND A STACK

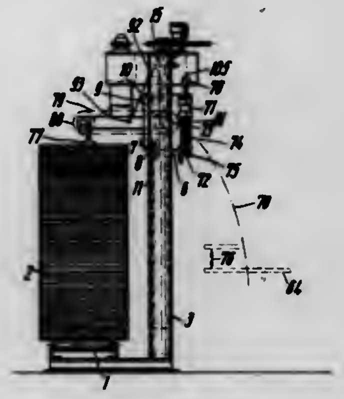
Gerd Bargstedt, Wischhafenersand 91, 2161 Drochtersen, Germany

Filed June 13, 1972, Ser. No. 262,285

Claims priority, application Germany, June 15, 1971, 2129576

Int. Cl. B65g *57/04*

U.S. Cl. 214—6 FS 15 Claims



The conveyor is disposed on a predetermined level. The height of the stack is changed by the transfer of articles by said apparatus. Pivotal mounting means are vertically movably mounted on a frame and define a horizontal axis. A rocker arm assembly is pivoted to said mounting means on said axis for a rocking movement through substantially 180° and has an outer end which is remote from said pivotal axis. A gripper is carried by said rocker arm assembly at said outer end and adapted to hold articles. Vertical drive means are provided to adjust said pivotal axis in height during a rocking movement of said rocker arm assembly. Rocking drive means cooperate with said pivotal mounting means to impart to said rocker arm assembly a pivotal movement through 180°. connecting means are connected between said vertical drive means and said rocking drive means and serve to impart to said rocker arm assembly a rocking movement in dependence on the vertical movement of said pivotal mounting means. Means are provided to define a reference level which is spaced a predetermined vertical distance above said stack.

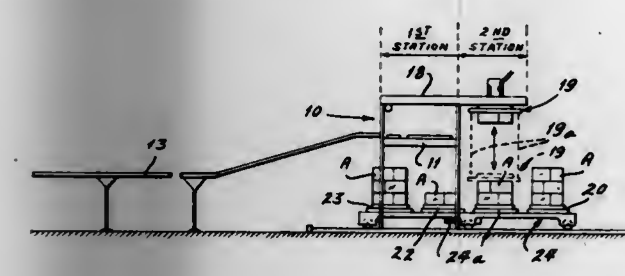
3,836,018
DISCRETE ARTICLE PALLETIZING AND DEPALLETIZING APPARATUS

George J. Dawson, Creve Coeur; Kenneth O. Hannum, St. Peters, both of Mo., and Gerald L. Himmelman, Moorestown, N.J., assignors to Alvey, Inc., St. Louis, Mo.

Continuation of Ser. No. 207,311, Dec. 13, 1971, abandoned. This application Nov. 5, 1973, Ser. No. 412,693

Int. Cl. B65g *57/04*

U.S. Cl. 214—6 FS **6 Claims**



A method of creating or reducing palletized discrete articles by a suction head which is operable to engage one or more articles forming a layer and transporting the layer of articles onto or off of a pallet or slip sheet, and to a method of handling discrete articles from a plurality of sources of articles of the same or of different characteristics or from a conveyor handling a common product so as to build up palletized stacks thereof with one suction head and a multiple station carriage for pallets or slip sheets working in cooperation with the head. This invention also relates to apparatus for carrying out the method thereof as above defined.

3,836,019
ASSEMBLY FOR UNLOADING POWDERED OR SIMILAR MATERIAL FROM A SHIP'S HOLD

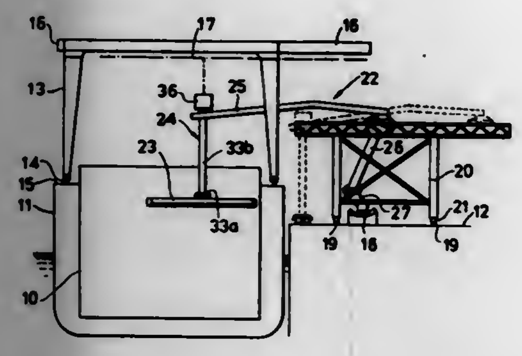
Per Tybring Aralt, Hop, Norway, assignor to Kristian G. Jebsen, Bergen, Norway

Filed Mar. 5, 1973, Ser. No. 338,241

Claims priority, application Norway, Mar. 8, 1972, 728/72

Int. Cl. B65g *63/04*

U.S. Cl. 214—14 **14 Claims**



An assembly for unloading powdered material and the like from a ship's hold which comprises three conveyors and a delivery pipe linked to each other about mutually parallel horizontal axes. The delivery pipe is stationarily positioned relative to the conveyors for downwardly receiving the material from a third conveyor. The conveyors and delivery pipe together with a supply head for feeding the material to a first conveyor provide a dust-tight, closed passage for the powdered material. The supply head houses screw conveyors adapted to transfer the material to a portion of said supply head from which screw conveyors of the first conveyor directly extend. The point of linkage between first and second conveyors is suspended from and regulatable vertically and horizontally by way of ship crane means while the point of linkage between second and third conveyors is supported outside the ship on elevated guide means extending transversely of the direction of the ship.

3,836,020
CONTAINER/CARGO HANDLING PLANT

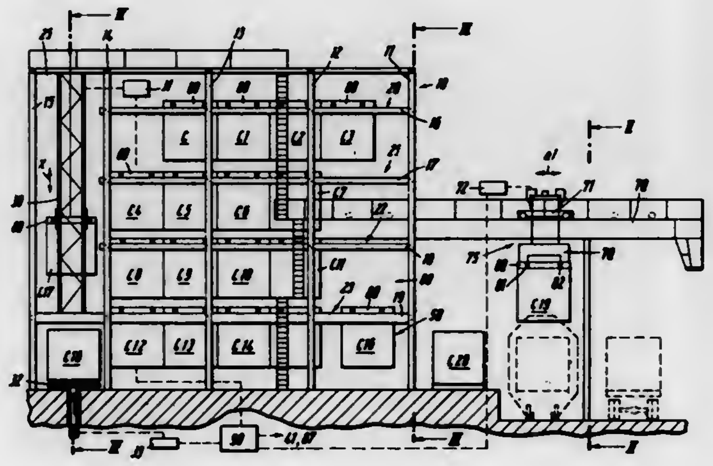
Harry Lassig, Hamburg-Schenefeld, Germany, assignor to Firma Fordertechnik Hamburg Harry Lassig, Hamburg-Schenefeld, Germany

Filed Mar. 12, 1973, Ser. No. 339,773

Claims priority, application Germany, Nov. 11, 1972, 2255346

Int. Cl. B65g *1/06*

U.S. Cl. 214—16.4 C **3 Claims**



A container/cargo handling plant allowing full automatic loading and/or unloading of containers with pallet cargo or discrete cargo or the like, assembling of containers in an assembly area or within various levels of a frame structure, and further adapted to semi-automatic or fully automated loading or unloading of empty or freight-holding containers onto or respectively from transportation means of any type, as well as storing such containers. The plant essentially includes a frame structure having several levels, hoisting and conveyor means, a loading/unloading apparatus, drive and control means.

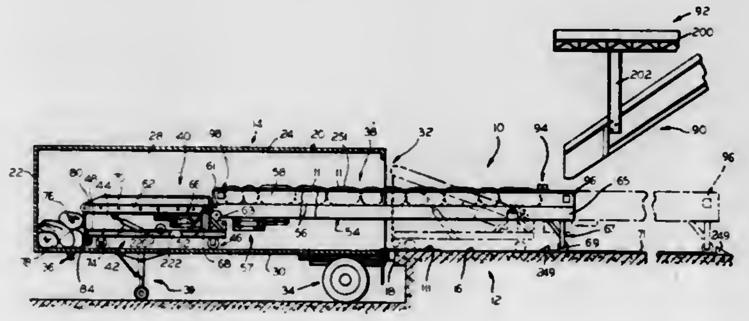
3,836,021
APPARATUS FOR HANDLING MAIL BAGS

Joseph E. McWilliams, 1345 Canterbury Ln., Glenview, Ill. 60025

Filed Oct. 5, 1972, Ser. No. 295,261

Int. Cl. B65g *57/12, 67/08*

U.S. Cl. 214—41 **10 Claims**



Apparatus for loading mail bags from a loading dock, equipped with a chute from which the bags are gravity discharged, into an end loading highway vehicle, comprising a mail bag storing conveyor that receives the bags as they are dropped at random from the chute, and is activated by sensing device when the bags have reached a predetermined level on the conveyor to shift the bags already loaded so that further bags may be applied to the storage conveyor, with the storage conveyor being equipped with sensing devices at its ends that are connected with means to signal the operator when the storage conveyor is fully loaded so that it may be unloaded.

3,836,022
MECHANIZED TREAD BOOKING APPARATUS

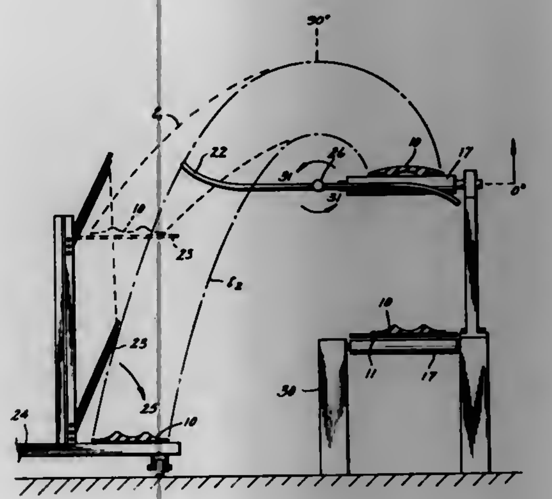
Horst O. H. Ims, Waterloo, Ontario, Canada, assignor to Uniroyal, Ltd., Montreal, Quebec, Canada

Filed Oct. 20, 1972, Ser. No. 299,493

Claims priority, application Canada, Aug. 29, 1972, 150441

Int. Cl. B65g *67/04*

U.S. Cl. 214—41 **11 Claims**



A method and apparatus for mechanically booking tire treads. Tire treads sequentially advancing along a first conveyor are fed to a rotating pick-up drum, where they are lifted onto a second conveyor. The second conveyor has rotary arms disposed thereon that project the tread through space onto the leaves of a tread truck. The tread truck includes an indexing unit that individually indexes each of the separate tread truck leaves into a horizontal position to receive a tread thereon. Means is provided to progressively vary the trajectories of the projected treads in order to insure that the treads will be deposited on the proper truck leaves in undistorted condition.

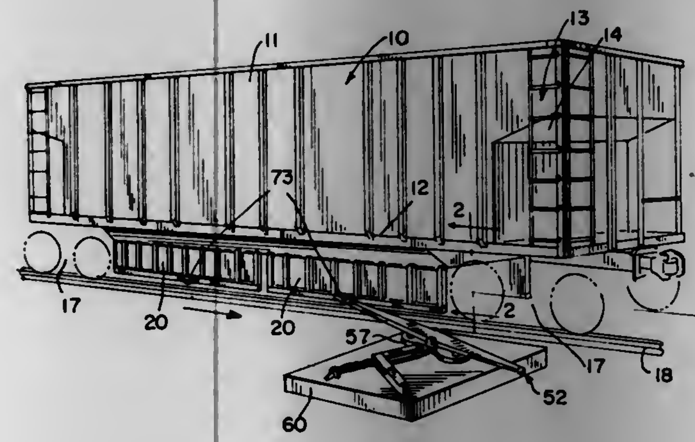
3,836,023
CLOSURE MECHANISM FOR BOTTOM DUMP HOPPER CAR DOORS

William H. Peterson, Homewood, Ill., and Valerian S. Bochenek, Jr., Hammond, Ind., assignors to Pullman Incorporated, Chicago, Ill.

Filed Nov. 2, 1973, Ser. No. 412,390

Int. Cl. B61d *7/30*

U.S. Cl. 214—63 **10 Claims**



A side of track closure mechanism is provided for engaging and exerting an inwardly directed lateral thrust against bottom dump doors in their open position for hingedly moving the doors inwardly into a closed position. The actuating mechanism includes a rotating lever having actuating means at opposite ends thereof and includes means for positioning the actuating means sequentially in position so that they engage the doors of dump cars movable on a track alongside the closure mechanism.

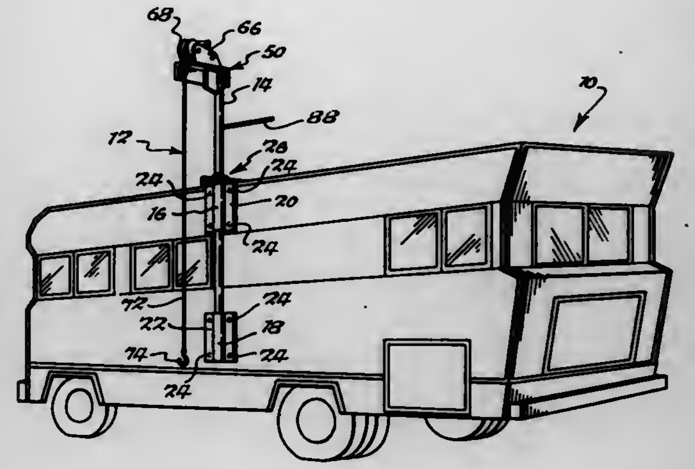
3,836,024
LIFTING APPARATUS

Michael J. Mantino, 22 S. Bend Ln., Lakeview, N.Y. 14085

Filed Feb. 15, 1973, Ser. No. 332,714

Int. Cl. B60p *1/54*

U.S. Cl. 214—75 H **9 Claims**



A lifting apparatus is mounted directly on a vehicle for elevating relatively heavy loads from a lower level onto the roof of the vehicle. The lifting apparatus includes a hoist mounted on the upper end of a reciprocable support tube telescopically mounted in a receiving tube rigidly secured to the vehicle. The support tube is axially adjustable to vary the effective length thereof above the roof of the vehicle and is rotatable relative to its mounting to swing a lifted load onto the roof of the vehicle for storage during transport.

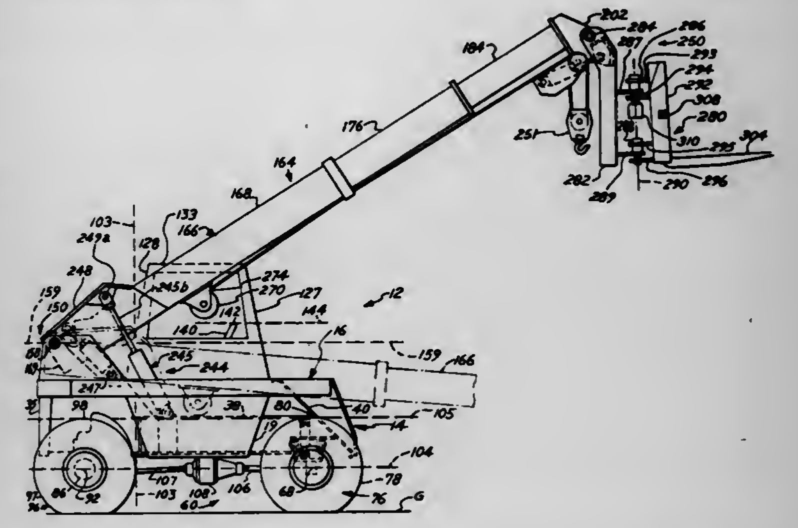
3,836,025
MATERIAL-HANDLING MACHINE

Eugene D. Olson, Wausau, and Salvatore F. Aiello, Racine, both of Wis., assignors to Loed Corporation, Wausau, Wis.

Filed May 21, 1973, Ser. No. 362,199

Int. Cl. B60p *1/48*

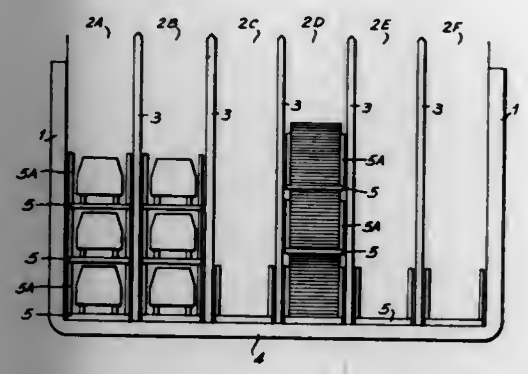
U.S. Cl. 214—77 R **14 Claims**



A self-propelled, low profile material-handling vehicle mounted on a pair of front wheels and a pair of rear wheels. The vehicle supports an extendible boom rotatable around a horizontal pivot axis that is substantially located above the rear wheels. A cab for a driver is located on one side of the boom, and a load-carrying platform is located on the side of the boom opposite the cab. A well located in the vehicle body between the cab and the load-carrying platform is positioned lower than the pivot axis of the boom and is arranged to receive the boom when it is pivoted downward toward the front wheels so that a load can be maneuvered below grade level. The pivot axis is vertically located above the top of the wheels and below the top of a steering wheel located within the cab so that the driver's vision is substantially unobstructed when a load is carried by the boom close to the grade level.

3,836,026
METHOD OF TRANSPORTING SHIP CARGO

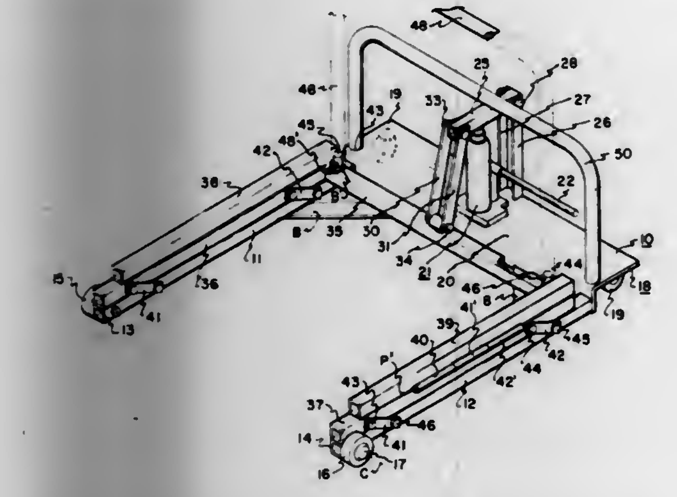
Per-Erik Arnold Peterson, Taby, Sweden, assignor to Rederiaktiebolaget Nordstjernan, Stockholm, Sweden
Continuation of Ser. No. 105,892, Jan. 12, 1971, abandoned.
This application Feb. 9, 1973, Ser. No. 331,250
Claims priority, application Sweden, Jan. 13, 1970, 372/70
Int. Cl. B65d *19/22*
U.S. Cl. 214—152 **1 Claim**



A method and system of transporting goods in alternative transport in vertically stacked relationship, in which the goods are positioned on platforms having upright support posts, superimposed platforms being supported on said posts when supporting light, damageable voluminous goods, and adapted to be alternatively filled with heavy, non-compressible and non-damageable bulk goods extending above the support posts of superimposed platforms whereby the load of the entire goods is transmitted through the cargo.

3,836,027
TRUCK WHEEL DOLLY

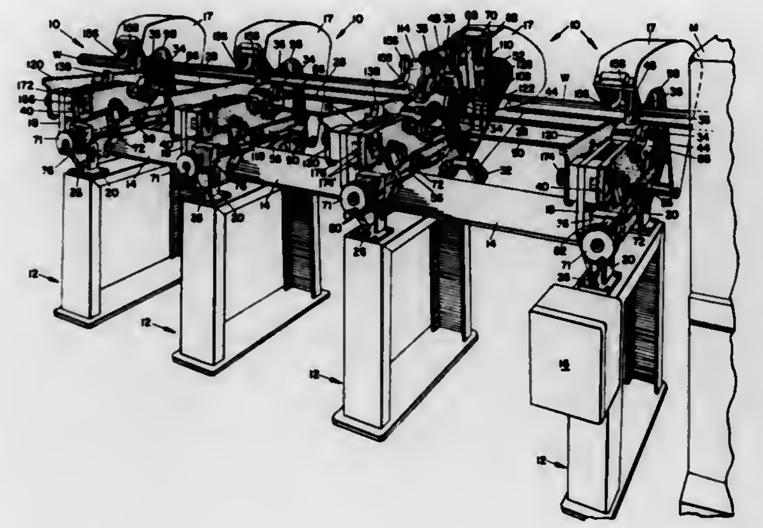
Clive D. Gardner, 1188 Lorrain Dr., Salt Lake City, Utah 84106
Filed Apr. 2, 1973, Ser. No. 346,916
Int. Cl. B60b *29/00*
U.S. Cl. 214—331 **5 Claims**



A truck wheel dolly easily implaced and adjustable for use in lifting, transporting and remounting heavy truck wheels and tires, and this with a mimimum of effort or difficulty as such wheels are lifted, removed and replaced relative to the wheel axle. The dolly includes its own self-contained hydraulic jack with lever and like coupling means for lifting an elevatable frame supported by links to a base frame. The elevatable frame includes hinged support bars or means supplying versatility in use of the equipment. Wheel support bar means as well as auxiliary spacer bars are provided. Wheels and casters are supplied so as to provide fine adjustment in placement of the dolly preparatory to use. Support rail means is provided the lift frame so that a wheel may rest thereagainst and be supported thereby so that oil seals and the like at journaling areas will not be deleteriously disturbed.

3,836,028
FEED APPARATUS

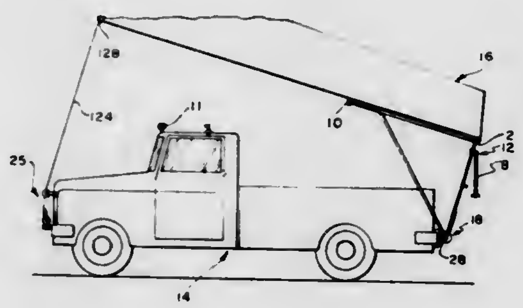
Richard A. Austin, West Springfield, Mass., assignor to Valley Bank and Trust Company, Springfield, Mass.
Filed July 31, 1972, Ser. No. 276,582
Int. Cl. B65h *51/06*
U.S. Cl. 214—338 **7 Claims**



Apparatus for feeding bar or tube stock to such as a lathe or screw machine or the like for machining operations comprising, a plurality of feed stations, each feed station performing the functions of: maintaining constant definition of a center line common to all feed stations and to the machine into which the stock is being fed; imparting rotary motion to the stock by means of a driven roll; imparting translatory motion to the stock by skewing the driven roll and/or an idler roll; and loading consecutive bars of stock into a feed position.

3,836,029
BOAT CONVEYANCE MEANS

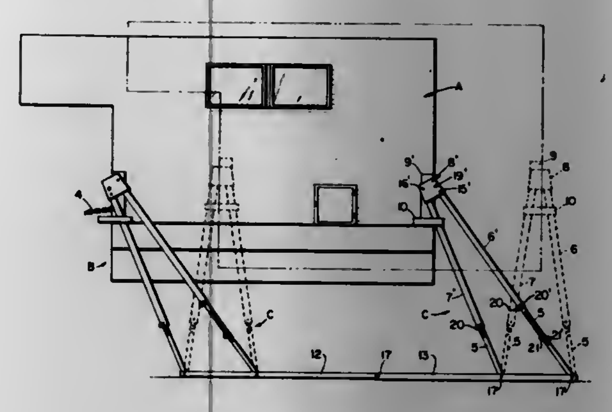
Burnell A. Ruedebusch, 3200 S.E. Blvd., Wichita, Kans.
Filed Jan. 10, 1973, Ser. No. 322,442
Int. Cl. B60r *9/00*
U.S. Cl. 214—450 **9 Claims**



This invention relates to a boat conveyance means readily attachable to a vehicle structure having means thereon to grasp a boat structure in its normal usage condition and elevate and invert the same to a top portion of the supporting vehicle structure. More specifically, this invention is a boat conveyance means having a basic support means connectable to a vehicle structure and operable to be attached to a boat structure; an intermediate support and anchor means connected to the vehicle structure having means thereupon to anchor the boat structure in the conveyance position; and a winch means mounted on the vehicle structure and operable to raise and lower the boat structure to and from the vehicle structure.

3,836,030
CAMPER LOADING AND UNLOADING DEVICE

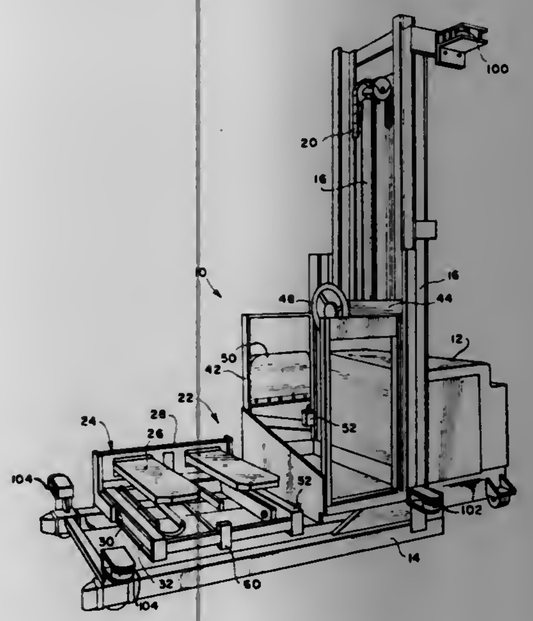
Albert S. Timmons, 5477 LaFayette, Newark, Calif. 94560
Filed Nov. 13, 1972, Ser. No. 305,880
Int. Cl. B60p *1/64*
U.S. Cl. 214—515 **6 Claims**



The invention relates to a support structure adapted to be secured to a camper to facilitate the loading and unloading of the same onto and off of a truck bed.

3,836,031
MATERIAL HANDLING TRUCK APPARATUS

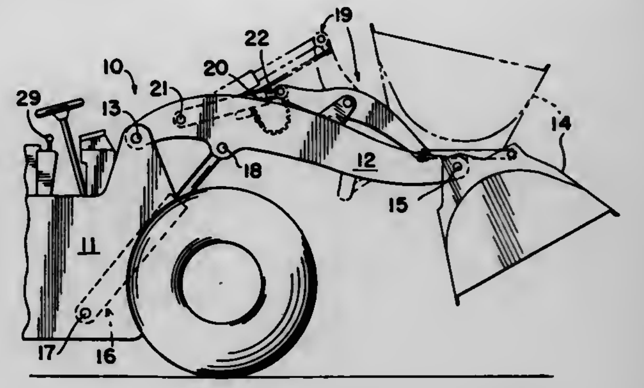
Alexander Weisker, Milford, and Raymond L. Smith, Jr., Southbury, both of Conn., assignors to C & M Manufacturing Company, Inc., Bethesda, Md.
Continuation of Ser. No. 22,436, March 25, 1970, abandoned.
This application June 1, 1972, Ser. No. 258,889
Int. Cl. B66f *9/14*
U.S. Cl. 214—730 **9 Claims**



A narrow aisle stacker attachment for a material handling truck has a mast and carriage and laterally extensible carrier for picking up and depositing loads in a storage rack. Horizontally extensible supports near the vertically movable carriage balance side moments. A set switch prevents excessive upward carriage movement when a carriage-riding operator is standing. The base has rollers which guide the truck in the narrow aisle. Rollers on the mast guide and steady the mast in aisles. A trolley pick-up automatically connects to a bus bar when the truck enters an aisle for operating the normally battery driven truck from an external power source during in-aisle movement.

3,836,032
BUCKET POSITIONER FOR LOADERS

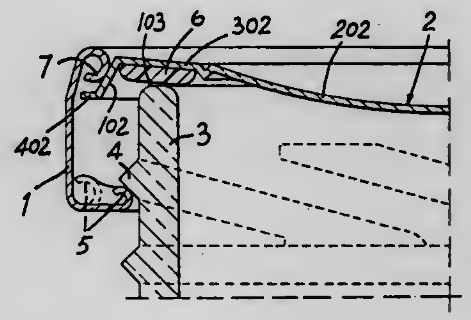
Timothy D. Geier, Oswego, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Jan. 24, 1973, Ser. No. 326,372
Int. Cl. E02f *3/87*
U.S. Cl. 214—764 **6 Claims**



A loader comprises a pair of lift arms pivotally mounted on a tractor and bucket pivotally mounted on the forward ends of the lift arms. A tilt linkage is operatively connected between the lift arms and the bucket to selectively position the bucket for various earth working operations. The tilt linkage comprises a hydraulic cylinder adapted to be selectively actuated manually by a three-position, four-way directional control valve. An extensible rod of the cylinder is mechanically connected by a cable to an air valve which opens to extend a pilot piston which in turn actuates the directional control valve upon extension of the rod.

3,836,033
CLOSURE CAP

Armando Podesta, 52, Via Eustachi, Milan, Italy (21100)
Filed Mar. 19, 1973, Ser. No. 342,408
Claims priority, application Italy, Mar. 23, 1972, 12554/72
Int. Cl. B65d *41/04*
U.S. Cl. 215—7 **5 Claims**



A metal cap for closing a container, e.g. a glass container for foodstuffs, of the kind comprising a cap base extending over the container mouth and beyond its outer edge and a separate encircling cap skirt secured to the container by a screw or bayonet connection and engaging over the edge of the cap base; the cap base being originally curved inwards, but being forced into an outward curve by the anchoring forces acting on its edge when the skirt is secured over it and subsequently being curved inwards again by reduced pressure formed in the container. Loss of pressure is thus indicated by a return to the outwardly curved condition. The region of the cap base projecting beyond the outer edge of the container mouth has a downwardly widening conical edge portion engaged by a rolled-in bead on the upper end of the cap skirt. The adjacent portion of the cap skirt may be conically tapered, and the conical edge portion of the cap base may terminate in an out-turned stiffening flange. The circle of contact preferably lies slightly below the plane of the container mouth. Good engagement and sealing are thereby obtained as well as reliable inward and outward curving of the cap base.

3,836,034

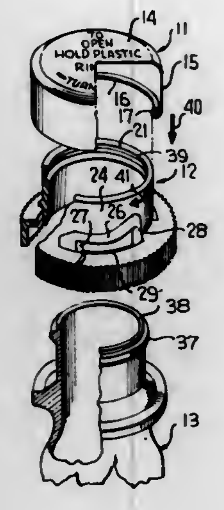
SAFETY CLOSURE, FITMENT AND FINISH

Frank H. Lecinski, Jr., Harwood Heights, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed June 6, 1972, Ser. No. 260,105

Int. Cl. B65d *55/02*

U.S. Cl. 215—9 **25 Claims**



This disclosure relates to a novel safety closure combination in which a generally annular fitment is secured to a container finish by an interlocked bead and groove defining a slip fit, and a closure secured to the fitment by cooperative threads and lugs with means resistive to rotation of the closure relative to the fitment in an opening direction whereby upon the application of opening force to the closure tending to rotate the same the closure and fitment will rotate in unison thereby precluding inadvertent access to the container contents.

The closure and fitment are preassembled prior to being interlocked upon the container finish, and the fitment includes an interior tapered lead surface which permits the fitment to flex radially outwardly whereby the bead thereof can pass inwardly of the closure beyond the lugs and into the fitment groove.

3,836,035

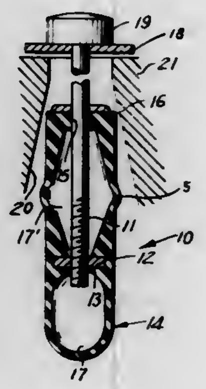
PLUG DEVICE

Rashid I. Simbirdi, 1185 Elm St., San Carlos, Calif. 94070

Filed Jan. 24, 1973, Ser. No. 326,413

Int. Cl. B65d *39/12*

U.S. Cl. 220—24.5 **3 Claims**



A plug device for closing the openings in tanks and other structures. This device consists primarily of an expandable resilient capsule with threaded shaft means and threaded flange nut means for working in conjunction with each other, to expand the resilient capsule in order that the opening of the tank or other structure will be tightly sealed.

3,836,036

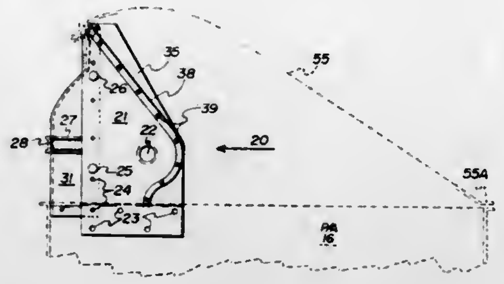
TRASH CONTAINER LID SYSTEM

Allan M. Hodge, 5852 Lomond Dr., San Diego, Calif. 92120

Filed Feb. 8, 1973, Ser. No. 330,569

Int. Cl. B65d *43/15, 51/10*

U.S. Cl. 220—32 **7 Claims**



A trash container lid system for placement on top of large industrial trash bins of the type utilized in hotels, apartment houses, etc., in which a lid section having a raised back portion is axially and rotatably coupled to the trash bin via an elongated aperture allowing a rear bottom curved surface of the lid assuming a stabilized partially open position, the extreme back portion of the lid carrying a counterweight throughout a predetermined arch for ease in opening, and the contacting surfaces between the trash bin and the lid having a vapor seal, the lid assembly consisting of a metal frame carrying a removable plastic liner therein.

3,836,037

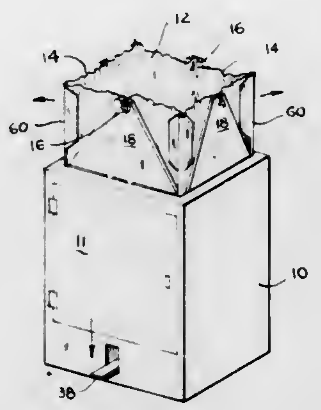
HOLDING AND SUPPORT DEVICE FOR REPLACEABLE BAGS HAVING A SEGMENTED LID

Thomas R. Bass, 21 Melody Dr., Colonia, N.J. 07067

Filed Dec. 18, 1972, Ser. No. 316,416

Int. Cl. B65d *43/18, 43/26, 25/16*

U.S. Cl. 220—35 **9 Claims**



A support device for replaceable soft material bags in which the bag is attached to a foot-operated segmented lid. The lid, when open, spreads the bag to its extreme open position and, when closed, functions to close the bag and to somewhat compact its contents. The segmented lid closure mechanism holds, pre-positions, and provides a sanitary lid for the trash receptacle bag.

3,836,038

EASY-OPEN WALL

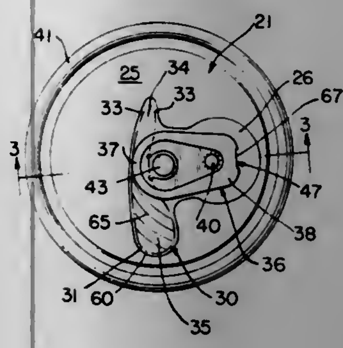
Daniel F. Cudzik, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed Sept. 28, 1972, Ser. No. 293,115

Int. Cl. B65d *17/00*

U.S. Cl. 220—48 **33 Claims**

An easy-open wall is provided for a container and comprises an approximately U-shaped score line in such wall with the score line having a bight and a pair of extensions extending from the bight and terminating in spaced ends having a portion of the wall therebetween. The score line defines a panel which is completely severable from the wall along the bight and along parts of the extensions adjoining the bight while remaining attached at the wall portion to define an opening in the wall. A non-detachable tab is attached substantially flatly against the wall and the tab has a forward portion which overlies part of the panel and has a rear portion. The rear portion is easily grasped and lifted to urge the forward portion against the panel to thereby sever such panel and move it within the container with the wall portion holding the panel securely to the wall.



3,836,039

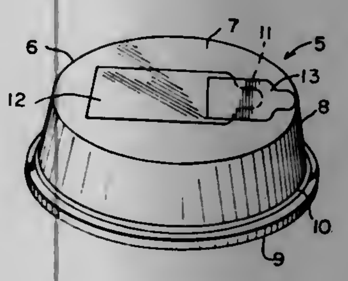
EASY-OPENING MEANS FOR PLASTIC PACKAGES

Oscar E. Seiferth; Glenn M. Austin, and Daniel C. Grace, all of Madison, Wis., assignors to Oscar Mayer & Co., Inc., Madison, Wis.

Filed July 31, 1972, Ser. No. 276,408

Int. Cl. B65d *17/20*

U.S. Cl. 220—54 **10 Claims**



An easy-opening means is provided in rigid or semi-rigid plastic sheet material forming at least a substantial portion of one of the walls of a container component or package. The easy-opening means comprises a lift tab which is integrally formed from the plastic sheet material and is completely separated from the material except where it is integrally attached at one end or side of the tab. A score line or lines are formed on the interior only of the sheet material without appreciably disturbing the exterior surface in any way and with one end of each score line joining one end of the line along which the tab is completely severed from the sheet material. The tab is covered on the exterior with a patch of pressure sensitive tape so as to hermetically seal the easy-opening means where the tab is completely separated from the sheet material. On lifting the patch of tape the lift tab is or may be readily lifted and on further lifting thereof the plastic sheet material may be separated along each interior score line or lines.

3,836,040

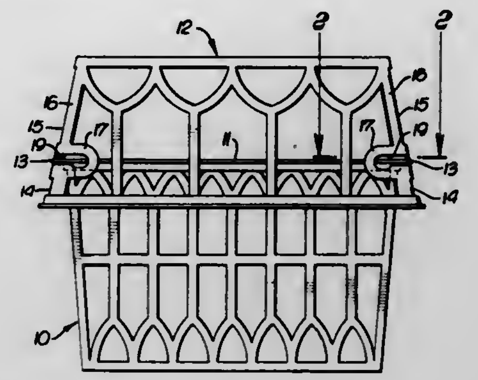
BASKET PROTECTIVE COVER

Derrick Paine, Jr., 1295 S. Los Angeles St., Glendale, Calif. 91209, and Thomas Paine, San Marino, Calif.

Filed Oct. 24, 1972, Ser. No. 300,192

Int. Cl. B65d *43/10*

U.S. Cl. 220—60 R **2 Claims**



A basket-like, open-work cover, generally rectangular, adapted to snap onto the top of a conventional produce basket to protect the contents of the basket.

3,836,041

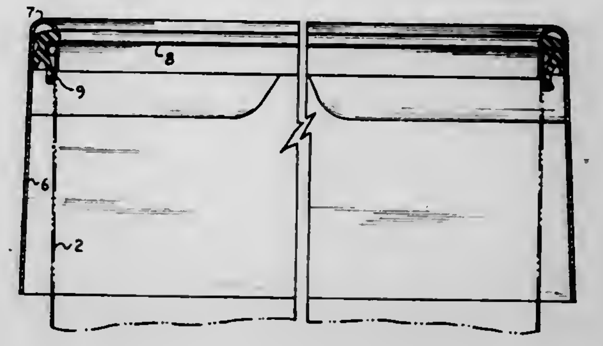
CONTAINER SKIRT

David F. Allgeyer, Conway, Ark., assignor to UMC Industries, Inc., New York, N.Y.

Filed June 14, 1972, Ser. No. 262,699

Int. Cl. B65d *25/00*

U.S. Cl. 220—85 R **12 Claims**



In a container for holding frozen food products, such as ice cream or the like, a skirt means is provided for snug seating upon the top of its respective container, and firmly held in place through the intermediary of an elastomeric ring like member, while the downward portion of each skirt is multi-sided, preferably of square design, so that like skirts of adjacent containers can be contiguously positioned together in proximity to provide a platform like surface to prevent any food droppings from falling below the composite skirts and containers. A cabinet incorporating a series of brackets upon its interior walls is designed to provide for snug positioning of said skirts and containers together, and through a transparent sliding lid provided on the cabinet, the food laden containers, in addition to the collection of adjacent skirts and the surface they form may be conveniently viewed.

3,836,042

NESTABLE CONTAINER

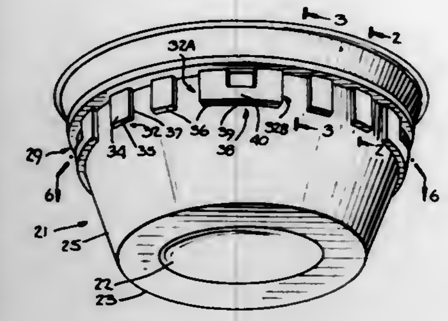
Albert C. Petitto, Hudson, Mass., assignor to Foster Grant Co., Inc., Leominster, Del.

Continuation of Ser. No. 58,483, July 27, 1970, abandoned. This application Apr. 3, 1972, Ser. No. 240,853

Int. Cl. B65d *21/02*

U.S. Cl. 220—97 C **8 Claims**

The subject matter is a container adapted for nesting with containers of like shape and configuration which will not jam into an adjacent nested container. The container is provided with a novel stacking skirt having a plurality of stacking lugs spaced around its circumference and offset radially outwardly. The lugs may be of various shapes, e.g. rectangular or sinusoidal. The skirt and stacking lugs terminate at their upper ends in an internal upper stacking shelf. The bottom portions of the lugs form an interrupted external stacking shelf on each container which engage the internal stacking shelf of a container below in a stack of such containers. To provide positive resistance against jamming, additional stacking shelf members on the skirt alter the configuration of either or both of the internal or external stacking shelves and provide additional constantly available stacking surface at selected portions of said stacking shelves.



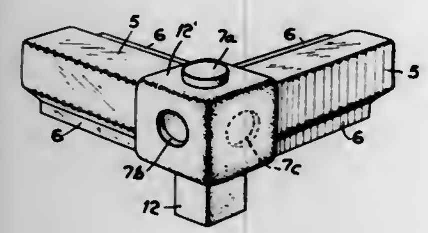
3,836,043
TRANSIT/COMBINATION CASE SHOCK MOUNT ARRANGEMENT

Herbert L. Levin, Wyckoff, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Dec. 30, 1971, Ser. No. 214,008

Int. Cl. B65d *25/26*

U.S. Cl. 206—504 **28 Claims**



This invention comprises several embodiments of multifunctional shock mounts for transit/cases. A resilient (e.g., rubber) molded corner bumper is either bonded to, or captivated along its edges by, a retainer shaped to be demountably coupled to a corner of the case body or cover. The resilient molded portion may additionally be provided with an outer metallic jacket to facilitate sliding and protection thereof, the outer jacket in turn being either bonded to the resilient portion or being captivated along with the rubber by the retainer. The rubber bumper and its associated outer metallic jacket are extended in a cubical shaped center portion beyond the case outer dimensions and hardware, serving to recess same for additional protection. The resilient molded bumper may be in the form of a two or three-legged piece with the legs being retained by the case outer structural members. Additional features such as male and female stacking features, sloped edges to facilitate sliding, and tie-rings are provided. Shaped coring holes or cast slots or cross ribs in the resilient portion provide for the equivalent spring constant in all dropping and handling modes to be closely equal to the spring constant of the weight of the case and contents on a corner support.

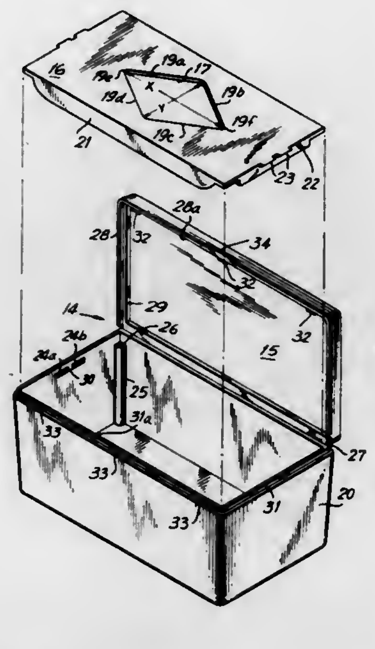
3,836,044
BULK PACKAGE INCORPORATING MOVABLE DISPENSER INSERT FOR INDIVIDUAL DISPENSING OF SUBSTANTIALLY WET SHEETS FROM STACK

Robert F. Tilp, Morristown; William E. Fitzpatrick, Wyckoff, and Robert B. Cubitt, Ramsey, all of N.J., assignors to Rapid-American Corporation, New York, N.Y.

Filed July 28, 1972, Ser. No. 274,135

Int. Cl. B65h *1/00*

U.S. Cl. 221—55 **10 Claims**



A bulk package for individually dispensing substantially wet sheets from a stack of such sheets, including a container removably receiving the stack and having a cover which, when closed, forms a substantially moisture-proof seal between the container and the atmosphere, and a barrier member overlying the stack of wet sheets and interposed between the stack and the cover and having a sheet restricting opening therein through which the wet sheets may be individually and successively removed when the cover is opened.

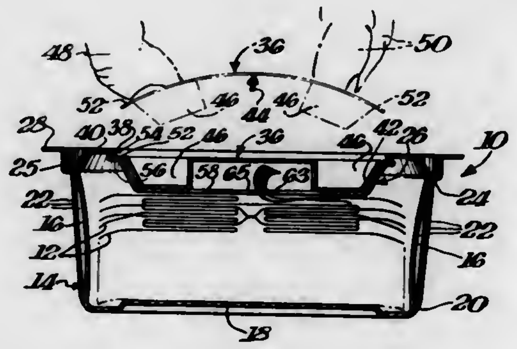
3,836,045
DISPENSING CONTAINER OF FOLDED DISPOSABLE TOWELS

Kenneth W. Duhy, Mountain Lakes, and John Jones, Jr., Short Hills, both of N.J., assignors to Pfizer Inc., New York, N.Y.

Filed Nov. 14, 1972, Ser. No. 306,461

Int. Cl. B65h *1/04*; A47k *10/42*

U.S. Cl. 221—63 **14 Claims**



A stack of small liquid-saturated folded disposable towels is sealed within a disposable container under a cover sheet, which protects and preserves the contents during storage prior to use. When the cover sheet is stripped from the peripheral flange to which it is attached, by grasping a loose tip over a depressed corner of the flange, it exposes a removable lid having a pair of opposite edges flexibly inserted under overhanging projections on a framing ridge on a dished panel, which is secured to a shelf within the rim of the receptacle. Towels are dispensed through a lobular cross-shaped aperture in the center of the dished panel, which is surrounded by a flat margin joined by sloped walls to a ledge under the framing ridge, which provides a supporting surface for the edges of the lid. The sides of the container are concavely indented and vertically ridged to stiffen and decorate them. The bottom is also inwardly dished for the same purposes.

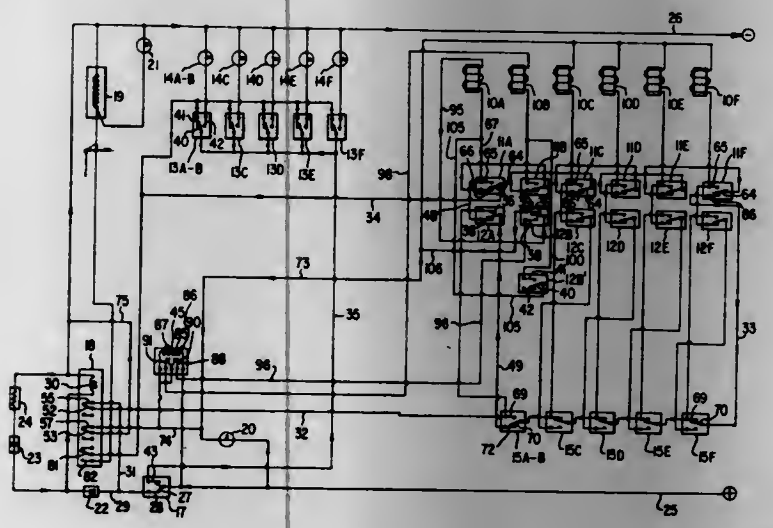
3,836,046
CIRCUIT FOR MULTI-COLUMN VENDING MACHINES HAVING COLUMNS ARRANGED FOR CONJOINT OPERATION

Raymond D. Bowman, Ringgold, Ga., assignor to Cavalier Corporation, Chattanooga, Tenn.

Filed Oct. 24, 1973, Ser. No. 409,161

Int. Cl. G07f *11/08*

U.S. Cl. 221—67 **14 Claims**



A coin operated multi-column vending machine embodies a separate dispensing actuator for each column of product units and associated circuit components including plural customer-operated product selector switches. Two product unit columns are placed under control of an alternator relay and a common selector switch for conjoint operation. Alternate dispensing of products from one of the two product unit columns is effected in response to each actuation of the common selector switch. The invention is particularly applicable to vending machines for dispensing carbonated soft drinks or other food products which are subject to staleness if left too long in the machine and allows for easy modification and conversion of existing multi-column vending machines and their associated control circuits in the field.

3,836,047
ANTIBIOTIC DISC DISTRIBUTORS

Charles Darpentigny, Igny; Michel Lesserteur, Viry Chatillon, and Daniel Lux, Bagneux, all of France, assignors to ANVAR Agence Nationale de Valorisation de la Recherche, Neuilly-Sur-Seine, France

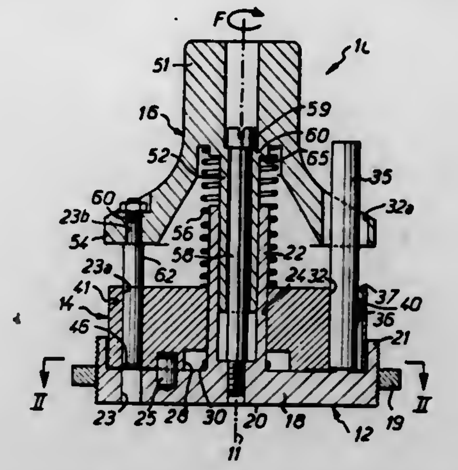
Filed Aug. 23, 1973, Ser. No. 390,941

Claims priority, application France, Sept. 5, 1972, 72.31409; Feb. 9, 1973, 73.4627

Int. Cl. B65h *3/44*

U.S. Cl. 221—93 **21 Claims**

A distributor for the simultaneous deposition of a plurality of discs or pastilles on a surface in a predetermined configuration comprises a base in relation to which a tube carries drum is adapted to turn in order to effect the extraction and positioning of a respective disc in line with a plurality of axial passages in the base, and also an operating button carrying axial ejection rods the rotation of which causes the drum to turn and the pressure of which effects the simultaneous ejection of the discs through the said passages.



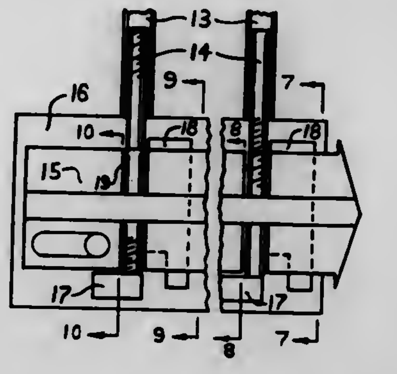
3,836,048
STUD ORIENTER

Charles Thomas Lowe, 5165 Torrey Rd., Flint, Mich. 48507

Filed Nov. 28, 1972, Ser. No. 296,140

Int. Cl. B65h *9/04*

U.S. Cl. 221—172 **5 Claims**



A stud orienter having only one moving part, a slide, with a plurality of compartments each of which accepts a single unoriented stud, the slide resting upon a body member which has a plurality of stud orienting cutouts, the slide transferring the studs across the body allowing each stud to drop through an orienting cutout threaded end upward in readiness to be pressed into a mating part.

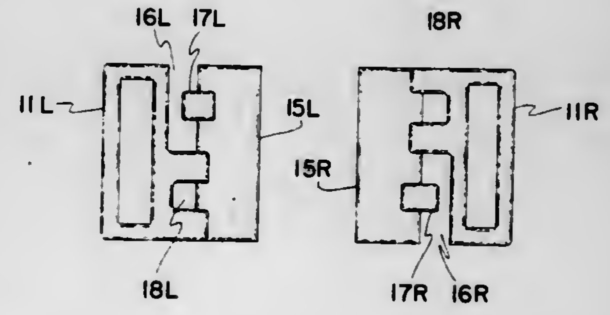
3,836,049
CLASP

Lynwood Vincent Smith, Farmington, Conn., assignor to Gulf & Western Manufacturing Company (Eastern Group), New York, N.Y.

Filed July 12, 1973, Ser. No. 378,653

Int. Cl. A44b *17/00*

U.S. Cl. 24—201 R **1 Claim**



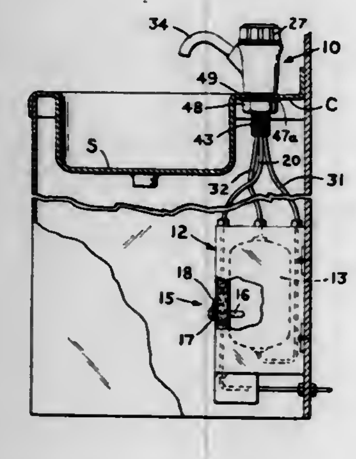
A two-piece clasp for securing a belt or half-belt in which each piece is substantially identical in structure and when two pieces are combined to form a clasp one piece is in reverse mirror image position with respect to the other. A dual latch, dual catch arrangement maintains the clasp in desired orientation when engaged.

3,836,050
REMOTE PLASTIC DISPENSING HEAD WITH FLUID LEVEL ACTUATED EXPANSION CHAMBER SHUT OFF

Richard C. Dreibelbis, Fairlawn, N.J., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Apr. 20, 1973, Ser. No. 352,972
Int. Cl. B67d *5/08*

U.S. Cl. 222—66 **22 Claims**



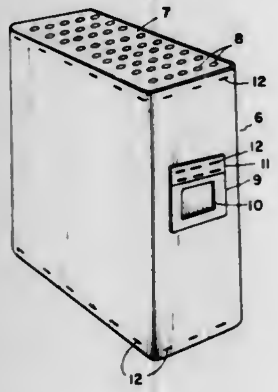
A remote dispensing head for use in a system operating at atmospheric pressure for dispensing heated fluid has a housing formed by a base having means thereon for connecting the dispensing head to a counter or like point of use, and an annular plastic body member connected to the base to form an expansion chamber in the housing, the housing may include valve means for controlling the flow of fluid from a given source to the dispensing system and a discharge means such as the spout operatively associated with a discharge passage in the base connected to the system to pass fluid from the system to the spout for discharge to use, and a cross passage means in the base provides communication between the lower portion of the expansion chamber and the discharge passage to permit expansion fluid to expand into the expansion chamber, and means operable responsive to the level of the expansion fluid in the expansion chamber will act to close off the cross passage means when the expansion fluid reaches a predetermined minimum level.

3,836,051
OUTDOOR SALT DISPENSER

Robert W. Schmechel, 3454 W. Wrightwood, Chicago, Ill. 60647

Filed Jan. 8, 1973, Ser. No. 322,062
Int. Cl. B67d *5/64*

U.S. Cl. 222—175 **5 Claims**



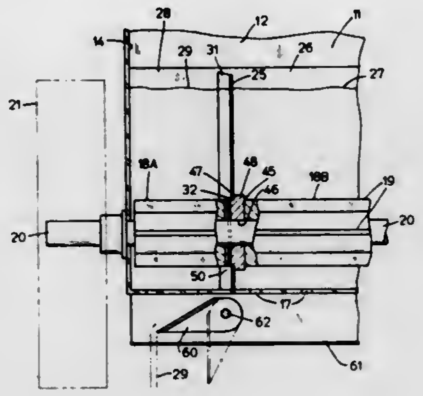
An outdoor salt dispenser, for snow and ice removal for use on sidewalks, driveways and the like, includes either a corrugated cardboard or plastic container with perforations in the top side and three handles, located one on each opposite side and one on the bottom.

3,836,052
MARKER LINE MEANS FOR SPREADER

Frank S. Chopieska, 903 Lakeview Dr., LaCrosse, Wis. 54601

Filed Sept. 13, 1972, Ser. No. 288,574
Int. Cl. A01c *15/12*

U.S. Cl. 222—177 **6 Claims**



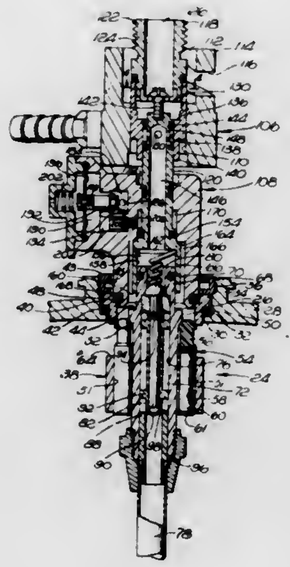
A spreader for granular materials such as fertilizer, weed killer, or seed comprises a downwardly tapered bin having a row of adjustable apertures at the bottom of the bin and a bladed impeller in the bin above the apertures fixed to a shaft driven by the spreader wheels to force material through the apertures as the impeller rotates. A divider partition is mounted in the bin transverse to the impeller axis to divide the bin into a large compartment for the material to be spread and a small compartment for marking material such as powdered limestone. The divider partition is provided with a hole to accommodate the impeller. Sealing means are provided on the impeller to close the hole in the divider partition. An adjustably movable guide chute is attached on the outside of the bin to guide the flow of marking material.

3,836,053
LIQUID DISPENSING APPARATUS

Mack S. Johnston, 26 Hitching Post Dr., Rolling Hills, Calif. 90274

Continuation-in-part of Ser. No. 189,281, Oct. 14, 1971, Pat. No. 3,758,008. This application Aug. 3, 1973, Ser. No. 385,358The portion of the term of this patent subsequent to Sept. 11, 1990, has been disclaimed.
Int. Cl. B65d *83/00*

U.S. Cl. 222—400.7 **34 Claims**



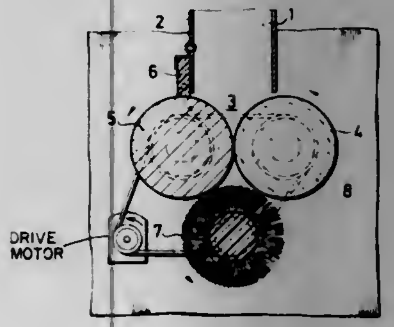
Apparatus which is especially useful for dispensing beer from kegs and which includes a keg adapter and a tapper for operative engagement therewith. The keg adapter has gas and liquid passageways containing normally closed valves, which when opened, permit compressed gas to be admitted to the keg and beer to be withdrawn therefrom, said valves being biased toward the closed position by actuators which contain permanent magnets. The tapper can be connected to a source of compressed gas and to a beer faucet and contains a tap rod, which, when manually actuated, seals the tapper to the adapter and interconnects the gas source and the faucet with the interior of the keg.

3,836,054
TONER DISPENSING APPARATUS

Klaus Peter Schon, 14, Rathenauplatz, Wiesbaden-Biebrich, Germany

Filed Oct. 19, 1972, Ser. No. 298,815
Claims priority, application Germany, Oct. 22, 1971, 2152592
Int. Cl. G01f *11/46*

U.S. Cl. 222—414 **8 Claims**



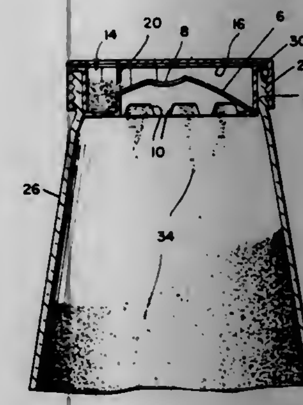
A toner dispensing apparatus including a toner supply container having a discharge opening obturated by two parallel rollers forming a nip and rotating in the same direction and at the same speed and a further roller below the two rollers which rotates at a speed in excess of the speed of the two rollers to remove toner from the two rollers. The roller rotating in the direction of the nip for toner supply has left and right hand helical grooves.

3,836,055
GRANULE DISPENSING REGULATOR

Peter C. Katzmark, 601 E. Anapamu, Santa Barbara, Calif. 93101, and George H. Lenea, 4237 Loma Rivera Ln., San Diego, Calif. 92110

Filed Mar. 22, 1973, Ser. No. 343,940
Int. Cl. G01f *11/26*

U.S. Cl. 222—427 **11 Claims**



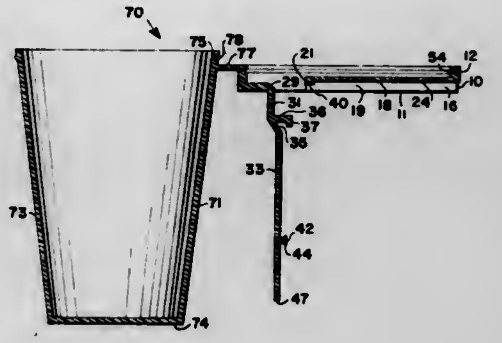
A peripheral wall with two spaced partitions extending inwardly therefrom, a cone-shaped floor with a central aperture and peripheral holes, and a lid with an arcuate opening and a downwardly extending skirt comprise a granule dispensing regulator positionable in a container neck. The partitions and wall therebetween define a well which is primed by upending and uprighting the container. Granules are dispensed when the container is next upended.

3,836,056
PIVOTED CLOSURE CONDIMENT DISPENSER

Harold T. Pehr, 3920 W. 96th St., Overland Park, Kans. 66207

Filed Nov. 5, 1973, Ser. No. 412,575
Int. Cl. B67d *3/00*

U.S. Cl. 222—480 **12 Claims**



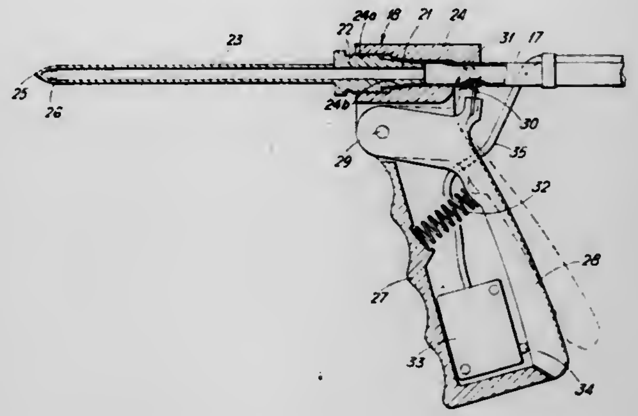
A dispensing container having a dispensing closure on the container with the dispensing closure having an integral and hingedly articulated closure member selectively movable between positions opening and closing a dispensing opening which communicates with the interior of the container. At least one projection extends from the closure member and is receivable in the dispensing opening when the closure member is in the closed position for closing the dispensing opening. The dispensing closure is one piece and adapted for manufacture by a molding process using a mold having two sections which move in opposed directions.

3,836,057
APPARATUS FOR USE IN DEPOSITING AERATED FOOD PRODUCTS

John MacManus, 14-16 Twenty Second Rd., Whitestone, N.Y. 11357

Filed Mar. 14, 1973, Ser. No. 341,290
Claims priority, application Great Britain, Mar. 14, 1972, 11887/72
Int. Cl. B67d *5/08*

U.S. Cl. 222—529 **5 Claims**



A dispensing device is coupled to a flexible hose which is connected directly to the outlet of a whipping machine. The device includes a spear for use in filling closed cakes and containers with aerated food product, such as whipped cream. A pair of jaws is mounted on the device for nipping the hose between them and positively interrupting the flow from the hose into the spear. A switch is mounted on the device to start the pump motor when the jaws are opened, and stop it when the jaws are closed.

3,836,058

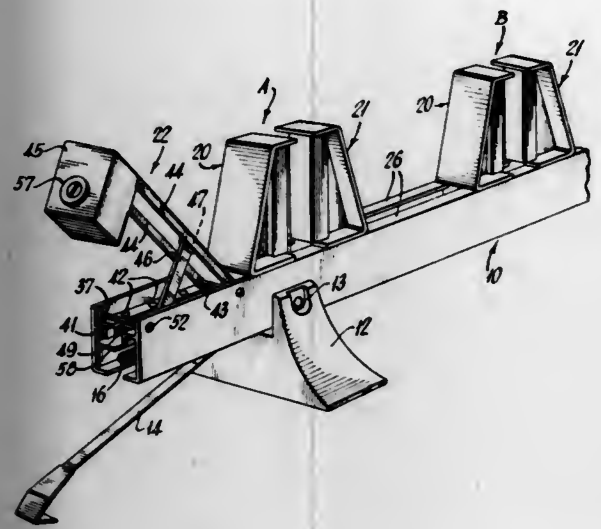
MOUNTING RACK FOR SKIS OR THE LIKE

Robert Penniman, Jericho, and Richard A. Snelling, Shelburne, both of Vt., assignors to Barreca Products Co., Shelburne, Vt.

Continuation-in-part of Ser. No. 183,550, Sept. 24, 1971, abandoned. This application Aug. 31, 1972, Ser. No. 285,492

Int. Cl. B60n *9/04*

U.S. Cl. 224—41.1 F **29 Claims**



The invention contemplates a novel rack construction, as for carrying skis or the like on the roof or other exterior part of a vehicle. Plural pairs of skis are vertically clamped, back-to-back, by like pairs of vertically movable upstanding post members, and a single lockable actuator at one end of the rack is operative to set or to release all post pairs in unison. In the form disclosed, each pair of posts comprises a fixed post and a movable post, and the movable posts are all ganged in their connection to the single actuator.

3,836,059

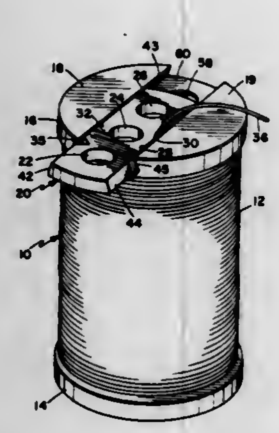
ANTI-ROLL SLIDE AND THREAD LOCK FOR SPOOLS

Marguerite M. Lauen, and James E. Lauen, both of 233 E. Renetta, El Cajon, Calif. 92020

Filed Dec. 29, 1972, Ser. No. 319,902

Int. Cl. B65h *75/32, 75/28*

U.S. Cl. 225—64 **5 Claims**



A slide member is received in the end flange of the spool for movement from a retracted position within the confines of the spool flange to extended positions wherein the free end of the thread on the spool may be placed within the holding notch on the slide member. The thread may be locked and retained between the slide member and the end flange with the slide in a retracted position or with the slide in an extended position beyond the confines of the end flange for the purpose of preventing the spool for rolling. The slide includes a cutter notch for severing the thread, and guide notches for winding the thread into the cutter. Detents are provided to position the slide at two extended positions on either side of the flange.

3,836,060

APPARATUS FOR TRANSPORTING WEBS IN PHOTOGRAPHIC COPYING MACHINES OR THE LIKE

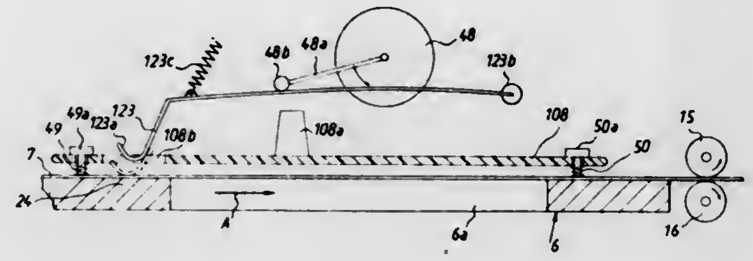
Siegfried Steinberger, Munich; Mathias Pflugbeil, Baldham; Erich Nagel, Anzing; Wilhelm Baasner, Munich; Karl Dreher, Munich; Werner Englert, Munich; Paul Ehrengruber, Munich, and Adolf Fleck, Munich, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen

Filed Jan. 24, 1973, Ser. No. 326,298

Claims priority, application Germany, Jan. 26, 1972, 2203479

Int. Cl. B65h *23/08*

U.S. Cl. 226—115 **17 Claims**



A photographic printing machine with a single pair of advancing rolls which are located upstream or downstream of the gate and pressure plate and are driven intermittently to place a fresh increment of a photosensitive web into register with the window of the gate prior to the making of an exposure. A roller or pad consisting of or including soft rubber or similar friction generating material is located downstream or upstream of the gate opposite a back support and is moved toward the back support away from the advancing rolls in response to movement of the pressure plate to its operative position, or by a discrete actuating means, so as to tension the web between the back support and the advancing rolls not later than when the pressure plate reaches its operative position.

3,836,061

SUTURING INSTRUMENT ANVIL BUSHING PART

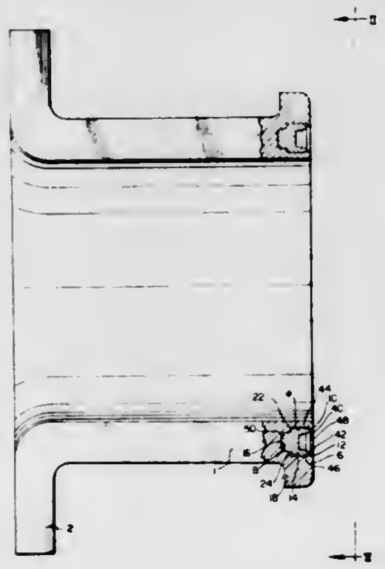
Raymond Grunwald, Montreal, Quebec, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

Filed Aug. 29, 1973, Ser. No. 392,767

Claims priority, application Canada, Oct. 16, 1972, 153946

Int. Cl. B25c *7/00*

U.S. Cl. 227—155 **5 Claims**



A suturing instrument anvil bushing part which is economical to manufacture and so disposable after use, comprises a semi-cylindrical, plastic body having a suturing tool engaging flange at the rear end and metal anvil retaining groove in the front face with an undulating base for locating a similarly shaped anvil, pressed therein, and retained by inturned, retaining lips on the anvil retaining groove sides. The body is preferably of a phenylene oxide based resin whilst the anvil is preferably of stainless steel.

3,836,062

ULTRASONIC APPARATUS FOR MAKING A BALL POINT PEN

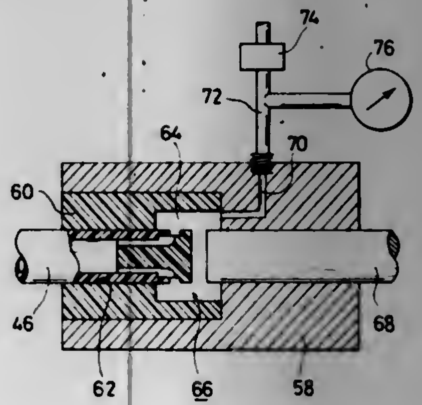
Norimasa Tsunoda, No. 9-14 Irie 2-chome Kanagawa-ku, and Tsutomu Saito, 17-34 Kokku-Bashi 4-chome Kanagawa-ku, both of Yokohama, Japan

Division of Ser. No. 301,200, Oct. 26, 1972, Pat. No. 3,795,969, which is a division of Ser. No. 193,020, Oct. 27, 1971, Pat. No. 3,775,015. This application Sept. 10, 1973, Ser. No. 395,513

Claims priority, application Japan, Nov. 6, 1970, 45-109547; Apr. 15, 1971, 46-28337; June 21, 1971, 46-43960

Int. Cl. B23k *29/00*

U.S. Cl. 228—1 **1 Claim**



The disclosure concerns apparatus for making a ball point pen by filling with ink an ink reservoir through an open end opposite the writing end and providing an end closure of heat fusible material which when sealed in the opening provides a compressed air chamber between the ink upper surface in the reservoir and the closure.

3,836,063

PRODUCTION OF CONTAINERS

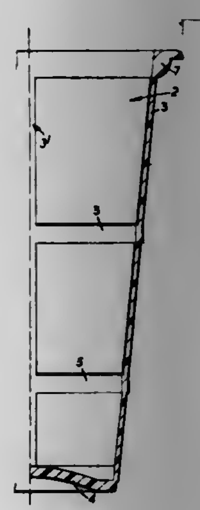
Brian Leo Chudleigh Sutch, Great Bookham, England, assignor to Airfix Industries Limited, London, England

Filed Jan. 26, 1972, Ser. No. 220,964

Claims priority, application Great Britain, Feb. 3, 1971, 3817/71

Int. Cl. B65d *25/00*

U.S. Cl. 229—1.5 B **7 Claims**



A container has a peripheral wall defined by a single preformed blank of flexible sheet material and provided with axially extending injection moulded ribs, one of which forms a seam uniting juxtaposed opposite edge portions of the piece of flexible sheet material, and at least one circumferentially extending injection moulded rib. One end of the zone bounded by the peripheral wall is closed by an end closure formed of injection moulded material or flexible sheet material. The container is formed in a container shaped mould cavity which constrains the sheet material to the required shape while the ribs and end closure are being injection moulded simultaneously.

3,836,064

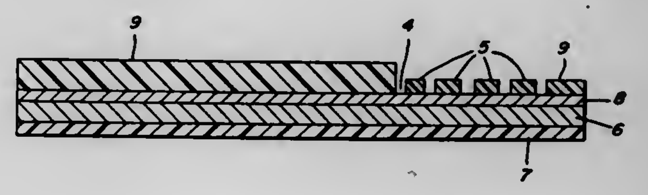
METAL FOIL FOR HEATING AND COOLING FOODS

James E. Stillwagon, New Kensington, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Feb. 4, 1972, Ser. No. 223,489

Int. Cl. B65d *81/34;* **B32b** *27/38*

U.S. Cl. 229—3.5 MF **9 Claims**



An improved metal foil composite sheet and method of fabricating the same for heating and/or cooling food products. Metal foil is coated on one surface with a heat stable, thermoplastic, epoxy and on its second surface with a heat resistant, dielectric, thermosetting base coat and a top coat of a heat resistant, heat absorptive, thermosetting material. The top coat may be applied in zones of distinct thicknesses simultaneously. Such application provides for legible printing, while preserving the desired heat absorptive properties on the entire foil pouch stock including both the printed and unprinted regions. A completed foil pouch composed of the foil composite sheet permits uniform heating and/or cooling of foods over an extended range of temperatures and times while resisting undesired deterioration.

3,836,065

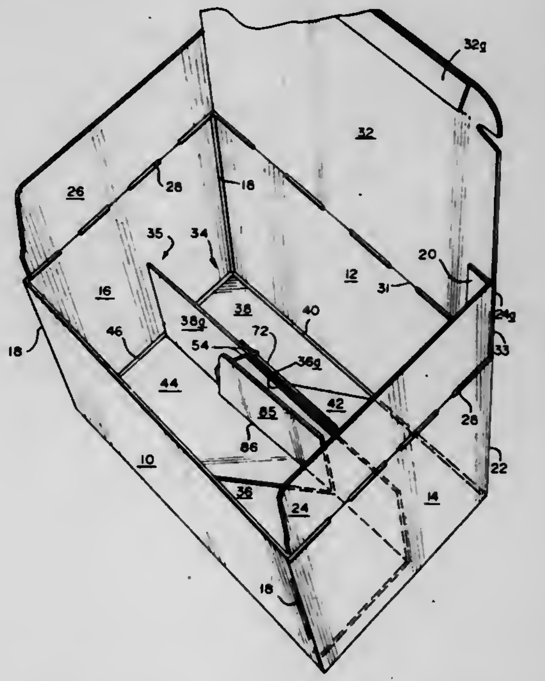
LOCK BOTTOM BOX WITH MEDIAL DIVIDER

Robert A. Hackenberg, East Lyme, Conn., assignor to Robertson Paper Box Co., Inc., Montville, Conn.

Filed Sept. 11, 1972, Ser. No. 287,861

Int. Cl. B65d *5/48*

U.S. Cl. 229—27 **16 Claims**



A generally rectangular cardboard box for containing articles lies flat when it leaves the manufacturer and is shipped to the user. When the box is made up, a lock bottom retains it in its fully open condition so that the articles can easily be inserted into the box from above. The lock bottom also forms a center divider within the box itself to help maintain the articles in the proper relation within the box.

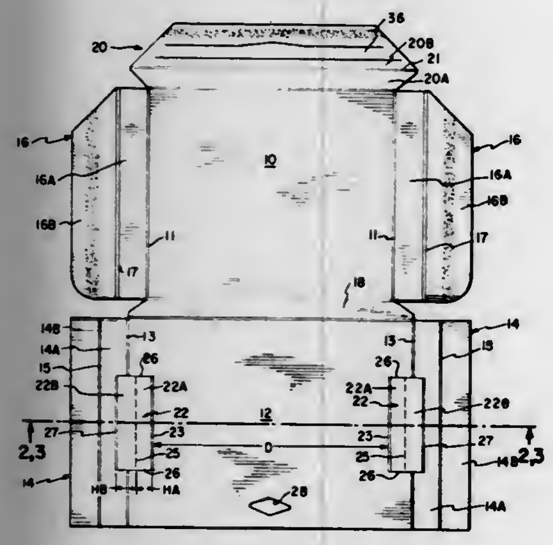
3,836,066
BOOK CARTON

Vincent Del Priore, Bayonne; Arthur Rous, Englewood, both of N.J., and Richard Holtzman, Staten Island, N.Y., assignors to Federal Carton Corporation, North Bergen, N.J.

Filed Aug. 14, 1972, Ser. No. 280,659

Int. Cl. B65d *5/02*

U.S. Cl. 229—40 13 Claims



A carton for packaging an article is formed from a single piece blank and includes a bottom wall and two inner end flaps which are hingedly connected to the bottom wall. A pair of areas each having at least two parallel sides are formed in contiguous portions of the bottom wall and the inner end flaps of the carton. In the erected carton these areas form buttresses which permit a reinforced air cushion to be formed about the packaged article.

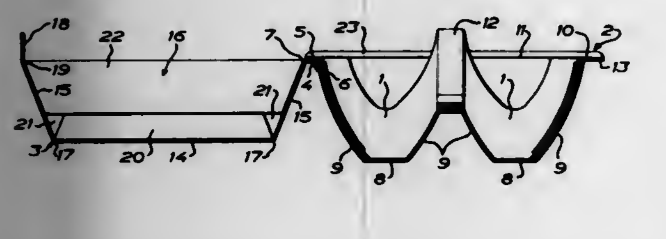
3,836,067
EGG CARTONS

Sven Ingemar Andersson, Ystad, Sweden, assignor to Torsten Jeppsson AB (and) Svenska Agghandelsforbundet Foren U.P.A., Johanneshov and Lund, Sweden

Filed July 5, 1972, Ser. No. 269,185

Int. Cl. B65d *5/66*

U.S. Cl. 229—44 R 2 Claims



An egg carton having a tray of plastic and a cover of paperboard, in which carton a rib extends along the respective short sides of the tray and outside the interengagement area of the cover with the tray and is adapted to support the adjacent edge of the cover when the cover is in the closed position.

3,836,068
HANDLE-TYPE CARRYING BAG MADE OF PLASTICS MATERIAL SHEETING

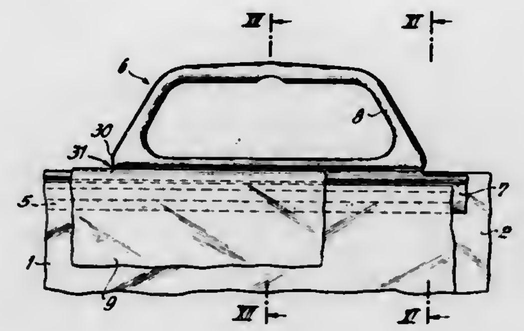
August Schwarzkopf, Lengerich/Westphalia, Germany, assignor to Windmoller & Holscher, Westphalia, Germany

Division of Ser. No. 49,084, June 23, 1970, Pat. No. 3,693,867. This application June 27, 1972, Ser. No. 266,565

Claims priority, application Germany, June 24, 1969, 1932047; Oct. 31, 1969, 1954944; Apr. 27, 1970, 2020549; Apr. 27, 1970, 2020548; May 22, 1970, 2025107

Int. Cl. B65d *33/06*

U.S. Cl. 229—54 R 5 Claims



Only one wall of the bag is provided with a heat-sealed carrying handle made of stiff synthetic thermoplastics. The other wall of the bag is provided with a lead-out slot on the level of the lower end of the handle and has a reversely foldable portion extending beyond said lead-out slot.

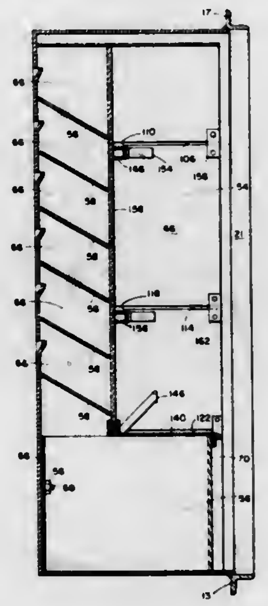
3,836,069
FEE COLLECTION DEVICE

John C. Craig, Jr., Tulsa, Okla., assignor to American Parking Company, Tulsa, Okla.

Filed Apr. 24, 1972, Ser. No. 246,898

Int. Cl. B65d *91/00*

U.S. Cl. 232—1 R 5 Claims



A fee collection device for the collection and storage of parking fees at a self-service parking lot and comprising a fully enclosed housing having an upper collection compartment and a lower storage compartment therein, the said housing also comprising a front face panel having an array of louvered deposit slots therein in communication with the collection compartment for receiving fee deposits therethrough, the said collection compartment comprising an array of inclined collection subcompartments in communication with the front face panel, one said subcompartment for each louvered deposit slot, and fee inspection and discharge means slidably disposed within the collection compartment for permitting inspection of the collection subcompartments and discharge of the collected fees from the collection subcompartments into the lower storage compartment after inspection thereof.

3,836,070
METHOD AND APPARATUS FOR DISCHARGING THE WASTE AS WELL AS ENHANCING THE FLOCCULATION OF THE SUSPENSION AND MOVING THE WASTE IN SOLID JACKET CENTRIFUGES

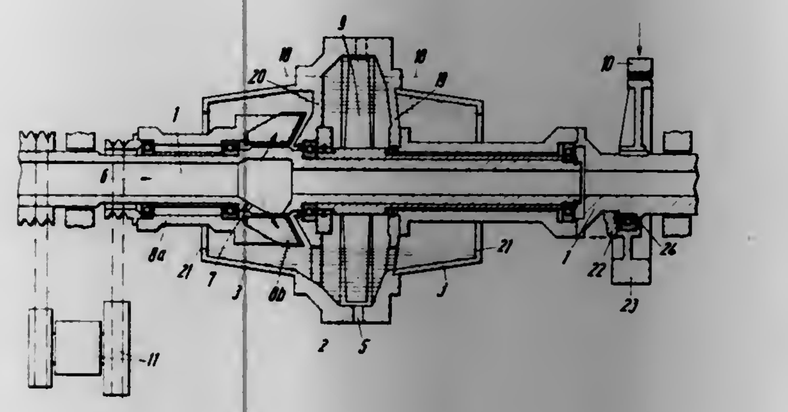
Helmut Franz Trawinski, Fasanenweg 24, D. 8452 Hirschau/Bavaria, Germany

Filed Dec. 20, 1971, Ser. No. 209,881

Claims priority, application Germany, Dec. 22, 1970, 2063063

Int. Cl. B04b *1/00*

U.S. Cl. 233—7 18 Claims



Method for discharging the waste and enhancing the flocculation of the suspension and the movement of the waste in solid jacket centrifuges by applying jolts to the drive means by braking or acceleration in order to open or close the waste discharge apertures and impart jolts to the compacted material. The centrifuge is equipped with a shaft through which the suspension is supplied and power transfer means such as spokes between the shaft and the drum jacket which has discharge apertures into which the ends of the spokes extend where the spokes are provided with means to open and close the discharge apertures and means for varying the speed are associated with the shaft which impart jolts to the transfer means.

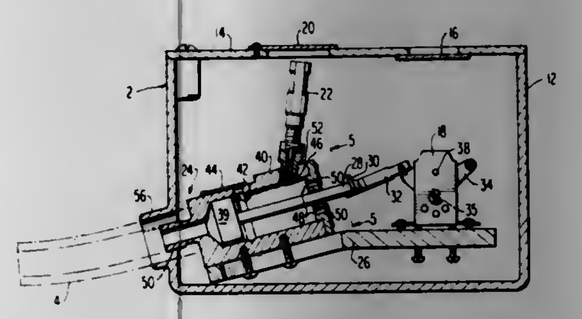
3,836,071
AIR-OPERATED TRAFFIC COUNTER

Harry E. Trigg, 2013 Cunningham Dr., Suite 102, Hampton, Va. 23366

Filed Aug. 27, 1973, Ser. No. 391,565

Int. Cl. G06m *1/08*

U.S. Cl. 235—99 A 3 Claims



A traffic counter is actuated by the piston rod of an air motor, wherein pulses of air from an air hose across a roadway reciprocate the piston. Piston control and anti-bounce valves are provided in the air motor so as to prevent false counts.

3,836,072
DAMPED TRANSFER ARRANGEMENT FOR A COUNTER

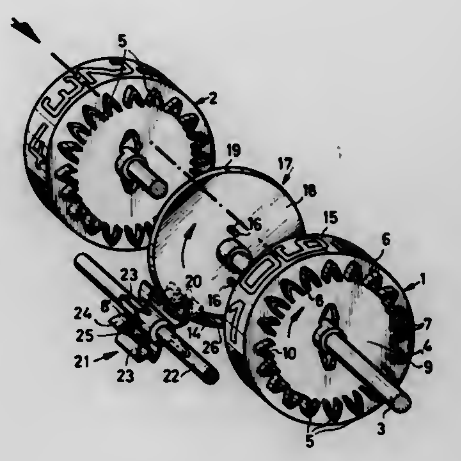
Heinz Kelch, Buchenberg, and Helmut Mueller, Sankt Georgen, both of Germany, assignors to Kienzle Apparate GmbH, Villingen/Schwarzwald, Germany

Filed Mar. 6, 1973, Ser. No. 338,551

Claims priority, application Germany, Mar. 9, 1972, 2211392

Int. Cl. G06c *7/10, 9/00*

U.S. Cl. 235—133 R 4 Claims



Two successive ordinal toothed counter wheels are connected by toothed transfer means to make a tens-transfer once during each revolution of the counter wheel of the lower order. The teeth of the counter wheels and of the transfer means are cut out and hollowed so that the teeth are resilient and dampen impacts thereon during the transfer operation.

3,836,073
HEATING, COOLING AND VENTILATING GRILLS

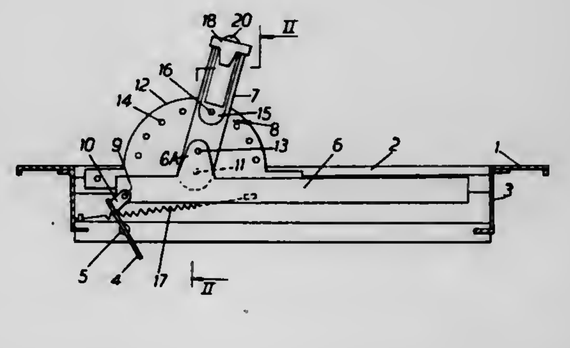
William Thomas Evans, Motherwell, and Ian Fraser, Lanarkshire, both of Scotland, assignors to Ian Fraser, Forth, Lanarkshire, Scotland

Filed Dec. 4, 1972, Ser. No. 311,449

Claims priority, application Great Britain, Dec. 4, 1971, 56378/71; Mar. 8, 1972, 10683/72; Mar. 21, 1972, 13108/72; Mar. 25, 1972, 14113/72

Int. Cl. F24f *11/02, 13/08*

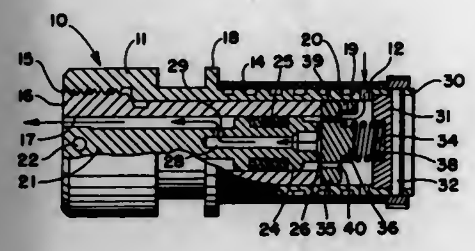
U.S. Cl. 236—49 4 Claims



The invention herein disclosed is concerned with a temperature controlled air ventilation outlet grill. The grill comprises a frame in which are mounted a plurality of pivoted louvres biased towards a closed position with a bimetal actuator sensing the room temperature moving the louvers towards their closed position upon appropriate room temperature changes.

3,836,074
BI-THERMAL BLEED VALVE

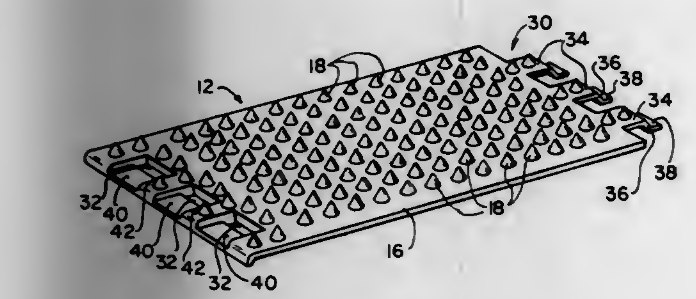
John W. Meulendyk, Kalamazoo, Mich., assignor to Pneumo Dynamics Corporation, Cleveland, Ohio
Filed Aug. 30, 1972, Ser. No. 284,898
Int. Cl. F25b *41/04*
U.S. Cl. 236—93 **4 Claims**



A bleed valve having three modes of operation at different temperature levels. The valve plunger has a high coefficient of expansion relative to the body support structure and abuts a spring loaded valve seat at normal operating temperatures. The valve is opened at low temperature levels by normal spacing of the plunger away from the valve seat, closes upon predetermined heat-produced expansion, and at high temperature levels reopens by further expansion that causes cocking of the valve seat.

3,836,075
CLEATED EMERGENCY TRACK

Joseph M. Botbol, 3129 S. Akron Ct., Denver, Colo. 80231
Filed Sept. 5, 1972, Ser. No. 286,005
Int. Cl. B60c *27/00*
U.S. Cl. 238—14 **10 Claims**

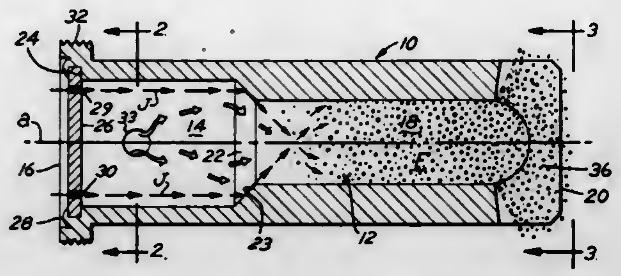


A cleated emergency track for placement in the intended path of travel of a ground-engaging wheel of a vehicle includes a plate having an array of upwardly projecting protrusions providing a gripping surface for the vehicle and a plurality of downwardly extending removable cleats which can be selected to be of different lengths to give the device the capability of being stabilized on various types of low traction or slippery surfaces. The plate is provided with interlocking means on either end thereof defined by latch fingers at one end which are adapted to be releasably received in open slots at the opposite end of an adjacent panel whereby a plurality of the panels can be aligned to provide an elongated track on which the vehicle can establish the desired traction.

3,836,076
FOAM GENERATING NOZZLE

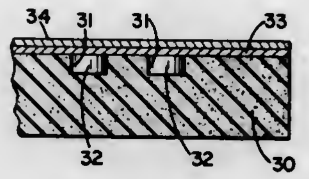
Sherman E. Conrad, and Dennis W. Bintner, both of Des Moines, Iowa, assignors to Delavan Manufacturing Company, West Des Moines, Iowa
Filed Oct. 10, 1972, Ser. No. 296,352
Int. Cl. B05b *7/04, 15/04*
U.S. Cl. 239—8 **20 Claims**

A nozzle and method for generating a foamed liquid includes a nozzle body, a plurality of spaced orifices forming discrete jets of a liquid foam producing agent in an elongate passage in the nozzle body, and a solid surface defined in the body upon which the jets impinge. Gas inlet openings introduce gas into the passage and the gas and liquid foam producing agent are intimately mixed by deflection of the latter from the solid surface to produce foam in the passage.



3,836,077
APPARATUS PROTECTOR

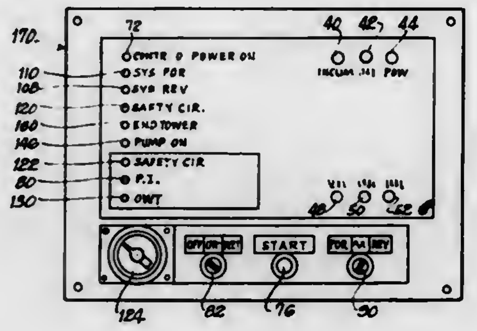
John D. Skildum, 34 N. Oaks Rd., St. Paul, Minn. 55110
Division of Ser. No. 149,665, June 3, 1971,. This application May 16, 1973, Ser. No. 360,836
Int. Cl. A61l *9/04;* **C23f** *11/02*
U.S. Cl. 239—60 **9 Claims**



A device for protecting structures from corrosion and the like during storage is disclosed wherein the device includes a carrier defining at least one opening therein. The opening contains a mixture of organic ammonium nitrites with varying vapor pressures, a chemical buffer system for neutralizing lead acids, and any of a class of volatile anti-oxidants for preventing the formation of varnish and scavenging oxygen from varnish deposits. The carrier also contains means for attaching it to the structure to be protected.

3,836,078
MONITORING SYSTEM FOR MOBILE IRRIGATION APPARATUS

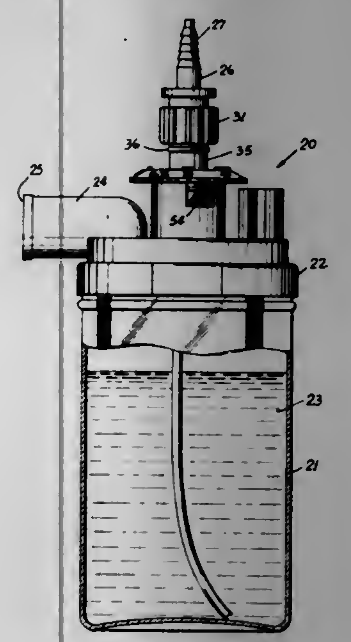
Rich L. Olson; Murray C. Roland, both of Scottsbluff, and Clif Hammond, Gering, all of Nebr., assignors to Lockwood Corporation, Gering, Nebr.
Filed June 9, 1972, Ser. No. 261,422
Int. Cl. A01g *27/00*
U.S. Cl. 239—70 **8 Claims**



A control system for mobile irrigation apparatus which includes a pivot tower and a plurality of radially spaced motor driven mobile towers supporting a distribution pipe includes means for determining the direction of movement of the system, the amount of water to be supplied to the crop and monitoring means in the form of lights connected in the control system to provide an operator with an immediate means of determining whether the system is operating and has been operating properly and also aids in identifying the sources of particular malfunctions.

3,836,079
FLUID DISPENSING DEVICE

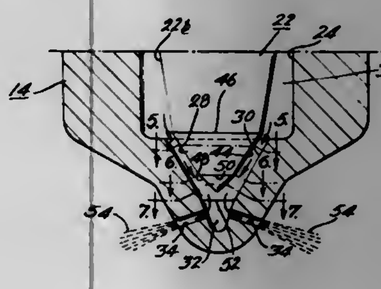
Paul O. Huston, Montville, N.J., assignor to Becton, Dickinson and Company, East Rutherford, N.J.
Filed Aug. 2, 1972, Ser. No. 277,469
Int. Cl. B05b *7/24*
U.S. Cl. 239—74 **5 Claims**



A fluid dispensing device for providing a controlled ratio of a mixture of fluids introduced to the device. The device includes a container having an inlet section and an outlet section. The container is designed for contents used in treating a fluid mixture introduced through the inlet section. The inlet section is adapted to be connected to a source of a first fluid and has at least one opening therein of a predetermined size and configuration. A sleeve is movably mounted on the inlet section and has at least one opening therein of a predetermined size and configuration and is positioned so that movement of the sleeve with respect to the inlet section will determine the relative alignment of the openings. In this manner, the portion of the openings in the inlet section exposed to a source of the second fluid will be varied and the ratio of second fluid with respect to first fluid in the mixture introduced to the container is controlled. The outlet section provides for discharging the treated fluid mixture.

3,836,080
FUEL INJECTION NOZZLE

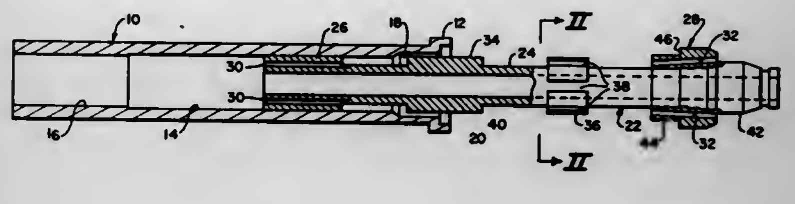
Donald B. Butterfield, Longmeadow, and Albert A. Marchetti, Springfield, both of Mass., assignors to Ambac Industries, Inc., Springfield, Mass.
Filed Sept. 10, 1973, Ser. No. 395,828
Int. Cl. F02m *41/16;* **B05b** *1/30*
U.S. Cl. 239—96 **10 Claims**



In a fuel injection nozzle of the inwardly opening type wherein the spring-loaded nozzle valve is opened by metered pulses of high pressure fuel delivered in timed sequence by a fuel injection pump, an improved nozzle valve which reduces engine gaseous emissions and exhaust smoke by permitting a reduced sac volume. The minimum fuel flow through the valve is controlled by the valve element configuration rather than the valve seat intersection with the sac as in the conventional nozzle. The present nozzle construction facilitates manufacturing and permits a change of the valve delivery characteristics by modification of the valve element rather than the less accessible valve seat. The present construction provides an increased valve seat flow capacity for a given seat angle and valve lift.

3,836,081
TORCH TIP AND METHOD OF FABRICATING THE SAME

Stephen J. Yerkins, Glenshaw, Pa., assignor to Goss Gas, Inc., Glenshaw, Pa.
Filed May 14, 1973, Ser. No. 360,305
Int. Cl. F23d *15/04*
U.S. Cl. 239—424.5 **5 Claims**

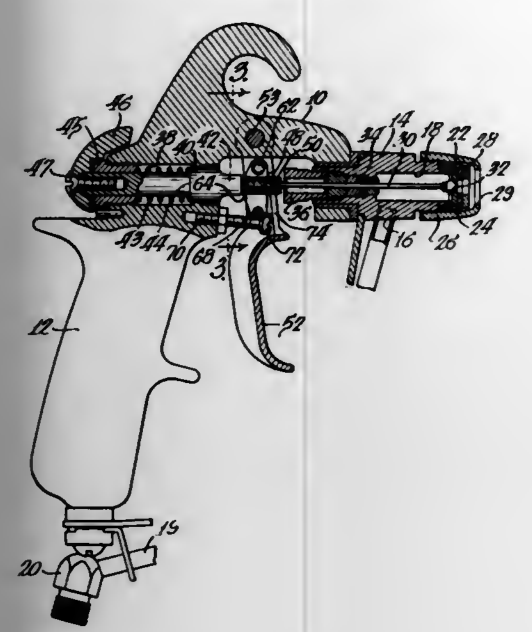


A torch tip of the type adapted to burn a mixture of fuel gas and oxygen, and method of forming the same. The tip is formed of two parts, one of which is an outer tubular housing and the other of which is force-fitted into the tubular housing. The part which is force-fitted into the tubular housing comprises an elongated shank portion having a central bore extending therethrough to convey pure oxygen to a flame at one end of the tip. At opposite ends of the shank portion are enlarged diameter portions, both of which are force-fitted into the opposite ends of the outer tubular housing. Axial bores are drilled in the enlarged diameter portions and radially spaced around the axis of the central bore to convey a mixture of oxygen and fuel gas to the flame area at one end of the tip. Intermediate the enlarged diameter end portions on the shank portion are enlarged portions which substantially abut the inner peripheral surface of the outer tubular housing to prevent collapse of the same under impact loads. These intermediate portions are provided with milled slots which permit gas to pass from one end of the tip to the other through successive plenum chambers which facilitate good mixing of an oxygen-fuel gas mixture.

3,836,082
TRIGGER ASSEMBLY FOR A SPRAY GUN

Duane D. Krohn, Arvada, Colo., assignor to Binks Manufacturing Company, Franklin Park, Ill.
Filed Aug. 1, 1973, Ser. No. 384,687
Int. Cl. B64d *1/30*
U.S. Cl. 239—526 **6 Claims**

In a spray gun or the like having a valve held in closed position under fluid pressure and a trigger for opening the valve, a lever is pivotally connected to the trigger at one end, abutted against a stop at the other end, and provided with an arcuate intermediate portion in direct engagement with the valve opening rod or stem to provide a compound lever action to facilitate opening the valve against the fluid pressure. The trigger also includes a flanged portion that is slightly spaced from the lever in valve closed position, but brought into engagement with the lever after initially opening the valve against high pressure and after the pressure has equalized, so that the trigger then assumes a conventional relationship and feel relative to the valve. The mechanism is particularly useful in guns which dispense viscous materials and have large valve surfaces, wherein the force required to initially open the valve is considerable.

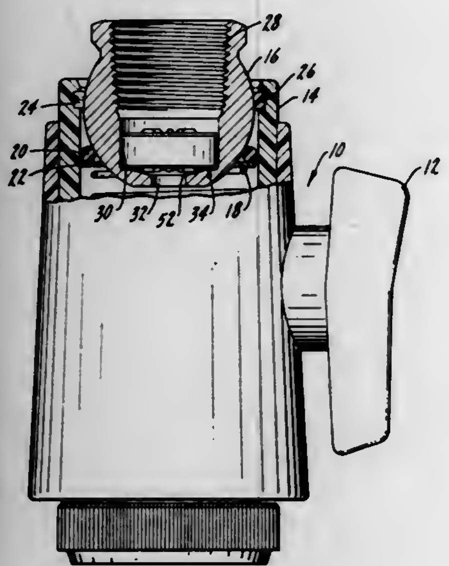


The trigger assembly also incorporates a safety device for the operator's protection.

3,836,083
SHOWER HEAD WITH FLOW CONTROL WASHER

Frank W. Bell, Avon, Ohio, assignor to Stanadyne, Inc., Windsor, Conn.

Filed Oct. 11, 1973, Ser. No. 405,624
Int. Cl. B05b *1/30;* **F15d** *1/00*
U.S. Cl. 239—572 **12 Claims**

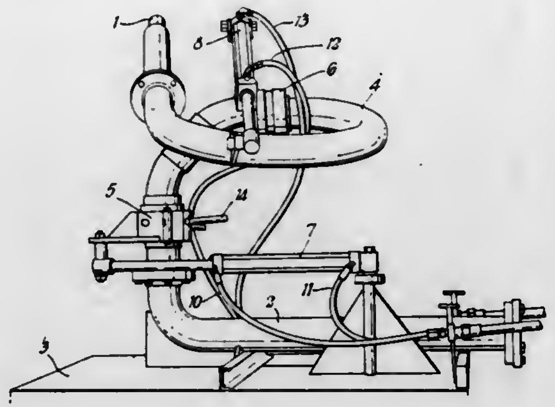


A flow control washer for use in a plumbing fixture such as a shower head is formed of a distortable rubberlike material and has a generally cylindrical shape. There are a plurality of independent water passages through the washer, with the passages being axially aligned. A distortable projection is positioned between each pair of passages. The pressure of water upon the washer causes the projections to distort, partially restricting the openings into the passages, thus controlling the flow of water through the plumbing fixture.

3,836,084
AUTOMATIC REMOTE CONTROL APPARATUS

William George Luke, Cornwall, England, assignor to English Clays Lovering Pochin & Company Limited, Cornwall, England

Filed Apr. 9, 1973, Ser. No. 349,463
Claims priority, application Great Britain, Apr. 14, 1972, 17418/72
Int. Cl. B05b *15/08*
U.S. Cl. 239—587 **7 Claims**

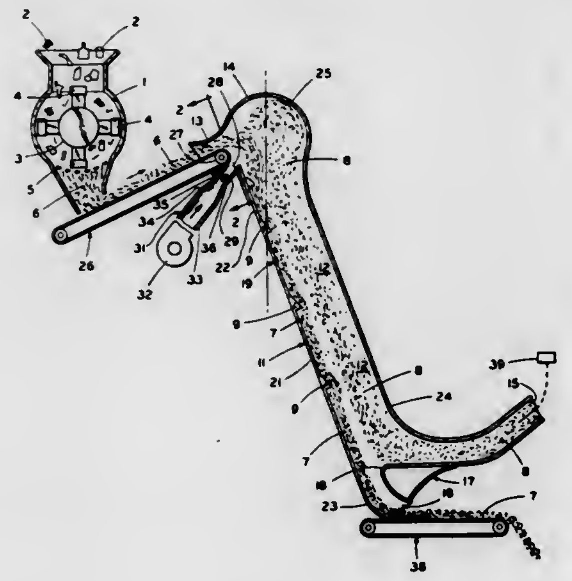


Hydraulic control apparatus for automatic remote control of a hydraulic actuating ram. The apparatus has a double-acting slave cylinder connectable hydraulically to an actuating ram, and a double-acting master cylinder the piston of which is mechanically connected to the piston of the slave cylinder, the master cylinder being operable by hydraulic pressure supplied via a pilot-operated valve arranged automatically to reverse the stroke of the master ram at limits set according to the desired stroke of the actuating ram. The control apparatus may be used for controlling actuating rams which effect reciprocating pivotal movement about one or more axes of a water jet monitor.

3,836,085
TOWER EXTRACTOR FOR MUNICIPAL WASTES

Victor Brown, 2208 Shadowdale, Houston, Tex. 77043

Continuation-in-part of Ser. No. 125,516, March 18, 1971, abandoned. This application Apr. 16, 1973, Ser. No. 351,434
Int. Cl. B07b *15/00*
U.S. Cl. 241—19 **17 Claims**

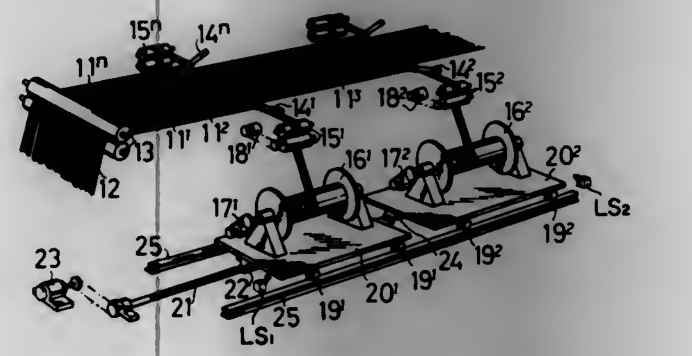


A tower extractor and method to continuously and coarsely or roughly separate paper, film plastic products and like, lighter materials from the heavier materials in a relatively large volume conglomerate of mixed solid municipal wastes or refuse. The separation occurs as the result of an airstream being directed into the conglomerate of mixed solid wastes as the mixed solid wastes begin to slide down a chute at least 30 feet long disposed at an angle of about 60° to 80° from vertical in a separation chamber. The volume and pressure of the airstream are selected so as to cause an initial separation and suspension of at least a portion of the lighter materials from the heavier materials as the waste descends down the chute. While a portion of the lighter materials is air suspended, the heavy materials and the remaining portions of the waste mixture flow down the chute and the mixture is further separated into a light fraction and a heavy fraction. The separation occurs because the components in the light fraction move at a slower rate than the components in the heavy fraction. As a result, the light components stratify above the heavy component and are drawn out of the separation chamber as a light fraction, preferably by suction. The heavier materials remain in contact with the chute and are separately discharged out of the separation chamber.

3,836,086
YARN WINDING APPARATUS AND METHOD

Mikio Kodama, Shizuoka-ken, Japan, assignor to Fuji Spinning Company Limited, Tokyo, Japan

Filed July 19, 1972, Ser. No. 273,046
Int. Cl. B65h *54/20*
U.S. Cl. 242—35.5 R **6 Claims**

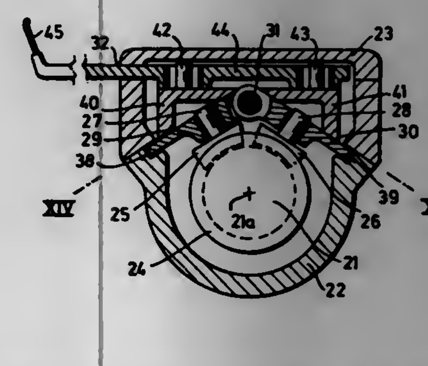


In an apparatus for winding up a plurality of tape-like narrow yarn groups divided from sheet-like wide yarn group and treated in liquid, the apparatus comprises a first means and a second means. The first means is that of changing the direction of each liquid-treated tape-like narrow yarn groups at right angles with respect to the advancing direction of the tape-like narrow yarn groups. The second means is that of winding up each tape-like narrow yarn group on take up beams arranged with their axes being parallel to said advancing direction of the tape-like narrow yarn groups.

3,836,087
GUIDE FOR WINDING THREAD ON TRANSVERSE SPOOLS

Alfred Tschentscher, Abshof 51, 5 Cologne 91, Germany

Filed Feb. 28, 1972, Ser. No. 229,848
Claims priority, application Germany, Sept. 25, 1971, 2148019
Int. Cl. B65h *54/28*
U.S. Cl. 242—43 **6 Claims**

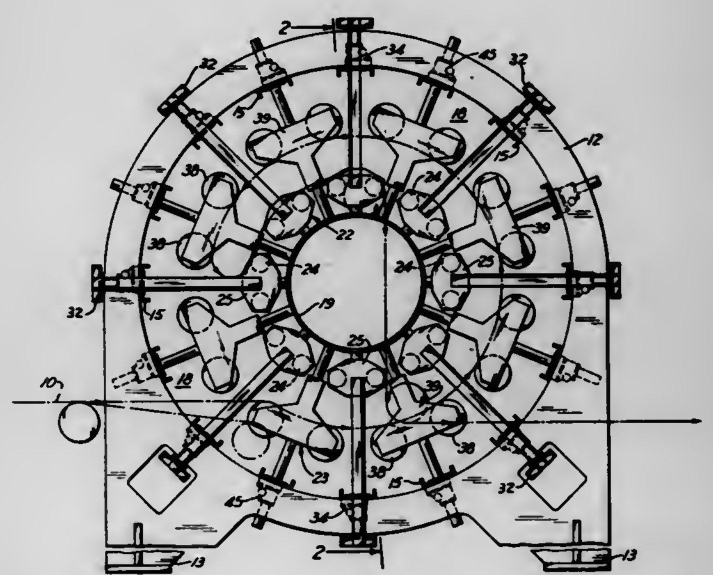


A thread guide is slidably disposed in a guide way and in contact with a rotating thread roll having a continuous spiral guide groove. The thread guide has a runner contacting and moving with respect to the guide slot of the roller and an elongated extension arm ending in an upright thread guding device, the extension arm being aligned with the runner of the guide. The length of the extension arm determines the longitudinal acceleration of the thread being wound in the end areas of the spool as the runner passes through the end turnaround portion of the guide slot. The thread is accelerated away from the end of the spool, thus decreasing the possibility of thread buildup or hangover in this region. A double runner device is also provided and includes a positionally adjustable extension arm for the winding of conical spools.

3,836,088
STRIP ACCUMULATOR

Wlodzimierz W. Maruszczak, Verona, Pa., assignor to Wean United, Inc., Pittsburgh, Pa.

Filed Sept. 8, 1972, Ser. No. 287,291
Int. Cl. B65h *17/48*
U.S. Cl. 242—55 **2 Claims**



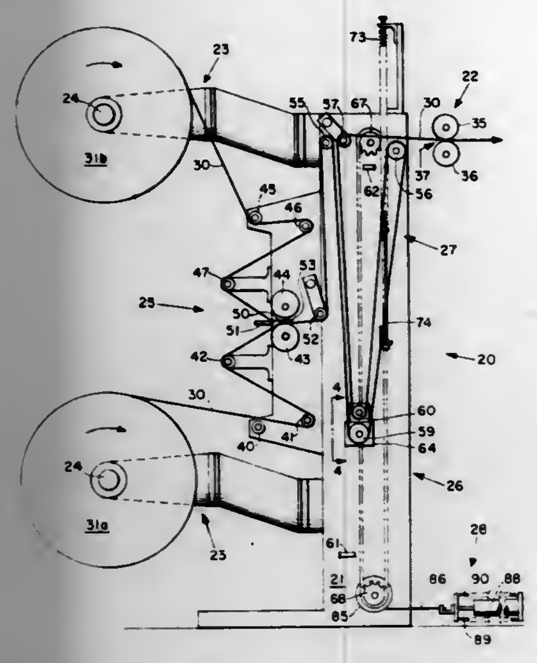
The disclosure of this invention relates to a rotary accumulator for weblike material, such as, rolled steel strip, and includes inner and outer roller baskets between which the strip is accumulated in the form of two distinct coils separated by a reversible loop of the strip. The baskets are formed by cooperative pairs of rollers, each pair having its own radially positioned guide and adjustable screw jack. The baskets are received in an outer frame which has a side member with a large circular opening that exposes the baskets to the exterior of the frame.

3,836,089
WEB SPLICING, UNWINDING AND FORWARDING APPARATUS

Coenraad E. Riemersma, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

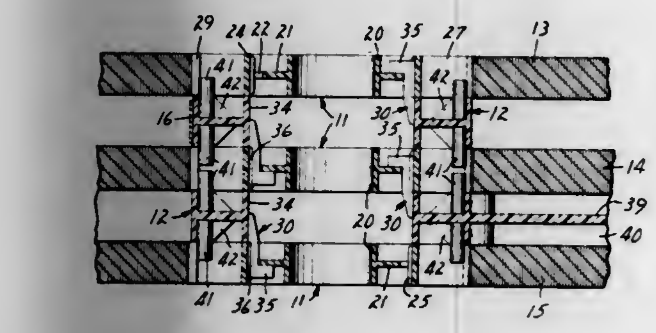
Filed Mar. 19, 1973, Ser. No. 342,556
Int. Cl. B65h *19/18, 51/20*
U.S. Cl. 242—58.1 **7 Claims**

An improved web splicing, unwinding and forwarding apparatus for unwinding web from a succession of supply rolls and forwarding web uninterruptedly to downstream apparatus at substantially constant velocity under substantially constant tension. The improvements include: means for maintaining a low level of tension in the web except during splicing transients and the like during which transients web tension is caused to increase whereby the periods of such transients are reduced; and, means for sensing the rate of increasing the length of web looped through the apparatus and means responsive to such rate means for preventing the length of such loop from exceeding the capacity of the apparatus. The latter improvement functions to prevent the loop of web from becoming slack.



3,836,090
LONG YARDAGE TAPE CORE ASSEMBLY AND TAPE

Robert C. Mix, North St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Sept. 11, 1972, Ser. No. 288,014
Int. Cl. B65h *17/02*
U.S. Cl. 242—68.5 **8 Claims**

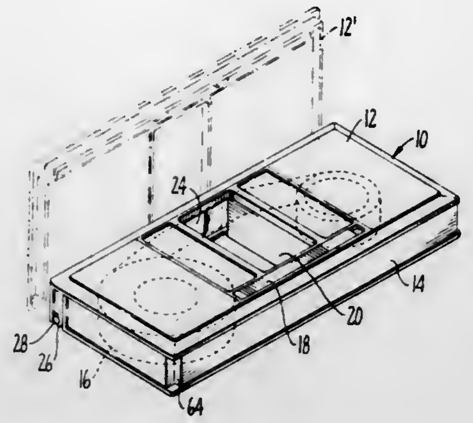


An assembly for rigidly supporting a plurality of wound rolls of tape spliced together to form a continuous usable long yardage tape supply. The assembly comprises a plurality of tape cores which are placed into the wound rolls of tape and fan-shaped tape support members. The support members are secured between adjacent cores and form transition surfaces for the tape from the inside of the first roll to the outer convolution of the next adjacent roll without slack becoming present in the tape.

3,836,091
FILM CASSETTE

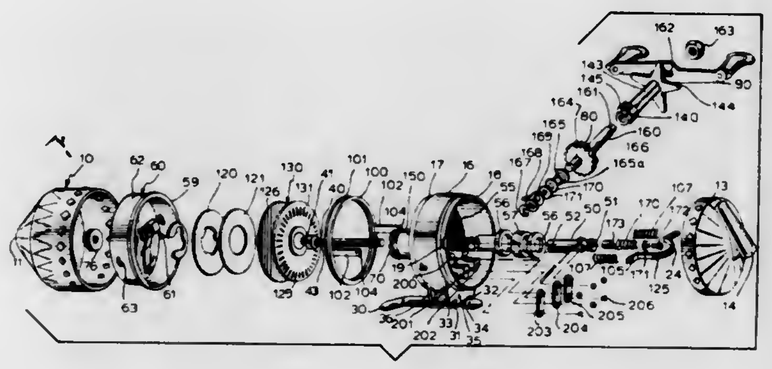
Roy E. Hurtig, Monte Sereno, and Don W. Geri, Los Gatos, both of Calif., assignors to Memorex Corporation, Santa Clara, Calif.
Filed Apr. 15, 1971, Ser. No. 134,236
Int. Cl. G03b *1/04;* **B65h** *75/02*
U.S. Cl. 242—71.2 **22 Claims**

A cassette for handling films, microfilm and the like for use with a display or reading device. A pair of film chambers are provided having rotatable cores for handling the film. A film guide path extending between the chambers has a "floating" film gate disposed over an aperture in the cassette for acceptance of a light source. The floating film gate contacts the film reader to assure exact film to optics spacing. The rotatable film cores include a unique three-slot construction to provide secure holding of film ends without resort to glue, pins or other means of attachment.



3,836,092
CLOSED FACE SPINNING REEL

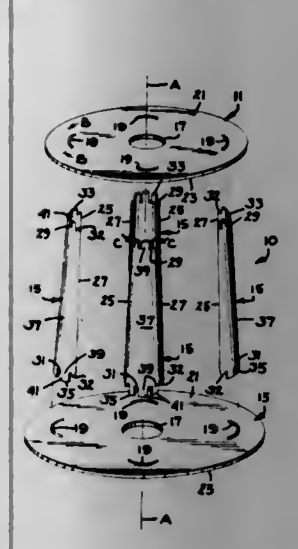
R. Dell Hull, 6101 E. Apache St., Tulsa, Okla. 74101
Filed Mar. 16, 1973, Ser. No. 341,904
Int. Cl. A01k *89/00*
U.S. Cl. 242—84.2 A **10 Claims**



The disclosure herein relates to fishing reels, especially so-called closed face spinning reels, and it is directed more specifically to several unique structural arrangements in closed face spinning reels, including an improved drag brake arrangement, utilizing a disc friction surface on the front side of the spool in conjunction with pressure buttons on the rear side of the reel; an improved actuating arrrangement for the drag brake, including a deformable ring carrying friction buttons for the drag brake and a single revolution cam with an associated star wheel for the drag brake adjustment; an improved mounting of the winding shaft and associated bushings in molded U-shaped bearing supports; an improved anchoring of the tang to the reel housing, including a dovetailed engagement of the tang in the housing; and an improved arrangement of "no-back" elements to provide for actuation of a no-back pawl in one plane by an actuating arm attached directly to the winding shaft and operated in another plane. These new structural arrangements for closed face spinning reels enhance and simplify the operation thereof, accommodate the use of inexpensive new plastic materials of construction, simplify the manufacture of the components, and simplify the assembly thereof in the mass production of closed face spinning reels.

3,836,093
BARREL STAVE REEL

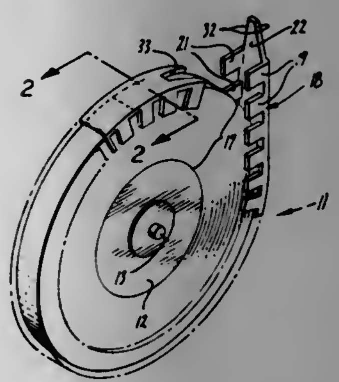
Henry F. Mozina, Michigan City, and Frank L. Blue, Minnetonka, both of Minn., assignors to Acrometal Products, Inc., Minneapolis, Minn.
Filed Nov. 17, 1972, Ser. No. 307,481
Int. Cl. B65h *75/14*
U.S. Cl. 242—118.6 **4 Claims**



A wire holding barrel is disclosed constructed of parallel spaced apart flanges having four longitudinally extending, transversely curved staves attached in a longitudinal orientation between the flanges.

3,836,094
TAPE RECORD MEDIUM AND ROLL

Ashley J. Hollingsworth, Atherton, Calif., assignor to Newell Industries, Inc., Sunnyvale, Calif.
Filed Nov. 4, 1968, Ser. No. 773,209
Int. Cl. G11b *15/66;* **B65h** *75/28*
U.S. Cl. 242—192 **6 Claims**

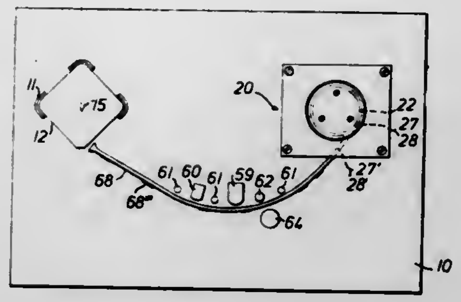


A tape record medium wrapped to form a roll of tape is characterized by a leader formed with means along its edges for engaging the side edges of tape convolutions of the roll to maintain the roll's integrity. A second leader portion no wider than the tape record medium is characterized by a thickness which serves to maintain a predetermined spacing between the take-up hub of a transport employing the roll and a drive capstan surface.

3,836,095
ARRANGEMENT FOR AUTOMATICALLY GRIPPING AND WINDING UP A RECORDING TAPE

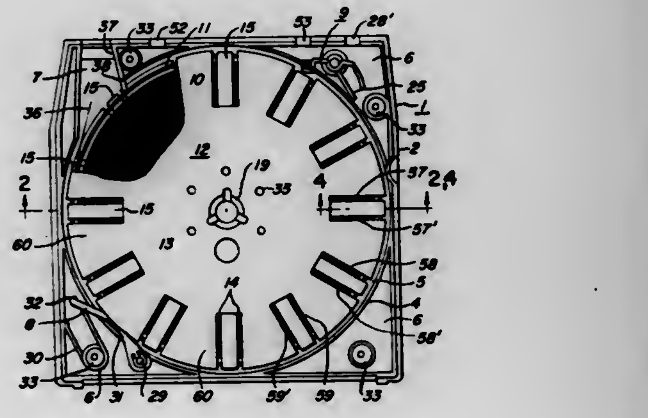
Jurgen Kruhn, Konstanz, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed Nov. 27, 1972, Ser. No. 309,664
Claims priority, application Germany, Nov. 30, 1971, 2159212
Int. Cl. G03b *1/04;* **G11b** *15/32*
U.S. Cl. 242—195 **7 Claims**

An arrangement for winding a recording tape onto a take-up core in a tape recording playback system, the tape being attached to a stiff leader of greater width than the tape. Two fixed guide-members surround the core in order to guide the edges of the leader. An intake channel is formed by extensions of the guide members which open in a line substantially tangential to the periphery of the take-up core. The inner perimeters of these guide members are spaced from the peripheral surface of the take-up core in order that the leader of the recording tape can be led through the intake channel into operative engagement with the take-up core.



3,836,096
TAPE REEL AND TAPE REEL STORING MAGAZINE

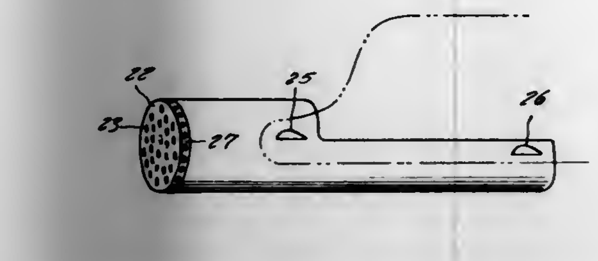
Juichi Fukushima, Osaka, and Michinori Nagahiro, Nishinomiya, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Osaka, Japan
Filed Dec. 1, 1972, Ser. No. 311,425
Claims priority, application Japan, Dec. 1, 1971, 46-113381; Dec. 1, 1971, 46-113384; Dec. 1, 1971, 46-113397; Dec. 1, 1971, 46-113398; Dec. 1, 1971, 46-113400; Dec. 21, 1971, 46-121247; Jan. 14, 1972, 47-7464
Int. Cl. G03b *1/04;* **G11b** *15/32, 23/04*
U.S. Cl. 242—197 **12 Claims**



A reel for video tape where the tape has a wider protective leader strip at the outer end, and a magazine in which such a reel may be housed. The reel has flanges with offset peripheral shoulders around which the leader strip is wrapped. In order to hold the leader strip in place on the shoulders, either or both of the flanges have a plurality of integral, resilient, thin-gauge fingers projecting outwardly between pairs of radial slits, each finger having a claw at the outer end. The magazine has an aperture through which the tape and leader strip may pass and an opening through which a drive connection can engage the reel. The magazine contains a pusher which bears yieldably against the leader strip, but not the tape, to seat the strip during winding against the offset shoulders on the flange peripheries, causing the edge of the strip to be held by the fingers. The magazine also contains an interceptor in the unwinding path of the leader strip to disengage it from the reel and guide it out the aperture during unwinding.

3,836,097
SILENCER

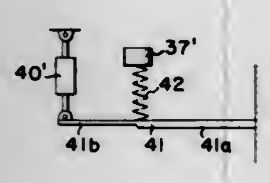
William P. Korth, 1210 N. Trumbull, Bay City, Mich. 48706
Filed Dec. 4, 1972, Ser. No. 311,653
Int. Cl. B64c *21/02*
U.S. Cl. 244—1 N **1 Claim**



A silencing device for use in aircraft to stop sonic boom and for eliminating contact with sun rays. The device, working on the principle of a gun silencer, consists of a cylindrical assembly with a central opening, a cylindrical side wall comprising an outer wall and perforated inner wall communicating with an inner space therebetween, and support means for securement to the wings of an airplane.

3,836,098
VIBRATION ABSORBING DEVICE FOR ROTORCRAFT

Junichi Miyashita, Niwa, Japan, assignor to Kawasaki Jukogyo Kabushiki Kaisha, Ikuta-ku, Kobe-shi, Hyogo-ken, Japan
Filed Mar. 3, 1972, Ser. No. 231,477
Claims priority, application Japan, Mar. 8, 1971, 46-12309
Int. Cl. B64c *27/04*
U.S. Cl. 244—17.27 **3 Claims**

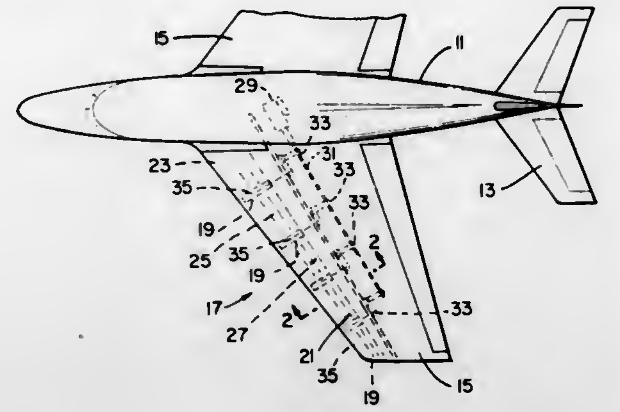


In a vibration absorbing device for rotorcraft, of the type having at least one vibration weight provided in the proximity of a structural member of the rotorcraft through which exciting forces are transmitted to the fuselage, and arranged in such a position and direction of vibration that a selected one of a plurality of forces and moment exciting forces may be offset by the force of inertia of said vibration weight, hydraulic means for imparting vibrations to said vibration weight and means for controlling said hydraulic means to impart desired vibrations to said vibration weight are provided.

3,836,099
AIRFOIL CAMBER CHANGE SYSTEM

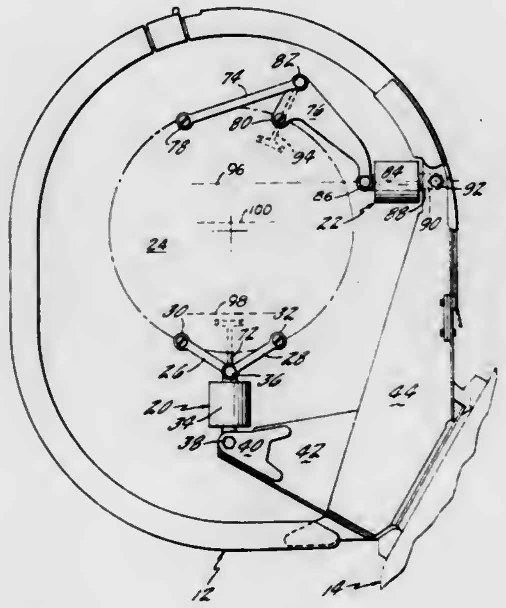
Edward T. O'Neill, Renton; William M. Brennan, Edmonds, both of Wash., and Gerhard K. Kriechbaum, Hagnau, Bodensee, Germany, assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Sept. 28, 1973, Ser. No. 401,746
Int. Cl. B64c *3/48*
U.S. Cl. 244—44 **6 Claims**

An airfoil camber change system for changing the camber of the leading or trailing edges of airfoils. The system includes a flexible continuous upper surface, a lower surface comprising a plurality of slidable overlapping segments and one or more actuation mechanisms. The actuation mechanism includes a plurality of bell cranks and links that are operatively connected to the upper and lower airfoil surfaces. A primary actuator is provided to drive the actuation mechanisms. When the system is driven the actuation mechanism changes the camber profile and maintains proper separation and support of the upper and lower surfaces. The profile is changed by bending the upper constant length surface and shortening the lower surface by increasing the overlap of the slidable overlapping segments.



3,836,100
ENGINE MOUNTING ARRANGEMENT

Paul Warren Von Hardenberg, Huntington, and George Anthony Molnar, Milford, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed June 13, 1973, Ser. No. 369,692
Int. Cl. B64d *27/20, 27/26*
U.S. Cl. 244—54 **11 Claims**

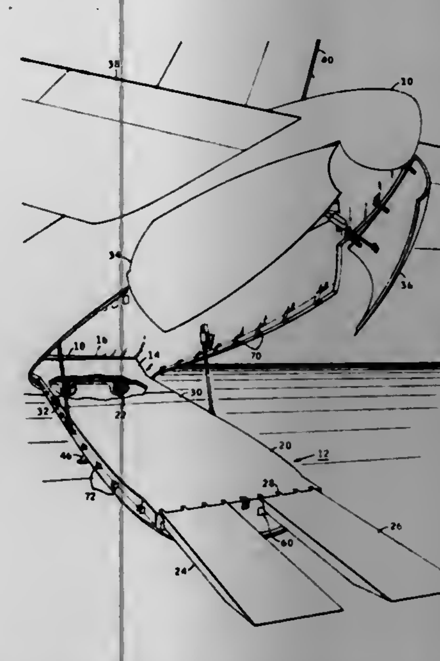


Aircraft engine mounting arrangement in which a rear lower mount has near zero lateral restraint and an elastic vertical restraint and rear upper mount has near zero vertical restraint and an elastic lateral restraint, and an imaginary straight line drawn through the horizontal line of restraint for the front mounting and the rear upper mount locations will pass through the engine installation center of gravity to uncouple engine roll response from airframe lateral input motions.

3,836,101
AIRCRAFT CARGO RAMP SYSTEM

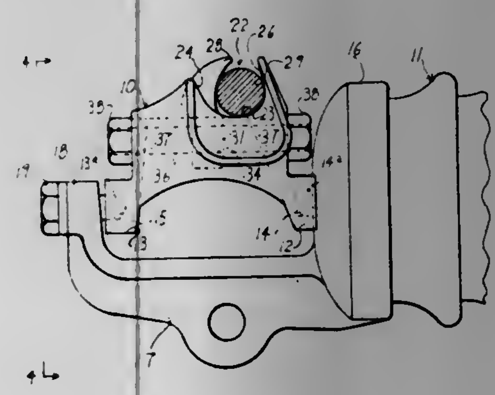
Armand D. Mattia, and Bruno W. Bracka, both of La Mesa, Calif., assignors to General Dynamics Corporation, San Diego, Calif.
Filed Apr. 26, 1973, Ser. No. 354,836
Int. Cl. B64c *1/22*
U.S. Cl. 244—137 R **7 Claims**

A cargo ramp system suitable for use with the rear fuselage of low-wing jet transports. The ramp includes a forward ramp section hinged to the aft end of the fixed cargo floor and an aft ramp section pivotally mounted on the fuselage structure. The two sections form a unitary ramp when extended. In flight, the forward section forms an integral part of the cargo floor and the aft section forms an integrap part of the fuselage. During unloading or loading, the forward section is movable to selectively align either with the main cargo floor or with the main ramp section.



3,836,102
CONDUCTOR CLAMP

Gaddis G. Hall, P.O. Box 6846, Birmingham, Ala. 35210
Filed Dec. 13, 1973, Ser. No. 426,711
Int. Cl. F16l *3/08;* **F16g** *11/06;* **H01b** *17/16*
U.S. Cl. 248—74 R **8 Claims**

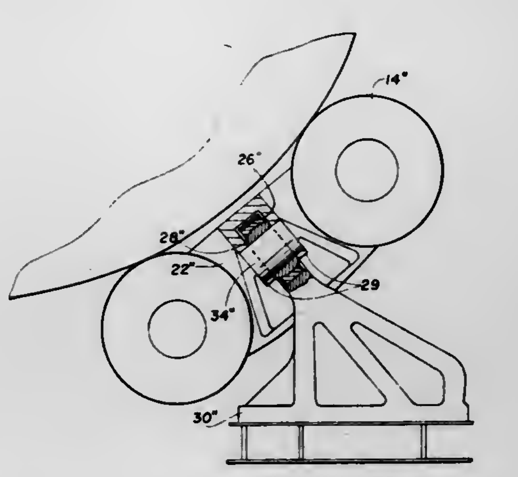


A clamp body has aligned supports at opposite sides for supporting the body parallel to the longitudinal axis of a line insulator. A groove in the body extends perpendicular to the aligned supports and has a transverse notch in one side receiving a keeper. A depending projection on the keeper moves in a transverse recess in the body beneath the notch and has a threaded opening therethrough receiving a threaded member with the ends of the threaded member extending through nonthreaded openings at opposite sides of the body. Axial movement of the threaded member is limited and a tool engaging member is carried by each end thereof outwardly of the body.

3,836,103
SUPPORT FOR TUBULAR ROTARY KILN

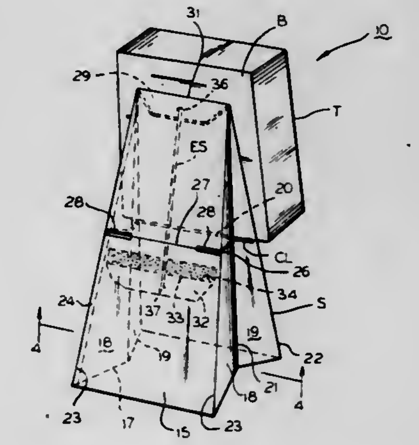
Roger Retali, Saint Cloud; Alain Chielens, Marcq En Baroeul, and Bernard Boussekey, Lille, all of France, assignors to Fives Lille Cail, Paris, France
Filed May 17, 1973, Ser. No. 361,051
Claim priority, application France, Aug. 16, 1972, 72.29260
Int. Cl. F27g *7/00;* **F16c** *13/04*
U.S. Cl. 248—130 **16 Claims**

Supports for a rotary kiln comprise a support base, a pair of rollers mounted on the respective ends of a beam, and a ball-and-socket swivel joint mounting the beam on the support base intermediate the beam ends, the joint having a center in the plane of symmetry of the rollers perpendicular to the axes of the rollers and equidistant from the roller axes, and a diameter smaller than the width of the rollers defining a band of peripheral contact with the kiln during rotation thereof.



3,836,104
DISPLAY STAND

Ronald H. Miller, Somerville, and Bruce A. Radli, Maplewood, both of N.J., assignors to Container Corporation of American, Chicago, Ill.
Filed Apr. 12, 1973, Ser. No. 350,405
Int. Cl. A47f *5/11*
U.S. Cl. 248—150 **1 Claim**

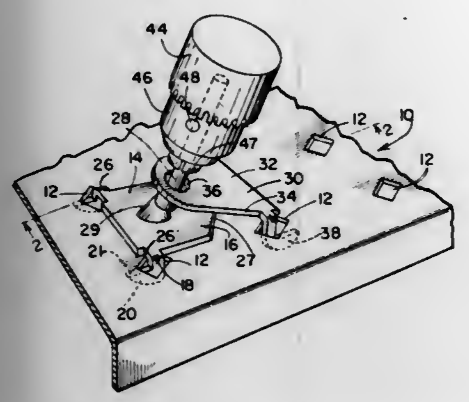


A combination merchandise tray and stand for displaying merchandise comprises front and rear panels foldably joined at longitudinal edges thereof to a gusset panel having a longitudinal medial score line. The gusset, front and rear panels have transverse collinear cut and fold lines whereby they can be folded medially into a collapsed position. The front panel has the upper portion secured to the tray and resilient means are operable upon the unfolding of the panels causing the gusset panels to move to position providing erected stability of the front, rear and gusset panels.

3,836,105
MEANS FOR PREVENTING UNAUTHORIZED REMOVAL OF A POWER TOOL OR THE LIKE FROM A DISPLAY BOARD

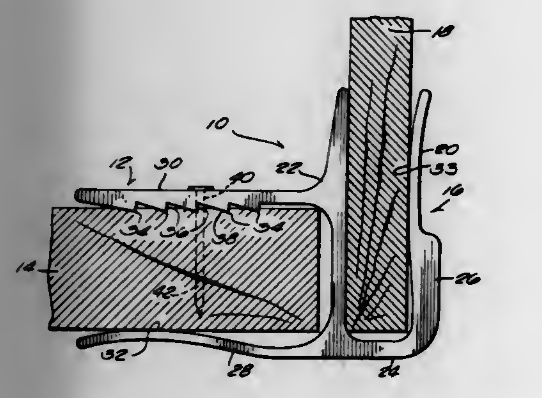
Howard J. Marschak, 865 W. North Ave., Evanston, Ill. 60622
Filed May 17, 1973, Ser. No. 361,234
Int. Cl. A47f *5/00;* **E06b** *7/28;* **A47h** *1/10*
U.S. Cl. 248—223 **10 Claims**

Means for preventing the unauthorized removal of a power tool or the like from a display, said means comprising a first member which is the tool support member having hooking means insertable in the spaced openings of a shelf or back panel of a display stand, with said first member having an upstanding post, a second member which is the locking member provided with means insertable in other of said openings in said display, with said second member positionable over said first member but exposing said upright member, and a tool in which the chuck of the tool is positioned on said upright so that when the jaws of the chuck are tightened by a chuck wrench or the like with respect to said upright, said chuck and tool will be locked against unauthorized removal from said first member and the tool will be supported in a display position.



3,836,106
TOE BOARD BRACKET

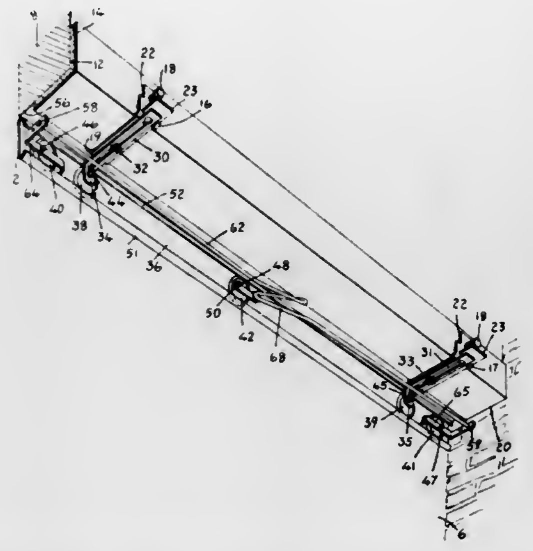
Robert F. Gray, Brookfield, Wis., assignor to A-T-O Inc., Willoughby, Ohio
Filed Jan. 15, 1973, Ser. No. 323,988
Int. Cl. F16m *13/00*
U.S. Cl. 248—229 **1 Claim**



A toe board bracket made from a resilient material and having a toe board holding portion and a horizontal gripping portion formed integrally therewith. The toe board holding portion is comprised of a pair of spaced inner and outer vertically extending legs adapted to receive a toe board therebetween and the horizontal gripping portion is comprised of a pair of upper and lower spaced horizontally extending legs adapted for gripping engagement with the edge of a plank member. The lower leg of the gripping portion extends from the base of the inner leg of the toe board holding portion and the upper leg of the gripping portion extends from the middle portion of the inner leg of the toe board holding portion.

3,836,107
FIRESCREEN SUPPORT

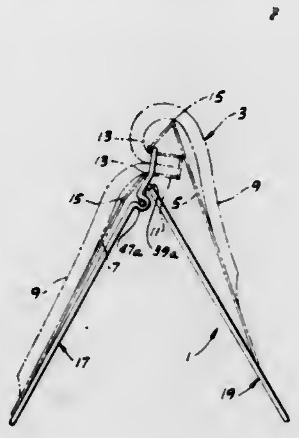
Robert S. Barry, 55 Cairnside Crescent, Willowdale, Ontario, Canada
Filed Feb. 14, 1973, Ser. No. 332,437
Int. Cl. E06b *9/00*
U.S. Cl. 248—251 **6 Claims**



A firescreen support bar has discs rotatably supported at its rear, the discs having offcentre connection points for making connections to the bar, the connection points being adjustable relative to the bar by moving the discs.

3,836,108
BOOK HOLDER AND BOOK STAND

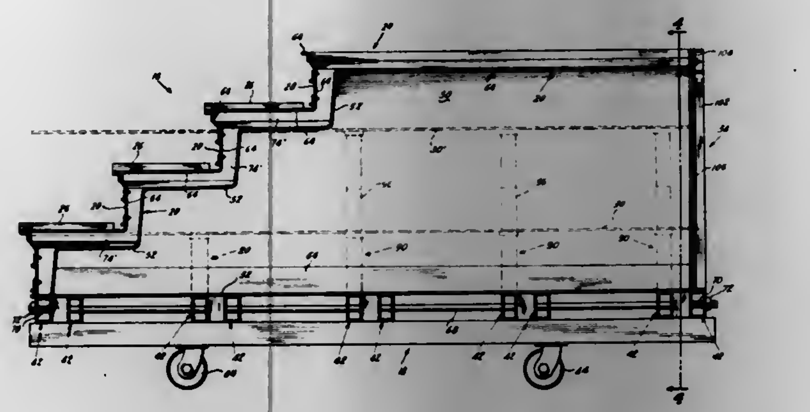
Sylvain A. Surette, 417 S. Washington, Trenton, Ill. 62293
Filed Mar. 16, 1973, Ser. No. 342,197
Int. Cl. A47b *97/04*
U.S. Cl. 248—452 **7 Claims**



A book holder and book stand for a book having its binding in its top and having a front and a back cover, whereby the book is opened by folding the front cover and one or more pages up over the binding, the holder and stand comprising a front frame, a back frame pivotally connected to the front frame at the upper ends thereof for swinging between a collapsed position in which the frames are generally coplanar and an open position in which the lower ends of the frame are spaced apart for supporting the frames in an upright position. The book is resiliently gripped and held on the book stand by means of a pair of generally horizontal bars extending transversely of the frame sections at the top thereof and being spaced apart from one another a distance sufficient to permit the binding of the book to be inserted therebetween in such manner that the book binding is resiliently gripped by the bars and held in position on the stand when the stand is in its open position.

3,836,109
ADJUSTABLE STEP MOLD WITH PRODUCT RELEASE MEANS

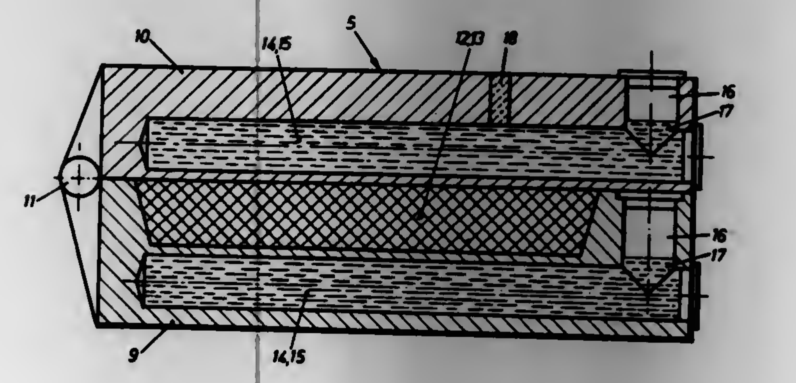
Glenn F. Lister, 2221 W. Fourth, Waterloo, Iowa 50701
Filed Jan. 29, 1973, Ser. No. 327,746
Int. Cl. B28b *7/22*
U.S. Cl. 249—14 **4 Claims**



This mold utilizes opposed movable unitary sides defining respective outer shell components in combination with a fixed inner core to form a cement receiving casting cavity into which there is placed a vertically adjustable floor plate assembly selectively arrangeable to produce castings of different numbers of steps as desired within the maximum capacity of the mold. The outer shells are hingedly affixed at their lower ends to a support frame and are movable, preferably by mechanical means, outwardly in unison away from the casting for separation therefrom and during such movement, suitable adjustable abutment means on the lower ends of the shells engage the underside of the floor plate to elevate the casting sufficiently to release it from the inner core. Means are provided to conveniently adjust the mold for casting a selected number of steps and risers and variations for the size of the platform of the mold and a novel bracket holder is provided for suitably holding handrail anchor bolts and nut in the wet cement until it hardens.

3,836,110
MOULDING TOOL FOR THE MANUFACTURE OF COMPONENTS OF SYNTHETIC PLASTIC MATERIAL

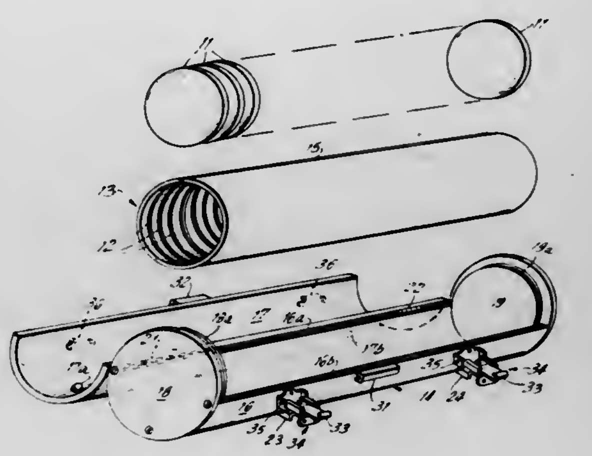
Ulrich Osinsky, Koenigswinter-Oberpleis, and Ferdinand Althausen, Neukirchen, Seelscheid, both of Germany, assignors to Maschinenfabrick Hennecke GmbH, Leverkusen, Germany
Filed Mar. 9, 1972, Ser. No. 233,152
Claims priority, application Germany, Mar. 24, 1971, 2114307
Int. Cl. B29c *1/00;* **B29d** *27/04*
U.S. Cl. 249—79 **8 Claims**



For the production of moulded articles of synthetic plastics which undergo thermal change during the moulding, a mould is used with a mould cavity and a chamber containing a quantity of a material whose physical state is adapted to change in adaption of the thermal change.

3,836,111
CYLINDRICAL MOLD FOR THE PRODUCTION OF A PLURALITY OF OPTICAL LENSES

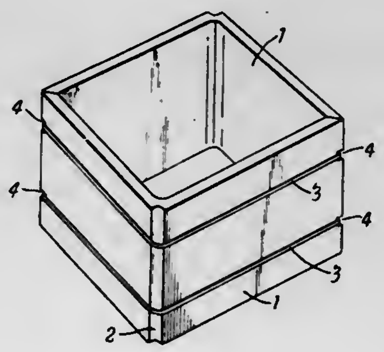
Joseph Binder, Forest Hills, N.Y., assignor to Ashland Optical Corporation, New York, N.Y.
Continuation of Ser. No. 150,040, June 4, 1971, abandoned. This application Nov. 24, 1972, Ser. No. 309,235
Int. Cl. B29d *11/00*
U.S. Cl. 249—121 **11 Claims**



A plurality of plastic eyeglass lenses are molded simultaneously using apparatus comprising a plurality of optical mold elements held in generally parallel spaced relationship in annular interior grooves of a horizontally extending elongated cylindrical resilient holder disposed within the cylindrical cavity of a rigid holder. The latter is provided with an openable cover mounted to horizontal hinges and defining the upper half of the cylindrical cavity. With the cover open the resilient holder may be entered into and withdrawn from the cylindrical cavity and the resilient holder may be deformed for mounting the mold elements.

3,836,112
FLAT FOLDED HOT TOPPING ASSEMBLIES

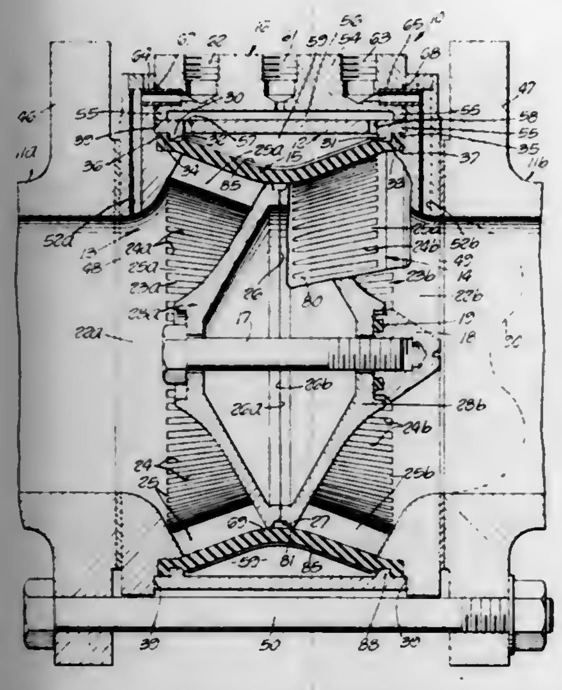
Edward John Jago, and Walter A. McCray, both of Cleveland, Ohio, assignors to Foseco International Limited, Birmingham, England
Continuation-in-part of Ser. No. 203,342, Nov. 30, 1971, abandoned. This application Jan. 3, 1972, Ser. No. 214,836
Claims priority, application Great Britain, Jan. 1, 1971, 160/71
Int. Cl. B22d *7/10*
U.S. Cl. 249—197 **2 Claims**



Hot topping assemblies consist of an endless belt of hot topping material which can be folded flat for storage and opened out to use.

3,836,113
AXIAL FLOW VALVE

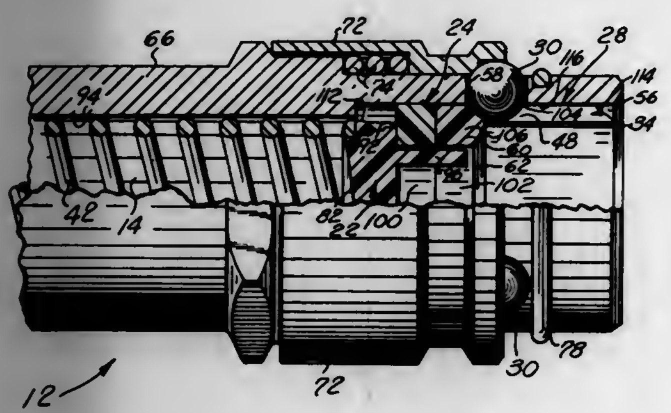
Dwight N. Johnson, Anaheim, Calif., assignor to The Singer Company, New York, N.Y.
Continuation of Ser. No. 867,195, Oct. 17, 1969, abandoned. This application Nov. 1, 1971, Ser. No. 194,188
Int. Cl. F16k *7/07*
U.S. Cl. 251—5 **20 Claims**



There is disclosed herein a throttling valve of the axial flow type for controlling fluid flow. The valve includes an expandable sleeve of resilient material having a toroidal configuration and positioned within a housing on a cage member. When the sleeve is in a rest position there is no fluid flow, but the sleeve can expand as a result of differential pressure acting thereon to allow flow in varying degrees between the sleeve and cage.

3,836,114
COUPLING ASSEMBLY

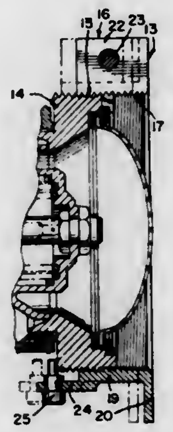
James F. Norton, Berea, and William F. Creadon, Cleveland, both of Ohio, assignors to The Hansen Manufacturing Company, Cleveland, Ohio
Filed Aug. 27, 1973, Ser. No. 391,676
Int. Cl. F16l *29/00, 37/28*
U.S. Cl. 251—149.6 **16 Claims**



An improved coupling includes a socket assembly having a retainer which holds locking elements or balls in a disengaged condition when the coupling is disconnected and releases the locking elements for movement into engagement with a plug as it is inserted into the socket assembly. When the plug is inserted into the socket assembly, the leading end portion of the plug moves a valve member out of engagement with a seal disposed in an axially extending valve chamber. The leading end of the plug is then engaged by the seal to block fluid leakage around the plug. During continued inward movement of the plug, the retainer and seal move axially inward together. As the retainer moves axially inward, narrow inner portions of slots formed in the retainer move away from the locking balls and wide outer portions of the slots move adjacent to the locking balls. An outer sleeve on the socket assembly can then press the balls inwardly through the wide outer portions of the slots into engagement with the plug to hold it in place.

3,836,115
VARIABLE LENGTH VALVE

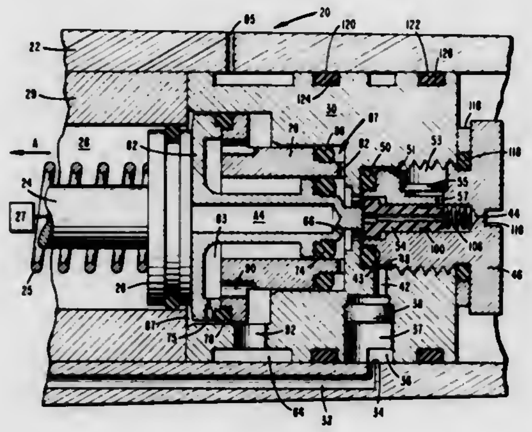
Felician A. Zell, Chicago, Ill., assignor to Vapor Corporation, Chicago, Ill.
Filed Aug. 30, 1973, Ser. No. 393,147
Int. Cl. F16k *51/00*
U.S. Cl. 251—150 **6 Claims**



An inline fluid valve with the ability to change length for installation needs by having a threaded flange and collar at one end whereby turning the collar relative the flange provides variability of the distance between valve inlet and outlet end surfaces.

3,836,116
SELF-ENERGIZING VALVE

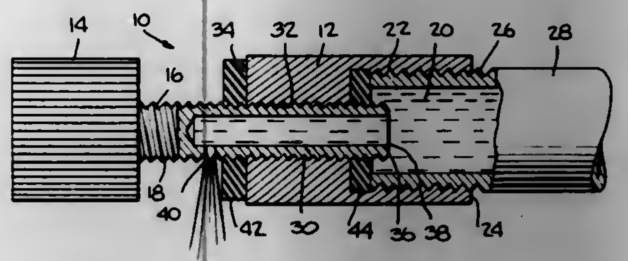
Douglas G. Noiles, New Canaan, Conn., assignor to United States Surgical Corporation, Baltimore, Md.
Filed Sept. 29, 1972, Ser. No. 293,371
Int. Cl. F16k *21/00*
U.S. Cl. 251—174 **4 Claims**



A power pack for converting gas pressure into rectilinear movement of a drive shaft. The power pack is activated by unseating the primary spool of a spool mechanism from a self-energizing pilot valve releasing a volume of pressurized gas and thereby driving a shaft adapted to be associated with a mechanism requiring an input of rectilinear movement. The pilot valve body has a throughgoing bore and is adapted to be slideably seated in a valve housing. The pilot valve body is connected with a source of pressurized gas and is seated on a spring within the valve housing so that pressurized gas is discharged through the body bore when the spool mechanism is unseated from the pilot valve body.

3,836,117
VALVE CAP

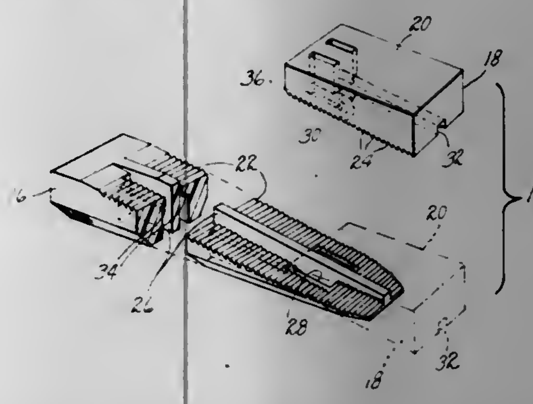
Marcello Panicali, 2357 84th St., New York, N.Y. 11214
Filed Mar. 20, 1973, Ser. No. 342,997
Int. Cl. F16k *31/50*
U.S. Cl. 251—351 **7 Claims**



Valve attachment for a water pipe constituting a hollow, open-ended body member having an enlarged threaded bore in one end communicating with a reduced threaded bore in its other end, in combination with a knurled nut having a hollow, open-ended stem extending axially therefrom and provided with a drain opening in the stem wall leading into the rear of the stem hollow. The stem is reciprocatively threaded through the reduced body member bore, whereby rotation of the stem in one direction closes the valve, and rotation in the opposite direction exposes the drain opening to effect discharge of water from the water pipe. Washers provide a fluid seal.

3,836,118
ADJUSTABLE WORK SUPPORT ASSEMBLY

Engelbert A. Meyer, Union Lake, Mich., assignor to USM Corporation, Boston, Mass.
Filed Sept. 20, 1973, Ser. No. 399,465
Int. Cl. B25b *3/00;* **F16b** *2/14*
U.S. Cl. 254—104 **4 Claims**

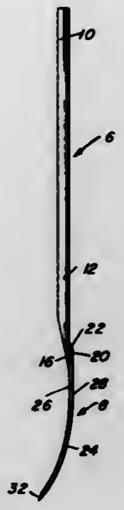


A two-piece assembly one part of which is adjustably slidable relative to the other and into load-bearing position to hold a workpiece or structural assembly. The parts, which desirably may be of molded plastic, are formed with cooperative interlocking guide means, and their interfaces preferably include serrations disposed in inclined planes whereby the parts are anchored against slippage from a suitably adjusted work supporting relation. The range of take-up action is dependent on the ramp inclination of the base part upon which a normally shorter complementary part is movable into and automatically locked in work abutting position.

3,836,119
ROOF COVERING REMOVING TOOL

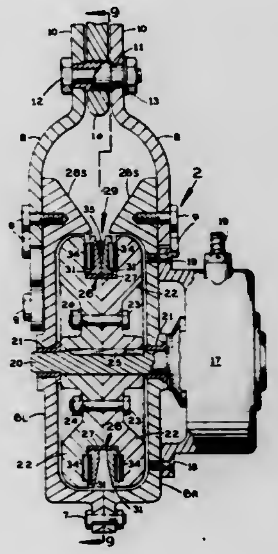
Edwin C. Saucier, Sr., and Edwin C. Saucier, Jr., both of Biloxi, Miss., assignors to Jeannie A. Saucier, Biloxi, Miss.; a part interest
Filed July 19, 1971, Ser. No. 163,717
Int. Cl. B66f *3/00*
U.S. Cl. 254—131 **3 Claims**

A manually manipulatable tool which lends itself to practical and reliable use when the user is called upon to dislodge and systematically free and expeditiously remove composite roof covering material and characterized by a handle having head means at the working end. A straight elongated handle is designed for stand-up use and can be grasped at longitudinally spaced points with both hands. The forward end is provided with a rigidly mounted blade which is firm but bendably resilient, is longitudinally bowed, has a leading rounded end fashioned into a cutting blade and has its rearward end joined to the forward end of the handle. The leading end is guidingly piloted and inserted and wedged between the roof covering material and underlying roof surface. It is forcibly shoved in a manner to cut and dislodge strips of suitable length and paves the way for lifting and removing the remaining block-like portions.



3,836,120
POWER DRIVEN BLOCK AND TACKLE

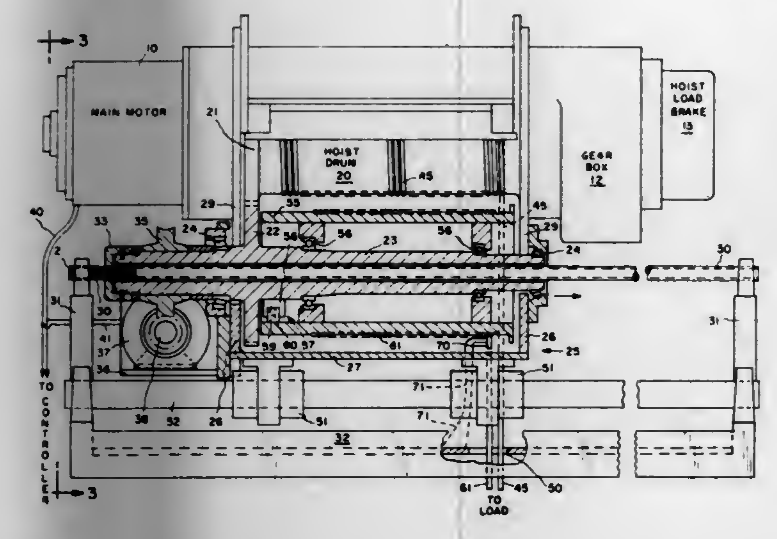
Shale J. Niskin, 2941 Lucaya St., Miami, Fla. 33131
Filed Feb. 2, 1973, Ser. No. 329,212
Int. Cl. A01k *73/06;* **F16h** *55/56*
U.S. Cl. 254—138 **7 Claims**



A portable power driven single sheave block and tackle with a motor means secured to one side of the block for rotating the sheave when the motor is energized. The sheave is provided with a plurality of peripheral jaws adapted to be automatically moved to engage a rope within a predetermined range of diameters and including means for securing the block to a support for angular movement for dispensing and retrieving the rope within a wide range of horizontal and vertical directions.

3,836,121
MOTOR-DRIVEN HOIST WITH PROTECTIVE BRAKING SYSTEM

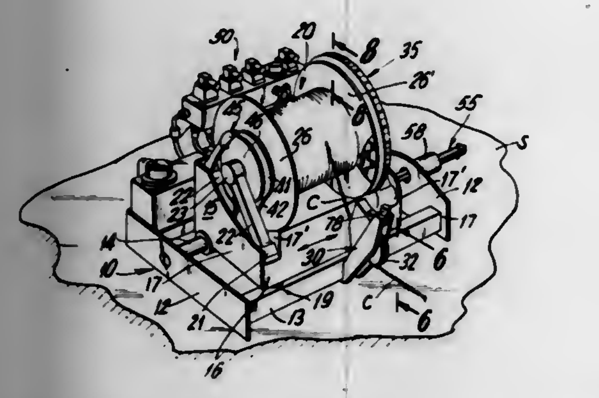
Cecil Roy Jones, Orange, Calif., assignor to Transfer Systems Incorporated, North Haven, Conn.
Filed June 23, 1972, Ser. No. 265,571
Int. Cl. B66d *5/18*
U.S. Cl. 254—170 **11 Claims**



A motor driven hoist especially useful for moving nuclear reactor fuel is described. A principal feature is a positive locking system to prevent load dropping when a malfunction develops. The hoist includes a main drum-supporting cable for the load and which is directly driven by a main hoist motor. A worm wheel is coupled to the drum. A mating worm is in turn driven by an auxiliary motor which has insufficient power to carry the load. The drum cannot rotate unless both motors are operative. The auxiliary worm motor and worm gearing function as an automatic lock which opens to permit drum rotation only so long as the main motor is delivering power to the main drum. Additional features include directly driven auxiliary drums for simultaneously supplying electrical or air hoses to the load, and means for translating the drum while rotating same to maintain the drum cable aligned with the load.

3,836,122
CABLE WINCH

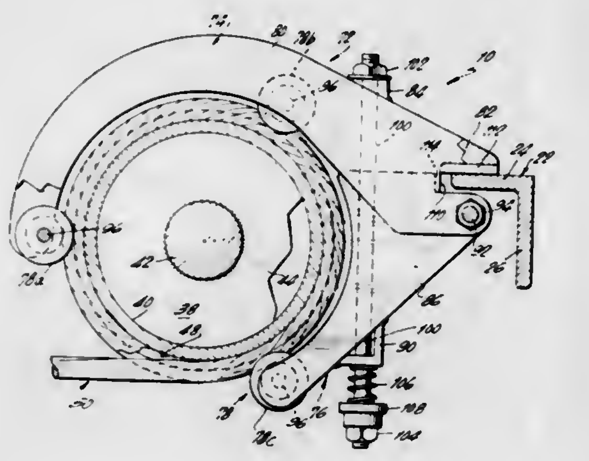
Wayne M. Pierce, Jr., 39 Christine Ter., Milford, Conn. 06460
Filed Nov. 20, 1972, Ser. No. 308,165
Int. Cl. B66d *1/48*
U.S. Cl. 254—172 **4 Claims**



A three-speed hydraulic winch includes a base, a drum support, a drum shaft mounted on the support, a cable drum rotatable on the drum shaft and means mounting the support on the base for reciprocation substantially parallel to the drum shaft. A cable guide pulley is rotatably mounted in a pulley block which is fixedly mounted on the base. An endless chain traverse means is coupled between the base and the support to reciprocate the support. Four hydraulic motors constitute the drive means, and are operable to rotate a gear having clutch teeth on one face engageable with clutch teeth on a flange of the drum, and a chain and sprocket drive interconnects the drum and the endless chain traverse means. The guide pulley is operatively associated with an angle sensing device controlling the pull of the winch and controlling the load on the drum to a constant predetermined maximum. When the clutch is disengaged and the drum is free to rotate, a disk brake is automatically engaged if there is no tension on the cable, to prevent cable over-ride and hang-up, and this brake is released responsive to cable tension. The clutch cannot be disengaged if the cable is under tension. An extension shaft may be provided for driving a capstan or any other device. The fixed positioning of the cable guide pulley on the base, combined with a traversing movement of the drum, provides for level winding without the cable sweeping across the support during winding on the drum or unwinding therefrom. The pull on the cable is always in line with the guide pulley and there is "no side pull," thus maintaining the load at a minimum.

3,836,123
WINCH FOLLOWER ASSEMBLY

Arthur E. Bausenbach, Levittown; Richard T. Seiple, Sayville, and Frank D. Palopoli, Babylon, all of N.Y., assignors to Sanitary Controls, Inc., Deer Park, N.Y.
Filed June 15, 1971, Ser. No. 153,338
Int. Cl. B66d *1/00*
U.S. Cl. 254—186 R **4 Claims**

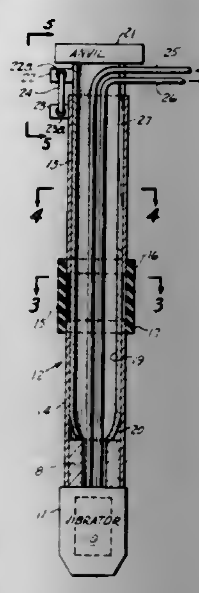


A winch follower assembly includes a motor driven drum on which a cable winds or from which a cable unwinds, as desired. A follower rides on the winch frame adjacent the drum and has a number of rollers carried by a pair of jaws contacting the last coil wound on the drum for the purpose of holding such coil frictionally against the winch drum to prevent undesirable unraveling.

3,836,124
REINFORCEABLE VIBRATOR SYSTEM

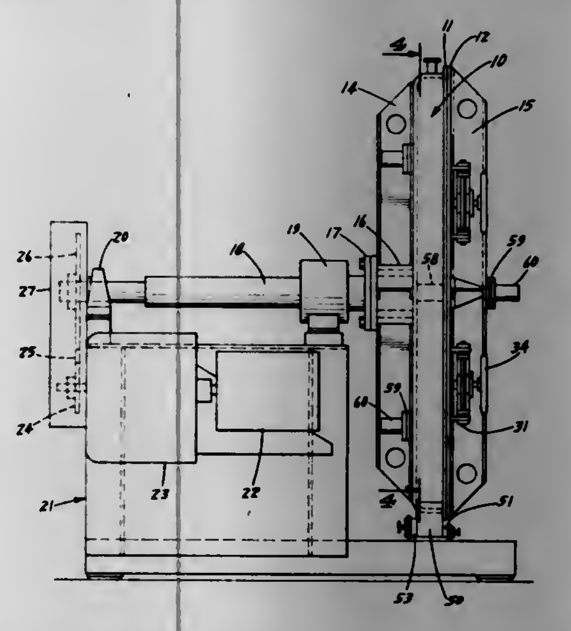
George L. Malan, 560 E. Rowland Apt. (G-3), Covina, Calif. 91722
Filed May 21, 1973, Ser. No. 362,429
Int. Cl. B28b *1/08;* **B01f** *11/00*
U.S. Cl. 259—1 R **12 Claims**

There is disclosed a fluid-operated vibrator mounted in a housing at the end of a stem serving as a handle. The stem is formed in two tubular sections spaced apart and joined by a flexible coupling capable of bending under the vibrational action of the vibrator. A slidable sleeve is adapted to be moved alongside the stem sections to reinforce the stem against bending at the coupling so that the vibrator housing may be thrust into wet concrete or granular material by hammering on an anvil at the top of the sleeve. To restore the flexibility characteristic of the coupling, the sleeve is withdrawn from the lower stem section, thereby permitting bending at the coupling under action of the vibrator.



3,836,125
TUMBLING APPARATUS FOR BLENDING FINELY DIVIDED DRY MATERIALS

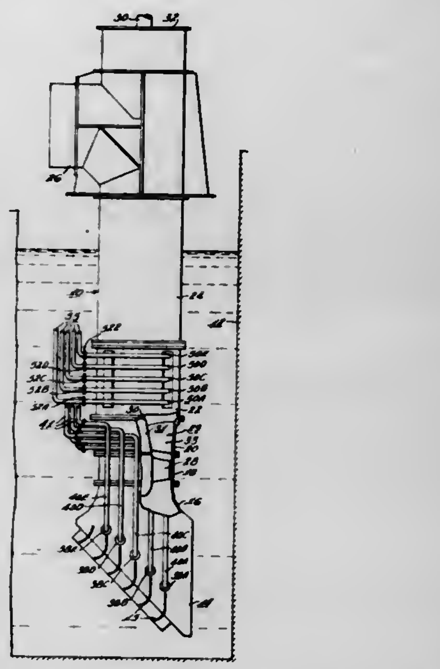
Gene A. Thoreson, Santa Ana, Calif.; Richard A. Ley, Minneapolis, Minn.; Cardell E. Miller, Hudson, Wis., and Lewis A. Emery, Minneapolis, Minn., assignors to The Strong-Scott Mfg. Co., Minneapolis, Minn.
Filed May 10, 1972, Ser. No. 252,021
Int. Cl. B01f *9/06, 15/02*
U.S. Cl. 259—3 **11 Claims**



A blender for intimately mixing and homogenizing relatively free-flowing finely divided powdered and granular materials. The blender is characterized by a vertically disposed circular chamber of relatively large diameter and relatively narrow width within a housing journaled for rotation about a horizontal axis. The chamber is fitted with a plurality of generally horizontal, widely spaced apart separation elements projecting from either or both of the side walls, spanning the width of the chamber and disposed in a substantially uniform array. As the housing is rotated, material to be blended is carried to the top of the chamber from where it falls onto the separation elements as it cascades downwardly. The material is divided successively as it passes over each separation element and then recombined as it falls through the chamber. Such division occurs hundreds or thousands of times in the course of the blending operation.

3,836,126
MIXER PUMP

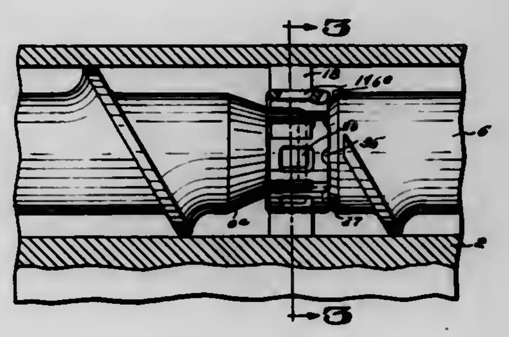
Wilton W. Weltmer, Wauwatosa, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Dec. 27, 1971, Ser. No. 212,300
Int. Cl. B01f *5/12*
U.S. Cl. 259—95 **22 Claims**



A mixer pump suitable for, but not restricted to, use in pumping water from a receiving tank in a municipal water supply system or the like and including means for separately injecting a plurality of chemical treating agents or the like into the water being pumped. In the illustrated embodiment, means are provided for separately injecting a plurality of chemical treating agents each at a plurality of spaced locations into the water stream on the suction side of the pump impeller whereby the chemical treating agents in passing through the impeller are intimately mixed with the water; and means are additionally provided for separately injecting a plurality of additional chemical treating agents each at a plurality of spaced locations into the interior of the pump housing on the discharge side of (i.e., downstream of) the impeller, particularly on the discharge side of the pump diffuser if there is a pump diffuser.

3,836,127
APPARATUS FOR EXTRUDING MELTED PLASTIC MIXTURES

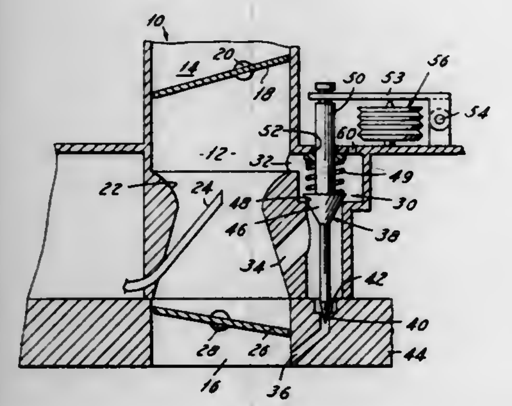
Desider G. Csongor, 35 Wilson Rd., Bedford, Mass. 01730
Filed July 19, 1972, Ser. No. 273,190
Int. Cl. B29b *1/06;* **B01f** *7/08*
U.S. Cl. 259—191 **3 Claims**



An improved apparatus for extruding plastic materials provides for processing a mixture of plastic particles, additives, dyes, and the like by means of an extruder screw to form a melted mass which is moved in a helically-directed stream in a confined space. At a predetermined point, flow-diverting means in said confined space abruptly changes the flow pattern. Portions of the helically-directed melted mixture advanced by the extruder screw and coming into contact with the flow-diverting means, undergo a continuous shearing action and sheared-away portions of the melted material are constantly turned over upon themselves and forced through restricted passageways of short axial length in a highly turbulent flow pattern. After leaving the restricted passageways, the melted material again moves in a helical path of flow. Turbulency thus induced at one or more points in the flow line brings together melted and unmelted particles more effectively and rapidly, and there is further accomplished an improved mixing together of the melted mixture and the additives and other components.

3,836,128
CARBURETOR AMBIENT MIXTURE CONTROL

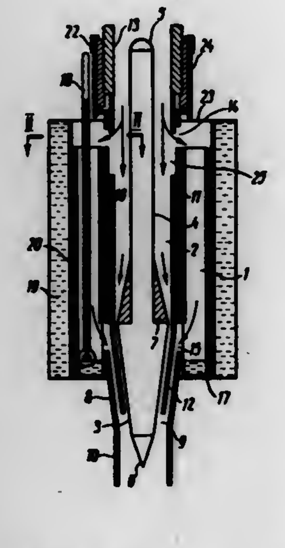
Max W. Lunsford, Southfield, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Nov. 3, 1972, Ser. No. 303,572
Int. Cl. F02m *7/20*
U.S. Cl. 261—39 A **2 Claims**



The carburetor has an air bypass passage for supplying additional air around the venturi to the air/fuel mixture in response to ambient operating conditions, the air bypass passage being controlled by valve means sensitive to changes in ambient conditions and including an additional air bleed for supplying air to the bypass passage when the carburetor choke valve is closed so as to lean out the overrich mixture that would normally be provided with changes in ambient operating conditions if such an air bleed were not provided.

3,836,129
EVAPORATOR FOR LIQUID ANESTHETICS

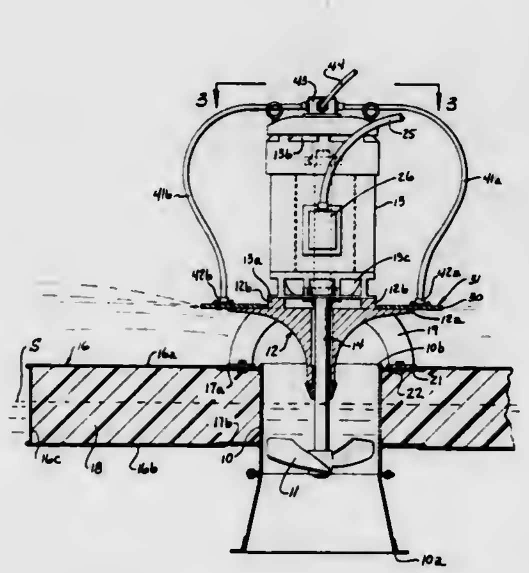
Alexandr Semenovich Perelmutr, Dmitrovskoe shosse, 29, kv. 123; Alexandr Zinovievich Berlin, 2 Sinichkina ul., 19, kv. 101; Igor Konstantinovich Gorlin, ul. Korolenko, 2/23, korpus, 5, kv. 8., and Alexandr Gustavovich Traxler, ul. Pravdy 7/9, kv. 188, all of Moscow, U.S.S.R.
Filed Aug. 18, 1972, Ser. No. 281,772
Int. Cl. B01d *1/06*
U.S. Cl. 261—47 **3 Claims**



An evaporator for liquid narcotics, comprising a straight-flow by-pass duct, wherein provision is made for a shutter and a control slide which, when in one of the extreme positions, interacts with the shutter to close gas admission into the by-pass duct, and an evaporating chamber. The latter is made as a circular straight-flow channel embracing the by-pass duct and is provided with capillary-structure evaporating elements arranged inside the chamber lengthwise the gas flow lines, and with an effuser provided at the outlet of the chamber concentrically to the shutter so as to establish an annular gap therebetween. The control slide, when in the other extreme position, interacts with the effuser to shut up gas issue from the evaporating chamber.

3,836,130
LIQUID AERATING APPARATUS

Jack R. Earhart; James Dennis Crocker, and John K. Johnson, all of Rockford, Ill., assignors to Solem Machine Company, Rockford, Ill.
Filed June 23, 1972, Ser. No. 265,472
Int. Cl. B01f *7/06*
U.S. Cl. 261—142 **10 Claims**

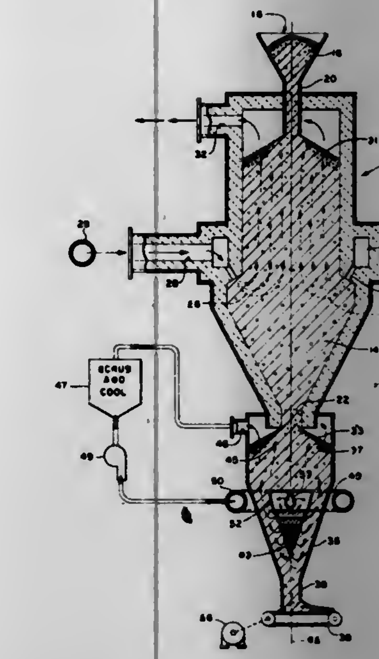


An apparatus for aerating liquid including an upwardly extending throat having an impeller for pumping liquid upwardly through the throat and a diffuser overlying the upper end of the throat to direct the liquid outwardly in an annular spray pattern, a motor mounted above the diffuser for driving the impeller, and an electrical heater extending around the outer periphery of the diffuser for inhibiting formation of ice on the aerator. The heater is in the form of a ring that overlies the upper side of the diffuser outwardly of the motor and preferably extends outwardly of the periphery of the diffuser at a level to limit the height of the liquid spray pattern.

3,836,131
APPARATUS FOR COOLING A MOVING BED OF SOLID, GAS PERMEABLE PARTICLES

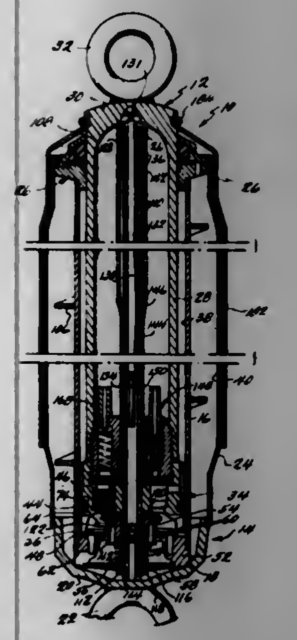
Donald Beggs, Toledo, Ohio, assignor to Midrex Corporation, Toledo, Ohio
Filed Dec. 26, 1973, Ser. No. 428,146
Int. Cl. F27b *1/00*
U.S. Cl. 266—20 **5 Claims**

Apparatus is provided for efficiently cooling a moving bed of gas permeable particles descending downwardly through a converging bin. The apparatus includes a support mechanism and an especially configured gas distributor depending downwardly therefrom within the bin. The distributor includes a plurality of tiered gas units in nested relationship with one another and arranged in progressively smaller sizes from the top of the distributor. Each gas unit contains a predetermined number of peripherally spaced gas outlet ports to provide streams of cooling gas under sufficient pressure at each unit to effectively cool the bed of particles.



3,836,132
SELF-LEVELING COMBINED SHOCK ABSORBER AND FLUID SPRING ASSIST UNIT

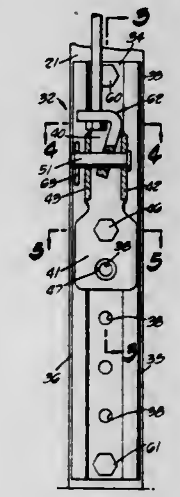
Sellers B. McNally, Homewood, and Charles D. Lemme, Park Forest, both of Ill., assignors to Maremont Corporation, Chicago, Ill.
Continuation-in-part of Ser. No. 163,983, July 19, 1971. This application June 26, 1972, Ser. No. 266,374
Int. Cl. B60g *4/26*
U.S. Cl. 267—64 R **32 Claims**



A self-leveling combined shock absorber and liquid spring unit adapted to be mounted in place of a conventional shock absorber between the sprung and unsprung masses of a vehicle having a conventional suspension system made up of a pair of upper and lower tubular structures mounted for longitudinal movement with respect to each other in contracting and extending telescopic relation, the tubular structures providing a cylinder, piston and piston rod arrangement defining separate rebound and compression damping chambers filled with hydraulic fluid and supplied from an annular supply chamber concentric with the cylinder, the interior of the piston rod member defines with a separate elongated displacement member a variable volume load bearing liquid spring chamber, the displacement member serving additionally as part of a pump-up mechanism for positively displacing hydraulic fluid from a supply damping chamber into the load bearing liquid spring chamber and as a part of a separate pump-down mechanism for positively displacing liquid from the load bearing liquid spring chamber into a damping chamber, the operative strokes and displacements of the two pump mechanisms being different but interrelated so as to maintain a variable amount of hydraulic fluid within the load bearing liquid spring chamber sufficient to provide a load bearing force when the tubular structures are in a generally centrally located predetermined relative telescopic position, which varies substantially in accordance with the static load carried by the unsprung mass of the vehicle, the arrangement being such that positive damping is provided at no-load capability and abrupt changes in the spring force are avoided during the telescopic movements of the tubular structures through the predetermined central position.

3,836,133
DOOR SPRING ANCHORING MEANS

John P. Pyka, 6903 Columbus Ave., Van Nuys, 91405, and Robert J. Pyka, 22188 Canones Cir., Saugus, both of Calif. 91350
Filed Mar. 2, 1973, Ser. No. 337,463
Int. Cl. F16f *1/12*
U.S. Cl. 267—69 **6 Claims**

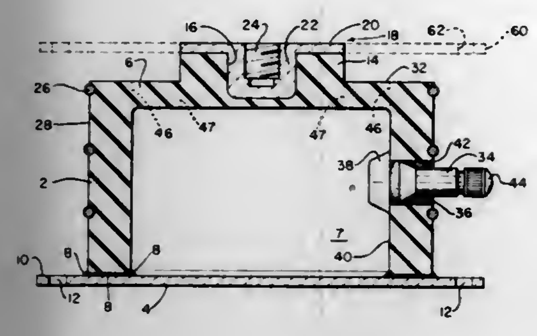


A mounting guideway or channel is secured to a supporting structure (door jamb) by one or more lag bolts at the appropriate location. A strut slidably received within the bracket guideway or channel is connected to the door spring and includes a bolt interconnecting the strut member and a locking nut slidably held in the guideway. The end of a pinch bar or other similar tool is inserted through an opening in the strut member and received within one of a set of openings in the bracket, after which the tool is manipulated to lever the strut to a position placing the spring in the desired amount of tension. While maintaining the spring at the required tension, the bolt in the strut is tightened securing the strut member to the locking nut and thereby fixing the strut member and spring at one position.

3,836,134
PNEUMATIC ISOLATOR

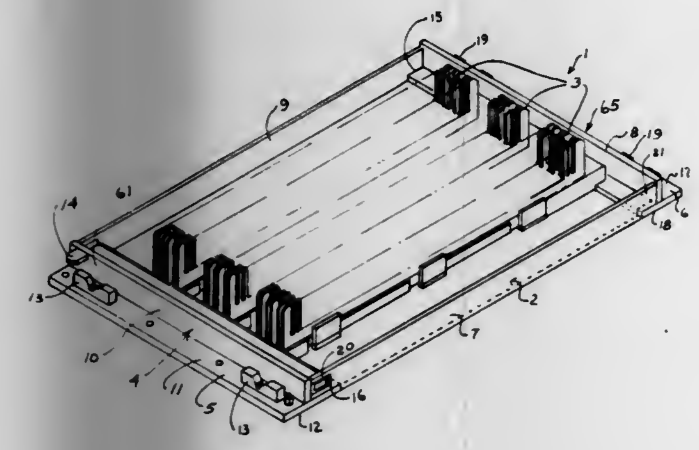
Russell T. Lowe, Wellesley; Jerome S. Pepi, Chelmsford, and Dale W. Schubert, Sudbury, all of Mass., assignors to Barry Wright Corporation, Watertown, Mass.
Filed Mar. 19, 1973, Ser. No. 342,861
Int. Cl. F16f *3/67*
U.S. Cl. 267—152 **24 Claims**

The invention is an isolator device for resilient supporting a first member relative to a second member under variable load conditions. The device comprises two integral spring stages, one of which is pneumatic, arranged so that the pneumatic spring stage normally carries the applied load and the other spring stage assumes substantially all of the applied load when the pneumatic spring is overloaded.



3,836,135
PLATE SPACING FIXTURE FOR ELECTROSTATIC AIR CLEANERS

Lawrance W. Wightman, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis, Mo.
Filed Jan. 26, 1973, Ser. No. 327,083
Int. Cl. B25b *1/20, 1/08;* **B03c** *3/47*
U.S. Cl. 269—43 **23 Claims**

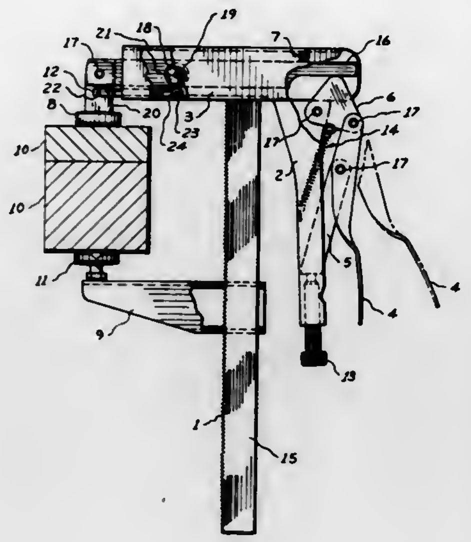


A fixture is disclosed having a frame containing a plurality of combs grouped into sets within the frame. Each of the comb sets is adjustable laterally so as to accommodate a variety of different length, relatively thin plates. Such plates find application in electronic air filter cells. The plates are inserted between the fingers of the combs. At least one individual comb is movable with respect to a stationary comb in the comb set. The plates are held securely and spaced properly for later processing by shifting the movable comb so as to lock the plates between the movable and stationary comb in each comb set.

3,836,136
WORK CLAMP

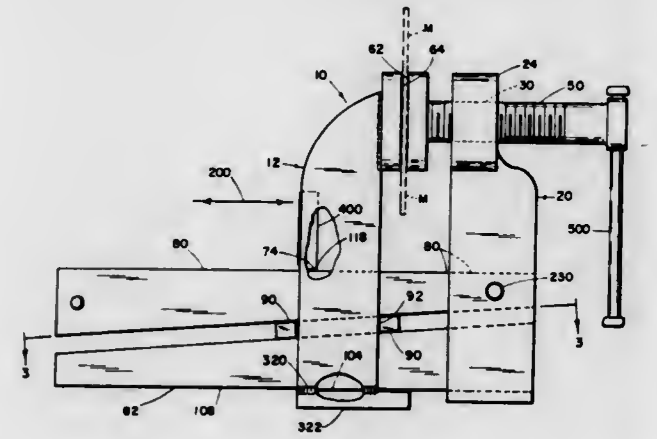
Jack Raymond Davis, 906 W. Sierra Dr., Santa Ana, Calif. 92708
Filed Jan. 2, 1973, Ser. No. 320,659
Int. Cl. B25b *1/14*
U.S. Cl. 269—150 **1 Claim**

Work clamp has a frame member upon which is movably mounted a clamp pad. The frame member also pivotally carries a clamp arm. A movable jaw is pivotally mounted on the clamp arm. The cam pivots the clamp arm on the frame so that clamping is achieved and pivoting of the one jaw permits the jaws to be maintained in proper relationship.



3,836,137
CLAMP AND VISE

John L. Hostetter, Murray, Nebr. 68409
Filed Oct. 1, 1973, Ser. No. 402,108
Int. Cl. B25b *5/02*
U.S. Cl. 269—167 **5 Claims**

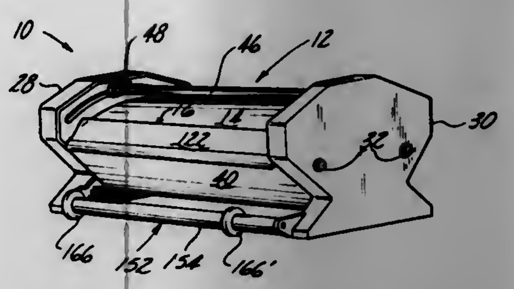


A clamp or vise, having opposed first and second clamp face means carried by a slidable and fixed clamp section, respectively, the slidable section being slidable along a pair of opposed guide members, having a brake member disposed therebetween and gripped thereby when said guide members are pressed toward each other by a tilting of the sliding clamp section responsive to clamping pressure of said clamp faces resultant from clamping screw pressure.

3,836,138
WEB FOLDING MACHINE

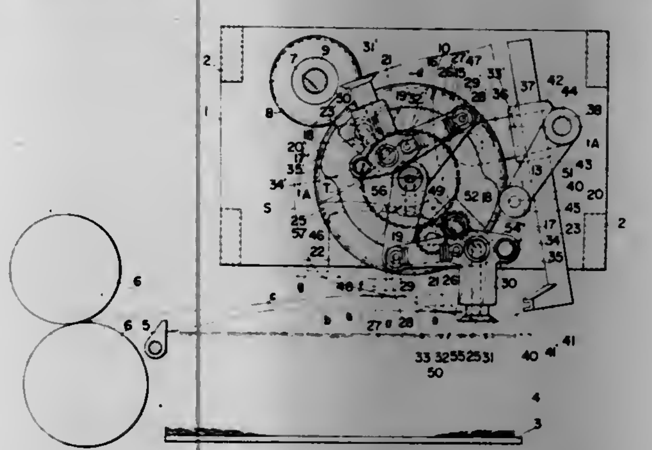
Constant L. Klepper, and Ronald Koziel, both of Troy, Mich., assignors to Klep Corp., Madison Heights, Mich.
Filed Oct. 16, 1972, Ser. No. 297,718
Int. Cl. B65h *45/20*
U.S. Cl. 270—79 **3 Claims**

A machine for making accordion-like folds in a web having a curved table on which successive folded layers of the web are received and having a pair of spaced clamps overlying the edges of the table. A web guide overlies the table and is oscillated between the clamps in a curved path generally similar to the curvature of the table and is simultaneously rotated to form loops in the web which are tucked under a raised clamp which is lowered to retain the loop thereunder and form a sharp straight unwrinkled crease or fold therein.



3,836,139
PAPER FEEDING APPARATUS FOR USE IN PRINTING MACHINE

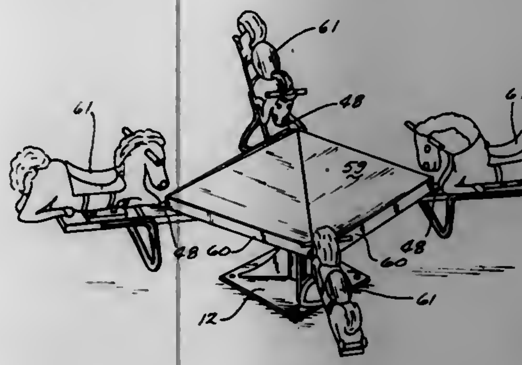
Shigeru Shimizu, Osaka, Japan, assignor to Hamada Printing Press Mfg. Co. Ltd., Osaka, Japan
Filed Aug. 28, 1972, Ser. No. 284,113
Int. Cl. B65h *3/08*
U.S. Cl. 271—95 **16 Claims**



A paper feeding apparatus for use in a printing machine in which the sheets of paper are fed into the printing machine one after the other with the use of a sucker device which is continuously rotated along a modified cycloid curve by means of planetary gear systems in cooperation with quadric chain mechanism, whereby the disadvantages inherent in a conventional paper feeding apparatus having a reciprocating sucker is substantially eliminated.

3,836,140
RESILIENTLY TILTABLE PLAYGROUND APPARATUS

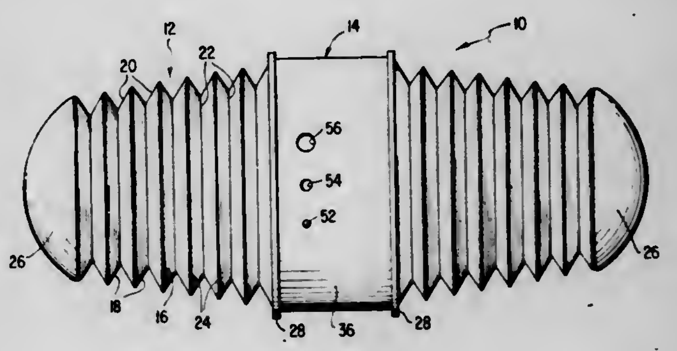
Claude W. Ahrens, W. Hwy. 6, Grinnell, Iowa 50112
Filed Nov. 5, 1973, Ser. No. 413,050
Int. Cl. A63g *17/00*
U.S. Cl. 272—54 **7 Claims**



The playground apparatus of this invention includes an occupant supporting structure that is rubber mounted for a rocking or tilting movement relative to an upright shaft carried on a ground supported base member. A plurality of rubber cylinders spaced in a circular row about the shaft are compressible between a pair of disc members mounted on the shaft. The lower disc member is secured to the shaft and the upper disc member forms part of the occupant supporting structure. The upper disc member has an opening surrounding the shaft with a bearing member between the opening and shaft so configured as to provide for a limited tilting movement.

3,836,141
PNEUMATIC CHEST EXERCISER

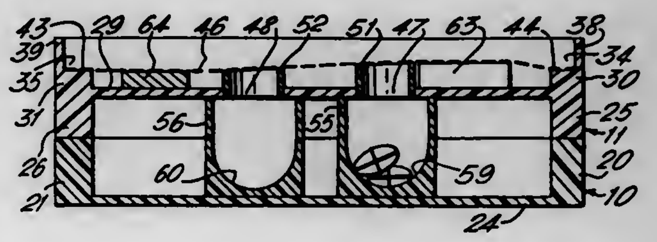
Robert Alan Franklyn, 8758 Sunset Blvd., Los Angeles, Calif. 90069
Filed Dec. 18, 1973, Ser. No. 425,871
Int. Cl. A63b *21/00*
U.S. Cl. 272—79 C **10 Claims**



An exercise device is provided with a pair of opposed bellows members which are manually collapsible toward a central member. The central member is provided with an inlet and a plurality of different size outlet apertures, and a check valve to control air flow through the inlet aperture. Collapsing of the bellows members toward the central member causes air to be expelled through a selected one of the outlet apertures. The bellows are then released to return to their original position and the exercise is repeated, thus exercising the chest muscles underlying the user's breasts to achieve development thereof.

3,836,142
FISHING GAME

Gordon W. Baker, Middleton, Annapolis County, Nova Scotia, Canada
Filed Sept. 25, 1972, Ser. No. 293,304
Int. Cl. A63f *9/00*
U.S. Cl. 273—1 M **2 Claims**



A magnetic game of skill, for example, a magnetic fishing game, is provided. The game includes a game board, which, in one example, is laid out as a facsimile of a river. A plurality of well-like enclosures are provided which extend downwardly from the board from apertures which are provided in the board. For example, the apertures may be disposed in the facsimile of the river to simulate the deep pools in the river where salmon congregate. A plurality of game pieces are provided, which are formed of non-magnetic, non-magnetizable material, and are adapted to be disposed in the bottom of such well-like enclosures. For example, a plurality of "fish" may be provided, which are formed of a pair of copper wire ellipses disposed at right angles to one another, and united by means of a copper wire encircling ring. A magnet is disposed adjacent the mouth of each well-like enclosure to provide a predetermined field of magnetic flux at the mouth of the aperture leading to the well-like enclosure. For example, magnets of different strength and sizes are disposed at different locations around the perimeter of the apertures leading to the well-like enclosures. Finally, capture members are provided, formed of magnetizable material, which are adapted to grasp the game pieces, provided they pass through the magnetic flux at the mouth of the well-like enclosures. For example, the capture members may be a hook at the end of a line secured to a facsimile of a fishing rod, and formed of magnetizable material, and adapted to engage the loops of the copper wire "fish."

3,836,143

AMUSEMENT DEVICE

Lamartine C. Trent, 3204 Barkentine Rd., Pennisula, and Frank L. Reed, 4731 Rock Bluff Dr., Rolling Hills Estates, both of Calif. 90274

Filed Feb. 28, 1973, Ser. No. 336,410

Int. Cl. A63f *9/00*

U.S. Cl. 273—1 R **6 Claims**

The specification discloses a party game apparatus comprising a transparent cylinder having aperatures through which objects can be ejected by movement of the body. The cylinder is held to the body of a user by a waist encircling strap.

3,836,144

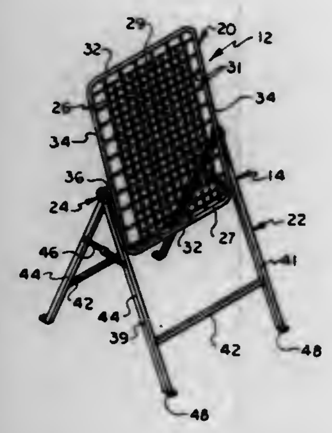
PORTABLE PROJECTILE RETURN APPARATUS

Elmo J. Mahoney, Dorrance, Kans., assignor to Mahoney, Inc., Dorrance, Kans.

Filed Nov. 12, 1973, Ser. No. 414,875

Int. Cl. A63b *69/00, 67/00, 63/04*

U.S. Cl. 273—1.5 A **9 Claims**



A portable projectile return apparatus comprising a return panel connected to a panel frame by resilient straps. The return panel frame is connected to a base frame by a pivotal connection offset from the center of the panel frame so that by pivoting about that connection the panel may be moved between a lower position and a higher position. In one embodiment the base frame comprises two pair of legs. Each pair of legs is pivoted together at their respective upper ends to each other end to the return panel along one side edge collapsible brace extends between the legs of each pair to form an A-frame. In a second embodiment the return panel frame is pivoted adjacent each side edge to the upper end of a telescopic post. A horizontal leg extends forwardly and backwardly from the lower end of each post. A weight receiving tray is secured between the posts at their lower ends. In a third embodiment, similar to the second embodiment, the forwardly and rearwardly extending legs are pivoted to the post and a collapsible brace extends between each leg and the post.

3,836,145

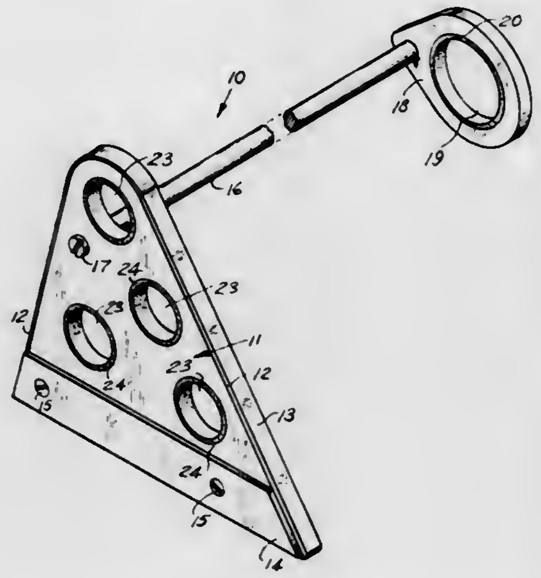
POOL DEVICE FOR HANDICAPPED PLAYERS

Walter T. Frejd, 2401 Victoria Dr. S.W., Cedar Rapids, Iowa 52404

Filed May 23, 1973, Ser. No. 362,898

Int. Cl. A63d *15/10*

U.S. Cl. 273—23 **4 Claims**



This device is for use particularly for the handicapped, so as to enable them to effectively shoot a game of pool or the like. The device consists primarily of a triangular body with a lead strip secured thereto for weight, and a rod is secured to the apex portion, the rod including a guide member for the placement of a cue stick, the cue stick extending through any one of a multiple number of felt lined openings through the body of the device.

3,836,146

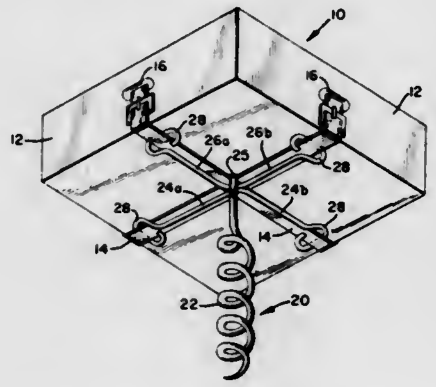
BASEBALL BASE GROUND FASTENING DEVICE

David L. Golomb, Port Washington, N.Y., assignor to Everlast World Boxing Headquarters Corp., Bronx, N.Y.

Filed Sept. 13, 1972, Ser. No. 288,529

Int. Cl. A63b *71/00*

U.S. Cl. 273—25 **7 Claims**



A baseball base ground fastening device has an elongated member having a screw at one end adapted to be placed into and held in the ground and a closed elongated loop at another end. Two rods with 90° bends are movably mounted in the elongated loop for movement from first positions in which the planes defined by the bent rods are normal to the axis of the screw to second positions in which the planes are substantially parallel to the axis of the screw. Means are provided at the free ends of the bent rods for connecting the latter to the base.

3,836,147

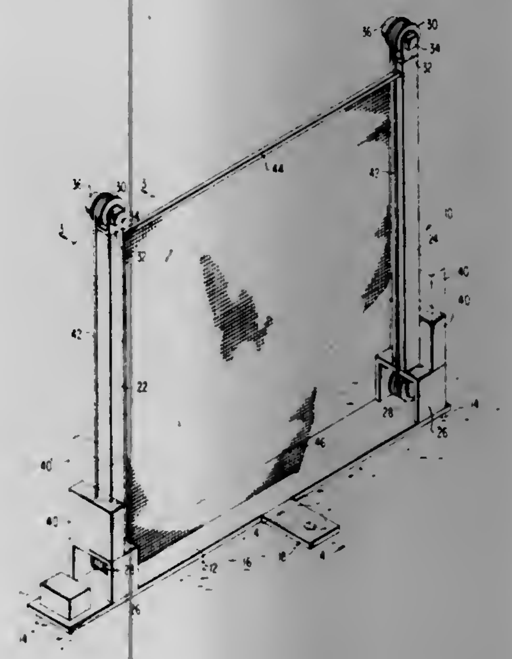
AUTO PLACE KICKER

Stan Lee Shapiro, c/o Heavenly Creations Inc., 2111 Colonial Ave., Norfolk, Va. 23517

Filed Sept. 26, 1973, Ser. No. 400,958

Int. Cl. A63b *67/00*

U.S. Cl. 273—55 B **10 Claims**



A place kick practice device constitutes a horizontal board fixed to the practice field and supporting at either end uprights which in turn support respective ends of a cross rod for vertical movement toward and away from the base board. The cross bar supports along its edge a net. A football supported on a base board extending to the rear of the cross bar, actuates a switch in response to its being centered to the place kicker who stands further to the rear of the cross bar. The switch controls release of the cross bar which is driven upwardly at a predetermined speed toward the top of the uprights, with the cross bar and net acting to intercept the ball if the kick is low or if the kicker is late in kicking the ball between the uprights.

3,836,148

ROTATABLE DART BOARD, MAGNETIC DARTS AND MAGNETIC SCORING SWITCHES

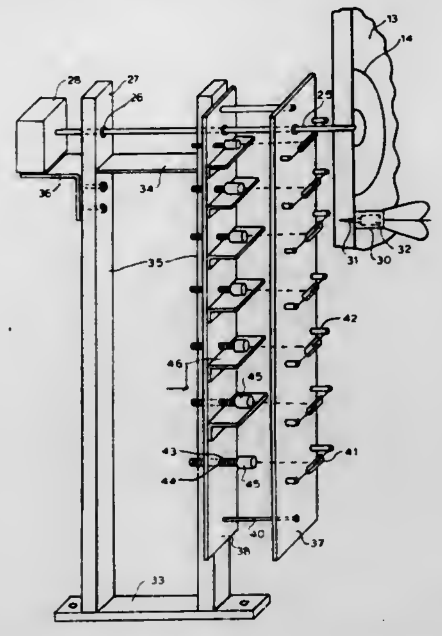
Virgil B. Manning, 978 Virginia Ave., Rockledge, Fla. 32955

Filed Jan. 11, 1974, Ser. No. 432,544

Int. Cl. A63b *71/02*

U.S. Cl. 273—95 R **10 Claims**

An automatic scoring dartboard apparatus utilizing darts having magnets attached thereto for throwing at a dart board. The dart board is rotatably mounted to a frame and is driven by an electric motor rotating the dart board at a slow speed. A plurality of magnetic actuatable switches are located behind the rotating dart board in alignment with the scoring rings of



the dart board so that the magnets and the darts will be rotated by one switch thereby actuating the switch which actuates the score in the visual display.

3,836,149

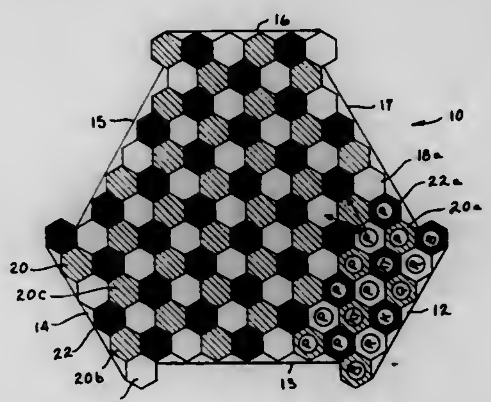
THREE MAN CHESS GAME APPARATUS

Kevin L. Adams, 127 Reese Ave., and Ronald S. Wright, 126 Reese Ave., both of Lancaster, Pa. 17602

Filed May 24, 1973, Ser. No. 363,647

Int. Cl. A63f *3/02*

U.S. Cl. 273—131 AB **1 Claim**



A chess game for three players which includes a game board of generally triangular form, the corners of the triangle being omitted, the board having one hundred and eight contiguous, hexagonal playing spaces of three alternating colors, and said game including three sets of chess pieces, each set including conventional chess pieces with an additional pawn in each set. The playing spaces are distributed uniformly, with the exception that there is a row of five spaces at each corner of the triangle.

3,836,150

WORD GAME APPARATUS

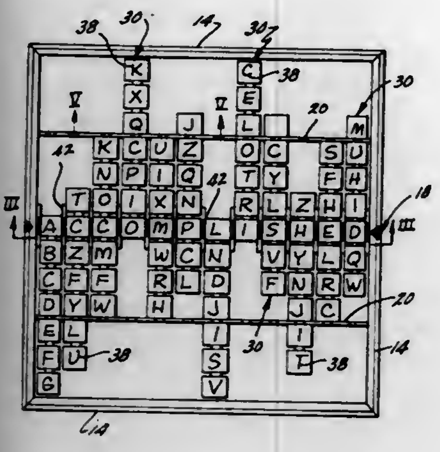
Malcolm C. Forgrave, Cedar, Mich., assignor to Leelanau Industries, Inc., Cedar, Mich.

Filed Oct. 15, 1973, Ser. No. 406,377

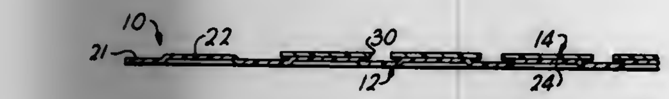
Int. Cl. A63f *3/00*

U.S. Cl. 273—135 D **13 Claims**

Apparatus for playing a competitive scoring game including a game board and a plurality of playing pieces. The playing pieces include a plurality of elongated rod-like elements each having a plurality of individual discrete faces upon which reference indicia is provided. Each discrete face is separated from an adjacent face by a slot or groove. The slot forms interlocking means adapted to mate with upstanding projections on the game board such that they may be positioned in parallel, side-by-side relationship on the board. Reference indicia is provided on the board to indicate a row of selected faces on each playing piece as they are arranged on the board to form words or the like.



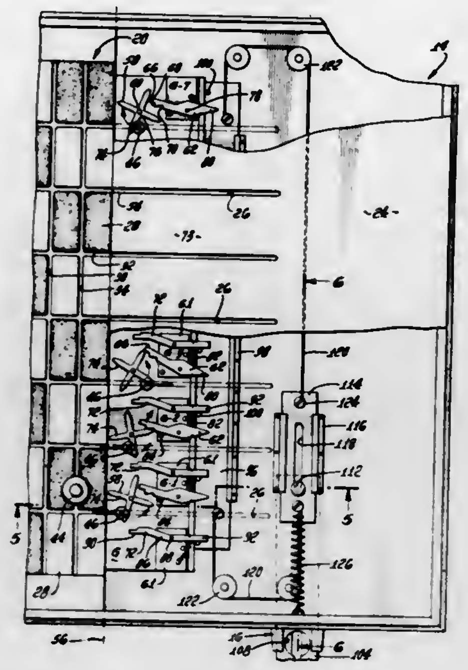
3,836,151
GAME BOARD
William R. Bowerman, 1824 Mississippi, Lawrence, Kans. 66044
Filed Feb. 26, 1973, Ser. No. 335,473
Int. Cl. A63f *3/02*
U.S. Cl. 273—136 E **2 Claims**



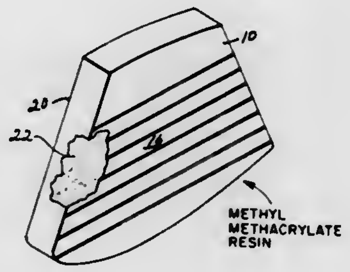
A self-storing game apparatus is provided in which a pliable game board or panel having a suitable game design emplaced thereon, such as by embossing, and a plurality of game playing pieces adapted to be selectively arranged on the panel in accordance with the design are made of a common material, as for example vinyl or the like, having a characteristic which causes the pieces to adhere to the panel when in direct contact therewith. The pliable nature of the vinyl permits folding of the panel for storage purposes as, for example in the user's pocket, purse, desk, etc., without the likelihood of the playing pieces being readily dislodged from their positions when the panel is folded. A sheet of dissimilar material is placed between the pieces when the panel is folded to keep them from sticking to each other.

3,836,152
CONTROLLED USE CHESS GAME APPARATUS
Terence A. Tintorri, 2312 W. Verdugo Ave., Burbank, Calif. 91506
Filed Aug. 3, 1973, Ser. No. 385,546
Int. Cl. A63f *3/02*
U.S. Cl. 273—136 F **12 Claims**

A coin-operated chess game in which turnstiles are provided at a series of groove extensions beyond the playing field whereby taken pieces are stored to the side of the playing field and are not returnable except upon payment of a coin, and actuation of a plunger to permit turnstile operation, to return the taken game pieces to the board.



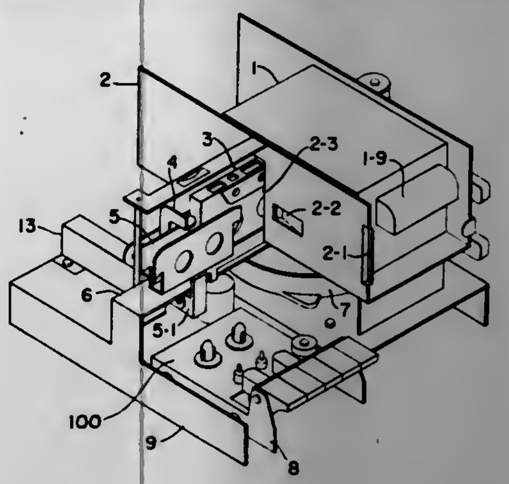
3,836,153
INSERT FOR A GOLF CLUB HEAD
Harry Dance, Jr., 2433 Fifth Ave., Knoxville, Tenn. 37917
Filed Mar. 26, 1973, Ser. No. 345,242
Int. Cl. A63b *53/04*
U.S. Cl. 273—173 **2 Claims**



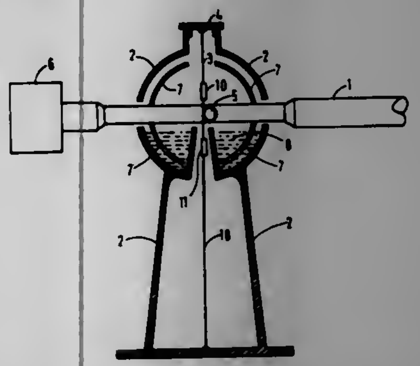
A golf club having a head portion including a face adapted to strike a ball and an insert mounted on the face. The insert consists essentially of a molded piece prepared by curing a suspension polymerized polymethyl methacrylate powder, including from 2 to 5 percent of a butadiene styrene copolymer containing at least 65 percent butadiene grafted thereto, and a liquid consisting essentially of methyl methacrylate and glycol methacrylate as crosslinking monomers at a temperature at least about 170° F.

3,836,154
AUTOMATIC CASSETTE RECORDER REPRODUCER
Mitsuo Ishikawa, Okaya, Japan, assignor to Bell & Howell Company, Chicago, Ill.
Filed Mar. 13, 1973, Ser. No. 340,786
Claims priority, application Japan, Apr. 4, 1972, 47-33786
Int. Cl. G11b *5/00*
U.S. Cl. 360—92 **9 Claims**

A tape recorder-reproducer having an improved mechanism for loading any one of a plurality of cassettes from a magazine into a holder means for rotating the holder means to invert the cassette to position each of two magnetic tracks on a tape in an effective position for recording or reproduction, for unloading the cassette from the holder means into the magazine and for advancing the magazine to permit repeating the cycle. In addition, the improved mechanism enables the cycle to be stopped and allows any cassette to be repeated continuously, automatically.

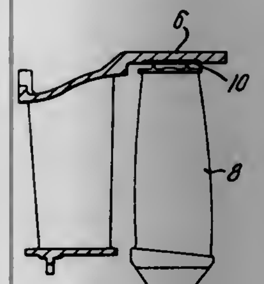


3,836,155
PHONOGRAPH RECORD PLAYER TONE ARM ASSEMBLY
Constantinos J. Joannou, 2008 Dorval Ave., Ottawa, Ontario, Canada (K1G 2N8)
Filed Feb. 12, 1973, Ser. No. 331,389
Claims priority, application Canada, Feb. 21, 1972, 135161
Int. Cl. G11b *3/18*
U.S. Cl. 274—23 R **3 Claims**



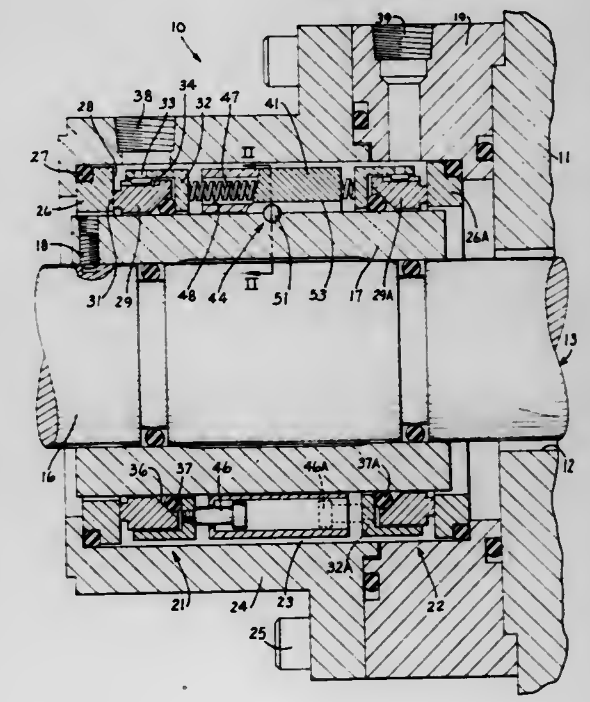
In modern phonograph record players, where needle pressure is low and needle compliance is high, friction in the tone arm bearings is not tolerated. This invention provides for a tone arm system in which static friction is eliminated by using a stretched chord suspension and viscous fluid to dampen oscillations.

3,836,156
ABLATIVE SEAL
Hector B. Dunthorne, Verdun, Quebec, Canada, assignor to United Aircraft of Canada Limited, Longueuil, Quebec, Canada
Filed Aug. 19, 1971, Ser. No. 173,321
Int. Cl. F16j *15/44;* **F01d** *11/08*
Claim priority, application Great Britain, July 19, 1971, 33696/71
U.S. Cl. 277—53 **6 Claims**



A composite sealing structure for sealing the gap between stationary and moving surfaces of a gas impelling device, for example a turbine. Preferably, the sealing structure is on the surface of the stationary member. The sealing structure is adapted, in the event of a rub, to melt immediately at the rubbed surface whereby the metal is molten and readily displaced to allow free passage of the rubbing surface of the other member. The sealing structure includes an outer sealing layer as the proximate surface of one member and an intermediate bonding layer bonding the sealing layer to the surface of the member. The sealing layer is of a metal alloy having a melting point close to, but above the operating temperature in the impelling device and below the melting point of the surface of the one member. The bonding layer is of an alloy compatible with the sealing layer alloy and with the base metal, forms a firm bond with both the sealing layer and the base metal surface, is adapted to melt initially at a temperature lower than that of either, has a remelt temperature above the operating temperature of the impelling device, and good strength at the operating temperature. Preferably, the alloys used for the sealing and bonding layers are brazing alloys.

3,836,157
DOUBLE SHAFT SEAL WITH BALL DRIVE KEY
Herbert B. Hummer, Kalamazoo, Mich., assignor to Durametallic Corporation, Kalamazoo, Mich.
Filed Jan. 29, 1973, Ser. No. 327,800
Int. Cl. F16j *15/34*
U.S. Cl. 277—62 **12 Claims**

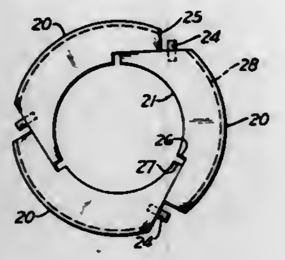


A mechanical seal construction for sealing a shaft with respect to a housing. The seal construction includes a pair of opposed and substantially identical seal assemblies, disposed within a fluid chamber defined between the housing and the shaft. The pair of seal assemblies include a pair of rotatable seal units which are disposed directly opposite one another and are nonrotatably connected to the shaft by means of an intermediate collar. The shaft is provided with a substantially hemispherical recess in the periphery thereof, in which is disposed a ball. The collar has an axially elongated keyway of substantially rectangular cross section into which projects the ball. The keyway is defined by substantially parallel side walls which are spaced apart by a distance slightly greater than the diameter of the ball so that the ball engages the keyway at a substantially single point of contact to nonrotatably connect the collar to the shaft while permitting free axial displacement therebetween.

3,836,158
PACKING RING

Clifford C. Davison, Pittsburgh, Pa., and Reinhold A. Ott, Long Beach, Calif., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Mar. 7, 1973, Ser. No. 338,904
Int. Cl. F16j *15/24*
U.S. Cl. 277—146 **3 Claims**

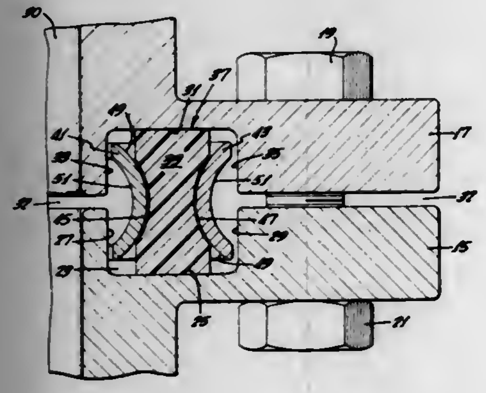


A reciprocating action rod is equipped with a packing ring positioned around the rod to prevent the escaping of fluids, said packing ring comprising a plurality of generally arcuately-shaped sections containing pin stop members positioned therein to limit the inward movement of the ring sections and so prevent damage to the reciprocating rod.

3,836,159
CAPTIVE PLASTIC SEAL

Eldon O. Dryer, Malibu, Calif., assignor to W. S. Shamban & Co., West Los Angeles, Calif.

Filed Sept. 7, 1972, Ser. No. 287,045
Int. Cl. F16j *15/12*
U.S. Cl. 277—180 **12 Claims**



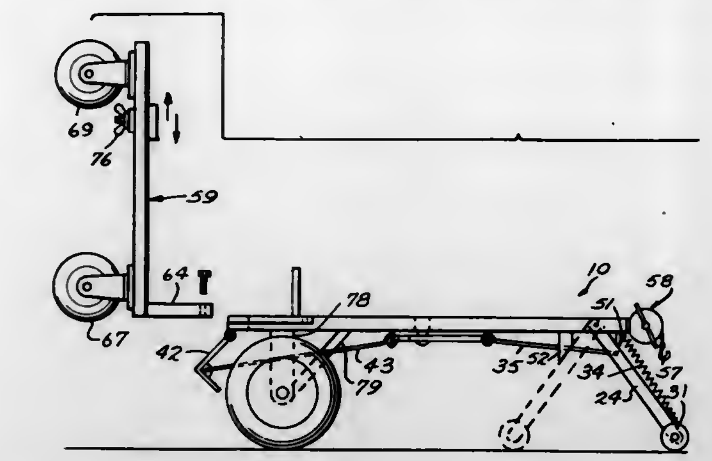
A seal comprising a sealing ring of deformable sealing material having inner and outer peripheral surfaces and inner and outer retainer rings. Each of the retainer rings is concave in axial cross section and is resiliently deformable in the radial direction.

3,836,160
STAIR ASCENDING OR DESCENDING CART

E. Partridge Linsley, 310 Charbett, Little Rock, Ark. 72204

Filed Dec. 6, 1972, Ser. No. 312,489
Int. Cl. B62b *5/02*
U.S. Cl. 280—5.32 **8 Claims**

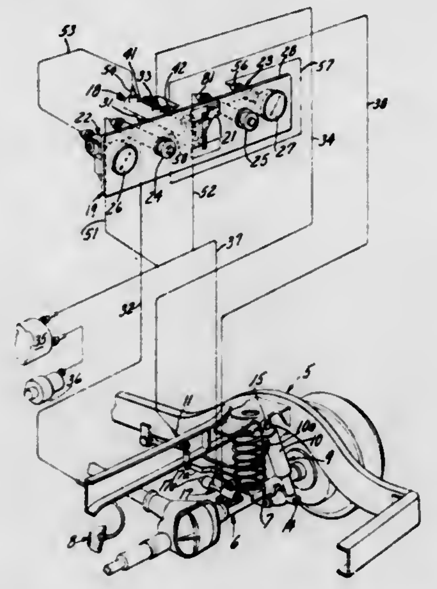
A cart is disclosed for assisting one in moving an object up or down stairs. Rear wheels rotatable about a fixed axis and rotatable front wheels mounted movably with respect to the rear wheels are provided. The front wheels are spring-biased toward a forward position with respect to the rear wheels. A pull back system is provided for allowing stair descent by pulling the front wheels toward a backward position relative to the rear wheels after the front wheels have cleared an upper step as a result of backward pivoting of the cart about the rear wheel axis.



3,836,161
LEVELING SYSTEM FOR VEHICLES WITH OPTIONAL MANUAL OR AUTOMATIC CONTROL

Walter T. Buhl, Ann Arbor, Mich., assignor to Midland-Ross Corporation, Cleveland, Ohio

Filed Jan. 8, 1973, Ser. No. 321,686
Int. Cl. B60g *17/04*
U.S. Cl. 280—6 H **10 Claims**



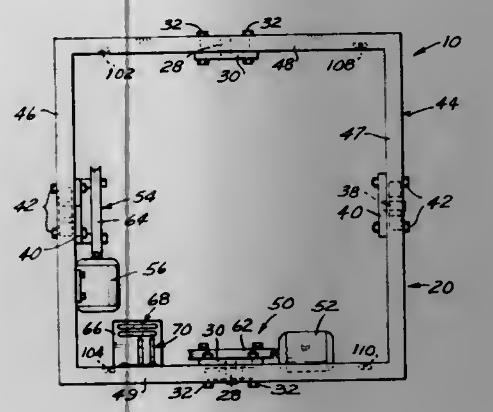
Level-control apparatus for a vehicle suspension system including pneumatic spring devices wherein the body-supporting pressure may be varied automatically in accordance with vehicle loading to maintain a constant average spacial relationship between the body and axle, or to vary the effect of each device on the vehicle by manual individual control. A distribution valve located intermediately in the control system between an air pressure source and the pneumatic devices is operable to shift the system from selective manual adjustment of the pneumatic devices to automatic adjustment of the devices in response to load.

3,836,162
SELF-LEVELLING SUPPORT FOR REFRIGERATOR OR THE LIKE

Floyd R. Felkner, Rt. Box 2030, Ridgecrest, Calif. 93555

Filed Apr. 12, 1973, Ser. No. 350,382
Int. Cl. B62d *37/00*
U.S. Cl. 280—6 R **9 Claims**

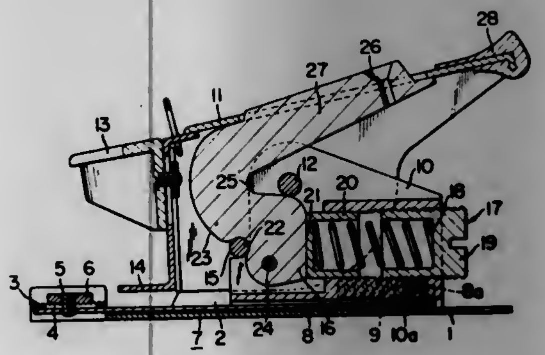
An automatic self-levelling device for supporting an appliance on a motor vehicle, where the appliance must be kept level for optimum performance, comprising a base, a first platform, and a second platform; said first platform being supported on the base for tilting about a first axis, and the second platform being supported on the first for tilting about a second axis at right angles to the first axis. Each of the platforms has a tilting mechanism including a reversible electric motor, and mercury switches on the platforms, which respond to any tilting of the platforms with respect to the horizontal about either axis, to energize the respective electric motor, thereby driving the tilting means in the direction to level the platforms. The levelling switches and electric motors are connected in a circuit to the battery and ignition switch of the car, so that the system is energized when the ignition switch is turned off, and de-energized when the ignition switch is turned on.



3,836,163
HEEL SUPPORTING DEVICE FOR A SKI SAFETY BINDING

Noriyasu Hashioka, Tokyo, Japan, assignor to Hope Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 10, 1972, Ser. No. 305,614
Claims priority, application Japan, Nov. 25, 1971, 46-94132
Int. Cl. A63c *9/08*
U.S. Cl. 280—11.35 T **5 Claims**

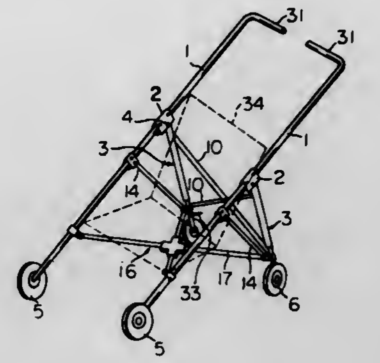


A heel supporting device which forms a part of a ski safety binding that automatically opens when an excessive force is exerted on the ski boot. The heel supporting device includes heel holding means which comprise a pin secured to a casing, a lever pivotably connected to a supporting member and adjustable spring means for pressing the lever to the pin. The lever has a notch and a curved face contiguous to the notch. The pin is engaged in the notch at a normal position of use and is disengaged from it to release the heel of the ski boot when a strong upward directed force is applied to the heel. When the skier steps down his boot to fit it with the ski binding, the pin slides along the curved face of the lever and engages in the notch without pushing the lever against the force of the spring thereby facilitating connection of the ski boot to the ski binding.

3,836,164
COLLAPSIBLE CARRIER

Akira Sugino, and Takao Ota, both of Kyoto, Japan, assignors to Nintendo Co., Ltd., Kyoto, Japan

Filed Nov. 17, 1972, Ser. No. 307,551
Claims priority, application Japan, Dec. 23, 1971, 46-2216
Int. Cl. B62b *11/00*
U.S. Cl. 280—41 A **2 Claims**

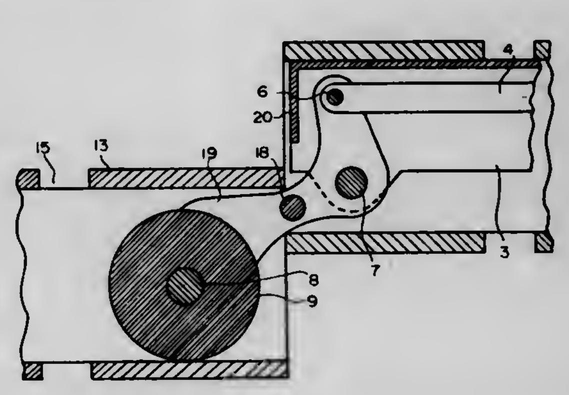


A carrier, which is collapsible by single operation without detaching any parts and all wheels of which are gathered at the lower portion of the carrier when the carrier is folded, whereby the folding can be easily effected and there is no apprehension of soiling clothes during the folding operation.

3,836,165
WHEEL LIFT DEVICE IN A PALLET TRANSPORTING FORK-LIFT CART

Masataro Sato, No. 28-26 Fukuokamachi 2-chome, Takamatsu, Japan

Filed Jan. 3, 1973, Ser. No. 320,740
Claims priority, application Japan, Mar. 7, 1972, 47-27653
Int. Cl. B62d *6/12*
U.S. Cl. 280—43.12 **2 Claims**



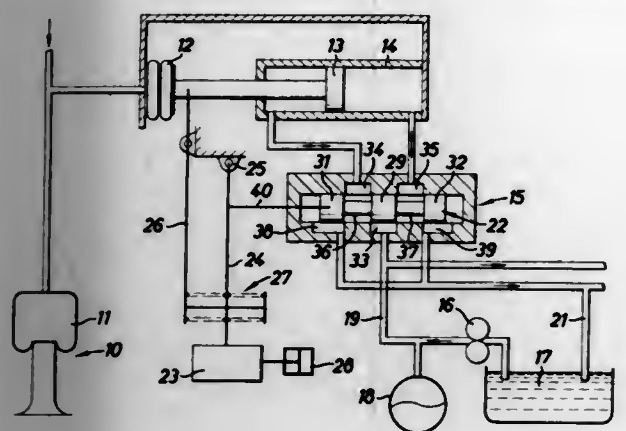
A pallet transporting fork-life cart is disclosed with an improved wheel lift device attached to the front of the fork. A forwardly curved wheel crank, rotatably connected to the front of the fork and responsive to the hydraulic lift mechanism, holds the forward lift wheel at a portion forward of the front of the fork. A pinched portion on the wheel crank permits the pallet being transported to be positioned directly behind and contacting a previously placed pallet regardless of whether single-or-double plane pallets are being used.

3,836,166
PNEUMATIC SUSPENSION SYSTEMS FOR VEHICLES

Wilfred Nicholas Bainbridge, and Robert Hazell Pitcher, both of Leamington Spa, England, assignors to Automotive Products Limited, Leamington, Spa, Warwickshire, England

Filed Nov. 13, 1972, Ser. No. 306,053
Int. Cl. B60g *17/00*
U.S. Cl. 280—124 F **3 Claims**

A pneumatic vehicle suspension system in which the part of the weight of the vehicle supported by each wheel is transmitted thereto through compressed gas contained in a variable volume chamber, the variable volume chamber associated with each wheel being included in a gas-containing system the volume of which is arranged to be varied by control means responsive to dynamic forces acting in at least one horizontal direction to vary the weight distribution between the vehicle wheels, so as to resist tilting of the vehicle due to the changed weight distribution, the response of said control means being limited by feed-back mechanism.



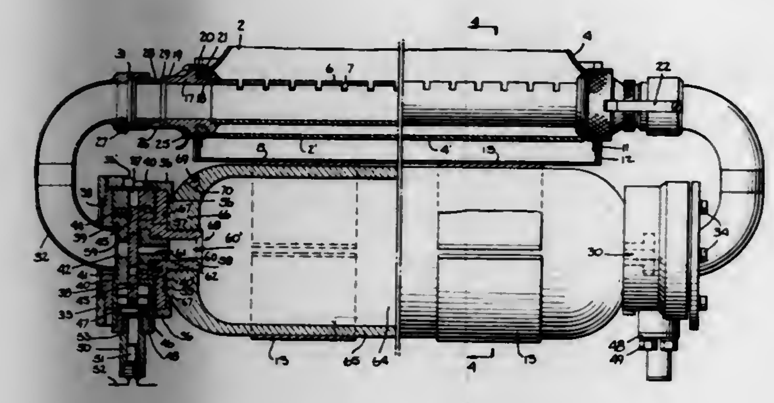
3,836,167
VEHICLE SAFETY APPARATUS

Kenneth R. A. Wilson, Fort Erie, Ontario, Canada, assignor to Irvin Air Chute Ltd., Ontario, Canada

Filed Sept. 27, 1971, Ser. No. 184,102

Int. Cl. B60r *21/08*

U.S. Cl. 280—150 AB **4 Claims**



An inflator system for a vehicle safety apparatus including an inflatable bag which uses a gas container having two exit orifices either or both of which may be used at the time of a collision to inflate the bag.

3,836,168
PERSONAL SAFETY DEVICE FOR USE IN VEHICLES

Kohei Nonaka; Masaho Tanaka, both of Tokyo; Takeshi Maki, Kawasaki; Ikuo Harada, Tokyo, and Masafumi Hamasaki, Nobeoka, all of Japan, assignors to Asaki Kasei Kogyo Kabushiki Kaisha, Osaka, Germany

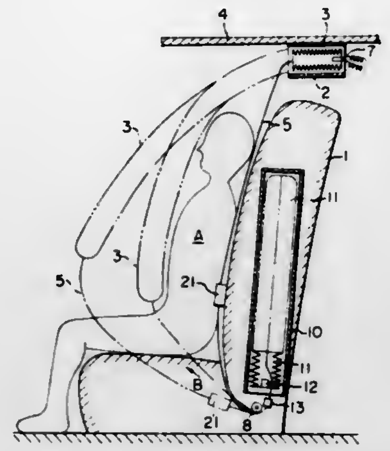
Filed Nov. 23, 1971, Ser. No. 201,322

Claims priority, application Japan, Nov. 30, 1970, 45-104913

Int. Cl. B60r *21/08*

U.S. Cl. 280—150 AB **2 Claims**

The invention relates to a personal safety device for protecting an occupant of a vehicle in the event of an accident. The device includes confining means, e.g., a net or cloth for retaining the occupant in close proximity to his seat, the confining means being normally in a gathered or folded condition adjacent to the occupant's seat. Gas generating means, e.g., a cylinder of compressed gas or a combustible chemical, is provided for projecting the confining means in front of the occupant and the device embodies means for drawing and tightening the confining means around the occupant's body. Operation of the device takes place automatically on detection by sensing means in the vehicle of an acceleration exceeding a predetermined magnitude.



3,836,169
PROTECTIVE DEVICE, ESPECIALLY FOR THE PASSENGERS OF MOTOR VEHICLES

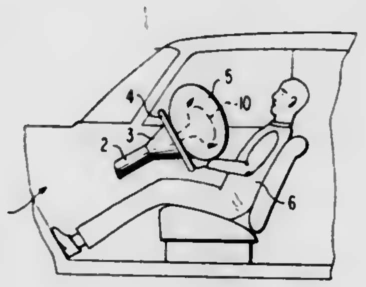
Gerhard Schiesterl, Stuttgart, Germany, assignor to Daimler-Benz Aktiengesellschaft

Filed Mar. 10, 1972, Ser. No. 233,418

Claims priority, application Germany, Mar. 12, 1971, 2111898

Int. Cl. B60r *21/08*

U.S. Cl. 280—150 AB **27 Claims**



A protective installation, especially for the passengers of motor vehicles with an air bag that is adapted to be automatically inflated when a predetermined vehicle deceleration is exceeded; the inflation takes place by means of a gas whereby an insert is associated with the air bag which extends transversely to the main flow direction of the gas, is disposed at a distance to the bag bottom, in relation to the main flow direction and forms within its area disposed in the main flow of the inflating gases a deflecting surface for the inflowing gases.

3,836,170
DEVICE FOR THE INFLATION OF SAFETY CUSHIONS IN VEHICLES

Ernst Grosch, Hennef/Sieg; Heinz Gawlick, Furth; Hellmut Bendler, Erlangen-Spardorf, and Karl-Egon Flach, Cologne, all of Germany, assignors to Dynamit Nobel AG., Troisdorf, Germany

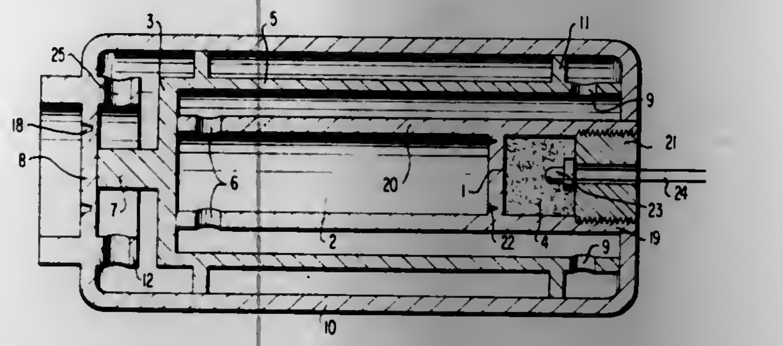
Filed Apr. 24, 1972, Ser. No. 246,944

Claims priority, application Germany, Apr. 26, 1971, 2120277

Int. Cl. B60r *21/08*

U.S. Cl. 280—150 AB **24 Claims**

Device for the inflation of safety cushions in motor vehicles wherein a single electrically actuatable charge is disposed in a case provided in one end of a container filled with gas under pressure, one side of said case facing the other end of said container being rupturable by said charge, and an axially displaceable member disposed in said container for rupturing the end of said container upon rupture of the one side of said case.



3,836,171
SAFETY BELT LOCKING DEVICE

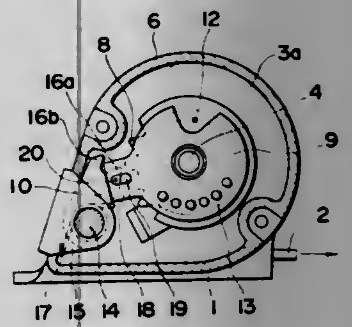
Yoshihiro Hayashi, Toyota, and Masahiro Iwatsuki, Anjyo, both of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusko, Aichi-ken, Japan

Filed July 7, 1972, Ser. No. 269,737

Claims priority, application Japan, July 7, 1971, 46-50088; July 7, 1971, 46-50089

Int. Cl. B60r *21/10*

U.S. Cl. 280—150 SB **6 Claims**



A safety belt locking device for use in a vehicle for automatically locking a belt in the event of an accident of the vehicle in order to prevent the passenger fastened by the belt from further injuries, which includes synchromesh means for synchronizing a pawl plate with a lock gear rigidly mounted on a shaft upon which the belt is wound, thereby permitting engagement between the pawl plate and the lock gear for locking the belt.

3,836,172
SAFETY BELT FASTENING

Christian Hildebrandt, Wilsche, Germany, assignor to Volkwagenwerk Aktiengesellschaft, Wolfsburg, Germany

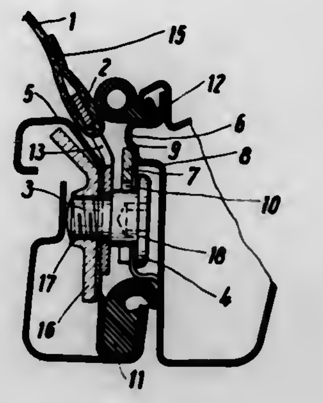
Filed Oct. 3, 1973, Ser. No. 403,268

Claims priority, application Germany, Oct. 6, 1972, 2249005

Int. Cl. B60r *21/10*

U.S. Cl. 280—150 SB **7 Claims**

A safety belt fastening for the end of a motor vehicle safety belt which has one of its ends attached to a portion of the vehicle door. The end of the safety belt is attached to a fitting which is securely attached by means of a locking bolt to a portion of the frame member of the door. The locking bolt has a head portion which is brought into force transmitting relation to a portion of a holding plate mounted in the door column of the vehicle body when the door is closed.



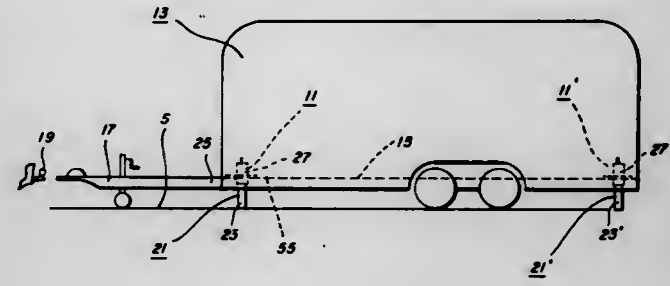
3,836,173
ANTI-THEFT STRUCTURE FOR TRAVEL TRAILERS

John E. Schwaiger, 7556 Raleigh La Grange Rd., Cordova, Tex. 38018

Filed July 20, 1973, Ser. No. 381,365

Int. Cl. B60s *9/00*

U.S. Cl. 280—150.5 **7 Claims**



Anti-theft structure for travel trailers including fore and aft spurs depending from the fore and aft ends of the trailer. In normal use, the spurs do not support the trailer but rather thrustingly engage the ground, or other surface upon which the trailer is resting, when an attempt is made to move the trailer. The respective spurs are slidably received in vertically disposed tubular housing members which define openings through the floor of the trailer. Accordingly, the upper ends of the spurs are accessible only from the interior of the trailer. Thus, when the door to the trailer is locked, access to the upper ends of the spurs is denied. The upper ends of the spurs are securely held in selected ones of several extended vertical positions by holding structure which may be actuated only from the interior of the trailer. Additionally, the respective holding structure may be secured to the housing members by suitable padlocks or the like to provide further assurance against unwarranted removal of the spurs.

3,836,174
CARGO BEAM

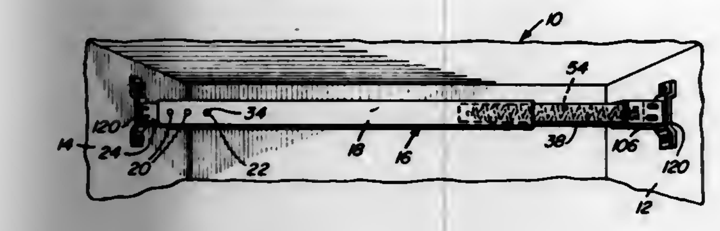
Robert E. Holman, Jr., 114 E. Rick Cir., Dallas, Tex. 75230

Filed Oct. 16, 1972, Ser. No. 298,002

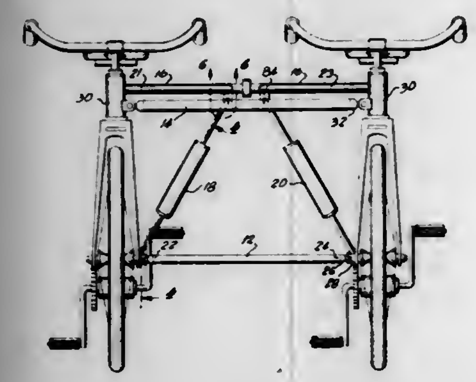
Int. Cl. B60p *7/00*

U.S. Cl. 280—179 R **6 Claims**

An adjustable length shoring beam including an elongated center section, a first end section supported from and lengthwise adjustable and retractable relative to one end of the center section and a second end section supported from and lengthwise freely shiftable relative to the other end of the center section between maximum and minimum extended positions. Spring structure is provided for biasing the second end section toward its fully extended position and the opposite ends of the shoring beam comprising the remote ends of the end sections include structure for releasable anchored engagement with wall supported anchor structure.

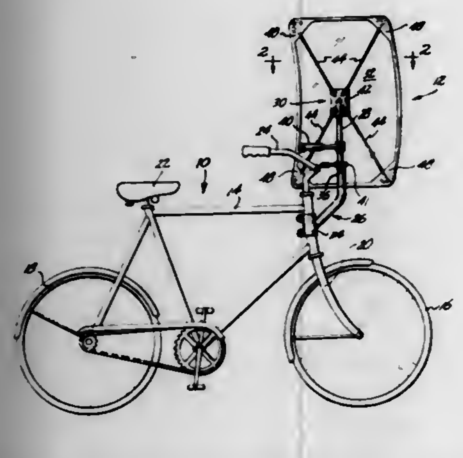


3,836,175
BICYCLE FOR TWO
Joseph B. Pomerance, 125 Vista Ln., Miami, Fla. 33156, and Jesse Haywood Burke, 3650 Ashford-Dwd'y Rd. N.E. Apt. 6J, Atlanta, Ga. 30319
Filed Dec. 13, 1972, Ser. No. 314,730
Int. Cl. B62k *13/06*
U.S. Cl. 280—209 **7 Claims**



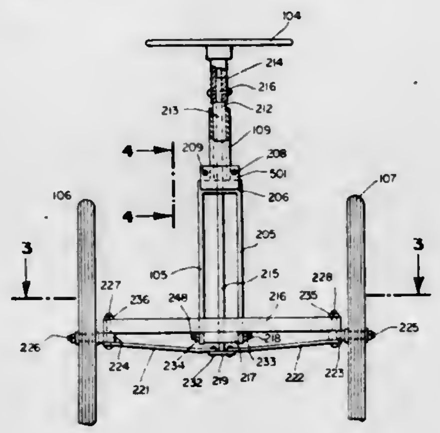
An attachment means for interconnecting two bicycles of similar size in side-by-side relation, of either a man or woman's design, which is composed of a plurality of lateral rigid rods and connections of the rods to the frames of the bicycles through hinge means at the rear compensating for relative vertical displacement of the bicycles through a hinge type action, which includes shock absorber means, and ball and socket means on the rigid bars interconnecting the forward end of the bicycle frames and steering columns of the bicycles.

3,836,176
BICYCLE SAIL
Carl J. Ylvisaker, 133 Harding Blvd., Oregon City, Oreg. 97045
Filed Dec. 8, 1972, Ser. No. 313,553
Int. Cl. B62j *39/00*
U.S. Cl. 280—213 **6 Claims**



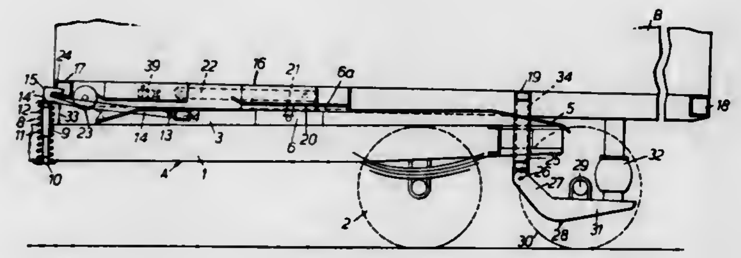
Apparatus for sailing a bicycle including a base adapted for detachable mounting on the front of a bicycle, an upright mast removably journaled on the base for turning about a generally upright axis, a sail mounting assembly removably attached to the mast, and a transparent sail removably mounted on the sail mounting assembly.

3,836,177
TRICYCLE
Peter C. Heldt, P.O. Box 163, Masonville, N.J. 08054
Filed Aug. 28, 1973, Ser. No. 392,226
Int. Cl. B62k *5/08*
U.S. Cl. 280—269 **2 Claims**



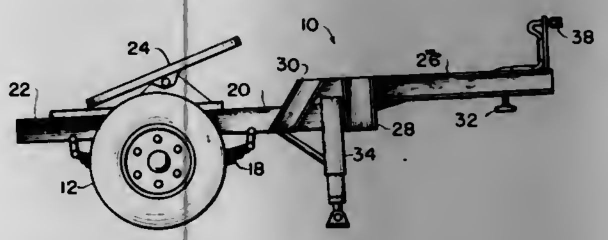
The front wheel is removed from a bicycle, and a transverse axle is attached to the steering fork. The fork is in turn secured to the bicycle frame. A steering shaft connects the handle bars through the fork and head tubes to a pivotal joint with the axle. Tie rods translate force applied at the shaft to wheels which are pivotally disposed at the axle extremities.

3,836,178
DEMOUNTABLE LOAD CARRYING BODIES
Rowland Herbert Ham, Charvill, England, assignor to Ronway Engineering Company Limited, Southhall, Middlesex, England
Filed Dec. 11, 1972, Ser. No. 313,667
Claims priority, application Great Britain, Dec. 13, 1971, 57837/71
Int. Cl. B62d *53/04, 53/06*
U.S. Cl. 280—415 B **7 Claims**



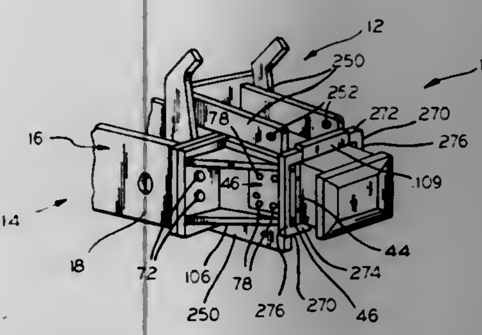
A kit of parts for converting a wheeled vehicle chassis for mounting raised loads thereon, comprising a frame with spaced longitudinal members mountable longitudinally of the chassis, a fifth wheel coupling plate between the longitudinal members in the mid portion between their ends, load guide means at the rear end of the longitudinal members, and a damping device at the front end of the frame, such that when assembled on the vehicle chassis enables the chassis to be moved longitudinally beneath a raised load until a kingpin on the mid underside portion of the load engages the fifth wheel coupling plate and a member at the rear of the load engages the guide means while the damping device is engaged by the forward part of the load. A second kit may be used with said kit, comprising a load supporting frame having spaced longitudinal members rigidly connected by front and rear transoms, a kingpin supported on said members, rollers on the forward ends of said members to ride on the longitudinal frame members of said first kit, and retractable leg supports at the forward and rear ends of said members of said second kit, said front transom cooperating with said damping device and said rear transom being connected to a member engaging said guide means.

3,836,179
TRAILER CHOCK
Donald G. Jennings, 133 Decker Ave., Staten Island, N.Y. 10302
Filed Apr. 23, 1973, Ser. No. 353,345
Int. Cl. B62d *53/04*
U.S. Cl. 280—476 **1 Claim**



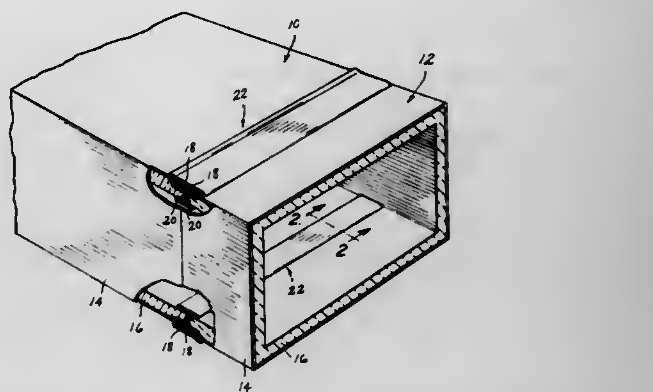
A chock to secure a trailer at a loading dock has a frame supported by road wheels, a fifth wheel on the frame to mount the front of a trailer, pony wheels in front of the road wheels to support the front of the frame, and a king pin extending downward from the front of the frame so that the chock can be moved by a tractor. Brakes lock the chock road wheels when tractor air pressure is removed therefrom.

3,836,180
CUSHIONED BUMPER FOR SCRAPERS
Wajih Kanjo, Midlothian, Ill., assignor to Cardwell Westinghouse Company, Chicago, Ill.
Filed Oct. 25, 1973, Ser. No. 409,579
Int. Cl. B60r *19/08;* **B60d** *3/00*
U.S. Cl. 280—481 **8 Claims**



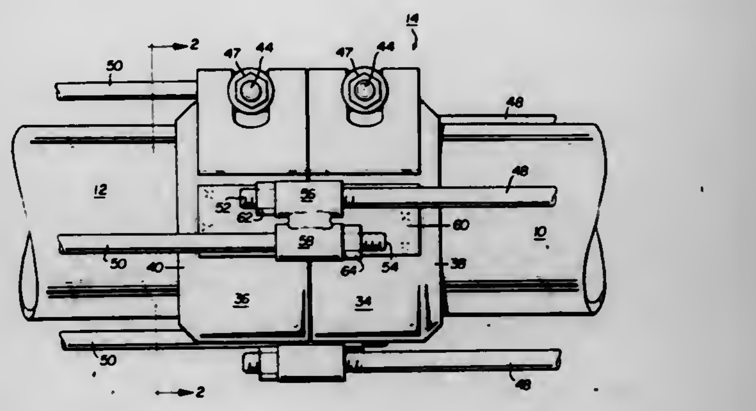
A cushioned bumper for ground scrapers comprising a housing adapted to be mounted on the rear end of the scraper in a generally horizontal postion and extending longitudinally of the scraper, with the housing carrying a pair of internal stop elements, a tubular plunger structure reciprocably mounted in the housing and carrying stop lugs, adapted to engage the respective housing stop elements, and a buffer plate exposed exteriorly of the housing against which the blade of a bulldozer or the like will engage to push the scraper when struck, and a composite cushioning arrangement interposed between the housing and the plunger including spring means to bias the plunger structure outwardly against the housing stop elements, in which the sides of the housing are equipped with special stiffener elements that hold the housing stop elements and the housing side walls bearing same against displacement laterally outwardly of the housing due to recoil and the lateral forces due to the bulldozer working against the plunger in rough terrain.

3,836,181
CLEAT FOR JOINING DUCT WORK
Donn E. Kelver, Rte. 3, Box 264, La Porte, Ind. 46350
Filed June 7, 1973, Ser. No. 367,717
Int. Cl. F16l *59/16*
U.S. Cl. 285—55 **6 Claims**



A cleat which is used for joining ducts and which includes S-shaped folds for accommodating the marginal portions of the duct walls. The cleat includes a leg which projects from the S-shaped folded portion of the cleat and which terminates in a generally right angular flange. The leg and right angular flange serve as strengthening members for the cleat and can be utilized to accommodate the edge portion of an insulative or similar type liner extending along the interior of the ducts.

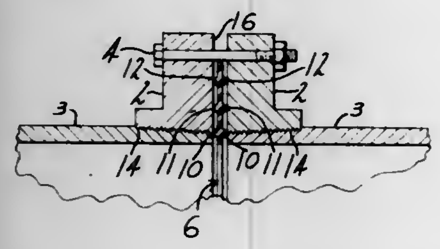
3,836,182
PIPE COUPLING SYSTEM FOR GLASS OR CERAMIC PIPES AND RELATED MATERIALS
James G. Miller, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Continuation-in-part of Ser. No. 64,386, Aug. 7, 1970, abandoned. This application Nov. 17, 1972, Ser. No. 307,584
Int. Cl. F16l *13/04, 35/00*
U.S. Cl. 285—114 **14 Claims**



A coupling system suitable for use with glass or ceramic pipes or pipes made of similar material used in the chemical processing industry, which includes an inner seal member or gasket at the junction of the pipes. The pipe ends may be straight cut or beaded or one of the pipe ends may be beaded and the other pipe end may be straight cut. A sleeve of molded elastomeric materials surrounds the center gasket inner seal which is provided with internal retaining means to retain the seal and which inner radial surfaces adjacent of the seal are provided with a plurality of radial slots to expose a plurality of non-molded ragged edges to the relatively smooth surface of the glass or ceramic pipe for maximum gripping action. A metal band or strap is placed around the elastomer sleeve and is clamped around the pipes and provided with tightening means. In the case of a dual coupling member, to be used for connection of unbeaded pipe ends or to adapt the system to high pressure use, axially extending tie rods are provided to transmit tensile forces from one coupling member to another, while the collar tightening means aids in compressing the elastomer sleeve or elastomer sleeves tightly against the exterior surfaces of the confined pipe ends in tight sealing contact with the inner seals or gasket.

3,836,183
FLANGE JOINT

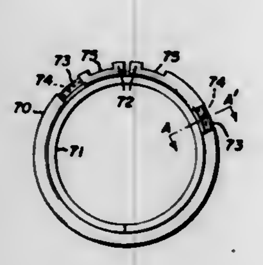
Billy J. Battle, Birmingham, Ala., assignor to United States Pike and Foundry Company, Birmingham, Ala.
Continuation of Ser. No. 125,045, March 17, 1971, abandoned. This application Mar. 7, 1973, Ser. No. 338,804
Int. Cl. F16l *23/00*; F16j *15/00*
U.S. Cl. 285—363 **5 Claims**



A flanged joint with a ribbed resilient gasket effecting a fluid tight seal between the faces of two flanges and also effecting an axial seal between a flange and an annular member where the flange is detachably secured to the annular member.

3,836,184
PIPE COUPLING

Frank Gregory, 6620 Woodchuck Hill Rd., Jamesville, N.Y. 13078
Continuation-in-part of Ser. No. 147,975, May 28, 1971, abandoned. This application Apr. 26, 1972, Ser. No. 235,534
Int. Cl. F16l *21/06*
U.S. Cl. 285—417 **11 Claims**

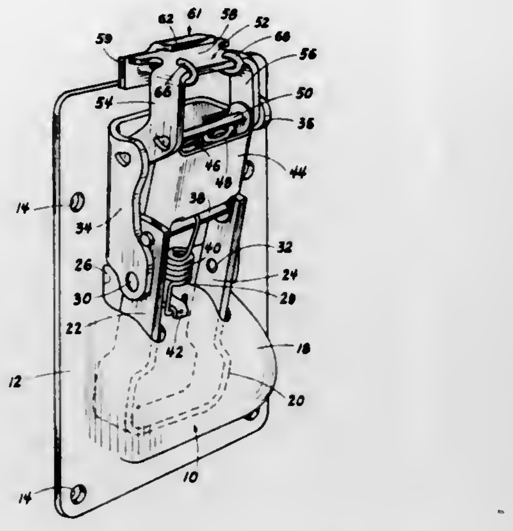


A pipe coupling assembly for securing together the ends of pipes, for the purpose of allowing an uninterrupted flow of fluid therebetween, whereby a flexible circular band is combined with a ring-shaped clip or another band to provide a clamp which is fitted around a pair of pipe ends. In one embodiment, the band is combined with a ring-shaped clip and the ends of the clip are twisted and locked together thereby exerting pressure directed radially inward around the circumference of the band such that the band grips both pipes, thus securing the pipe ends tightly together. In another embodiment, an outer band has shoulders which can be gripped with a pair of pliers and drawn together with the clamp being secured by detent action between an interior band and the exterior band or a ring-shaped clip. Alternatively, the band may be formed integrally with one pipe end and adapted to fit around the other pipe end.

3,836,185
REPAIR DEVICE FOR LOCOMOTIVE HOOD DOOR LATCHES

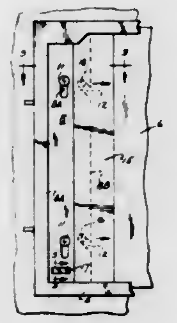
Roy H. Touchstone, P.O. Box 2003, Jackson, Tenn. 38301
Filed July 26, 1972, Ser. No. 275,210
Int. Cl. E05c *19/18*
U.S. Cl. 292—1 **1 Claim**

A repair device for the hood door latch of a locomotive and comprising a substantially U-shaped element which may be easily secured to the door latch for restoring the door latch to an efficient latching operation without removal of the latch from the door and without alteration of the latch structure itself.



3,836,186
LOCK MECHANISM FOR FREIGHT CAR DOORS

Harvey J. Kennedy, 127 Bauer Ln., Eugene, Oreg. 97402
Filed May 10, 1973, Ser. No. 358,875
Int. Cl. E05c *1/04*; E05b *65/14*
U.S. Cl. 292—189 **2 Claims**

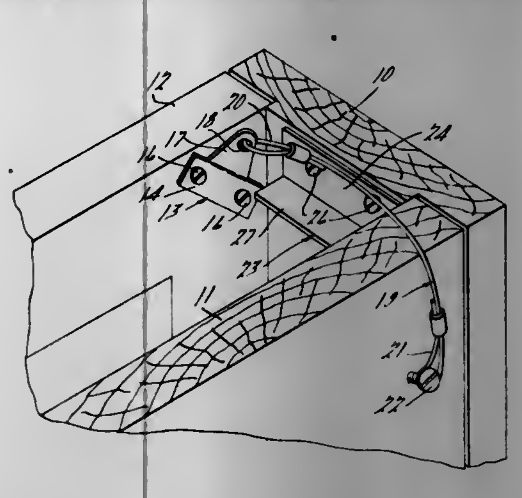


A lock mechanism including a plate of substantial mass for locking engagement with door mounted followers. The plate mass requiring lifting by means other than manual effort to prevent unauthorized entry into the car. Limited vertical travel of the plate engages inclined plate surfaces with the door mounted followers to impart initial opening movement to the door. Plate travel in an opposite direction imparts final closing movement to the door. The plate is adapted to receive lifting instrumentalities such as a lift truck fork for door opening purposes.

3,836,187
TWO-DOOR LOCK DEVICE

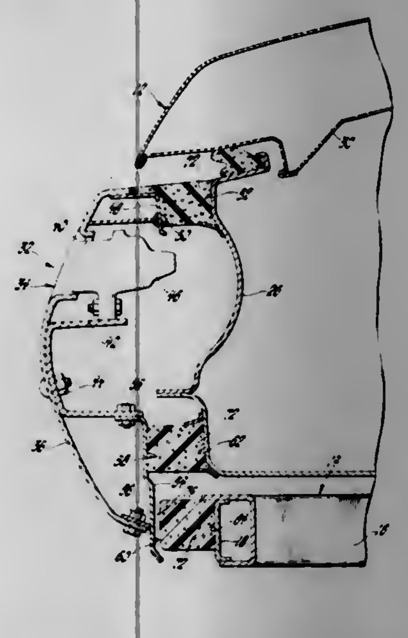
Larry H. Buettner, 23825 Battelle, Hazel Park, Mich. 48030
Filed May 24, 1973, Ser. No. 363,584
Int. Cl. E05c *17/04*
U.S. Cl. 292—262 **9 Claims**

A two-door lock device for locking a building inner door that swings inward to a building outer door that swings outward, to lock the doors against unauthorized opening of the doors of the building from the outside. The lock device includes an elongated wire cable having the outer end attached to the inner side of the outer door, and the inner end thereof passed over one edge of the inner door and secured interior of the inner door.



3,836,188
VEHICLE BUMPER SYSTEM

Gerard T. Klees, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Apr. 25, 1973, Ser. No. 354,311
Int. Cl. B60r *19/06*
U.S. Cl. 293—88 **2 Claims**

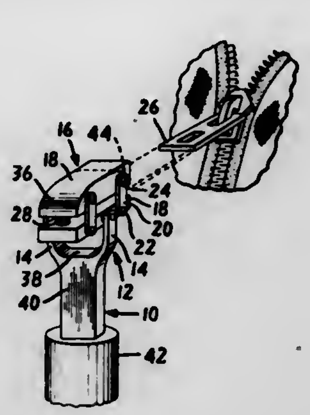


A bumper system particularly adapted for automobile type vehicles and including a face bar assembly supported on the body of the vehicle for fore and aft movement and defining a plurality of bearing surfaces, a plurality of reaction surfaces on the body of the vehicle, a similar reaction surface on the frame of the vehicle, and a plurality of energy absorbing modules disposed between respective pairs of bearings and reaction surfaces, the modules being fabricated from cellular plastic foam adapted for crush or collapse in an energy absorbing mode so that a portion of the kinetic energy of an impact on the face bar assembly is absorbed by the modules while the remainder of the impact load is distributed in predetermined proportion between the body and the frame of the vehicle.

3,836,189
ZIPPER PULL

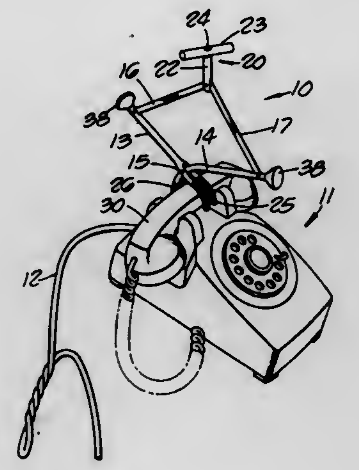
Dominick Borrelli, 2243 Cropsey Ave., Brooklyn, N.Y. 11214
Filed Feb. 2, 1973, Ser. No. 329,178
Int. Cl. A44b *19/00*
U.S. Cl. 294—1 A **8 Claims**

A zipper pull in which a rod having a head thereon adapted to engage a zipper tab is provided. The tab is clampable between two surfaces and the rod movable between a plurality of positions to permit easy insertion of the tab into the head and to permit the rod to be moved to a substantially vertical position to permit the zipper to be closed. In a second embodiment, the tab is placed in an opening in the head of the rod and the rod then moved to vertical position to permit the zipper to be closed.



3,836,190
SPINNING TOOL FOR UNTWISTING PHONE SERVICE CORDS

Lawrence W. Hutson, 1355 3rd St., La Verne, Calif. 91750
Filed Aug. 8, 1973, Ser. No. 386,518
Int. Cl. B65g *7/12*
U.S. Cl. 294—118 **5 Claims**

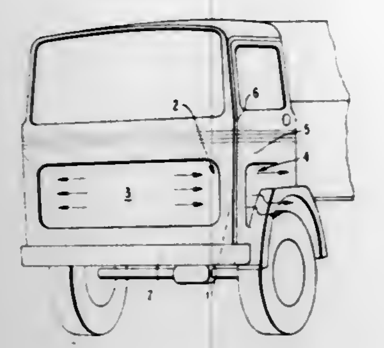


A spinning tool for untwisting service cords of desk phones comprising tongs having hooked jaws specially shaped to engage the handpiece and customary finger grip across the rear of the phone housing. The tongs include a swivelling handgrip effective to operate the jaws as the handgrip is raised away from the phone and to open the jaws as the phone is lowered against a support surface. While in use to suspend the phone, the swivelling handgrip permits the phone to be rotated in the appropriate direction to remove twists in the phone service cord.

3,836,191
DRIVER CAB OF TRUCKS

Hans Gotz, Sindelfingen, Germany, assignor to Daimler-benz Aktiengesellschaft, Stuttgart, Germany
Filed July 6, 1972, Ser. No. 269,434
Claims priority, application Germany, July 7, 1971, 2133737
Int. Cl. B62d *33/06*
U.S. Cl. 296—1 S **11 Claims**

A driver cab of trucks which has preferably a substantially cubic base shape and is equipped with air guide channels that extend from the front end wall of the vehicle on the inside of its body to the side walls and discharge thereat; rain ledges are provided which extend at least within the area of the approximately vertically extending front edges of the driver cab up to approximately the lower edges thereof.



ERRATUM

For Class 296—10 see:
Patent No. 3,836,769

3,836,192
BODY FOR VEHICLES, ESPECIALLY PASSENGER MOTOR VEHICLES

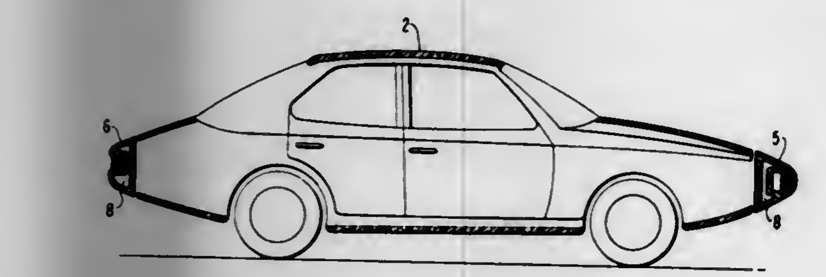
Karl Wilfert, Gerlingen-Waldstadt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed May 16, 1969, Ser. No. 825,215

Claims priority, application Germany, May 17, 1968, 1755512

Int. Cl. B60r *21/14*; **B62d** *29/04*

U.S. Cl. 296—28 R **23 Claims**



A body vehicles, especially for passenger vehicles, in which the parts of the outer body which are endangered by impacts or which endanger others in case of accidents, are provided with a layer of plastic material, particularly with a layer of elastic and/or plastically yielding synthetic resinous material.

3,836,193
REPLACEABLE SURFACE WINDSHIELDS

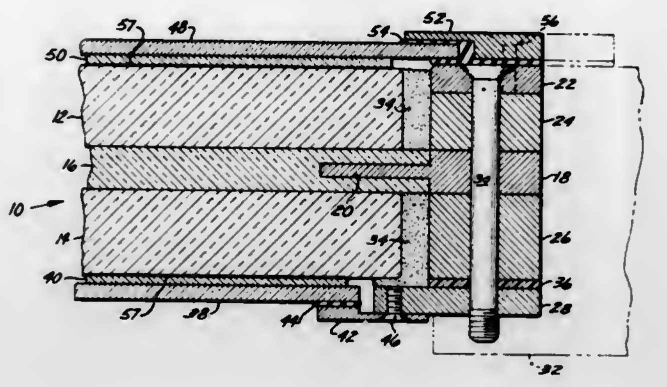
John K. Donahoe, Long Beach, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed Apr. 2, 1973, Ser. No. 346,737

Int. Cl. B60j *1/06*

U.S. Cl. 296—84 R **4 Claims**

A windshield having a replaceable surface comprising a protective glass sheet having an optical coupling medium attached to the inner surface thereof which is contiguous with the outer surface of the windshield being protected. The optical coupling medium preserves the optical qualities of the assembly while bonded only to the protective shield layer and not to the windshield itself.



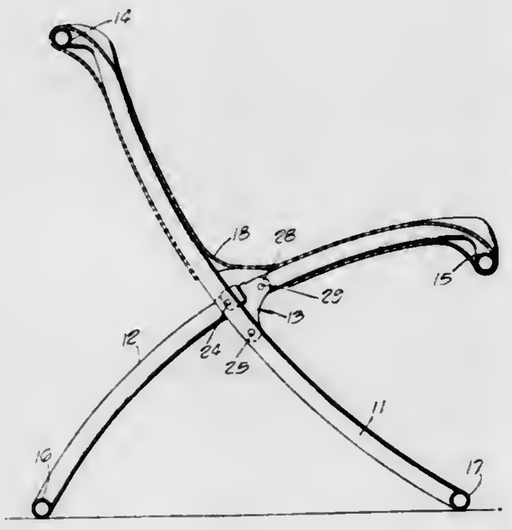
3,836,194
FOLDING CHAIR

Kenneth A. Milette, 410 St. Ann's Dr., Laguna Beach, Calif. 92651; Frank D. Garavelli, and Thomas H. Tolleson, both of 1510 Huntington, Murfreesboro, Tenn. 37130

Filed Sept. 11, 1972, Ser. No. 287,776

Int. Cl. A47c *4/44*

U.S. Cl. 297—55 **3 Claims**



A pair of tubular frame members pivotally join one another, enabling compact folding during non-use and into extended relation for use. A compliant material covers portions of the frame members, forming a sling back and seat readily conforming to the user. A pair of pivot plates affixed at opposite sides of the back frame members includes laterally extending shoulders. The seat frame member is free to rotate in a first direction, bringing the two frame members into substantial nesting registry with one another for the non-use or stacking condition, while rotation in the opposite direction brings portions of the frame member into contact with the laterally extending supporting shoulders to hold the two frame members in the seat configuration during use.

3,836,195
BELLEVILLE DISK SPRING PILLAR ASSEMBLY

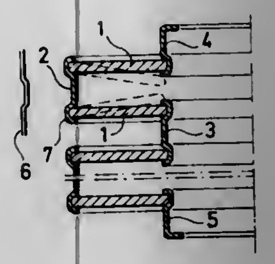
Niilo Heikki Teeri, Korppaantie 8 D, 00300 Helsinki 30, Finland

Filed Jan. 13, 1972, Ser. No. 217,479

Claims priority, application Finland, Jan. 13, 1971, 80/71

Int. Cl. F16k *1/34*

U.S. Cl. 267—162 **9 Claims**



In a spring pillar assembled from planelike or slightly conical Belleville disk springs the Belleville disk springs have been bound into spring pillars one by one in packages alternately at their outer and inner rims with binding rings receiving tensile and pressure loads.

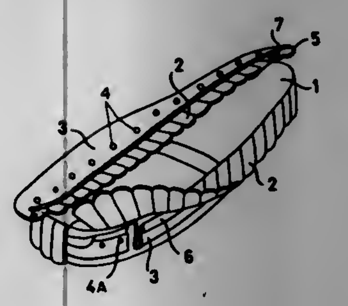
3,836,196
SELF PROTECTIVE SADDLE COVER FOR CYCLE

Chin-I Hu, 56, Ln. 54, Chin Hsi St., Taipei, Taiwan, China

Filed July 31, 1972, Ser. No. 276,422

Int. Cl. A47c *31/02*

U.S. Cl. 297—219 **1 Claim**



A saddle cover for cycles comprising a layer normally covering a saddle body, and a protective cover forming an extension of the layer, which normally is folded under the layer and affixed to the body and which is used to cover the layer and fastened together with fasteners thereby to protect the layer from the elements.

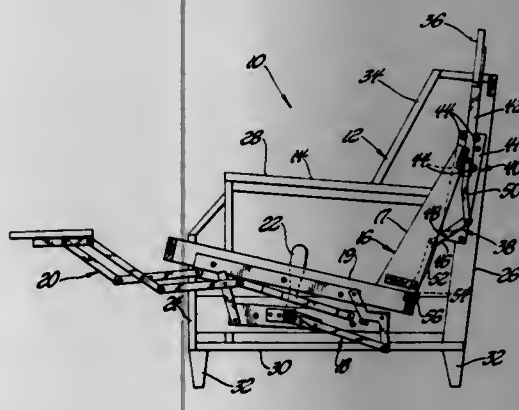
3,836,197
RECLINER WITH VERTICALLY MOVABLE HEADREST

McKinley Goff, Middletown, and Donald Crum, Louisville, both of Ky., assignors to Middletown Manufacturing Co., Inc., Simpsonville, Ky.

Filed Nov. 24, 1972, Ser. No. 309,586

Int. Cl. A47c *1/10*

U.S. Cl. 297—391 **19 Claims**



A reclining chair assembly comprising: a support structure; body support means, at least a portion of which is movably supported by the support structure; headrest means movably supported on the support structure; and motion transmitting means for moving the headrest means in response to the movement of the body support means.

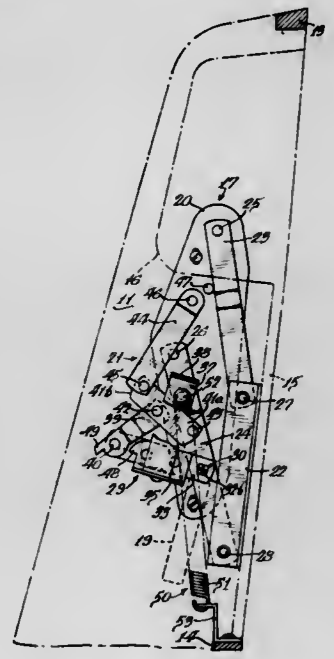
3,836,198
MANUALLY MOVABLE HEADREST FOR CHAIRS

Ned W. Mizelle, High Point, N.C., assignor to Hoover-Seng Company, Chicago, Ill.

Filed Jan. 22, 1973, Ser. No. 325,919

Int. Cl. A47c *1/02, 7/36*

U.S. Cl. 297—403 **18 Claims**



A manually operated linkage means moves a back panel-headrest for a lounge chair between a retracted position and an extended position. Each of a pair of mounting plates on the sides of a cavity in the chair back is connected by a pair of movable links with brackets on the back panel to form four bar linkages, actuating linkage means connects each four bar linkage with a rock shaft, one of the rock shafts is provided with an operating handle, and a cross bar connects the linkages for simultaneous movement. Tension spring means connecting the linkage with the chair back is constantly under tension and moves through a point of maximum tension as the back panel-headrest moves between its retracted and extended positions, thereby urging the back panel-headrest against stops in both said positions.

3,836,199
METHOD AND APPARATUS FOR PRODUCING TUFTS OF HAIR OR BRISTLES

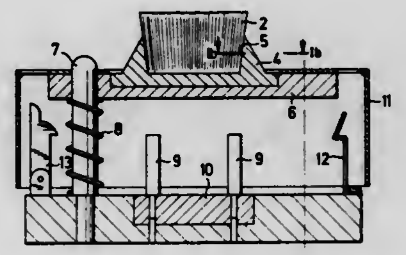
Werner Blankschein, Ohlauerstrasse 2, 8 Munich 50, Germany

Filed Oct. 17, 1972, Ser. No. 298,251

Claims priority, application Germany, Oct. 20, 1971, 2152290, May 5, 1971, 2222152

Int. Cl. A46d *1/10*

U.S. Cl. 300—21 **15 Claims**



The invention relates to a method of and apparatus for producing tufts of hairs or bristles using a perforated plate and apparatus for use in such a method. The hairs or bristles are introduced from a bundle into holes in the perforated plate using ultrasonic vibrations to facilitate the insertion. Ultrasonic vibrations can also be used to shape the tufts to a desired profile prior to setting the hairs or bristles with a binder. The method and apparatus for use therewith have been found of particular value in producing brushes from fine hairs and bristles.

3,836,200
CONVEYING POLYELECTROLYTE FLUIDIZED AQUEOUS SUSPENSIONS OF POWDERED SOLIDS

Robert Ben Booth, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 58,338, July 27, 1970, Pat. No. 3,746,641, which is a continuation-in-part of Ser. No. 179,287, March 7, 1962, Pat. No. 3,524,682, which is a continuation-in-part of Ser. No. 698,429, Nov. 25, 1957, abandoned. This application Nov. 17, 1972, Ser. No. 307,665

Int. Cl. B65g *53/04*

U.S. Cl. 302—66 **4 Claims**

Aqueous suspensions of solids with a wide particle size range having comparatively coarse materials including some larger than 65 mesh and very fine materials including some smaller than 325 mesh settle out with the solids in unclassified and in resuspendable form, when settling in the hindered state under non-Stokes conditions, is effected in the presence of a polymer of the acrylamide-acrylic acid-acrylonitrile type which causes the fines to remain with the large particles and settle out comparatively homogeneously.

This aids in preventing deposits of coarse materials in settling tanks, leach tanks, internal combustion engines and their radiators, heat exchangers, cooling towers, flowing streams in natural or man-made water courses, and mine operations, and the polymer in solution can penetrate into coarse material with fines so that settled material can be resuspended, even if the polymer is introduced after at least some settling has occurred.

3,836,201
WHEEL ASSEMBLIES

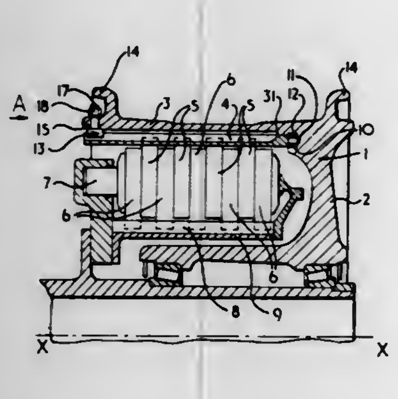
Ian Leonard Stimson, Rugby, and Frederick Sidney Dowell, Benedict Pascal Healy, both of Coventry, all of England, assignors to Dunlop Limited, London, England

Filed July 24, 1972, Ser. No. 274,571

Claims priority, application Great Britain, July 27, 1971, 35228/71

Int. Cl. B60b *19/00*

U.S. Cl. 301—6 A **14 Claims**



A wheel assembly comprising a wheel having disc and rim portions and a drive means in the form of a number of circumferentially spaced drive dogs resiliently mounted adjacent the inner periphery of the rim portion of the wheel and arranged to extend substantially parallel to the intended axis of rotation of the wheel.

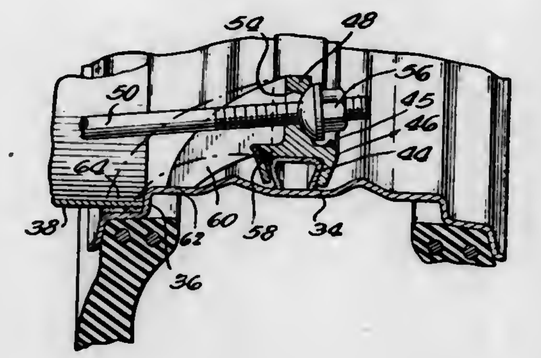
3,836,202
WHEEL CONSTRUCTION

Richard S. Bonomo, Delavan, Ill., assignor to Univerferth Manufacturing Company, Inc., Kalida, Ohio

Division of Ser. No. 855,494, Sept. 5, 1969, abandoned. This application Feb. 16, 1972, Ser. No. 226,781

Int. Cl. B60b *11/06*

U.S. Cl. 301—39 R **16 Claims**



An auxiliary wheel structure for attachment to a regular vehicle wheel which has angularly spaced apart wheel lugs, including an auxiliary wheel rim, an arcuate track fixedly attached to the auxiliary wheel rim, attaching brackets slidably mounted on the arcuate track for adjustment therealong to positions in alignment with the lugs on the regular wheel, and connecting rods between the brackets and the wheel lugs to mount the auxiliary wheel structure to the regular wheel in side-by-side relationship. The attaching brackets embrace the track on the auxiliary wheel rim to permit sliding adjustment therealong but retaining means are provided to prevent removal of the brackets from the track. Lock members are provided to maintain the attaching brackets on the track in any of the positions of adjustment.

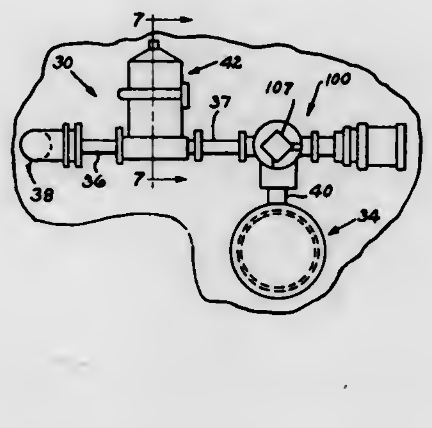
3,836,203
FLUSHING ARRANGEMENT FOR RAILWAY CARS

Wallace Lee Fossett, Weldon Springs Heights, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Jan. 24, 1973, Ser. No. 326,424

Int. Cl. B65g *53/40*

U.S. Cl. 302—53 **5 Claims**



A three-way valve is provided in a conduit (s) running from a pressure chamber in a railroad car allowing in one position the pressure in the pressure chamber to be transmitted through the conduit, and in another position high pressure gas may be applied through the conduit to remove contaminants and moisture therefrom and force the same back into the pressure chamber.

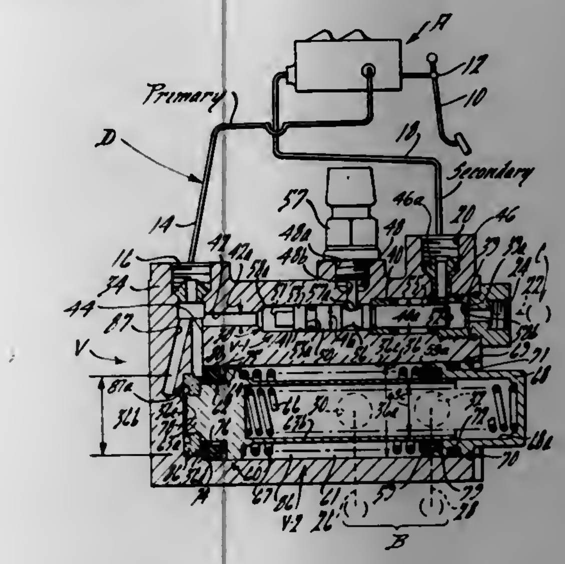
3,836,204
BRAKE SYSTEM PROPORTIONING VALVE

Warren A. Van Wicklin, Jr., Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed July 17, 1972, Ser. No. 272,506

Int. Cl. B60t *11/34*

U.S. Cl. 303—6 C **2 Claims**



A vehicular braking system having fluid proportioning means between front and rear braking elements effective to maintain rear braking pressure substantially at master cylinder pressure while intensifying the front braking pressure at a multiple thereof above a changeover pressure point.

3,836,205
HYDRAULIC BRAKE SYSTEM FOR TRAILERS CONNECTED WITH MECHANICALLY BRAKED TOWING VEHICLES

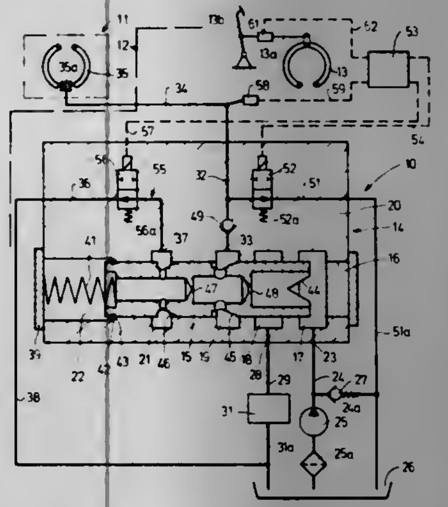
Gunther Schwerin, Hohenstaufenstrasse, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed May 23, 1973, Ser. No. 363,046

Claims priority, application Germany, May 25, 1972, 2225357

Int. Cl. B60t *13/68*

U.S. Cl. 303—7 **12 Claims**



A hydraulic brake system for a trailer which is coupled to a mechanically braked towing vehicle has an electronic regulator circuit receiving signals from a first transducer which indicates the magnitude of the mechanical braking force and from a second transducer which indicates the fluid pressure in the cylinder or cylinders of the hydraulic brake system. The output of the regulator circuit is connected to one or more electromagnetic control valves which control a distributor valve serving to connect the pump with the brake cylinder or cylinders, with a return line and/or with one or more consumers. The regulator circuit insures that the fluid pressure in the brake cylinder or cylinders is always proportional to the mechanical braking force.

3,836,206
HYDRAULIC UNIT

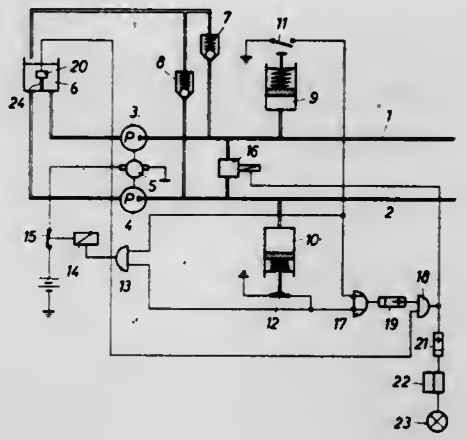
Heinz Leiber, Leimen, Germany, assignor to Teldix GmbH, Heidelberg, Germany

Filed Sept. 28, 1973, Ser. No. 401,805

Claims priority, application Germany, Oct. 12, 1972, 2249956

Int. Cl. B60t *13/16*

U.S. Cl. 303—10 **11 Claims**



An hydraulic unit for supplying two separate supply circuits comprises two pumps connected to a reservoir, both pumpshaving output lines, piston members for detecting the output pressures and a normally closed valve connecting the output lines and operable in response to detected output pressures which are below a predetermined pressure.

3,836,207
SEPARATING VALVE FOR AN ANTISKID BRAKE SYSTEM

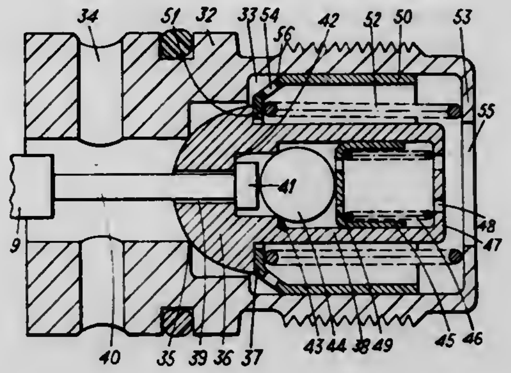
Juan Belart, Walldorf, Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Mar. 5, 1973, Ser. No. 338,016

Claims priority, application Germany, Apr. 15, 1972, 2218390

Int. Cl. B60t *8/06*

U.S. Cl. 303—21 F **12 Claims**



This relates to a pressure actuated separating valve for an antiskid brake system employed in vehicles. The separating valve responds to a control signal indicating danger of a wheel locking condition to interrupt the connection between the master cylinder and a wheel brake cylinder. The separating valve reconnects this connection after the wheel locking danger is over. When the connection is to be reestablished, the master cylinder may have a pressure higher than the pressure in the wheel brake cylinder which if directly connected to the wheel brake cylinder would cause another wheel lock. This is overcome according to the present invention by providing an arrangement within the separating valve that will throttle the pressure rise in the wheel brake cylinder and thereby permit another operation of the antiskid system if necessary before full master cylinder pressure is present in the wheel brake cylinder.

3,836,208
ANTISKID CONTROL SYSTEM

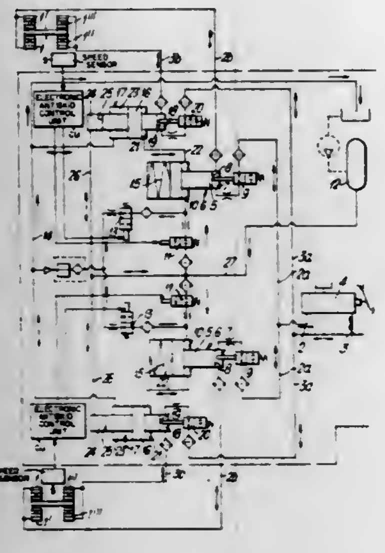
Franz Wienecke, Oberstedten, Taunvs, Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Oct. 25, 1972, Ser. No. 300,620

Claims priority, application Germany, Nov. 12, 1971, 2156307

Int. Cl. B60t *8/12*

U.S. Cl. 303—21 F **7 Claims**



This invention relates to a hydraulic arrangement for an antiskid system employed in a two circuit brake system where each of the two brake circuits control the wheels of a single axle. The hydraulic arrangement includes a plunger unit having a spring-like actuated control element in one of the two brake circuits and a purely hydraulically controlled plunger unit in the other of the two brake circuits. The control chambers of the two plunger units are hydraulically connected in series so that the plunger units operate together particularly in an antiskid control cycle. The arrangement is light-weight, space and cost saving and safe with regards to its antiskid operation while the sense and purpose of the two-circuit braked axle is completely maintained.

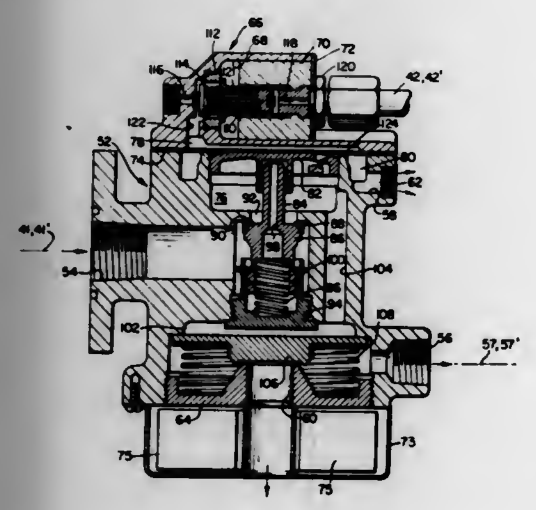
3,836,209
BRAKE CONTROL SYSTEM

James C. Neisch, Orchard Lake, Mich., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 214,793, Jan. 3, 1972, Pat. No. 3,743,362. This application Mar. 1, 1973, Ser. No. 337,015

Int. Cl. B60t *8/12*

U.S. Cl. 303—21 F **1 Claim**



An antiwheel-lock brake control system in which, following the detection of incipient wheel lock, brake apply pressure is initially relieved and thereafter controlled by cyclical time duration modulation of an operator-initiated brake apply pressure.

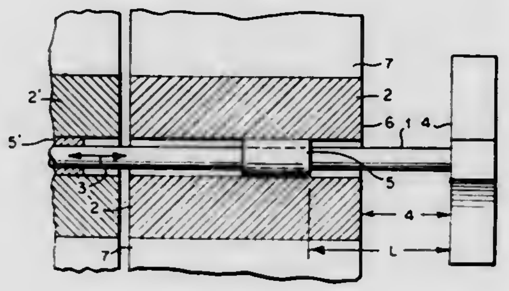
3,836,210
SHAFT BEARING ASSEMBLY OF A MACHINE TOOL

Eberhard van der Horst, Ekelenz, Germany, assignor to A. Monforts, Monchengladbach, Germany

Continuation of Ser. No. 99,576, Dec. 18, 1970, abandoned. This application Oct. 10, 1972, Ser. No. 296,184

Int. Cl. F16c *17/00*

U.S. Cl. 308—4 R **6 Claims**



Shaft bearing assembly of a machine tool having a shaft that bends under the weight of components mounted thereon and that is both rotatable and longitudinally slidable in a bearing includes a bearing of given length through which the shaft extends, and a diametrically extending bulge on the shaft, the bulge having a surface engaging the bearing and being slidably displaceable with the shaft over a maximum longitudinally extending distance shorter than the given length of the bearing.

3,836,211
REVOLVING ROLLER BEARING ARRANGEMENT

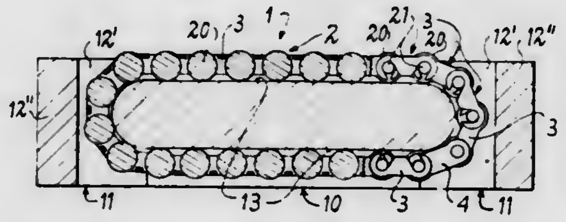
Ernst Pfister-Schneeberger, Roggwil, Switzerland, assignor to W. Schneeberger AG, Roggwil, Switzerland

Filed July 9, 1973, Ser. No. 377,823

Claims priority, application Switzerland, Aug. 28, 1972, 12673/72; Feb. 6, 1973, 1664/73

Int. Cl. F16c *29/00*

U.S. Cl. 308—6 R **10 Claims**



A revolving roller bearing or support arrangement, especially for a roller train or conveyor, comprising a support body having an endless guide track between lateral side plates. An endless roller chain with lateral brackets interconnecting each of two respective rollers bears in a spanned condition upon the endless guide track. At least the majority of oppositely situated brackets are fixedly interconnected by a transverse web into pairs of brackets. Each bracket is equipped with two recesses which have their openings angularly directed with respect to one another and each recess engages with a respective roller journal or axle.

3,836,212
SUSPENSION OF SUPPORTING BODIES FOR SPIRAL GROOVE BEARINGS

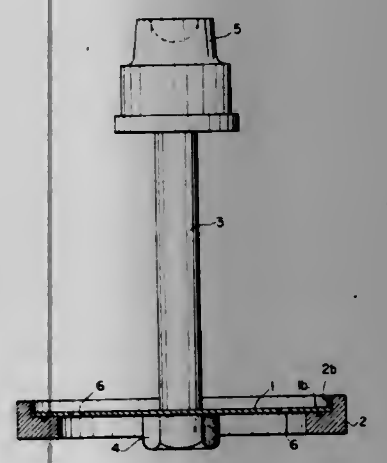
Wolfgang Hepp, Immenstaad; Klaus Pimiskern, Friedrichshafen, and Werner Herbert, Markdorf, all of Germany, assignors to Dornier System GmbH, Friedrichshafen, Germany

Filed June 25, 1973, Ser. No. 373,261

Claims priority, application Germany, Aug. 11, 1972, 2239623

Int. Cl. F16c *13/06*

U.S. Cl. 308—15 **2 Claims**



This invention relates to an improvement in an elastic centering suspension of supporting bodies for spiral groove bearings, the improvement comprising a circular membrane having apertures therein and secured to a retaining ring by electron beam welding, whereby the membrane is secured to said ring without deformation.

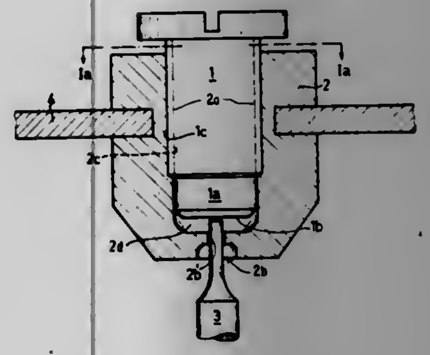
3,836,213
BEARING ASSEMBLY FOR PRECISION MECHANISMS

Alfred Meisner, Nurnberg, and Walter Spitzl, Heroldsberg, both of Germany, assignors to Firma Diehl, Nurnberg, Germany

Filed Apr. 2, 1973, Ser. No. 346,888

Int. Cl. F16c *17/04*

U.S. Cl. 308—159 **4 Claims**



A bearing assembly for precision mechanisms, for absorbing the radial and axial forces exerted on a member to be supported, includes a bearing component supporting a radial force absorbing bushing made of a material having good bearing properties, and an axial force absorbing element held in the component and made of aluminum, with the element surface which is to contact the member having been converted into a metallic oxide.

3,836,214
SPIRAL GROOVE BEARINGS

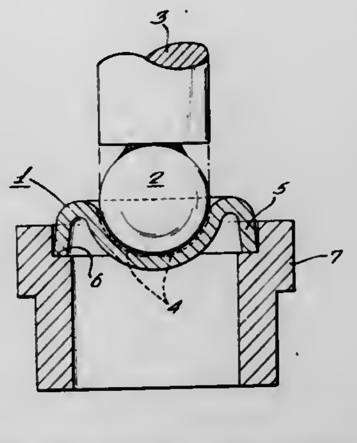
Sven-Erik Olof Gengard, Partille, and Yngve Lennart Johansson, Goteborg, both of Sweden, assignors to SKF Industrial Trading and Development Company, B.V., Amsterdam, Netherlands

Filed May 22, 1973, Ser. No. 362,864

Claims priority, application Sweden, May 23, 1972, 6657/72

Int. Cl. F16c *17/06*

U.S. Cl. 308—159 **5 Claims**



A spiral groove bearing assembly comprising a first bearing member having a convex bearing surface, a second bearing member having a concave bearing surface defining a bearing seat for said first member, means defining a shallow groove pattern in one of said bearing surfaces, said second bearing member being formed of a relatively thin walled disc shaped element to an inverted cuplike form including a center portion defining the concave bearing surface and a depending generally cylindrical skirt portion integral with the central portion and merging therewith in a rounded circumferentially extending edge, said seat conforming closely to the contour of said first convex bearing surface to permit a wide angle of contact between said first and second bearing surfaces, the lower edge of said skirt portion adapted to be secured in a bearing support member.

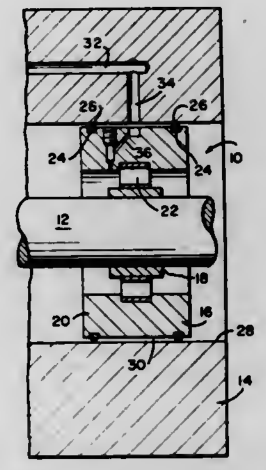
3,836,215
SHAFT VIBRATION DAMPENING MEANS AND METHOD

Joseph A. Dopkin, Hopewell, N.J., and Paul Hermann, Easton, Pa., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Feb. 15, 1973, Ser. No. 332,618

Int. Cl. F16c *27/00*

U.S. Cl. 308—184 **2 Claims**



The method comprises the mounting of an annular element directly about a shaft, and in engagement with a shaft supporting structure, and forming a lubricant-filled reservoir between the shaft and structure surfaces. Means, according to one embodiment of the invention for practicing the novel method, comprises a roller bearing, having reservoir-forming walls carried on the outer race thereof, for direct mounting of the inner race on the shaft.

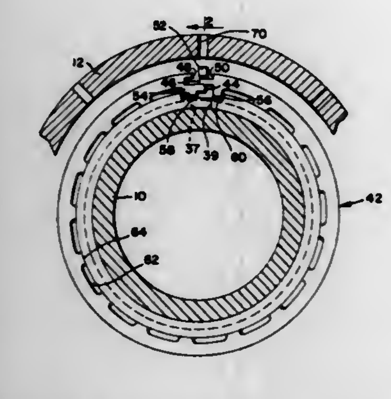
3,836,216
PRESSURE BALANCED SEAL ASSEMBLY

Arnold E. Junker, Bridge, Conn., assignor to Avco Corporation, Stratford, Conn.

Filed Apr. 2, 1973, Ser. No. 347,233

Int. Cl. F16c *33/26;* **F16j** *15/34*

U.S. Cl. 308—187.1 **10 Claims**



A pressure balanced seal assembly comprising a nonrotatable split carbon ring in sealing engagement with a rotatable shaft. A steel pressure balance ring has a pair of tabs which connect with the free ends of the split carbon ring. The outer periphery of the pressure balance ring is connected to a low pressure discharge so that pressure which acts to urge the carbon ring into the shaft also urges the pressure balance ring outward, thus urging the carbon ring toward an expanded position. This causes the carbon ring to be urged inward against the shaft with a substantially uniform force irrespective of the pressure acting on the carbon ring.

3,836,217
BOX SHAPED FURNITURE UNIT

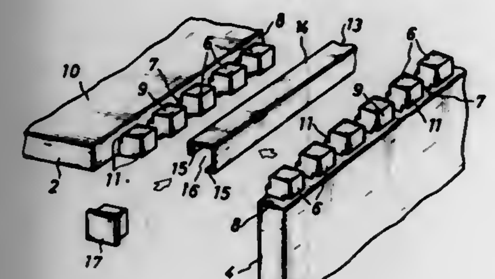
Seiichi Shiina, 24-15 Toshima 7-chome, Kita-ku, Japan

Filed Aug. 2, 1972, Ser. No. 277,148

Claims priority, application Japan, Aug. 24, 1971, 46-75536; Aug. 24, 1971, 46-75537; Dec. 17, 1971, 46-118630

Int. Cl. A47b *87/00, 87/02*

U.S. Cl. 312—107 **6 Claims**



A box-shaped furniture unit having an open front, a top board, right and left side boards, a bottom board, and a back board, all of which are interengaged with each other, the unit being able to be connected to a plurality of other furniture units so as to form various vertical and horizontal arrays.

3,836,218
CONNECTING DEVICE FOR MODULAR CONSTRUCTIONS

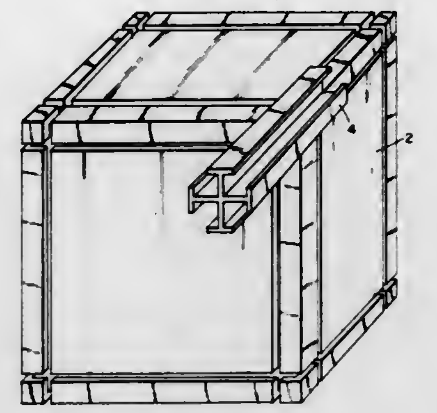
Alfred Jean Hallal, 4000 De Maisonneuve Blvd. W., Apt. 913, Westmont, Quebec, Canada

Filed Nov. 24, 1972, Ser. No. 309,164

Int. Cl. F16b *12/02*

U.S. Cl. 312—111 **1 Claim**

In a system for modular constructions, it is necessary to have a minimum variety of basic components, to provide ease of erection without the aid of particular tools, to allow maximum flexibility to suit any spatial environment and to offer resistance to weight, pressure or impact. In this invention, there are two basic components comprising a basic cubical unit adapted to receive a basic connector item designed for longitudinal insertion along any of its edges, into mating grooves on the cubical unit, thus providing a system which can be manually assembled in a multitude of relatively strong arrangements in all directions and which is greatly resistant to the effects of weight, pressure or impact.



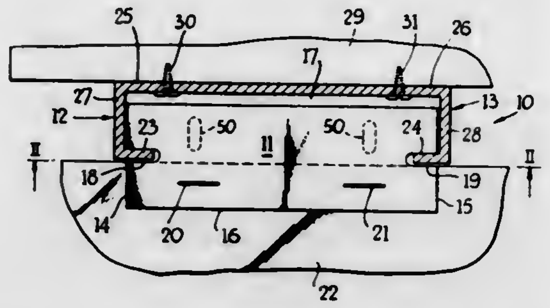
3,836,219
APPARATUS FOR FILING DOCUMENTS

Jack Bernard Guest, and Kathleen Ethel Joyce Guest, both of 119 Albury Dr., Pinner, Middlesex, England

Continuation-in-part of Ser. No. 26,533, April 8, 1970. This application May 3, 1971, Ser. No. 139,410

Int. Cl. A47b *63/00, 97/02*

U.S. Cl. 312—183 **8 Claims**



The present invention is concerned with document filing apparatus comprising a rectangular tab for attachment to a leaf of a document file, two similar, spaced channel section rails formed from rigid sheet material and comprising a tab supporting flange and a secondary flange joined to the tab supporting flange by a web, wherein the tab has a first pair of parallel side edges, a second pair of parallel side edges and aligned slots extending into the said first side edges, the slots being slightly longer than the depth of the tab supporting flanges of the rails and spaced from one of the said second side edges by a distance slightly less than the distance between the flanges of each rail and the rails being arranged with their open mouths facing and spaced apart by a distance slightly greater than the distance between the said first side edges of the tab, whereby the tab can be inclined at an angle to the rails, inserted between the rails until the slots are aligned with the tab supporting flanges and straightened so as to extend transversely between the rails with the tab supporting flanges located within the slots to retain the tab and its associated leaf slidably on the rails. The tab supporting flange of each rail can be provided with an upwardly projecting lip extending along the longitudinal edge of the flange and each slot in the tab is then formed with a recess at its inner end, the said recesses being adapted to receive the lips on the rails and thereafter resist rotation of the tab about a vertical axis.

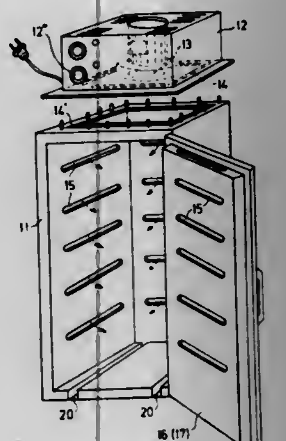
3,836,220
GOODS DELIVERY SYSTEM

Nils Gosta Sigvard Ishammar, Manstigen 5, S-216 18 Malmo, Sweden

Filed Sept. 20, 1972, Ser. No. 290,620

Int. Cl. A47b *77/08*

U.S. Cl. 312—236 **2 Claims**



A goods delivery system includes a row of cabinets which are accessible through doors from opposite sides of a wall of a room or other space. On each cabinet there is provided an exchangeable top unit for circulating conditioned air in a closed path through the interior of the cabinet.

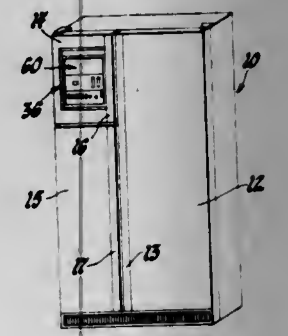
3,836,221
REFRIGERATOR DOOR WITH REMOVABLY MOUNTED RADIO

Charles C. Whistler, Jr., Dayton, and Ronald E. Meyer, Troy, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 9, 1973, Ser. No. 404,238

Int. Cl. A47f *1/06;* **A47c** *15/00*

U.S. Cl. 312—237 **3 Claims**



A refrigerator insulated door has a rectangular shaped opening and an insert in the form of a housing installed within the opening for removably mounting an add-on accessory in a recessed manner therein. The accessory, which may be a battery powered radio or the like, is retained in an inwardly canted over-center position by virtue of the housing base being sloped outwardly to a horizontal camming rib. The radio may be readily removed for servicing by exerting a force inwardly at the bottom of its casing, causing the upper portion thereof to be projected beyond the face of the door to a position whereby the top of the radio is exposed for grasping and lifting over lower abutment means of the housing for removal therefrom.

3,836,222
CASSETTE DRAWER UNIT WITH LATCH

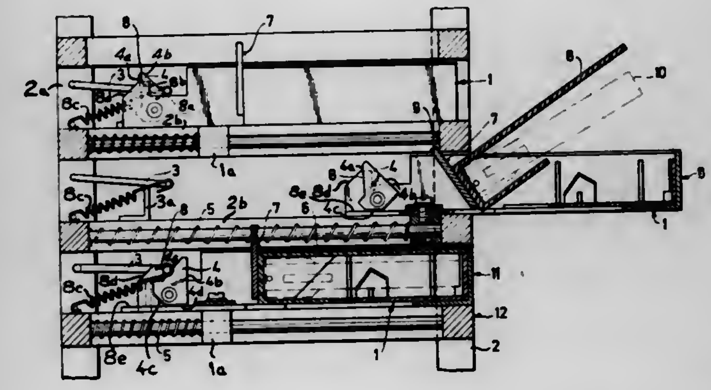
Gerd Kuntze, Berlin, Germany, assignor to IDN Inventions and Development of Novelties AG, Lenzerheide, Switzerland

Filed Apr. 16, 1973, Ser. No. 351,790

Claims priority, application Germany, Apr. 18, 1972, 7215173

Int. Cl. A47b *88/04*

U.S. Cl. 312—319 **4 Claims**



A drawer for cassettes and concealed latch therefor requiring only slight inward pressure to unlatch the drawer. A detent on the drawer and a latch bar on the stationary frame; a latch bar lifting cam on the drawer and lifting the bar off the detent when the drawer is pressed inwardly, the cam tipping to conceal the detent and guide the bar over the detent as the drawer is released and urged outwardly under spring pressure, the drawer having an upwardly tilting cassette pocket tipped upward by the outward spring pressed thrust of the drawer.

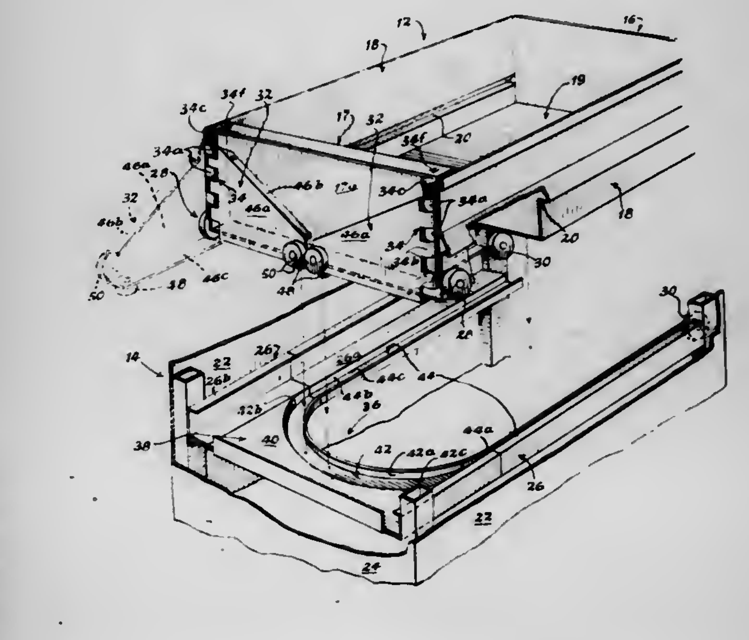
3,836,223
CABINET DRAWER SUSPENSION SYSTEM

James C. Signore, Ellicottville, N.Y., assignor to AVM Corporation, Jamestown, N.Y.

Filed Oct. 18, 1972, Ser. No. 298,798

Int. Cl. A47b *88/00, 95/00*

U.S. Cl. 312—350 **4 Claims**

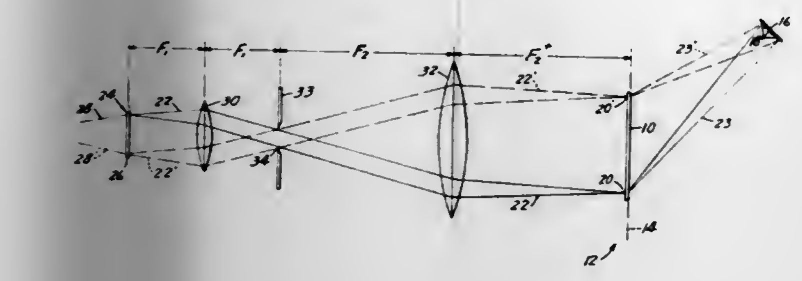


A drawer suspension system including a pair of roller mounting hinged leaves and a pair of drawer mounted rollers, which cooperate with a cabinet mounted trackway and guide tracks to provide cantilever support for the drawer in open position.

3,836,224
HOLDGRAM MEMORY READOUT SYSTEM

Wolfgang H. Strehlow, Twp. of Woodbury; Pui Kum Lee, White Bear Lake, and James H. Packard, St. Paul, all of Minn., assignors to Minnesota Mining & Manufacturing Company, St. Paul, Minn.

Filed Nov. 3, 1972, Ser. No. 303,326
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 5 Claims

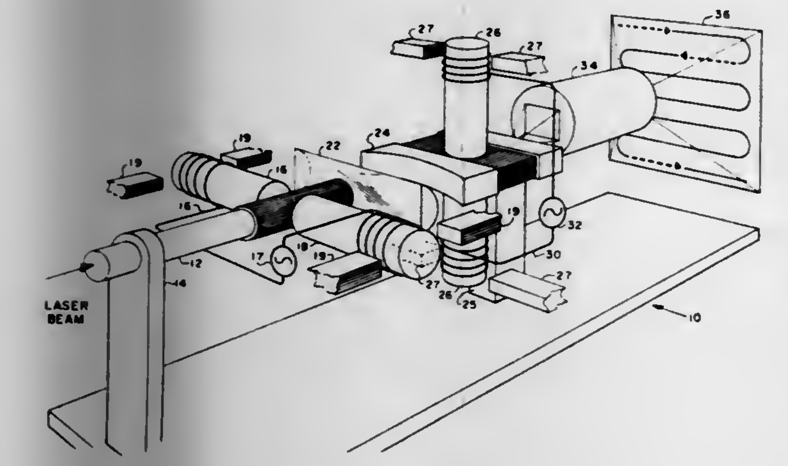


A two-dimensionally scannable electron beam laser is used to address a planar hologram array memory, having a plurality of holograms in a two-dimensional array, from each of which holograms a given order diffracted primary or conjugate image is produced at a common location when any said hologram in the array is addressed by a laser beam at an angle normal to the memory plane. A detector is positioned at the common location for receiving the image produced from each of the holograms in the array.

3,836,225
FIBER OPTIC SCANNERS

Hans J. Wilde, Niantic, and Verne R. Viele, North Stonington, both of Conn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 24, 1973, Ser. No. 399,875
Int. Cl. G02b *17/00*
U.S. Cl. 350—6 7 Claims

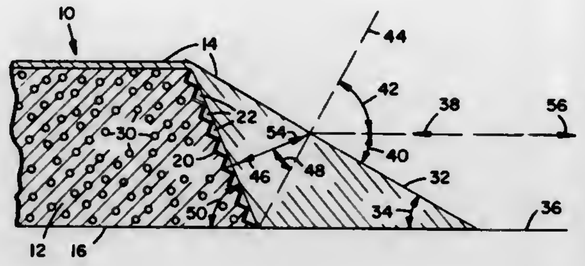


A rod bundle of fiber optic elements transmitting a laser beam are secured at a first location on the rod bundle and driven at a second location on the rod bundle to form a linear scan of the beam. The beam is then collimated and applied to a narrow rectangular bundle of fiber optic elements that are driven orthogonally to the linear scan of the beam to form a scan over a plane surface. The narrow rectangular bundle of fiber optic elements are driven at a lower frequency than the rod bundle of fiber optic elements. All fiber optic elements are driven by electromagnetic or piezoelectric components.

3,836,226
REFLECTIVE PAVEMENT MARKER

James A. Cechetini, 1749 Orion Way, Sacramento, Calif. 95825

Filed July 23, 1973, Ser. No. 381,462
Int. Cl. G02b *5/12*
U.S. Cl. 350—103 8 Claims

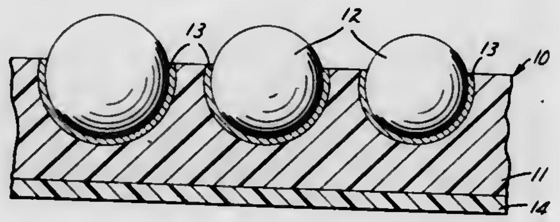


An improved pavement marker adapted to retroflect the headlight beams of oncoming vehicles is disclosed. The marker includes a trapezoidal support block of reflective glass spheres in a cement binder, the bottom surface of which attaches to the pavement. The support block has oppositely directed side faces acutely inclined to the pavement, and a reflective grid overlies each side face. The grid comprises a plurality of retrodirective elements formed in a sheet of refective material. Each retrodirective element comprises a multifaceted diamond shaped figure having pairs of opposing facets all meeting at a common vertex. The facets of each pair diverge outwardly from the vertex forming half-angles of substantially 45° so that the light impinging on the element is retroflected parallel to direction of impingement with a minimum number of internal reflections. A layer of light-refractive translucent material covers the exposed surfaces of the support block including the side faces, and provides a refractive surface which directs light from headlights of approaching vehicles at the reflective grid generally parallel to the central axes of the elements. The light is thus retroflected back at the approaching vehicles through the refractive surface. If the grid becomes partially eroded due to the traffic abrasion the underlying reflective block retains partial reflectivity.

3,836,227
HEAT-BONDABLE RETROREFLECTIVE SHEETING

Reynold E. Holmen, White Bear Lake, and Jack E. Cook, St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 13, 1973, Ser. No. 350,709
Int. Cl. G02b *5/12*
U.S. Cl. 350—105 15 Claims

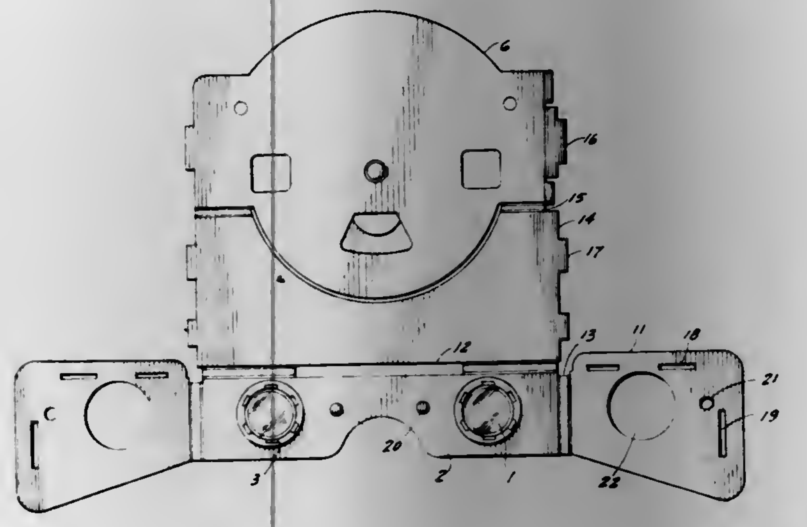


Retroreflective sheeting comprising a monolayer of spherical lens elements supported by a layer of binder material that comprises a thermoplastic heat-activatable adhesive copolymer that comprises ethylene, vinyl chloride, and acrylamide.

3,836,228
FOLDING VIEWER

Alan Glueck Lewis, West Linn, Oreg., assignor to Gaf Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 302,888, Nov. 1, 1972. This application June 29, 1973, Ser. No. 374,930
Int. Cl. G02b *27/22*
U.S. Cl. 350—140 4 Claims

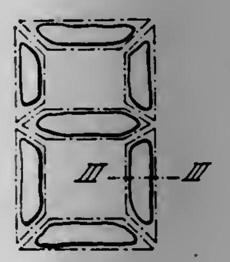


A unitarily constructed folding viewer suitable for use with circular viewing discs. The structure includes a pair of major body portions joined together, having a clearance therebetween. A foldable top member, as well as side and end flaps are hinged to one another and to one of the body portions. Cooperative tabs extending from the body portion and top member are mated with slots in the side and end flaps to form the assembled viewer. The end flaps are provided with openings and when folded down are affixed to the top member by a locking means and seat around the lenses.

3,836,229
ELECTRO-OPTICAL DISPLAY DEVICE

Eric Saurer, Hauterive, Switzerland, assignor to Ebauches S.A., Neuchatel, Switzerland

Filed Jan. 8, 1973, Ser. No. 321,706
Claims priority, application Switzerland, Jan. 12, 1972, 422/72
Int. Cl. G08b *5/36*
U.S. Cl. 350—160 5 Claims

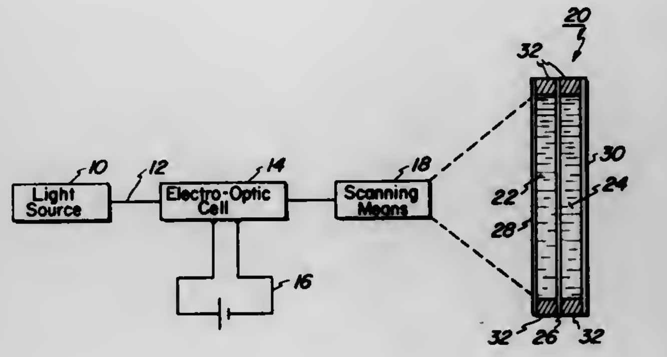


An electro-optical display device for a timepiece in which the device is provided with a shield of electrically insulating transparent material. The shield is applied to a conductive substratum having a design thereon such that the shield covers the marginal portions of the design so as to prevent an excessive density of current on the edges of an electrochromic layer overlying the substratum to prevent erosion of the edges.

3,836,230
LIQUID CRYSTAL DISPLAY SYSTEM

James E. Adams, Ontario; James H. Becker, Penfield, and Werner E. L. Haas, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed June 27, 1973, Ser. No. 374,199
Int. Cl. G02f *1/16*
U.S. Cl. 350—160 LC 33 Claims

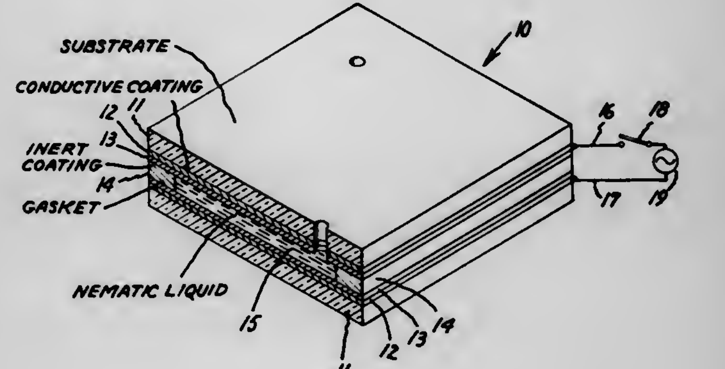


A liquid crystal color display system which utilizes a plurality of films or layers of optically negative liquid crystalline materials as passive light discriminating screens is disclosed. The display system may be operated in a two color mode or a three color mode and has the capability of producing various color hues. The system lends itself to operation at very high frequency.

3,836,231
UNIFORM LIQUID CRYSTAL CELLS AND METHOD FOR MAKING THE SAME

Herbert S. Cole, Jr., Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 185,209, Sept. 30, 1971, abandoned. This application Aug. 6, 1973, Ser. No. 385,830
Int. Cl. G02f *3/00*
U.S. Cl. 350—160 LC 10 Claims



Liquid crystal displays with uniformly clear appearance and long lifetimes are described as comprising thin inert coatings applied to the surface of substrates which may include conductive layers thereon. The inert coatings advantageously are insoluble in the nematic liquid, adhere to the conductive layer and substrate and are substantially transparent. Suitable materials for the inert coating include vinyl acetate resins, ethylene-based resins, epoxies, anaerobic adhesives, polyimides and linear saturated polyesters, for example.

3,836,232

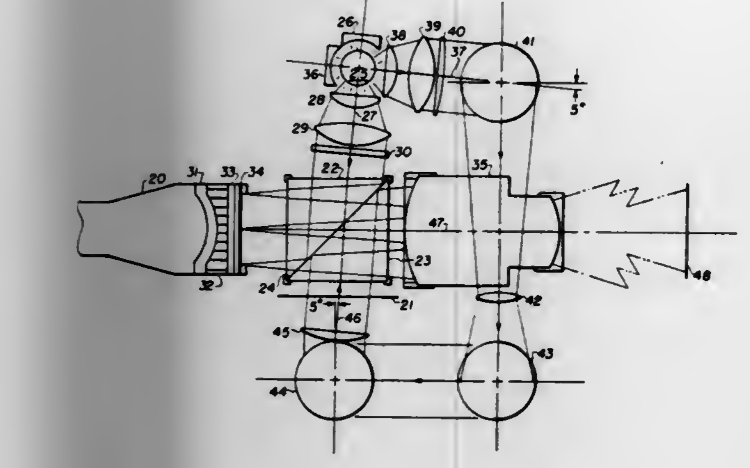
MULTIPLE CHANNEL OPTICAL SYSTEM

Joseph F. Hall, Jr., Santa Ana, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 2, 1973, Ser. No. 329,241

Int. Cl. G02b *27/14*

U.S. Cl. 350—174 **6 Claims**



First and second prisms of material substantially transparent to light transmission are positioned in a common diagonally disposed planar interface, preferably comprising an extremely small air space, to form a composite cubic optic element. Visual information from a first channel is directed to the cubic optical element at an angle such that it passes directly through the cubic optical element, including its diagonally disposed planar interface, without reflection. Visual information from a second channel is directed to an adjacent face of the cubic optical element at such an angle relative to the diagonally disposed planar interface as to cause its total internal reflection and consequent redirection along the same axis as the visual information from the first channel, thereby combining the visual information from both channels without undue loss of light energy.

3,836,233

ANTI-FLASH SHUTTER WITH TWO COMPARTMENTS

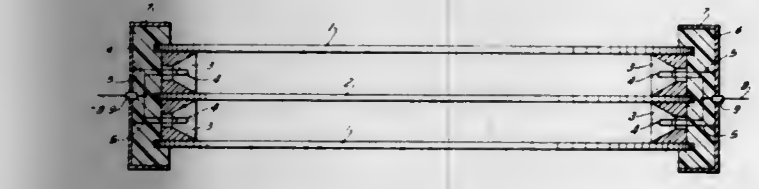
Frank Frungel, Herwigredder 105a, 2 Hamburg 56, and Horst Lohse, Hamburg, both of Germany, assignors to said Frungel, by said Lohse

Filed Dec. 23, 1971, Ser. No. 211,495. The portion of the term of this patent subsequent to March 20, 1990, has been disclaimed.

Claims priority, application Germany, Dec. 24, 1970, 2063888

Int. Cl. G03b *9/08*; G02f *1/28*

U.S. Cl. 350—266 **20 Claims**



In a frame of the shutter an opening is provided for the passage of light, and at least three transparent plates extend across the opening to define with one another two compartments which the light must pass successively. Explosive charges are provided for opaquing both compartments simultaneously to thereby terminate the passage of light through the opening.

3,836,234

FULLY CLOSING IRIS DIAPHRAGM

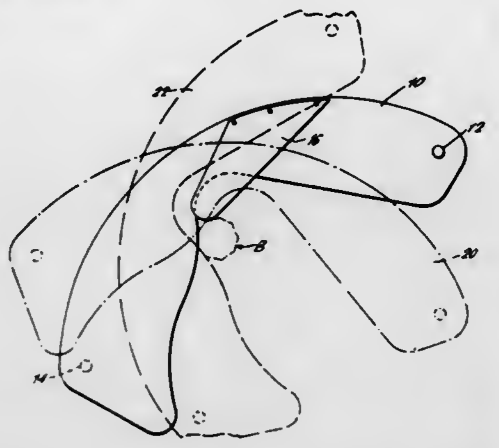
John Leonard Farnsworth, Leicester, England, assignor to The Rank Organisation Limited, London, England

Filed Mar. 12, 1973, Ser. No. 340,117

Claims priority, application Great Britain, May 17, 1972, 23096/72

Int. Cl. G02f *1/30*; G03b *9/02*

U.S. Cl. 350—266 **5 Claims**



A fully-closing iris diaphragm is disclosed which consists of a substantially conventional iris diaphragm with the addition of a capping section to one leaf, which is positioned to obscure the minimum aperture obtainable without "scissoring" distortion of the leaves.

3,836,235

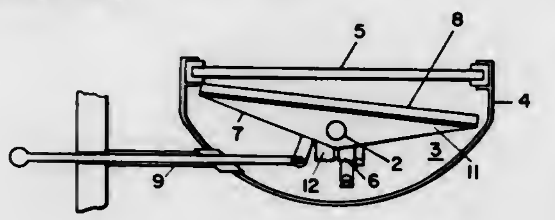
WIDE REAR VIEW DAY AND NIGHT OUTSIDE MIRROR

Carl D. Russell, Tulsa, Okla., assignor to Robert I. Studebaker and Martha Jean Studebaker, part interest to each

Filed Sept. 20, 1973, Ser. No. 399,450

Int. Cl. B60r *1/06*

U.S. Cl. 350—280 **3 Claims**



A case supports a glass in spaced apart position from a mirrored surface allowing first or second images to be reflected and held by the positioning of the mirrored surface in relation to the glass. The first image is a bright unrestricted image for day viewing; the second: an image that is soft and restricted, ideal for night viewing of bright lights at close range. The fact that the glass and mirrored surface are spaced apart allows for a wide viewing. Actuator or actuators may be extended to either or both the glass or the mirror to allow angling by remote control. The case is preferably closed and centrally supported by a vehicle support to withstand the high air currents and vibration encountered at high speeds.

3,836,236

MIRROR MOUNT FOR HIGH POWER LASERS

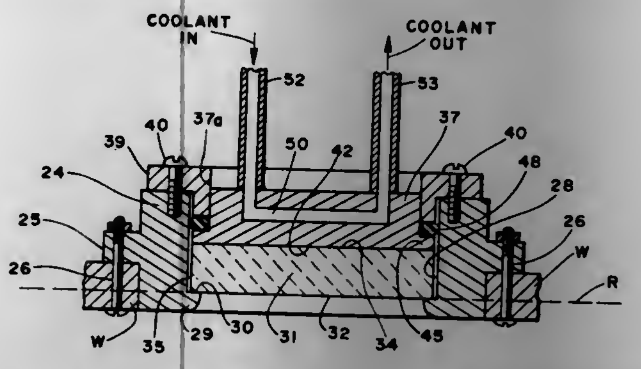
Russell F. Kirk, Sunnyvale; Frederick E. Moreno, and Jack D. Foster, both of Los Altos, all of Calif., assignors to GTE Sylvania Incorporated, Mountain View, Calif.

Filed Nov. 24, 1972, Ser. No. 308,988

Int. Cl. G02b *5/08*

U.S. Cl. 350—310 **7 Claims**

A mirror mount for a high power laser includes a liquid-cooled backing plate resiliently pressed against the fluid-covered back side of a mirror seated in the recess of a mounting ring. The mating surfaces of the backing plate and mirror are lapped or otherwise precisley formed with flat plane shapes and the thin fluid film between them improves thermal conductivity at the junction and prevents shear stress between mirror and plate. The backing plate is resiliently pressed against the mirror by a clamping ring through an O-ring. The portion of the backing plate through which the coolant passes is immediately adjacent to the portion of the mirror from which the incident laser beam is reflected so as to efficiently remove heat generated by mirror absorption of beam energy. The peripheral edges of the backing plate and mirror are loosely held in the mounting ring to accommodate thermal expansion and contraction of the parts without stress or distortion.



3,836,237

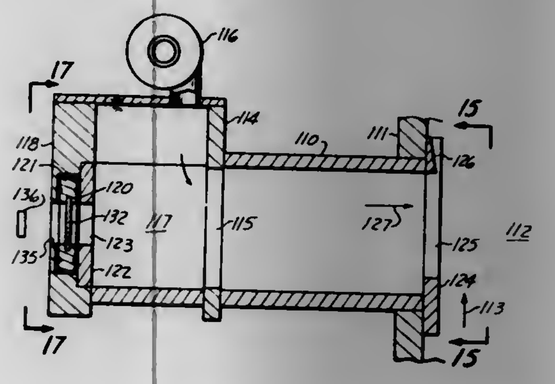
WINDOW ASSEMBLY FOR USE WITH A STACK MONITOR

Dale W. Egan, Montrose; Geoffrey B. Holstrom, Los Angeles; Harry C. Lord, Pasadena; Robert W. Stevens, San Dimas; Darrell P. Port, La Crescenta, and Rollen D. Howard, La Canada, all of Calif., assignors to Environmental Data Corporation, Monrovia, Calif.

Division of Ser. No. 158,885, July 1, 1974, abandoned. This application Apr. 25, 1973, Ser. No. 354,160

Int. Cl. G02b *27/00*

U.S. Cl. 350—319 **3 Claims**



The present disclosure relates to spectrometry. A method is disclosed for detecting nitric oxide (NO) without first converting it to nitrogen dioxide (NO_2) by determining the intensity of a spectral signature in the range between about 2259 and 2269 Angstroms. Apparatus is provided which, in one form, utilizes an output shutter arrangement having a plurality of reciprocating vanes operated at mutually exclusive frequencies for passing regions of absorption radiation and continuum radiation. Circuit means is provided for distinguishing the signals derived at the various frequencies to determine the relative amount of particular material in a sample. In another form of the invention, an output chopper is provided having at least three slit apertures, the center aperture being adapted to pass only radiation at an absorption wavelength and the two outer apertures being adapted to pass radiation in the continuum. A vane is adapted to reciprocate between a first position wherein the chopper passes only radiation through the center aperture and a second position wherein the chopper passes only radiation through the two outer apertures. The area of each of the two outer apertures is preferably one-half the area of the center aperture. A detector viewing radiation passed by the chopper will average the radiation received from the two outer apertures. In yet another aspect of the invention, a window assembly is provided so that the spectrometer may be used as a stack monitor, the window assembly having a slidable window which may be removed for cleaning purposes.

3,836,238

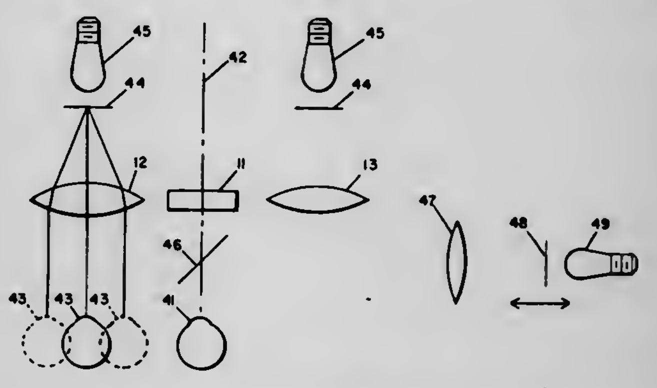
VIEWABLE TARGET SYSTEM FOR EYE EXAMINING INSTRUMENT

Charles R. Munnerlyn, and William H. Trow, both of Fairport, N.Y., assignors to Tropel, Inc., Fairport, N.Y.

Filed May 9, 1973, Ser. No. 358,824

Int. Cl. A61b *3/02*

U.S. Cl. 351—36 **30 Claims**



To induce the eyes to deaccommodate during examination by an instrument having an optical system aligned with one eye, a target viewable through an eyepiece is presented to and aligned with the other eye. The target is adjusted until clearly visible and then moved straight away from the other eye to appear to recede to induce both eyes to deaccommodate. A pair of eyepieces are arranged on each side of the optical system to register with the eye not being examined, and a horizontally movable slide carrying a slidable target is operated by knobs for aligning the slide with the eye and moving the target along the slide. Alternatively, a binocular system can be used with a slightly blurred target presented to the eye not being examined, and a visibly lighted, sharp image target presented to the eye being examined and arranged to be blurred to induce de-accommodation of the examined eye.

3,836,239

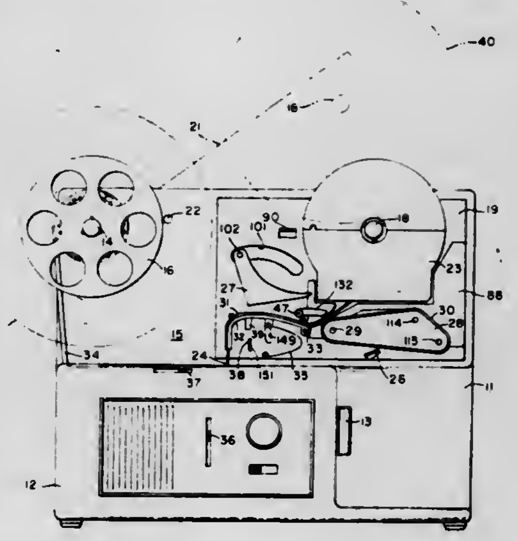
CINEMATOGRAPHIC PROJECTORS OR THE LIKE AND CARTRIDGES FOR USE THEREWITH

John J. Bundschuh, and Robert J. Roman, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 24,657, April 1, 1970, Pat. No. 3,750,976, which is a division of Ser. No. 685,616, Nov. 24, 1967, Pat. No. 3,552,683. This application Apr. 25, 1973, Ser. No. 354,424

Int. Cl. G03b *23/02*

U.S. Cl. 352—73 **5 Claims**



A machine such as a cinematographic projector is convertible to accommodate either a film supply cartridge or an unenclosed film supply reel, such conversion being automatically accompanied by corresponding changes in the mode of operation of the machine.

3,836,240
MOIRE FRINGE OPTICAL DISPLAY & PROJECTION EQUIPMENT

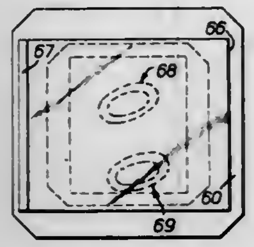
David Alexander Whyte Henderson, and Brian Thomas Crawford, both of Cheltenham, England, assignors to Pennant Display & Engineering Limited, Cheltenham, England

Filed Nov. 20, 1972, Ser. No. 307,943

Claims priority, application Great Britain, June 7, 1972, 26452/72; July 7, 1972, 31862/72; July 18, 1972, 33513/72

Int. Cl. G03b ***21/32***

U.S. Cl. 352—87 **4 Claims**



Optical display or projection equipment, using Moire fringes to create moving or animated effects. A transparent sheet carrying special diagrams is superimposed over a moving transparent belt, having a graticule of close parallel lines. The sheet and belt are formed of flexible plastics material. The sheet diagram may be constructed by cutting out sections from a "kit" of pre-printed sheets, and a plurality of sheets may be pivotally attached to a cardboard frame, to build up a complete diagram in successive stages. The apparatus may also include a projector with winding means to convey the belt either from one roller to another roller, across the optical axis, or in a continuous closed loop.

3,836,241
AUDIO-VISUAL DEVICE

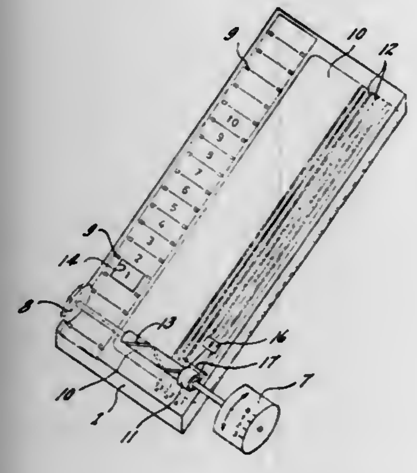
Marcel Jules Helene Staar, Brussels, Belgium, assignor to Staar Development Company, Brussels, Belgium

Filed Apr. 21, 1972, Ser. No. 246,403

Claims priority, application Belgium, Apr. 23, 1971, 766203; Nov. 16, 1971, 775363

Int. Cl. G03b ***31/06***

U.S. Cl. 353—19 **13 Claims**



An audio-visual device for consecutively displaying tranparencies in synchronism with the reproduction of sound recordings corresponding, respectively, to said transparencies, said transparencies being in the form of multiple transparencies carried by a holder and said sound recordings being recorded in multiple recording tracks on an independent, movable recording medium. Also disclosed is a mechanism for shitfing a playback head interconnected with means for moving the transparency holder, so that as the holder is moved to bring each transparency into display position the playback head simultaneously is moved over a recording track to reproduce a recording thereon corresponding to the particular transparency being displayed.

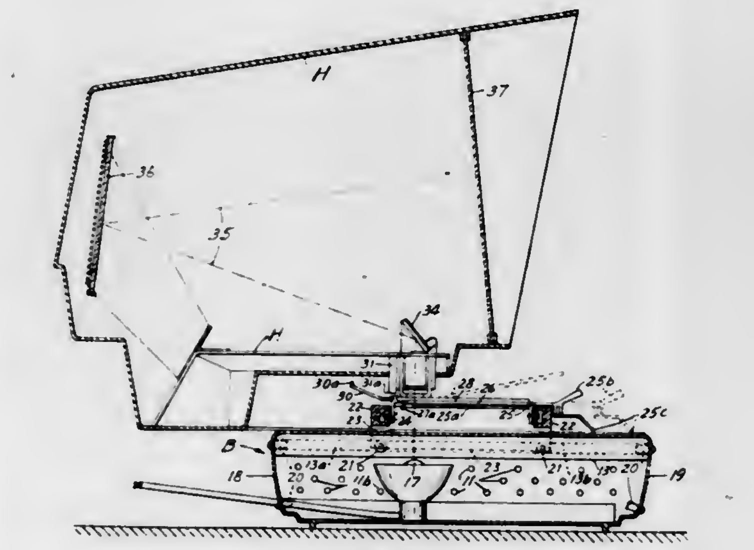
3,836,242
MICRO FICHE MOUNTING CARRIAGE FOR FILM READER

Dennis A. Kluver, Minneapolis, and Donald N. Mehl, Minnetonka, both of Minn., assignors to Northwest Microfilm Inc., Minneapolis, Minn.

Filed Apr. 9, 1973, Ser. No. 349,070

Int. Cl. G03b ***23/08***

U.S. Cl. 353—27 **7 Claims**



This is a micro fiche film mounting carriage for a film reader and constitutes a base member having a roller track integrally extruded therewith to permit a mounting carriage to be moved on one axis with a second roller track mounted thereon for movement on an axis disposed at right angles thereto.

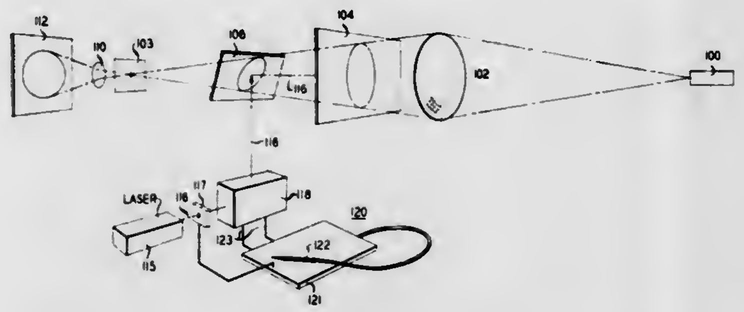
3,836,243
LIQUID CRYSTAL DISPLAY APPARATUS

Hans Melchior, Basking Ridge, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 27, 1972, Ser. No. 266,586

Int. Cl. G03b ***21/00, 21/60***

U.S. Cl. 353—122 **18 Claims**



A system in accordance with the present invention utilizes a thermally addressed liquid crystal display cell as an imaging device in, for example, a schlieren optics projection arrangement. In preferred embodiment, the display cell includes a layer of liquid crystal substance, sandwiched between a first optically transparent heat-producing electrode, a second electrode, and transparent support substrates. The electrodes and the liquid crystal layer are supported by and contained between the support substrates. A controlled laser beam selectively generates hot spots in the heat-producing electrode which, in turn, locally heat the liquid crystal substance above its transition temperature. When the liquid crystal substance is subsequently cooled to its mesophase, long-lasting light-scattering centers remain. These long-lasting light-scattering centers are erased by applying a relatively high-frequency a-c voltage to the electrodes.

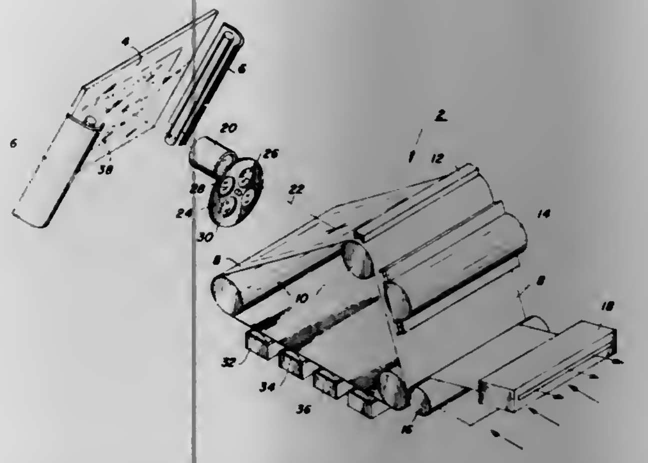
3,836,244
COLOR XEROGRAPHY

Richard F. Lehman, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Aug. 29, 1973, Ser. No. 392,580

Int. Cl. G03g ***13/22***

U.S. Cl. 355—4 **4 Claims**



A xerographic process in which an object is sequentially exposed through red, green, and blue filters and the resulting electrostatic images developed respectively with cyan, magenta, and yellow toners. Undesirable toner absorbances in other than their complementary colors are compensated for by selective removal or back transfer of toner from paper.

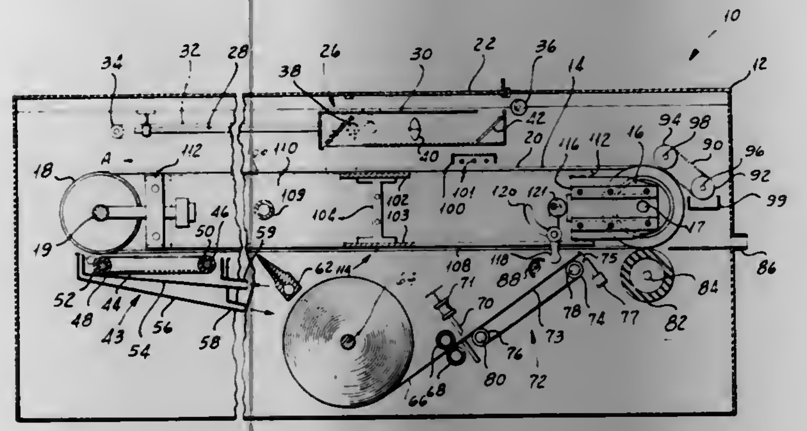
3,836,245
COPY MACHINE HAVING PHOTOCONDUCTIVE BELT

Peter J. Hastwell; Ian E. Smith, and Dennis I. Scroggs, all of North Adelaide, Australia, assignors to Savin Business Machines Corporation, Valhalla, N.Y.

Filed Nov. 29, 1972, Ser. No. 310,667

Int. Cl. G03g ***15/22***

U.S. Cl. 355—8 **10 Claims**



An electrostatic copying machine for producing multiple copies of an original wherein several latent electrostatic images are formed on contiguous segments of a photoconductive surface on a moving belt supported by an air bearing. The belt is stopped for the exposing and developing (and, in one embodiment, image transfer) steps, and the scanning unit moves in opposite directions in successive copying cycles. Machine operation is controlled alternately by microswitches actuated by projections on the belt and by scanner-actuated microswitches. Three kinds of image transfer devices using pressure alone are disclosed, including one for which the belt is stopped during the transfer step.

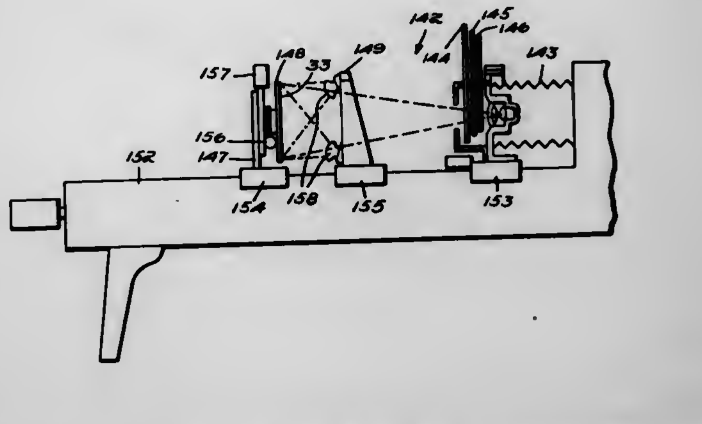
3,836,246
IMAGE STANDARDIZER APPARATUS

John Kent Bowker, Marblehead, Mass., assignor to Itek Corporation, Lexington, Mass.

Division of Ser. No. 181,141, Sept. 3, 1971, Pat. No. 3,778,541. This application May 2, 1973, Ser. No. 356,672

Int. Cl. G03b ***27/76***

U.S. Cl. 355—32 **6 Claims**



Disclosed is a color standardizer for standardizing input specimens utilized with a system that analyzes a plurality of input images. The standarizer receives a multi-colored input sample and a comparator analyzes preselected properties of the input sample with respect to a preselected standard. Corrective filters are utilized to alter the color balance and tone of the input sample so as to be compatible with the system. A camera records the suitably altered image. Furthermore, cropping and focusing apparatus are included so that the image output of the standardizer is of a uniform size.

3,836,247
PHOTOGRAPHIC COLOR PRINTING APPARATUS WITH IMPROVED LIGHT TERMINATING MECHANISM

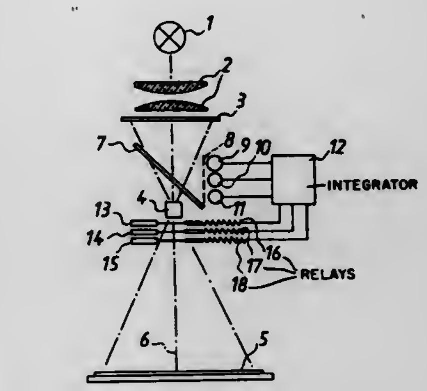
Volker Weinert, Munich, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 14, 1973, Ser. No. 397,244

Claims priority, application Germany, Sept. 16, 1972, 2245574

Int. Cl. G03b ***27/76***

U.S. Cl. 355—36 **7 Claims**

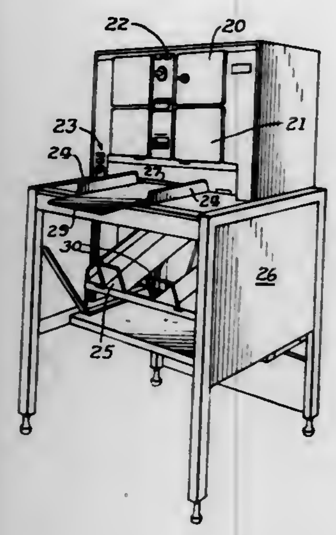


Light from a light source furnishing a first, second and third primary color folds on first, second and third photoreceiver means which furnish, respectively, a first, second and third stop signal when the received light has reached a predetermined total quantity. Logic means are provided for terminating the illumination in the colors corresponding to the first and second so-received stop signals directly by inserting the complementary color filter into the path of the light. The logic means prevent operation of the third complementary filter in response to the third received stop signal and, instead, directly operate the shutter terminating the illumination in all three colors.

3,836,248
OPTICAL DOCUMENT SENSOR FOR READING MACHINES

Robert Sawyer John, Jr., Deerfield, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed May 18, 1973, Ser. No. 361,732
Int. Cl. G03b *27/74, 27/48;* **H01j** *39/12*
U.S. Cl. 355—50 **11 Claims**

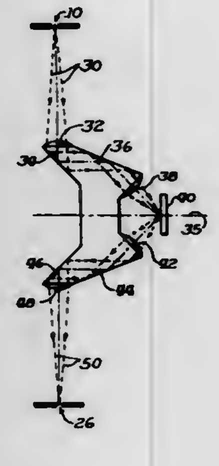


An optical sensor head has a plurality of photocell sensors connected in a bridge circuit. The sensor in one arm of the bridge reads light transmitted directly from a source. At least one sensor in another arm of the bridge reads light transmitted from a source through a document reading area. If a document is present, it affects the light being transmitted to the photocell sensors sufficiently to unbalance the bridge. As a result, the potential differences across the bridge circuit are able to reliably detect the most translucent paper likely to be encountered in the described reading process.

3,836,249
OPTICAL IMAGING SYSTEM OF SHORT FOCAL LENS

Paul E. Weber, Libertyville, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed Sept. 13, 1972, Ser. No. 263,388
Int. Cl. G03b *27/48*
U.S. Cl. 355—51 **9 Claims**

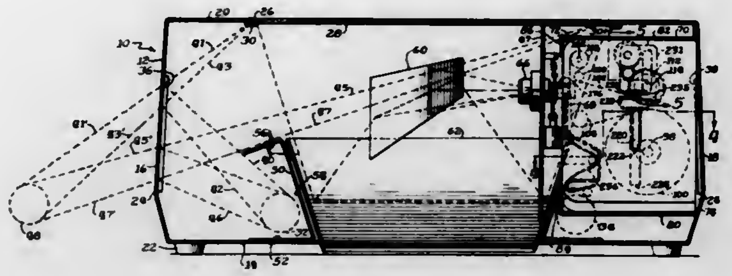


An apparatus for forming a continuous image from an object at generally 1:1 magnification with a lens strip optical imaging system having a series of individual optical imaging devices or combinations extending along the length of the strip. The lens strip comprises a solid elongated molded body of transparent plastic material, or the like, with lenslet surfaces and reflecting surfaces of each optical imaging device or combination formed directly on the solid molded elongated strip.

3,836,250
MICROFILM CAMERA APPARATUS

George W. Bookless, Franklin Park; Heinz E. Hertel, Mount Prospect, and Robert L. Kearney, Northbrook, all of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed Apr. 9, 1973, Ser. No. 349,365
Int. Cl. G03b *1/12, 19/04, 27/46*
U.S. Cl. 355—65 **44 Claims**

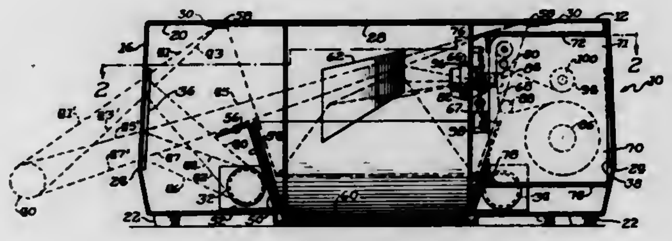


A microfilm camera apparatus for recording a projected image on a film disposed in a cartridge adapted to be inserted in the apparatus. The camera includes means for driving the film past an exposure window in the cartridge. The cartridge comprises a measuring capstan which includes a cam drive means for operating a control which arrests movement of the film after the film has advanced a predetermined increment. The lens system of the apparatus includes an aperture block adapted for insertion through a window in the cartridge for holding the film firmly against an exposure station during exposure. A switch trip mechanism responsive to the end of the reel of film in the cartridge generates a signal which alerts the operator that a new film cartridge should be inserted. In addition, the apparatus includes a novel over-center cartridge latch device for holding the film cartridge firmly in place in the apparatus until manually released. Also, a novel arrangement of spring-biased drive gears are provided in the housing to engage a mating gear attached to a film advance mechanism in the cartridge.

3,836,251
ILLUMINATION SYSTEM FOR FILM RECORDING APPARATUS

Heinz E. Hertel, Mount Prospect; Robert L. Kearney, Northbrook, and Paul E. Weber, Libertyville, all of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed Apr. 9, 1973, Ser. No. 349,494
Int. Cl. G03b *27/54, 27/70*
U.S. Cl. 355—70 **7 Claims**

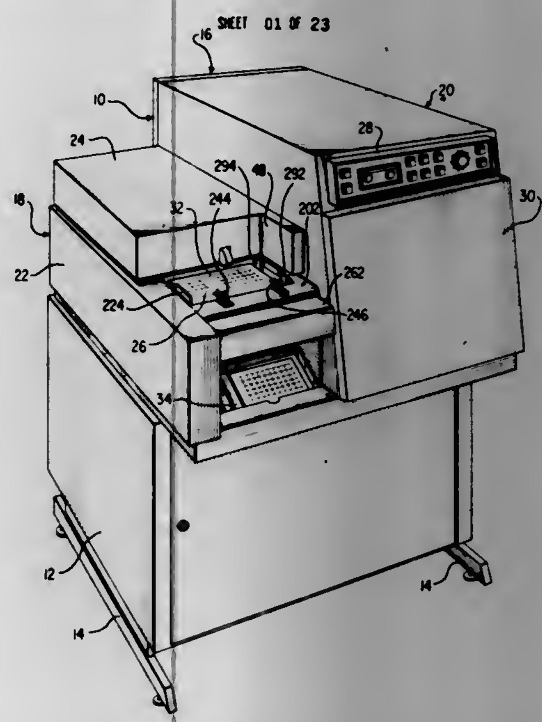


A microfilm apparatus including an illumination system having a long light path between a source of light and a document retaining exposure platen in a relatively compact structure. Only reflected, or indirect, light illuminates the exposure platen; all stray and direct light is absorbed by the unique baffle and light absorbing structure in the apparatus. To achieve compactness, the novel light path construction enables the distance between two light sources to be less than the width of the exposure platen.

3,836,252
MICROFICHE DUPLICATOR

Albert Francis Touchette, Shutesbury, and Nils L. Hakanson, West Springfield, both of Mass., assignors to Scott Paper Company, Delaware County, Pa.

Filed Mar. 8, 1973, Ser. No. 339,284
Int. Cl. G03b *27/30*
U.S. Cl. 355—100 **25 Claims**

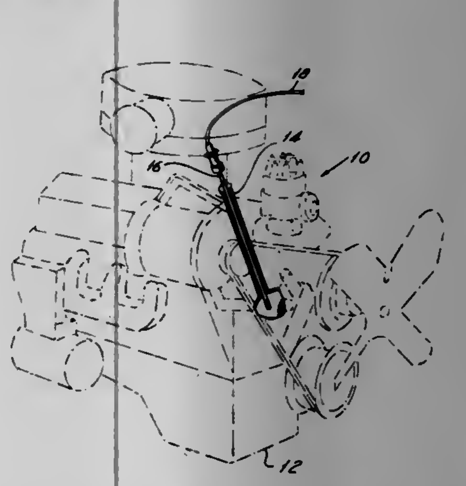


A microfiche duplicator adapted to make single or multiple copies of an original microfiche sheet using roll or sheet supply diazo or vesicular films, with the former developed by the use of either an aqueous or anhydrous developing agent, and providing automatic registration, handling and separation of original and copy sheets in which the original microfiche as well as copies thereof are conveniently returned to the front of the apparatus.

3,836,253
INTERNAL COMBUSTION ENGINE COOLANT SYSTEM LEAK DETECTION METHOD

Alex D. Colvin, Oak Park, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Feb. 28, 1973, Ser. No. 336,593
Int. Cl. G01n *21/26, 21/48*
U.S. Cl. 356—70 **8 Claims**

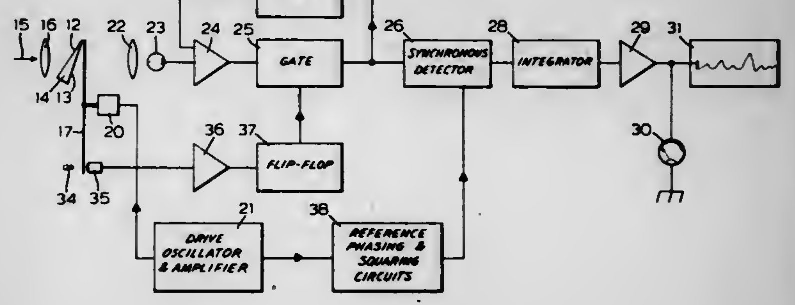


This invention involves an apparatus and method for measuring the light reflecting capability of the lubricant in the lubricating system of the internal combustion engine as a measure of the integrity of the coolant system of the engine. The method involves operating the engine with a substantially water-free lubricant such as oil for a period of time sufficient to permit contamination of the oil in the event a coolant system leak exists and thereafter measuring the light reflective ability of the oil with increased light reflective capability being indicative of a coolant system leak. By situating a light source and a light sensing means axially displaced one from the other on a slender probe, the probe may be inserted into the oil dip stick passage of the engine to a depth sufficient to submerge the light source and the light sensing means and rotation of the probe about its longitudinal axis will eliminate light reflection from internal engine structure from giving false reading. Suitable filtering of the light source will also reduce reflection induced reading. A suitable calibrated electrical readout system may provide a direct reading of the magnitude of a suspected coolant leak or a go-no go indication.

3,836,254
OPTICAL CORRELATOR WITH OPTIMIZED MAXIMUM AND MINIMUM CORRELATION MASKS

Anthony Rene Barringer, Willowdale, Ontario, Canada, assignor to Barringer Research Limited, Ontario, Canada

Filed Dec. 15, 1969, Ser. No. 885,387
Int. Cl. G01j *3/00, 3/42;* **G01b** *9/02*
U.S. Cl. 356—74 **6 Claims**


AGC
GATE
SYNCHRONOUS DETECTOR
INTEGRATOR
FLIP-FLOP
DRIVE OSCILLATOR & AMPLIFIER
REFERENCE PHASING & SQUARING CIRCUITS

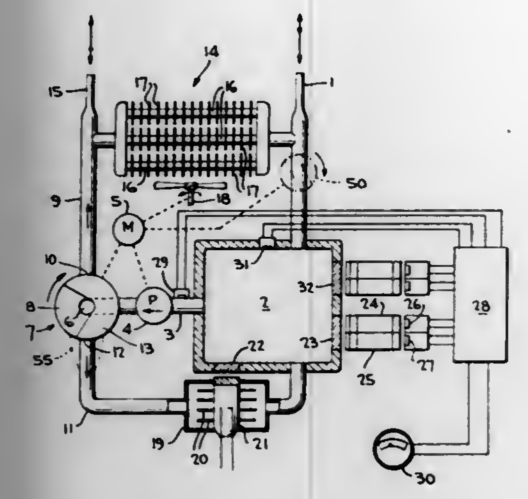
An optical correlator having an optical wedge or other device for producing a spatially dispersed pattern of light in a plane, the light being characterized by zones of relatively high intensity and low intensity corresponding to spectra present in the incident light or the Fourier transform thereof. The dispersed light is alternately or simultaneously passed through a first mask having a pattern of opaque and transparent regions or lines positioned to correlate with the zones of relatively high intensity light and a second mask having a plurality of opaque and transparent regions or lines positioned to correlate with the relatively low intensity zones of light. A photodetector examines the light passing through the masks and produces and output signal which can be analyzed to determine the character of the incident radiation.

3,836,255
SPECTROMETRIC SUBSTANCE ANALYZER EMPLOYING TEMPERATURE MODULATION

Mark Schuman, 101 G. St., S.W. Apt. 516, Washington, D.C. 20024

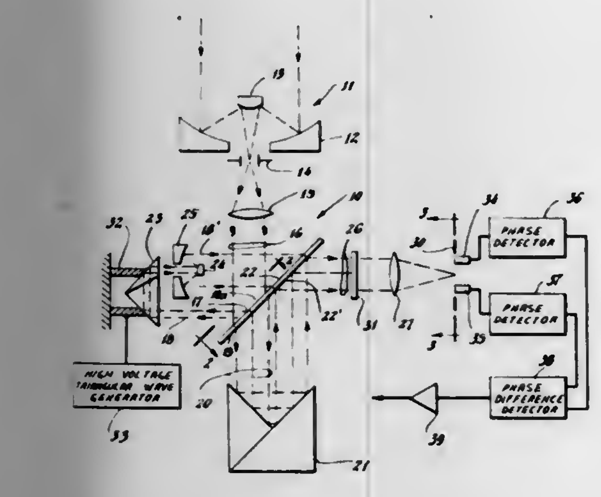
Continuation-in-part of Ser. No. 241,742, April 6, 1972. This application Dec. 29, 1972, Ser. No. 319,729
Int. Cl. G01j *3/30;* **G01n** *21/34*
U.S. Cl. 356—85 **70 Claims**

A spectrometric substance analyzer includes an optical chamber containing fluid that is cyclically temperature modulated at substantially constant pressure. The fluid is supplied via recirculating circuits to the chamber from hot and cold sources that are cyclically connected to the chamber so that at any time only one of the sources is in recirculating fluid flow relationship with the chamber.



3,836,256
INTERFEROMETER FOR TESTING TELESCOPE OPTICS

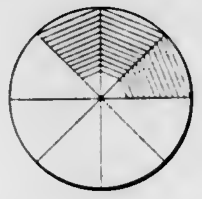
William N. Peters, Ridgefield, Conn.. assignor to The Perkin-Elmer Corporation, Norwalk & Conn.
Filed May 8, 1972, Ser. No. 251,305
Int. Cl. G01b *9/02*
U.S. Cl. 356—109 **9 Claims**


HIGH VOLTAGE TRIANGULAR WAVE GENERATOR
PHASE DETECTOR
PHASE DETECTOR
PHASE DIFFERENCE DETECTOR

This is an interferometer of Twyman-Green type adapted for testing the optics of a stellar telescope. Coherent light from a source, such as a star, through the telescope is collimated and divided into a reference beam, and a main beam, which are, respectively, a fractional cross-sectional area of the collimated beam, and the remaining cross-sectional area thereof. The reference beam is expanded to be the same diameter as the main beam by an afocal telescope and the two are then combined in superimposed relation. The optical path lengths of the reference and main beams are made approximately the same and means is provided for cyclically lengthening and shortening the length of one of them at a predetermined rate so that one of the paths is cyclically shorter than, equal to and longer than the other. The combined beams are filtered and focussed to image the telescope pupil (usually the primary mirror) in a plane, and at least a pair of photodetectors in this plane detect the light respectively at different points on the image, and produce signals proportional to the light received. The signals from the respective photodetectors are compared as to phase when the signal is sinusoidal, or time delay when the signal is a pulse, to detect the deviation of the wavefront exiting the telescope from the ideal wavefront, such deviation being linearly proportional to aberrations of the telescope resulting from poor optical figure on the individual optical elements or misalignment of the telescope optics.

3,836,257
METHOD FOR OPTICAL DETECTION AND/OR MEASUREMENT OF MOVEMENT OF DIFFRACTION GRATING

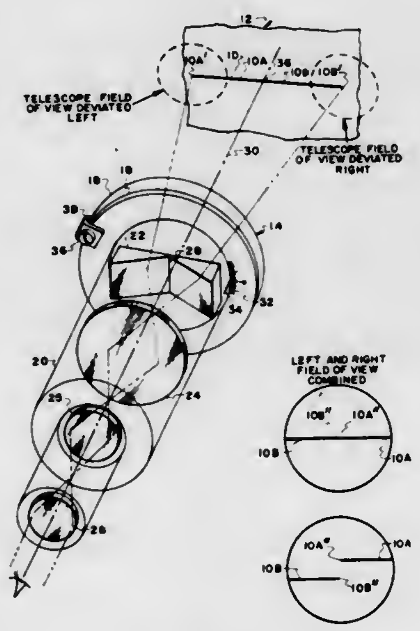
Kazuya Matsumoto, Kanagawa-ken, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 104,006, Jan. 5, 1971, Pat. No. 3,726,595. This application Nov. 20, 1972, Ser. No. 308,124
Int. Cl. G01b *9/02*
U.S. Cl. 356—111 **4 Claims**



A method for optical detection and/or measurement of movement of a diffraction grating which is characterized in that the vertical movement of the diffraction grating in respect to a standard parallel beam is detected based on variation in interference fringes produced by diffracted waves from the grating moving in the standard parallel beams.

3,836,258
ANGULAR ORIENTATION MEASURING APPARATUS

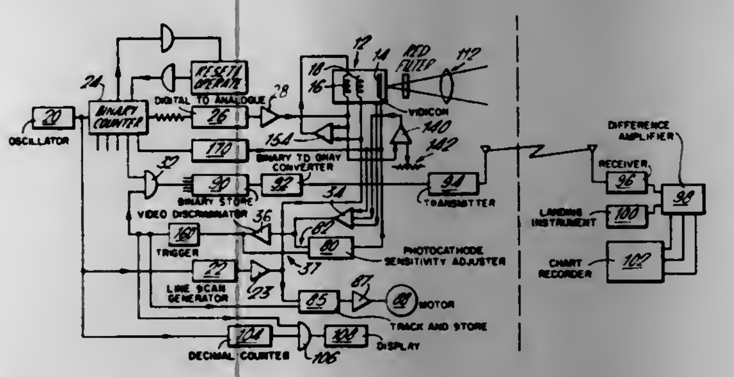
Henry C. Courten, Commack, and Joseph P. Mattal, Smithtown, both of N.Y., assignors to Grumman Aerospace Corporation, Bethpage, Long Island, N.Y.
Filed Dec. 15, 1972, Ser. No. 315,486
Int. Cl. G01b *11/26*
U.S. Cl. 356—138 **7 Claims**


TELESCOPE FIELD OF VIEW DEVIATED LEFT
TELESCOPE FIELD OF VIEW DEVIATED RIGHT
LEFT AND RIGHT FIELD OF VIEW COMBINED

An optical device using a wedge deviation technique for the measurement of the angular orientation about the axis of rotation of one body relative to another. The device employs a passive target, which may be a linear reticle, on one body and optical measuring means on the second body. The measuring means has an optical element such as a prism assembly to split the image of spaced apart portions of the linear target into two transposed halves which are viewed by suitable means such as a telescope. An optical wedge assembly centered in the line of sight on the axis of rotation between the telescope and the target can be used as the optical element. When the target reticle lies in the plane described by the optically deviated split field of view of the telescope, an unbroken line is perceived through the telescope. When rotation about the line of sight occurs in one body with respect to the other, a linear displacement of one half of the split image of the target with respect to the other occurs. The amount of rotation of the optical measuring means required to bring the split image back into coincidence is correlated against a calibrated scale to give an indication of the amount of angular displacement about the axis of rotation that had occured. In a further embodiment, an arrangement of mirrors rather than a wedge assembly is used to produce the split image in the optical measuring means.

3,836,259
APPARATUS FOR TRACKING A LUMINOUS OBJECT

Frank Bernard Roy Partridge, Mentone, Victoria, Australia, assignor to Commonwealth of Australia, C/- the Department of Civil Aviation, Melbourne, Victoria, Australia
Filed Mar. 29, 1972, Ser. No. 239,220
Claims priority, application Australia, Apr. 8, 1971, 4551/71
Int. Cl. G01c *1/00*
U.S. Cl. 356—152 **23 Claims**

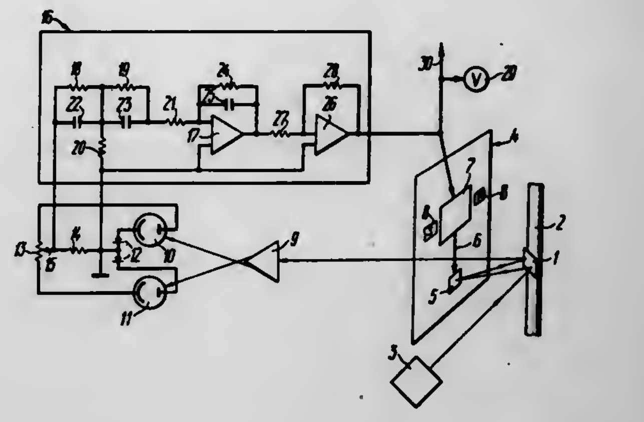


Apparatus for tracking a lamp in the nose of an aircraft calibrating an instrument landing system comprising a vidicon tube, a scanning arrangement for causing scanning the vidicon photocathode along parallel lines and including a frame scan generator controlled by a binary counter so that the instantaneous condition of the counter determines the line being scanned, a sighting device aligned with the vidicon so that a reference line of the scan can be aligned in a predetermined orientation relative to an aircraft landing approach path and discriminator means arranged to select from the vidicon output a pulse representing the lamp image which pulse causes read out of the counter to identify a scan line intersecting said image, displacement of the identified scan line from the reference line representing angular deviation of the lamp from said orientation as viewed by the vidicon.

3,836,260
QUICK RESPONSE ANGLE TRANSDUCER

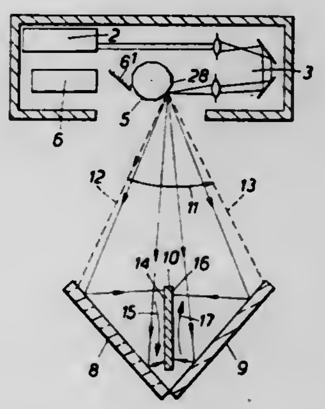
Lev Petrovich Ulyanov, Eropkinsky pereulok, 7, kv. 6, Moscow, and Alexei Kuzmich Karelin, Novomytischensky prospekt, 33, korpus 3, kv. 75, Moskivskoi oblasti, Mytischi, both of U.S.S.R.
Filed May 8, 1973, Ser. No. 358,362
Int. Cl. G01b *11/26*
U.S. Cl. 356—152 **1 Claim**

A quick-response transducer of angles of rotation of various members and devices about their axes comprising a mirror mounted on an axle, a collimated light beam source, a reflecting prism, two differentially connected photocells with a common load, a d.c. voltage amplifier, a galvanometer with mirror which is fixed by means of a holder to the galvanometer's movable frame and is optically associated with the axle-mounted mirror, the galvanometer being arranged in direct proximity to the axle-mounted mirror in order to extend the range of the measured angles of rotation of members and devices about their axes, wherein the movable frame of the galvanometer is coupled to the output of the d.c. voltage amplifier.



3,836,261
DEVICE FOR DETECTION OF BLEMISHES ON OPPOSITE FACES OF A PLANAR OBJECT

Graham Morley Clarke, Edinburgh, Scotland, assignor to Ferranti Limited, Hollinwood, England
Filed July 18, 1973, Ser. No. 380,216
Claim priority, application Great Britain, July 29, 1972, 35610/72
Int. Cl. G01n *21/16;* **G01b** *11/00;* **G01n** *21/48*
U.S. Cl. 356—200 **7 Claims**

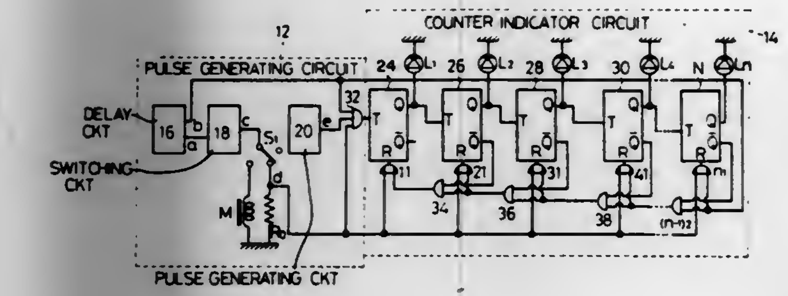


A detector of blemishes in opposite faces of a substantially planar object or web comprises a scanning station past which the object moves, the scanning station including a laser, a lens system to focus the beam onto the surface and a detector to receive light diffusely reflected from the surface and to produce a blemish signal when a change is detected in the amount of light reflected. The scanning station is arranged with respect to the object so that the beam scans in a direction normal to the plane of the object and mirrors are provided, inclined to each face of the object such that the scanning beam strikes each mirror in turn and is reflected therefrom to scan both faces of the object.

3,836,262
INDICATOR CIRCUIT

Kotaro Yata, and Motonobu Matsuda, both of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed June 29, 1972, Ser. No. 267,615
Claims priority, application Japan, July 7, 1971, 46-49608; July 7, 1971, 46-49609
Int. Cl. G01j *1/44*
U.S. Cl. 356—226 **13 Claims**

Apparatus is disclosed for measuring and providing an indication of illumination, comprising a delay circuit including a light-receiving element and a capacitor, for integrating the quantity of light in accordance with illumination incident on the light-receiving surface of the light-receiving element; a switching circuit actuated by an output signal from the delay circuit; a pulse generator circuit generating pulses of a constant frequency; and a counter circuit comprising a plurality of binary counter circuits disposed in cascade connection, in which the counter circuit is provided with counting elements corresponding to all digits and indicating luminescent diodes connected to output terminals of the counting elements. The counter circuit initiates the counting of the pulses derived from the pulse generator circuit in accordance with illumination incident on the light-receiving surface of the light-receiving element, and the delaying operation of the delay circuit. The counting circuit counts the number of the pulses in a period of time until the switching circuit is actuated, thereby providing a digital indication of a set analog value.

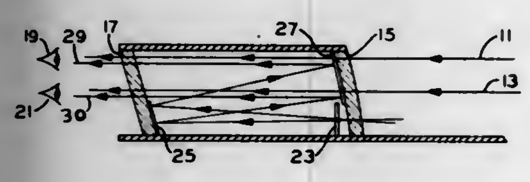


3,836,263
IMPROVED REFLEX SIGHT HAVING A FREQUENCY SELECTIVE COLLIMATING BEAM COMBINING MIRROR

Glenn E. Rickert, Community State Bank, Huntington, Ind. 46750

Filed Nov. 19, 1969, Ser. No. 878,021
Int. Cl. G02b *23/10*

U.S. Cl. 356—251 **5 Claims**



A gunsight is disclosed which provides a collimated image of a reticle, which reticle is lighted by ambient light. This image and the view of a target are combined by a frequency selective beam combining device such as a dichroic mirror. The frequency selective combination causes the reticle to appear to an observer in a color which contrasts with the target. Collimation and the frequency selective combination are simultaneously achieved using a dichroic concave mirror having either a spherical or a parabolic curvature.

3,836,264
MECHANICAL PENCIL

Akio Saito; Kiyohiko Fukazawa, and Yukitoshi Motoyama, all of Kanagawa, Japan, assignors to Mitsubishi Pencil Co., Ltd., Tokyo, Japan

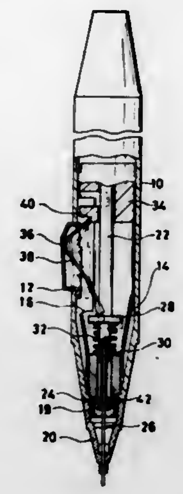
Filed Feb. 15, 1973, Ser. No. 332,744

Claims priority, application Japan, Feb. 15, 1972, 47-17964; Mar. 22, 1972, 47-33139; May 2, 1972, 47-51145

Int. Cl. B43k *2/16*

U.S. Cl. 401—65 **5 Claims**

In a mechanical pencil an extension of lead is carried out by a resilient means operatively arranged in a side portion of a body casing. The resilient means comprises a push means and a force translating means cooperative with said push means and adapted to translate a radial force manually applied to the push means into an axial force for urging a lead tube downwardly thereby to extend the lead from a cap nozzle threadedly connected to a tip of the pencil body.



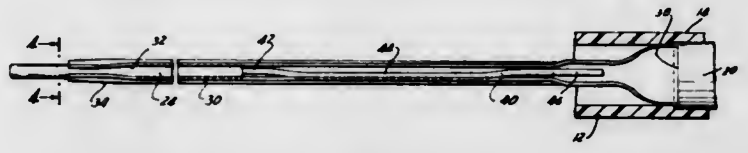
3,836,265
DISPOSABLE MECHANICAL PENCIL ASSEMBLY

Marvin Kapilow, 8 Sound Rd., Rye, N.Y.

Continuation-in-part of Ser. No. 257,357, May 26, 1972, Pat. No. 3,771,882. This application May 14, 1973, Ser. No. 360,070The portion of the term of this patent subsequent to Nov. 13, 1990, has been disclaimed.

Int. Cl. B43k *21/06*

U.S. Cl. 401—80 **16 Claims**



A disposable mechanical pencil includes a tubular barrel having a forward tapered end through which the lead is adapted to project. A tube which receives this lead is disposed interiorly of the barrel and in substantially concentric relation therewith. This tube is generally U-shaped with a forward pinched end for resiliently engaging the lead and preventing it from falling out of the tube. The rear end of the tube includes a laterally projecting arm which engages with inner surfaces of the barrel and cooperates therewith in centering the tube within the barrel. A carrier including a forward end within the tube in engagement with the lead acts to shift the lead forwardly out of the barrel when a laterally projecting handle is manually actuated. The handle is adapted to move through aligned slots in both the barrel and the tube and also serves as an indicator for the amount of lead remaining within the tube. The carrier is provided with a resistance means in the form of a bend, surfaces of which engage the interior of the tube thereby preventing the lead from being pushed back into the tube under normal writing pressure.

3,836,266
TUBE WRITING PEN

Ewald Lorenz, Uelzen; Wilhelm Schlink, Anderten; Bruno Kunzler, Koldingen, and Klaus-Dieter Goltermann, Hannover-Kleefeld, all of Germany, assignors to Koh-I-Noor Rapidograph, Inc., Bloomsbury, N.J.

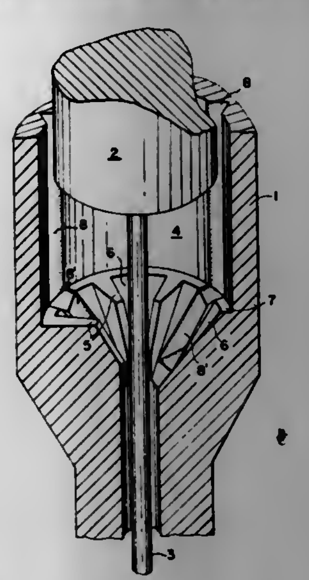
Filed July 20, 1973, Ser. No. 381,316

Claims priority, application Germany, July 21, 1972, 2235880; May 24, 1973, 2326431

Int. Cl. B43k *1/06, 1/10*

U.S. Cl. 401—259 **7 Claims**

Capillary writing pens of the type having a housing defining a reservoir which communicates with a capillary writing tube extending through the lower end of the housing. The reservoir is characterized by the definition of a plurality of radially spaced capillary grooves extending inwardly from the walls of the reservoir into the writing tube, so as to suspend writing ink, regardless of inversion of the pen and to enhance flow from the reservoir into the writing tube. The writing grooves may be defined in a frustum at the lower end of the reservoir and, as well, may extend longitudinally along the walls of the reservoir into the frustum.



3,836,267
FITTING FOR RELEASABLY CONNECTING TWO PARTS, ESPECIALLY FURNITURE PARTS

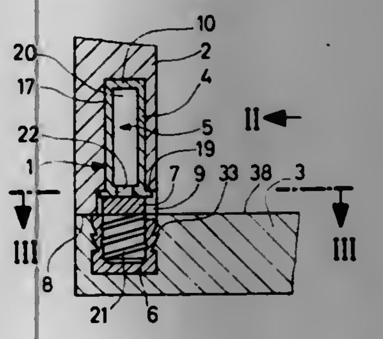
Gerold Schatz, Ostdeutsche Str. 45, 732 Plochingen, Germany

Filed Apr. 23, 1973, Ser. No. 353,626

Claims priority, application Germany, Apr. 27, 1972, 2220675

Int. Cl. F16b *12/10*

U.S. Cl. 403—17 **24 Claims**



A fitting for releasably connecting two parts, especially furniture parts, with each other in which a socket provided with an inner screw thread is fixed in a bore of one part and in which a shaft is turnably but axially immovably mounted in a shell fixed in a bore in the other part axially aligned with the bore in the one part. The shaft has a portion projecting axially beyond the shell and provided with an outer screw thread for threading engagement with an inner screw thread of the socket. An actuating member in form of a lever is fixed to the shaft and projects radially therefrom adjacent the open end of the shell for turning the shaft and the threaded portion projecting therefrom for threadingly engaging the thread on the projecting portion with that of the socket.

3,836,268
SWIVEL ASSEMBLY

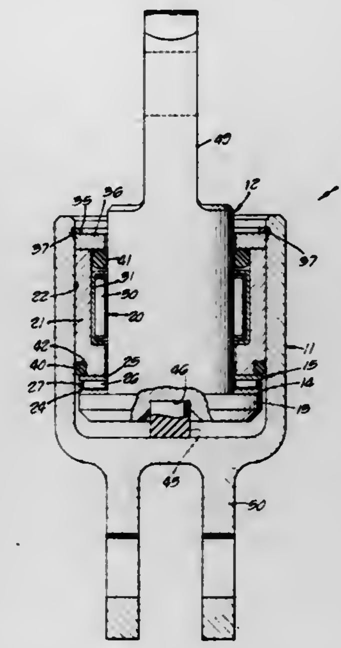
Arnold F. Behnke, Rosemead, Calif., assignor to Kay-Brunner Steel Products, Inc., Los Angeles, Calif.

Filed Mar. 26, 1973, Ser. No. 344,590

Int. Cl. F16c *17/00;* **B25c** *3/18*

U.S. Cl. 403—165 **10 Claims**

A swivel assembly adapted for use under tension and comprising a flanged rotor sealed within a cup-shaped housing along with a combined thrust and radial bearing unit held assembled by self-locking keeper means. The thrust bearing is maintained preloaded under conditions effective to retain the components locked against disassembly.



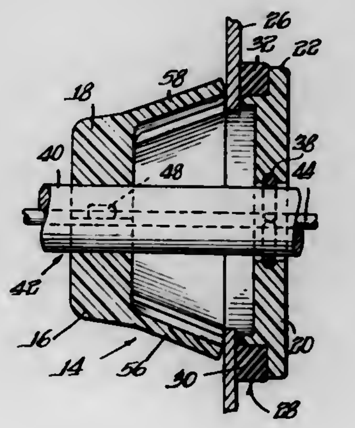
3,836,269
CABLE SEALING GROMMET

Richard Allen Koscik, Schaumburg, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Sept. 26, 1973, Ser. No. 400,961

Int. Cl. F16b *9/02*

U.S. Cl. 403—197 **8 Claims**



The present invention relates generally to improvements in grommets of the type adapted to accommodate cables and more particularly to grommets adapted to sealingly encircle a cable and designed for assembly after the cable has been mounted in position. The present invention has a very practical application for use with a hood release cable which traverses the fire wall of an automobile. The sealing and strain relief grommet disclosed herein includes a pair of similar hingedly connected plastic sections, each of said sections presenting a peripheral surface conforming substantially with one half of a cone periphery. Sealer sections for engaging one side of a work piece or panel are secured as a unit to complementary flange sections of the plastic half conical sections. Yieldable abutment means associated with the plastic half sections serve to resist axial dislodgment of the grommet after complete insertion thereof within a panel aperture.

3,836,270

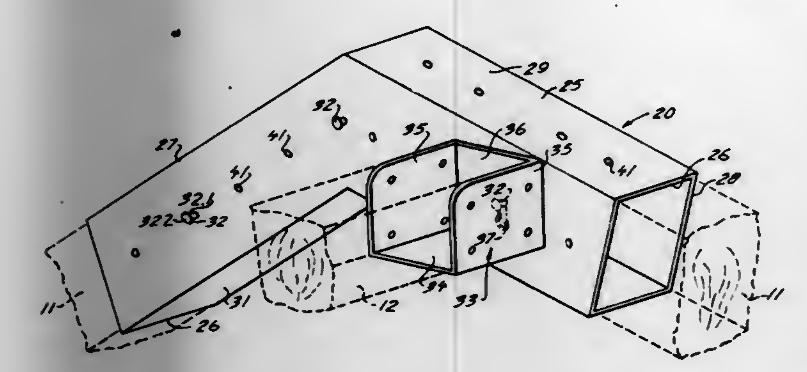
FRAMEWORK CONNECTOR

John Frederick Chambers, Suite 209-912 Berkeley Rd., North Vancouver, British Columbia, Canada

Filed Dec. 18, 1972, Ser. No. 316,123

Int. Cl. E04c *1/28*

U.S. Cl. 403—218 **2 Claims**



A connector assembly connecting frame members of a frame structure having a sleeve into which an end of one frame member slidably fits. The sleeve has a plurality of longitudinally spaced buttons each of which can releasably engage a chair which receives an end portion of another frame member for connecting both frame members at right angles to each other.

3,836,271

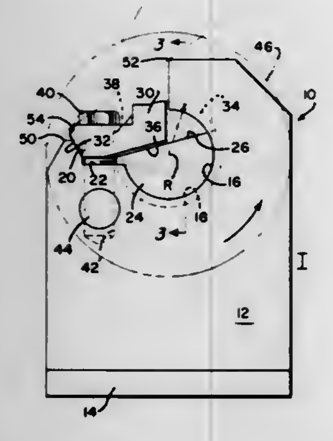
SHAFT MOUNTING MEANS

William D. Coski, Mercer Island, Wash., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Mar. 5, 1973, Ser. No. 338,372

Int. Cl. B25g *3/00;* **F16b** *7/00, 9/00*

U.S. Cl. 403—355 **9 Claims**



The means comprises a pair of spaced-apart walls which have arcuate recesses therein for receiving the flatted ends of an earth cutter shaft.

Retainers fit across the flats formed in the ends of the shaft and are secured within the recesses and against camming surfaces of the walls. In response to any unwanted undesirable rotation of the shaft, the retainers rotate relative to an axial center of the shaft to force ends thereof, which abut the camming surfaces more securely into the recesses so that the retainer is jammed or wedged in place. This results in positively inhibiting further rotation of the shaft.

3,836,272

CONNECTING DEVICE WITH EXPANDING SPLINES

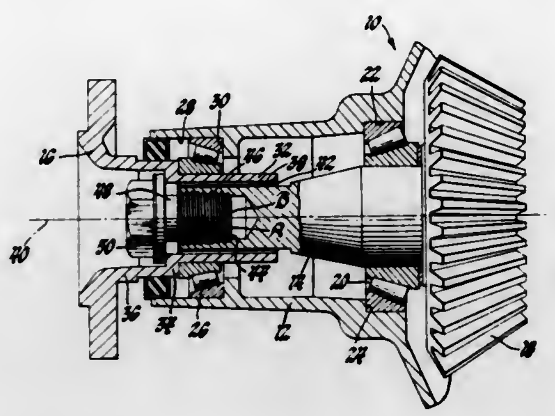
Morris J. Duer, Lansing, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 2, 1973, Ser. No. 375,918

Int. Cl. F16b *7/00*

U.S. Cl. 403—359 **1 Claim**

A bearing arrangement for a shaft has duplex bearings preloaded by a companion member drivingly connected to the shaft. Cooperating, straight, relatively slidable splines on the companion member and shaft are urged into an interference fit by a tapered plug threaded into and resiliently expanding the bored, splined end of the shaft. Removal of the plug automatically releases the interference fit thereby facilitating removal of the companion member and disassembly of the bearing arrangement.



3,836,273

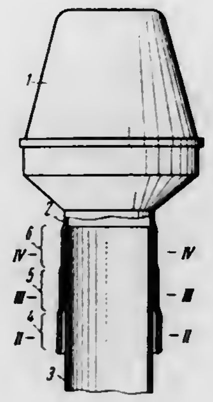
DETACHABLE TELESCOPIC JOINT

Anatoly Lvovich Gutman, ulitsa Eniseiskaya, 6, kv. 14; Vladimir Alexandrovich Presman, 2 pereulok Kozlova, 8, kv. 10, both of Minsk; Leonid Mikhailovich Abramov, Chilanzar, kvartal V15, dom 28 "b", kv. 23, and Jury Stepanovich Shokurov, Chilanzar, kvartal V21, dom 7, kv. 59, both of Tashkent, all of U.S.S.R.

Filed Dec. 28, 1973, Ser. No. 429,370

Int. Cl. F16b *7/10*

U.S. Cl. 403—377 **1 Claim**



In the joint, an element made of resilient material has at least three portions gradually converting from one into other, wherein the middle one of them is circular-shaped in its cross-section, while the extreme ones are oval-shaped, and their similar axis are crossing.

3,836,274

SELF-ALIGNING, MITER JOINT CONNECTING MEANS

Alexander Heuschen, Troisdorf; Hans Schaefer, Cologne; Wolfgang Budich; Robert Krah, both of Troisdorf-Sieglar, and Karl Obermeier, Rheidt/Troisdorf, all of Germany, assignors to Dynamit Nobel AG, Troisdorf, Germany

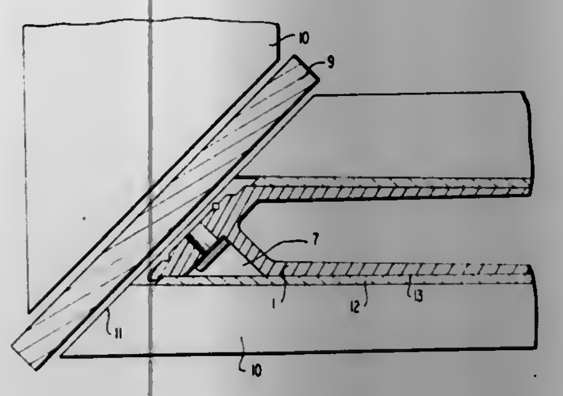
Filed Mar. 21, 1972, Ser. No. 236,639

Claims priority, application Germany, Apr. 1, 1971, 2115794

Int. Cl. F16b *7/00*

U.S. Cl. 403—401 **11 Claims**

Corner joint made up of miter-cut hollow profile members of plastic with or without an internal metallic reinforcing frame and with connectors introduced at the corners of the hollow profile member and likewise fitted in a miter-like way, characterized in that the connector is formed, on the miter surface, with grooves and projections of a minor depth and/or height, respectively, which are associted in a manner offset by 180° in mirror symmetry.



3,836,275

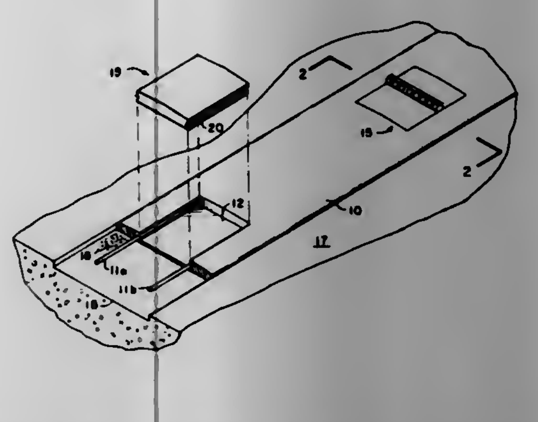
ROADWAY MARKER DEVICE

Dan Milton Finch, 200 Arlington Ave., Kensington, Calif. 94707

Filed Mar. 31, 1972, Ser. No. 240,155

Int. Cl. E01f *9/06*

U.S. Cl. 404—13 **2 Claims**



A roadway marker system for improved wet-night visibility where snow plowing is prevalent in which a preformed strip is provided with recesses into which inserts can be placed, the inserts being provided with reflector elements, electrically activated light emitting devices, electrical heating elements, electrically activated infra-red radiation emitting devices, or radioactive light emitting elements. Electrical conductors are also embedded in the strip to supply power to the inserts.

3,836,276

APPARATUS FOR MACHINING WORK-PIECES

Jean Cloup, 33-Latresne, France

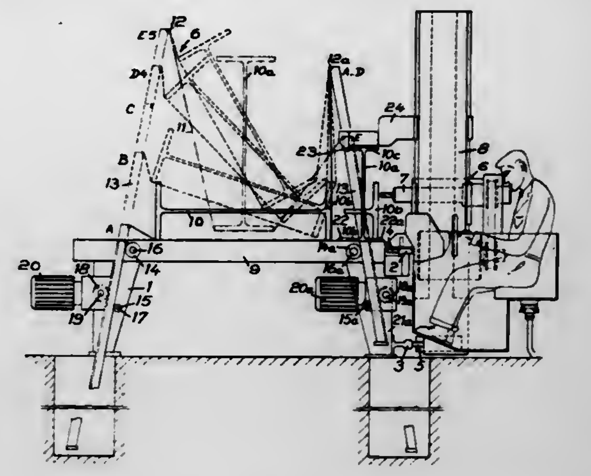
Filed Aug. 21, 1972, Ser. No. 282,065

Claims priority, application France, Apr. 18, 1972, 72.13657

Int. Cl. B23b *39/06*

U.S. Cl. 408—67 **13 Claims**

Apparatus for orienting a work-piece, particularly a metal girder and holding it in position ready for machining, particularly drilling, comprises a machining unit displaceable with respect to a fixed bed. At least one deformable member is provided on which the work-piece rests and this member is fixed by its two ends to the tops of two substantially vertical bars. These bars are capable of sliding vertically and independently with respect to the bed and the latter includes a table on which the work-piece rests. The table is arranged in front of the machining unit. The deformable member or members generally comprise chains, but may be cables either of metal or textiles. Different means for clamping the work-piece are described.



3,836,277

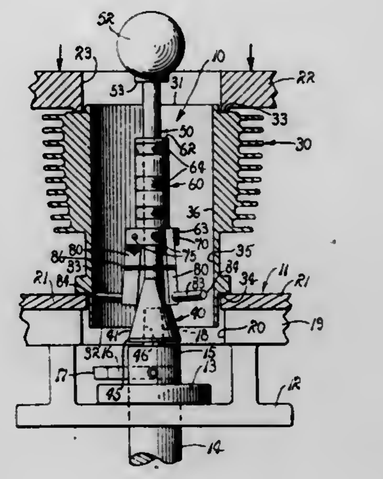
CENTERING TOOL

Daryl G. Brooks, Fresno, Calif., assignor to Porta-Tool, Incorporated, Clovis, Calif.

Filed June 4, 1973, Ser. No. 366,865

Int. Cl. B23b *49/00*

U.S. Cl. 408—75 **7 Claims**



A work object centering tool having a socket mount with a conical exterior surface defining a longitudinal axis, an elongated rod secured on the mount in alignment with the axis, a slide member received on the rod, three arms pivotally secured on the slide member, an extension individually borne by each arm in substantial right angular relation thereto, and springs interconnecting the arms tensionably to retain the arms in contact with the surface of the mount over a predetermined path of movement with the remote ends of the extensions in a plane substantially normal to the axis of the mount and approximately 120° apart in the plane.

3,836,278

TAPERED DRILL BIT

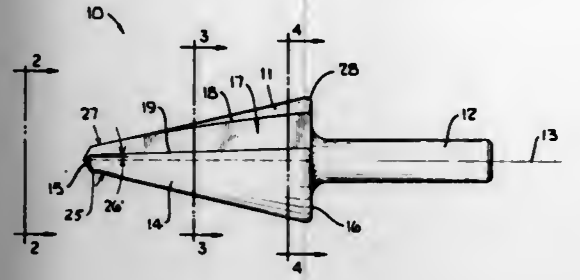
Alexander G. P. McInnes, Indianapolis, Ind., assignor to International Research and Development Corporation, Indianapolis, Ind.

Filed Dec. 14, 1972, Ser. No. 315,077

Int. Cl. B23b *51/00*

U.S. Cl. 408—199 **2 Claims**

A tapered drill bit for cutting round holes of different diameters in a sheet of material. The bit includes a main body integrally attached to a drive shank, said body and shank having an axis of rotation and being rotatable in a direction of rotation. A slot interrupts the perfectly smooth outer surface of the main body extending from the main body tip rearwardly to an enlarged opposite end. A leading noncutting edge and a trailing cutting edge extend lengthwise along the side of the slot. The slot includes a round undercut surface which extends from the cutting edge beneath the outer surface in a direction opposite the direction of rotation and then back towards the noncutting edge.



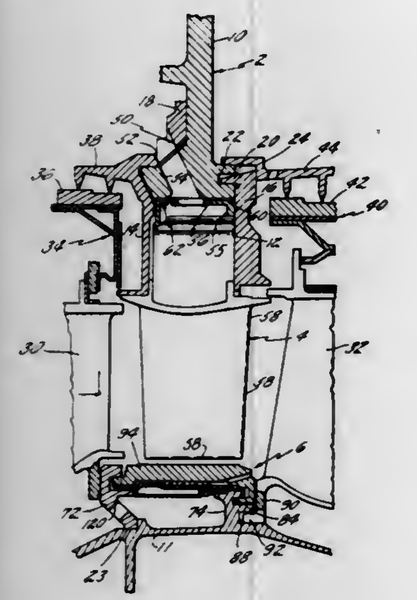
3,836,279
SEAL MEANS FOR BLADE AND SHROUD

Richard E. Lee, West Palm Beach, Fla., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Feb. 23, 1973, Ser. No. 335,213

Int. Cl. F01d *5/18, 5/30, 5/08*

U.S. Cl. 415—116 **5 Claims**



A turbine engine construction having a disc assembly with blades mounted therearound and a shroud construction for encompassing the ends of the blades. A sheet metal blade root seal is provided between the root of each blade and its cooperating slot in the disc for sealing cooling passages passing between the disc and blade. Each seal also holds its cooperating blade radially outward in its slot in the disc. A sheet metal shroud seal is provided between flange means on the engine casing and a liner on a rub strip seal member for sealing cooling passages passing through the flange means and liner. Each seal also holds the rub strip member radially inward.

3,836,280
MOLTEN METAL PUMPS

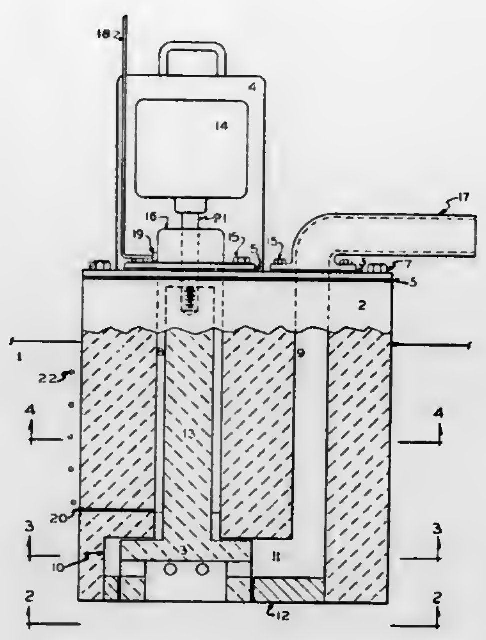
Fenton C. Koch, Chesterland, Ohio, assignor to High Temperature Systems, Inc., Newbury, Ohio

Filed Oct. 17, 1972, Ser. No. 298,415

Int. Cl. F04d *7/00, 7/02, 29/10*

U.S. Cl. 415—175 **1 Claim**

A pump having a pumping chamber, an impeller shaft enclosed in a shaft bore communicating with the chamber, and an impeller carried on a shaft in the chamber is partially immersed in liquid so that the shaft bore extends down to the chamber from a location above the liquid, and the shaft bore is pressurized with an inert gas to counteract the pressure of the liquid head and the pumping pressure and thereby prevent the liquid from rising in the bore around the shaft.



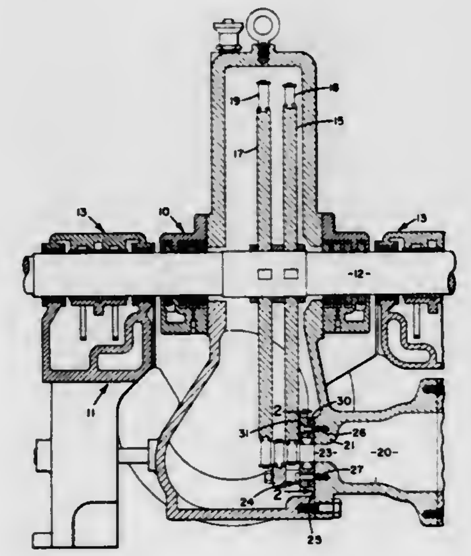
3,836,281
NOZZLE STRUCTURE FOR STEAM TURBINES

Charles C. Czuszak, Greensburg, Pa., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Mar. 2, 1973, Ser. No. 337,620

Int. Cl. F01d *9/02, 9/04*

U.S. Cl. 415—217 **4 Claims**



The nozzle structure of this invention includes a pair of nozzle blade supporting plates arranged in overlying relation. The plates are formed with an arcuate opening arranged in registration with a similar shaped passage in the wall of the steam chamber. The plates are formed with a recess in opposite side surfaces of the opening therein. Nozzle blades are positioned in the opening and have end portions extending into the recess. Spacers are also mounted in the recess between the end portions of the blades and are shaped to space the blades apart at the desired angle. The end portions of the blades and the spacers are clamped between plates and the plates are clamped against the wall of the steam chamber.

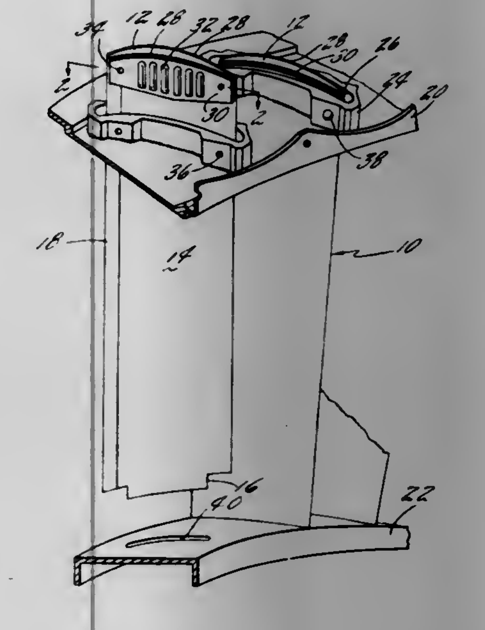
3,836,282
STATOR VANE SUPPORT AND CONSTRUCTION THEREOF

William Mandelbaum, Bloomfield, and John A. Violette, Granby, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Mar. 28, 1973, Ser. No. 345,808

Int. Cl. F01d *5/10*

U.S. Cl. 415—217 **4 Claims**



A deformable and expandable metal support formed from a thin sheet metal mounted between the stator or fixed vane and the wall of the complementary recess formed in the engine casing or shroud provides an interference fit for supporting the vane therein. A plurality of spaced elongated stamped-out depressions spaced chordwise relative to the vane and extending into the slot formed in the support structure carry a lead-in ramp and by virtue of press fitting therein said depressions are expanded laterally and deformed and when in the deformed condition provide a stiff zero clearance joint.

3,836,283
CONSTRUCTION OF AXIAL-FLOW TURBINE BLADES

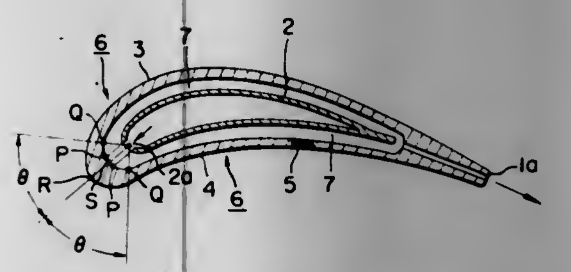
Masakatsu Matsuki, and Toyoaki Yoshida, both of Tokyo, Japan, assignors to The Director of National Aerospace Laboratory of Science and Technology Agency, Masao Yamanouchi, Tokyo, Japan

Filed Dec. 11, 1972, Ser. No. 313,843

Claims priority, application Japan, May 8, 1972, 47-44663

Int. Cl. F01d *5/18*

U.S. Cl. 416—96 **4 Claims**



Axial-flow turbine nozzles and moving blades which employ hollow blade means, the blades having a wall thickness distribution on both sides, suction side and pressure side, of the hollow portion which is selected in accordance with the distribution of effective local heat transfer coefficients along the blade surface in the chordwise direction, whereby the temperature distribution in said hollow blades responds almost uniformly to the temperature change of the motive fluid.

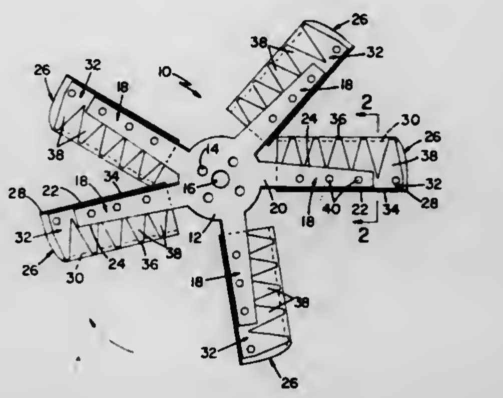
3,836,284
CONTROLLED DEFLECTION FLEXIBLE BLADED FAN

Allan W. DeJong, Chatham, Ontario, Canada, assignor to Fram Corporation, East Providence, R.I.

Filed Mar. 10, 1972, Ser. No. 233,479

Int. Cl. F04d *29/38*

U.S. Cl. 416—132 **9 Claims**



A flexible bladed fan having radially extending blades transversely curved from upstream to downstream and having a support member on the upstream side of each blade, curved in the same direction as said blade, said support member having a larger radius than that of said blade, the leading portions of the blade and support member being tangent, the trailing portion of said support member radially discontinuous and spaced from said blade.

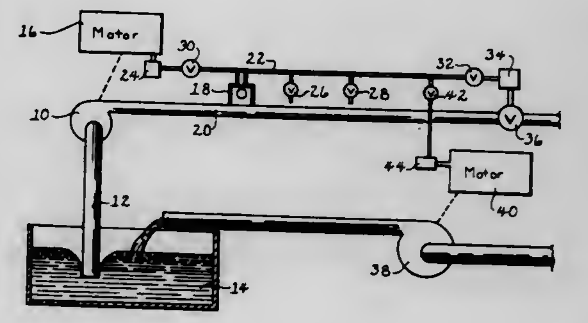
3,836,285
WATER REGULATOR AND POWER GOVERNOR

Rufus J. Purtell, Brownfield, Tex., assignor to Tri-Matic, Inc., Brownfield, Tex.

Filed Dec. 7, 1972, Ser. No. 311,706

Int. Cl. F04b *49/04, 49/00*

U.S. Cl. 417—34 **12 Claims**



Equipment detects the first small amount of air which is pumped from a liquid source and uses it for governing the power or liquid flow. This is accomplished by attaching an air separating relief vent to the discharge pipe of the pump. The vented pressurized air is captured and used to activate air driven cylinders which control the water flow or the power source by decreasing the speed of the pump or by choking the outlet of the pump or by increasing the fluid supply to the pump.

3,836,286
PROCESS FOR PUMPING LIQUID METALS BY A DRIVE EFFECT AND A PUMP IMPLEMENTING THIS PROCESS

Claude Malaval, Antony, France, assignor to Groupement Atomique Alsacienne Atlantique, Le Plessis Robinson, France

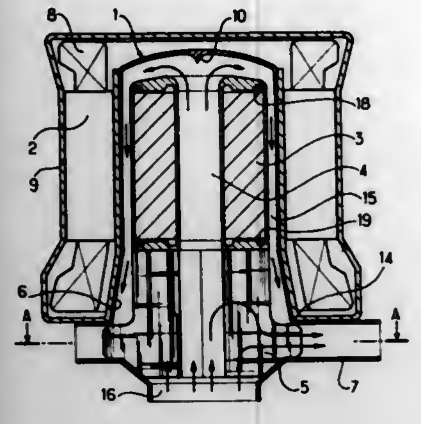
Filed Mar. 30, 1973, Ser. No. 346,385

Claims priority, application France, Mar. 30, 1972, 72.11245

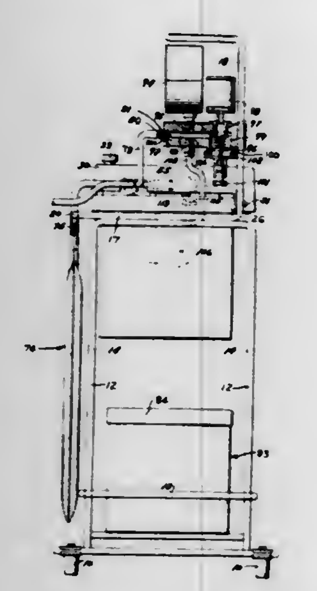
Int. Cl. F04f *1/18*

U.S. Cl. 417—50 **14 Claims**

A process for pumping liquid metals and a pump for implementing this process, providing a high flow rate at high pressure. By means of a rotating magnetic field created by applying a tension to the windings of the stator, the liquid metal contained in the bell is driven in rotation and ejected by the effect of centrifugal force onto a circular diffusion device with hollow blades, thus causing the liquid metal to be driven directly into the conduits limited by the blades.



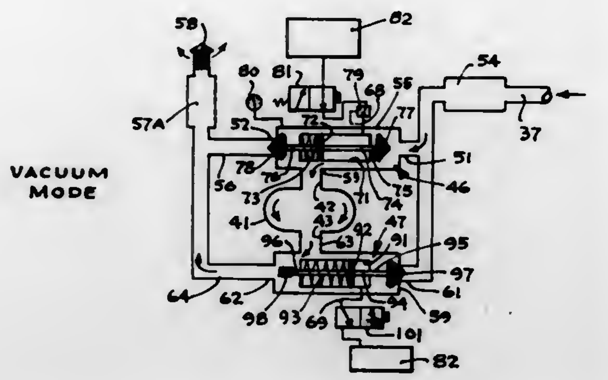
3,836,287
WOUND DRAINAGE EQUIPMENT
James R. Grosholz, Strafford; Charles L. Crowley, Hatboro, both of Pa., and Charles G. Hutter, III, Hollywood, Calif., assignors to Air-Shields, Inc., Hatboro, Pa.
Division of Ser. No. 850,440, Aug. 15, 1969, Pat. No. 3,675,653. This application Apr. 6, 1972, Ser. No. 241,658
Int. Cl. F04b *49/00, 43/08, 45/06*
U.S. Cl. 417—306 **6 Claims**



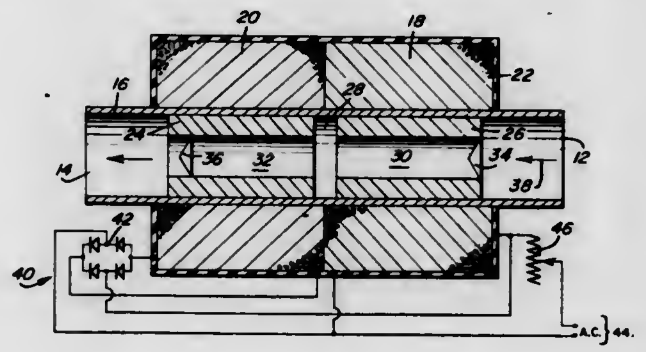
Pump provides for disposable drainage of body fluids by means of peristaltic action. Separate drainage kit comprises bag for collection of fluids. Tube leading from bag to catheter has a collapsible wall section having sufficient resilience so that periodic collapsing by rotatable pump element creates sufficient negative pressure within the tube to pump fluids to the bag. Slot loading and unloading of the tube is provided.

3,836,288
BLOWER CONTROL ASSEMBLY FOR VACUUM CONVEYOR SYSTEM
Arthur J. Evans, Northville, Mich., assignor to Whitlock, Inc., Framington, Mass.
Filed May 17, 1973, Ser. No. 361,233
Int. Cl. B65g *51/34, 53/28*
U.S. Cl. 417—307 **12 Claims**

A control assembly for the blower of a vacuum conveyor system, comprising a three-way fluid-pressure-actuated blower inlet valve connecting the blower inlet either to the conveyor system or to exhaust, a similar blower outlet valve connecting the blower outlet either to the conveyor system or to exhaust, and actuating means for actuating the valves, in coordination, to (A) a conveyor vacuum mode of operation with the blower inlet valve open to the conveyor system and the outlet valve open to exhaust, to (B) a conveyor pressure mode with the inlet valve open to exhaust and the outlet valve open to the conveyor system, and to (C) a conveyor idling mode, with both valves open to exhaust.



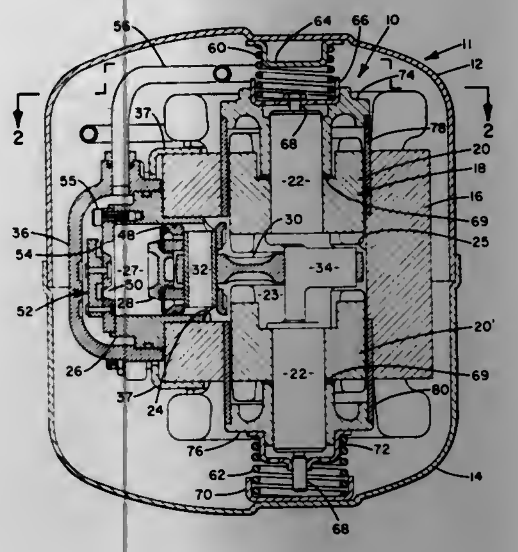
3,836,289
MAGNETIC PUMP
Earl W. Wolford, 2285 Forest St., Boulder, Colo. 80302, and Orville P. Frazee, 2744 Teller St., Lakewood, Colo. 80215
Filed Sept. 6, 1972, Ser. No. 286,726
Int. Cl. F04b *17/00*
U.S. Cl. 417—415 **14 Claims**



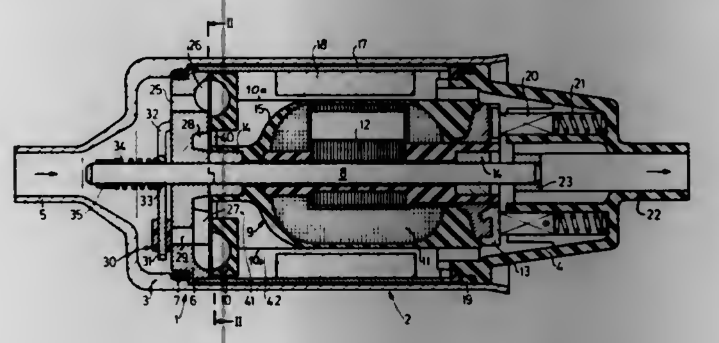
A pump device comprising at least two magnetizable members defining in part a fluid chamber disposed therebetween, means for generating magnetic fields of generally uniform flux through said magnetizable members along their respective lengths, whereby the magnetizable members are periodically polarized for attraction toward each other to effect pumping.

3,836,290
MOTOR COMPRESSOR UNIT
Thomas Carter, Baldwinsville, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.
Filed Apr. 2, 1973, Ser. No. 347,305
Int. Cl. F04b *17/00*
U.S. Cl. 417—415 **5 Claims**

An electric motor including a stator and rotor are electrically connected for operation. The stator includes a first portion having a bore provided therein. A member defining a cylinder is disposed in the bore. A shaft is operably connected to the rotor to rotate therewith. A piston, disposed in the cylinder, is operably connected to the shaft, rotation of the shaft causing the piston to reciprocate within the cylinder.



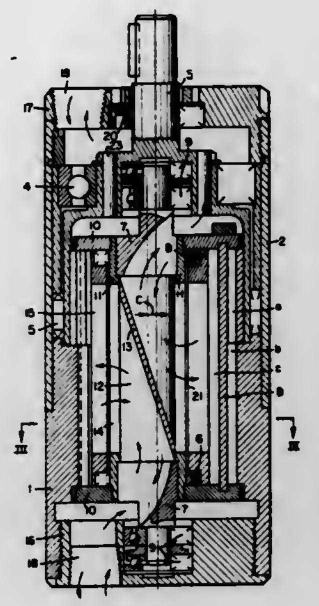
3,836,291
PUMP-AND-MOTOR UNIT, PARTICULARLY FOR SUPPLYING FUEL
Siegfried Bottcher, Aldingen, and Hans-Reimer Speck, Stuttgart, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Nov. 28, 1972, Ser. No. 310,115
Claims priority, application Germany, Nov. 29, 1971, 2159025
Int. Cl. F04b *17/00*
U.S. Cl. 417—423 **11 Claims**



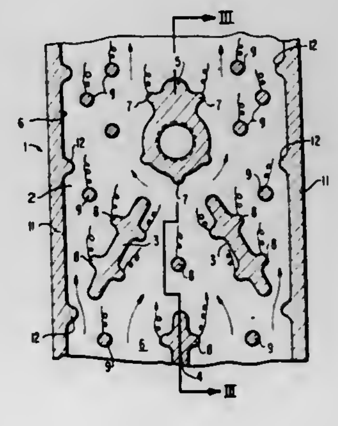
A pump-and-motor unit comprises, within a sealed housing, a lateral channel pump and an electromotor, the rotor of which drives the impeller of the pump. The unit housing has at each end an axially aligned liquid inlet and outlet nipple, respectively. At the pressure side of the pump the liquid is guided from the lateral channel of the pump radially inwardly through a pressure channel provided in a lateral channel plate serving as a pump housing.

3,836,292
PLANETARY FLUID MOTOR WITH INTERNAL MESHING
Daniil Andreevich Dudko, pereulok Mechnikova, 3, kv. 7, and Mikhail Danilovich Sur, ulitsa Vladimirskaya, 98, kv. 52, both of Kiev, U.S.S.R.
Filed Feb. 23, 1972, Ser. No. 228,701
Int. Cl. F01c *1/02*
U.S. Cl. 418—63 **4 Claims**

A planetary fluid motor with internal meshing in which there is provided a satellite pinion and two central or differential gears namely a stationary gear and a rotatable gear. Both differential gears are simultaneously caused to mesh and engage the satellite pinion, defining therewith a working space. The working space is divided into two zones with one zone communicating with a means supplying pressurized working fluid and the other zone communicating with a working fluid discharge means.



3,836,293
ROTARY PISTON INTERNAL COMBUSTION ENGINE OF TROCHOIDAL CONSTRUCTION
Heinz Lamm, Esslingen-St. Bernhardt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany
Filed Feb. 2, 1973, Ser. No. 329,194
Claims priority, application Germany, Feb. 3, 1972, 2205015
Int. Cl. F01c *21/06*; **F04c** *29/04*; **F02b** *55/10*
U.S. Cl. 418—83 **28 Claims**



A rotary piston internal combustion engine of trochoidal construction which consists essentially of lateral parts and at least of one housing casing, in case of multi-disk internal combustion engines, of one or several intermediate parts, provided with hollow spaces for the accommodation of the cooling medium in each housing part and with ribs arranged in the hollow spaces; the ribs and/or the inner walls of the housing parts, particularly of the housing casing are provided with turbulence-producing projections, preferably within the area of the minor axis in the hot arc.

3,836,294
PISTON FOR ROTARY PISTON MACHINES AND MEANS FOR ITS MANUFACTURE

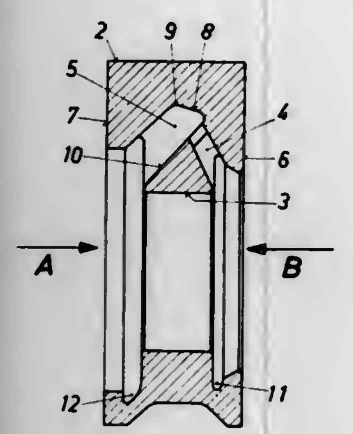
Johannes Steinwart, Bad Friedrichshall II, and Max Ruf, Oberisesheim, both of Germany, assignors to Audi NSU Auto Union Aktiengesellschaft, Neckarsulm/Wurttemberg and Wankel GmbH, Lindau/Bodensee, both of, Germany

Filed Dec. 15, 1972, Ser. No. 315,581

Claims priority, application Germany, Dec. 24, 1971, 2164646

Int. Cl. F01c *21/06;* **B22d** *33/04;* **F04c** *29/04*

U.S. Cl. 418—91 **3 Claims**



A multi-apex fluid-cooled piston is provided with cavities at the apices into which coolant is fed from one of the piston faces and from which the coolant is conducted away towards the other face of the piston. In the region of the point of entry of the inlet passage into the outlet passage, the outlet passage is wider and spaced away from the radially outermost defining wall of the outlet passage. A tool is also provided for producing this multi-apex piston.

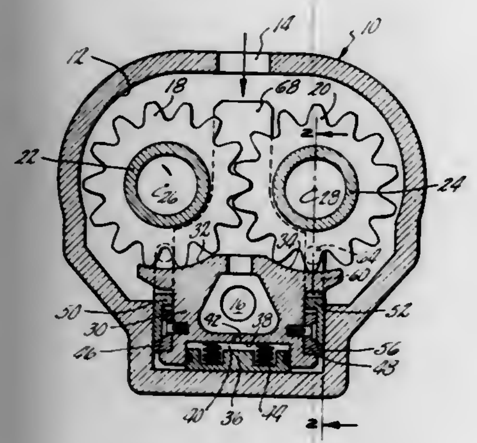
3,836,295
TEMPERATURE COMPENSATED GEAR PUMP WITH TRAVEL LIMITED WEARBLOCK

Allen Duckworth, Newington, Conn., assignor to Chandler Evans Inc., West Hartford, Conn.

Filed Aug. 29, 1973, Ser. No. 392,666

Int. Cl. F01c *19/02;* **F04c** *15/00, 27/00*

U.S. Cl. 418—126 **1 Claim**



A gear pump has a peripheral tooth-sealing member with arcuate wiping surfaces to engage the respective teeth of the gears. The sealing member is positioned adjacent the outlet of the pump and is capable of only limited movement toward the gears due to a stop element anchored to the housing. The coefficient of thermal expansion and the length of the stop element are selected to compensate for thermal expansions of the housing sealing member(s) and gears so that a constant gap is maintained between the wiping surfaces and the teeth of the gears.

3,836,296
OIL SEAL FOR USE IN A ROTARY PISTON INTERNAL COMBUSTION ENGINE

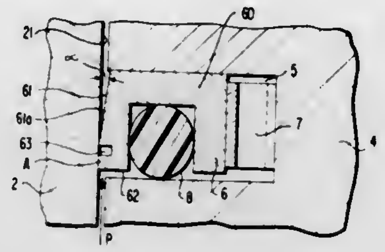
Hiroshi Sakamaki, Tochigi, and Hiroshi Ozeki, Hiroshima, both of Japan, assignors to Nippon Piston Ring Co., Ltd., Tokyo, Japan

Filed Apr. 7, 1972, Ser. No. 241,939

Claims priority, application Japan, Apr. 8, 1971, 46-25835[U]

Int. Cl. F01c *19/00;* **F04c** *15/00, 27/00*

U.S. Cl. 418—142 **1 Claim**



An oil seal is provided for use in a rotary piston internal combustion engine. The oil seal has an annular groove provided on the annular sliding face which is formed into a lip face having a lip angle α to an adjacent inside wall face of a side housing of the engine and which includes a contacting face formed on the radial inner peripheral side thereof and disposed in frictional contact with the inside wall face in such a position that the distance between both the radial inner peripheral faces of the groove and the oil seal is within the maximum width of a contacting face which may perform the normal operation of the oil seal.

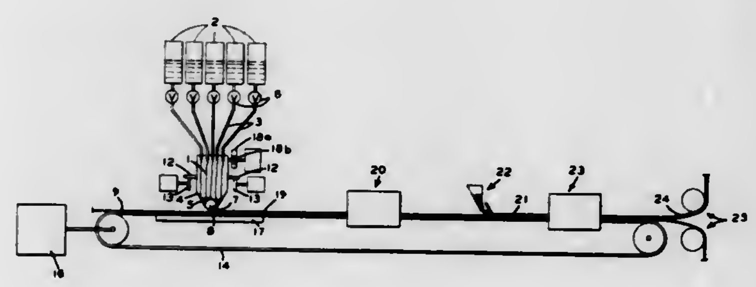
3,836,297
MARBLEIZING APPARATUS

John B. Weaver, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

Division of Ser. No. 87,068, Nov. 5, 1970. This application Oct. 10, 1972, Ser. No. 296,109

Int. Cl. B29d *7/00*

U.S. Cl. 425—104 **5 Claims**



Multiple plastisol compositions having differing decorative characteristics are simultaneously individually fed to a receptacle to form a heterogeneous mixture thereof. An applicator ball is positioned in an opening in the receptacle's bottom. Rotation of the ball during an oscillating movement of the receptacle, with the ball in contact with a moving substrate, produces a marbleizing effect in the coating applied thereby. Heat is used to gel the marbleized coating. A clear, unfilled plastisol coating is applied over the marbleized coating and the coatings are then heat fused.

3,836,298
DEVICE FOR MANUFACTURING COATED HARD-FOAM TILES OF POLYURETHANE

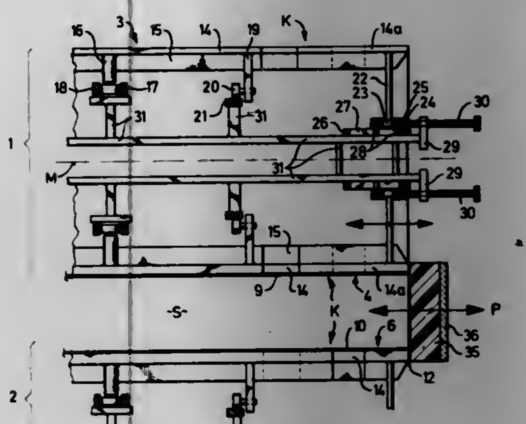
Rudolf Ernst, Muenchen-Sollen, Germany, assignor to Kunstoff-Verfahrenstechnik Dr. Ing. Ernst GmbH & Co. KG, Munchen, Germany

Filed May 23, 1973, Ser. No. 363,085

Claims priority, application Germany, May 24, 1972, 2225204

Int. Cl. B29d *27/00*

U.S. Cl. 425—115 **8 Claims**



Apparatus manufacturing coated hard-foam polyurethane tiles, including endless and confronting conveying bands spaced to receive foamed polyurethane between, the bands being formed of elongate plates extending transversely of the band and connected together at juxtaposed edges like a chain, the plates being adjustable in length to vary the width of the bands for varying the width of the tiles being formed, the plates having meshed comb-like teeth and screw devices for holding the plates in predetermined lengths.

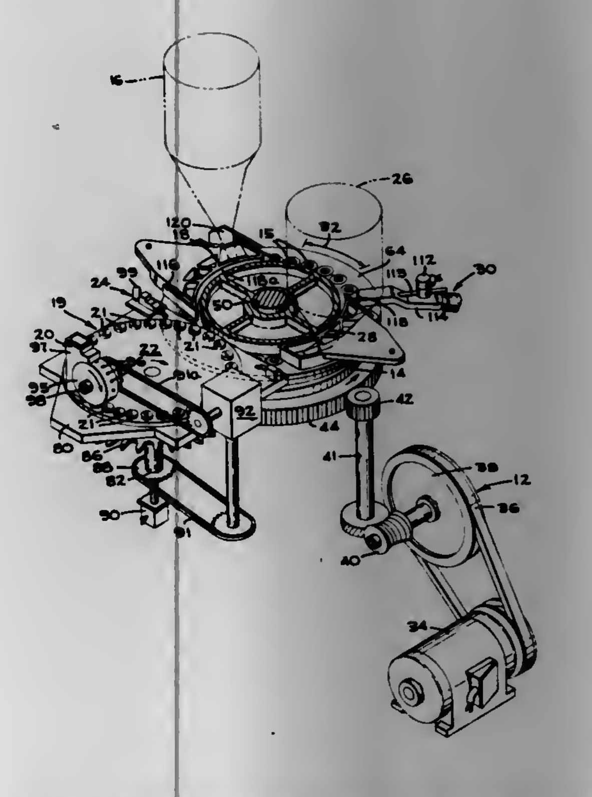
3,836,299
PRESS FOR FORMING ONE-PIECE TABLET CONTAINING SEEDS OR THE LIKE

Robert K. Houston, Santa Clara, and Donald W. Irving, San Jose, both of Calif., assignors to FMC Corporation, San Jose, Calif.

Filed Aug. 13, 1973, Ser. No. 387,887

Int. Cl. A01c *1/06;* **B30f** *11/08*

U.S. Cl. 425—128 **21 Claims**



An optical seed detector and seed remover for a tablet forming press capable of making, from frangible materials, tablets containing agricultural seeds. The optical seed detector monitors the deposit of a seed or seeds into each tablet by integrating the instantaneous projected dimensions of the seeds passing in front of a fiber optic sensor. If more or fewer seeds than the desired number are deposited, the tablet material and the seeds are eliminated from the press by a rejector before an imperfect tablet can be formed. In cases where only a single seed is desired in each tablet, the apparatus can thereby eliminate from the tablet press those tablets into which either no seed or two or more seeds were inadvertently deposited.

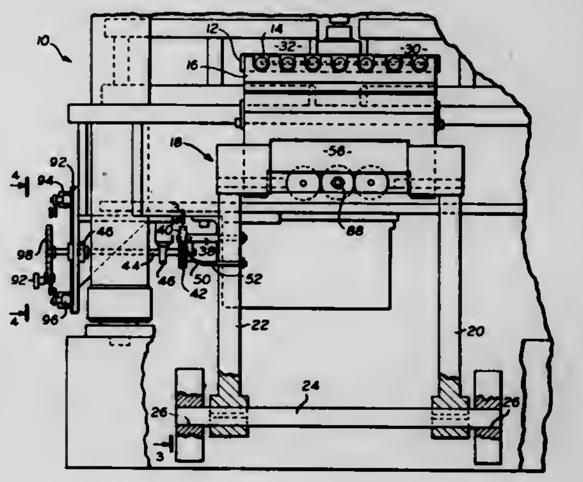
3,836,300
STRIPPING ACTUATOR FOR MOLDING MACHINE

John J. Farrell, Green Brook, N.J., assignor to Farrell Patent Company, Dunellen, N.J.

Filed June 25, 1973, Ser. No. 372,921

Int. Cl. B29c *7/00*

U.S. Cl. 425—165 **14 Claims**



The stripping of a blow molding machine has to be adjustable to accommodate the length of the core rods on which articles are molded and to accommodate the length of the articles. This invention provides means, spaced from the stripper mechanism, and at a location for convenient access by an operator for adjusting the stroke of the stripper mechanism. Oscillating motion of the stripper is converted into rotary motion of a disc through less than 360°, and there are actuators adjustably connected with the disc for moving control units (switches) that control the stripper stroke.

3,836,301
INJECTION MOLDING MACHINE WITH LIFTING DEVICE

Karl Hehl, Siedlung 183, Lossburg, Wuerttemberg, Germany

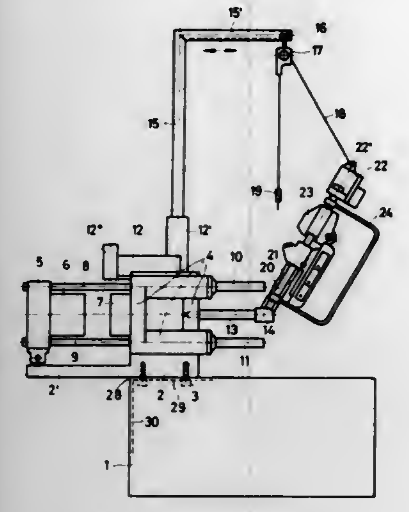
Filed Jan. 31, 1973, Ser. No. 328,491

Claims priority, application Germany, Feb. 8, 1972, 2205782

Int. Cl. B29f *1/00*

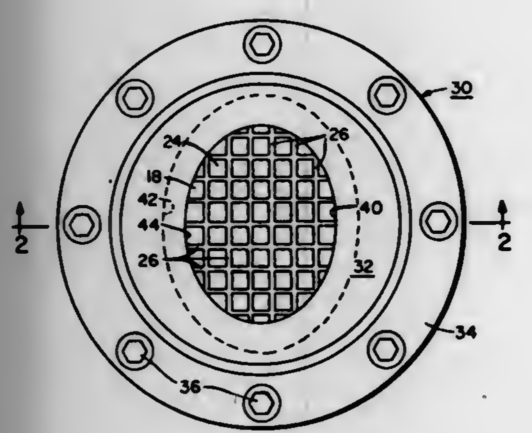
U.S. Cl. 425—192 **15 Claims**

The suggested lifting device for the injection molding machine includes a rotatable vertical column with a horizontal arm that carries an electric chain hoist for the purpose of conveniently lifting the injection unit or other heavy machine components from one position to another. The vertical column is rotatably supported on a carriage which is adjustably mounted on the die closing unit itself for central location and maximum stability.



3,836,302
FACE PLATE RING ASSEMBLY FOR AN EXTRUSION DIE

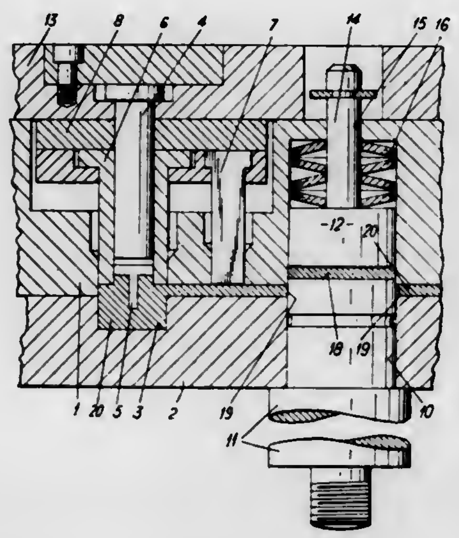
Ralph M. Kaukeinen, Middlebury Center, Pa., assignor to Corning Glass Works, Corning, N.Y.
Filed Mar. 31, 1972, Ser. No. 239,953
Int. Cl. B29f *3/04*
U.S. Cl. 425—197 **3 Claims**



A mask or face plate, having an orifice or opening formed therethrough of desired size and configuration, is positioned against the discharge face of an extrusion die. The mask restricts the flow of extrudable material through the die so that such material will conform to the size and configuration of the opening or orifice provided in such mask or face plate. The mask or face plate is preferably part of a ring assembly which may be removably attached to the extrusion die structure. When such die is provided with a plurality of core pins for forming cellular or honeycomb structures, the orifice formed in the face plate is preferably provided with a tapered inlet opening in communication with the discharge face of such die, so as to partially collapse the peripheral cells engaging the tapered surface as they are moved radially inwardly by such surface, and thereby form an integral skin or sheath about the remainder of the honeycomb structure as it is being extruded.

3,836,303
METHOD OF AND APPARATUS FOR THE MANUFACTURE OF MOULDINGS

Clifford William Horley, Harlington, England, assignor to General Motors Corporation, Detroit, Mich.
Filed Dec. 14, 1972, Ser. No. 315,092
Claims priority, application Great Britain, Dec. 22, 1971, 59574/71
Int. Cl. B29f *1/00*
U.S. Cl. 425—214 **4 Claims**



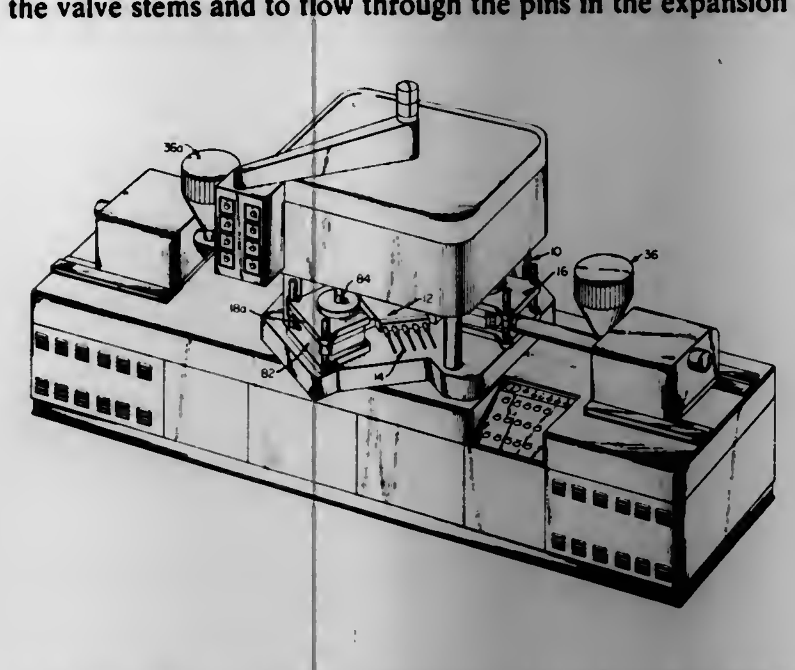
In a transfer moulding apparatus according to the invention the delivery under pressure of moulding material from a transfer chamber to a mould cavity is effected by means of a transfer ram which is movable into and out of the transfer chamber independently of the plunger or ram by which the mould die parts are opened and closed, and the moulding material is delivered from the transfer chamber to the mould cavity by way of a port which forms a common boundary between at least a part of an interior wall surface of the mould cavity and a part of an interior wall surface of the transfer chamber, said transfer ram, after the compression of the moulding material by the pressure applied by the transfer ram, being movable so as to occlude said port. Thus, the transfer ram may be moved upon the attainment of a predetermined pressure in the transfer chamber, or after a predetermined "dwell" of the transfer ram in its operative condition.

3,836,304
MULTIPLE INJECTION BLOW MOLDING MACHINE

Joseph A. Johnson, Brigantine, N.J., assignor to Jomar Industries, Inc., South Brigantine, N.J.
Continuation of Ser. No. 52,807, July 7, 1970, Pat. No. 3,690,799. This application June 6, 1972, Ser. No. 260,313The portion of the term of this patent subsequent to Sept. 12, 1989, has been disclaimed.
Int. Cl. B29d *23/03*
U.S. Cl. 425—242 B **6 Claims**

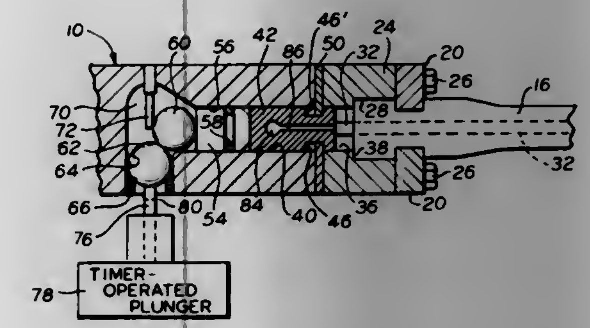
An injection blow molding machine for automatically forming hollow articles of plastic material has a horizontally disposed rotatable and elevatable turret having distinct sets of hollow parison pins projecting from its six side faces and surrounded by 60° angularly spaced apart operating stations. The turret is indexed first 120° clockwise from an opposing pair of parison mold stations and then two cycles of 60° counterclockwise to an opposing pair of blow mold stations and to an opposing pair of ejection stations to cause the pins to successively operatively occupy such stations. Hydraulically actuated rams for the parison clamps at the parison mold stations and the shaft for the turret are linked together by a rack and pinion arrangement so that the synchronously operating rams lift the turret one half the distance of the movable mold halves whereby the pins clear the separated parison and blow mold halves as the turret is indexed. The hollow pins carry operating

stems for the valves on the outer ends thereof with the turret ends of the pins having pressurized air inlets for air to act on the valve stems and to flow through the pins in the expansion of the parisons at the blow mold stations and the cooling of the blown articles at the ejection stations where the articles are mechanically stripped from the pins.



3,836,305
TRIGGER BAR ACTUATOR FOR MOLDING MACHINE

William Grazine, Piscataway, N.J., assignor to Farrell Patent Company, Dunellen, N.J.
Filed June 25, 1973, Ser. No. 372,922
Int. Cl. B29c *5/06, 6/04*
U.S. Cl. 425—242 B **10 Claims**

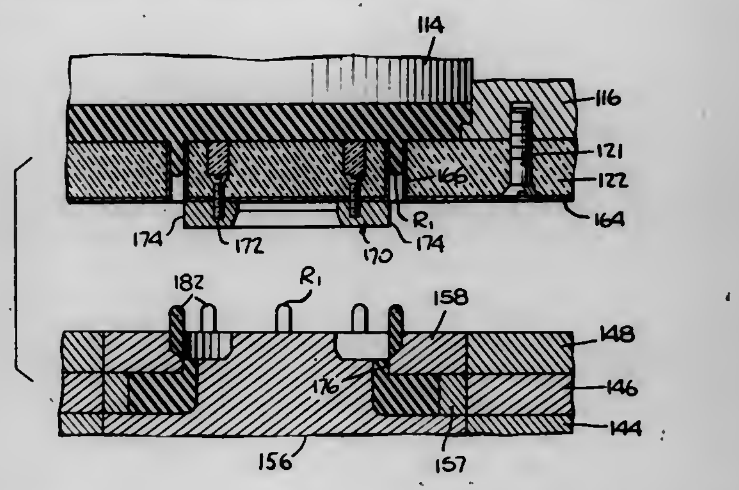


This indexing head for blow molding apparatus has a plurality of core rods projecting from each of the side faces of the head. A trigger bar is located in a recess of each side face in position to actuate simultaneously all of the valves in the core rods of the face in which the trigger bar is located. This effects blowing of parisons on the core rods when the core rods are at a blowing station. The head has improved and more reliable actuating mechanism for moving the trigger bar. Freely movable balls serve as motion-transmitting means for changing the direction of motion from a thrustor to the trigger bar by cam action of one ball against the other.

3,836,306
TRANSFER MOLDING APPARATUS

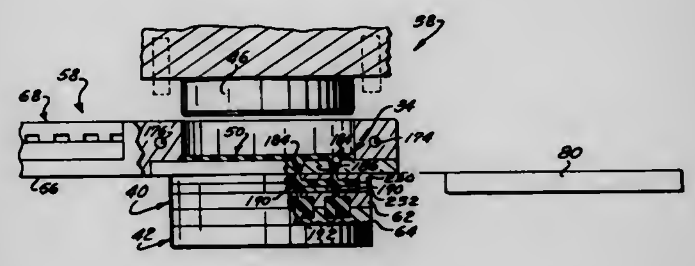
Lambert Pasch, Nutheim, and Heinz Wagemann, Aachen, both of Germany, assignors to Uniroyal A.G., Aachen, Germany
Filed July 16, 1973, Ser. No. 379,284
Claims priority, application Germany, Aug. 29, 1972, 2242447
Int. Cl. B29h *3/12*
U.S. Cl. 425—322 **23 Claims**

Apparatus for molding elastomeric stock, comprising an apertured, heat-resistant, flexible, insulation plate arranged between a heated mold and the discharge portion of an elastomeric stock injection unit such that a mold cavity is aligned with an array of apertures in the insulation plate which intercommunicate the mold cavity with an internal discharge chamber in the injection unit. A mold cavity cover is carried by the insulation plate and confronts the mold cavity, the cover and upper portion of the cavity when juxtaposed defining a constriction therebetween. When the mold and injection unit are moved relative to one another such that each presses against the other through the intermediary of the insulation plate, there is effected expulsion and transferring of a portion of elastomeric stock from the injection unit into the mold cavity to be cured, an excess portion of elastomeric stock remaining in the injection unit being prevented from undergoing curing by means of the presence of the insulation plate. The constriction between the cover and the upper portion of the cavity generates a score line in the cured transferred portion of stock along which scrap cured in the cavity may be separated from the cured product.



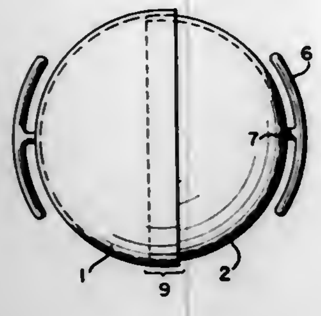
3,836,307
MOLDING APPARATUS

Don A. Taylor, 216 Mill St., Wadsworth, Ohio 44281
Division of Ser. No. 167,240, July 29, 1971, Pat. No. 3,748,075. This application May 11, 1973, Ser. No. 359,600
Int. Cl. B29b *5/04*
U.S. Cl. 425—251 **2 Claims**



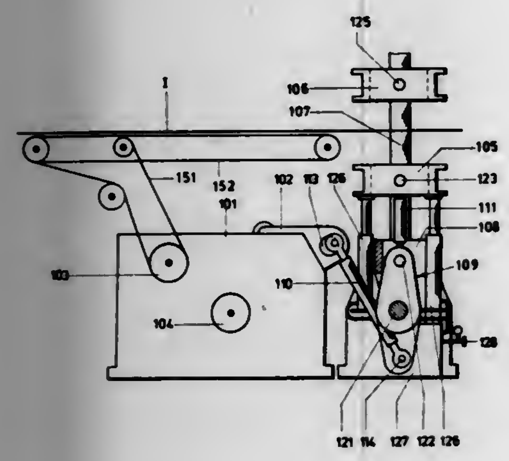
An improved apparatus for molding thermosetting material, such as strips of uncured mill rubber or other thermosetting elastomers, includes a preheater assembly which preheats the thermosetting material to a temperature which is below its curing temperature. A movable pot receives at least a portion of a charge of the preheated strip material at a loading station. The pot is then moved to a discharge or unloading station where a ram assembly is extended to force the thermosetting material from the pot into a mold. The ram assembly is then retracted and the pot is returned to the loading station. The pot is then filled so as to contain a charge which includes both preheated strip material and thermosetting material which was not forced into the mold on the previous cycle of operation. The pot is cooled at the loading station to maintain thermosetting material in the pot at a temperature below its curing or setting temperature. As the pot is being loaded, a slide block applies pressure against the mold and heats the thermosetting material in the mold to a temperature above its setting temperature.

3,836,308
SNOWBALL FORMING DEVICE
Robert Upright, 3331 Contesa Ct., Annandale, Va. 22003
Filed May 17, 1972, Ser. No. 254,079
Int. Cl. F25c *1/10*
U.S. Cl. 425—318 **8 Claims**



A snowball forming device comprising a first and a second semi-spherical cup-like means, each of said cup-like means having a closed end and an open end, said open ends being adapted to be brought together to form a completed sphere and handle means associated with the closed end of each of said semi-spherical cup-like means.

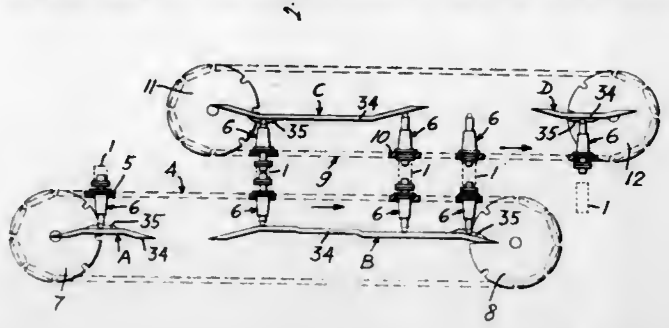
3,836,309
THERMAL FORMING APPARATUS
Alfons Wilhelm Thiel, Uferstrasse 15, Mainz/Rhein, Germany
Filed Aug. 30, 1973, Ser. No. 393,170
Int. Cl. B29c *17/00*
U.S. Cl. 425—383 **32 Claims**



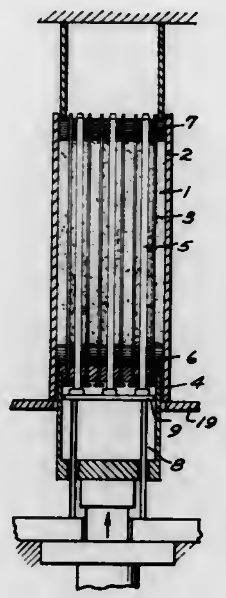
Apparatus for thermal forming of articles in a thermoplastic web includes a thermal forming station wherein one or more die supports are vertically movable in timed relation with web feed, a common power unit being provided to operate a drive system for actuating the web feed intermittently and synchronously moving a die component or components, and adjustments are provided in the drive system for adapting the die action to form deep or shallow articles in the web and for varying the speed and incremental advance of the web.

3,836,310
APPARATUS FOR THE REFORMING OF YARN PACKAGE CARRIERS MADE OF PLASTIC MATERIAL
Renato Crotti, 47, S.S. Romana Sud, Carpi, Modena, Italy (41012)
Filed June 23, 1972, Ser. No. 265,629
Claims priority, application Italy, June 25, 1971, 12771/71
Int. Cl. B29c *17/02*
U.S. Cl. 425—384 **6 Claims**

The axially deformed yarn package carriers are heated up to a temperature in which they become plastically deformable, and are subsequently stretched axially until they re-assume their original length. The thus reformed yarn package carriers are thereafter cooled. An apparatus is provided for automatically performing the above process.



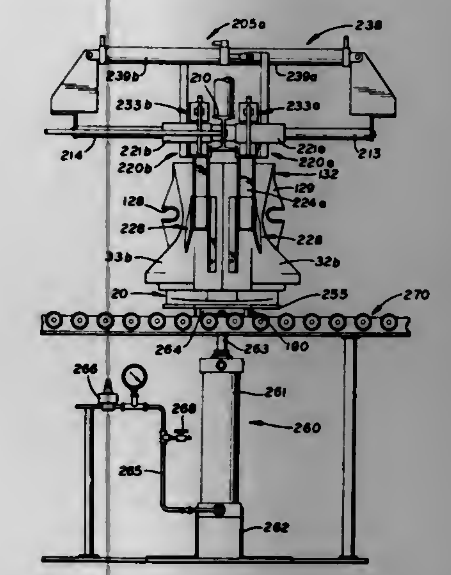
3,836,311
APPARATUS FOR THE PRODUCTION OF PRESSED BLOCK FUEL ELEMENTS OF HIGH POWER FOR GAS COOLED HIGH TEMPERATURE REACTOR
Karl-Gerhard Hackstein, Hanau; Milan Hrovat, Rodenbach, and Willi Wolff, Kahl, all of Germany, assignors to Nukem, G.m.b.H., Hanau, Germany
Filed Aug. 1, 1972, Ser. No. 277,103
Int. Cl. B29c *3/02*
U.S. Cl. 425—406 **6 Claims**



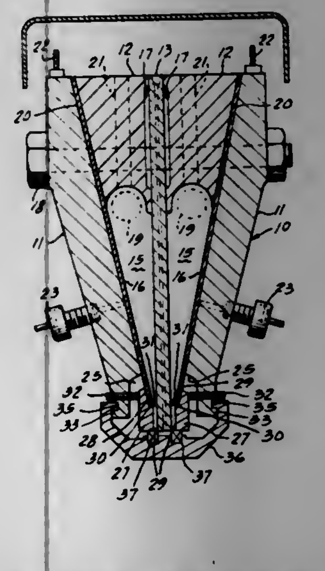
Molded or pressed block fuel elements of high power for gas cooled high temperatures are produced by molding in steel tools using outer dies or bars and punches arranged to be freely moveable in the axial direction and moving said moveable dies or bars and punches in the molding process.

3,836,312
APPARATUS FOR A SYSTEM TO EXTRICATE INTRICATE, CERAMIC SHAPES FROM MULTIPLE PIECE MOLDS
Fred L. Derror, Lucas, Ohio, assignor to Mansfield Sanitary, Inc., Perrysville, Ohio
Division of Ser. No. 139,622, May 3, 1971, abandoned, which is a division of Ser. No. 865,863, Oct. 13, 1969, Pat. No. 3,671,160. This application Dec. 4, 1972, Ser. No. 312,037
Int. Cl. B29c *7/00*
U.S. Cl. 425—441 **2 Claims**

A method and apparatus for extricating an intricate ceramic casting from a multiple piece mold. This concept is adapted for use with multiple piece molds which have at least two, opposed, side sections that form a cradle by which the casting may be supported. The cradle is grasped and subsequently positioned at a receiving locus. So position, the support for the weight of the casting is shifted from the cradle onto a bat in order that the casting will float within the cradle. Thereafter, the sections of the mold forming the cradle are separated to extridate the casting therefrom. For some ceramic shapes it is highly desirable to invert the cradle prior to the deposit of the casting at the receiving locus. The subject concept includes such a method step. The apparatus disclosed comprises a carriage on which a plurality of multiple piece molds may be supported, means to separate the cradle from any other sections of the mold, an inversion mechanism for turning the cradle upside down, gripper means to grasp the cradle, transfer means within which the gripper means is supported and by which the cradle can be moved from the inversion mechanism to a receiving locus, a lift means at the receiving locus by which the support for the weight of the casting may be shifted from the cradle onto a bat and actuating means by which the gripper means—and thus the mold sections forming the cradle—can be separated after the weight of the casting is fully supported on the bat.

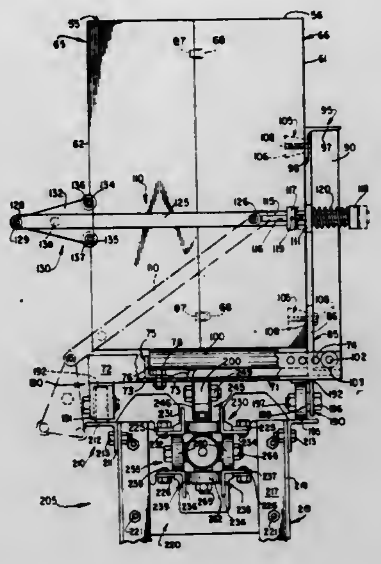


3,836,313
FLAT FILM EXTRUSION DIE
Larry O. Stafford, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.
Filed Apr. 23, 1973, Ser. No. 353,908
Int. Cl. B29f *3/04*
U.S. Cl. 425—463 **13 Claims**



Flat film plastic extrusion die, which may be in the form of either a single slot or dual slot die. A body part forms the top of the die and has sloping side walls converging from their upper towards their lower ends. The body part may be in two parts divided by a divider where the die is a dual slot die. Die heaters form the closures for the melt chamber of the die and clamp thin metal liner sheets to the sloping sides of the body part by through bolts clamping the die heaters to the body. The sheets form the liner wall of the melt chamber and are sufficiently thin that pressure in the die chamber will conform the sheets into intimate contact with the inner walls of the heaters. The lower ends of the sheets depend into recessed portions of the heaters and form die lips. The die lips may be formed by the depending sheets or may extend along relatively thick silver soldered strips to define deckle lands at the lower ends of the sheets. Adjustment screws threaded in the die heaters are provided to adjust the space between the lands, or between the lands and a center divider where the die is a dual slot die.

3,836,314
MOLD AND CLAMP FOR USE IN AN AUTOMATIC CASTING MACHINE
Robert W. Meyer, South Elgin, and Robert G. Swanson, Dundee, both of Ill., assignors to M and S Engineering, Inc., Dundee, Ill.
Division of Ser. No. 100,718, Dec. 22, 1970, Pat. No. 3,801,255. This application July 6, 1973, Ser. No. 377,119
Int. Cl. B29c *1/16*
U.S. Cl. 425—451.9 **8 Claims**



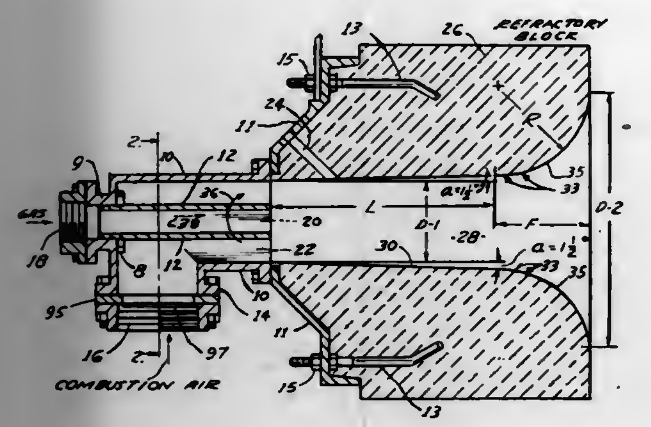
An automatic casting machine having means for automatically and simultaneously introducing a casting material into a plurality of molds, filling means for automatically filling the molds to a predetermined level, mold carrying means adjustable to carry molds of different sizes, means for inverting the mold carrying means and the molds carried thereby to drain excess casting material therefrom, means for uprighting the mold carrying means and conveyor mechanism for transporting the mold carrying means from the filling means through a wall building station to the inverting means and thereafter through a draining station to the uprighting means and thereafter through a parts drying station to a mold unloading station and then to a mold conditioning station.

3,836,315
BURNER APPARATUS FOR FLAME PROPAGATION CONTROL
Howard Edward Shular, North Olmsted, Ohio, assignor to Pyronics, Inc., Cleveland, Ohio
Filed Oct. 14, 1971, Ser. No. 189,178
Int. Cl. F23b *11/00*
U.S. Cl. 431—9 **9 Claims**

A burner apparatus comprising a fuel burner and flame tunnel in combination. The tunnel is of a suitable refractory material and is substantially trumpet-shaped in cross section, comprising a first substantially cylindrical section and a second, flared section. The first, substantially cylindrical section preferably diverges in the direction of fuel and air flow at an angle of not more than about 3° and preferably about 1 ½°

from a cylindrical surface. The length of the substantially cylindrical first section is at least two and one-half and preferably four times as great as the inlet diameter thereof, and the diameter of the large, furnace end of the flared second section is at least two and one-half and preferably four times as large as the inlet diameter of the first section.

Combustion air and fuel are injected with a rotational motion into the flame tunnel. Combustion takes place in the flame tunnel, and a high kinetic energy is imposed upon the burning gas and air mixture within the comfines of the first, substantially cylindrical section. The high velocity attained causes the flame to cling to the tunnel walls, forming a substantially hollow flame. The reduced pressure at the center of the flame facing the furance draws in furnace atmosphere and enhances the formation of a flat, hollow flame even at high firing rates.



3,836,316

FLAME DETECTING APPARATUS

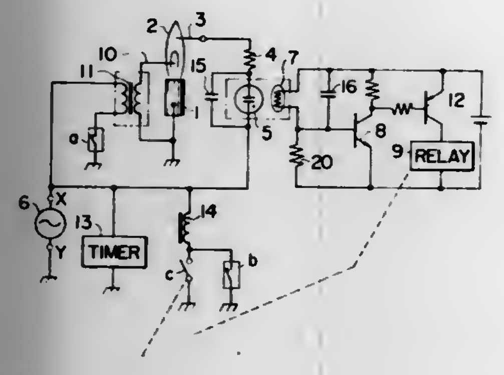
Kazutoshi Ikegami; Mitsuoki Yamamoto, both of Tokyo; Kenji Toudo, and Motosi Miyanaka, both of Yanai, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 8, 1973, Ser. No. 321,967

Claims priority, application Japan, Apr. 28, 1972, 47-42224; Apr. 14, 1972, 47-43447; Apr. 5, 1972, 47-33519

Int. Cl. F23n *5/08*

U.S. Cl. 431—79 **16 Claims**



In apparatus wherein an AC power source and a light emitting device are connected in series through a lead between a burner and a flame rod disposed in a place in which a flame is to exist, so as to detect the presence or absence of the flame in the form of the presence or absence of the output of light emission of the light emitting device, a flame detecting apparatus comprising a capacitor connected in parallel with the light emitting device, thereby to prevent a malfunction attributable to the stray capacity between the lead and ground, the deterioration of the insulation between the flame rod and the burner, or the like.

3,836,317

PERCUSSION TYPE PHOTOFLASH LAMP

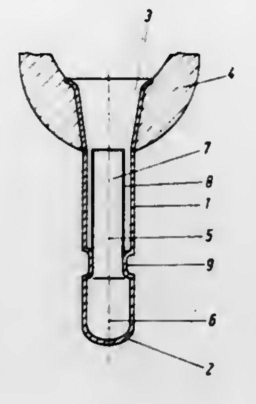
Josef Lukas, Augsburg, Germany, assignor to Patent-Treuhand-Gesellschaft fur elektrische Gluhlampen mbH, Munchen, Germany

Filed June 15, 1973, Ser. No. 370,329

Claims priority, application Germany, June 20, 1972, 2230005

Int. Cl. F21k *5/02*

U.S. Cl. 431—93 **5 Claims**



To hold a counter anvil in place in the percussion tube of the lamp, a headed pin forming the anvil is supported in the cap-shaped closed end of the tube. The anvil abuts the tube end with its head. The head length is about twice its diameter so that the contact surface is sufficiently large for centering of the anvil inside the tube. The anvil portion of the pin extends in the percussion zone and carries an ignition material. The diameter of the anvil portion is selected such that there remains a sufficiently large gap between anvil and tube.

3,836,318

FLARE-STACK

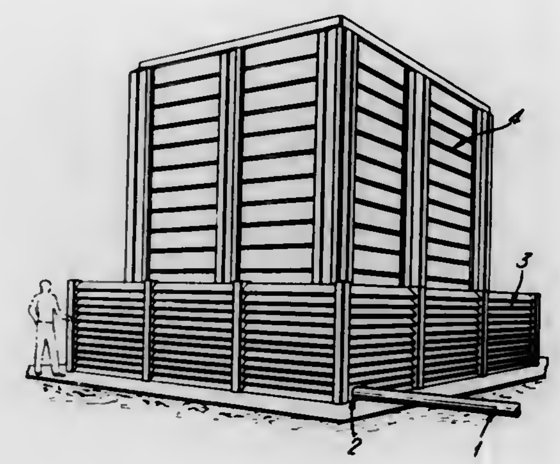
Denis Henry Desty, Weybridge, and Christopher John Young, Horton, both of England, assignors to The British Petroleum Company Limited, London, England

Filed Aug. 9, 1972, Ser. No. 279,002

Claims priority, application Great Britain, Aug. 12, 1971, 3786/71

Int. Cl. F23d

U.S. Cl. 431—202 **2 Claims**



A flare-stack suitable for burning off waste gases comprises:

a. a honeycomb burner element on supports

b. flare-stack walls projecting vertically upwards from the edges of the burner element, the flare-stack walls and burner element being enclosed by

c. a draught fence around the base of the flare-stack walls. During operation of the flare-stack, air flows through the draught fence, below the flare-stack walls and into the combustion air tubes of the burner.

3,836,319

FLINT DRIVING MECHANISM FOR A LIGHTER

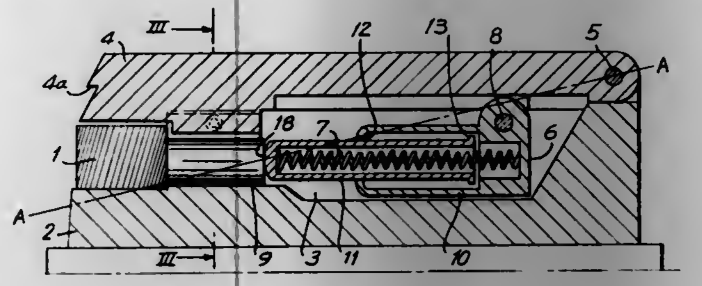
Jean Gaston Malamoud, 61 Avenue de Novel, Annecy, France

Continuation-in-part of Ser. No. 180,760, Sept. 15, 1971, abandoned. This application Sept. 7, 1973, Ser. No. 395,340

Claims priority, application France, Sept. 15, 1970, 70.33321

Int. Cl. F23q *1/02*

U.S. Cl. 431—276 **6 Claims**



A lighter of the type ignited by friction between a rough surface and a pyrophoric stone or flint, wherein a flint striking device includes a helical spring and a spring guide and rests, on the one hand, against said flint which it keeps in contact with said rough surface and, on the other, on a portion of the lighter itself, characterized by said striking device resting on the lighter portion through a member onto which it is hinged in such a way that during its insertion, the hinge travels along a line joining a contact point of said device with the flint with a fulcrum of the member on the lighter portion. The device may have a simple cap to which a spring guide for the flint is pivoted, but alternatively a short connecting rod member may be provided, dispensing with the cap arrangement.

3,836,320

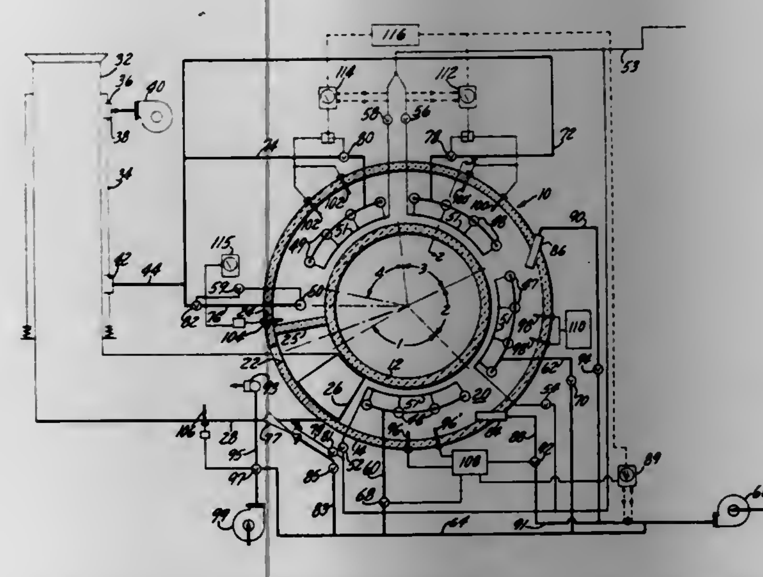
MINIMUM SCALE REHEATING FURNACE AND MEANS RELATING THERETO

Klaus H. Hemsath, Sylvania; Frank J. Vereecke, Palmyra, and Norman T. Ferguson, Maumee, all of Ohio, assignors to Midland-Ross Corporation, Cleveland, Ohio

Division of Ser. No. 235,610, March 17, 1972. This application Apr. 19, 1973, Ser. No. 352,708

Int. Cl. F27b *13/06*

U.S. Cl. 432—11 **4 Claims**



A ferrous work reheating furnace wherein high fuel efficiency is achieved with minimum scale formation. The work is initially heated in an atmosphere which is slightly oxidizing, the work being in a temperature range where scale formation does not readily occur. The work is then placed in a slightly reducing atmosphere after it reaches a predetermined elevated temperature. A unique arrangement is provided wherein a continuous reheating process takes place utilizing a protective atmosphere generated by hot air burners during the high temperature phase. These burners have a low air to fuel ratio and the gases are caused to flow toward the location where the work is introduced. The combustibles within the gases are combusted through the introduction of air into the portion of the furnace nearest the charge end. Additional efficiency is gained by using the spent gases to preheat combustion air for the burners.

3,836,321

CLINKER COOLING EQUIPMENT AND METHOD

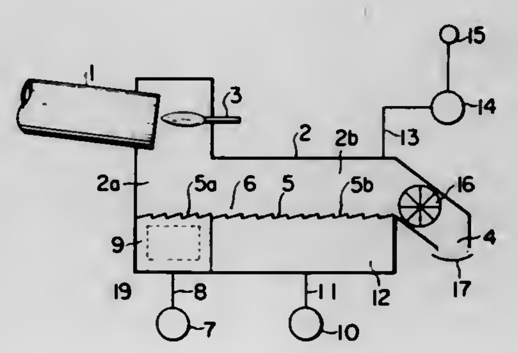
Hiroshi Kobayashi, Yokohama, and Goro Okada, Tokyo, both of Japan, assignors to Babcock-Hitachi, Tokyo, Japan

Filed Aug. 1, 1973, Ser. No. 384,711

Claims priority, application Japan, Aug. 28, 1972, 47-85357

Int. Cl. F27b *7/38*

U.S. Cl. 432—15 **6 Claims**



A clinker cooling equipment comprising a grate type clinker cooler connected to a rotary kiln where clinker is calcined, said clinker cooler being sectioned into a high temperature section on the inlet side and a low temperature section on the outlet side, said high temperature section being cooled by high pressure cooling air and said low temperature section being cooled by low pressure cooling air, and several fluidized bed type cooler units branched off from said high temperature section whereby small-sized clinker grains contained in the clinker falling from the kiln are fluidized in the high temperature section and separated from other larger-sized clinker grains, the thus separated small-sized clinker grains being blown into said fluidized bed type coolers and cooled therein while the other clinker being cooled in said grate type clinker cooler. By separating the clinker falling from the kiln into two groups, namely fine-grain clinker and other clinker, and then cooling said both groups of clinker with separate equipment respectively, the expensive grate type clinker cooler can be made smaller in size and elongated in its service life, and also the inexpensive clinker cooling equipment with high cooling efficiency and low dust-containing exhaust gas can be served in operation.

3,836,322

ELECTROPHOTOGRAPHIC DRYING AND FIXING DEVICE

Karl Harwig, Unterhaching, and Juergen Vossnacke, Pullach, both of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

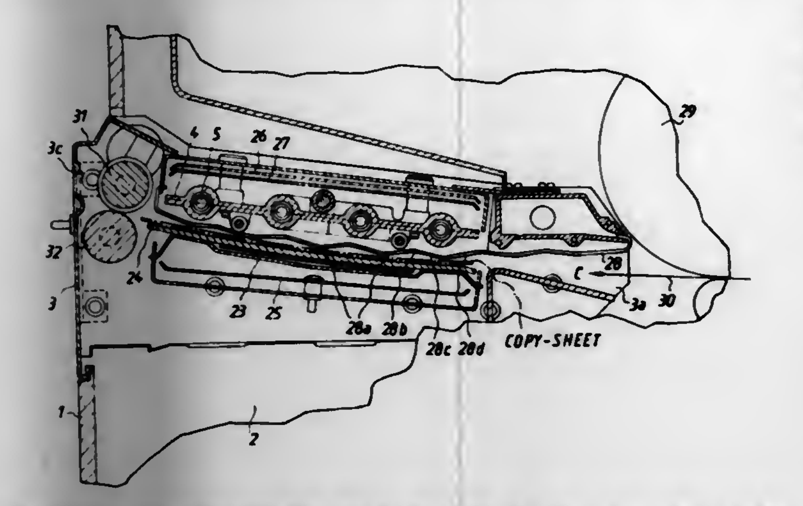
Filed Jan. 26, 1973, Ser. No. 327,233

Claims priority, application Germany, Jan. 29, 1972, 2204214

Int. Cl. F26b *13/12*

U.S. Cl. 432—59 **6 Claims**

An electrophotographic fixing device for a sheet which carries an electrophotographic image has a guide plate for guiding a copy sheet along a path. Electric heaters are located along the path for fixing the copy sheet, and in order to prevent contact of the copy sheet with the heaters, an elongated spacing wire is provided between the heaters and the copy sheet. The wire has a plurality of wire portions alternately bent in opposite directions toward and away from the path of the copy sheet, so that adjacent wire portions form kinks alternately projecting in opposite directions so that every second kink projects toward the copy sheet and forms a small



engaging portion preventing scorching of the copy sheet when the copy sheet curls due to the heat.

3,836,323
PRE-HEATING APPARATUS IN ROTARY KILN PLANT

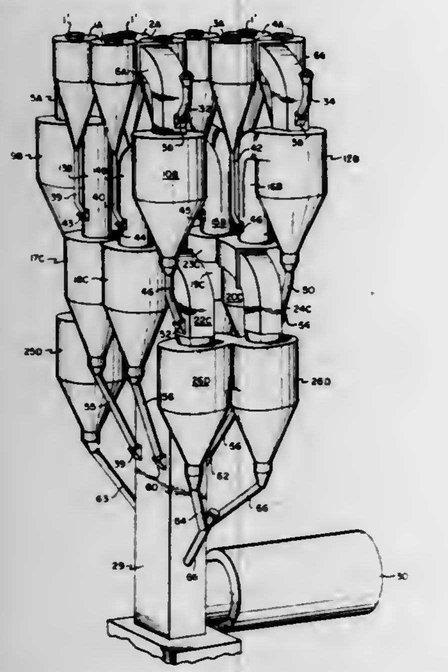
Erland Christoffer Engel, Copenhagen-Valby, Denmark, assignor to F. L. Smidth & Co., Cresskill, N.J.

Filed Nov. 30, 1972, Ser. No. 310,999

Claims priority, application Great Britain, Dec. 2, 1971, 56051/71

Int. Cl. F27b *15/00*

U.S. Cl. 432—106 **6 Claims**



Pre-heating Apparatus for pre-heating pulverous raw material (e.g. cement raw meal) prior to its introduction into a rotary kiln for burning is disclosed. In construction the preheating apparatus includes four strings of treating units, each unit including separation and heat exchange zones, wherein the units of each string are disposed in series superimposed relationship in communication with the kiln and wherein the four strings are arranged symmetrically with respect to determined planes oriented with respect to the kiln axis and kiln outlet.

3,836,324
CONTINUOUS ROTARY HEAT TREATING FURNACE

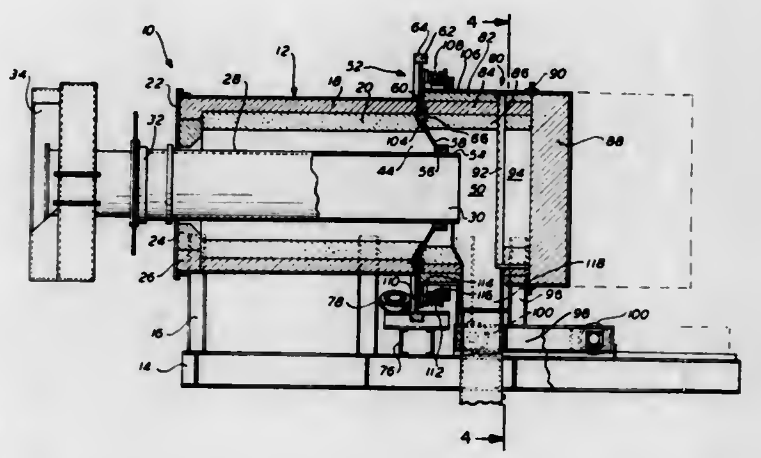
Frederick C. Shaefer, Mountainside; Frank Korzeb, Westfield, and William I. Bayly, Livingston, all of N.J., assignors to American Gas Furnace Company, Elizabeth, N.J.

Filed Aug. 6, 1973, Ser. No. 385,772

Int. Cl. F27b *7/08*, *7/24*, *7/32*

U.S. Cl. 432—112 **9 Claims**

A continuous rotary heat treating furnace including a furnace housing defining a heating chamber therein, and a cylindrical furnace retort for conveying work through the furnace, the retort being mounted for for rotation within the heating chamber. A circumferential collar is mounted in gas sealing relationship to, and extends about the periphery of the furnace rotort near the discharge end thereof. The collar extends radially beyond the circumference of the furnace housing, to preclude gaseous communication between the discharge end of the retort and the heating chamber. Roller support means underlie the furnace housing, and engage with the periphery of the collar. An axially displaceable cylindrical sub-assembly, closed at one end by a heating chamber, approximately mates with the side of the collar facing the discharge end of the retort and includes spring biased sealing means perfecting the gas seal of the heating chamber. A downwardly directed opening in the sub-assembly permits the work passing from the retort, to drop directly through the sub-assembly to an underlying quench tank or the like.



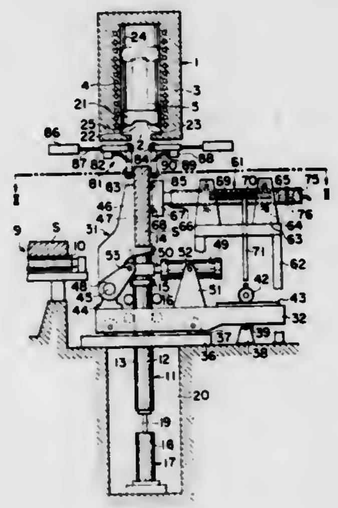
3,836,325
APPARATUS FOR CHARGING MATERIALS INTO VERTICAL HEATING FURNACE

Shoji Nakamura; Akira Matsufuji; Masahiro Tokushige, and Kunihiro Kato, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation and Mitsubishi Electric Corporation, both of Tokyo, Japan

Filed Dec. 11, 1973, Ser. No. 423,797

Int. Cl. F27b *5/12*

U.S. Cl. 432—241 **9 Claims**



In the vertical heating furnace of the bottom charge type having a lift to go up for charging a piece of to be-heated material, an apparatus for charging a piece of such material into the furnace, provided, for free vertical movement, with a cap for supporting the so charged piece of material by the engagement of the groove made on the bottom surface thereof with the tip of said piece of material.

CHEMICAL

3,836,326
DYEING HAIR WITH NITRO-SUBSTITUTED PHENYLENE COMPOUNDS

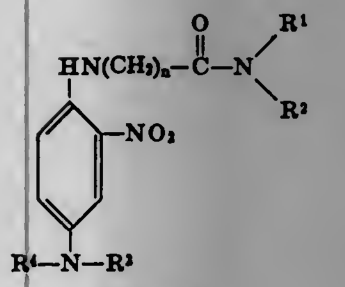
Phillip Edward Sokol, Chicago, and Hu-Chu Tsai, Evanston, both of Ill., assignors to The Gillette Company, Boston, Mass.

Filed Nov. 18, 1970, Ser. No. 90,825

Int. Cl. A61k *7/12*

U.S. Cl. 8—10.1 **9 Claims**

Nitro-substituted phenylene compounds of the formula



Formula I

wherein R^1 and R^2 is each independently a hydrogen atom or lower alkyl, R^3 and R^4 is each independently C_2-C_3 hydroxyalkyl, and *n* is an integer from one to six, are used as dyes for dyeing keratinaceous material.

3,836,327
AROMATIC ALCOHOL-AROMATIC ALDEHYDE CARRIER DYEING OF AROMATIC POLYAMIDES

Friedrich F. Bartsch, Westfield, N.J., assignor to Sybron Corporation, Rochester, N.Y.

Continuation-in-part of Ser. No. 105,093, Jan. 8, 1971, abandoned. This application July 20, 1972, Ser. No. 273,516

Int. Cl. D06p *1/86*

U.S. Cl. 8—173 **9 Claims**

Yarns and other shaped articles made of aromatic polyamides of the non-flammable type are dyed by a process which includes treating the material with a cationic dye composition using as a carrier a blend of an aromatic aldehyde and an aromatic alcohol in which the aromatic alcohol is present in a ratio of greater than 1 part of the aromatic alcohol per each part of the aromatic aldehyde. A typical dye carrier blend consists of 10 grams per liter of dye bath of p-tolylaldehyde and 30 grams per liter of dye bath of benzyl alcohol.

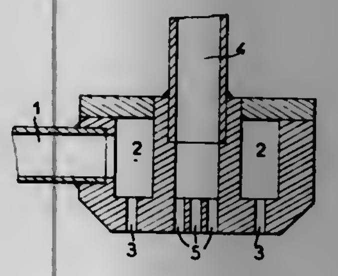
3,836,328
SURFACE STERILIZATION

Max P. Beauvais, Eure, and Jacques Brell, Paris, both of France, assignors to Reynolds Metals Company, Richmond, Va.

Filed July 26, 1972, Ser. No. 275,430

Int. Cl. A61l *1/00*; **B05b** *7/08*

U.S. Cl. 21—56 **3 Claims**



A surface sterilization method and blowtorch or burner for used in connection therewith. Jets of an ignited combustible mixture and a sterilizing fluid are projected toward a surface to be sterilized. The sterilizing fluid is heated by the flame of the burner and then contacts the surface to be sterilized in order to achieve sterilization. In a preferred form, saturated steam is used as the sterilizing fluid. The saturated steam becomes superheated as it expands when it leaves the burner and as it is heated by the flame thereof. The amount of saturated steam which leaves the burner is controlled to effect at least partial condensation of the superheated steam on the surface to be sterilized and the condensate is then re-evaporated with the aid of the heat of the flame. The blowtorch or burner construction establishes jets of an ignited combustible mixture and the sterilizing fluid which are mixed exteriorly of the burner.

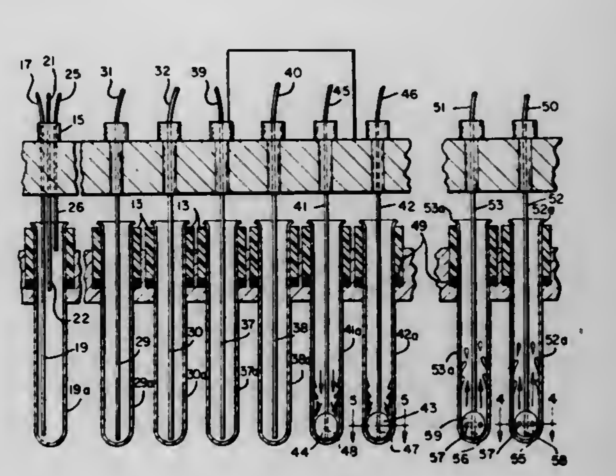
3,836,329
METHOD AND APPARATUS FOR REMOVING LIQUID FROM CONTAINERS

Michael Jordan, South Merrimack, N.H., assignor to Damon Corporation, Needham Heights, Mass.

Filed Oct. 22, 1971, Ser. No. 191,889

Int. Cl. B08b *5/04*, *9/00*; **G01n** *31/00*

U.S. Cl. 23—230 R **19 Claims**



An apparatus for removing a liquid from a container such as a test tube comprising a probe having a diameter slightly smaller than the container inside diameter. The probe has a bore connected to a source of gas at a superatmospheric or subatmospheric pressure which effects a gas flow between the probe and container to entrain liquid from the container into the gas stream.

3,836,330
METHOD OF RAPIDLY DETERMINING THE PLASTICITY INDEX OF CALCEREOUS MATERIALS

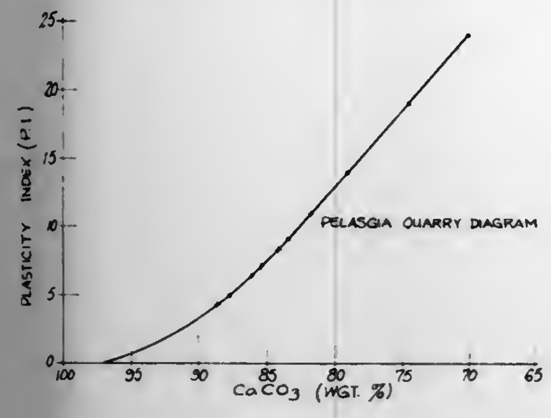
Basil D. Melachrinos, Volos, Greece, assignor to Theophanis Paraskeva, Seymour, Conn.

Filed Feb. 22, 1973, Ser. No. 334,949

Int. Cl. G01n *33/24*, *33/38*, *33/42*

U.S. Cl. 23—230 R **5 Claims**

The plasticity index of calcareous materials is rapidly determined by drawing up a quarry diagram representing the calcium carbonate percentages and plasticity indices of representative samples from a quarry producing the calcareous materials, wherein the samples contain a clay component from the same quarry ranging from about 5 to about 30 percent of the sample, and then determining the plasticity index of further samples of the calcareous materials by analyzing the samples for calcium carbonate content and reading the corresponding plasticity index on the quarry diagram.



3,836,331

COLORIMETRIC DETERMINATION OF IRON

Lawrence L. Stookey, Ames, Iowa, assignor to Hach Chemical Company, Ames, Iowa

Division of Ser. No. 49,579, June 24, 1970,. This application Apr. 19, 1973, Ser. No. 352,734

Int. Cl. G01n *31/22;* **C07d** *57/34*

U.S. Cl. 23—230 R **2 Claims**

3-(2-pyridyl)-5,6-bis(phenylsulfonic acid)-1,2,4-triazine and certain salts thereof, e.g. sodium, are provided together with a method for forming such compounds. These compounds are useful as reagents in the spectrophotometric determination of iron in water or other solutions.

3,836,332

DETERMINATION OF VANILMANDELIC ACID IN URINE

Gerald E. James, San Mateo, Calif., assignor to Oxford Laboratories, Foster City, Calif.

Filed June 6, 1973, Ser. No. 367,632

Int. Cl. G01n *21/20, 33/16*

U.S. Cl. 23—230 B **3 Claims**

The concentration of vanilmandelic acid in urine is determined by contacting a measured urine sample with an anion exchange resin to adsorb contained vanilmandelic acid, washing residual urine from the resin, desorbing vanilmandelic acid from the resin, diazotizing the desorbed vanilmandelic acid, extracting the diazotized vanilmandelic acid from the diazotization reaction mixture with cyclohexanone, determining the absorbance of about 590 μ light by the extract and determining vanilmandelic acid content of the extract by comparing the absorbance of the extract with the absorbance of solutions having known contents of vanilmandelic acid.

3,836,333

SYSTEM FOR TIMING THE COAGULATION OF BLOOD

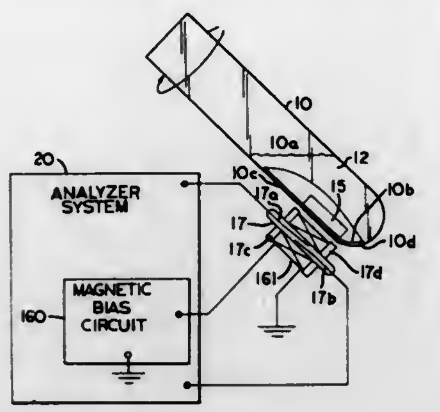
Michael D. Mintz, Edison Twp., Middlesex County, N.J., assignor to International Technidyne Corporation, Edison, N.J.

Continuation-in-part of Ser. No. 19,003, March 2, 1970, Pat. No. 3,695,842. This application Sept. 29, 1972, Ser. No. 293,396

Int. Cl. G01n *11/10, 33/16*

U.S. Cl. 23—259 **13 Claims**

Sensitivity of a magnetically coupled mechanical blood clot timing system is increased by providing an adjustable source of steady and time varying magnetic flux lines which couple a ferromagnetic member immersed in the blood sample with a variable conductance device disposed adjacent to the test vessel. A relative motion is produced between the member and the vessel. A predetermined change in the conductance of the device is detected when the blood clots and there is a change in the magnetic flux lines. Stability of the system is improved by shaping the test vessel to permit free rotation of the member.



3,836,334

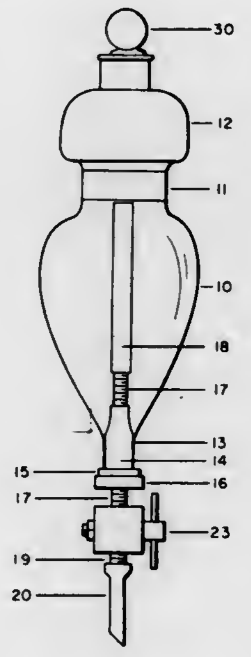
SEPARATORY FUNNEL

Narbik A. Karamian, 5117 Wilson Ln., Bethesda, Md. 20014

Filed Mar. 12, 1973, Ser. No. 340,108The portion of the term of this patent subsequent to Jan. 30, 1991, has been disclaimed.

Int. Cl. B01d *17/02*

U.S. Cl. 23—259 **6 Claims**



A separatory funnel particularly useful for preparing samples to be fed as a solution of a salt in an organic solvent for analysis of trace elements, for example, by atomic absorption spectrometry. The device consists of a specially designed flask structure and an adjustable conduit which extends up into the flask portion of the separatory funnel for removing the upper liquid layer. For removing the lower liquid layer the same conduit extending up into the flask may be used.

3,836,335

REAGENT STORAGE AND DISPENSING SYSTEM

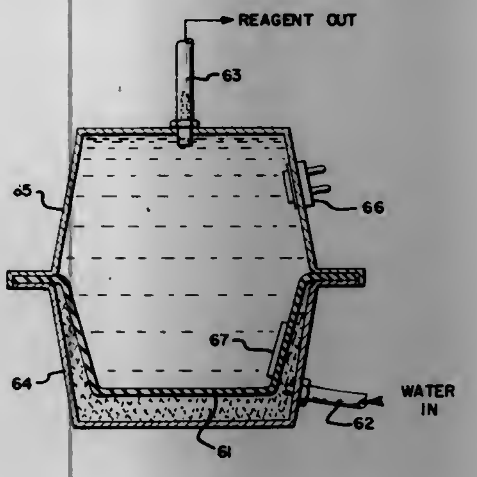
William R. Eppes, Cary, N.C., assignor to Corning Glass Works, Corning, N.Y.

Filed June 1, 1973, Ser. No. 366,130

Int. Cl. G01n *1/10*

U.S. Cl. 23—259 **10 Claims**

Pressure vessels each have a movable separator which divides the vessel into two chambers. During filling, reagent is supplied to one chamber. During a dispensing operation, water pressure is applied to the other side of the separator. Solenoid valves are selectively operated to dispense accurate volumes of reagent from the vessels under pressure supplied by the water on the other side of the separator.



3,836,336

APPARATUS FOR CONTINUOUS XANTHATION AND SOLUTION OF ALKALI CELLULOSE

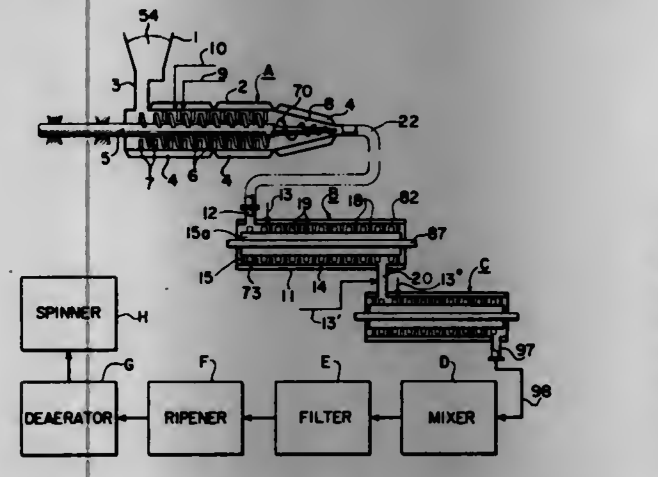
Koichi Yasui; Kazuo Yamamoto; Kazuo Itami; Kiyoshi Fujisawa, all of Miyazaki, and Toshio Sasaki, Osaka, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 36,825, May 13, 1970, Pat. No. 3,671,279. This application Nov. 11, 1971, Ser. No. 197,765

Claims priority, application Japan, May 13, 1969, 44-36337; July 17, 1969, 44-56298

Int. Cl. C08b *9/00*

U.S. Cl. 23—260 **3 Claims**



This invention relates to an apparatus for xanthate-formation from alkali cellulose, carbon bisulfide and aqueous alkali solution. The apparatus is characterized by two kneaders connected one to the other. The first kneader is characterized by having a kneading rotor rotatably and reciprocatably mounted. The second kneader is characterized by having a rotor fitted with kneading pins studded thereon and inside cooling means.

3,836,337

LIXIVIATING APPARATUS

Henning Anton Bruniche-Olsen, Gentofte, Denmark, assignor to Aktieselskabet De Danske Sukkerfabrikker, Copenhagen, Denmark

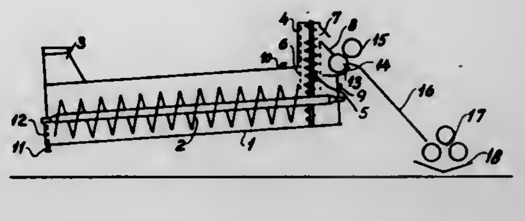
Filed Aug. 3, 1971, Ser. No. 168,593

Claims priority, application Netherlands, Aug. 4, 1970, 7011540

Int. Cl. B01d *11/02*

U.S. Cl. 23—270 R **2 Claims**

In a lixiviating apparatus comprising an inclined lixiviating trough having means for supplying disintegrated material at its lower end, two screw conveyors for transporting the disintegrated material from the lower end of the trough towards its upper end, means for discharging lixiviated material at its upper end, means for introducing lixiviating liquid at the upper end of the trough and means for removing enriched lixiviating liquid from its lower end, and two pressing devices for successive removal of liquid from the lixiviated material and means for recycling the pressed-off liquid to the trough, said first pressing device comprising a lower rotatable cylinder having a cylinder wall which is pervious to liquid and a rotatable pressure cylinder co-operating with said lower cylinder.



3,836,338

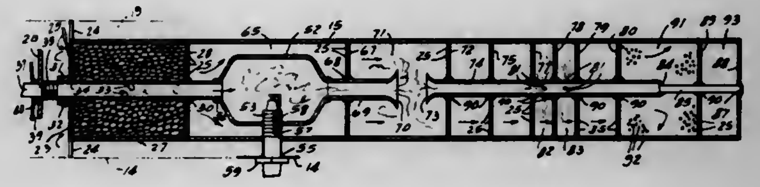
ANTI-POLLUTION EXHAUST BURNER AND MUFFLER FOR INTERNAL COMBUSTION ENGINES

Harold E. Arnold, 1332 E. Samuel St., Peoria Heights, Ill. 61614

Filed Feb. 11, 1972, Ser. No. 225,408

Int. Cl. F23g *7/06;* **F23c** *9/04*

U.S. Cl. 23—277 C **17 Claims**



Anti-pollution control especially relevant to internal combustion engines involves producing intense consuming heat in a combustion tube, delivering engine exhaust gases into preheating relation to the outside of the tube wall, directing the preheated exhaust gases into the tube and therein subjecting the gases to the consuming heat and effecting complete combustion of combustible material entrained in the gases, and finally receiving the completely burned out exhaust gases from the tube in an expansion and muffle chamber and releasing them to atmosphere.

3,836,339

REACTOR FOR THE PRODUCTION OF LEAD OXIDE WITH A HIGH FREE-LEAD CONTENT

Andre Jose Lesbros, and Max Jacques Raoul Brachet, both of Rieux, France, assignors to Societe Miniere Et Metallurgique De Penarroya, Paris, France

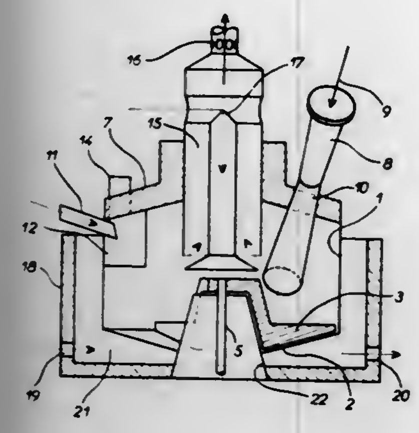
Filed June 7, 1972, Ser. No. 260,456

Claims priority, application France, June 10, 1971, 71.21066

Int. Cl. B01j *2/02;* **C01g** *21/02;* **H01m** *39/00*

U.S. Cl. 23—277 R **6 Claims**

A reactor for partially oxidizing molten lead with air to produce lead oxide with a high free-lead content includes a chamber, a variable speed rotatable stirrer positioned in the chamber, an air inlet venturi extending into the chamber and inclined from the vertical in the direction of rotation of the stirrer, a spout for introducing molten lead into the chamber, a deflector mounted upstream of the spout with respect to the direction of rotation of the stirrer, an exhaust duct for the lead oxide extending into the chamber, being substantially aligned with the vertical axis of the chamber and having adjustable holes communicating with the atmosphere, means for cooling



the chamber and means for creating a sub-atmospheric pressure in the chamber.

3,836,340

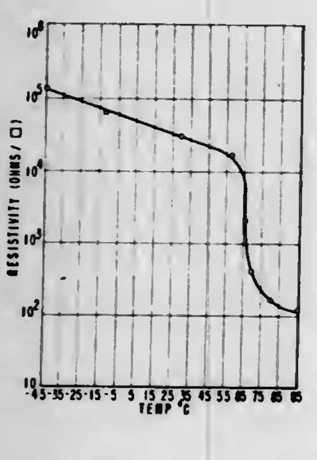
VANADIUM BASED RESISTOR COMPOSITIONS

Joel Alfred Conwicke, Youngstown, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 3, 1972, Ser. No. 214,648

Int. Cl. B22g *1/00*

U.S. Cl. 29—182.5 **3 Claims**



Screen printable, air fireable compositions comprising a vanadium glass, boron, and as optional components, noble metal and/or a low melting inorganic binder, wherein the vanadium glass contains 5–55 percent vanadium metal and from a small but effective amount up to 10 percent of fluorine and, sulfur. Various electronic devices are readily made from these compositions. A unique feature of the devices is their sensitivity to voltage as well as temperature. Consequently, the fired compositions are particularly useful whenever switching devices are needed, e.g., as transient suppressors in electronic equipment.

3,836,341

WEAR RESISTANT COMPOSITE CYLINDER LININGS

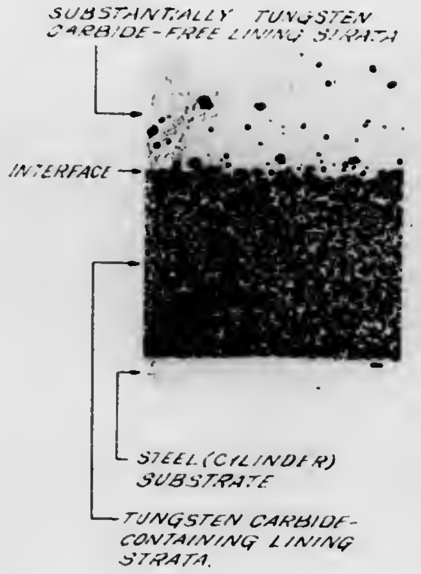
Gilbert A. Saltzman, Plainfield, N.J.; Tony U. Otani, Pulaski, Va., and Donald P. Lomax, Oconomouoc, Wis., assignors to Xaloy Incorporated, New Brunswick, N.J.

Continuation-in-part of Ser. No. 197,374, Nov. 10, 1971, abandoned. This application Oct. 10, 1972, Ser. No. 296,009

Int. Cl. B21c *37/06*

U.S. Cl. 29—191.6 **6 Claims**

A wear- and corrosion-resistant lining material for extruder barrels or injection molding machine cylinders. constituted of a non-ferrous, tungsten carbide-containing alloy material incorporating from 30 to 45% tungsten carbide, 22 to 61% nickel, up to 37% cobalt, up to 12% chromium, 1.3 to 3.0% boron, 0.7 to 3.3% silicon, and up to 1.0, 3.3 and 0.6% of manganese, iron and carbon, respectively, all percentages being given by weight. The lining is centrifugally cast with the tungsten carbide particles dispersed differentially across a substantial proportion of the thickness thereof.


SUBSTANTIALLY TUNGSTEN CARBIDE-FREE LINING STRATA
INTERFACE
STEEL (CYLINDER) SUBSTRATE
TUNGSTEN CARBIDE-CONTAINING LINING STRATA

3,836,342

GASOLINE CONTAINING A METHYL PHENOL AND AN ETHER

Jer-Yu Shang; Barry A. Bisson, both of Wilmington, Del., and Raymond Wynkoop, Gladwyne, Pa., assignors to Sun Research and Development Co., Philadelphia, Pa.

Filed June 23, 1972, Ser. No. 265,850

Int. Cl. C10l *1/02*

U.S. Cl. 44—56 **13 Claims**

A useful fuel for an internal combustion engine comprises a hydrocarbon base stock of gasoline boiling range, a methyl-substituted phenol and an ether containing a branched alkyl group and boiling below 460°F., said phenol and said ether each being present in amount (e.g., 0.1–15 wt. %) sufficient to increase the Research octane number (RON). The invention also includes a gasoline blending system. For example, preferred compositions can be made by blending 89 RON gasoline containing 5 vol. % p-cresol with 97 RON gasoline containing 5% methyl methoxy propane. Beneficial synergism is noted in such blends for RON blending values.

3,836,343

BRIQUETTE AND PROCESS FOR MAKING THE SAME

Ingo Romey, and Georg Koelling, both of Essen, Germany, assignors to Bergwerksverband GmbH, Essen, Germany

Filed Mar. 14, 1973, Ser. No. 341,025

Claims priority, application Germany, Mar. 15, 1972, 2212460

Int. Cl. C10l *5/14, 5/40*

U.S. Cl. 44—25 **11 Claims**

A process for the production of smokeless carbon-containing briquettes is disclosed wherein particulate carbonaceous material is mixed with an aqueous suspension of copolymers of butadiene-acrylonitrile. The resulting mixture is compressed so as to form high strength smokeless briquettes.

3,836,344

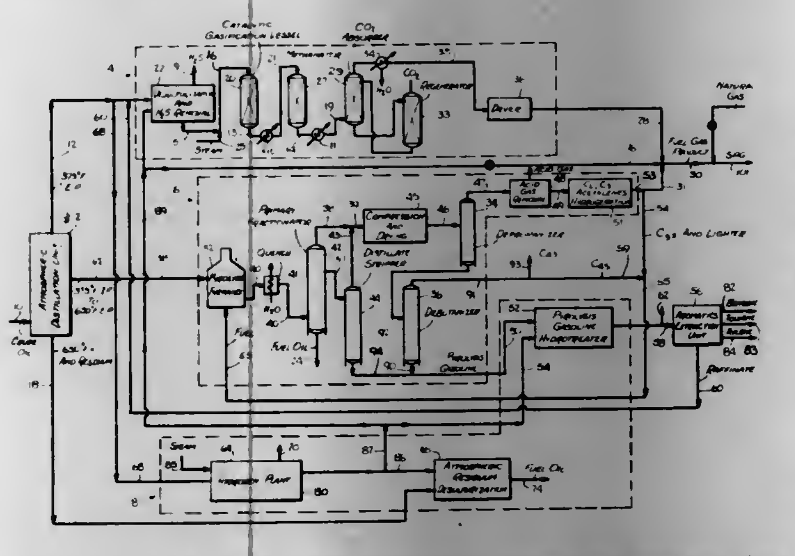
PROCESS AND SYSTEM FOR THE PRODUCTION OF SUBSTITUTE PIPELINE GAS

Leonard Krawitz, 15 Richard, Needham, Mass. 02192; Frank J. Maslyk, 12118 Boheme Dr., and Leland W. Patterson, 418 Wycliffe, both of, Houston, Tex. 77024

Filed Aug. 17, 1972, Ser. No. 281,376

Int. Cl. C10g *9/46*

U.S. Cl. 48—211 **17 Claims**



Process and system for producing substitute pipeline gas (SPG) from crude oil. The process includes separation of the crude oil into several fractions, catalytic gasification of the crude oil fraction boiling below about 375°F., pyrolysis treatment of the middle distillate of the crude oil, blending of the catalytically gasified product and the C_3's and lighter product produced by the pyrolysis treatment, and the production of fuel oil from the heavy high boiling fraction of the crude oil feed. A self-contained hydrogen generation plant is included for hydrotreatment within the system.

3,836,345

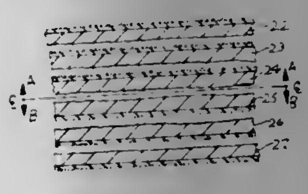
LAMINATED GRINDING WHEEL

Richard H. Graham, Cincinnati, Ohio, assignor to Cincinnati Industries, Inc., Cincinnati, Ohio

Continuation-in-part of Ser. No. 784,032, Dec. 16, 1968, abandoned. This application Aug. 9, 1971, Ser. No. 170,333

Int. Cl. B24d *11/02*

U.S. Cl. 51—297 **7 Claims**



A laminated grinding wheel composed of a plurality of plies of universally stretchable creped paper bonded together by means of a thermosetting resin, with layers of abrasive grit particles interposed between adjoining plies of the creped paper, the grit particles being embedded or nested in the gatherings of the creped sheets which effectively stretch and flex to receive the grit particles with essentially negligible puncturing of the creped paper plies as the laminated structure is molded under pressure prior to curing.

3,836,346

APPARATUS FOR PRODUCING FIBROUS MATERIAL

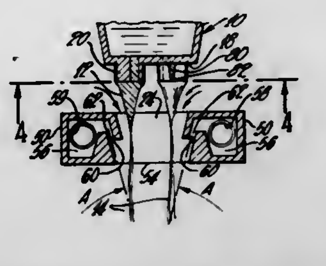
Charles J. Stalego, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Aug. 17, 1973, Ser. No. 389,094

Int. Cl. C03b *37/02*

U.S. Cl. 65—1 **20 Claims**

Apparatus for producing filaments from heat-softened filament forming material comprising a container for holding heat-softened filament forming material, two rows of orificed projections extending from a wall of the container for emitting streams of heat-softened filament forming material for attenuation into filaments and means for attenuating the streams



into filaments that tends to cause movement of air across each of the rows towards the other during attenuation; the orificed projections in each of the rows have thicker wall portions at their windward sides to resist the erosive effect of air movement during attenuation.

3,836,347

CONTINUOUS PRODUCTION OF LIGHT-CONDUCTING GLASS FILAMENTS WITH REFRACTIVE INDEX GRADIENT

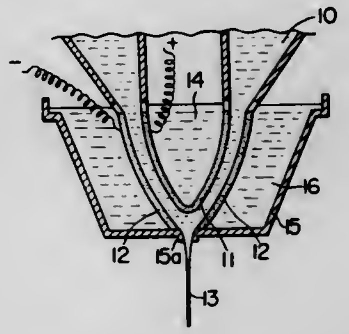
Seiichi Ono; Ken Koizumi, and Itami Mitsugi Yoshiyagawa, all of Takarazuka, Japan, assignors to Nippon Selfoc Kabushiki Kaisha, Tokyo-To, Japan

Continuation-in-part of Ser. No. 876,002, Nov. 12, 1969, abandoned. This application Apr. 6, 1972, Ser. No. 241,832

Claims priority, application Japan, Nov. 18, 1968, 43-84723

Int. Cl. C03b *37/00, 15/00;* **G02b** *5/14*

U.S. Cl. 65—2 **7 Claims**



An electric current is passed by means of electrode means through a body of molten glass which is maintained at a temperature above its softening point and is flowing in contact with the electrode means to be spun continuously into a glass filament, whereby a modifying oxide is caused to have its ions undergo ion-exchange with ions which can increase or decrease the refractive index of the glass through the ion-exchange and are provided by the electrode means or is caused to undergo electrolysis by the electric current. The ion-exchanger or electrolysis is so controlled that a distribution of refractive index in which the refractive index of the glass decreases continuously from the center line and toward the outer surface of the filament is established within the filament.

3,836,348

METHOD FOR MANUFACTURING OPTICAL INTEGRATED CIRCUITS UTILIZING AN EXTERNAL ELECTRIC FIELD

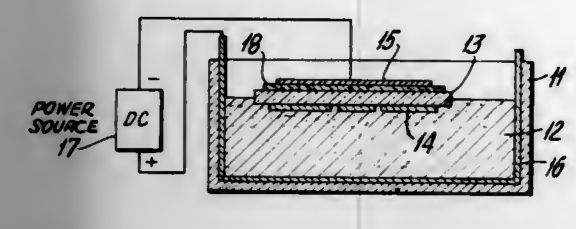
Toru Sumimoto; Shigeo Matsushita; Tadafumi Fujiwara, all of Tokyo; Ken Koizumi, and Tetsuya Yamazaki, both of Hyogo, all of Japan, assignors to Nippon Selfoc Company, Limited, Tokyo, Japan

Filed Feb. 22, 1973, Ser. No. 334,593

Int. Cl. C03c *21/00*

U.S. Cl. 65—30 **7 Claims**

A method for manufacturing optical integrated circuits forms light guide paths in a substrate by an ionic exchange process. Ions initially present in the substrate are replaced by ions from a source thereof to locally increase the substrate index of refraction, thereby forming light guides, in a pattern dependent upon a mask disposed intermediate the substrate and the ion source.



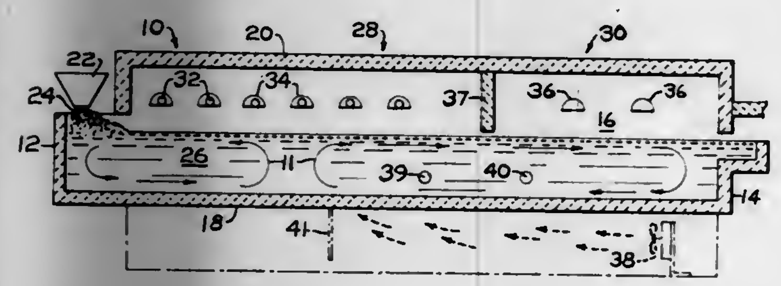
An electric field is externally applied in the direction of ionic migration to provide light guide walls exhibiting abrupt variations in refractive index.

In accordance with one aspect of the present invention, a light guide may be shifted into the interior of the substrate.

3,836,349
METHOD OF MAKING GLASS

Leonard A. Knavish, Plum Borough, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 26, 1972, Ser. No. 300,952
Int. Cl. C03b *5/22*
U.S. Cl. 65—134 **14 Claims**



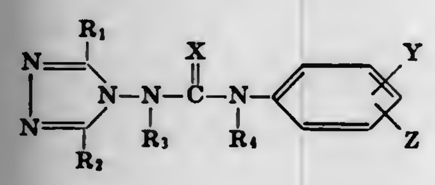
Cooling of flat glass in a continuous glass-melting furnace from at least two locations within the molten glass, in combination with substantial cooling through the bottom of the furnace, enables operation of the furnace at heretofore unattainable throughputs. The use of submerged coolers in combination with bottom cooling reduces convection flow and convolutions in the glass, thereby improving the quality of the resulting glass. Signficantly reduced fuel consumption per ton of glass product is also achieved.

3,836,350
UREIDOTRIAZOLES AS YIELD INCREASING AGENTS FOR CROP PLANTS

Maged M. Fawzi, and Bruno Quebedeaux, Jr., both of Wilmington, Del., E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 191,061, Oct. 20, 1971, abandoned. This application Sept. 29, 1972, Ser. No. 293,540
Int. Cl. A01n *9/22*
U.S. Cl. 71—92 **3 Claims**

Phenylureidotriazoles of the formula:



where R_1, R_2, R_3, and R_4 are hydrogen or alkyl, X is oxygen or sulfur, Y is hydrogen or fluorine and Z is hydrogen, halogen, nitro group, cyano group, trifluoromethyl, alkyl, alkoxyl or alkylthio group, are effective as antisenescence agents. They are useful for increasing the fruit set and enhancing development of crops such as grapes, wheat, and soybeans and for increasing the life of cut flowers.

Exemplary of the class is the compound 4-(3-phenylureido)-4H-1,2,4-triazole.

3,836,351
METHOD OF CONTROLLING PLANT GROWTH WITH 3-SUBSTITUTED-PYRIDO [3,2-D]PYRIMIDINE-2,4-(1H,3H)-DIONES

Anson R. Cooke, Hatboro, Pa.; Richard L. Jacobs, Perrysburg, and Eli Dee Compton, Toledo, both of Ohio, assignors to Amchem Products, Inc., Ambler, Pa.

Division of Ser. No. 832,026, June 10, 1969, Pat. No. 3,752,816, which is a continuation-in-part of Ser. No. 740,047, June 26, 1968, abandoned, which is a continuation-in-part of Ser. No. 740,089, June 26, 1968, abandoned. This application Dec. 26, 1972, Ser. No. 318,406
Int. Cl. A01n *9/22*
U.S. Cl. 71—92 **12 Claims**

A method for controlling plant growth and compounds used in such method. The method includes the step of applying a composition comprising substituted pyrido[3,2-d]pyrimidine-2,4(1H,3H)-diones as herein described to the locus to be protected

As new compositions of matter, 3-substitutedpyrido [3,2-d]pyrimidine-2,4(1H,3H)-diones, where the 3-substituent is a member of the group consisting of alkyl groups having from 2 to 8 carbon atoms, dimethoxyethyl, aralkyl groups such as benzyl, chlorosubstituted benzyl, and lower alkyl and methoxy substituted benzyl, cycloalkyl groups having from 3 to 8 carbon atoms, pyridyl substituted alkyl groups having from 1 to 2 carbon atoms, alkenyl groups having not more than 8 carbon atoms, tetrahydrofurfuryl aryl, pyrrolidino, piperidino, homopiperdino, and septamethyleneimino, and 1,3-disubstituted analogues.

3,836,352
HERBICIDAL METHOD UTILIZING N SUBSTITUTED HETEROCYCLIC COMPOUNDS

Wendell Gary Phillips, Olivette, Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 878,918, Nov. 21, 1969, Pat. No. 3,702,361. This application June 7, 1972, Ser. No. 260,674
Int. Cl. A01n *9/22*
U.S. Cl. 71—94 **4 Claims**

Pyridinium, pyridazinium, pyrimidinium, and pyrazinium halides respectively having an N-(phenacyl) substituent and the corresponding ylids obtained therefrom by alkaline treatment which compounds are useful as herbicides and/or insecticides.

3,836,353
PELLET RECLAMATION PROCESS

Carl A. Holley, 116 Marian Ave., Glenshaw, Pa. 15116

Continuation of Ser. No. 768,727, Oct. 18, 1968, abandoned. This application Mar. 24, 1971, Ser. No. 127,748
Int. Cl. C21b *1/30*
U.S. Cl. 75—3 **7 Claims**

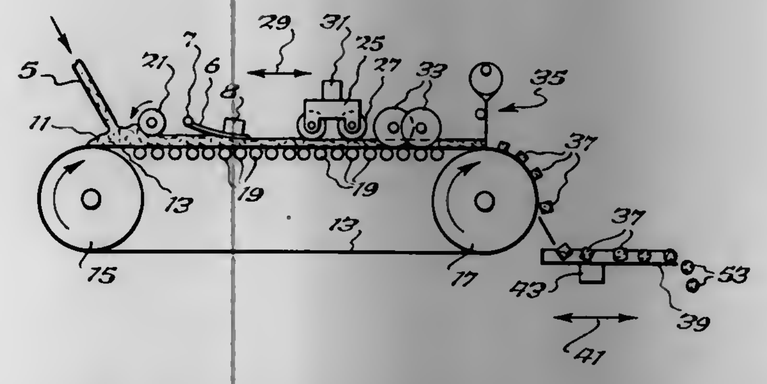
A method of recovering iron and oxide impurities from steel furnace dust in which the dust first is mixed with finely divided

coke and then this mixture is pelletized. The green pellets thus formed are deposited over a layer of burnt pellets on a rotary hearth which successively conveys the pellets first through a drying zone, then through an initial heating zone in which the pellets are gradually raised to a temperature at which the coke starts to burn, then through a decontamination zone in which the pellet temperature is rapidly raised to a degree at which zinc, lead and sulfur impurities vaporize and in which these impurities are carried off and collected as oxides, and finally the pellets are carried through a reoxidation and hardening zone in which the temperature thereof is further increased to a sufficient degree and held for a long enough period of time to permit the growth of grains of an oxide of iron on the surface of the pellets, thus to form hard bonded pellets which are not fused together.

3,836,354
PRODUCTION OF PELLETS

Fritz O. Wienert, 394 Roosevelt Ave., Niagara Falls, N.Y. 14305

Continuation-in-part of Ser. No. 156,910, June 25, 1971, abandoned, which is a continuation-in-part of Ser. No. 785,132, Dec. 19, 1968, abandoned. This application May 16, 1973, Ser. No. 360,640
Int. Cl. C21b *1/22;* **C22b** *1/24*
U.S. Cl. 75—3 **23 Claims**



Durable pellets of a uniform desired size and uniform dense particle packing are produced from a mixture of a liquid, and if desired, fusible and pyrolyzible hydrocarbons and a binder, with finely divided particles of carbon-reducible oxides or oxidic materials, carbon, and mixtures thereof, the particles being in sizes favorable to dense packing. Such a mixture is spread on a horizontal surface to form a layer of uniform desired thickness which is consolidated, by moving a vibrating face under a load in contact with and over the upper surface of said layer, to a densely packed plastic layer of uniform thickness, a slight amount of the liquid being exuded and wetting the vibrating face. The layer is then divided into cube-like bodies of equal size which are rounded by tumbling to pellets of uniform size and uniform dense particle packing. The pellets may be dried for subsequent heat induration or partially dried and impregnated with a binder solution prior to heat induration, or heated for bonding by hydrocarbons and their pyrolysis residues when hydrocarbons are employed in the mixture from which the pellets are formed.

3,836,355
STEEL POWDER CONTAINING PHOSPHORUS

Per Folke Lindskog, and Lars-Erik Svensson, both of Hoganas, Sweden, assignors to Hoganas AB, Hoganas, Sweden

Filed Apr. 11, 1973, Ser. No. 349,918
Claims priority, application Sweden, May 2, 1972, 005754/72
Int. Cl. B22f *1/00;* **C22c** *39/54*
U.S. Cl. 75—.5 BA **9 Claims**

In the manufacture of articles by compacting and sintering steel powder it is desired that the articles shall neither expand nor shrink during the sintering process. It has been found useful to incorporate into the steel powder an iron-phosphorus alloy powder having the approximate composition Fe_3P, in a quantity to give the article a phosphorus content of 0.2 – 3 per cent by weight.

3,836,356
METHODS OF TREATING SILICIOUS MATERIALS TO FORM SILICON CARBIDE

Meherwan C. Irani, Pittsburgh, Pa., assignor to Eugene F. Buell, Pittsburgh, Pa.

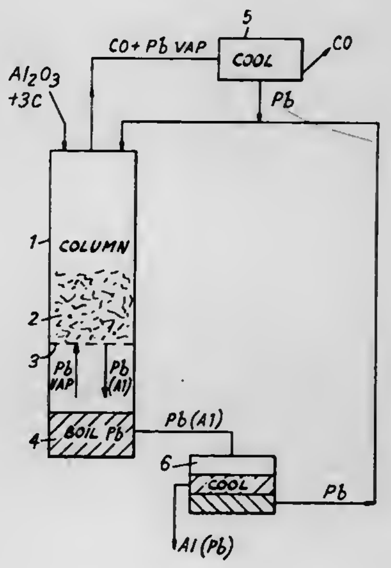
Continuation-in-part of Ser. No. 764,041, Sept. 26, 1968, abandoned. This application Sept. 5, 1969, Ser. No. 855,766
Int. Cl. C21B *13/00*
U.S. Cl. 75—33 **5 Claims**

A method is provided for treating oxygen bearing silicious materials, particularly those containing ferrous metal to produce silicon carbide and metallic iron comprising the steps of mixing a silicious material with at least a stoichiometric amount of carbon to combine with the oxygen bearing silicon compounds in the material to form silicon carbide and to reduce the oxygen compounds of iron to the metallic state, heating the mixture in a non-oxidizing atmosphere to a temperature in excess of 2,500°F., holding the temperature until there is no further reaction between silicon and carbon, comminuting the resulting product to free any metallic iron formed, separating the metallic iron magnetically and collecting the non-magnetic residue as silicon carbide.

3,836,357
DIRECT REDUCTION PROCESS FOR PRODUCTION OF ALUMINIUM

Ernest William Dewing, Arvida, Quebec, Canada, assignor to Alcan Research and Development Limited, Montreal, Quebec, Canada

Filed Feb. 1, 1973, Ser. No. 328,747
Claims priority, application Great Britain, Feb. 8, 1972, 5901/72
Int. Cl. C22b *21/02*
U.S. Cl. 75—68 A **3 Claims**



In a process for the production of aluminium, alumina is reacted with carbon at an elevated temperature in the range of 1,600° – 2,500° C. The heat to support the endothermic reaction is provided by passing a stream of lead and/or bismuth vapour into the mass and allowing the metal vapour to condense to the liquid phase. The liquid metal alloys with the produced aluminium to reduce its activity and to remove it from the reaction zone whilst the flow of metal vapour through the reaction zone reduces the concentration of carbon monoxide.

3,836,358
ADDITION AGENT

Robin Mackay Forbes Jones, Suffern, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.

Filed July 16, 1973, Ser. No. 379,565
Int. Cl. C22c *13/20*

U.S. Cl. 75—122 **10 Claims**

Composition and process for improving the castability of nickel-chronium alloys with addition agent comprising nickel, chromium, iron, silicon and boron.

3,836,359
METHOD OF PRODUCING LEADED STEEL

Jerry D. Thomas, Parma, and Cecil B. Griffith, North Royalton, both of Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio

Filed June 19, 1972, Ser. No. 264,012
Int. Cl. C22c *33/00*

U.S. Cl. 75—129 **13 Claims**

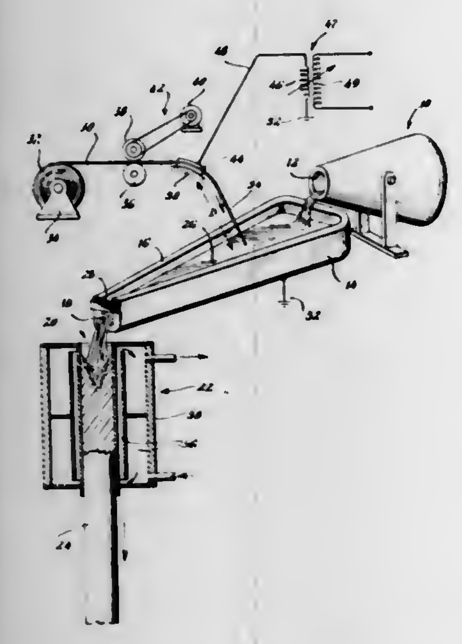
High lead content of uniformly dispersed finely divided particles is obtained in cast steel through a programmed addition of lead to molten steel in a vessel and control of other process factors, such as temperature, agitation and slag cover, affecting dissolution and retention of lead in molten steel. In the addition of lead, an initial quantity is introduced to the steel, large with respect to the time during which it is added as compared with the total lead added relative to the total time span of lead addition, and subsequently additional led is added, the total sufficient to produce a lead content in the steel greater than 0.15 percent by weight and no greater than 0.26 percent by weight. Preferably the total lead is introduced as three to five discrete additions at time intervals of one to fifteen minutes.

3,836,360
METHOD AND APPARATUS FOR PRE-HEATING AND ADDING MASTER ALLOY TO A COPPER MELT

Robert S. Bray, Cheslre, Conn., assignor to The Anaconda Company, New York, N.Y.

Filed July 10, 1972, Ser. No. 269,965
Int. Cl. C22c *1/00*

U.S. Cl. 75—135 **7 Claims**



Method and apparatus for pre-heating and continuously adding a dilute master alloy, for example, such as a master alloy of 2 percent boron-balance copper, to a copper melt flowing through a launder from a source of the molten metal, such as a furnace, into the top of a casting mold. The master alloy is formed as a wire, and the launder is made electrically conductive or an inert electrode is inserted into the molten metal flowing through the launder, while the wire is continuously fed into the flowing metal. In order to avoid quenching of the molten metal and to hasten the introducton of the alloy element into the melt so that thorough alloying can occur during the brief residence time of the flowing metal in the launder, the wire is pre-heated to a temperature level close to its melting point, e.g. within 100°C of the melting point, by feeding an electrical current longitudinally through a predetermined legnth of the wire as it is being fed continously into the flowing metal. The electrically conductive launder or immersed electrode and molten copper serve as one portion of the circuit, and an electrically conductive member positioned to engage the moving wire at a predetermined distance from the liquid level serves as another portion of the circuit, so that the predetermined length of wire immediately above the liquid level is heated.

3,836,361
METHOD OF DEVELOPING AN ELECTROPHOTOGRAPHIC IMAGE WITH A BIAS FIELD

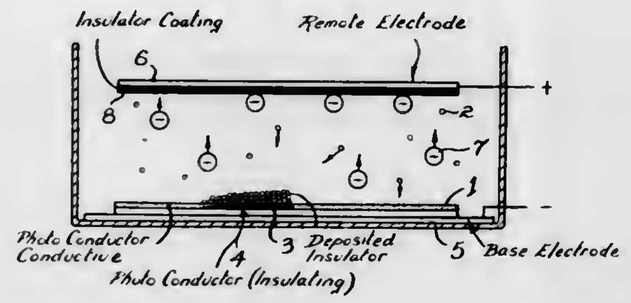
Kenneth A. Metcalfe, Lockleys; Alwin S. Clements, Largs Bay, and Clive W. Wilson, Oaklands Park, all of Australia, assignors to The Commonwealth of Australia, care of the Secretary, Department of Supply, Parker, Canberra, Australia

Filed Oct. 2, 1972, Ser. No. 294,000

Claims priority, application Australia, Sept. 30, 1971, 6478/71

Int. Cl. G03g *9/04, 13/10, 15/10*

U.S. Cl. 96—1 LY **6 Claims**



A method of developing electrostatic images comprising subjecting a surface containing an electrical image to a liquid developer having two dissimilar components, one of which is a first developer component having a polarity such that it develops the image by attracting the first developer component to the image. A bias field is maintained through the liquid such that as the image is developed by the first developer component the second developer component is moved away from the surface being developed. When the first developer has been differentially developed on the surface the polarity of the bias field is reversed to cause the second developer component to be deposited on the first developer component.

3,836,362
IMAGING METHOD

William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 24, 1972, Ser. No. 309,542
Int. Cl. G03g *13/22*

U.S. Cl. 96—1.1 **7 Claims**

A partially migrated migration imaged member comprising a softenable layer and migration marking material partially migrated in image configuration in depth in said softenable layer in response to an electrical latent image of a first polarity is uniformly charged to a low potential opposite the polarity of the electrical latent image of a first polarity, either with or without uniform, e.g., ambient exposure to electromagnetic radiation to thereby desensitize the partially migrated image to further softening development. Charging to low opposite polarity potential during softening development can be used to terminate the effect of development.

3,836,363
COLOR ELECTROPHOTOGRAPHY USING A PHOTOCONDUCTIVE LAYER ON BOTH SIDES OF A MULTICOLOR SCREEN

Thomas Miles Plutchak, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 26, 1972, Ser. No. 318,352
Int. Cl. G03g *13/22, 15/22*

U.S. Cl. 96—1.2 **14 Claims**

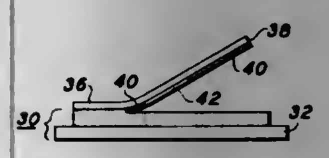
A novel electrophotographic reproduction process for producing a plurality of multicolor prints from a single exposure of a color original. The process makes use of a novel color electrophotograhpic recording element which preferably comprises a pair of pan-sensitive photoconductive layers, each having a conductive electrode in electrical contact therewith, and a multicolor additive filter mosaic which is sandwiched between the conductive electrodes of the photoconductive layers during the reproduction process.

3,836,364
METHOD OF MAKING MULTIPLE IMAGES FROM A MIGRATION IMAGED MEMBER

Luke C. Lin, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Continuation of Ser. No. 21,800, March 23, 1970, abandoned. This application Aug. 17, 1972, Ser. No. 281,615
Int. Cl. G03g *13/00, 13/14*

U.S. Cl. 96—1.4 **12 Claims**



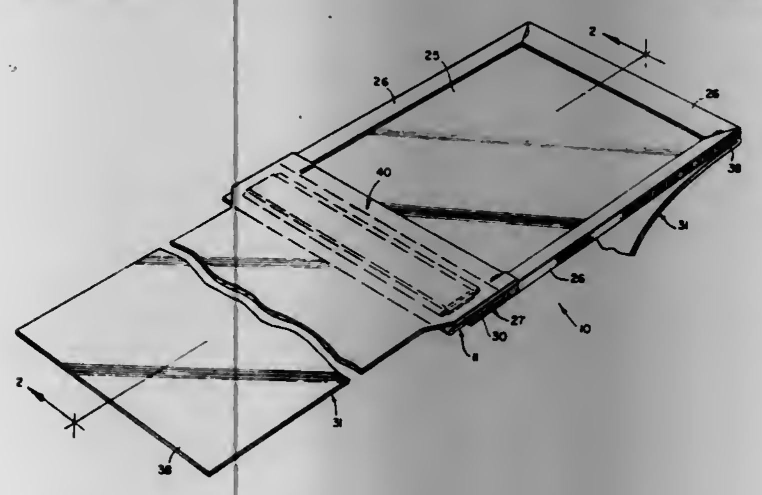
A migration imaged member is contacted with a transfer member wherein upon separation of said members, migration material from said migration imaged member is transferred in image configuration to said transfer member.

3,836,365
NOVEL PHOTOGRAPHIC PRODUCTS AND PROCESSES

Jerome L. Reid, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Mar. 23, 1973, Ser. No. 344,166
Int. Cl. G03c *7/00, 5/54, 1/40*

U.S. Cl. 96—3 **34 Claims**



The present invention relates to photography, particularly, to photographic products specifically adapted for employment in specified photographic diffusion transfer color processes and, more particularly, to photographic products which comprise a fixed or permanent composite photosensitive structure including, as essential layers, in sequence, a first dimensionally stable layer transparent to actinic radiation; a first polymeric layer dyeable by a diffusion transfer process dye image-forming material; a processing composition permeable opaque layer; a photosensitive silver halide layer having associated therewith a diffusion transfer process dye image-forming material; a second polymeric layer dyeable by a diffusion transfer process dye image-forming material; a second dimensionally stable layer transparent to actinic radiation; means for providing opacifying agent intermediate the second dyeable polymeric layer and the next adjacent photosensitive silver halide layer; and means for providing a diffusion transfer process processing composition preferably intermediate the second dyeable polymeric layer and the next adjacent photo-sensitive silver halide layer; and to specified photographic diffusion transfer color processes employing such products.

3,836,366
PLANOGRAPHIC PRINTING PLATES AND METHOD FOR THEIR PREPARATION

Julius L. Silver, Manchester, Conn., assignor to Lith-Kem Corporation, Lynbrook, L. I., N.Y.

Filed Sept. 11, 1972, Ser. No. 288,042
Int. Cl. G03f *7/02*

U.S. Cl. 96—33 **8 Claims**

A planographic printing plate base coated with a polymeric hydrophilic material sensitizable by a diazo compound wherein the surface of the polymeric hydrophilic material is coated with a diazo resin sensitizer and a diazonium salt sensitizer. The resulting printing plate is highly resistant tc "scumming" over extended usage, is also highly resistant to dot sharpening and is characterized by quick start-up and long run.

3,836,367
METHOD FOR PHOTO-MECHANICAL COMPOSITION OF DESIGNS ON STENCILS FOR FILM AND SCREEN PRINTING, PARTICULARLY ROTARY SCREEN PRINTING

Martin Klemm, Gerlafingen, Switzerland, assignor to Fritz Buser AG., Maschinenfabrik, Wilex near Utzenstorf, Switzerland

Filed Apr. 6, 1972, Ser. No. 241,609

Claims priority, application Switzerland, Apr. 13, 1971, 5265/71; June 21, 1971, 9055/71; Aug. 3, 1971, 11432/71

Int. Cl. G03c *5/00*

U.S. Cl. 96—36.4 **7 Claims**

To improve the detail on screen printing, in which images are applied to a printing grid or screen in which a photo-sensitive layer is utilized to be exposed in accordance with the image or composition to be printed, and the non-exposed image portions are removed before printing, the screen is preprocessed to provide it with a smooth surface so that the photo-sensitive layer can, itself, be applied on the screen with a smooth surface of uniform and controllable thickness directly over the printing grid; in a preferred form, the interstices of the printing grid or screen are filled with a filler, and the surface of the grid and the filler is then treated to remove that portion of the filler which is above the grid elements, leaving the filler within the interstices, and a smooth surface over which the photo-sensitive layer can be applied. A plurality of such applications can be made, the photo-sensitive surface itself being exposed to form a lattice screen, which is treated to provide a smooth surface on which a further photo-sensitive layer which is to be exposed with the image, can then be applied.

3,836,368
PHOTOPOLYMERIZABLE ELEMENT COMPRISING A CONJUGATED DIACETYLENE LAYER ON THE PHOTOPOLYMER LAYER

Mong-Jon Jun; Klaus Penzien, both of Ludwigshafen, and Gerhard Wegner, Ingelheim, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhein, Germany

Filed Sept. 20, 1972, Ser. No. 290,709
Int. Cl. G03c *1/76, 3/00*
U.S. Cl. 96—69 **8 Claims**

Photopolymer printing plates having, on top of a photosensitive layer (*a*) attached to a base, a thin layer (*b*) of a suspension of finely crystalline conjugated diacetylene compounds in a binder, which compounds change color when photopolymerized. Such printing plates make possible the production of positive copies of a positive transparency by producing in layer (*b*) an image with areas which do not transmit light by exposure to light having a wavelength of less than 320 mμ and optional fixing, and initiating photopolymerization in layer (*a*) by exposing it through the said image to light having a wavelength of from 320 to 450 mμ and then washing out the unexposed areas of layer (*a*).

3,836,369
DIAZO PHOTOSENSITIVE COMPOSITION

Catharine E. Looney; Rudolph H. Michel, both of Wilmington, Del., and Ronald A. Sahatjian, Watertown, Mass., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sept. 5, 1972, Ser. No. 286,132
Int. Cl. G03c *1/54, 1/58, 1/60*
U.S. Cl. 96—91 R **3 Claims**

Acid-stabilized, light sensitive azo dye-forming compositions comprising a mixture of at least one light sensitive diazonium salts from each of a fast group and a slow group and a mixture of coupler components from each of two groups. These compositions are capable of producing low-contrast images over a wide latitude and are especially useful for electronic video recording systems.

3,836,370
MEROCYANINIC DYES AND THEIR USE IN SILVER HALIDES PHOTOGRAPHIC EMULSIONS CONTAINING THE SAME

Paolo Beretta, Ferrania, and Luigi Magnani, Carcare, both of Italy, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 8, 1972, Ser. No. 232,724
Claims priority, application Italy, Mar. 9, 1971, 48919/71
Int. Cl. G03c *1/10*
U.S. Cl. 96—127 **5 Claims**

Merocyanine dyes comprising a heterocyclic nitrogenous nucleus and a heterocyclic ketomethylene nucleus, and silver halide emulsions containing such dyes.

3,836,371
POLISH INGREDIENT

John G. Kokoszka, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Feb. 7, 1973, Ser. No. 330,375
Int. Cl. C08h *9/06*; **C09a** *1/08*
U.S. Cl. 106—10 **8 Claims**

There is claimed a mixture consisting essentially of (1) 45 to 99.5 percent by weight of a hydroxyl endblocked polydimethylsiloxane having a viscosity in the range of 10 to 15,000 cs. at 25°C., (2) 0.3 to 35 percent by weight of a silane having the formula $(RO)_3SiR'NHR''$ or $(RO)_3SiR'NHCH_2CH_2NH_2$ wherein R is an alkyl radical containing from one to four carbon atoms, R′ is a divalent hydrocarbon radical free of aliphatic unsaturation and contains from three to four carbon atoms, and R″ is a hydrogen atom or a methyl radical, and (3) 0.2 to 25 percent by weight of a silane having the general formula X_3SiZ wherein X is an alkoxy or acyloxy radical containing from one to four carbon atoms and Z is a nonhydrolyzable hydrocarbon or halohydrocarbon radical or a nonhydrolyzable radical composed of carbon, hydrogen and oxygen atoms wherein the oxygen atoms are present in hydroxyl groups, ester groups or ether linkages, there being from one to 10 carbon atoms in the Z radical. This composition is incorporated in polishes, particularly wax containing polishes such as furniture and floor polishes, whereby detergent resistance and easy rub-out are obtained.

3,836,372
METHODS AND MATERIALS FOR TREATING INVESTMENT CASTING PATTERNS

Robert A. Horton, Chesterland, Ohio, assignor to Precision Metalsmith, Inc., Cleveland, Ohio

Filed May 15, 1972, Ser. No. 253,177
Int. Cl. B28b *7/36*
U.S. Cl. 106—38.22 **15 Claims**

Investment casting patterns are treated with a liquid mixture consisting essentially of an aqueous dispersion of colloidal refractory particles and a medium comprising a watersoluble organic liquid in order to render the pattern surfaces hydrophilic and thereby promote uniform surface coverage by water-base refractory slurries used in the production of ceramic shell molds and bulk investment molds.

3,836,373
METHOD OF PREPARING PORCELAIN ENAMEL FRIT FOR DRY PROCESS ENAMELING

Alfred S. Ault, River Forest; Le Roy A. Johnson, Evanston, and Harry J. Van Dolah, Wheaton, all of Ill., assignors to Eagle-Picher Industries, Inc., Cincinnati, Ohio

Filed Feb. 2, 1961, Ser. No. 86,570
Int. Cl. C03c *5/02, 3/22*
U.S. Cl. 106—48 **17 Claims**

1. The method of making an improved titania opacified porcelain enameling frit for dry process application which comprises fritting a molten silicate glass composition containing from about 8 to 24 percent titanium dioxide and thereafter heat treating the frit particles at a temperature of at least 100°F above the interferometer softening point but below the point at which said frit particles become tacky until nucleation of titanium dioxide occurs in the frit particles but before relatively large crystals are formed in said frit particles.

5. A porcelain enamel frit for dry process application comprising a matrix of acid resistant silicate glass containing from about 8 to 24 percent titanium dioxide, said glass having nuclei consisting essentially of titania distributed therethrough, said nuclei being very substantially smaller than the titanium dioxide crystals existing in a titanium dioxide opacified enamel produced by dry process enameling.

3,836,374
HOT PRESSED SILICON NITRIDE

David W. Richerson, Auburn, and Malcolm E. Washburn, Princeton, both of Mass., assignors to Norton Company, Worcester, Mass.

Continuation-in-part of Ser. No. 219,369, Jan. 20, 1972, abandoned. This application Dec. 26, 1972, Ser. No. 318,474
Int. Cl. C04b *35/58*
U.S. Cl. 106—55 **9 Claims**

A hot pressed silicon nitride product is described, the product having high strength at room temperature as well as high strength at elevated temperature. The product has a flexural strength in excess of 100,000 psi at 20°C., in excess of 90,000 psi at 1,200°C., in excess of 35,000 psi at 1,375°C, and preferably above 45,000 psi at 1,375°C. A preferred form of the product includes between .25 and 2.0 mg in the form of complex silicate, which silicate also contains a limited amount of iron, aluminum and calcium. The complex silicate has a liquidus above 1,400°C. The product has a density between 3.1 and 3.3 g/cc, the total oxygen content of the product being less than 5%.

3,836,375
$TiO_2-P_2O_5-Na_2O-WO_3$ OPTICAL GLASSES AND METHOD

Heinz Broemer, Hermannstein; Werner Huber, Steindorf; Norbert Meinert, and Johann Spincic, both of Wetzlar, all of Germany, assignors to Ernst Leitz GmbH, Wetzlar, Germany

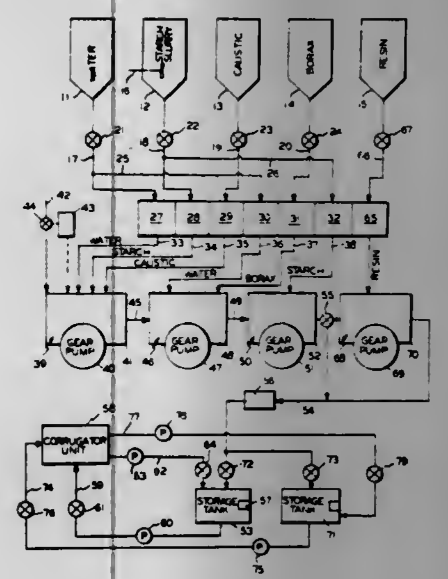
Filed Mar. 26, 1973, Ser. No. 344,578
Int. Cl. C03c *3/16, 3/30*
U.S. Cl. 106—47 Q **10 Claims**

Optical glasses of a high index of refraction n_e between 1.74 and 1.90, a high dispersion ν_e between 25 and 17, and a high positive anomalous partial dispersion are prepared. The essential components of the melt mixture are phosphorus compounds, sodium oxide, titanium dioxide, and tungsten oxide. If desired, said essential components have admixed thereto other glass-forming oxides and phosphates.

3,836,376
STARCH-BASED ADHESIVE COMPOSITIONS

Richard J. Hampton, Pierrefonds, and Brian P. Bonnell, Greenfield Park, Quebec, both of Canada, assignors to The Ogilvie Flour Mills Company, Limited, Montreal, Quebec, Canada

Continuation of Ser. No. 62,792, Aug. 11, 1970, abandoned. This application Dec. 4, 1972, Ser. No. 311,544
Int. Cl. C08b *25/02, 17/22*
U.S. Cl. 106—213 **5 Claims**



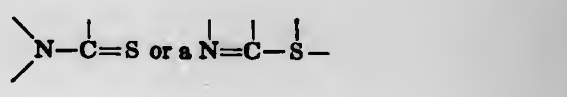
A process for preparing and continuously delivering a finished starch-based adhesive composition, containing a gelatinized starch portion and a raw starch protein, to a site of use, such as a corrugating machine. The process includes continuously delivering formula components, including raw starch slurry, water and caustic, to an adjustable metering device by which means the volume of each component is precisely controlled to attain relative proportions of such components corresponding to a desired formula. Controlled volumes of raw starch slurry, water and caustic are delivered to a first mixing zone wherein the ingredients are heated to produce a gelatinized starch mass of relatively stable viscosity. The gelatinized mass is passed to a second mixing zone. A further volume of water is simultaneously forwarded to the second mixing zone. The gelatinized starch and water in the second mixing zone is blended to form a gelatinized starch medium. The gelatinized starch medium is passed from the second mixing to a third mixing zone. Simultaneously, a further volume of raw starch slurry is forwarded to the third mixing zone. The raw starch slurry is commingled with the gelatinized medium so as to intimately combine the two starch fractions - the gelatinized starch becomes a carrier to hold raw starch slurry in suspension thereby forming the finished starch-based adhesive composition. The finished starch-based adhesive is delivered to a container for temporary storage. When necessary there is further adjusting of the volumes through the metering device of one or more of the adhesive components relative to the other volumes thereby altering prior to use the relative proportions in the finished starch-based adhesive composition, to produce a correct formula. The finished starch-based adhesive composition is passed from the container to the site of use.

3,836,377
CYANOACRYLATE ADHESIVE COMPOSITION

John J. Delahunty, 18 Chalfont Estate, Texas Ln., Malahide Co., Dublin, Ireland

Filed Dec. 7, 1972, Ser. No. 313,061
Claims priority, application Ireland, Dec. 14, 1971, 1584/71
Int. Cl. C08f *3/42*
U.S. Cl. 106—287 **12 Claims**

This invention concerns polymerization accelerators or surface activators for increasing the rate of cure of cyanoacrylate adhesive compositions. The active ingredients of the activators are organic compounds containing a



$$>N-\overset{|}{C}=S \text{ or a } \overset{|}{N}=\overset{|}{C}-\overset{|}{S}-$$

group.

3,836,378
PRODUCTION OF COMPOSITE PIGMENTS OF IRON OXIDE AND CARBON BLACK

Volker Hahnkamm; Jakob Rademachers; Hanno Henkel; Karl Brandle, and Kurt Schafer, all of Krefeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed May 1, 1973, Ser. No. 356,271
Claims priority, application Germany, May 12, 1972, 2223129
Int. Cl. C08h *17/02*
U.S. Cl. 106—288 R **9 Claims**

A process for producing a composite pigment comprising iron oxide and carbon black, comprising introducing into a reaction zone at a temperature of about 450° to 850°C hot gas laden with carbon black, a suspension of iron oxide or hydroxide and a material which binds carbon to iron oxide under the conditions in the reactor. The iron oxide or hydroxide source is preferably a waste sludge and the binder is preferably an organic material such as molasses, tar pitch, sulfite waste liquor and fish glue or an inorganic material such as waterglass or SiO_2 hydrosol. An oxidizing after-treatment renders the pigment hydrophilic.

3,836,379
QUINACRIDONE PIGMENT MIXTURES AND PROCESS FOR PREPARING THEM

Aloys Kirsch; Otto Fuchs, both of Frankfurt/Main, and Ernst Spietschka, Oberauroff, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

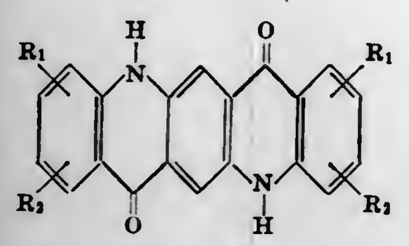
Filed Sept. 28, 1972, Ser. No. 293,135

Claims priority, application Germany, Sept. 30, 1971, 2148866

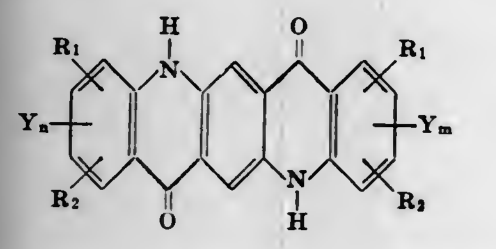
Int. Cl. C08h *17/14*

U.S. Cl. 106—288 Q **9 Claims**

Quinacridone mixtures consisting of 85 to 99.5 percent by weight of one or several linear trans-quinacridones of the general formula



wherein R_1 and R_2 are identical or different and represent a hydrogen or halogen atom, an alkyl or alkoxy group having each 1 to 4 carbon atoms, an aryloxy, aryl, carbonamide or N-alkyl carbonamide group or which represent together the radical of an aromatic or heterocyclic ring, and 0.5 to 15 percent by weight of one or several linear trans-quinacridones of the general formula



wherein Y represents a straight-chained or branched alkyl or alkoxy radical having 6 to 18 carbon atoms, m and n are integers of from 0 to 1 and the sum of n and m being 1 or 2 and R_1 and R_2 having the meanings given above. These mixtures are obtained by mixing with one another starting compound or final products substituted accordingly during the process of preparation or formation and processing in the manner usual for quinacridones. As compared to the single components the mixture thereof is more transparent and has a better color intensity, a better dispersability and fluidity of the lacquers colored with them and frequently more brilliant shades.

3,836,380
DUAL COATING FOR PROTECTING METAL SURFACE DURING HEAT TREATMENT

David W. Kramer, Glendale, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis.

Filed Sept. 21, 1972, Ser. No. 290,806

Int. Cl. C21d *1/68;* **B44d** *1/14*

U.S. Cl. 117—6 **12 Claims**

A temporary vitreous protective coating composition for metal to protect the metal against oxidation and decarburization at temperatures in the range of 1100°F to 2350°F. The coating composition includes a glass frit ground coat which is applied to the metal base and has a sintering temperature in the range of 1600°F to 2000°F. A glass frit cover coat is applied over the ground coat and has a sintering temperature in the range of 1050°F to 1300°F. During heat treatment of the metal base, the cover coat will initially sinter to provide an impervious outer coating, and on continued heating, the inner ground coat will sinter to provide a complete impervious barrier to protect the metal against oxidation and decarburization at the heat treating temperature. On cooling, the coating composition will spall away from the metal so that it can be removed for subsequent processing of the metal base.

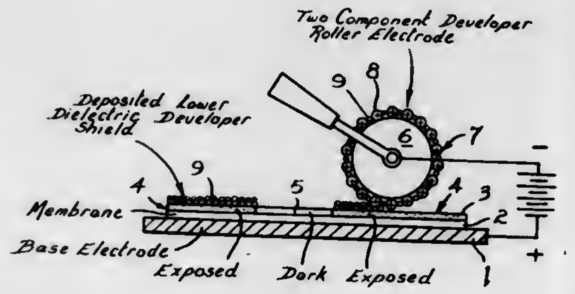
3,836,381
A METHOD OF DEVELOPING A DIELECTRIC PATTERN ON A SEMICONDUCTOR SURFACE USING A TWO-COMPONENT DEVELOPER

Kenneth A. Metcalfe, Lockleys; Alwin S. Clements, Largs Bay, and Clive W. Wilson, Oaklands Park, all of Australia, assignors to The Commonwealth of Australia care of The Secretary, Department of Supply, Parkes, Canberra, Australia

Filed Oct. 2, 1972, Ser. No. 294,001

Int. Cl. G03g *13/08, 13/10*

U.S. Cl. 117—17.5 **13 Claims**


Two Component Developer Roller Electrode
Deposited Lower Dielectric Developer Shield
9
8
6
7
9
4
5
4
3
2
Membrane
Base Electrode
Exposed
Dark
Exposed
1
−
+

A method of developing a dielectric pattern on a semiconductor surface by using a two-component developer, each selective to a different polarity, comprising applying an electrical bias through the surface to deposit on the high dielectric areas of the pattern, a developer component which has a lower dielectric constant than the semiconductive surface to form a relatively insulating shield at the deposition areas. Then the bias polarity is reversed to deposit the other developer component on the unshielded areas, due to the higher dielectric constant at the unshielded area.

3,836,382
PRESSURE-SENSITIVE COPYING MATERIAL

Robert Garner, Bury, and Hans Rudolf Bolliger, Mere, both of England, assignors to Ciba-Geigy AG, Basle, Switzerland

Filed Aug. 30, 1972, Ser. No. 284,808

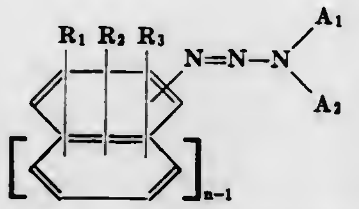
Claims priority, application Great Britain, Sept. 21, 1971, 439/71

Int. Cl. B41c *1/06;* **B41m** *5/00*

U.S. Cl. 117—36.2 **15 Claims**

A pressure-sensitive copying material including at least one pair of sheets, which comprises at least a colour former dissolved in an organic solvent preferably contained in pressure-rupturable microcapsules, an azo coupling component and a solid electron accepting substance, said colour former, upon coming into contact with the azo coupling component and the solid electron accepting substance by azo coupling being able to produce a coloured marking at the points where the pressure is applied, wherein the colour former is a triazen of the formula

(I)



in which R_1, R_2 and R_3 each is hydrogen, alkyl, substituted alkyl, alkoxy, halogen. nitro, acylamino, aminoacyl or alkoxycarbonyl, A_1 and A_2 each is alkyl or phenyl or A_1 and A_2 together with the nitrogen atom form a heterocyclic ring system and n is 1 or 2.

3,836,383
PRESSURE SENSITIVE RECORDING PAPER

Masataka Kiritani; Hiroharu Matsukawa, both of Shizuoka, and Masayuki Aoki, Kanagawa, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

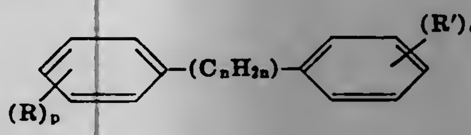
Filed Oct. 27, 1971, Ser. No. 193,151

Claims priority, application Japan, Oct. 27, 1970, 45-94877

Int. Cl. B41c *1/06*

U.S. Cl. 117—36.2 **7 Claims**

A pressure-sensitive recording paper comprising a support having coated thereon a layer of color former, said color former dissolved in at least one compound represented by the following formula:



(I)

wherein n is an integer of 1 to 8, R and R′ each represent a member selected from the group consisting of alkyl groups containing one to eight carbon atoms, and a hydrogen atom, p and q represent the number of alkyl groups, $p+q$ being an integer of 1 to 3, and R and R′ may be the same.

3,836,384
IMAGING SYSTEMS

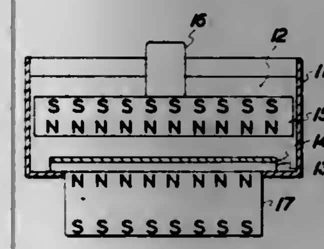
Yasuo Tamai, Asaka, Japan, assignor to Fuji Photo Film Company, Ltd., Tokyo, Japan

Filed Sept. 26, 1969, Ser. No. 20,265

Claims priority, application Japan, Oct. 1, 1968, 43-71385

Int. Cl. G03g *13/10, 15/10*

U.S. Cl. 117—37 LE **21 Claims**



An electrostatographic imaging system of the liquid development type with the space between the development electrode and the imaging surface being maintained substantially constant during development by the repulsive forces of magnetism.

3,836,385
CYCLIC SULFONIUM ZWITTERION-TITANIUM CATALYSTS FOR ALUMINUM PLATING PROCESS

Donald L. Schmidt, and Charles B. Roberts, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Feb. 2, 1972, Ser. No. 222,984

Int. Cl. C23e *3/00*

U.S. Cl. 117—47 R **18 Claims**

An improved process for the application of a decomposition catalytic compound to a substrate, in air, prior to electrolessly aluminum plating the substrate by decomposing an aluminum hydride. A cyclic sulfonium zwitterion, a decomposition catalyst and a mutual solvent therefore are admixed; applied to a substrate and polymerized prior to application of the aluminum plate.

3,836,386
COATING OF GLASSWARE TO IMPROVE ITS ABRASION RESISTANCE

Gerald L. Roy, Lancaster, Pa., assignor to Kerr Glass Manufacturing Corporation, Los Angeles, Calif.

Continuation-in-part of Ser. No. 15,947, March 2, 1970, abandoned. This application Dec. 28, 1971, Ser. No. 213,155

Int. Cl. B32b *17/06;* **C03c** *17/22, 17/32*

U.S. Cl. 117—72 **12 Claims**

Glassware is rendered abrasion resistant by applying a first coating of a metal oxide to the glassware followed by a coating of an ionomeric copolymer.

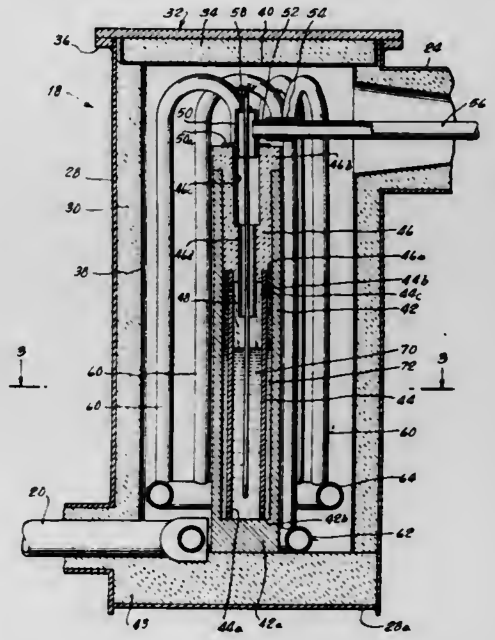
3,836,387
METHOD OF VAPORIZING METAL

John M. Roblin, Cleveland; Frank J. Cole, Parma, and William A. Reed, Richfield, all of Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio

Division of Ser. No. 590,921, Oct. 31, 1966, Pat. No. 3,672,327. This application Dec. 29, 1971, Ser. No. 213,764

Int. Cl. C23c *13/02*

U.S. Cl. 117—102 A **4 Claims**



A method of vaporizing metal which comprises the steps of forming a thin shell of molten metal the metal of which is above and communicated with a supply of molten metal, heating said thin shell of molten metal to vaporize said metal, and withdrawing the vapor from the shell and transporting the vapor to a point at which the vapor will impinge upon a substrate, by means of path which removes any molten metal particles from the metal vapor.

3,836,388
DISTRIBUTING A FLUID EVENLY OVER THE SURFACE OF AN ARTICLE

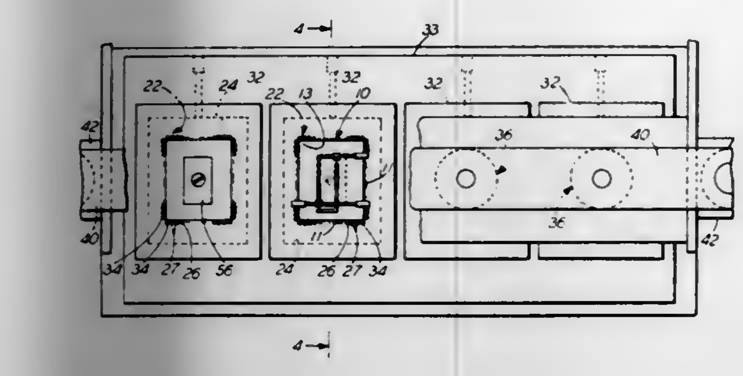
William H. Fowler, Bethlehem, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Oct. 18, 1972, Ser. No. 298,698

Int. Cl. B05c *7/02*

U.S. Cl. 117—120 **11 Claims**

In a method and apparatus for distributing silicone rubber over the surface of a substrate to encapsulate it, a precise quantity of fluid rubber is deposited by the apparatus at the center of the surface. The substrate is surrounded by orifices through which air is blown vertically upward past its edges. The upward movement of the air past the substrate draws the rubber from the center to the edges to completely coat the substrate and blow back any rubber that tends to run over.



The orifices are larger at the corners to increase the flow of rubber thereto. The coated substrate is placed in a vacuum chamber to remove any trapped air or gases.

3,836,389
GLASS COATED ELECTRICAL STEEL SHEET AND ARTICLES PREPARED THEREFROM

Karl Foster, and Joseph Seidel, both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation of Ser. No. 46,152, June 15, 1970, abandoned, which is a division of Ser. No. 576,963, Sept. 2, 1966, Pat. No. 3,528,863, which is a continuation-in-part of Ser. No. 556,337, June 9, 1966, abandoned. This application Mar. 22, 1972, Ser. No. 237,202

Int. Cl. C03c *7/02, 7/04, 3/08*

U.S. Cl. 117—129 **2 Claims**

An oriented silicon steel product and method for producing the same is described in which improved magnetostriction and strain sensitivity are obtained by means of bonding a thin glass layer to the surface of the steel.

3,836,390
TREATMENT OF FIBRES

Albert John Barber, Sale; Derek James Rowland Massey, Linton, both of England; James McCartney, Banbridge, Northern Ireland, and Kenneth Winterbottom, Whittlesford, England, assignors to Ciba-Geigy AG, Basle, Switzerland

Filed Apr. 12, 1972, Ser. No. 243,470

Claims priority, application Great Britain, Apr. 19, 1971, 9765/71

Int. Cl. D06m *15/48, 15/08*

U.S. Cl. 117—138.8 A **10 Claims**

Synthetic textile materials, such as polyamides, polyesters, polyacrylonitrile, polyvinyl alcohol, and cellulose triacetate, are treated with an ester containing on average, at least two mercaptan groups per molecule, which is then cured, in order to impart a better handle and improved antisoil properties.

Typically, the ester is prepared by the reaction of

a. a compound containing at least two carboxylic acid groups
b. a compound containing at least two alcoholic hydroxyl groups and, optionally,
c. a compound containing not more than one carboxylic acid group or alcoholic hydroxyl group, especially a monomercaptomonocarboxylic acid or a monomercaptomonohydric alcohol.

3,836,391
PROCESS FOR IMPROVING THE ANTISLIP PROPERTIES OF A CELLULOSIC SURFACE

Charles C. Payne, Chicago, and Peter H. Vossos, Lisle, both of Ill., assignors to Nalco Chemical Company, Chicago, Ill.

Division of Ser. No. 111,627, Feb. 1, 1971, Pat. No. 3,711,416. This application Aug. 25, 1972, Ser. No. 283,837

Int. Cl. D21h *1/10*

U.S. Cl. 117—152 **4 Claims**

The antislip properties of a cellulosic surface are improved by applying thereto a coating of a composition containing an aqueous colloidal anionic silica sol and a non-gelling flocculating agent.

3,836,392
PROCESS FOR INCREASING THE RESISTANCE TO WEAR OF THE SURFACE OF HARD METAL CEMENTED CARBIDE PARTS SUBJECT TO WEAR

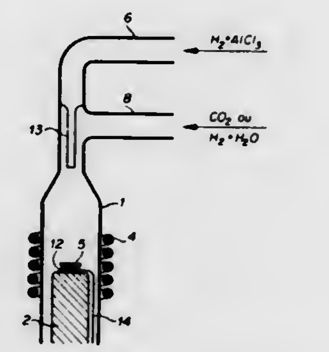
Benno Lux, Veyrier, Geneva; Roland Funk, Vandoeuvres, Geneva; Herbert Schachner, Grand-Lancy, Geneva, all of Switzerland, and Christian Triquet, Rosieres, Belgium, assignors to Sandvik AB, Stockholm, Sweden

Filed July 5, 1972, Ser. No. 269,242

Claims priority, application Switzerland, July 7, 1971, 9943/71

Int. Cl. C23c *11/08*

U.S. Cl. 117—169 R **3 Claims**



A process for increasing the resistance to wear of the surface of hard metal parts subject to wear, such as the cutting blade of cutting tools, by coating the surface of the hard cemented carbide articles with a layer of refractory oxide such as aluminium oxide, ziroconium oxide or stabilized zirconium oxide in a thickness of up to 20 microns.

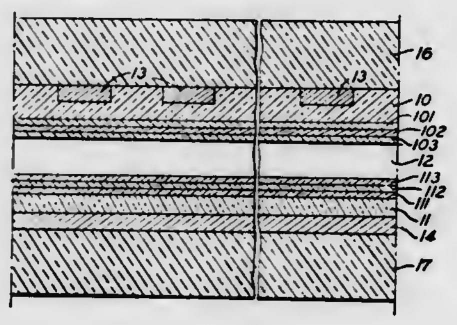
3,836,393
PROCESS FOR APPLYING STRESS-BALANCED COATING COMPOSITE TO DIELECTRIC SURFACE OF GAS DISCHARGE DEVICE

Roger E. Ernsthausen, Luckey, and Brooke R. Emch, Toledo, both of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed July 14, 1971, Ser. No. 162,638

Int. Cl. B44d *1/18, 1/16*

U.S. Cl. 117—217 **39 Claims**



There is disclosed a process for applying a stress-balanced coating composite to each dielectric surface of a multiple gaseous discharge display/memory panel having an electrical memory and capable of producing a visual display, the panel being characterized by an ionizable gaseous medium in a gas chamber formed by a pair of opposed dielectric material charge storage members, each of which is respectively backed by an array of electrodes, the electrodes behind each dielectric material member being oriented with respect to the electrodes behind the opposing dielectric material member so as to define a plurality of discrete discharge volumes constituting a discharge unit.

The surface of each dielectric material charge storage member is selectively coated with a first layer of at least one compound of Group IIA, Al, Si, Ti, Zr, Hf, or mixtures thereof; a second layer of at least one compound of Group IIA, Al, Si, Ti, Zr, Hf, or mixtures thereof which is chemically different from the first layer; and a third layer of an electron-emissive material; the combination of the first and second layers being sufficient to prevent ion migration from the dielectric to the third layer and sufficient to provide a thermally and structurally stable base for the third layer; and the second layer being chemically inert relative to the third layer.

3,836,394
METHOD OF MANUFACTURE OF A CONDUCTOR RAIL

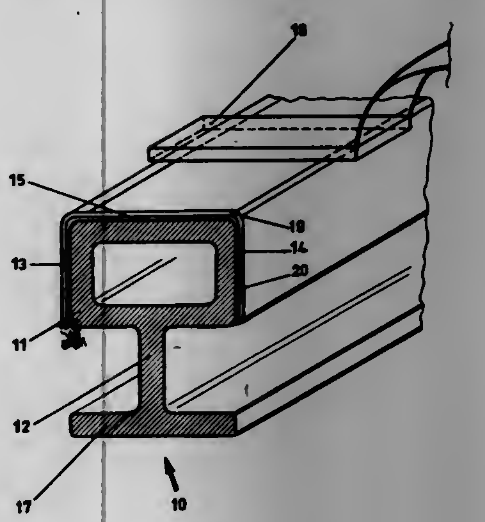
Tibor Kugler, Thayngen, and Hans Wolfhart Rieger, Beringen, both of Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed July 27, 1972, Ser. No. 275,517

Claims priority, application Switzerland, July 29, 1971, 11216/71

Int. Cl. B44d *1/16, 1/18*

U.S. Cl. 117—217 **8 Claims**



There is concerned a method of manufacture of a conductor rail comprising an aluminum body and a layer of more resistant for instance ferrous material attached thereto, whereby said layer is applied in liquid form suppressing an intermetallic layer of poor conducting properties usually obtained when uniting aluminum with ferrous and like materials.

3,836,395
MANUFACTURE OF MAGNETIC RECORDING MEDIA

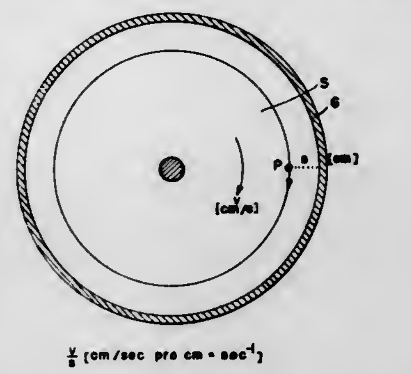
Herman Roller; Heinz Stritzinger; Job-Werner Hartmann, all of Ludwigshafen; Roland Falk, and Werner Balz, both of Willstaett, all of Germany, assignors to Badische Anilin & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhein, Germany

Filed Apr. 19, 1972, Ser. No. 245,471

Int. Cl. H01f *10/02*

U.S. Cl. 117—238 **1 Claim**

A process for the manufacture of magnetic recording media exhibiting good orientation of the magnetic particles by coating a base with a viscous liquid dispersion of magnetic pigment, orienting the applied magnetizable particles by means of a magnetic field and drying the applied magnetic pigment dispersion. According to the invention, the magnetic pigment



dispersion is subjected, immediately prior to the coating operation, to shear at a specific minimum shear rate gradient.

3,836,396
SUGAR COMPOSITION

Thomas F. McNamara, N. Caldwell, and Timothy P. Perper, New Brunswick, both of N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed Apr. 13, 1972, Ser. No. 243,876

Int. Cl. C13f *3/00*

U.S. Cl. 127—30 **6 Claims**

Compositions of sugars suitable as substitutes for table sugar. The compositions, sucrose and fructose; sucrose and maltose; and sucrose, fructose and maltose are less cariogenic than table sugar alone.

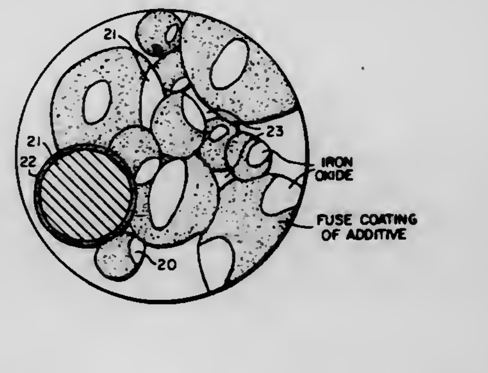
3,836,397
IRON ELECTRODE FOR ALKALINE CELLS

Carl C. Hardman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 31, 1972, Ser. No. 276,486

Int. Cl. H01m *43/04*

U.S. Cl. 136—25 **5 Claims**



A battery is made containing at least one positive and one negative electrode plate with electrolyte contacting the plates, the negative electrode plate containing an active material comprising about 60–80 weight percent iron particles over about 5 microns diameter and about 20–40 weight percent iron particles up to about 2 microns diameter, the iron particles having a fused coating of sulfur, selenium or tellurium.

3,836,398
ELECTROCHEMICAL GENERATORS OF THE METAL-AIR OR METAL-OXYGEN TYPE

Maurice Garcin, Paris, and Adrien Gauthier, Saint-Ouen, both of France, assignors to Societe Les Piles Wonder, Saint-Ouen, France

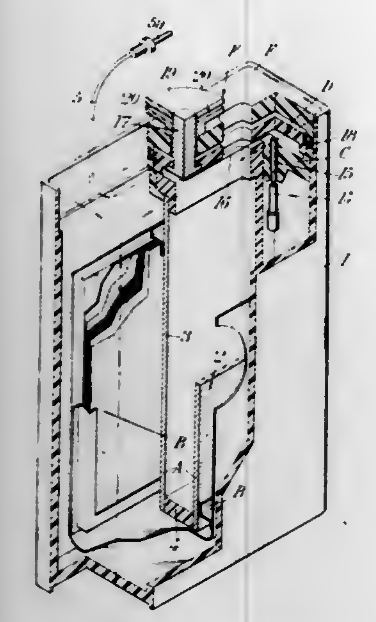
Filed Feb. 23, 1972, Ser. No. 228,618

Claims priority, application France, Feb. 25, 1971, 71.06444

Int. Cl. H01m *29/02, 29/04*

U.S. Cl. 136—86 A **3 Claims**

The generator comprises in combination a container in which are housed a gaseous double diffusion electrode constituting a first assembly with an obturator which carries and closes said container and an anode-dry electrolyte assembly, removable and replaceable independently of the first assembly. The anode-dry electrolyte assembly is U-shaped and is arranged in the container on both sides of the gaseous double diffusion electrode.



3,836,399

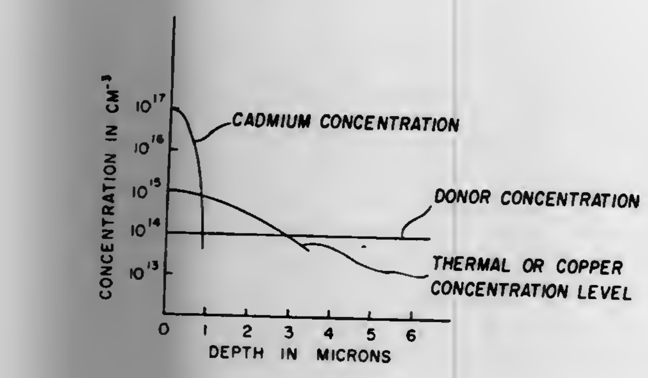
PHOTOVOLTAIC DIODE WITH FIRST IMPURITY OF CU AND SECOND OF CD, ZN, OR HG

George R. Pruett, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 10,084, Feb. 16, 1970, abandoned, which is a continuation of Ser. No. 370,145, May 14, 1964, abandoned. This application Mar. 26, 1971, Ser. No. 156,692

Int. Cl. H01l *15/02*

U.S. Cl. 136—89 **7 Claims**



A photodiode is disclosed which may be made by diffusing into N-type indium-antimonide a fast diffusing dopant impurity; such as copper; in a low concentration; e.g., below 5×10^{15} atoms per cubic centimeter; at the high conductivity surface; and a slowly diffusing dopant impurity; such as zinc, cadmium, or mercury; in a high concentration; e.g., 5×10^{17} atoms per cubic centimeter; at the high conductivity surface to form (a) a first region of uniform N-type conductivity indium-antimonide, (b) a second, or copper-diffused P-type conductivity, region contiguous with the N-type indium-antimonide and forming a P-N Junction therewith and decreasing in concentration and conductivity toward the P-N junction, (c) a third, high conductivity, region containing both the slowly diffusing zinc, cadmium, or mercury, and the copper, spaced from the P-N junction, contiguous with the high conductivity portion of the copper-diffused region, being substantially thinner than the copper-diffused region, and being of P-type conductivity. Ohmic contacts are affixed to the first region and the third region.

3,836,400

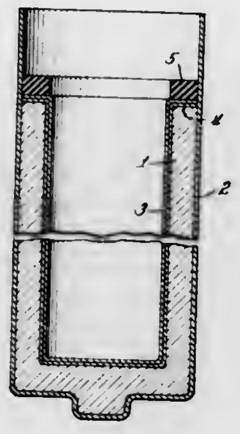
DRY BATTERY SEAL AND TERMINAL CONNECTION

Howard J. Strauss, Bloomington, Minn., and Edward S. Hill, Wickliffe, Ohio, assignors to Gould Inc., Mendota Heights, Minn.

Filed Sept. 1, 1971, Ser. No. 176,940

Int. Cl. H01m *1/02*

U.S. Cl. 136—133 **4 Claims**



In a cylindrical dry cell, the cathode body comprising depolarizing material and electrolyte is completely isolated from the anode compartment by a sealing gasket which engages a generally washer-shaped subseal which fits snugly in the cylindrical can and holds down the end portion of the paper separator which covers the cathode. The subseal also serves to prevent creepage of alkaline electrolyte solution to the cell sealing surfaces at the open end of the can. The gasket may also serve to continuously press the current collector against the terminal diaphragm of the cell for dependable electrical engagement therewith.

3,836,401

LEAD ACCUMULATOR CONSTRUCTION

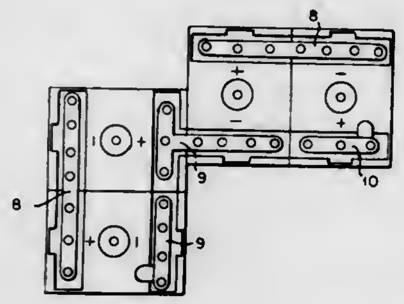
Hans Niklas, Eppstein; Wolfgang Knabenbauer, Kelkheim, and Heinrich Rabenstein, Frankfurt-Zeilsheim, all of Germany, assignors to Varta Aktiengesellschaft, Frankfurt-Main, Germany

Filed Aug. 25, 1972, Ser. No. 283,709

Claims priority, application Germany, Aug. 26, 1971, 2142768

Int. Cl. H01m *1/02*

U.S. Cl. 136—134 R **8 Claims**



A lead accumulator or battery consists of a plurality of cells each having positive and negative plates. A cover provided for each of the cells has openings therein and cell connectors electrically and mechanically interconnect the cells. The cell connectors are disposed below the upper edge of the cell covers and provide a rigid interconnection between the cells. The disposition of the cell connectors below the upper edge of the cell cover protects against inadvertent short circuiting caused by contact with metal objects.

3,836,402

MOLYBDENUM-RUTHENIUM THERMOCOUPLE FOR TEMPERATURE MEASUREMENTS UNDER NUCLEAR REACTION CONDITIONS

Edward D. Zysk, Livingston; Allen R. Robertson, Edison, and Michael Cisz, Irvington, Robert W. Sheridan, Glen Rock, all of N.J., assignors to Engelhard Minerals & Chemicals Corporation, Murray Hill, N.J.

Minerals & Chemicals Corporation, Murray Hill, N.J.

Filed Aug. 28, 1972, Ser. No. 283,953

Int. Cl. H01v *1/22*

U.S. Cl. 136—202 **1 Claim**

A thermocouple suitable for use under high temperature conditions in nuclear reactors and other environments where neutron irradiation exists, one element of the thermocouple being composed essentially of molybdenum and the other element essentially of ruthenium.

3,836,403

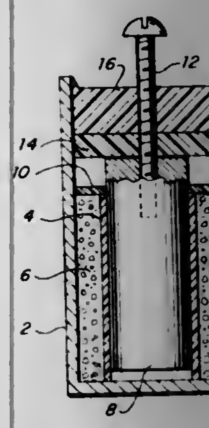
LITHIUM BATTERIES AND METHOD OF PREPARING A POSITIVE ELECTRODE MATERIAL THEREFOR

Lewis H. Gaines, Framingham, Mass., assignor to Tyco Laboratories, Inc., Waltham, Mass.

Filed Apr. 1, 1971, Ser. No. 130,277

Int. Cl. H01m *17/02*

U.S. Cl. 136—83 R **14 Claims**



Method of providing an improved positive electrode material for lithium batteries comprising heating Ni_3S_2 in air or oxygen at a temperature and for a period of time such as to produce an oxidation product that exhibits a discharge behavior substantially better than that of Ni_3S_2 when ionically coupled to lithium by a non-aqueous electrolyte.

3,836,404

METHOD OF FABRICATING COMPOSITE SUPERCONDUCTIVE ELECTRICAL CONDUCTORS

Bruce P. Strauss, Downers Grove, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed June 28, 1972, Ser. No. 266,901

Int. Cl. H01v *11/14*

U.S. Cl. 148—11.5 R **1 Claim**

A method of fabricating composite superconductive electrical conductors by disposing at least one rod of flexible substrate material into a billet of an alloy of a normal metal and an alloying metal, co-drawing the billet and rod down to form an elongated conductor and heating the conductor to diffuse the alloying metal into the surface of the flexible substrate, forming a layer of superconductive material in the flexible substrate surrounded by a sheath of normal metal alloy. By this method, composite conductors containing any number of superconductive filaments can be fabricated.

3,836,405

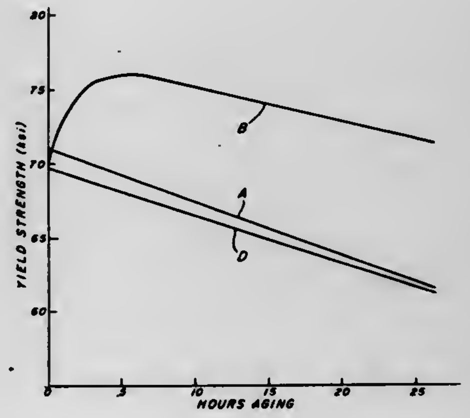
ALUMINUM ALLOY PRODUCT AND METHOD OF MAKING

James T. Staley, Lower Burrell; Harold Y. Hunsicker, New Kensington, and Robert H. Brown, Natrona Heights, all of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Division of Ser. No. 60,343, Aug. 3, 1970, abandoned. This application July 20, 1972, Ser. No. 273,842

Int. Cl. C22f *1/04*

U.S. Cl. 148—12.7 **6 Claims**



An aluminum base alloy containing zinc, copper and magnesium together with manganese and with specially controlled composition limits exhibits very high strength when thermally treated to a condition having high resistance to stress corrosion cracking. Improved products of the alloy also exhibit low quench sensitivity and, accordingly, high strength even in very thick sections. A special aging treatment produces the optimum combination of strength and resistance to stress corrosion cracking properties.

This invention relates to improved wrought products and to a method of their production.

3,836,406

PERMANENT MAGNETIC Fe-MIn-CrY ALLOY CONTAINING NITROGEN

Renpei Yoda, Kawasaki, Japan, assignor to The Director of National Research Institute for Metals, Tokyo, Japan

Continuation of Ser. No. 325,305, Jan. 22, 1973, abandoned, which is a continuation of Ser. No. 60,858, Aug. 7, 1970, abandoned. This application Dec. 21, 1973, Ser. No. 427,361

Int. Cl. H01f *1/04*

U.S. Cl. 148—31.57 **1 Claim**

A permanent magnetic alloy consists essentially of 0.05 – 0.5 wt. percent N, 5– 15 wt. percent Mn, 2– 12 wt. percent Cr, and remainder iron, produced by solution treatment at a temperature not lower than 900°C, cold rolling to a thickness reduction of 10– 98 percent and if desired, aging at 100° – 800°C.

The alloy may additionally contain Mo, Co, Al, C, Nb, Ti, Zr and V.

3,836,407

HIGH STRENGTH AND HIGH TOUGHNESS ALLOY

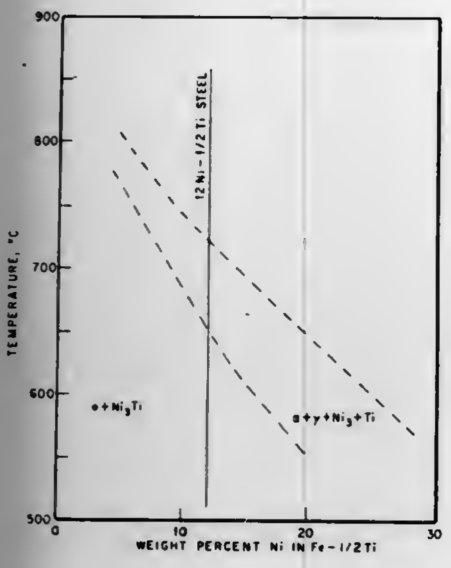
Earl R. Parker, El Cerrito, and Victor F. Zackey, Berkeley, both of Calif., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed May 2, 1972, Ser. No. 249,585

Int. Cl. C22c *41/02, 39/40*

U.S. Cl. 148—142 **3 Claims**

A structural steel which possesses both high strength and high toughness and has particular application for cryogenic uses. The steel is produced by the utilization of thermally induced phase transformation following heating in a three-phase field in iron-rich alloys of the Fe-Ni-Ti system, with a preferred composition of 12 percent nickel, 0.5 percent titanium, the remainder being iron.



3,836,408
PRODUCTION OF EPITAXIAL FILMS OF SEMICONDUCTOR COMPOUND MATERIAL

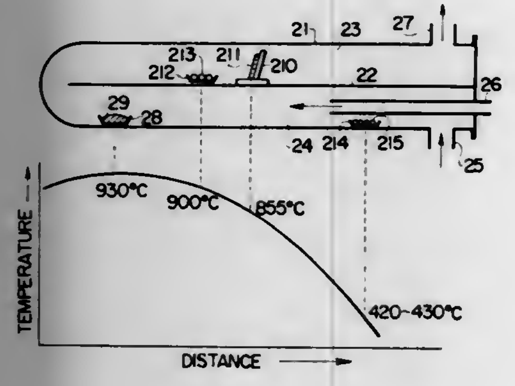
Hiroyuki Kasano, Akishima, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 21, 1971, Ser. No. 210,418

Claims priority, application Japan, Dec. 21, 1970, 45-114171; July 19, 1971, 46-53077

Int. Cl. H01l ***7/36;*** **C23c** ***11/00;*** **H01l** ***3/00***

U.S. Cl. 148—175 **6 Claims**



A method of epitaxially growing, preferably, a III – V compound semiconductor onto a substrate by forming a gaseous stream of (1) a gaseous mixture formed by a reaction of hydrogen halide (or water vapor) and a group III element and (2) at least one group V element; disposing a III – V compound semiconductor or a constituting element of a III – V compound semiconductor in a region held at a high temperature upstream of the substrate; reacting the gaseous stream, particularly unreacted hydrogen halide (or unreacted water vapor) with the disposed material and passing the thus reacted gaseous stream into contact with the substrate to deposite the III – V compound semiconductor on its surface. The substrate is maintained at a lower temperature than the disposed material. This process is similarly applied to mixed crystals as well as compound semiconductor layers of other groups.

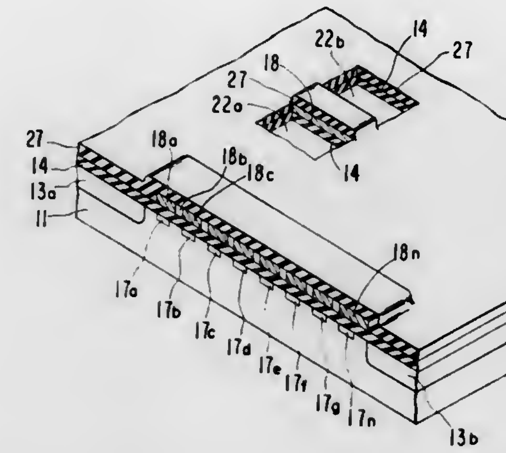
3,836,409
UNIPLANAR CCD STRUCTURE AND METHOD

Gilbert F. Amelio, Saratoga, and Phillip J. Salsbury, Sunnyvale, both of Calif., assignors to Fairchild Camera and Instrument Coporation, Mountain View, Calif.

Filed Dec. 7, 1972, Ser. No. 313,011

Int. Cl. H01l ***7/44***

U.S. Cl. 148—187 **13 Claims**



A CCD structure is made by forming an insulating layer over semiconductor material, forming a substantially uniform layer of polycrystalline semiconductor material over the insulating layer, and then using the polycrystalline semiconductor material during the formation of gate electrodes associated with the CCD structure and associated MOS readout circuitry to prevent the diffusion of impurities into the underlying semiconductor material.

3,836,410
METHOD OF TREATING TITANIUM-CONTAINING STRUCTURES

Donald W. DuBois, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Mar. 31, 1972, Ser. No. 239,991

Int. Cl. C23f ***1/02***

U.S. Cl. 156—3 **12 Claims**

A method is disclosed for the removal of metallic iron inclusions from the surfaces of chemical process equipment, particularly electrolytic cells, prepared from titanium. This method involves the treating of titanium alloy surface with an acid solution to remove metallic iron inclusions from those surfaces of the titanium that are subject to attack by halides.

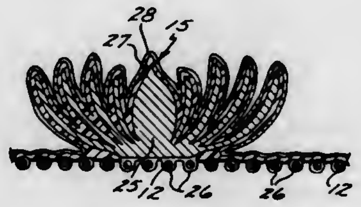
3,836,411
METHOD FOR FORMING WAX ORNAMENTS ON A WIRE SCREEN

Lorna A. Torplund, 728 Cherry Ave., Apt. 6, Long Beach, Calif. 90813

Filed Feb. 28, 1973, Ser. No. 336,427

Int. Cl. B44c ***1/18;*** **B32b** ***1/10***

U.S. Cl. 156—59 **7 Claims**



A method of producing an artistic object on a wire screen background comprising the steps of pouring wet glue onto the wire screen in a general direction from the back of the screen to the front of the screen, attaching a paper mache filler to the beaded glue on the front of the screen, covering the filler and the screen by molten wax and coating the wax with a fixative layer of shellac. The further requirement of the present method is that the time in between the first step and the second step be sufficiently small such that the placement of the filler is properly done at a time when the glue layer is still wet.

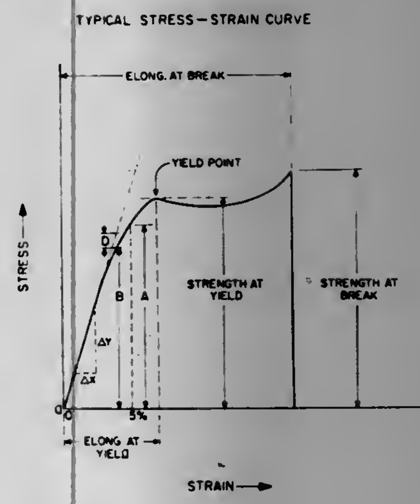
3,836,412
PREPARATION OF DISCONTINUOUS FIBER REINFORCED ELASTOMER

Kamel Boustany, and Aubert Yaucher Coran, both of Akron, Ohio, assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 29,033, April 16, 1970, Pat. No. 3,697,364. This application June 12, 1972, Ser. No. 261,712

Int. Cl. B32b ***5/16***

U.S. Cl. 156—62.2 **24 Claims**



Bonded composites of discontinuous organic fiber and vulcanized matrix are prepared by treating the fiber to reduce fiber to fiber interaction, dispersing the treated fiber and bonding ingredients into vulcanizable elastomeric matrix, positioning the fiber therein taking suitable precautions to minimize fiber breakage during the dispersing and positioning of the fiber, and vulcanizing the mixture to produce a bonded composite in which the organic fiber has an aspect ratio of at least about 20 but not more than about 350.

3,836,413
METHOD OF AND APPARATUS FOR THERMOFIXING OF SLIDE-FASTENER COUPLING CHAINS

Alfons Frohlich, Veddershang 5, and Franz Hochlehnert, Gladbecker Str. 363, both of Essen, Germany

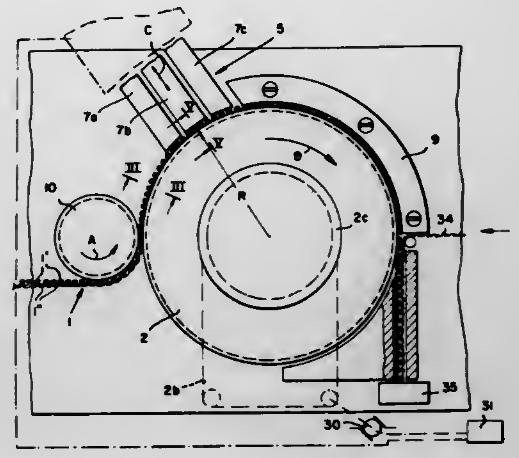
Continuation of Ser. No. 4,870, Jan. 22, 1970, abandoned. This application Aug. 28, 1972, Ser. No. 284,402

Claims priority, application Germany, Aug. 23, 1969, 1942935

Int. Cl. B32b ***31/20***

U.S. Cl. 156—73 **4 Claims**

A method of and an apparatus for the fixing or setting of continuous coupling elements or chains, preferably in the form of meandering or coiled monofilament, wherein the coupling element is passed about a drum with predetermined coupling-head spacing through a station at which an ultrasonic transducer thermally sets the coupling element. Juxtaposed with the periphery of the transport wheel, which maintains the spacing of the turns or undulations of the coil or the meander, is a radially reciprocable member constituting the vibration source or the anvil against which the vibrator operates.



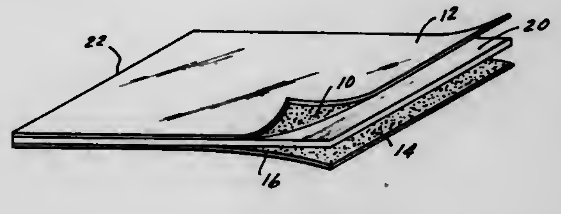
3,836,414
METHOD FOR ELIMINATING BUBBLES IN LAMINATES

Henry N. Staats, Deerfield, Ill., assignor to General Binding Corporation, Northbrook, Ill.

Filed June 11, 1971, Ser. No. 152,052

Int. Cl. B32b ***31/00***

U.S. Cl. 156—87 **10 Claims**



This invention provides a method of producing substantially bubble-free laminates for identification cards, photographs and the like which eliminates randomly disposed entrapped air bubbles heretofore found, which method comprises providing a texture in the heat-sealing surface of the laminate film prior to lamination pressurization with the card.

3,836,415
METHOD OF FABRICATING A PRECONTOURED UNITIZED ELECTRICAL WIRING HARNESS

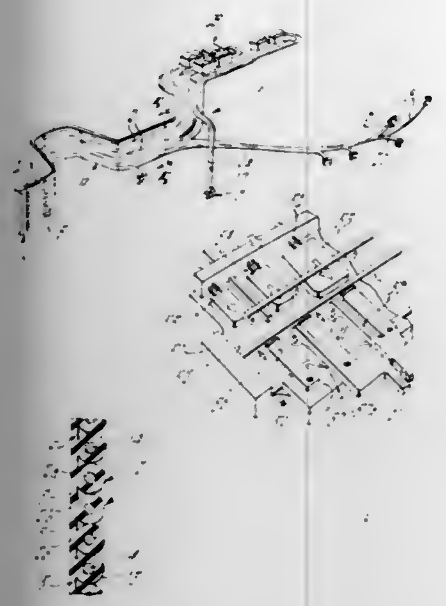
Lynn H. Hilderbrandt, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Nov. 3, 1972, Ser. No. 303,664

Int. Cl. H01b ***13/00;*** **H02g** ***3/02***

U.S. Cl. 156—296 **1 Claim**

A wiring harness comprised of a plurality of conductive wires each encased in a tubular nonconductive thermoplastic sheath and placed in side-by-side alignment, the plurality of conductive wires being precontoured and restrained in such condition by a plurality of transverse hinges formed from said thermoplastic sheathing and interconnecting adjacent wires of said harness. The unitized harness is employed in a wiring system particularly useful in an automotive vehicle; the system has connective blocks for joining the extremeties of said wires with an energy source or for switching purposes, each of said blocks being characterized by contacts effective to penetrate the wire sheathing and make contact with the conductive element, each of said contacts having a portion for receiving remote conductors by simple insertion.



3,836,416
NON WOVEN THERMOPLASTIC FABRIC

Richard L. Ropiequet, Portland, Oreg., assignor to Alta Industries, Incorporated, Portland, Oreg.

Continuation of Ser. No. 6,834, Jan. 29, 1970, abandoned.
This application Mar. 27, 1972, Ser. No. 238,124
Int. Cl. B44b *1/00;* **D04h** *3/16, 3/05*

U.S. Cl. 161—2 **16 Claims**

A fabric is made of filaments of solid flexible thermoplastic material which contact each other and are fused together. In certain fabrics at least some of the filaments extend parallel with each other and are fused together throughout their length. In other fabrics the filaments are fused together at spaced positions along the filaments. The filaments are extruded upon the upper surface of a moving belt or upon a previously formed fabric or previously extruded filaments on such belt. The filaments which are fused together throughout their lengths may be spaced a slight distance from each other when extruded and expand into contact with each other. Filaments which are spaced greater distances from each other when extruded have portions of the filaments displaced normal to the general direction of the filaments into contact with adjacent filaments so that they fuse to such other filaments. This can be done by regulating the rate of movement of the belt relative to the rate of extrusion of the filaments so that the filaments wander randomly on the surface of the belt or by laterally reciprocating the belt or a combination of both. Various random as well as controlled patterns including patterns having closed loops of individual filaments as well as fabrics having continuous backing sheets supporting upwardly folded filaments can be produced.

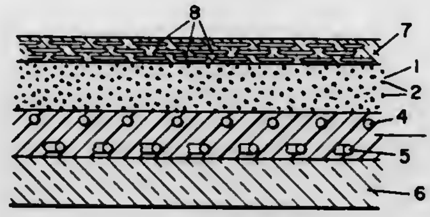
3,836,417
LAMINATE FOR HUMAN HABITATION

Luther LeMasters Yaeger, Houston, Tex., assignor to Prescienca Limited, Basel, Switzerland

Continuation of Ser. No. 125,368, March 17, 1971, abandoned. This application May 23, 1973, Ser. No. 363,198
Int. Cl. B44f *1/00;* **B32b** *5/12*

U.S. Cl. 161—5 **6 Claims**

In human habitations suitable for mass production, there is a need for a flexible foldable film or sheet material having a combination of extreme light resistance, fatigue resistance, and heat reflection. I have found that a superior combination, and the only one for which an accelerated test indicates permanence over a period exceeding 40 years, comprises the following elements: a flexible foldable film assembly, the outermost layer of which consists of opaque flakes, preferably of metal, arranged substantially with the flat side parallel to the surface, and held in a matrix of a resin belonging in the groups of acrylates and methacrylates, superimposed upon a black thermoplastic film containing at least 4 percent of a finely dispersed carbon black, this film being followed by a central layer having a modulus at least 50 percent lower than its adjacent layers, so that it will permit flexing while minimizing the stresses in such flexing. This low modulus layer further contains continuous fibers arranged in layers so that the fibers in each layer are substantially parallel with each other; and further, another second outside layer, on the other side of the central layer, at least one of the outer layers having stiffness and resistance higher than those of the said low modulus central layer, and preferably similar to that of the first outside layer on the opposite side of the said low modulus layer.



3,836,418
FOLDING STRUCTURE

Merlin W. Montgomery, 9100 Fortuna Dr., No. 4, Mercer Island, Wash. 98040

Continuation-in-part of Ser. No. 73,756, Sept. 21, 1970, abandoned. This application Feb. 2, 1973, Ser. No. 329,077
Int. Cl. A63q *31/00*

U.S. Cl. 161—17 **6 Claims**

A plurality of rectangular members interconnected by hinges such that the members in one unfolded configuration form a square having a side length to height ratio of 8:1 and in a second configuration form a cube having an edge length of four units. A flexible cord is provided interconnecting some of the rectangular members such that pulling the central portion of the cord causes the square to fold to the cube form while pulling the opposed ends of the cord causes the cube to unfold to the square form.

3,836,419
SUPPORTS FOR ORNAMENTAL DESIGNED ARTICLES

Lois-Inez Hamberger, Bethesda, Md., assignor to Eva Ehrlich, Bethesda, Md., a part interest

Filed Apr. 17, 1973, Ser. No. 361,315
Int. Cl. B44f *7/00*

U.S. Cl. 161—18 **3 Claims**

This invention is an easel, desk or hanging support for a framing means to be surrounded by ornamental-rectangular plan or flat carriers, and as such can be desk or table ornament or a hanging ornament.

3,836,420
SAFETY APPLIQUE

Martin P. Freese, 3833 Ingraham St., San Diego, Calif. 92109

Filed Aug. 15, 1972, Ser. No. 280,781
Int. Cl. A01n *1/00*

U.S. Cl. 161—19 **3 Claims**

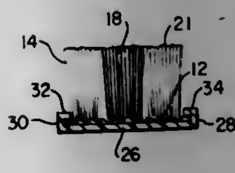
A decorative safety tread applique for use on the floor surfaces of bathtubs, showers and the like. The applique is provided with a slip-preventing upper surface and has at least one laterally extending row of indicia-shaped openings therethrough arranged so as to be engageable by the feet of the user to further preclude accidental slipping. For purposes of advertising, the indicia-shaped openings may be arranged to form the name of a business or the like. The floor of the bathtub or shower which is visible through the indicia-shaped openings provides a permanent, highly attractive and eye-catching background.

3,836,421
WEATHER STRIP

Roy P. Terry, Jr., Clemson; Richard K. Teed, Greenwood, both of S.C., and S. Ross Shirer, deceased, late of Clemson, S.C. (Pauline H. Shirer, executrix), assignors to Riegel Textile Corporation, Ware Shoals, S.C.

Filed Mar. 30, 1973, Ser. No. 346,332
Int. Cl. D04h *11/00;* **E06b** *7/22*

U.S. Cl. 161—63 **16 Claims**



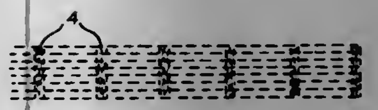
A flexible weather strip adapted to be affixed to an enclosing structure to seal an opening therein and to provide improved air and water impermeability to said structure. A base strip of flexible material has two spaced-apart rows of pile fibers extending upwardly therefrom and longitudinally thereof. A center row of pile fibers having a lesser denier per filament and a greater filament density than the filaments of the two spaced-apart rows is provided between said spaced rows to complete an arrangement which provides a circuitous path through which substantial amounts of air and water will not pass. A second preferred embodiment comprises two adjacent rows of pile fibers extending upwardly from the base strip and longitudinally thereof.

3,836,422
ANTISTATIC FABRICS

Dieter Bischoff, Hohensachsen, Germany, assignor to Carl Freudenberg, Weinheim, Germany

Filed Jan. 4, 1972, Ser. No. 215,356
Claims priority, application Germany, Jan. 16, 1971, 2102087
Int. Cl. B32b *5/08*

U.S. Cl. 161—154 **4 Claims**



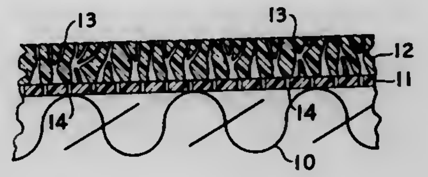
A non-woven carpet which will not build up electrostatic charges and the process for making it, comprising forming two independent non-woven fabrics of synthetic fibers the fabric which is to constitute the tread surface containing copper fiber and the other being substantially free thereof, superposing said fabrics, and needling said superposed structure to carry fiber including copper fiber from the tread surface fabric into the base fabric layer, the overall content of copper fiber in said carpet comprising about 0.5 to 5 percent by weight of the total fiber content.

3,836,423
METHOD OF INTRODUCING AIR PERMEABILITY INTO A NON-POROUS CONTINUOUS FILM AND RESULTANT FILM

George M. Wagner, Lewiston, and Norman E. Sitgreaves, Niagara Falls, both of N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

Filed Sept. 9, 1971, Ser. No. 178,985
Int. Cl. B29d *27/04;* **B32b** *3/26, 5/04*

U.S. Cl. 161—159 **9 Claims**



A porous air permeable polymer film is produced by applying to a support member an agent capable of releasing gas upon its being heated to its decomposition point and subsequently applying a first film-forming flexible polymer composition: forming a porous continuous film on said support member by heating said first layer; cooling said film and support member; applying to said porous film a layer of a second film-forming polymer composition which may be the same or different than the first film forming polymer composition; and heating the resulting structure to form a unitary porous breathable article comprised of both polymer layers. Subsequent to the application of said second film-forming polymer composition a fabric may be applied to the resulting structure to form a unitary porous air permeable article.

3,836,424
POLYISOCYANURATE FOAM ARTICLES

Harold E. Reymore, Jr., 18 Cardinal Dr., Wallingford, Conn. 06492; Adnan A. R. Sayigh, 999 Hartford Tpk., North Haven, Conn. 06473, and Robin L. Grieve, Trasraamsteen, 14, Netherlands

Filed July 18, 1972, Ser. No. 272,784
Int. Cl. B32b *5/18, 3/26*

U.S. Cl. 161—159 **15 Claims**

Novel integral-skinned polyisocyanurate foams are described, which are characterized by their improved impact resistance. The foams are prepared by conventional integral-skin foam forming techniques. The improved structural properties are obtained by employing as a polyol component of the foam forming mixture, a mixture of (a) from about 5 percent to about 60 percent by weight of a polyol having a functionality of from 2 to 8 and an equivalent weight of from 30 to 200, with (b) from about 40 percent to about 95 percent by weight of a polyether polyol having a functionality of from 2 to 3 and an equivalent weight of from about 750 to about 2100; provided that when said polyether polyol is a triol having an equivalent weight of from about 1500 to about 2100, at least about 50 percent of the hydroxyl groups thereof are primary hydroxyls. The improved foams of the invention are particularly useful as structural materials, where high impact resistance is required.

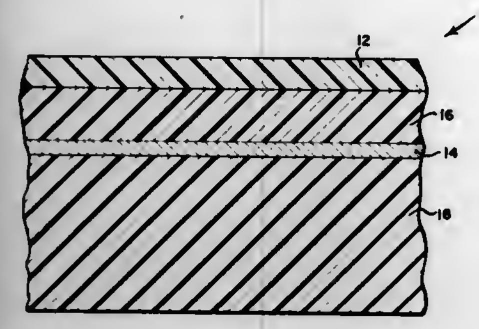
3,836,425
THIN, FLEXIBLE BARRIER MATERIAL

Philip C. Whiting, Jr., Holyoke, Mass., assignor to Ludlow Coporation, Needham Heights, Mass.

Filed Jan. 12, 1971, Ser. No. 105,853
Int. Cl. B32b *27/08;* **B65d** *31/02*

U.S. Cl. 161—165 **18 Claims**

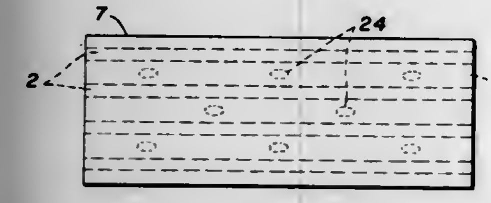
A fabric- and fiber-free, heat-sealable structure useful as a barrier material limiting passage through itself of solids, liquids, semisolids, gases or forms of energy such as ultraviolet light, said structure comprising a first ply of a relatively tough, biaxially-oriented film of an organic polymer adhered to a second ply of a metallic foil and a third ply of a tough polymer such as polyethylene. Such a laminated structure having a total thickness of less than ten mils (0.010) meets the requirements of the widely-known MIL-b-131 specification and is relatively non-directional in its strength characteristics.



3,836,426
STEEL TIRE CORD ASSEMBLY

Thomas A. Barnett, Raleigh, N.C., assignor to Monsanto Company, St. Louis, Mo.

Filed Dec. 29, 1972, Ser. No. 319,257
Int. Cl. B32b *5/16;* **D04h** *1/74*
U.S. Cl. 161—170 **3 Claims**

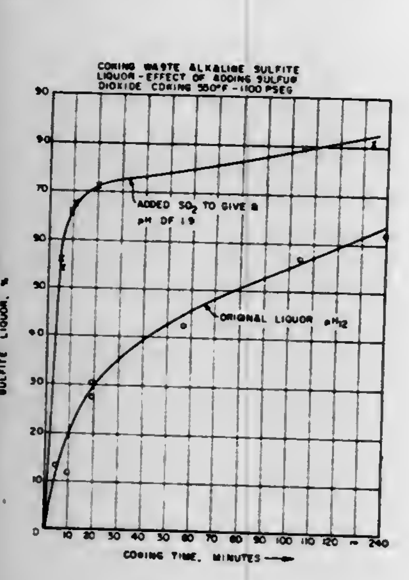


A wire assembly particularly useful as a packaging and transport assembly for steel tire cord is disclosed.

3,836,427
COKING OF WASTE ALKALINE SULFITE PULP LIQUOR AT LOWERED PH

Edward L. Cole, Fishkill; Howard V. Hess, Glenham, and William F. Franz, Gardiner, all of N.Y., assignors to Texaco Inc., New York, N.Y.

Filed June 3, 1971, Ser. No. 149,425
Int. Cl. D21c *11/02, 11/14*
U.S. Cl. 162—31 **5 Claims**

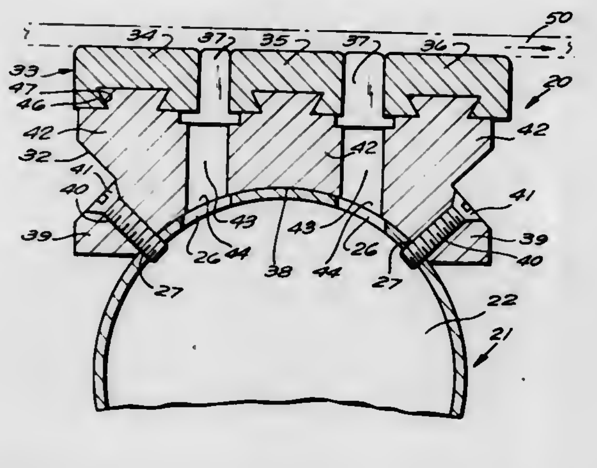


The liquid phase coking of waste alkaline sulfite pulp liquors can be effected at a faster rate and a lower temperatures by lowering the pH of such liquors by at least one pH unit. Also desirably, both the coke yield is increased and the Chemical Oxygen Demand of the resulting effluent is lowered. The pH lowering is achieved by adding sulfur dioxide to the waste liquor either as free SO_2 or a water solution of SO_2. The effluent and the chemicals recovered after coking can be recycled in the paper pulp process from which they were recovered.

3,836,428
ADJUSTABLE SLOT SUCTION BOX COVER

David F. McConaughy, Delmar, N.Y., assignor to Albany International Corp., Albany, N.Y.

Filed Aug. 25, 1972, Ser. No. 283,648
Int. Cl. D21f *1/32, 1/48*
U.S. Cl. 162—274 **8 Claims**



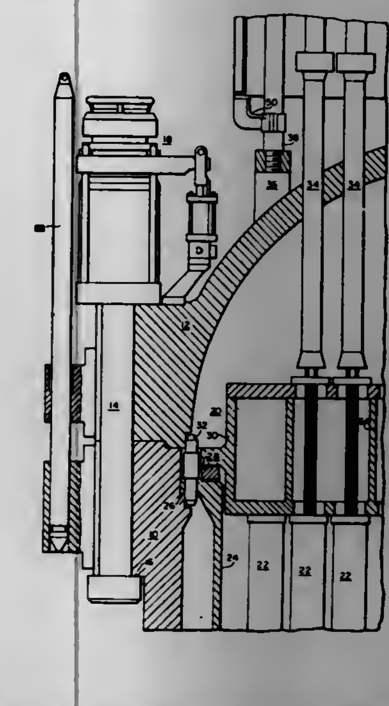
An adjustable slot cover adapted to be mounted on a suction box or pipe having openings therein in communication with a source of suction. The cover includes a base which is rigidly mounted to the suction pipe. The base includes alternate lands and slots with the slots in communication with the openings in the suction pipe. A plurality of wear strips are slidably mounted on receiving land portions of the cover with dovetail or T-shaped interengagements retaining the wear strips in position. Axial positioning of the interengaging surfaces along with the lateral width of the strips determines the portion of each wear strip which covers a portion of an adjacent slot. The dovetail or T-shaped opening in the wear strips can be located off center so that strips can be turned end for end to change the width of slot. The wear strips are interchangeable so that adjustability of slot widths is thereby achieved.

3,836,429
MEANS FOR RAPIDLY EXPOSING THE CORE OF A NUCLEAR REACTOR FOR REFUELING

Erling Frisch, Pittsburgh, and Harry N. Andrews, Export, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 8, 1970, Ser. No. 53,207
Int. Cl. G21c *19/20*
U.S. Cl. 176—29 **6 Claims**

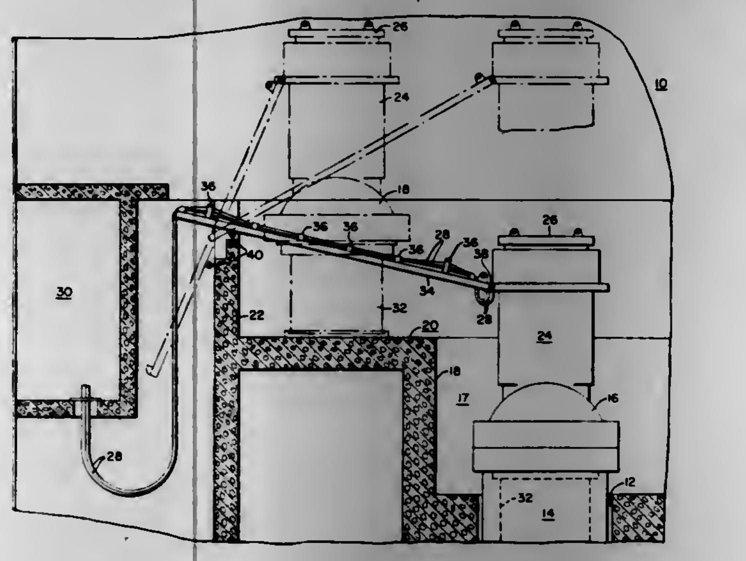
The upper structure of a nuclear reactor consisting of the control rod mechanisms, the pressure vessel closure head, the upper internals package, and other associated structure are connected to form an integral unit which may be removed from the reactor vessel in a single lift to expose the fuel assemblies of the reactor core to the open end of the reactor vessel. The closure head is hung from the control rod drive missile shield and the upper internals package is hung from the closure head.



3,836,430
CABLE SUPPORT STRUCTURE FOR ENABLING A NUCLEAR REACTOR TO BE REFUELED RAPIDLY

Erling Frisch, Pittsburgh, and Harry N. Andrews, Export, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 8, 1970, Ser. No. 53,203
Int. Cl. G21c *19/20*
U.S. Cl. 176—33 **9 Claims**

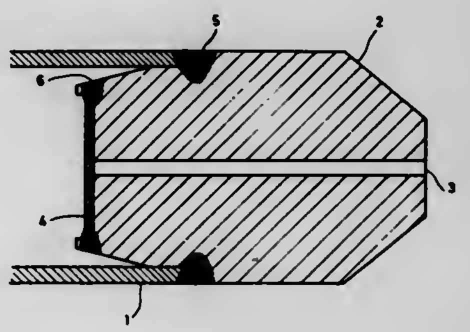


The cables containing the electrical wiring for the control rod mechanisms and the instrumentation for a nuclear reactor are brought by the shortest path to cable support racks affixed to the enclosure surrounding the control mechanisms hereinafter referred to as the mechanism enclosure. The cables are supported on a series of such support racks until they terminate in receptacles mounted on the floor of a platform attached to the mechanism enclosure on the side facing the refueling storage area for the mechanisms, vessel head and internals. An elongated frame-like cable tray is attached to the platform by a hinged joint while the other end is supported on flanged guide rollers. The cables are looped onto the cable tray at its hinged end and are supported in tiers thereon by separator plates and anchor clamps. At the other end of the tray, the cables are hung in large loops and are connected to plugs in the floor of the instrument room. The cables accordingly need not be disconnected from the mechanisms when moving same for refueling.

3,836,431
NUCLEAR FUEL RODS HAVING END PLUGS WITH BORES THERETHROUGH SEALED BY FRANGIBLE MEMBRANES

Alfred-Jean Flipot, Geel; Paul Papeleux, Angleur, and Ivan Lafontaine, Geel, all of Belgium, assignors to Belgonucleaire and Centre d'Etude de L'Energie Nucleaire, Brussels, Belgium

Filed Apr. 26, 1972, Ser. No. 247;723
Claims priority, application Belgium, May 4, 1971, 103005
Int. Cl. G21c *3/10*
U.S. Cl. 176—79 **1 Claim**

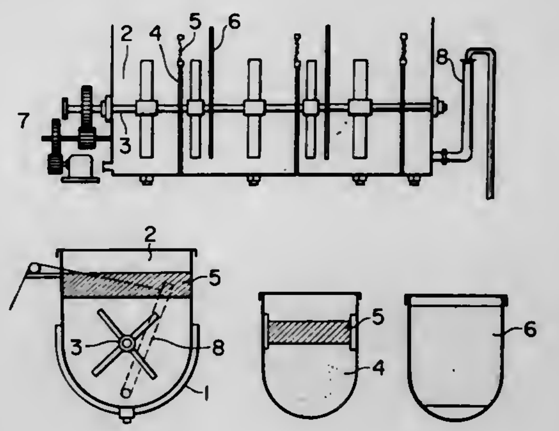


This invention relates to a cylindrical, pressurized, nuclear reactor fuel rod sealed at one end by an end plug having a frangible membrane sealing a narrow bore extending through said plug.

3,836,432
CONTINUOUS PROCESS FOR THE HYDROLYSIS OF RAFFINOSE

Junichi Shimizu, and Toshio Kaga, both of Tokyo, Japan, assignors to Hokkaido Sugar Company, Ltd., Tokyo, Japan

Division of Ser. No. 860,876, Sept. 25, 1969, Pat. No. 3,664,927. This application Sept. 2, 1971, Ser. No. 177,477
Int. Cl. C12b *1/00*
U.S. Cl. 195—11 **5 Claims**



A continuous process for hydrolyzing raffinose contained in beet sugar syrup or juice with an enzyme agent containing α-D-galactosidase, wherein as said enzyme agent the mycelial pellet of *Mortierella Vinacea* varient raffinose utilizer (hereinafter denoted as "enzyme pellet") is used, wherein α-D-galactosidase is present in the cells of the mold. By "enzyme pellet" is meant the mycelial pellet of Mortierella vinacea raffinose utilizer containing α-D-galactosidase.

An apparatus for carrying out the above said process, comprising a U-shaped open reaction vessel which is separated into plurality of chambers by boundary plates which are so constructed as to allow the sugar syrup or juice to overflow through replaceable screen nets fitted at the upper parts of the boundary plates; which is equipped with an interfering plate in each chamber; and which is equipped with stirrers in each chamber between the interfering and boundary plates.

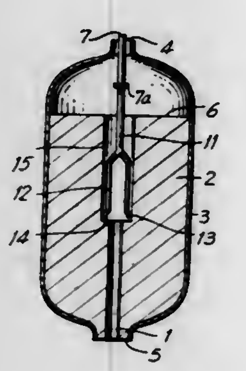
3,836,433
FIXATION OF NITROGENOUS MATERIALS

Pierre-Charles Wirth, and Rene Tixier, both of Paris, France, assignors to Societe Generale De Recherches Et D'Applications, Scientifiques Sogeras, Paris, France
Filed Apr. 13, 1972, Ser. No. 243,875
Claims priority, application Great Britain, Apr. 16, 1971, 9669/71
Int. Cl. C07g *7/02;* **C08b** *15/06*
U.S. Cl. 195—68 **10 Claims**

Dialdehydes, e.g., glyoxal or glutaraldehyde are used to fix nitrogenous materials, e.g., amino acids, proteins, enzymes, antigens, hormones, etc., to insoluble supports which form gels in aqueous media, e.g., polyacrylamide or polysaccharides such as agar-agar.

3,836,434
PROCESS FOR DECOKING A DELAYED COKER

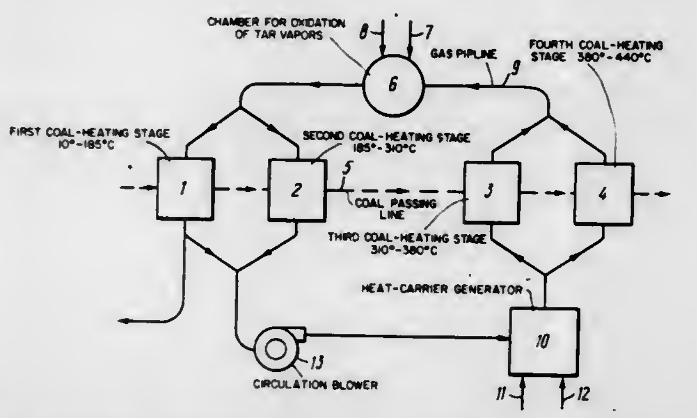
Anton R. Novy, Johnson City, Tenn., assignor to Great Lakes Carbon Corporation, New York, N.Y.
Filed Mar. 27, 1972, Ser. No. 238,304
Int. Cl. C10c *3/18*
U.S. Cl. 201—2 **6 Claims**



Coke is removed from the delayed coker or container by hydraulically cutting a substantial portion or all of it in a substantially vertical direction with water jet streams emanating from nozzles operatively mounted and coupled to a central drill stem which is provided with water under pressure and which is capable of rotation and vertical movement within the container. The coupling is by mechanical and hydraulic linking means permitting the movement of the nozzles in a radial direction from the axis of the central drill stem. After the cutting of the pilot hole with a conventional cutting head designed for that purpose, a substantial portion or all of the remainder of the coke in the container is removed by hydraulically cutting the coke in a substantially vertical direction by directing the water jet streams from the nozzles in a substantially vertical and downward direction against the horizontal surface of the coke in a series of radial incremental distances (which may be variable) substantially circumferentially across the surface of the coke. After each radial incremental cut, the drill stem is raised in the container, the nozzles are extended radially and the nozzles are then moved vertically from the top of the coke to the bottom thereof by lowering the drill stem as the coke is removed by the action of the water, thereby forming a varying, increasing-diameter, cylindrical void in the container through which passes the remainder of the coke that is removed in this manner.

3,836,435
METHOD OF HEAT TREATMENT OF COAL

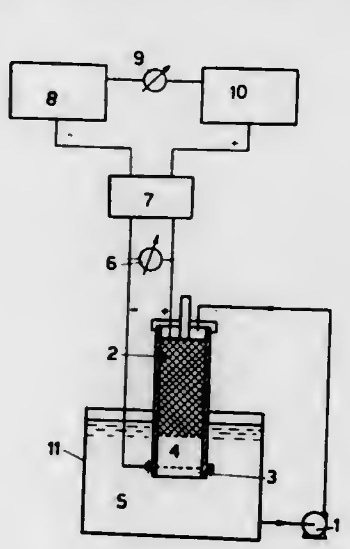
Jury Pavlovich Skornyakov, ulitsa Ekonomicheskaya, 7a, kv. 33; Jury Borisovich Tjutjunnikov, ulitsa Kostomarovskaya, 5/7, kv. 10; Anatoly Semenovich Petrukhno, ploschad R. Ljuxemburg, 5, kv. 26, and Filipp Savelievich Schelkunov, prospekt Gagarina, 20, kv. 72, all of Kharkov, U.S.S.R.
Filed Nov. 6, 1970, Ser. No. 87,398
Int. Cl. C10b *49/00*
U.S. Cl. 201—27 **4 Claims**


CHAMBER FOR OXIDATION OF TAR VAPORS
8
7
GAS PIPLINE
9
FOURTH COAL-HEATING STAGE 380°-440°C
6
FIRST COAL-HEATING STAGE 10°-185°C
SECOND COAL-HEATING STAGE 185°-310°C
5
1
2
3
4
COAL PASSING LINE
THIRD COAL-HEATING STAGE 310°-380°C
HEAT-CARRIER GENERATOR
10
13
CIRCULATION BLOWER
11
12

The proposed method is characterized by raising the temperature of heating of a coal charge in each subsequent stage by a value which is somewhat less than the temperature rise in the preceding stage so that in the next to last stage there is provided heating of the coal charge to a temperature at which the resin vapours start to isolate from the coal charge. The method is also characterized in that the circulating gaseous heat carrier of the nest to last and the last stages of heating is purified from impurities prior to the recirculation. In order to carry this method into effect, the multistage apparatus is provided with a chamber for purification of the gaseous heat carrier from impurities arranged between two groups of chambers for successive step-wise heating of the coal charge.

3,836,436
PROCESS FOR THE ELECTROCHEMICAL MANUFACTURE OF SILVER CONTAINING CATALYSTS

Luigi Rivola; Vittorio Mormino, and Bruno Notari, all of San Donato, Milanese, Italy, assignors to Snam Progetti S.p.A., San Donato, Milanese, Italy
Filed July 28, 1972, Ser. No. 275,937
Claims priority, application Italy, July 31, 1971, 27022/71
Int. Cl. C22d *5/00;* **B01k** *3/00*
U.S. Cl. 204—10 **13 Claims**



A process is disclosed whereby a silver containing catalyst is produced, in a particle size ranging from 300 to 1,500 A, through the pulsed electrolysis of a solution of a silver salt (e.g., silver nitrate) in the presence of a complexing agent (e.g., ammonia) wherein current is fed to the solution for spaced periods of a few seconds duration. Advantageously, after about 10–15 cycles of feeding and interrupting the current to the solution, a current inversion lasting from a few seconds is effected. The silver is obtained in the form of a powder which, after washing, can be used directly or supported on a ceramic material as catalyst for the production of ethylene oxide.

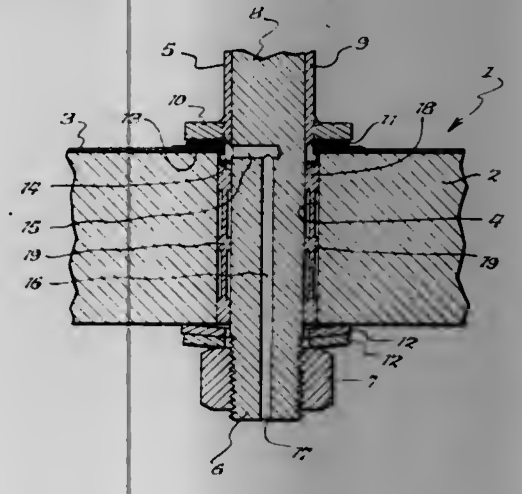
3,836,437
SURFACE TREATMENT FOR ALUMINUM PLATES

Chiaki Osada, and Masataka Murata, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed June 4, 1973, Ser. No. 367,068
Claims priority, application Japan, June 3, 1972, 47-55471
Int. Cl. C07c *45/24*
U.S. Cl. 204—17 **5 Claims**

A process for anodically oxidizing aluminum plates in an aqueous solution of trisodium phosphate at certain concentrations and conditions is disclosed. The process provides an aluminum plate which can be used as a printing plate support.

3,836,438
APPARATUS FOR THE RECOVERY OF LEAKAGES OF BRINE IN THE METALLIC BOTTOMS OF DIAPHRAGM CELLS

Bernard Sartre, Levallois; Jean-Marie Pigeaud, and Daniel Masure, both of Martigues, all of France, assignors to Rhone-Progil, Paris, France
Filed May 29, 1973, Ser. No. 364,623
Claims priority, application France, Feb. 23, 1973, 73.07223
Int. Cl. B01k *3/00*
U.S. Cl. 204—279 **4 Claims**



Apparatus for the recovery and discharge of electrolyte leakage in diaphragm type electrolytic cells, whereby openings in the anodic bottoms which accommodate anode shafts are provided sealing means and with duct means channeling electrolyte leakage through the hollow shafts of the anodes.

3,836,439
METHOD FOR FORMING A COLORED OXIDE COATING ON SURFACES OF ALUMINUM OR ALUMINUM ALLOY

Masashi Ikegaya and Fumio Shigeta, Shizuoka, Japan, assignors to Riken Light Metal Industries Co., Ltd., Shizuoka, Japan
No Drawing. Filed Oct. 20, 1972, Ser. No. 299,329
Claims priority, application Japan, Oct. 22, 1971, 46/83,336, 46/83,337, 46/83,338; Nov. 30, 1971, 46/95,850; May 12, 1972, 47/46,487; May 29, 1972, 47/52,528; July 5, 1972, 47/66,624
Int. Cl. C23b *9/02*
U.S. Cl. 204—58 **2 Claims**

Colored oxide coatings having a broad range of bronze colors on aluminum or aluminum alloy material are formed by anodic oxidation with an aqueous solution containing 0.5–10% by weight per volume of oxalic acid and 0.05–1.0% by weight per volume of sulfuric acid. When the electrolytic bath is maintained at a low temperature or the above described aqueous solution contains additionally aluminum ion, nitric acid or a mixture of nitric acid and boric acid, the described colored oxide coating can be obtained in a shortened time.

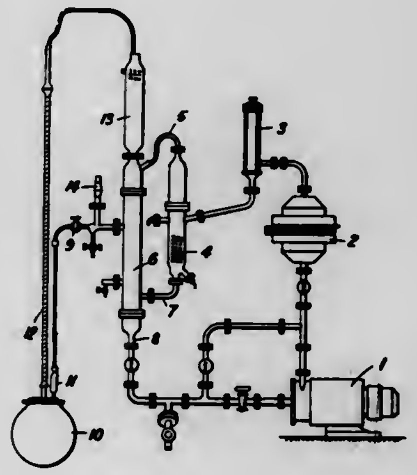
3,836,440
PROCESS FOR THE MANUFACTURE OF PHENYLHYDRAZINE

Hartmuth Alt, deceased, late of Munich, Germany, by Ortwin Franz Felix Alt, Straubing, and Gudrun Anneliese Beyer nee Alt, Hohensachsen, near Weinheim, executors, and Hermann Clasen, Falkenstein, Taunus, and Jurgen Cramer, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Nov. 20, 1972, Ser. No. 307,776
Claims priority, application Germany, Nov. 20, 1971, P 21 57 608.9
Int. Cl. C07b *29/06;* **C07c** *109/04*
U.S. Cl. 204—74 **5 Claims**

A process for the manufacture of phenylhydrazine by cathodic reduction with separation of cathode and anode spaces by a diaphragm wherein diazoaminobenzene dissolved in an electrolyte is reduced on solid electrodes.

3,836,441
ELECTROCHEMICAL OXIDATION PROCESS

James Peter Millington, Chester, England, assignor to The Electricity Council, London, England
Filed Jan. 11, 1972, Ser. No. 216,987
Claims priority, application Great Britain, Jan. 12, 1971, 1,502/71
Int. Cl. B01k *1/00;* **C07b** *3/00*
U.S. Cl. 204—78 **8 Claims**



A process for the electrochemical oxidation of an oxidizable organic compound to an oxidized form comprises,

(a) subjecting the oxidizable organic compound dissolved or suspended in an electrolyte to electrolysis in an electrolytic cell by
(b) passing the electrolyte containing the oxidizable organic compound through a lead dioxide mesh electrode, as the anode, disposed in the electrolytic cell,
(c) said lead dioxide mesh electrode comprising a substrate of titanium mesh having a coating of lead dioxide electrodeposited thereon.

An apparatus for the electrochemical oxidation of an oxidizable organic compound is also described.

3,836,442

PROCESS FOR RECOVERING MERCURY FROM BRINE SOLIDS

Warren E. Dean and William E. Makris, New Martinsville, W. Va., assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed July 20, 1972, Ser. No. 273,587

Int. Cl. C01b *17/20;* **C01d** *1/08*

U.S. Cl. 204—99 **7 Claims**

Mercury is removed from electrolytic cell solids, comprising magnesium hydroxide, ferric hydroxide, and calcium carbonate. by contacting the solids with an aqueous sulfide solution to form soluble mercury polysulfide. In a preferred embodiment, the mercury containing solids are first treated with a hypochlorite oxidizing agent.

3,836,443

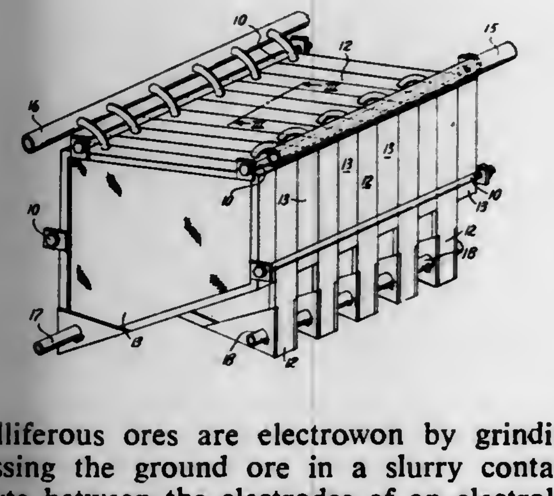
ELECTROWINNING OF ORES

Douglas MacGregor, 972 East 5650 South,
Salt Lake City, Utah 84121

Continuation-in-part of abandoned application Ser. No. 43,403, June 4, 1970. This application June 3, 1971, Ser. No. 149,754

Int. Cl. C22d *1/00, 1/16, 1/24*

U.S. Cl. 204—105 M **26 Claims**



Metalliferous ores are electrowon by grinding them and passing the ground ore in a slurry containing an electrolyte between the electrodes of an electrolytic cell. The electrolyte is so selected that the free surface energy of the ore plus the energy contributed to the ore by the electrical field of the cell exceeds the energy supplied by the ionized components of the electrolyte so that metal plates out on the cathode of the cell.

3,836,444

PROCESS FOR POLYMERIZING CONJUGATED DIOLEFINS USING ORGANIC COMPOUNDS OF THE TRANSITION METALS AS CATALYSTS

Georgis Codet, Reuil-Malmaison, Franco Dawans, Bougival, and Francois-Xavier de Charentenay, Reuil-Malmaison, France, and Philippe Teyssie, Neuville-en-Combroz, Belgium, assignors to Institut Francais du Petrole, des Carburants et Lubrifiants, Reuil-Malmaison, France

No Drawing. Continuation-in-part of application Ser. No. 862,948, Oct. 1, 1969, now Patent No. 3,739,003. This application Mar. 23, 1973, Ser. No. 344,177

Claims priority, application France, Oct. 1, 1968, 168,366

Int. Cl. C08d *1/00;* **C08f** *1/16*

U.S. Cl. 204—159.24 **23 Claims**

Conjugated diolefins are polymerized with catalysts of the formula

$$[(H_{3-n}X_nCCO_2)_mM_T(Y)_p]_qL_r$$

wherein

X is a halogen atom,
n is 1, 2 or 3,
M_T is a transition metal from Groups IV to VIII of the Periodic Chart of the Elements,
Y is an anion other than OH,
each of m, p and q is an integer from 1 to 4 inclusive, $m+p$ being such as to constitute an electrically neutral compound,
L is a Lewis base, and
r is a number from 0 to 2 inclusive,
said compound being used in an amount ranging from 10^{-3} to 2 gram-atom of the metal M_T per 100 moles of said conjugated diolefin.

Preferred catalysts include nickel monochlorotrifluoroacetate, nickel monobrome-trifluoroacetate, cobalt monochloro-trifluoroacetate and complexes thereof.

3,836,445

PROCESS FOR THE HALOGENATION OF SIDE CHAINS OF AROMATIC COMPOUNDS

Tutomu Sano and Masaharu Doya, Niigata, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

No Drawing. Filed Jan. 18, 1973, Ser. No. 324,869
Claims priority, application Japan, Jan. 24, 1972, 47/8,329

Int. Cl. B01j *1/10*

U.S. Cl. 204—163 R **7 Claims**

The invention relates to a process for the halogenation of the lower alkyl groups of aromatic compounds by reacting said aromatic compounds under irradiation with ultraviolet rays with a halogen in the presence of a N-lower alkyl-substituted acid amide such as N-methylformamide, N,N - dimethylformamide, N-N-dimethyl-acetamide or N-methyl urea.

3,836,446

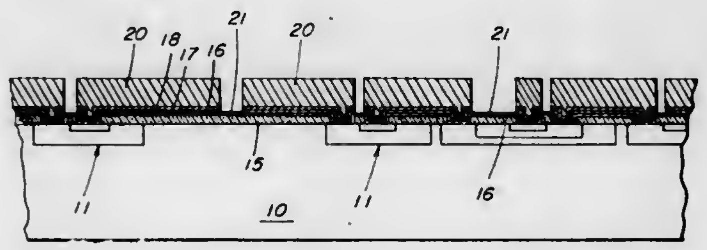
SEMICONDUCTOR DEVICES MANUFACTURE

Karl H. Tiefert, Los Altos, Calif., assignor to Raytheon Company, Lexington, Mass.

Original application May 10, 1971, Ser. No. 141,857, now abandoned. Divided and this application Sept. 20, 1972, Ser. No. 290,593

Int. Cl. C23b *5/50;* **C23c** *13/02, 15/00*

U.S. Cl. 204—192 **19 Claims**



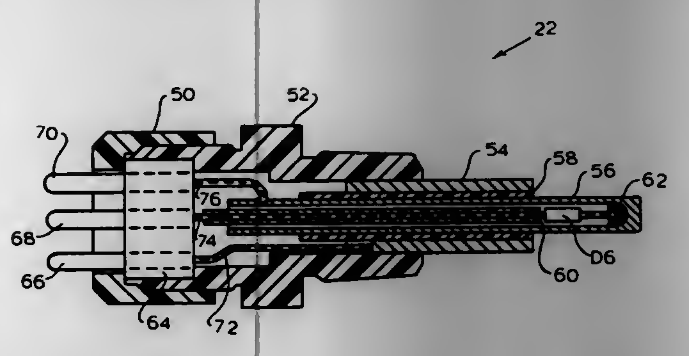
Semiconductor structures having multi-layer metal conductors formed on the surface of the semiconductor devices and having excess metal between the conductors removed by sputter etching in an atmosphere which produces oxidization of one of the metal layers of said conductors. The metal compound mask thus formed inhibits the etching process in the regions where the oxidized layer is exposed and protects the active components beneath the layer. The oxidized portions of the masking layer are then removed by a suitable solvent or etch. A chemical etching metal compound mask may be formed of a metal and the semiconductor material for separating the chips from the wafer by anisotropic etching.

3,836,447

PROBE FOR DETECTING THE LEVEL OF SUBSTANCES IN FLUID BODIES

Donald R. Emmons, 11222 Astronaut Blvd.,
Orlando, Fla. 32809
Filed Nov. 10, 1972, Ser. No. 305,237
Int. Cl. G01n *27/30, 27/52*

U.S. Cl. 204—195 R **6 Claims**



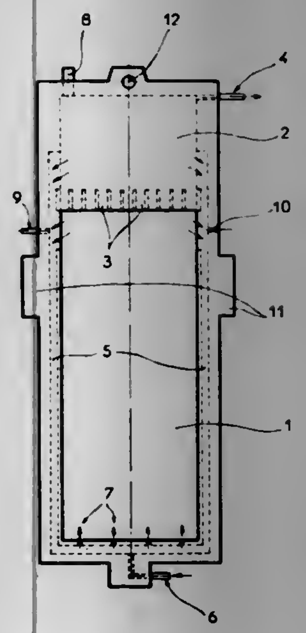
The addition of substances, such as chlorine, to fluid bodies is controlled and the concentration of such substances is monitored by a system including a temperature compensated probe for measuring the concentration, and electronic means responsive to outputs of the probe for adding the substance, as needed, to the desired level.

3,836,448

FRAMES FOR ELECTROLYTIC CELLS OF THE FILTER-PRESS TYPE

Pierre Bouy, Enghien-les-Bains, and Daniel Collard, Paris, France, assignors to Rhone-Progil, Paris, France
Filed Dec. 13, 1972, Ser. No. 314,817
Claims priority, application France, Dec. 23, 1971, 7146295
Int. Cl. B01k *3/00*

U.S. Cl. 204—270 **7 Claims**



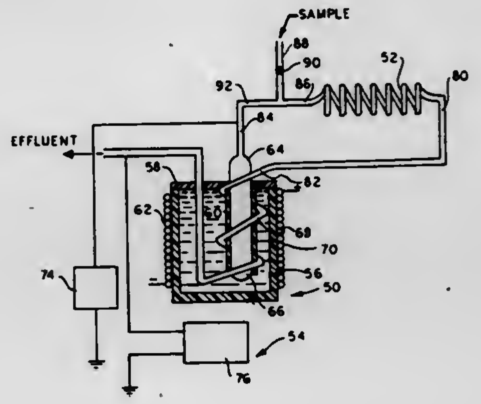
Frames for electrolytic cells of the filter-press type are provided which comprises a lower zone provided for receiving an anode or a cathode, and an upper zone in the form of a closed box, for ensuring separation of the gases produced by electrolysis from the electrolyte, the upper zone extending said lower zone, the lower zone communicating with the upper zone by way of one or more apertures in the lower part of said box, the sealing means ensuring sealing of the cells being applied over the periphery of the lower zone.

3,836,449

ELECTROLYTIC CELL FOR USE WITH VAPOR PHASE DETECTORS

James E. Lovelock, Bowerchalke, near Salisbury, England, assignor to California Institute of Technology, Pasadena, Calif.
Original application June 1, 1970, Ser. No. 41,905, now Patent No. 3,701,632. Divided and this application Oct. 26, 1972, Ser. No. 300,908
Int. Cl. B01k *3/00;* **C23f** *1/02;* **G03c** *5/00*

U.S. Cl. 204—277 **7 Claims**



The change in potential difference, resistance or current flow between electrodes in an electrolytic cell is utilized to detect pressure change, absolute hydrogen pressure and pressure of other gases present in hydrogen carrier gas, particularly those which are reactive with the electrodes. At least one of the electrodes is formed of a material selectively permeable to hydrogen, preferably comprising palladium. The cell may be simultaneously utilized for separation and regeneration of hydrogen carrier gas and may be conveniently integrated and combined with a gas chromatographic column on a small size chip containing recesses for the cell and column components formed by conventional etching-masking techniques.

3,836,450

BIPOLAR ELECTRODE

Robert F. Schultz, Niagara Falls, and Edward H. Cook, Jr., Lewiston, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.
No Drawing. Filed May 25, 1973, Ser. No. 364,196.
Int. Cl. B01k *1/00, 3/06;* **C01b** *11/26*

U.S. Cl. 204—290 F **12 Claims**

An improved dimensionally stable bipolar electrode for use in electrochemical applications comprising a central valve metal layer, suitable anodic material on the anode side of the valve metal, a barrier layer of a metal silicide on the cathode side protected by a suitable common metal coating. Such electrodes function at low hydrogen permeability rates during use in electrolytic processes.

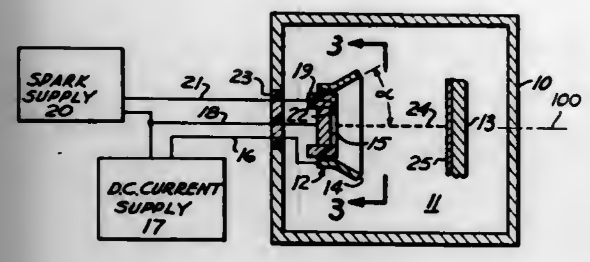
3,836,451

ARC DEPOSITION APPARATUS

Alvin A. Snaper, Chatsworth, Calif.
(2800 Cameo Circle, Las Vegas, Nev. 89107)
Original application Dec. 26, 1968, Ser. No. 787,029, now Patent No. 3,625,848. Divided and this application Oct. 21, 1970, Ser. No. 82,744
Int. Cl. C23c *15/00*

U.S. Cl. 204—298 **18 Claims**

A deposition process comprising emitting a beam of particles consisting of atoms and ions of source material, each particle having a kinetic energy between about 10 and 100 electron volts. The particles are deposited onto an object to coat the object with a thin film of source material. A beam gun is provided having an anode and a cathode and is supplied with current of such magnitude as to cause an arc discharge to occur between the anode and cathode to emit the beam.



3,836,452

CONVERSION OF BLACK OIL WITH METAL BORIDE OR BOROHYDRIDE CATALYST

William K. T. Gleim, Island Lake, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Original application Aug. 23, 1972, Ser. No. 282,998. Divided and this application Dec. 14, 1972, Ser. No. 315,036

Int. Cl. C10g *13/02, 23/00*
U.S. Cl. 208—108 **3 Claims**

Asphaltene-containing hydrocarbonaceous charge stocks are reacted with hydrogen in contact with a catalytic composite of at least one metal component selected from the group consisting of the borides and borohydrides of the metals from Groups IV, V and VI. A slurry-type process, which may be effected either with a metallic component being composited with a porous carrier material, or with the unsupported metallic component, and admixed with the fresh feed charge stock.

3,836,453

PROCESS FOR HYDROGENATION-HYDROTREATING OF HYDROCARBON MIXTURES

Stephen M. Kovach, Ashland, Ralph E. Patrick, Flatwoods, and Ronald A. Kmecak, Ashland, Ky., assignors to Ashland Oil, Inc., Columbus, Ohio

No Drawing. Continuation-in-part of application Ser. No. 133,349, Apr. 12, 1971, which is a continuation of application Ser. No. 769,740, Oct. 22, 1968, both now abandoned. This application July 18, 1972, Ser. No. 272,855

Int. Cl. C10g *23/02*
U.S. Cl. 208—143 **1 Claim**

A process for hydrogenation-hydrotreating of hydrocarbon materials, comprising; contacting a hydrocarbon material, such as naphthas, kerosene, cycle oils, gas oils, coal liquids, and particularly a hydrocarbon material containing naphthalene, alkylbenzenes, and alkylnaphthalenes, with a catalyst containing an active hydrogenation-dehydrogenation metal, such as a metal selected from the group consisting of IB, IIB, VB, VIB and VIII of the Periodic System and a basic metal oxide promoter selected from the group consisting of Groups IA, IIA, IV, and rare earth metals of the Periodic System, both deposited on an inert oxide support, such as gamma aluminas, silica-alumina, silica-zirconia, silica-magnesia, etc., at a temperature of about 500 to 900 F., a pressure of about 100 to 3000 p.s.i.g., a liquid hourly space velocity between about 0.1 and 10, and a hydrogen-to-hydrocarbon mole ratio of about 3 to 15 to 1.

3,836,454

CONVERSION PROCESS AND CATALYSTS

Rowland C. Hansford, 19463 Oriente Drive,
Yorba Linda, Calif. 92686

No Drawing. Continuation-in-part of application Ser. No. 643,353, June 5, 1967, now Patent No. 3,547,807, which is a continuation-in-part of application Ser. No. 343,932, Feb. 11, 1964, now Patent No. 3,324,047, which is a continuation-in-part of abandoned application Ser. No. 150,129, Nov. 6, 1961, which in turn is a continuation-in-part of abandoned application Ser. No. 72,325, Nov. 29, 1960. This application Oct. 26, 1970, Ser. No. 84,141

Int. Cl. C10g *13/02*
U.S. Cl. 208—111 **7 Claims**

Hydrocracking catalysts are disclosed consisting essentially of a physical, particle-form mixture of (1) a crystalline aluminosilicate component having a sodium content of less than 4 percent by weight, and (2) a hydrogenation component comprising a predominant proportion of a porous support, other than a crystalline aluminosilicate, and a minor proportion of at least one constituent exhibiting hydrogenation activity. Hydrocracking processes using such catalysts are also disclosed.

3,836,455

SEPARATION OF CLOSELY RELATED ALIPHATIC HYDROCARBONS WITH CATION-EXCHANGED OFFRETITE ZEOLITE

George C. Blytas, Houston, Tex., assignor to Shell Oil Company

No Drawing. Filed Feb. 9, 1973, Ser. No. 330,940

Int. Cl. C07c *7/12*
U.S. Cl. 208—310 **12 Claims**

Aliphatic hydrocarbons of from 5 to 8 carbon atoms having two methyl substituents on the same carbon atom or more highly branched C_5 to C_8 aliphatic hydrocarbons are separated from aliphatic hydrocarbons of from 5 to 8 carbon atoms having two methyl groups on different carbon atoms or less-branched C_5 to C_8 aliphatic hydrocarbons by selective adsorption employing a specially-treated offretite zeolite which has been ion-exchanged with a Group IIA or rare earth metal. Use of this separation to increase the octane rating of gasoline is also disclosed.

3,836,456

TREATMENT FOR WASTE WATER OR THE LIKE

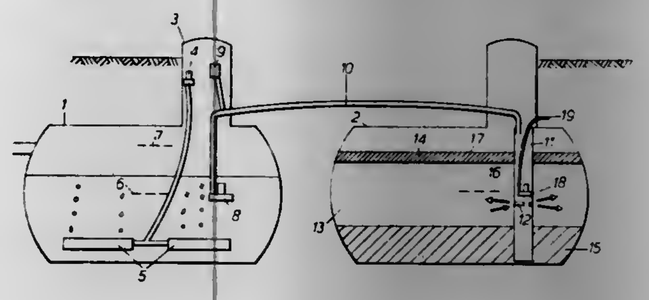
Hjalmar Elias Fries, Spanga, Sweden, assignor to ITT Industries, Inc., New York, N.Y.

Filed Dec. 11, 1972, Ser. No. 314,139

Claims priority, application Sweden, Dec. 14, 1971, 15,983

Int. Cl. C02b *1/20;* **C02c** *5/04*
U.S. Cl. 210—16 **4 Claims**

Water clarification and/or purification is achieved by establishing, in a first tank, vertically spaced floating and sunken sludge layers separated by a water layer that clears over a period of time. The raw waste is aerated in a second tank and thereafter withdrawn therefrom and injected with a precipitation agent including, but not limited to, a solution of aluminum sulfate into the clarified water layer at a vertical location spaced from both of the sludge layers. After the injection step is completed, the first tank is allowed to stand for the said period so that the water layer can again clear. At least a portion of the clarified water in the water layer is then removed therefrom at a vertical location between and spaced from the reformed sludge layers. The above-described steps may then be repeated, if desired. The stratification of all three layers is fairly continuous except that the water layer must, over spaced periods, be allowed time to clear. Either one of the sludge layers may be drained off whenever the thickness of the said one sludge layer becomes so great in comparison to the first tank depth only an inefficiently small batch of the aerated waste water can be pumped into the first tank and can thereafter be clarified.



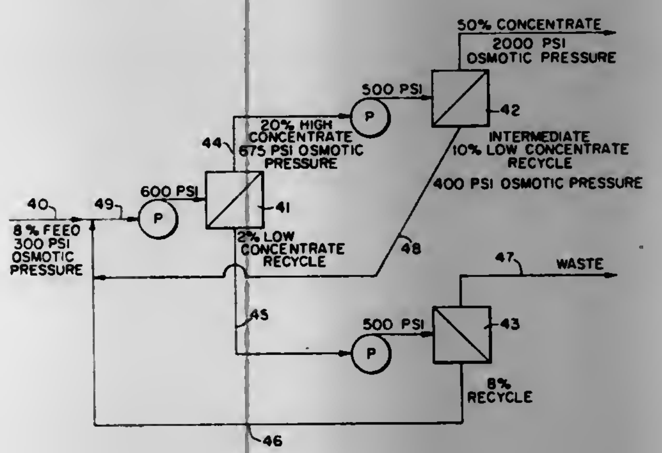
3,836,457

SYSTEM FOR CONCENTRATING SOLUTIONS BY LOW PRESSURE RECYCLING

Marvin C. Gross, Maple Shade, N.J., and Regis R. Stana, Murrysville, Franklin D. Klem, Pittsburgh, and Raymond E. Shaffer, Greensburg, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 19, 1973, Ser. No. 342,572

Int. Cl. B01d *13/00, 31/00*
U.S. Cl. 210—23 **10 Claims**


50% CONCENTRATE
2000 PSI OSMOTIC PRESSURE
500 PSI
P
42
20% HIGH CONCENTRATE 675 PSI OSMOTIC PRESSURE
44
INTERMEDIATE 10% LOW CONCENTRATE RECYCLE
400 PSI OSMOTIC PRESSURE
40
49
600 PSI
P
41
8% FEED 300 PSI OSMOTIC PRESSURE
2% LOW CONCENTRATE RECYCLE
48
47
WASTE
45
500 PSI
P
43
8% RECYCLE
46

A fluid concentration system is operated by (1) pumping a feed solution of low concentration, having an osmotic pressure below about 600 p.s.i., into a first stage reverse osmosis membrane separation apparatus operating at a driving pressure of up to about 800 p.s.i., to provide a first lower concentrate solution and a first high concentrate solution; (2) pumping the high concentrate solution into a second stage reverse osmosis membrane separation apparatus, operating at a driving pressure of up to about 800 p.s.i., to provide an intermediate low concentrate solution and a second high concentrate solution, having an osmotic pressure of between about 800 to 3000 p.s.i.; and (3) recycling at least one of the low concentrate solutions back through at least one of the reverse osmosis membrane separation apparatus.

3,836,458

WATER PURIFICATION MEANS

Craig Wallis and Joseph L. Melnick, Houston, Tex., assignors to The Carborundum Company, Niagara Falls, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 184,190, Sept. 27, 1971, which is a continuation-in-part of application Ser. No. 135,463, Apr. 19, 1971, both now abandoned. This application Apr. 20, 1973, Ser. No. 353,147

Int. Cl. B01d *13/00, 31/00*
U.S. Cl. 210—23 **12 Claims**

A filter system is provided for the purification of water, whereby particulates and viruses may be economically and reliably removed. The system comprises a filter means for removal of silts and colloidal materials, a treated carbon virus filter, and a specially treated honeycomb cartridge for removal of microbiological flora, e.g., bacteria, fungi, molds, and algae one micron or larger. Optionally, the system may include reverse osmosis means, an ion exchange demineralizer, and an ultrafine membrane filter.

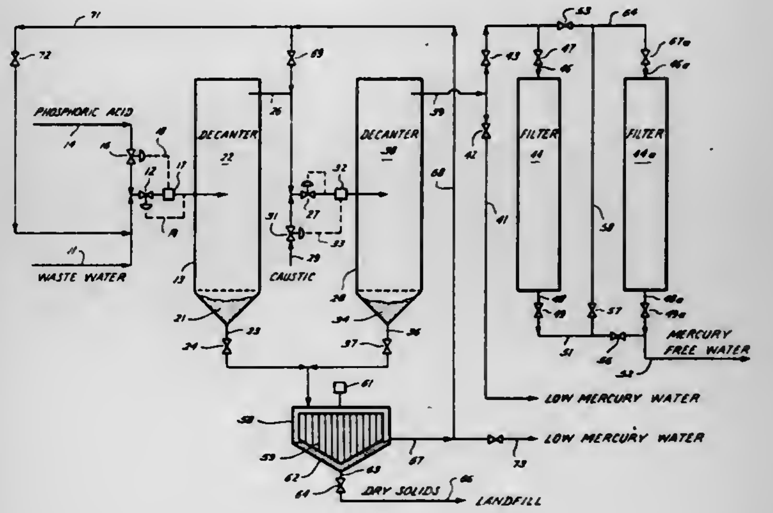
3,836,459

MERCURY REMOVAL FROM LATEX PAINT WASTE WATER

Ralph A. Shoberg and Paul E. Cravens, Houston, Tex., assignors to Petrolite Corporation, St. Louis, Mo.

Filed Dec. 18, 1972, Ser. No. 315,771

Int. Cl. C02b *1/18;* **C02c** *5/02*
U.S. Cl. 210—28 **9 Claims**



A process for the removal of organic mercury compounds and dispersed solids from waste water generated in the manufacture of water-thinned paints. The waste water receives an addition of phosphoric acid until the pH is adjusted to about 3.0. A major portion of the organic mercury compound (e.g., phenyl mercuric acetate) and water-dispersibled solids precipitate from the waste water. The precipitate is separated from the waste water. Then, the waste water is adjusted to a pH of at least about 7.5 by the addition of calcium hydroxide so that a substantially complete precipitation of the residual organic mercury compound and water-dispersibled solids is obtained. The precipitated solids are removed from the relatively mercury and solids free water phase. Then, the water phase is passed to a subsequent utilization. The precipitated mercury and solids may be treated to provide a substantially dry material suitable for landfill. A waste water with zero mercury content can also be produced.

3,836,460

PROCESS FOR REMOVAL OF ALGAE, DIATOMS AND ORGANIC CONTAMINANTS FROM WATER

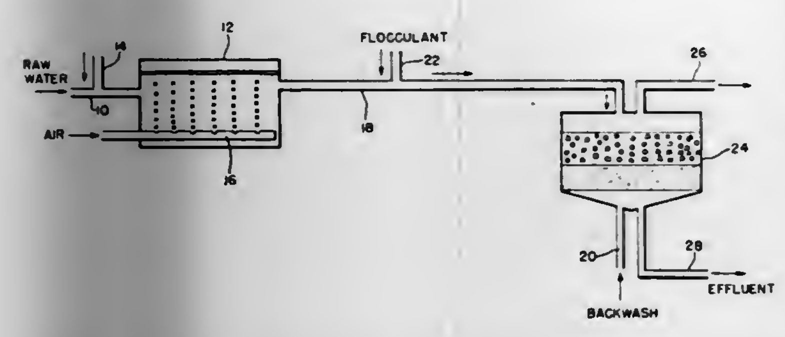
Roderick M. Willis, 2624 W. Crockett 98199, and Charles L. Oldfather, 8812 40th Ave. SW. 98116, both of Seattle, Wash.

Filed Mar. 27, 1972, Ser. No. 238,119

Int. Cl. B01d *21/01;* **C02b** *1/20*

U.S. Cl. 210—44 **3 Claims**

The bulk of algae, diatoms and other organic contaminants is effectively removed from river waters and other surface water preliminary to or concurrently with conventional flocculation processes by contacting the raw water with an amount of an organic cationic polyelectrolyte at a polymer dosage beyond the range where a visible floc is formed, generally 15 to 50 parts per million. The coalesced material is removed from the effluent by sparging finely dispersed air through the treated water to float the material. The floating material is removed by skimming or other suitable means. The treated effluent is then either flocculated by a conventional process or run directly through an inverted bed filter for filtering the same.



3,836,461

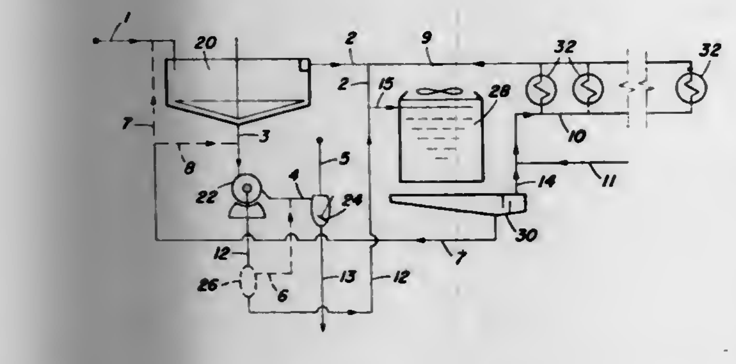
TREATMENT AND USE OF WASTE EFFLUENT STREAMS

Richard T. Whitehead, Westfield, Benjamin J. Luberoff, Summit, and Morgan Chuan-Yuan Sze, Upper Montclair, N.J., assignors to The Lummus Company, Bloomfield, N.J.

Filed Sept. 7, 1972, Ser. No. 286,939

Int. Cl. B01d *1/24*

U.S. Cl. 210—56 **6 Claims**



An aqueous waste stream from an industrial chemical or other processing plant can be utilized to furnish cooling water for use in the same or another plant by partially vaporizing it in a cooling tower, after filtering off any suspended solids, utilizing the cooled liquid as cooling water for heat exchangers, and returning the heat-exchanged water to the cooling tower. Chemicals precipitated from the waste stream during vaporization can be recovered or burned as fuel in the plant. Small amounts of volatile wastes can be removed by vaporization in the cooling tower. Total recycle or elimination of all materials in the waste stream results in the reduction or elimination of pollution of local waters.

3,836,462

AMINE/PHOSPHATE COMPOSITION USEFUL AS CORROSION AND SCALE INHIBITOR

Arthur Lee Larsen, Denver, Colo., assignor to Marathon Oil Company, Findlay, Ohio

No Drawing. Original application Apr. 2, 1969, Ser. No. 812,847, now abandoned, and Oct. 18, 1971, Ser. No. 190,266, now Patent No. 3,787,319. Divided and this application Mar. 29, 1973, Ser. No. 345,946

Int. Cl. C02b *5/06*

U.S. Cl. 210—58 **2 Claims**

A composition useful as a corrosion and scale inhibitor is obtained by reacting an N-secondary alkyl alkylene diamine (e.g. contains an average of 8–20 carbon atoms in the alkyl group and 2–4 carbon atoms in the alkylene group) and a phosphate ester, obtained for example by reacting about equal molar amounts of polyphosphoric acid and a condensation product of an aliphatic primary alcohol (preferably contains 3–6 carbon atoms) and at least one mole (preferably 1–10 moles) of an alkylene oxide (preferably ethylene oxide). Final reaction product can have a pH of 5–9.

3,836,463

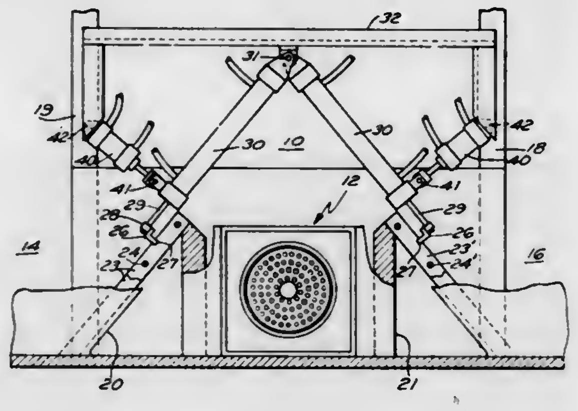
SYSTEM AND APPARATUS FOR CLEANING BAR GRID

Roger W. Teague and Richard Paul Snyder, Largo, Fla., assignors to General Signal Corporation

Filed July 28, 1972, Ser. No. 275,914

Int. Cl. B01d *33/00*

U.S. Cl. 210—162 **8 Claims**



An automatic rake is provided for a bar grid which bar grid is mounted in a flume adjacent a waste disintegrator. The rake is preferably provided with a plurality of fingers extending between the bars of the grid and is reciprocated by a motor and is provided with a second motor member which is adapted to lift the rake away from the bar grid if an obstruction is met. Automatic means are provided so that when the obstruction is sensed, the rake will reverse itself and go to the bottom of the grid again. The arrangement is such in combination with a waste disintegrator that the material from the grid will be raked into the path of the disintegrator to be pulverized therein.

3,836,464

FILTER SCREEN MOUNTING

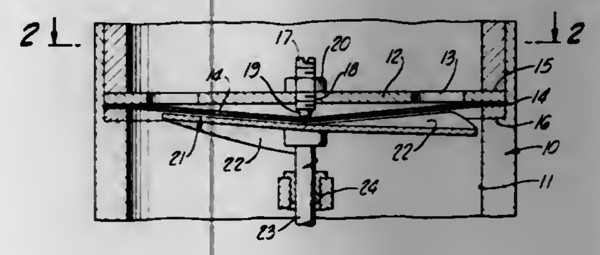
Richard H. Brookins, Pomona, and John Paul Miller, Garden Grove, Calif., assignors to Brown International Corporation, Covina, Calif.

Filed July 14, 1972, Ser. No. 272,053

Int. Cl. B01d *29/04*

U.S. Cl. 210—413 **4 Claims**

A power filter has an apertured back-up plate mounted in a circular opening in a stationary member. One or more substantially flat circular screens are positioned in the opening adjacent the back-up member, and their outer peripheries are secured relative to the stationary member. A threaded element mounted centrally on the back-up member applies an axial force to the screens to deflect them away from the back-up member and to place them in tension. A rotary impeller in the opening is placed closely adjacent the tensioned screens and has blades shaped to conform thereto.



3,836,465

COMPOSITION USEFUL AS A FLUID LOSS CONTROL AGENT

John S. Rhudy and John A. Davis, Jr., Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio

No Drawing. Continuation-in-part of application Ser. No. 257,127, May 26, 1972, now Patent No. 3,747,681. This application Apr. 26, 1973, Ser. No. 354,602

Int. Cl. C10m *3/22, 3/34*

U.S. Cl. 252—8.5 C **7 Claims**

A composition particularly useful as a fluid loss control agent in drilling fluids and as a diverting agent in subterranean strata is obtained by forming an aqueous solution comprised of about 0.005–10% by weight of a high molecular weight polyalkylene oxide polymer (preferably polyethylene oxide polymer having a MW of 100,000–10,000,000) and about 0.005–10% by weight of a natural resin, e.g. sodium or calcium lignosulfate. This aqueous solution is highly viscoelastic, i.e., it is a fluid when not agitated but exhibits a gel-like characteristic upon agitation.

3,836,466

SOLID LUBRICANT

Wataru Abe, Chigasaki, and Akio Muto and Yasuyuki Terada, Fujisawa, Japan, assignors to Oiles Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of abandoned application Ser. No. 43,477, June 4, 1970. This application June 15, 1973, Ser. No. 370,419

Int. Cl. C10m *7/02, 7/04, 7/06*

U.S. Cl. 252—12 **7 Claims**

This invention relates to a solid lubricant suitable for use at the high temperature of 400–500° C. manufactured by adding a predetermined amount of sodium fluoride to either graphite or a mixture of graphite and tungsten disulfide.

The addition of the predetermined amount of sodium fluoride is effective for protecting oxidation of the solid lubricant and increasing the life of a film formed on a sliding surface.

3,836,467

COLD METAL FORMING LUBRICANT

Frederick W. C. Jones, Royal Oak, Mich., assignor to Oxy Metal Finishing Corporation, Warren, Mich.

No Drawing. Filed Apr. 28, 1971, Ser. No. 138,357

Int. Cl. C10m *3/04, 3/34, 7/38*

U.S. Cl. 252—18 **16 Claims**

Cold metal forming lubricant comprising effective amounts of:

(a) water (optional)
(b) alkali metal orthophosphate
(c) alkali metal fatty acid soap
(d) alkali metal alkaryl sulfonate.

3,836,468

GREASES THICKENED WITH KETO FATTY ACID LITHIUM SOAPS OR KETO CYANOETHYLATED FATTY ACID LITHIUM SOAPS

Harold E. Kenney, Jenkintown, Edward T. Donahue, Philadelphia, and Gerhard Maerker, Oreland, Pa., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Original application July 25, 1972, Ser. No. 275,010. Divided and this application Aug. 24, 1973, Ser. No. 391,183

Int. Cl. C10m *5/14, 5/20, 7/30*

U.S. Cl. 252—33.6 **5 Claims**

Keto fatty acids or derivatives of keto fatty acids are cyanoethylated and the resulting three carbon cyanoethyl branched chain fatty acids are mixed with an appropriate amount of a diester or a petroleum base oil. The mixture is then reacted in situ with a dilute aqueous solution of lithium hydroxide to obtain a stable grease.

3,836,469

LUBRICANTS AND FUELS CONTAINING ESTER-CONTAINING COMPOSITIONS

Clark Ober Miller, Willoughby Hills, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Continuation-in-part of application Ser. No. 360,207, May 14, 1973, which is a continuation of application Ser. No. 152,424, June 11, 1971, now abandoned, which is a division of application Ser. No. 12,838, Feb. 19, 1970, now abandoned, which in turn is a continuation-in-part of application Ser. No. 823,990, May 12, 1969, now abandoned. This application June 8, 1973, Ser. No. 368,545

Int. Cl. C10m *1/24, 1/26*

U.S. Cl. 252—40.5 **15 Claims**

Ester-containing compositions prepared by reacting a high molecular weight carboxylic acid acylating agent with polyoxyalkylene alcohol demulsifiers for aqueous emulsions. The ester-containing compositions are useful as additives in normally liquid fuels and lubricants.

3,836,470

LUBRICANTS AND FUELS CONTAINING ESTER-CONTAINING COMPOSITIONS

Clark Ober Miller, Willoughby Hills, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Continuation-in-part of application Ser. No. 359,952, May 14, 1973, which is a continuation of application Ser. No. 152,426, June 11, 1971, now abandoned, which is a continuation of application Ser. No. 12,838, Feb. 19, 1970, now abandoned, which in turn is a continuation-in-part of application Ser. No. 823,990, May 12, 1969, now abandoned. This application June 8, 1973, Ser. No. 368,383

Int. Cl. C10m *1/26, 1/36*

U.S. Cl. 252—51.5 A **18 Claims**

Ester-containing compositions prepared by reacting a high molecular weight carboxylic acid acylating agent with polyoxyalkylene alcohol demulsifiers for aqueous emulsions. The ester-containing compositions are useful as additives in normally liquid fuels and lubricants.

3,836,471

LUBRICANTS AND FUELS CONTAINING ESTER-CONTAINING COMPOSITIONS

Clark Ober Miller, Willoughby Hills, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Continuation-in-part of application Ser. No. 360,207, May 14, 1973, which is a continuation of application Ser. No. 152,424, June 11, 1971, now abandoned, which is a division of application Ser. No. 12,838, Feb. 19, 1970, now abandoned, which in turn is a continuation-in-part of application Ser. No. 823,990, May 12, 1969, now abandoned. This application June 12, 1973, Ser. No. 369,384

Int. Cl. C10m *1/34, 1/36*

U.S. Cl. 252—51.5 A 16 Claims

Ester-containing compositions prepared by reacting a high molecular weight carboxylic acid acylating agent with polyoxyalkylene alcohol demulsifiers for aqueous emulsions. The ester-containing compositions are useful as additives in normally liquid fuels and lubricants.

3,836,472

METHOD FOR PRODUCING MANGANESE-ZINC FERRITE

Shigeo Soejima, Nagoya, and Hideo Irokawa, Chiryu, Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan

No Drawing. Filed Dec. 4, 1972, Ser. No. 311,621

Claims priority, application Japan, Dec. 14, 1971, 46/100,626; Sept. 21, 1972, 47/94,116

Int. Cl. C04b *35/38, 35/40*

U.S. Cl. 252—62.57 3 Claims

Manganese-zinc ferrite for a magnetic head which has a high initial permeability and causes few ferrite noise and improves the resistance to the dropping out of ferrite crystallites generated by the rubbing of a magnetic tape, is produced by adding 0.001–0.06% by weight of at least one of alkali metal oxides selected from the group consisting of sodium oxide and potassium oxide, 0.005–0.04% by weight of rare earth metal oxides and 0.6–3.0% by weight of indium oxide to the starting materials of ferrite consisting mainly of ferric oxide, manganese oxide and zinc oxide, molding the resulting mixture, firing the molded body at a temperature of 1,100–1,300° C. under atmosphere of a reduced pressure of lower than 10^{-2} mm. Hg, firing the thus treated molded body at a temperature of 1,250–1,500° C. under a helium atmosphere containing 0.5–20% by volume of oxygen and cooling the sintered body.

3,836,473

ETCHING SOLUTION

Christopher John Kay, Nottingham, and Eric Anthony Horbury, Quorn, England, assignors to Rolls-Royce (1971) Limited, London, England

No Drawing. Filed Sept. 12, 1972, Ser. No. 288,309

Claims priority, application Great Britain, Sept. 21, 1971, 43,865/71

Int. Cl. C09k *3/00;* **C23f** *1/02*

U.S. Cl. 252—79.2 1 Claim

When certain masked alloys are chemically etched, an undesirable effect commonly referred to as "channelling" is often encountered. "Channelling" is characterised by an area of increased attack in the immediate vicinity of the boundary between the masked and exposed areas of the alloy. The present invention relates to an etching solution comprising a dispersion of finely divided particles which minimises this effect.

3,836,474

NOVEL NON-FLAMMABLE AZEOTROPE SOLVENT COMPOSITIONS

Oliver A. Barton, Florham Park, and Kevin P. Murphy, Orchard, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Continuation of application Ser. No. 77,388, Oct. 1, 1970, now Patent No. 3,692,686. This application July 10, 1972, Ser. No. 270,136

The portion of the term of the patent subsequent to Sept. 19, 1989, has been disclaimed

Int. Cl. C11d *7/50*

U.S. Cl. 252—171 4 Claims

Tetrachlorodifluoroethane (sym.-, asym.-, and mixtures thereof) nitromethane, water and isopropanol or secondary butanol form quaternary azeotropic mixtures which are useful as dry cleaning solvents and are particularly useful for the removal of hard-to-remove stains from leather.

3,836,475

AQUEOUS CHLORITE BLEACH CONTAINING A HYDROXYLAMMONIUM ACTIVATOR

Uwe Kirner, Bobenheim-Roxheim, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed July 10, 1972, Ser. No. 270,435

Int. Cl. C11d *7/54*

U.S. Cl. 252—187 R 7 Claims

Bleach liquors intended for use on cellulosic textile materials and containing alkali metal chlorite and, as activator, hydroxylammonium salts. The liquors are unaffected by differences in pH.

3,836,476

SIMULTANEOUS RECOVERY OF VANADIUM AND URANIUM FROM OXIDIZED WET PROCESS ACID

Roger A. Baldwin, Oklahoma City, Paul D. Bowerman, Edmond, and Michael F. Lucid, Oklahoma City, Okla., assignors to Kerr-McGee Chemical Corp., Oklahoma City, Okla.

No Drawing. Filed Oct. 4, 1971, Ser. No. 186,418

Int. Cl. B01d *11/00;* **C01g** *56/00*

U.S. Cl. 252—301.1 R 9 Claims

A process for the simultaneous coextraction of uranium and vanadium from an aqueous acidic solution containing the same, comprising contacting said aqueous solution with an organic phase comprising a mixture of a dialkyl phosphoric acid, a trialkylphosphine oxide compound, and an organic diluent whereby the uranium and vanadium are coextracted into the organic phase and separating said uranium-vanadium loaded organic phase.

3,836,477

STRONTIUM ALUMINATE PHOSPHOR ACTIVATED BY CERIUM AND MANGANESE

Costas C. Lagos, Danvers, Mass., assignor to GTE Sylvania Incorporated

No Drawing. Filed Nov. 15, 1972, Ser. No. 306,931

Int. Cl. C09k *1/68*

U.S. Cl. 252—301.4 F 1 Claim

A phosphor having the formula $SrAl_{12}O_{19}$:Ce,Mn has intense green emission with narrow band width under ultraviolet radiation. Substitution of 0.3 to about 0.75 moles of Si^{+++} for Al^{+3} results in an increase in emission intensity.

3,836,478

NEMATIC MATERIALS

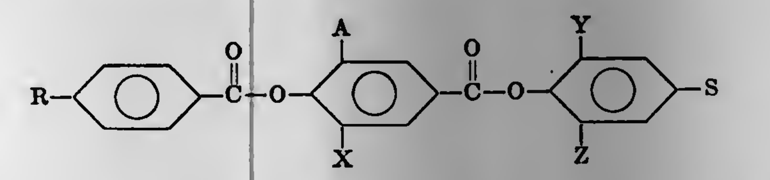
Dennis Clinton Green, Peekskill, and William Robert Young, Millwood, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

No Drawing. Filed Oct. 24, 1972, Ser. No. 299,991

Int. Cl. C07c *69/76*

U.S. Cl. 252—408 18 Claims

Novel nematic liquid crystals and the method of their preparation are described. These materials have a positive dielectric anisotropy, are operatively nematic over a wide range of temperatures which encompasses room temperature, are colorless, and have desirably high stabilities with respect to air, moisture, electric fields, and visible and ultraviolet light. The novel materials are represented by the following general structural formula



wherein R is a radical selected from the group consisting of alkyl radicals containing from 1 to 12 carbon atoms, alkoxy radicals containing from 1–8 carbon atoms, alkanoyloxy radicals containing from 1–8 carbon atoms, and alkoxycarbonyloxy radicals containing from 1–6 carbon atoms, S is a radical selected from the group consisting of alkyl radicals containing from 1 to 12 carbon atoms and alkoxy radicals containing from 1 to 8 carbon atoms, and A, X, Y and Z are radicals selected from the group consisting of hydrogen and methyl radicals, at least one of the A, X, Y and Z radicals in a compound being methyl radical. The materials can be used singly or in various mixtures to produce desired operating temperatures.

3,836,479

SHAPED HYDROFLUORINATION CATALYST AND PROCESS OF MAKING THE SAME

Heinrich Paucksch and Joachim Massonne, Hannover, and Helmuth Derleth, Sarstedt, Germany, assignors to Kali-Chemie Aktiengesellschaft, Hannover, Germany

No Drawing. Filed Feb. 2, 1972, Ser. No. 223,006

Claims priority, application Germany, Feb. 8, 1971, P 21 05 748.7

Int. Cl. B01j *11/78*

U.S. Cl. 252—433 7 Claims

A shaped catalyst body for hydrofluorination comprising a hydrofluorinated body composed of a mixture of aluminum oxide hydrate or aluminum hydroxide with 2 to 60% by weight of boron trioxide relative to the starting mixture.

The catalyst body is made by forming the mixture of the above materials, softening the mixture to a degree that it can be shaped, shaping it and then drying the shaped body at a temperature between 120–200° C. followed by activating the catalyst with hydrogen fluoride at a temperature between 200–500° C.

The catalyst is used in the hydrofluorination of acetylene, halogenated olefins and similar compounds.

3,836,480

CONVERSION OF OLEFINS

Robert E. Reusser, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Application Jan. 12, 1970, Ser. No. 1,969, now Patent No. 3,660,507, which is a continuation of abandoned application Ser. No. 627,669, Apr. 3, 1967. Divided and this application Nov. 8, 1971, Ser. No. 196,786

Int. Cl. B01j *11/74*

U.S. Cl. 252—439 5 Claims

A composition active for the conversion of olefins comprising a disproportionation catalyst and magnesium oxide which has been treated with carbon monoxide, nitric oxide or hydrogen.

3,836,481

CATALYST COMPOSITION OF ETHYLENE TO ETHYLENE OXIDE

Tsunesuke Kajimoto and Shigeru Wakamatsu, Kamakura, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

No Drawing. Filed June 1, 1972, Ser. No. 258,522

Claims priority, application Japan, June 11, 1971, 46/41,042, 46/41,043; June 15, 1971, 46/42,206; June 16, 1971, 46/42,568; June 18, 1971, 46/43,279

Int. Cl. B01j *11/08*

U.S. Cl. 252—462 7 Claims

The silver catalyst compositions containing, as a promoter, at least one metal selected from the group consisting of lanthanum, praseodymium, neodymium, terbium and dysprosium give a high selectivity in the oxidation reaction of ethylene to ethylene oxide.

3,836,482

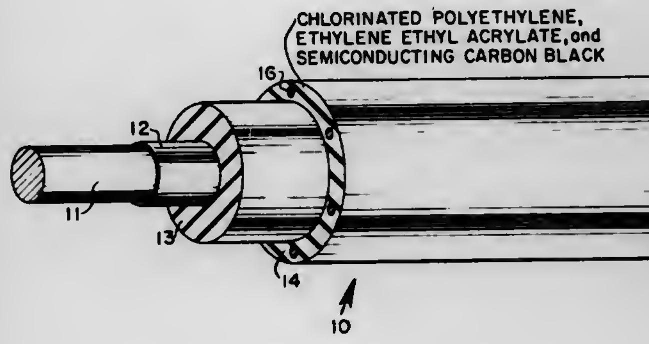
SEMICONDUCTING COMPOSITION OF CHLORINATED POLYOLEFIN, ETHYLENE ETHYL ACRYLATE AND SEMICONDUCTING CARBON BLACK

Ting H. Ling, Marion, Robert M. Wade, Wabash, and Marwick H. Solomon, Muncie, Ind., assignors to The Anaconda Company

Original application July 30, 1971, Ser. No. 167,741, now Patent No. 3,735,025. Divided and this application Feb. 15, 1973, Ser. No. 332,829

Int. Cl. H01b *1/06*

U.S. Cl. 252—511 6 Claims


CHLORINATED POLYETHYLENE, ETHYLENE ETHYL ACRYLATE, and SEMICONDUCTING CARBON BLACK
16
12
11
13
14
10

Electrical cables are jacketed with a novel thermoplastic semiconducting composition comprising chlorinated polyethylene, ethylene ethyl acrylate and carbon black.

3,836,483

OXIDE VARISTOR

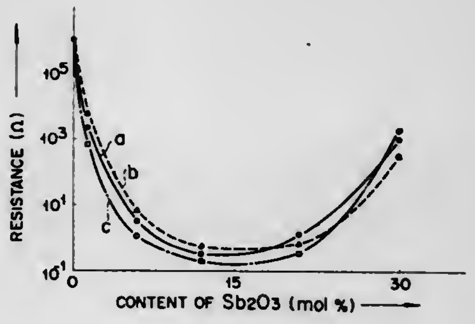
Noboru Ichinose, Yokohama, and Yuji Yokomizo, Tokyo, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed May 24, 1972, Ser. No. 256,298

Claims priority, application Japan, May 24, 1971, 46/34,756; June 10, 1971, 46/40,563; Feb. 1, 1972, 47/10,961

Int. Cl. H01b *1/06*

U.S. Cl. 252—519 1 Claim



Oxide varistor comprising a basic composition (totaling 100 mol percent) formed of 87 to 12 mol percent of

ZnO, 1 to 30 mol percent of Sb_2O_3 and 12 to 87 mol percent of at least one metal oxide selected from the group consisting of MgO, CoO, NiO, BaO, SrO, CaO, MnO, FeO and CuO and an additive consisting of 0.5 to 10% by weight of Bi_2O_3 based on said basic composition.

3,836,484

PHOSPHATE-FREE DETERGENT CONCENTRATES CONTAINING SULFATED AND SULFONATED LINEAR ALKYLPHENOLS

Mitchell Danzik, Pinole, and Ralph House, El Sobrante, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Original application May 5, 1970, Ser. No. 34,885, now Patent No. 3,697,573. Divided and this application Apr. 1, 1971, Ser. No. 130,449

Int. Cl. C11d *1/22, 11/04*

U.S. Cl. 252—550 2 Claims

Detergent concentrates suitable for formulation into composition capable of heavy duty washing performance in the absence of phosphate builders are produced by sulfating and sulfonating a C_{16-24} alkyl monoalkylphenol and neutralizing the product.

3,836,485

SOLID EPOXY RESINS FROM GLYCIDYL ETHERS OF HYDROGENATED BISPHENOLS OR HYDROGENATED NOVOLACS AND AROMATIC OR CYCLOALIPHATIC DICARBOXYLIC ACIDS

Pong Su Shih, Clute, Tex., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 229,181, Feb. 24, 1972. This application June 4, 1973, Ser. No. 366,390

Int. Cl. C08g *30/10*

U.S. Cl. 260—2 EP 20 Claims

Solid epoxy resins are prepared from diglycidyl ethers of a hydrogenated bisphenol or hydrogenated novolacs such as hydrogenated bisphenol A and an aromatic or cycloaliphatic dicarboxylic acid such as isophthalic acid. These solid resins may be comminuted into a stable free-flowing powder useful as epoxy resin powder coatings having excellent weathering properties.

3,836,486

VINYL CHLORIDE POLYMER RECOVERY PROCESS

Edwin A. Hafner, Woodbridge, Conn., assignor to Hafner Industries, Inc., Woodbridge, Conn.

Continuation-in-part of abandoned application Ser. No. 106,183, Jan. 13, 1971. This application June 19, 1972, Ser. No. 264,026

Int. Cl. C08f *29/18, 47/24*

U.S. Cl. 260—2.3 14 Claims

Reusable vinyl chloride polymer and copolymer and other components such as plasticizers are reclaimed from scrap plastics by contacting the scrap plastics with a solvent for the vinyl chloride polymer, contacting the resulting liquid phase with a substantially non-aqueous non-solvent for the polymeric portion, and then separating the resulting insoluble phase containing the vinyl chloride polymer. Following the removal of this polymer portion, the filtrate is fractionally distilled to recover the solvents, non-solvents, plasticizers and other ingredients. Typical solvents are methylethyl ketone, methylisobutyl ketone, cyclohexanone, dimethyl formamide, tetrahydrofuran and ethylene dichloride. Typical non-solvents are methanol, ethanol, isopropanol and n-butanol.

The recovered vinyl chloride polymer compositions may contain pigments and fillers, and exhibit improved performance on recycling in the fabrication of plastic articles.

3,836,487

HIGH IMPACT RIGID SELF-SKINNED POLYURETHANE FOAM AND METHOD

Russell P. Carter, Jr., Stow, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 761,808, Sept. 23, 1968. This application May 24, 1971, Ser. No. 146,426

Int. Cl. C08g *22/46*

U.S. Cl. 260—2.5 AK 7 Claims

This invention provides a method of forming a rigid polyurethane foam having a density of about 20 to 50 pounds per cubic foot and a Gardner impact of at least 1 inch pounds by reacting a mixture of a polyether glycol of about 700 to 1500 molecular weight selected from the class of polypropylene ether glycol, polypropylene ethylene ether glycol, polytetramethylene ether glycol and an organic polyisocyanate having an average NCO functionality of about 2.5 to 2.8, nut flour and a blowing agent.

3,836,488

TRIS[2-(DIMETHYLAMINO)ETHYL]AMINE AS CATALYST FOR THE PREPARATION OF POLYURETHANES

Ronnie M. Pruitt and James L. Potter, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation of abandoned application Ser. No. 78,641, Oct. 6, 1970. This application Aug. 16, 1973, Ser. No. 389,099

Int. Cl. C08g *22/44*

U.S. Cl. 260—2.5 AC 10 Claims

Urethanes produced from isocyanate reactions with active hydrogen containing compounds are catalyzed with tris[-(dimethylamino)ethyl]amine.

3,836,489

ORGANOPOLYSILOXANE COMPOSITIONS

Michel Bargain, Lyon, France, assignor to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed Feb. 20, 1973, Ser. No. 333,449

Claims priority, application France, Feb. 21, 1972, 7205745

Int. Cl. C08f *19/14*

U.S. Cl. 260—18 S 14 Claims

An organopolysiloxane composition convertible on curing to an elastomer with good heat and fire resistance, comprising an organopolysiloxane rubber, a silica filler, an organic peroxide, a platinum additive, pyrogenic titanium dioxide and 0.01 to 2 parts (per 100 parts of rubber) of zinc oxide, aluminium oxide, magnesium oxide or stannic oxide.

3,836,490

FLAMEPROOF POLYCARBONATES CONTAINING AN ALKALI METAL SALT SOLUBLE IN THE POLYCARBONATE MELT

August Bockmann, Hans Rudolph, and Werner Nouvertne, Krefeld-Bockum, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation of abandoned application Ser. No. 186,391, Oct. 4, 1971. This application July 20, 1973. Ser. No. 381,101

Claims priority, application Germany, Oct. 8, 1970, P 20 49 358.7; Mar. 17, 1971, P 21 12 987.3

Int. Cl. C08g *51/62*

U.S. Cl. 260—18 TN 6 Claims

High molecular weight thermoplastic polycarbonates of low inflammability are provided which contain alkali salts soluble in the polycarbonate melt in amounts of from about.0.2% by weight to about 0.00005% by weight based on the weight of the polycarbonate.

3,836,491

NOVEL COMPOSITIONS COMPRISING POLYISOCYANATES AND HYDROXYBENZOIC ACID CAPPED POLYMERS CURABLE WITH TERTIARY AMINES AND PROCESS OF CURING SAME

David D. Taft, Minneapolis, and Roger A. Schmidt, Burnesville, Minn., assignors to Ashland Oil Inc., Houston, Tex.

No Drawing. Continuation of abandoned application Ser. No. 109,985, Jan. 26, 1971. This application Jan. 31, 1973, Ser. No. 328,161

The portion of the term of the patent subsequent to Jan. 29, 1990, has been disclaimed

Int. Cl. C08g *33/10*

U.S. Cl. 260—22 TN 21 Claims

A novel and improved composition formed by crosslinking an hydroxybenzoic acid capped prepolymer with a polyisocyanate in the presence of a tertiary amine, said composition being rapidly curable to essentially its desired final state at room temperature.

3,836,492

POLYMERIZABLE UNSATURATED REACTION PRODUCT OF A DIISOCYANATE AND AN UNSATURATED PRODUCT OF A DICARBOXYLIC ACID ANHYDRIDE AND AN UNSATURATED MONOGLYCIDYL MONOMER

Tadashi Watanabe, Kouichiro Murata, and Kenjiro Tsubouchi, Hiratsuka, Japan, assignors to Kansai Paint Co., Ltd., Amagasaki-shi, Japan

No Drawing. Continuation-in-part of application Ser. No. 255,650, May 22, 1972, which is a continuation-in-part of application Ser. No. 210,155, Dec. 20, 1971, both now abandoned. This application Dec. 14, 1973, Ser. No. 424,747

Claims priority, application Japan, Dec. 24, 1970, 45/117,266

Int. Cl. C08g *22/04*

U.S. Cl. 260—23 TN 12 Claims

Polymerizable unsaturated and urethanated compounds useful for coating compositions whereby said polymerizable unsaturated and urethanated compounds are obtained by reacting diisocyanate compounds with reaction products which are obtained by reacting dicarboxylic compounds with polymerizable unsaturated monoglycidyl monomers. The hardened materials obtained from said polymerizable unsaturated and urethanated compounds are excellent in their chemical and mechanical properties.

3,836,493

AQUEOUS DISPERSIONS OF EPICHLORHYDRIN MODIFIED POLYURETHANE PREPOLYMER-POLYAMINE PRODUCT

Kazuo Matsuda, Wakayama, Yoshiaki Tanaka, Osaka, and Hirakazu Aritaki, Wakayama, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

No Drawing. Filed Mar. 9, 1972, Ser. No. 233,304

Claims priority, application Japan, Mar. 16, 1971, 46/14,577

Int. Cl. C08g *22/14, 51/24*

U.S. Cl. 260—29.2 TN 4 Claims

Liquid, thermosetting resin compositions are prepared by reacting a urethane prepolymer containing terminal isocyanate groups with an excess amount of a polyalkylenepolyamine to form polyurethaneureapolyamine, then reacting same with epichlorohydrin and finally mixing the product with an aqueous acid solution.

3,836,494

METAL COATING COMPOSITIONS PREPARED FROM AQUEOUS DISPERSIONS OF IONOMER AND URON RESINS

Ihab M. Hekal, Downers Grove, and Raymond G. Chelton, Chicago, Ill., assignors to Continental Can Company, Inc., New York, N.Y.

No Drawing. Filed July 17, 1972, Ser. No. 272,268

Int. Cl. C08g *51/24*

U.S. Cl. 260—29.44 A 8 Claims

Metal surfaces are coated with an aqueous dispersion containing a water dispersible ionomer resin and a heat-curable, thermosetting uron resin.

3,836,495

AQUEOUS EMULSION PAINTS AND PIGMENT BASES THEREFOR

Gregor Berstein, Newton, Mass., assignor to Cabot Corporation, Boston, Mass.

No Drawing. Continuation-in-part of application Ser. No. 34,529, May 4, 1970, now Patent No. 3,737,404. This application Mar. 21, 1973, Ser. No. 343,497

Int. Cl. C08g *51/24*

U.S. Cl. 260—29.4 UA 7 Claims

Improved aqueous emulsion type paints and pigment bases therefor are described in which the principal opacifying pigment is a rutile titania pigment and there is also incorporated therewith per 100 parts of said rutile titania pigment between about 2 and about 20 parts by weight of a substantially water-insoluble, high molecular weight, cross-linked urea-formaldehyde resin in highly dispersed particulate form. Said particulate urea-formaldehyde resin is characterized by a BET specific surface area of between about 15 and aout 100 square meters per gram and preferably has a volatile content of not over about 15% by weight.

3,836,496

COMPOSITION FOR IMPARTING NON-PERMANENT SOIL-RELEASE CHARACTERISTICS COMPRISING AN AQUEOUS ACIDIC SOLUTION OF POLYCARBOXYLATE POLYMER

Robert E. Dickson, Belle Mead, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Filed May 1, 1972, Ser. No. 249,089

Int. Cl. D06m *15/14*

U.S. Cl. 260—29.6 H 7 Claims

A composition for applying a non-permanent soil-release finish to fabrics comprising a mixture of a polycarboxylate polymer having an acid equivalent weight from about 110 to 175, and a mineral acid. A preferred carboxylate polymer is a copolymer of ⅔ methacrylic acid and ⅓ ethyl methacrylate. The composition is particularly useful for applying a soil-release finish in the rinse cycle of a home laundry process.

3,836,497

PROCESS FOR THE PRODUCTION OF HIGH SURFACE TENSION SPECK-FREE, HEAT-POLYMERIZED SYNTHETIC RESIN DISPERSIONS

Ulrich Turck, Marl, Germany, assignor to Chemische Werke Huels, A.G., Marl, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 130,012, Mar. 31, 1971. This application Mar. 21, 1973, Ser. No. 343,448

Claims priority, application Germany, Apr. 2, 1970, P 20 15 660.9

Int. Cl. C08d *7/18;* **C08f** *37/00, 45/54*

U.S. Cl. 260—29.7 SQ **12 Claims**

Speck-free high surface tension dispersions of emulsion polymerized styrene-butadiene copolymers and other heat-polymerized synthetic resins containing a plasticizing component and a hardening component are produced by employing as the emulsifier for the polymerization 0.3–4% by weight of the monomers of a salt of an α-sulfo-straight chain alkanoic acid containing 10–20 carbon atoms or of an ester thereof with an alcohol containing 1–3 carbon atoms.

3,836,498

POLYAMIDES AND THEIR ANISOTROPIC DOPES

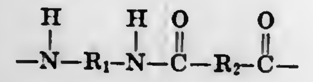
Leslie W. Gulrich, Jr., Wilmington, Del., and Paul Winthrop Morgan, West Chester, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Oct. 27, 1972, Ser. No. 301,290

Int. Cl. C08g *20/00, 51/46*

U.S. Cl. 260—30.8 R **4 Claims**

Novel film- and fiber-forming aromatic polyamides and copolyamides consisting essentially of repeating units of the formula



$$-\overset{H}{\underset{|}{N}}-R_1-\overset{H}{\underset{|}{N}}-\overset{O}{\overset{\|}{C}}-R_2-\overset{O}{\overset{\|}{C}}-$$

wherein R_1 represents at least one radical selected from the group of 1,4-phenylene; methyl-, chloro-, bromo- and fluoro-1,4-phenylene; 4,4′ - biphenylene; 3,3′-dichloro-4,4′-biphenylene; 3,3′-dimethoxy - 4,4′ - biphenylene; 3,3′-dimethyl - 4,4′ - biphenylene; *trans*-1,4-cyclohexylene; 4,4′ - carbonamidobiphenylene; and 1,4-phenylene bis-(iminocarbonyl)-1,4-phenylene; and R_2 represents 2,5-pyridylene or 4-methyl-2,5-pyridylene radicals, of which 0 to about 50 mole percent may be replaced by radicals selected from the group of 1,4-phenylene, chloro-1,4-phenylene, and 4,4′-biphenylene. These polymers form useful anisotropic spinning dopes with concentrated sulfuric acid.

3,836,499

THERMOPLASTIC MOULDING COMPOSITION AND MOULDINGS OF POLYCARBONATE, HAVING IMPROVED EASE OF MOULD RELEASE WHEN INJECTION MOULDING

Hermann Schirmer and Gunter Peilstocker, Krefeld-Bockum, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 8, 1973, Ser. No. 321,594

Claims priority, application Germany, Apr. 25, 1972, P 22 20 185.0

Int. Cl. C08g *51/36*

U.S. Cl. 260—31.2 R **8 Claims**

The invention relates to thermoplastic moulding compositions made of polycarbonates based on aromatic bishydroxy compounds which may contain fillers, dyestuffs, pigments, stabilisers and/or glass fibres, characterised in that they contain 0.1 to 2% by weight, relative to polycarbonate, of one or several esters of saturated aliphatic long-chain monocarboxylic acids and univalent aliphatic long-chain alcohols.

3,836,500

SOLUTIONS OF POLYBENZIMIDAZOLES YIELDING SHAPED POLYBENZIMIDAZOLE ARTICLES HAVING IMPROVED COLOR STABILITY

Gordon W. Calundann, North Plainfield, and George R. Ferment, Dover, N.J., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Jan. 26, 1973, Ser. No. 327,050

Int. Cl. C08f *45/44*

U.S. Cl. 260—32.6 N **8 Claims**

Polybenzimidazole shaped articles such as yarns, fibers, films or the like have a tendency to darken by an unknown mechanism which may include polymer photodegradability by exposure to sunlight or reaction with amine end groups on the polymer. The color stability of polybenzimidazole articles can be improved by incorporating into the solutions utilized to form the articles an amount effective to stabilize the color of the resulting polybenzimidazole articles of an amine blocking, color stabilizing reagent (such as carboxylic acid anhydrides and carboxylic acid halides) without determentally affecting the solubility of the polybenzimidazole in the solvent. Acetic anhydride is the preferred amine blocking, color stabilizing reagent.

3,836,501

SELF-EXTINGUISHING POLYAMIDE MOULDING COMPOSITIONS

Peter Tacke and Heinrich Haupt, Krefeld, Heinz Ulrich Blank, Cologne, and August Böckmann and Hans Rudolph, Krefeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 26, 1973, Ser. No. 327,110

Claims priority, application Germany, Jan. 27, 1972, P 22 03 704.3; Mar. 22, 1972, P 22 13 801.8

Int. Cl. C08g *51/04*

U.S. Cl. 260—37 N **4 Claims**

Permanently self-extinguishing polyamide moulding compositions containing from 6 to 30% by weight of an oligomeric or polymeric halogen-containing compound which has a halogen content of from 10 to 80% by weight.

3,836,502

PAINTABLE SILICONE ELASTOMER

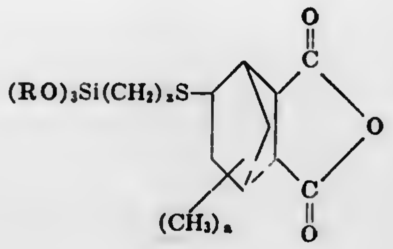
Jay R. Schulz, Bangor Township, Bay County, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Feb. 16, 1973, Ser. No. 333,240

Int. Cl. C08g *51/04*

U.S. Cl. 260—37 SB **11 Claims**

Mixing a hydroxyl endblocked polydimethylsiloxane, a filter, an alkoxy silicon compound, such as n-propylorthosilicate,



and a metal carboxylate provides a room temperature vulcanizable silicone elastomer composition which cures to provide an elastomer whose surface can be painted with either a latex base paint or an oil base paint.

3,836,503

SILICONE ELASTOMERS WHICH ARE PAINTABLE

Jay R. Schulz, Bangor Township, Bay County, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Feb. 20, 1973, Ser. No. 333,846

Int. Cl. C08g *51/04*

U.S. Cl. 260—37 SB **11 Claims**

Mixing a hydroxyl endblocked polydimethylsiloxane, a filler, an alkoxy silicon compound, such as, n-propylorthosilicate,

$$(RO)_3Si(CH_2)_xSCH{=}CHC_6H_5$$

and a metal carboxylate provides a room temperature vulcanizable silicone elastomer composition which cures to provide an elastomer whose surface can be painted with either a latex base paint or an oil base paint.

3,836,504

PROCESS FOR PREPARING SHAPED PRODUCT MADE OF INORGANIC-ORGANIC COMPOSITE MATERIAL

Takao Morisawa, Yokkaichi, Japan, assignor to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan

No Drawing. Filed Mar. 6, 1972, Ser. No. 232,274

Claims priority, application Japan, Mar. 6, 1971, 46/12,031

Int. Cl. C08f *45/04*

U.S. Cl. 260—42.55 **8 Claims**

A shaped article formed from an inorganic-organic composite is prepared by admixing an inorganic powder, wherein at least 10% by volume of said powder has a particulate diameter of less than 100μ, with 0.3–20% by weight of an aqueous emulsion of either a non-crystalline synthetic resin characterized by a deformation temperature of higher than room temperature or of a crystalline synthetic resin characterized by a melting point of higher than room temperature; shaping said mixture and heating to at least the deformation or melting temperature of said synthetic resin and thereafter cooling.

3,836,505

9-CARBOXYLIC NAPHTHOXAZOLES AND PLASTICS BRIGHTENED THEREWITH

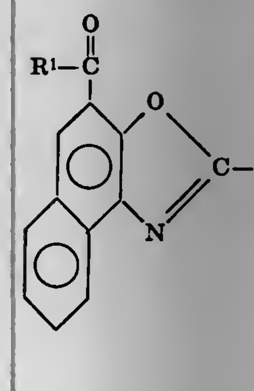
Bennett George Buell, Bound Brook, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Original application June 11, 1970, Ser. No. 45,595, now Patent No. 3,717,652. Divided and this application Nov. 13, 1972, Ser. No. 305,771

Int. Cl. C08f *45/67;* **C08g** *51/67*

U.S. Cl. 260—45.8 N **4 Claims**

Naphthoxazoles characterized by the presence of a carboxylic function at the 9-position are provided. They are improved mass brighteners for molded plastics, particularly polyesters, since they absorb strongly in the UV region of 370–400 nanometers and do not sublime or mark off at high molding temperatures. They correspond to the formula



in which R^1 is the hydroxyl radical, or, a monovalent dehydro radical of an alcohol, a phenol, a primary amine or a secondary amine, said monovalent radical containing about 1–8 carbon atoms, and Y is a 2-naphthoxazolyl, or a 2-naphthoxazolylphenyl having a carboxylic acid function at the 9-position, a stilbyl, a 2-benztriazolylphenyl or a 2-naphthtriazolylphenyl radical, or a styryl, 4-cyanostyryl or 4-carboxystyryl radical.

3,836,506

COMPOSITIONS OF CYANOIMIDE POLYMERS AND HETEROCYCLIC POLYMERS MADE FROM CYANOIMIDE PRECURSORS

Lawrence W. Frost, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

No Drawing. Filed Oct. 30, 1970, Ser. No. 85,771

Int. Cl. C08g *20/32*

U.S. Cl. 260—47 CP **7 Claims**

Deep curable polymers having heterocyclic ring systems such as isoindoloquinazolinedione ring systems prepared from novel cyanoimide polymers, most desirably 2′-cyanoimide polymers. Preferably the cyanoimide polymers are prepared from a diamine having at least one nitrile group in the two position to an amine group and a dianhydride having at least two cyclic anhydride groups. Copolymers may be prepared having other linkages, notably imide linkages, in addition to isoindoloquinazolinedione ring systems and/or other similar heterocyclic ring systems. The copolymers can be prepared by use of diamines containing one or more cyanoimide groupings and/or imide groups in their structure.

3,836,507

FLAME RESISTANT FINISH OF COMBUSTIBLE MATERIALS PREPARED FROM PHOSPHOROUS COMPOUNDS, ALDEHYDES AND KETONES

Masao Yoshizawa, Omiya, Takeo Mikami, Kawagoe, and Nobuo Kobayashi and Akira Iida, Mikawamachi, Japan, assignors to Dainippon Ink & Chemicals, Inc., Tokyo, and The Dainippon Ink Institute of Chemical Research, Saitama Pref., Japan

No Drawing. Original application Aug. 21, 1970, Ser. No. 66,153, now Patent No. 3,760,037. Divided and this application Jan. 30, 1973, Ser. No. 328,151

Claims priority, application Japan, Aug. 25, 1969, 44/66,501

Int. Cl. C07f *9/40;* **D06c** *27/00*

U.S. Cl. 260—64 **8 Claims**

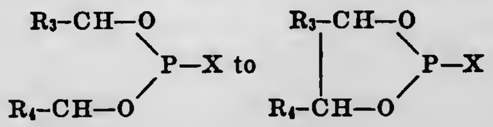
Phosphorus-containing oligomers or polymers useful as flame-resistant substances are obtained by reacting a tertiary phosphite (A) of the general formula:

$$(R_1O)_3P, \qquad (A)$$

a dialkyl phosphite halogenide (B) of the general formula:

$$(R_2O)_2PX, \qquad (B)$$

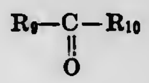
a cyclic halogenophosphite (C) of the general formula:



an aldehyde (D) of the general formula:

$$R_8CHO \qquad (D)$$

and a ketone (E) of the general formula:



$$R_9-\underset{\underset{O}{\|}}{C}-R_{10} \qquad (E)$$

wherein R_9 to R_{10} and X are as defined.

3,836,508

SULFOBENZYLMALONIC ACID MODIFIED TEREPHTHALIC ACID POLYESTERS

Eduard Radlmann and Günther Nischk, Dormagen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 18, 1973, Ser. No. 361,524
Claims priority, application Germany, May 20, 1972, P 22 24 831.3
Int. Cl. C08g *17/08*
U.S. Cl. 260—75 S **6 Claims**

Acid modified terephthalic acid polyesters containing structural elements of sulfonatobenzyl malonic acid. The polyesters are easily dyeable with basic dyestuffs and can be spun from the melt into filaments.

3,836,509

RADIATION CONVERTIBLE NORBORNENE POLYMERS

Henry Octave Colomb, Jr., and David John Trecker, South Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Application Sept. 15, 1970, Ser. No. 72,543, now Patent No. 3,715,242, which is a division of application Ser. No. 804,279, Mar. 4, 1969, now Patent No. 3,554,886, which in turn is a continuation-in-part of abandoned application Ser. No. 697,635, Jan. 15, 1968. Divided and this application May 22, 1972, Ser. No. 255,458
Int. Cl. C08g *22/04*
U.S. Cl. 260—77.5 BB **5 Claims**

Radiation curable polymers having the vinyl N-(5-norbornen-2-ylmethyl)carbamate group polymerized therein are useful for the production of crosslinked coatings, films, wire insulation and fabric treatment.

3,836,510

VINYL HALIDE TERPOLYMER AND BULK PROCESS FOR PREPARATION

Akio Takahashi, Amherst, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed Dec. 27, 1972, Ser. No. 319,076
Int. Cl. C08f *15/40*
U.S. Cl. 260—78.5 R **7 Claims**

An improved polyvinyl halide terpolymer containing up to 20 percent of a vinyl monomer such as a vinyl ester monomer in combination with maleic or itaconic anhydride can be obtained by polymerizing the monomers in a process of bulk polymerization comprising a single stage or two-stage polymerization process wherein high speed agitation is used during the first stage and low speed agitation is used in the second stage. The products of the process are characterized by improved processability, increased solubility in organic solvents and reduced particle size. The products of the invention are more readily processable without decomposition by thermal means. Additionally, cross-linked rigid products can be easily obtained through reaction of the anhydride group in the product with such cross-linking agents as polyfunctional alcohols, amines, epoxides and isocyanates.

3,836,511

PROCESS FOR SULFONATING UNSATURATED ELASTOMERS

Charles P. O'Farrell, Clark, and George E. Serniuk, Roselle, N.J., assignors to Esso Research and Engineering Company

No Drawing. Continuation-in-part of abandoned application Ser. No. 123,908, Mar. 12, 1971. This application Mar. 29, 1972, Ser. No. 239,307
Int. Cl. C08d *11/02, 13/30*
U.S. Cl. 260—79.3 R **10 Claims**

A process for sulfonating unsaturated elastomers which comprises sulfonating an olefinically unsaturated elastomer using as the sulfonating agent an acyl sulfate. The products produced thereby have improved properties over those sulfonated elastomers prepared by prior art methods. The preferred acyl sulfate is acetyl sulfate. The sulfonated elastomers of this invention are useful as films, adhesives and for other general purpose rubber uses. Especially advantageous properties are obtained when the sulfonic acid polymer is neutralized with ethylamine.

3,836,512

COPOLYMERIZATION OF OLEFINICALLY UNSATURATED MONOMERS

Nan S. Chu, Hartsdale, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 82,843, Oct. 21, 1970. This application Aug. 15, 1972, Ser. No. 280,882
Int. Cl. C08f *1/62*
U.S. Cl. 260—80.73 **8 Claims**

Homogeneous copolymerization of water soluble and water insoluble olefinically unsaturated monomers has been effected by their aqueous polymerization in the presence of a dispersing agent, a redox catalyst system, a liquid hydrocarbon, an emulsifier and optionally a cross-linking agent and electrolyte.

3,836,513

POLYMERIZATION OF CONJUGATED DIOLEFINS WITH ALFIN CATALYST AND MOLECULAR WEIGHT CONTROLLER

James B. Pyke, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed June 11, 1970, Ser. No. 45,544
Int. Cl. C08d *1/32, 3/06;* **C08f** *19/08*
U.S. Cl. 260—82.1 **10 Claims**

In a process for preparing a polymer of a conjugated diolefinic compound in the presence of an alfin catalyst consisting of an alkali metal halide, a sodium alkoxide and a sodium alkenyl compound, the improvement comprising polymerizing the conjugated diolefinic compound in the presence of at least one unsaturated organic halide to control the molecular weight of the polymer is disclosed.

3,836,514

SYNTHETIC RESIN BINDER COMPOSITIONS

Michael R. Fechillas, New Brunswick, N.J., assignor to Johnson & Johnson

Original application Nov. 3, 1971, Ser. No. 195,373, now Patent No. 3,732,139, dated May 8, 1973. Divided and this application Nov. 30, 1972, Ser. No. 311,036
Int. Cl. C08f *3/64, 15/16*
U.S. Cl. 260—86.1 E **5 Claims**

Synthetic resin binder compositions which comprise from about 10% to about 50% by weight of a polymodal molecular weight distribution synthetic acrylic ester resin in which (1) one mode or peak is present in the molecular weight range of from about 300 to about 2000 and another mode or peak is present in the molecular weight range of from about 4000 to about 600,000 and (2) from about 10% to about 40% by weight has a molecular weight in the range of from about 300 to about 2000 and from about 90% to about 60% by weight has a molecular weight in the range of from about 4000 to about 600,000 said polymodal molecular weight distribution synthetic acrylic ester resin having a swell index in tetrahydrofuran of from about 50 to about 200, from about 50% to about 90% by weight of insolubles in tetrahydrofuran, and a second order glass transition temperature of from about −40° C. to about +5° C.

3,836,515

PROCESS FOR PREPARING SOLID TELOMERS AND COTELOMERS

Emil Trebillon, Neuilly-sur-Seine, and Georges Wetroff, Le Thillay, France, assignors to Rhone-Progil, Paris, France
No Drawing. Filed Mar. 23, 1972, Ser. No. 237,559
Claims priority, application France, Mar. 31, 1971, 7111327
Int. Cl. C08f *1/66*
U.S. Cl. 260—87.5 R **5 Claims**

The preparation of solid telomers and cotelomers by heating a mixture of vinyl chloride or comonomers containing at least 30% by weight vinyl chloride, and at least one halogenated organic derivative having a mobile halogen, in the presence of a catalyst selected from the group consisting of magnesium, barium, chromium, nickel, zinc, mercury, silicon, tin and lead, and a polar solvent which is at least partially miscible with the halogenated organic derivative/monomer mixture.

3,836,516

DIAZO DERIVATIVES OF ANTIBIOTIC X–537A

Arthur Stempel, Teaneck, and John Westley, Mountain Lakes, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Original application Aug. 18, 1969, Ser. No. 851,044, now Patent No. 3,715,372. Divided and this application Oct. 24, 1972, Ser. No. 300,091
Int. Cl. A23k *1/17;* **A61k** *21/00;* **C07c** *113/04*
U.S. Cl. 260—141 **2 Claims**

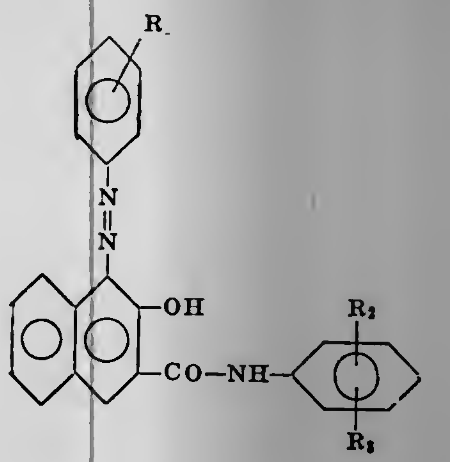
Derivatives of antibiotic X–537A formed by modification of the carboxyl and phenolic groups, substitution at the 5-position of the aromatic ring and reduction or oximation of the ketone are described. These derivatives are useful as coccidiostatic agents and antibacterial agents.

3,836,517

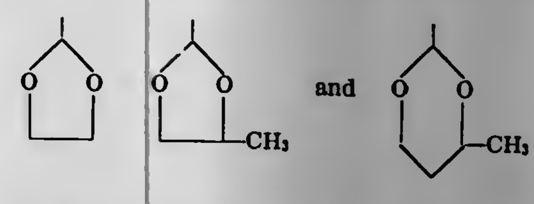
WATER-INSOLUBLE DISPERSE AZO DYESTUFFS OF CYCLIC AMINOBENZALDEHYDE ACETALS

Richard C. Wilkinson, Warwick, R.I., and Hermann Hoffmann, Charles City, Iowa, assignors to American Hoechst Corporation, Coventry, R.I.
No Drawing. Filed July 1, 1971, Ser. No. 159,064
Int. Cl. C09b *29/34, 29/36*
U.S. Cl. 260—152 **2 Claims**

An azo dyestuff of the formula



wherein R_1 represents a member selected from the group



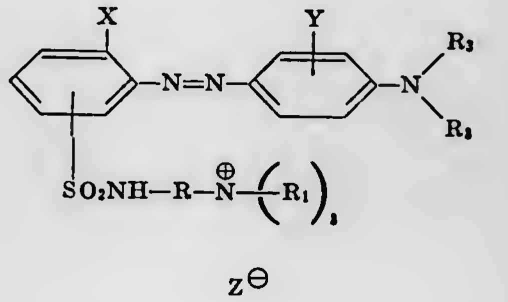
and R_2 and R_3 each represent a member selected from the group consisting of hydrogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, chlorine and nitro. The azo dyestuff has improved light fastness characteristics.

3,836,518

CATIONIC AZO DYES FROM AMINOHALOBENZENESULFONAMIDES

Gary T. Clark, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Mar. 9, 1972, Ser. No. 233,299
Int. Cl. C09b *29/36;* **D06p** *3/00*
U.S. Cl. 260—152 **9 Claims**

Novel compounds of the formula



wherein

R represents lower alkylene;
R_1 represents lower alkyl, benzyl, or any equivalents thereof, and each R_1 may be the same or different;
R_2 and R_3 may be the same or different and each represents hydrogen, cycloalkyl, phenyl, benzyl, benzyl substituted with lower alkoxycarbonyl, lower alkyl or lower alkyl substituted with halogen, hydroxy, lower alkoxy, acyloxy, alkanoylamido, carbamoyl, succinimido, phthalimido, or
R_2 and R_3 with the nitrogen atom to which they are bonded may be combined to represent

$$-\overline{\mathrm{N{-}CH_2CH_2SO_2CH_2}}\mathrm{CH_2} \text{ or } -\overline{\mathrm{NCH_2CH_2OCH_2}}\mathrm{CH_2};$$

Y represents hydrogen, lower alkyl, alkanoylamido, benzamido, or lower alkoxy;
X represents halogen; and
Z represents a basic dye anion.

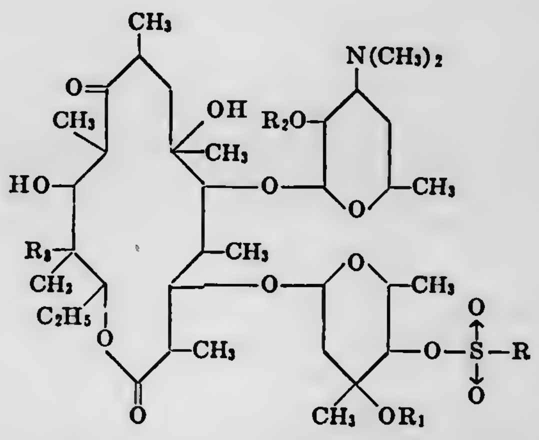
These dyes impart fast yellow to red shades to acrylic, modacrylic, acid-modified polyester and acid-modified polyamide fibers.

3,836,519

SULFONYL DERIVATIVES OF ERYTHROMYCIN

Robert Hallas and Jerry Roy Martin, Waukegan, and John Soloman Tadanier, Chicago, Ill., assignors to Abbott Laboratories, Chicago, Ill.
No Drawing. Filed May 4, 1973, Ser. No. 357,121
Int. Cl. C07c *129/18*
U.S. Cl. 260—210 E **7 Claims**

Covers sulfonyl derivatives of erythromycin A, B and C falling within the following structural formula:



where R is selected from the group consisting of loweralkyl, loweralkenyl, aryl, substituted aryl, benzyl, substituted benzyl, aroxyalkyl, and substituted aroxyalkyl;

R_1 is hydrogen or methyl; R_2 is hydrogen or lower-alkanoyl and R_3 is hydrogen or hydroxyl said erythromycin derivatives being useful for their antibiotic activity.

3,836,520
DIGITOXIGENIN-3-α,L-RHAMNOSIDO-4′-ACYLATES

Ulrich Stache and Werner Haede, Hofheim, Taunus, Werner Fritsch, Neuenhain, Taunus, Kurt Radscheit, Kelkheim, Taunus, and Ernst Lindner, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Aug. 17, 1972, Ser. No. 281,557
Claims priority, application Germany, Aug. 19, 1971, P 21 41 599.6
Int. Cl. C07c *173/00*
U.S. Cl. 260—210.5 **3 Claims**

Digitoxigenin-3-α,L-rhamnosido-4′-acylates having positive inotropic activity and useful for the treatment of heart disease, particularly cardiac insufficiency . A method for making the same by acylation, in the 4′-position, of digitoxigenin - 3 - α,L - rhamnosido-2′,3′-acetonides or -2′,3′-orthocarbonates.

3,836,521
2-LOWER ALKYLTHIO-1H-1,4-BENZODIAZEPINES

James Valentine Earley, Cedar Grove, Rodney Ian Fryer, North Caldwell, and Armin Walser, West Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Oct. 8, 1971, Ser. No. 187,836
Int. Cl. C07d *53/06*
U.S. Cl. 260—239 BD **7 Claims**

Novel 1H - 1,4 - benzodiazepine derivatives bearing a lower alkylthio substituent in the 2-position are disclosed. These 2-lower alkylthio-1H-1,4-benzodiazepines are useful as muscle-relaxant, anti-convulsant and sedative agents.

3,836,522
PROCESS FOR THE MANUFACTURE OF 1,3-DIPHENYL-4-METHYL-5-ALKYL-PYRAZOLINES

Tibor Somlo, Birsfelden, and Mauro Stagi, Allschwil, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Apr. 5, 1972, Ser. No. 241,379
Claims priority, application Switzerland, Apr. 19, 1971, 5,631/71
Int. Cl. C07d *49/10*
U.S. Cl. 260—239.9 **5 Claims**

The present invention relates to 1,3-diphenyl-4-methyl-5-alkyl pyrazolines which are useful as optical brighteners for high molecular organic materials. The new compounds may be prepared by a new and inventive process.

3,836,523
ONE-STEP SYNTHESIS OF CAPROLACTAM

John O. Turner, West Chester, Pa., assignor to Sun Research and Development Co., Philadelphia, Pa.

No Drawing. Filed Nov. 3, 1972, Ser. No. 303,563
Int. Cl. C07d *53/06*
U.S. Cl. 260—239.3 A **6 Claims**

Caprolactam and cyclohexanone may be prepared in one step by reacting cyclohexanol with NH_3 and O_2 in the presence of lithium chloride at elevated temperatures.

3,836,524
PREPARATION OF ESTERS OF THIOCARBAMIC ACIDS

Harold M. Pitt, Lafayette, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

No Drawing. Filed Apr. 26, 1973, Ser. No. 354,591
Int. Cl. C07c *155/02*
U.S. Cl. 260—239 BF **16 Claims**

This invention relates to a new process for preparing esters of thiocarbamic acids comprising (a) reacting a carbamyl chloride with a mercaptan in the presence of aqueous solution of a caustic agent, preferably excess caustic agent; (b) separating the organic and aqueous phases and (c) recovering the thiocarbamic acid ester from the organic phase.

3,836,525
PROCESS FOR THE PREPARATION OF LACTAMS AND SULFONIC ACID DERIVATIVES

Mitsuo Masaki, Chiba, and Masaru Uchida, Taizi Oda, and Koichi Yamamoto, Ichihara, Japan, assignors to Ube Industries, Ltd., Yamaguchi-ken, Japan

No Drawing. Filed Sept. 15, 1970, Ser. No. 72,551
The portion of the term of the patent subsequent to Oct. 24, 1989, has been disclaimed
Int. Cl. C07d *41/06*
U.S. Cl. 260—239.3 A **3 Claims**

A process for the preparation of lactams and sulfonic acid derivatives of active hydrogen-containing organic compounds of the group consisting of oximes, alcohols, phenols, thiols, primary amines and secondary amines, which comprises reacting a lactam-O-sulfonic acid with a compound selected from the specified organic compounds under substantially anhydrous conditions.

3,836,526
NOVEL 1,2-METHYLENE - 9β,10α-STEROID COMPOUNDS, PHARMACEUTICAL PREPARATIONS WHICH CONTAIN THE NOVEL SUBSTANCES AS ACTIVE INGREDIENTS, AND METHODS OF PRODUCING THE SAID COMPOUNDS AND PREPARATIONS

Harmen van Kamp, Pieter Westerhof, and Lucas Morsink, Weesp, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

No Drawing. Filed Feb. 26, 1971, Ser. No. 119,401
Claims priority, application Netherlands, Mar. 4, 1970, 7003063
Int. Cl. C07c *169/32, 173/00*
U.S. Cl. 260—239.55 R **5 Claims**

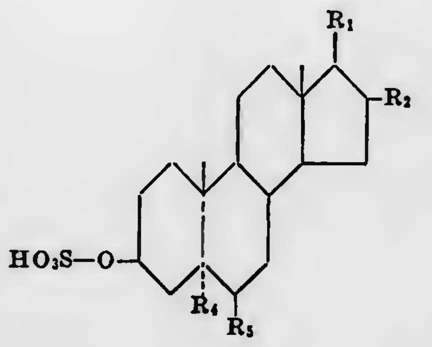
The invention relates to a novel 1,2-methylene-17α-alkoxy-9β,10α-steroids, of the pregnane series which have a greatly-prolonged-action progestational activity. After the compounds have been worked up into pharmaceutical preparations they may be used as contraceptives and to counteract or prevent dysmenorrhea, endometriosis and habitual or imminent abortion. A highly active substance is, for example, 1,2-methylene-17α-methoxy-9β,10α-pregna-4,6-diene-3,20-dione.

3,836,527
WATER-SOLUBLE STEROL SULFATES

Klaus Irmscher, Darmstadt, Karl-Otto Freisberg, Speyer, and Dieter Orth, Herbert Nowak, and Zdenek Simane, Darmstadt, Germany, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Germany

No Drawing. Filed Jan. 22, 1973, Ser. No. 325,400
Claims priority, application Germany, Jan. 22, 1972, P 22 03 048.4
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.55 A **10 Claims**

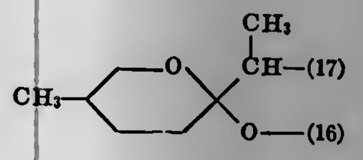
Water-soluble sterol sulfates of the formula



wherein R_1 is

$$—CH(CH_3)—(CH_2)_2—CH(R_3)—CH—(CH_3)_2,$$

R_2 is H and R_3 is H or C_2H_5; or R_1 and R_2 together form the group A



A

and wherein R_4 and R_5 are each O—SO_3H when R_1 and R_2 are other than A, and R_4 and R_5 are each O—SO_3H or together form the second valence bond of a double bond when R_1 and R_2 are A, and the physiologically acceptable salts thereof, possess valuble pharmacological properties which are useful in the treatment of hyperlipoproteinemias, especially in the treatment of hypercholesterolemias, hyperglyceridemias and hyperphospholipidemias.

3,836,528
α-(5-NITRO-2-FURYL) NITRONES

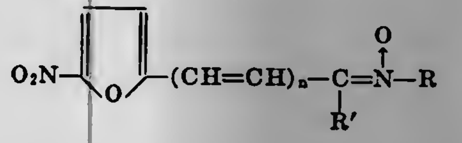
Shinsaku Minami, Yamato-Kouriyama, Jun-Ichi Matsumoto, Osaka, Masanao Shimizu, Kobe, and Yoshiyuki Takase, Amagasaki, Japan, assignors to Dainippon Pharmaceutical Co., Ltd., Osaka, Japan

No Drawing. Continuation-in-part of application Ser. No. 746,749, July 23, 1968, now Patent No. 3,701,773, which is a continuation-in-part of abandoned application Ser. No. 592,265, Nov. 7, 1966. This application Mar. 7, 1972, Ser. No. 232,634

The portion of the term of the patent subsequent to May 30, 1989, has been disclaimed

Int. Cl. C07d *5/30*
U.S. Cl. 260—240 A **11 Claims**

Nitrone derivatives having anti-microbial activity comprising compounds of the formula



wherein n is 0 or 1, R^1 is an alkyl of 1 to 4 carbon atoms, R is a member selected from the group consisting of A—$(OH)_m$ and A—X, wherein A is an alkyl having 1 to 6 carbon atoms, X is a member selected from the group consisting of hydrogen and furyl, and m is an integer of 1 to 3 when n is 1 and an integer of 2 or 3 when n is 0.

3,836,529
DERIVATIVES OF 2-METHYLTHIO- AND 2-PHENYL - 4,6-DICHLORO-5-PYRIMIDINE-CARBOXALDEHYDE

Arthur A. Santilli, Havertown, Dong H. Kim, Wayne, and Richard A. Fieber, Drexel Hill, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Oct. 30, 1972, Ser. No. 302,302

Int. Cl. C07d *51/36*
U.S. Cl. 260—240 G **14 Claims**

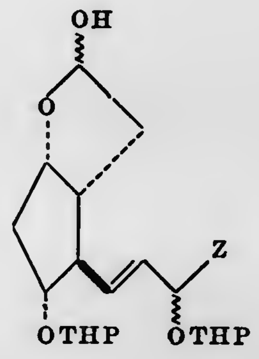
2-Methylthio- and 2-phenyl-5-[N-(substituted)formimidoyl]-4,6-dichloropyrimidines have CNS-depressant activity.

3,836,530
NOVEL TETRAHYDROPYRANYL LACTOL DERIVATIVES

Robert C. Kelly, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Application Sept. 16, 1971, Ser. No. 181,246, now Patent No. 3,711,515, which is a continuation-in-part of abandoned application Ser. No. 93,483, Nov. 27, 1970. Divided and this application Dec. 15, 1972, Ser. No. 315,368
Int. Cl. C07d *5/32*
U.S. Cl. 260—240 R **3 Claims**

Novel tetrahydropyranyl lactols of the formula



wherein Z is cis 1-pentyl-2-enyl or 1-pent-2-ynyl are provided as intermediates in preparing prostaglandins having pharmacological utility.

3,836,531
SYNTHETIC NACREOUS PIGMENTS AND METHOD FOR PRODUCTION THEREOF

Nobumitsu Yano, Iruma-gun, Oi-machi, Masao Fukushima and Itaru Fukinbara, Tokyo, Masanori Kishi, Omiya-shi, and Kazuyoshi Kimura, Yamoto-machi, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed Dec. 11, 1969, Ser. No. 884,338
Int. Cl. C07d *55/24, 55/36*
U.S. Cl. 260—248 A **11 Claims**

A synthetic nacreous pigment particle consisting of thin plate-shaped crystals of at least one compound selected from the group consisting of triazine derivatives thereof; and a decorative synthetic nacreous pigment containing the said pigment particles. In the production of the aforesaid pigment particle, crystals having smooth surfaces, uniform shapes and crystal sizes can be obtained by effecting the crystallization thereof in the presence of at least one surface active agent. Particularly, said synthetic nacreous pigment particles consisting of crystals having a length of 3–100 microns, a width of 1–40 microns and a thickness of 0.05–3 microns can impart elegant and refined luster to cosmetics, synthetic resin tablewares natural and synthetic fibers, natural and synthetic leathers, paper and glass, when applied thereto.

3,836,532
3-[(SUBSTITUTED)AMINO]-5,6-DIPHENYL-4-PYRIDAZINECARBOXYLIC ACIDS

Arthur A. Santilli, Havertown, Anthony C. Scotese, King of Prussia, and Dong H. Kim, Wayne, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Oct. 30, 1972, Ser. No. 302,303
Int. Cl. C07d *51/04*
U.S. Cl. 260—250 A **2 Claims**

3 - [(Substituted)amino] - 5,6 - diphenyl-4-pyridazinecarboxylic acids and the esters thereof have CNS-depressant or *in vitro* antiamebic activity.

3,836,533
10-HYDROXY - 2 - PHENYL - 5H-PYRIDO[1,2-a] PYRIMIDO[4,5-d]-PYRIMIDIN - 5 - ONE AND PROCESSES THERETO

Dong H. Kim, Wayne, and Arthur A. Santilli, Havertown, Pa., assignors to American Home Products Corp., New York, N.Y.

Filed Oct. 30, 1972, Ser. No. 302,381

Int. Cl. C07d *57/20*

U.S. Cl. 260—256.4 F **5 Claims**

10 - Hydroxy - 2 - phenyl - 5H-pyrido[1,2-*a*]pyrimido[4,5-*d*] pyrimidin-5-one and the alkanoyl ester thereof are prepared by thermal cyclization of a 4-(2-amino-3-pyridyloxy) - 2 - phenyl - 5 - pyrimidinecarboxylic acid, alkyl ester or of 4-[(3-hydroxy-2 - pyridyl)amino] - 2 - phenyl-5-pyrimidinecarboxylic acid, or the ester thereof.

3,836,534
5-PIPERAZINO-6-HYDROXY-5H-BENZOCYCLOHEPTENES

Alexander E. Drukker, Milwaukee, and Claude I. Judd, Mequon, Wis., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 821,148, May 1, 1969. This application Aug. 16, 1971, Ser. No. 172,193

Int. Cl. C07d *51/70*

U.S. Cl. 260—268 BC **2 Claims**

The compounds are 5-amino-6-hydroxy-6,7,8,9-tetrahydro-5H-benzocycloheptenes which are useful as chemical intermediates and as central nervous system stimulants. A compound disclosed is 5-isopropylamino-6-hydroxy-6,7,8,9-tetrahydro-5H-benzocycloheptene.

3,836,535
N-METHYL-N'-(2-AMINO ETHYL SULFONYL)-PIPERAZINE

Shun-Ichi Naito, 35 Murasakino Kamitoridacho, Kita-ku, Kyoto, Japan

No Drawing. Original application July 19, 1971, Ser. No. 164,007, now Patent No. 3,743,647, dated July 3, 1973. Divided and this application Dec. 1, 1972, Ser. No. 311,252

Claims priority, application Japan, Aug. 27, 1970, 45/75,350, 45/75,351, 45/75,352; Dec. 18, 1970, 45/114,446, 45/114,447

Int. Cl. C07d *51/72*

U.S. Cl. 260—268 S **2 Claims**

Aminoethanesulfonyl derivatives having a general formula $R—SO_2CH_2CH_2Y$ where R is selected from a group consisting of thiazolyl-2-amino, 1-pyrrolyl, 4-methylpiperazyl, and 1-indolyl and Y is NH_2 or, when R is thiazolyl-2-amino, said Y may be nicotinoylamino as well as manufacture methods thereof were disclosed.

3,836,536
1,2,3,4-TETRAHYDRO-3-AMINOMETHYLISOQUINOLINES

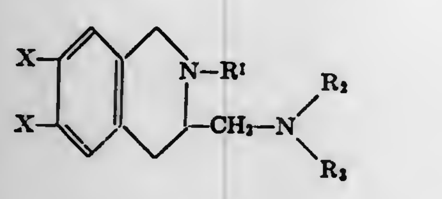
Glenn C. Morrison, Dover, and Wiaczeslaw A. Cetenko, Parsippany, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Filed June 8, 1972, Ser. No. 260,884

Int. Cl. C07d *35/10*

U.S. Cl. 260—286 R **9 Claims**

1,2,3,4-Tetrahydro-3-aminomethylisoquinolines of the formula:



wherein R_1 represents hydrogen, a lower alkyl or an aralkyl radical; R_2 represents hydrogen, a lower alkyl, an aryl, an aralkyl, a substituted aralkyl, a heterocyclic alkyl or a guanyl radical; R_3 represents hydrogen or a lower alkyl radical; and X represents hydrogen or a lower alkoxy radical, and the process for preparing these compounds starting with the corresponding tetrahydroisoquinolinecarboxylate are described. The compounds have useful anti-arrhythmic properties.

3,836,537
ZWITTERIONIC POLYMER HAIRSETTING COMPOSITIONS AND METHOD OF USING SAME

Fred P. Boerwinkle, Village of Lakeland, and Donald L. Waxberg, Village of Roseville, Minn. (both % 3M Center, St. Paul, Minn. 55101)

No Drawing. Continuation-in-part of abandoned application Ser. No. 78,968, Oct. 7, 1970. This application Oct. 25, 1972, Ser. No. 300,832

Int. Cl. C08f *29/46, 37/00, 37/18*

U.S. Cl. 260—29.6 HN **22 Claims**

Hairsetting is achieved with a solution containing a zwitterionic polymer having carboxylate and ammonium functionality.

3,836,538
4-SUBSTITUTED-BENZOCYCLOHEPTA-[1,2-d]-OXAZOLES AND THIAZOLES

Eugene E. Galantay, Morristown, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Application Jan. 18, 1971, Ser. No. 107,521, now Patent No. 3,692,788, which is a continuation-in-part of abandoned application Ser. No. 795,048, Jan. 29, 1969. Divided and this application July 13, 1972, Ser. No. 271,493

Claims priority, application Switzerland, Jan. 16, 1970, 630/70

Int. Cl. C07d *85/48, 91/42*

U.S. Cl. 260—302 F **12 Claims**

The compounds are 2-alkyl-4-(4'-substituted-1'-piperazinyl - 9,10-dihydro-4H-benzo[5,6]cyclohepta[1,2-d]oxazoles and thiazoles; the substituents being methyl, ethyl or 2-hydroxyethyl, e.g. 2-methyl-4-(4'-methyl-1'-piperazinyl)-9,10-dihydro-4H-benzo[5,6]cyclohepta[1,2-d]oxazole. The compounds are useful therapeutically.

3,836,539
OXADIAZOLONE DERIVATIVES

Roger Boesch, Vitry-sur-Seine, France, assignor to Rhone-Poulence S.A., Paris, France

No Drawing. Filed Sept. 6, 1972, Ser. No. 286,778

Claims priority, application France, Sept. 9, 1971, 7132587

Int. Cl. C07d *85/54*

U.S. Cl. 260—307 A **9 Claims**

1,3,4-Oxadiazol-2-one derivatives carrying in the 5-position an alkyl or cycloalkyl substituent and in the 4-position a phenyl substituent, which optionally carries in the 2- and 4- positions halogen or alkyl substituents and carries in the 5-position a substituent $—OCHR_3R_4$ (wherein R_3 is hydrogen, alkyl or alkoxy, and R_4 is carboxy, alkoxycarbonyl, hydroxymethyl, alkoxymethyl or a carbamoyl group of formula $—CONR_5R_6$ in which R_5 is hydrogen, alkyl, alkenyl or alkoxy and R_6 is hydrogen, alkyl or alkenyl) are new compounds useful as herbicides.

3,836,540
1-(DIMESITYLMETHYL)IMIDAZOLE

Cornelis van der Stelt, Haarlem, Netherlands, assignor to N.V. Koninklijke Pharmaceutische Fabrieken v/h Brocades-Stheeman & Pharmacia, Meppel, Netherlands

No Drawing. Continuation-in-part of abandoned application Ser. No. 151,551, June 9, 1971. This application Feb. 9, 1973, Ser. No. 330,909

Claims priority, application Great Britain, June 22, 1970, 30,247/70; Dec. 4, 1970, 57,788/70

Int. Cl. C07d *49/36*

U.S. Cl. 260—309 **2 Claims**

This invention relates to 1-(dimesitylmethyl)imidazole and its acid addition and quaternary ammonium salts and to a process for its preparation. In addition, to pharmaceutical compositions containing said compounds and methods for using said compositions as anti-fungal agents and in the treatment of infections caused by *Mycoplasma gallisepticum*.

3,836,541
3-CYANO-2-PYRRYL OXAMIC ACIDS

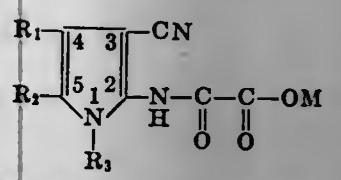
Herbert G. Johnson, John B. Wright, Charles M. Hall, and Donald T. Warner, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Sept. 27, 1972, Ser. No. 292,651

Int. Cl. C07d *27/26*

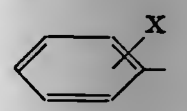
U.S. Cl. 260—326.2 **5 Claims**

This invention relates to novel compounds and pharmaceutical compositions containing said compounds of the formula:



Ia

wherein M is selected from the group consisting of hydrogen, aluminum, ammonium, sodium, potassium, calcium, and tris-(hydroxymethyl)methylammonium, R_1 is selected from the group consisting of lower alkyl of 1 through 6 carbon atoms,



wherein X is selected from the group consisting of hydrogen, fluorine, chlorine, bromine, methoxy, methyl and trifluoromethyl, R_2 is selected from the group consisting of hydrogen and lower alkyl of 1 through 6 carbon atoms, and R_3 has the same meaning as R_1 and in addition hydrogen.

The compounds (1a) above are formulated with pharmaceutical carriers for inhalation or for oral, parenteral or rectal administration, with insufflation being the preferred method. The compositions are useful in the prophylactic treatment of sensitized humans and mammals for allergic and all anaphylactic reactions of a reagin-mediated and non-reagin-mediated nature.

3,836,542
DERIVATIVES OF HYDROXYBENZO[b] THIOPHENE

Lester L. Maravetz, Westfield, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed June 7, 1971, Ser. No. 150,850

Int. Cl. C07d *63/22*

U.S. Cl. 260—330.5 **17 Claims**

Certain amide, acid and ester derivatives of hydroxybenzo[*b*]thiophene form a new class of herbicides. These derivatives and herbicidal compositions containing them are highly effective as both pre-emergence and post-emergence herbicides. They are highly effective against Crabgrass and Barnyard grass, annual grass weeds which reproduce by seed, and Johnson grass, a perennial grass weed which reproduces by seed and underground rhizomes. Selected compounds of this invention also show selective activity in favor of certain important crops in pre-emergent applications.

3,836,543
METHOD OF PREPARING DIBENZO[d,g][1,3] DIOXOCIN ACIDS AND SALTS THEREOF

Johann Martin Grisar, Cincinnati, Ohio, assignor to Richardson Merrell Inc., New York, N.Y.

No Drawing. Filed Oct. 14, 1970, Ser. No. 80,767

Int. Cl. C07d *21/00*

U.S. Cl. 260—340.3 **4 Claims**

An improved method for the production of dibenzo-[*d,g*][1,3]dioxocin-6-carboxylic acids comprises reacting an alkali salt of a 2,2'-methylenebisphenol with at least two equivalents of dichloroacetate salt in the presence of a solvent. Preferably one equivalent of alkali dichloroacetate reactant is employed at the start of the reaction and one or more additional equivalents of said reactant is added from 24 to 48 hours from the start of the reaction.

3,836,544
SYNTHESIS OF ZEARALANES II AND RELATED COMPOUNDS AND INTERMEDIATES USEFUL IN THE SYNTHESES THEREOF

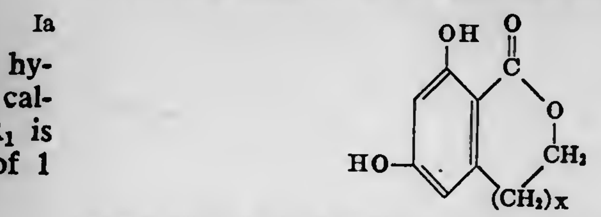
Wilbert Herbert Urry, Chicago, Ill., and Guy Towns Mullenbach, Berkeley, Calif., assignors to Commercial Solvents Corporation

No Drawing. Filed Apr. 25, 1972, Ser. No. 247,282

Int. Cl. C07d *7/120, 9/00*

U.S. Cl. 260—343.2 R **17 Claims**

This invention provides a new synthesis for norzearalane II and related compounds which related compounds and norzearalane II are represented by the formula



where X is an integer having a value from 1 to 13 inclusive.

The anabolic agent norzearalane II, in which $X=9$ in the foregoing formula, is prepared by a total chemical synthesis involving the reaction of 10-undecenal with malonic acid to produce *trans*-2,12-tridecadienoic acid; treating the acid so formed with diazomethane to yield methyl *trans*-2,12-tridecadienoate; reacting the methyl ester with ethyl acetoacetate and sodium ethoxide to form the sodium salt of ethyl 6-(9-decenyl)-β-dihydroresorcylate; brominating the dihydroresorcylate to prepare ethyl 3-bromo - 6 - (9-decenyl)-β-dihydroresorcylate; de-hydrobrominating the foregoing bromo derivative to give ethyl 6-(9-decenyl)-β-resorcylate; reacting the resorcylate ester with benzyl chloride to produce ethyl 6-(9-decenyl)-β-resorcylate dibenzyl ether; subjecting the benzylated ester to the action of diborane, water and hydrogen peroxide to form ethyl 2,4-bis(benzyloxy)-6-(10-hydroxydecyl)-benzoate; treating the foregoing benzoate with sodium ethoxide to prepare norzearalane II dibenzyl ether, and also to prepare as a by-product the dimeric dilactone of 2,4-bis(benzyloxy)-6-(10-hydroxydecyl)-benzoic acid; hydrogenating norzearalane II dibenzyl ether to form norzearalane II.

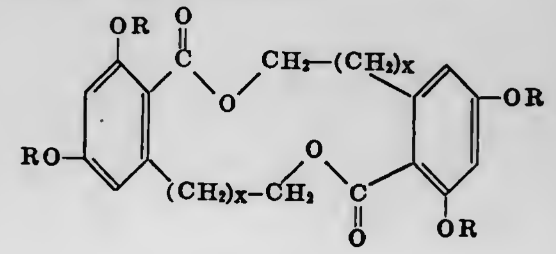
In general, a homologue of norzearalane II and/or of the corresponding dimeric dilactone is prepared by substituting for 10-undecenal in the foregoing sequence of reactions an unsaturated aldehyde having the formula:

$$CH_2=CH—(CH_2)_{X-1}—CHO$$

where X is an integer which may have the value 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13.

Specifically zearalane II (where $X=10$) is prepared starting with 11-dodecenal and the dimeric dilactone from 6-(5-hydroxypentyl-β-resorcylic acid dibenzyl ether is prepared when the starting aldehyde is 5-hexenal (where $X=4$).

The invention also covers physiologically active compounds related to the zearalanes II and known as dimeric dilactones having the formula,



X is an integer which may have the value 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13, and where R is either hydrogen or a benzyl radical ($C_6H_5CH_2$—).

More particularly, this invention relates to novel intermediates produced in the synthesis of the above compounds and to processes for making these intermediates.

3,836,545

ASPARTIC ANHYDRIDE HAVING A MASKED AMINO GROUP

Naohiko Yasuda and Yasuo Ariyoshi, Kanagawa, and Naotake Sato, Tokyo, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

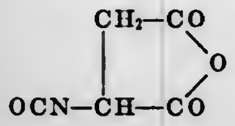
Filed Dec. 13, 1971, Ser. No. 207,104

Claims priority, application Japan, Dec. 14, 1970, 45/111,492

Int. Cl. C07d *5/04*

U.S. Cl. 260—346.8 R **10 Claims**

Aspartic anhydride having a masked amino group is readily obtained by reacting 3-isocyanato-2,5-dioxotetra-



with an alcohol in an inert solvent. The furan derivative is obtained from aspartic acid, its salts and addition compounds with mineral acids, and the corresponding addition compounds of aspartic anhydride by reaction with phosgene in an inert solvent at elevated temperature.

3,836,546

PROCESS FOR THE PRODUCTION OF 1-NITROANTHRAQUINONES

Walter Frey, Muttenz, Basel-Land, and Istvan Toth, Basel, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Jan. 14, 1971, Ser. No. 106,594

Claims priority, application Switzerland, Jan. 30, 1970, 1,310/70; Aug. 26, 1970, 12,741/70

Int. Cl. C07c *79/10;* **C09b** *1/00*

U.S. Cl. 260—369 **10 Claims**

Process for the production of 1-nitroanthraquinones, especially of 1-nitroanthraquinone, in good yield and high purity by nitration of anthraquinones, particularly anthraquinone, with nitric acid and in the presence of (preferably highly concentrated) phosphoric acid and optionally of sulfuric acid or sulfates. Good results are obtained with an excess of fuming nitric acid and of concentrated phosphoric acid.

3,836,547

NITRATION OF ANTHRAQUINONE

Istvan Toth, Bottmingen, Basel-Land, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Filed June 7, 1972, Ser. No. 260,427

Claims priority, application Switzerland, June 10, 1971, 8,413/71; Oct. 5, 1971, 14,587/71; Oct. 20, 1971, 15,352/71

Int. Cl. C09b *1/00*

U.S. Cl. 260—369 **10 Claims**

Disclosed is a nitration process carried out in concentrated nitric acid and in which the rate of reaction of the nitration process is reduced by the addition of an inhibitor, the inhibitor having a basicity greater than that of the $NO_3^{\ominus}$ ion and being stable under the reaction conditions, e.g. being the nitrite or phosphate ion. The process is useful in the partial nitration of compounds having a plurality of sites susceptible to nitration, being particularly useful in the production of 1-nitro-anthraquinone from anthraquinone.

3,836,548

PROCESS FOR THE MANUFACTURE OF ANTHRAQUINONE DERIVATIVES

Maurice Grelat, Bettingen, and Jean Archambault, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed June 17, 1971, Ser. No. 154,169

Claims priority, application Switzerland, June 24, 1970, 9,546/70

Int. Cl. C09b *1/16, 1/20*

U.S. Cl. 260—376 **2 Claims**

1-amino-2-hydroxymethyl-anthraquinone is oxidised to give 1-amino-anthraquinone-2-carboxylic acid.

3,836,549

ANTHRAQUINONE COMPOUNDS

Eiji Yamada, Ibaragi, Japan, assignor to Sumitomo Chemical Company, Limited, Osaka, Japan

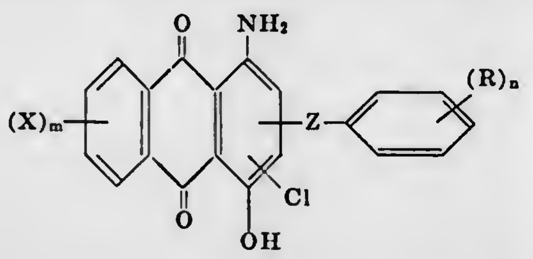
No Drawing. Filed May 11, 1971, Ser. No. 142,339

Claims priority, application Japan, May 16, 1970, 45/41,788; June 27, 1970, 45/56,306

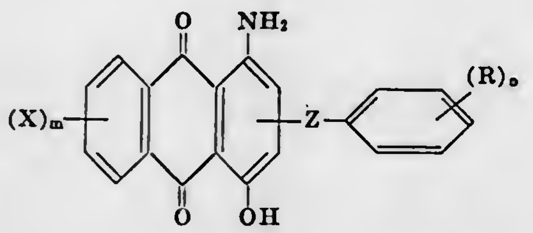
Int. Cl. C09b *1/50*

U.S. Cl. 260—380 **14 Claims**

Anthraquinone compounds of the formula,



wherein Z is oxygen or sulfur, X is hydrogen or a halogen, R is hydrogen atom or a group which does not impart solubility in water, and *m* and *n* each signify an integer of 1 to 4, which are useful for dyeing synthetic articles brilliant red with good fastness, and are useful as intermediates for the production of anthraquinone disperse dyes, and which may be prepared by reacting an anthraquinone derivative represented by the formula,



wherein R, X, Z, *m* and *n* are as defined above, with a chlorinating agent in the presence of a non-protonic polar solvent of an amide type.

3,836,550

CHENODEOXYCHOLIC ACID

William Arthur Jones, "Draycott," 127 Kingston Road, Staines, Middlesex, England, and Maurice Victor Burge, 11 Lascelles Close, Pilgrims Hatch, Brentwood, Essex, England

No Drawing. Continuation-in-part of application Ser. No. 223,713, Feb. 4, 1972. This application May 25, 1973, Ser. No. 363,992

Int. Cl. C07c *169/52*

U.S. Cl. 260—397.1 **16 Claims**

The invention relates to a proces for the preparation of chenodeoxycholic acid of high purity by a process in which crude chenodeoxycholic acid is precipitated in the form of its calcium or strontium salt which is then acidified to liberate the purified acid which is then recovered.

3,836,551

METHOD FOR MAKING SALTS OF N-ACYLAMINO CARBOXYLIC ACIDS

Guenter Schroeder, Ober-Ramstadt, Wolfgang Gaenzler, Darmstadt, Peter Uddrich, Darmstadt-Eberstadt, and Josef Babuliak, Pfungstadt, Germany, assignors to Rohm Gesellschaft mit beschrankter Haftung

No Drawing. Filed Jan. 13, 1971, Ser. No. 106,255

Claims priority, application Germany, Jan. 30, 1970, P 20 04 099.7

Int. Cl. C09f *7/00*

U.S. Cl. 260—404 **8 Claims**

Salts of N-acylamino carboxylic acids, useful as intermediates or as surface-active agents, are made by reacting an amino acid and a carboxylic acid, ester, or amide at 100° C.–250° C. in the presence of a salt-forming basic compound such as an alkali metal or alkaline earth metal hydroxide, a tertiary amine, or a quaternary ammonium hydroxide.

3,836,552

DERIVATIVES OF PERFLUORATED CARBOXYLIC ACIDS

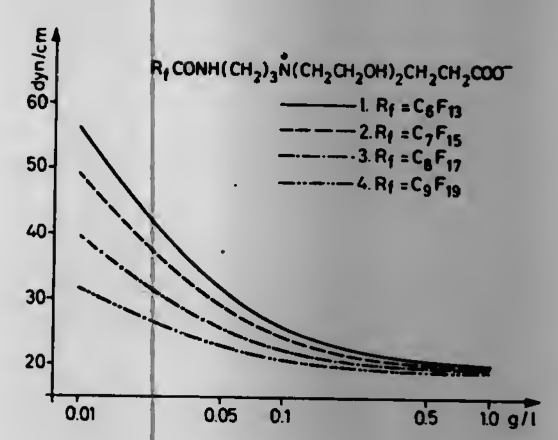
Hans Stach, Suzano Sao Paulo, Brazil, and Dieter Hoffmann, Burghausen, Salzach, and Heinz Brecht, Burg, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

Filed May 31, 1972, Ser. No. 258,365

Claims priority, application Germany, June 2, 1971, P 21 27 232.2

Int. Cl. C07c *103/30*

U.S. Cl. 260—404.5 **4 Claims**



Surface-active perfluorated alkane-carboxylic acid-amide-amine derivatives and their quaternization products of the formulae

$$R_f—CONH—(CH_2)_3—N[(CH_2CH_2O)_nH]_2,$$

$$R_f—CONH—(CH_2)_3—\overset{\oplus}{N}[(CH_2CH_2O)_nH]_2[(CH_2)_zCOO^{\ominus}],$$

$$R_f—CONH—(CH_2)_3—\overset{\oplus}{N}[(CH_2CH_2O)_nH]_2(R)X^{\ominus},$$

in which *n* is a number from 1 to 4, *z* is 1 or 2, R represents a lower alkyl group and X^- is a halogen, sulfate or methosulfate anion, and process for preparing these compounds, wherein perfluoro-alkane-carboxylic acid alkyl esters are reacted with 1-(N,N-diethanol)-3-amino-propane and, depending on the compound, subsequently oxethylated, esterified and/or quaternized. The new compounds strongly reduce the surface tension of aqueous solutions. They have an excellent wetting power and may also be used as emulsifiers for fluoro-hydrocarbon/water emulsions.

3,836,553

CATALYTIC DEHYDROGENATION OF ALCOHOLS

Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Filed Dec. 10, 1970, Ser. No. 97,046

Int. Cl. C07c *45/16*

U.S. Cl. 260—409 **18 Claims**

The catalytic dehydrogenation of alcohols to aldehydes or ketones is described. The catalyst for this reaction is a complex of ruthenium with a biphyllic ligand. Optional cocatalysts such as rhenium compounds can be employed and, preferably, the dehydrogenation is performed under basic conditions. The dehydrogenation of the alcohol liberates hydrogen and, if desired, an unsaturated coreactant can be employed which will be hydrogenated under the reaction conditions. Thus the dehydrogenation of an alcohol to produce a desired ketone can be combined with the saturation of an olefin, a fatty unsaturated oil or acid, etc. In a typical embodiment, cyclohexanol is dehydrogenated to cyclohexanone by contacting with ruthenium trichloride and triphenylphosphine at a temperature of about 200° C. and sufficient pressure to maintain liquid phase conditions. The process can be beneficially employed in the oxidation of hydrocarbons to acids, e.g., in the oxidation of cyclohexane to adipic acid to convert the relatively refractory cyclohexanol to the more reactive cyclohexanone. Similarly, the oxidation can be used in the oxidation of Tetralin to tetralone by conversion of the relatively refractory and intermediate tetralol. The tetralone derivative is a useful intermediate in the production of various insecticides, dyes, etc.

3,836,554

PROCESS FOR THE LIGHTENING AND COLOR STABILIZATION OF FATTY-ACID FORERUNNINGS

Sasanka Sekhar Naskar and Gustav Renckhoff, Witten, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

No Drawing. Filed July 28, 1971, Ser. No. 167,014

Claims priority, application Germany, Aug. 5, 1970, P 20 38 804.9

Int. Cl. C09f *5/10*

U.S. Cl. 260—419 **7 Claims**

A process for lightening and color-stabilization of fatty-acid forerunnings which comprises heating the fatty acids with technical-grade silicon at a temperature of from about 180° to 250° C. and distilling off the treated fatty-acid forerunnings under vacuum.

3,836,555

DIISOCYANATE-ORGANOMETALLIC CATALYST SOLUTIONS

Edmond G. Kolycheck, Lorain, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Filed Apr. 20, 1973, Ser. No. 353,127

Int. Cl. C08g *22/24*

U.S. Cl. 252—431 N **6 Claims**

A hindered phenolic phosphonate is used in a solution of triphenylbismuthine in an isocyanate or diisocyanate at an elevated temperature in order to prevent or reduce discoloration of the solution by catalyst degradation and to prevent or reduce subsequent discoloration of products obtained by reacting the isocyanate or diisocyanate solution with an active hydrogen containing compound or polymer. Use of another hindered phenol or phosphonate does not prevent such discoloration.

3,836,556

SYNERGISTIC METAL SEQUESTRANT

Ronald H. Carlson, Lewiston, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Original application July 13, 1970, Ser. No. 54,663, now Patent No. 3,734,861. Divided and this application Apr. 21, 1972, Ser. No. 246,489

The portion of the term of the patent subsequent to May 18, 1988, has been disclaimed

Int. Cl. C05d *9/02;* **A01n** *7/00*

U.S. Cl. 260—439 R **3 Claims**

Mixtures of tris(hydroxymethyl)phosphine oxide, and tris(N-acetoaminomethyl)phosphine as well as the alkali metal salts thereof, exhibit marked synergism as sequestrant compositions over a broad pH range. The sequestrant compositions are useful as additives for detergents, metal cleaning baths, peroxide compositions and dyes. The chelate products are useful in the field of agriculture for the introduction of trace elements into plant life and especially in the treatment of iron chlorosis in plants.

3,836,557

SALTS OF ANTIMONY (V) ESTERS AS FLAME RETARDANTS

Richard Norris Knowles, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 3, 1971, Ser. No. 204,704

Int. Cl. C07f *9/90*

U.S. Cl. 260—446 **1 Claim**

Water soluble salts of antimony (V) glycol esters are useful flame retardants for such materials as textiles or polymeric resins. These flame retardants are applied together with a source of organic halogen. A typical such salt is tri(ethylenedioxy)hydrogen antimony (V), sodium salt.

3,836,558

PROCESS FOR THE PRODUCTION OF TRIS-(TRIMETHYLSILOXY)-PHENYLSILANE

Armand de Montigny and Karl Schnurrbusch, Leverkusen, Klaus Seyfried, Schildgen, and Walter Noll, Opladen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 11, 1972, Ser. No. 270,741

Claims priority, application Germany, July 16, 1971, P 21 35 674.1

Int. Cl. C07f *7/08*

U.S. Cl. 260—448.2 E **7 Claims**

The method of producing tris-(trimethylsiloxy)-phenylsilane by hydrolytic reaction of trimethylchlorosilane, phenyltrichlorosilane and water is improved to give significant rise of yield by carrying out the reaction, according to the invention, in the presence of hexamethyldisiloxane in a proportion of 0.2 to 12 mols per mol of phenyltrichlorosilane, applying a molar ratio of trimethylchlorosilane to phenyltrichlorosilane of between 3.3:1 and 4:1, and adding the water gradually, in excess, until the hydrolysis is complete. This process is further improved by admixing the additionally employed hexamethyldisiloxane some time before the addition of any other ingredient with an acid equilibration catalyst, preferably followed by heating.

3,836,559

CATIONIC SILICONES

Bela Prokai, Mahopac, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Original application Dec. 22, 1969, Ser. No. 887,428, now Patent No. 3,658,867. Divided and this application Jan. 19, 1972, Ser. No. 219,118

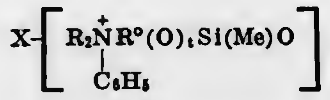
Int. Cl. C07f *7/10*

U.S. Cl. 260—448.2 N **2 Claims**

Cationic bis(trimethylsiloxy)siloxanes of the formula:

$$MD'_xM$$

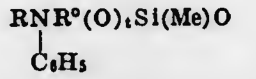
wherein M is the trimethylsiloxy unit, $Me_3SiO_{1/2}$, x is an integer of 1 to 3, preferably 1, and D′ is a cationic difunctional siloxy unit of the formula:



$$X^{-}\left[\begin{array}{l} R_2\overset{+}{N}R^{\circ}(O)_tSi(Me)O \\ \;| \\ C_6H_5 \end{array}\right]$$

wherein R° is a divalent organic group, t is 0 or 1, R is methyl or ethyl, C_6H_5 is a phenyl radical and X is an anion.

Also the tertiary amino bis(trimethylsiloxy) siloxanes of the formula MD_xM wherein M and x are as defined above and D is a tertiary amino difunctional siloxy unit of the formula:



$$\begin{array}{l} RNR^{\circ}(O)_tSi(Me)O \\ \;\;| \\ \;C_6H_5 \end{array}$$

wherein R, R°, t and C_6H_5 are as defined above, which are used in preparing the above cationic siloxanes.

The above cationic siloxanes are useful as emulsifiers, e.g., for water-poly(dimethylsiloxane) oil systems, bacteriocides, antistatic agents, wetting agents and mold release agents.

3,836,560

ORGANOSILICONE POLYMERS

Bela Prokai, Mahopac, and Bernard Kanner, West Nyack, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 122,164, Mar. 8, 1971. This application Dec. 27, 1971, Ser. No. 212,729

Int. Cl. C07f *7/18*

U.S. Cl. 260—448.8 R **19 Claims**

Linear siloxane-polyoxyalkylene $(AB)_n$ block copolymers having an average molecular weight of at least about 30,000, compositions of polyurethane-forming froths containing said copolymers, the curable froths produced from said compositions, methods for utilizing said froths as well as the cured foams and articles produced therefrom, said froths having utility in the production of molded polyurethane foam articles, foam backings for carpeting and fabrics, coatings for wire, cable and other articles, small cavity encapsulations, and the like.

3,836,561

METHOD OF TREATING ALUMINA CONTAINING OXIDES

Dean Arthur Young, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Continuation-in-part of application Ser. No. 191,057, Oct. 20, 1971, which is a continuation-in-part of application Ser. No. 15,219, Feb. 27, 1970, now Patent No. 3,691,099, which is a continuation-in-part of application Ser. No. 797,678, Feb. 7, 1969, now abandoned, which is a continuation-in-part of application Ser. No. 697,587, Jan. 15, 1968, now Patent No. 3,460,934, which in turn is a continuation-in-part of application Ser. No. 457,485, May 20, 1965, now Patent No. 3,383,169. This application Aug. 16, 1972, Ser. No. 281,025

Int. Cl. B01j *11/32, 11/40*

U.S. Cl. 252—450 **6 Claims**

Particle form alumina-containing amorphous oxides or combinations thereof with crystalline zeolites are acid treated to increase porosity and permeability, decrease bulk volume or improve one or more characteristics of the zeolite without substantial loss of structural strength at a pH below about 5 sufficient to react at least a portion of the alumina in the amorphous oxide in the presence of an ionizable water soluble salt.

3,836,562

N-[2-FORMYLPROPYLTHIO-(2)]-SULFONAMIDES

Ernst Roos, Cologne, Manfred Abele, Porz-Wahn, Roland Nast, Dormagen, and Theo Kempermann and Rudiger Schubart, Cologne, Germany, assignors to Bayer Aktiengellschaft

No Drawing. Original application Feb. 1, 1971, Ser. No. 111,612, now Patent No. 3,737,438. Divided and this application Sept. 15, 1972, Ser. No. 289,659

Claims priority, application Germany, Feb. 7, 1970, P 20 05 692.2

Int. Cl. C07c *143/76*

U.S. Cl. 260—453 R **2 Claims**

This invention relates to new sulphenamides of 2-formyl propyl-2-sulphenic acid and to their use in the production and processing of mixtures based on a natural or synthetic rubber. The novel compounds are prepared by reacting 2-formyl propyl-2-sulphenic chloride with amines and amides in the presence of an acid binding agent. The retarders can be mixed into the rubber in the usual way.

3,836,563

3-THIOACETYL OR BENZOYL-ALKANE-1,4-DIONES

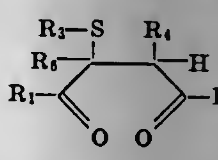
William J. Evers, Atlantic Highlands, Howard H. Heinsohn, Jr., Hazlet, and Bernard J. Mayer, Cliffwood Beach, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

No Drawing. Filed Aug. 7, 1973, Ser. No. 386,454

Int. Cl. C07c *149/14, 149/32*

U.S. Cl. 260—455 R **3 Claims**

Novel 3-thia-1,4 diones having the structure:



wherein R_1 and R_2 are the same or different and are either hydrogen or lower alkyl, R_3 is either hydrogen, lower alkyl, acyl, aroyl, benzyl or phenyl and each of R_4 and R_6 are the same or different and are either hydrogen or lower alkyl, such 3-thia-1,4 alkane diones being useful in altering the organoleptic properties of foodstuffs.

3,836,564

SULFONYLOXY BROMOACETANILIDES AND THEIR UTILITY AS BIOCIDES

Don R. Baker, Orinda, and Eugene G. Teach, El Cerrito, Calif., assignors to Stauffer Chemical Company, Westport, Conn.

No Drawing. Continuation-in-part of application Ser. No. 127,775, Mar. 24, 1971, which is a division of application Ser. No. 806,717, Mar. 12, 1969, both now abandoned. This application Sept. 11, 1972, Ser. No. 288,235

Int. Cl. C07c *143/02*

U.S. Cl. 260—456 A **3 Claims**

Sulfonyloxy bromoacetanilides as new compositions and their activity as microbiocides. Representative compounds include m-isobutylsulfonyloxy bromoacetanilide and m-phenylsulfonyloxy bromoacetanilide.

3,836,565

STABILIZED ADHESIVE COMPOSITIONS

Bernd Brinkmann, Bad Zwischenahn, Germany, assignor to Schering AG, Berlin and Bergkamen, Germany

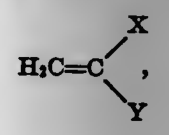
No Drawing. Filed May 31, 1973, Ser. No. 365,796

Claims priority, application Germany, June 10, 1972, P 22 28 379.0

Int. Cl. C07c *121/30, 121/48, 121/70*

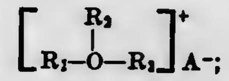
U.S. Cl. 260—464 **12 Claims**

Stabilized adhesive compositions comprising an easily anionically polymerizable olefinic monomer of the formula



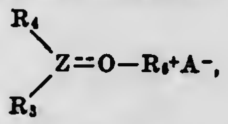
where X and Y are —CN or —COOR and a stabilizer which is:

(1) a trialkyl oxonium salt,



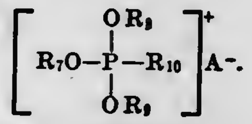
$$\left[\begin{array}{c} R_2 \\ | \\ R_1{-}O{-}R_3 \end{array}\right]^{+} A^{-};$$

(2) a carboxonium or sulfonium salt



where Z is carbon or sulfur; or

(3) a phosphonium salt



$$\left[\begin{array}{c} OR_8 \\ | \\ R_7O{-}P{-}R_{10} \\ | \\ OR_9 \end{array}\right]^{+} A^{-}.$$

3,836,566

1,1-DIBROMO-1-CYANOMETHANESULFONAMIDES

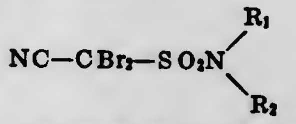
Christian T. Goralski, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed May 25, 1973, Ser. No. 364,174

Int. Cl. C07c *121/00, 121/16*

U.S. Cl. 260—465.5 R **5 Claims**

The compounds of the formula



wherein R_1 and R_2 independently represent hydrogen or a lower alkyl group. The compounds are prepared by reacting a 1-cyanomethanesulfonamide with bromine in aqueous alkaline medium. The compounds have antimicrobial activity.

3,836,567

PROCESS FOR THE CONTINUOUS PREPARATION OF UNSATURATED NITRILES

Hans Krekeler, Wiesbaden, Hans Fernholtz, Fischbach, Taunus, Dieter Freudenberger, Diedenbergen, Taunus, Hans-Joachim Schmidt, Frankfurt am Main, and Friedrich Wunder, Florsheim (Main), Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Jan. 17, 1972, Ser. No. 218,506

Claims priority, application Germany, Jan. 19, 1971, P 21 02 263.9

Int. Cl. C07c *121/02, 121/30*

U.S. Cl. 260—465.9 **10 Claims**

Process for the preparation of unsaturated nitriles from hydrocyanic acid and esters of unsaturated alcohols and carboxylic acids in the gaseous phase by passing the reaction mixture over carrier catalysts impregnated with a copper(II) salt, a cobalt salt or a mixture of both salts. Preferably, also a Lewis acid is added.

3,836,568

PROCESS FOR PRODUCTION OF LOWER ALKYL ESTERS OF CIS-CHRYSANTHEMUM MONOCARBOXYLIC ACID

Akio Higo and Nobushige Itaya, Ikeda, Hajime Hirai, Tokyo, and Hirosuke Yoshioka, Toyonaka, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

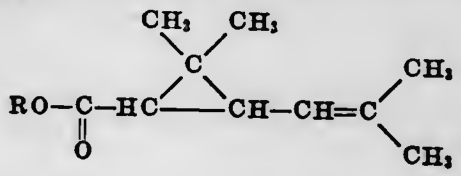
No Drawing. Filed Nov. 24, 1971, Ser. No. 201,988

Claims priority, application Japan, Dec. 28, 1970, 46/129,967; Mar. 11, 1971, 46/13,603

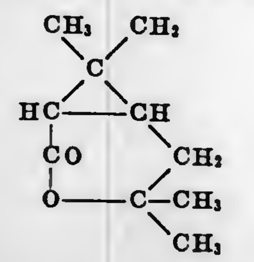
Int. Cl. C07c *67/02, 69/74*

U.S. Cl. 260—468 H **7 Claims**

A process for preparing lower alkyl cis-chrysanthemates of the formula,



wherein R is a lower alkyl, which comprises reacting a dihydrochrysanthemolactone of the formula,



with a lower aliphatic alcohol in the presence of an acid catalyst, to remove the water produced out of the reaction system.

3,836,569
ALKYL 4-[o-(SUBSTITUTED METHYLENEAMINO) PHENYL]-3-THIOALLOPHANATES

Joel B. Wommack, Jr., 718 Peach Tree Road, Apt. C, Claymont, Del. 19703
No Drawing. Filed Oct. 13, 1969, Ser. No. 865,947
Int. Cl. C07c *157/06*
U.S. Cl. 260—470 **5 Claims**

Various alkyl 4-[*o*-(substituted methyleneamino) phenyl]-3-thioallophanates are useful as fungicides and mite ovicides.

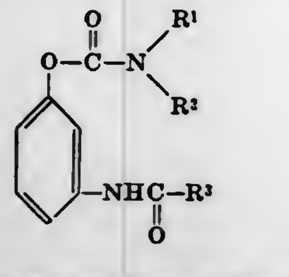
The compounds are prepared by reacting alkyl 4-(*o*-aminophenyl)-3-thioallophanates with aldehydes or trialkyl orthoformates. Some of the compounds are prepared by further reacting the reaction product of an alkyl 4-(*o*-aminophenyl)-3-thioallophanate and a trialkyl orthoformate with a primary or secondary amine.

Exemplary species are methyl 4-[*o*-(*o*-fluorobenzylideneamino)phenyl]-3-thioallophanate and methyl 4-[*o*-(4-methylbenzylideneamino)phenyl]-3-thioallophanate.

3,836,570
m-AMIDOPHENYLCARBAMATES

Karoly Szabo, Syracuse, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 719,698, Apr. 8, 1968, which is a continuation-in-part of applications Ser. No. 484,421, Sept. 1, 1965, Ser. No. 574,805, Aug. 24, 1966, and Ser. No. 676,638, Oct. 19, 1967, all now abandoned, which in turn is a division and continuation-in-part of application Ser. No. 517,886, Dec. 27, 1965, now Patent No. 3,399,265. This application Aug. 28, 1968, Ser. No. 755,772
Int. Cl. C07c *125/06*
U.S. Cl. 260—471 C **15 Claims**

m-Amidophenylcarbamates having the general formula



in which R^1 is hydrogen and lower alkyl containing from one to five carbon atoms; R^2 is alkyl containing from one to eight carbon atoms, cyclohexyl, lower alkenyl containing from three to four carbon atoms, phenyl and substituted phenyl in which the substituents are lower alkyl, lower alkoxy, nitro and halogen; and R^3 is an alkyl group containing one to six carbon atoms, inclusive. The compounds are effective in the control of grasses and broadleaf plants with both pre-emergence and post-emergence activity. The compounds in which R^1 is hydrogen, R^2 is methyl and R^3 is alkyl are especially active as insecticides. Representative compounds are: 3-(N-isopropylcarbamoyloxy)-propionanilide, 3 - (N-butylcarbamoyloxy)-propionanilide, m-(N-methylcarbamoyloxy) acetanilide, m-(N-methyl carbamoyloxy) propionanilide and m-(N-methylcarbamoyloxy)-n-butylanilide.

3,836,571
ETHYLENICALLY UNSATURATED DERIVATIVES OF 4-AMINOBENZOIC ACID

Martin Skoultchi, Somerset, and Eric A. Meier, North Brunswick, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.
No Drawing. Original application Aug. 17, 1970, Ser. No. 64,574, now Patent No. 3,666,732. Divided and this application Mar. 7, 1972, Ser. No. 232,530
Int. Cl. C07c *101/62*
U.S. Cl. 260—471 R **2 Claims**

Ethylenically unsaturated derivatives of 4-aminobenzoic acid are prepared by a novel method involving the reaction under controlled conditions of 4-aminobenzoic acid and various derivatives thereof with allyl chloride. The resulting monomers may, thereafter, be copolymerized with a wide variety of conventional ethylenically unsaturated, i.e. vinyl, monomers. The monomeric derivatives as well as the copolymers prepared therefrom are ultraviolet absorbers in the 280–320 millimicrons range and find a particular utility as a sun-screen agent in suntan formulations.

3,836,572
DICARBAMOYL HYDROXAMATES

John E. Franz, Crestwood, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Apr. 2, 1973, Ser. No. 347,114
Int. Cl. C07c *125/06*
U.S. Cl. 260—472 **13 Claims**

The dicarbamoyl hydroxamates of this invention are pesticidally active and particularly useful as herbicides.

3,836,573
PROCESS FOR THE PURIFICATION OF BENZENECARBOXYLIC ACID ESTERS BY CRYSTALLIZATION

Georg Schreiber, Rodenkirchen, Heinz Schroeder and Wolfgang Hoppe, Witten, Eugen Hadamovsky, Witten-Annen, Hans-Walter Ovenhausen, Herbede, and Bernhard Piotrowski, Wanne-Eickel, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Filed Nov. 12, 1971, Ser. No. 198,275
Claims priority, application Germany, Nov. 14, 1970, P 20 56 149.3
Int. Cl. C07c *69/82*
U.S. Cl. 260—475 B **9 Claims**

Benzenecarboxylic acids or benzenecarboxylic acid esters, in crude form, especially dimethylterephthalate in crude form is purified by crystallization in a continuous two stage process. In the first stage the crude form dissolved in, e.g. methanol, is passed as a thin film through a nucleation cooler wherein nucleation and initial crystal growth occur, the growth being to a particle size of, e.g. about 100 microns. In the second stage the effluent from the nucleation cooler is agitated and cooled for further crystal growth to provide crystals of sizes in the range of, e.g. 250–350 microns. The crystals can be separated by filtration or centrifuging. High unit time yields are obtained, at low investment cost and low storage capacity requirements.

3,836,574
PROCESS FOR THE MANUFACTURE OF FILM- AND FIBER-FORMING POLYESTERS

Eberhard Achsel, Kelkheim, Taunus, and Siegfried Sommer, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Continuation of application Ser. No. 177,440, Sept. 2, 1971. This application June 20, 1973, Ser. No. 371,662
Int. Cl. C08g *17/01*
U.S. Cl. 260—475 P **5 Claims**

Film- and fiber-forming polyesters, optionally also polyesters suitable for the processing of plastic articles, are

prepared starting from diols and a dicarboxylic acid/dicarboxylic acid alkyl ester mixture, in which the proportion of the number of free carboxyl groups to that of the esterified carboxyl groups is at least 60:40. These starting substances are reacted to form the bis-diol-dicarboxylic acid esters and their lower oligomers, and these substances are then polycondensed in known manner to form high molecular weight polyesters. Preferably, polyethyleneterephthalate is prepared according to this process.

3,836,575
PROCESS FOR THE MANUFACTURE OF METHYL METHACRYLATE

Albert Bouniot, Melle, France, assignor to Rhone-Progil, Paris, France
No Drawing. Filed June 19, 1972, Ser. No. 263,846
Claims priority, application France, June 17, 1971, 7122946
Int. Cl. C07c *69/54*
U.S. Cl. 260—486 D **19 Claims**

The continuous manufacture of methyl methacrylate by heating β-methoxy isobutyric acid in the presence of a catalyst of aryl sulfonic acid and with the continuous addition of water.

3,836,576
PROCESS FOR THE TRANSESTERIFICATION OF UNSATURATED ESTERS

Claude Falize, Le Havre, and Albert Bouniot, Melle, France, assignors to Rhone-Progil, Paris, France
Filed Apr. 23, 1973, Ser. No. 353,590
Claims priority, application France, May 17, 1972, 7218382
Int. Cl. C07c *69/54*
U.S. Cl. 260—486 R **22 Claims**

A process for the transesterification with an alcohol or alcohols containing 3–22 carbon atoms of a methacrylic acid ester formed of an alcohol having a lower boiling point than the above alcohol, and wherein the transesterification reaction is carried out in the presence of a titanium alcoholate as a catalyst and dinaphthyl phenylene diamine as a polymerization inhibitor, in which the reaction is carried out with or without bubbling air through the reaction mixture, and removing the displaced alcohol from the reaction mixture, as by distillation.

3,836,577
PERFLUOROALKYL COMPOUNDS, THEIR MANUFACTURE, THEIR POLYMERISATION PRODUCTS AND THEIR USE

Horst Jaeger, Wyhlenweg 10, Bettingen, Switzerland, and Paul Schaefer, Morystrasse 88, Riehen, Switzerland
No Drawing. Original application Aug. 17, 1971, Ser. No. 172,545, now Patent No. 3,780,093. Divided and this application May 16, 1973, Ser. No. 360,873
Claims priority, application Switzerland, Aug. 24, 1970, 12,591/70
Int. Cl. C07c *69/54*
U.S. Cl. 260—486 H **2 Claims**

Perfluoroalkyl compounds are provided in which the perfluoroalkyl radical is bounded through a linear or cyclic aliphatic radical to the carboxylic group of an aliphatic unsaturated carboxylic acid. These products and their polymerization products are useful for finishing various substrates, especially for the production of aliphatic finishes on the paper, leather, non-wovens and textiles.

3,836,578
PROSTANOIC ACID DERIVATIVES

Bengt Samuelsson, Kemiska Institutionen, Karolinska Institutet, Stockholm 60, Sweden
No Drawing. Continuation-in-part of abandoned application Ser. No. 514,405, Dec. 16, 1965. This application Apr. 4, 1967, Ser. No. 628,285
Int. Cl. C07c *61/36, 69/74*
U.S. Cl. 260—514 D **23 Claims**

This invention is a class of new and useful prostanoic acid derivatives and processes for preparing them. These new compounds are similar in structure to certain of the known prostaglandins but differ in that each has a carbonyl group rather than a hydroxy group at the C–15 position of prostanoic acid. Some of these new compounds also differ in having a double bond between C_5 and C_6 but not between C_{13} and C_{14}. These new prostanoic acid derivatives have biological properties which cause them to be useful variously in the treatment of hypertension, hypotension, and conditions involving abnormal lipid mobilization.

3,836,579
CERTAIN SUBSTITUTED CARBAMOYL THIOFORMYL CHLORIDES

Wendell Gary Phillips, Olivette, and Kenneth Wayne Ratts, Creve Coeur, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Aug. 24, 1971, Ser. No. 174,536
Int. Cl. C07c *153/00;* **C07d** *27/04, 29/36*
U.S. Cl. 260—543 R **5 Claims**

Substituted carbamoyl thioformyl chlorides are prepared from dichloromethane sulfenyl chlorides by reaction with a tertiary phosphine. The thioformyl chlorides are pesticidally active and particularly useful as preemergent herbicides.

3,836,580
2,6-DICHLOROBENZYLIDENEHYDRAZIDES

William F. Bruce, Havertown, Pa., assignor to American Home Products Corporation, New York, N.Y.
No Drawing. Original application July 1, 1971, Ser. No. 159,056, now Patent No. 3,746,703. Divided and this application Jan. 26, 1973, Ser. No. 326,938
Int. Cl. C07c *109/10*
U.S. Cl. 260—558 H **5 Claims**

Novel derivatives of 2,6-dichlorobenzylidenehydrazides have been prepared which have useful pharmacological activity.

3,836,581
1-ALKOXIMINO-2-(ω-SUBSTITUTED-ALKYL)-2-CYCLOPENTENES

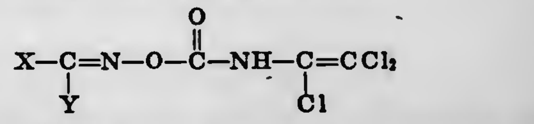
Karel Francis Bernady, Suffern, and John Frank Poletto, Nanuet, N.Y., and Martin Joseph Weiss, Oradell, N.J., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Continuation-in-part of abandoned application Ser. No. 208,951, Dec. 16, 1971. This application Feb. 26, 1973, Ser. No. 335,842
Int. Cl. C07c *131/08*
U.S. Cl. 260—566 AE **4 Claims**

This disclosure described certain 1-alkoximino-2-(ω-substituted-alkyl)-2-cyclopentenes useful as intermediates for the preparation of homologues, analogues, congeners, and derivatives of 9-oxo-13-*trans*-prostenoic acid and of 9-hydroxy-13-*trans*-prostenoic acid which have antimicrobial activity and prostaglandin-like hypotensive activity.

3,836,582
CARBAMALDOXIMES

Jacques Perronnet and Pierre Girault, Paris, France, assignors to Roussel-UCLAF, Paris, France
No Drawing. Filed Oct. 23, 1973, Ser. No. 408,744
Claims priority, application France, Nov. 6, 1972, 7239141
Int. Cl. C07c *131/00*
U.S. Cl. 260—566 AC **2 Claims**

Novel carbamaldoximes of the formula



$$X-\underset{Y}{\underset{|}{C}}=N-O-\overset{O}{\overset{\|}{C}}-NH-\underset{Cl}{\underset{|}{C}}=CCl_2 \qquad I$$

wherein Y is selected from the group consisting of hydrogen, chlorine and bromine and X is selected from the group consisting of phenyl optionally substituted with at least one member of the group consisting of halogen, cyano, —NO_2, alkyl of 1 to 6 carbon atoms and alkoxy of 1 to 6 carbon atoms and nitrofuryl having fungicidal activity.

3,836,583

MANUFACTURE OF KETENE

Guenther Matthias and Gerhard Schulz, Ludwigshafen, Werner Kasper, Frankenthal, and Klaus Feind, Limburgerhof, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Nov. 30, 1971, Ser. No. 203,452

Claims priority, application Germany, Dec. 2, 1970, P 20 59 292.1

Int. Cl. C07c *49/22*

U.S. Cl. 260—585.5 **10 Claims**

Manufacture of ketene by thermal dissociation of acetic acid at reduced pressure and in the presence of catalysts using a prescribed ratio of reactor volume to the internal surface area of the reactor and to the volume of acetic acid feed.

3,836,584

TRICYCLO[5,4,0,$0^{3,9}$]UNDECA-5,10-DIEN-2-ONES

Georg Frater, Greifensee, Hans Greuter, Horgen, and Hans Schmid, Schwerzenbach, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Oct. 25, 1972, Ser. No. 300,603

Claims priority, application Switzerland, Nov. 12, 1971, 16,517/71

Int. Cl. C07c *45/00, 49/54*

U.S. Cl. 260—586 M **9 Claims**

Tricyclo[5,4,0,$0^{3,9}$]undeca - 5,10 - dien-2-ones and tricyclo[5,3,1,$0^{3,8}$]undeca-5,9-dien-2-ones which are useful in the perfumary art and a process for their preparation from phenols and cyclohexenones.

3,836,585

DEHALOGENATION OF DIHALO-5H-DIBENZOCYCLOHEPTENONES USING CHROMOUS CHLORIDE

Edward W. Tristram, Watchung, and Jan ten Broeke, Somerset, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 818,838, Apr. 23, 1969. This application Jan. 22, 1973, Ser. No. 325,685

Int. Cl. C07c *49/76, 49/82*

U.S. Cl. 260—590 **1 Claim**

There is provided a novel method of preparing dibenzocycloheptenones having, optionally, substituents in either or both of the benzo-nuclei. The method comprises conversion of the appropriate stilbene carboxylic acid to the corresponding acid chloride, halogenation of the bridge double bond, ring closure and dehalogenation.

3,836,586

PROCESS FOR PRODUCING ACROLEIN OR METHACROLEIN

Keisho Yamada, Sumio Umemura, Kyoji Ohdan, and Kazuo Fukuda, Ube, Japan, assignors to Ube Industries, Ltd., Ube, Yamaguchi-ken, Japan

No Drawing. Filed Dec. 1, 1970, Ser. No. 94,215

Claims priority, application Japan, June 12, 1970, 45/50,209

Int. Cl. C07c *45/02*

U.S. Cl. 260—604 R **4 Claims**

A process for the production of acrolein or methacrolein in which propylene or isobutylene is contacted with oxygen or oxygen-containing gas in a vapor phase in the presence of a specified catalyst. The catalyst comprises (a) bismuth antimonate and (b) at least one molybdic acid salt of the following metals; manganese, iron, and cobalt.

3,836,587

ORGANO PHOSPHONIUM SALTS

Martin Grayson, Norwalk, and Patricia Tarpey Keough, Ridgefield, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Application Nov. 17, 1969, Ser. No. 871,628, now Patent No. 3,689,601, which is a continuation of abandoned application Ser. No. 674,107, Oct. 10, 1967, which in turn is a continuation of abandoned application Ser. No. 292,123, July 1, 1963. Divided and this application May 22, 1972, Ser. No. 255,770

Int. Cl. C07f *9/28*

U.S. Cl. 260—606.5 F **1 Claim**

Organo phosphonium salts of the formula:

(A) $[R^1R^2R^3PCH_2CH_2Q]^{\oplus}X^{\ominus}$

are prepared by reacting compounds of the formulae:

(I) $R^1R^2R^3PCH_2CH_2OY \cdot X$

or

(II) $R^1R^2R^3PCH{=}CH_2 \cdot X$

with H—Q wherein: X is halogen, Y is the residue of an acylating agent, and Q is the residue of a reactant having an electronegative group and providing a replaceable hydrogen atom (H) which is replaced by the

$$R^1R^2R^3PCH_2CH—$$

group of compounds I or II in forming the compound A.

3,836,588

METHOD OF PRODUCING CUMENE HYDROPEROXIDE

Cesare Reni, Busto Arsizio, Luigi Lugo, Milan, and Giorgio Gualdi, Verona, Italy, assignors to Societa Italiana Resine S.p.A., Milan, Italy

No Drawing. Filed Sept. 29, 1970, Ser. No. 76,588

Claims priority, application Italy, Oct. 1, 1969, 22,765/69

Int. Cl. C07c *73/08*

U.S. Cl. 260—610 B **1 Claim**

Cumene hydroperoxide is produced by the oxidation of cumene with molecular oxygen in the presence of the sodium salt of cumene hydroperoxide, this salt having been produced in solution and used directly as such.

3,836,589

METHOD FOR THE OXIDATION OF HYDROCARBONS

Howard P. Angstadt, Media, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed Sept. 24, 1969, Ser. No. 860,816

Int. Cl. C07c *73/06*

U.S. Cl. 260—610 B **4 Claims**

Hydrocarbon oxidation processes utilizing water-sensitive catalysts, wherein said processes yield water as a byproduct, may be improved by carrying out the oxidation in the presence of a desiccant which is inert to the reaction conditions of the process.

3,836,590

ALPHA,ALPHA,ALPHA′,ALPHA′-TETRAKIS(4 - HYDROXY-3,5-DISUBSTITUTED PHENYL)XYLENE

Gordon D. Brindell, Crystal Lake, and Joseph P. Wuskell, Barrington, Ill., assignors to The Quaker Oats Company, Chicago, Ill.

No Drawing. Filed May 12, 1972, Ser. No. 252,859

Int. Cl. C07c *39/16*

U.S. Cl. 260—619 A **10 Claims**

A new series of compounds defined broadly as $\alpha,\alpha,\alpha',\alpha'$ - tetrakis(4 - hydroxy-3,5-disubstituted phenyl) xylenes, which are useful as antioxidants for organic materials normally subject to oxidative deterioration, is disclosed.

3,836,591

PROCESS FOR THE PREPARATION OF DIPHENOLS

Paolo Maggioni, Montevecchio, Italy, assignor to Brichima S.p.A., Milan, Italy

No Drawing. Filed Jan. 17, 1972, Ser. No. 218,557

Claims priority, application Italy, July 17, 1971, 26,963/71

Int. Cl. C07c *37/00*

U.S. Cl. 260—621 G **1 Claim**

A process is disclosed for making catechol and hydroquinone using hydrogen peroxide to hydroxylate phenol in the presence of a C_{1-4} alkanoic acid using trifluoroacetic acid as a catalyst. The reaction temperature is from 50°–100° C. and the molar ratio of phenol:hydrogen peroxide is from 4:1 to 20:1.

3,836,592

ISOMERIZATION OF 1,2-DICHLORO-3-BUTENE TO 1,4-DICHLORO-2-BUTENE

Ronnie D. Gordon, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

No Drawing. Filed Apr. 6, 1971, Ser. No. 131,771

Int. Cl. C07c *21/04*

U.S. Cl. 260—654 R **6 Claims**

1,2-dichloro - 3-butene (3,4-dichloro-1-butene) is isomerized to 1,4-dichloro-2-butene in the presence of an organic quaternary salt catalyst.

3,836,593

POLYALKENAMERS AND PROCESS FOR THE PREPARATION THEREOF

Roland Streck and Heinrich Weber, Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

No Drawing. Filed Feb. 3, 1972, Ser. No. 223,294

Claims priority, application Germany, Feb. 4, 1971, P 21 05 161.6

Int. Cl. C08f *1/80*

U.S. Cl. 260—677 R **8 Claims**

The molecular weight of polyalkenamers produced by a ring-opening polymerization of cyclic olefins employing a catalyst containing a metal of Subgroups 5 to 7 of the Periodic Table is regulated by conducting the polymerization in the presence of a non-conjugated olefin containing at least two non-conjugated double bonds, at least one of which is acyclic, and 0–2 alkyl or aryl groups.

3,836,594

HYDROCARBON CONVERSION PROCESS AND SILICA AND/OR ALUMINA-CONTAINING CATALYST THEREFOR

Roy John Sampson and Ivan James Samuel Lake, both of Norton Hall, The Green, Norton, Stockton-on-Tees, England

No Drawing. Continuation of application Ser. No. 142,411, May 11, 1971, which is a continuation-in-part of application Ser. No. 91,194, Nov. 19, 1970, both now abandoned. This application Apr. 23, 1973, Ser. No. 353,621

Claims priority, application Great Britain, Nov. 27, 1969, 58,157/69

Int. Cl. C07c *5/24*

U.S. Cl. 260—668 A **13 Claims**

Hydrocarbon conversion processes catalysed by silica, alumina or silica/alumina catalysts, are improved by exposing the catalyst before use to liquid or supercritical water at above 100° C.

3,836,595

POLYMERIZATION OF ETHYLENE WITH SUPPORTED π-ALLYL CHROMIUM COMPLEXES

Robert N. Johnson, Basking Ridge, and Frederick J. Karol, Somerset, N.J., assignors to Union Carbide Corporation

No Drawing. Continuation-in-part of application Ser. No. 878,566, Nov. 20, 1969, which is a continuation-in-part of application Ser. No. 784,478, Dec. 17, 1968, both now abandoned. This application Oct. 27, 1971, Ser. No. 193,144

Int. Cl. C07c *3/10;* **C08f** *1/74*

U.S. Cl. 260—683.15 D **8 Claims**

π-Allyl chromium compounds, when supported on an inorganic oxide having a high surface area and while in the chromium [II] valence state, yield ethylene polymerization catalysts having an unusually high level of polymer productivity.

3,836,596

POLYMERIZATION OF DIALKYL VINYLIDENE COMPOUNDS TO OILS

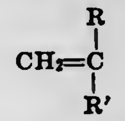
Gary L. Driscoll, Boothwyn, Pa., assignor to Sun Research and Development Co., Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 134,095, Apr. 14, 1971, which is a continuation-in-part of application Ser. No. 52,771, July 6, 1970, both now abandoned. This application May 1, 1972, Ser. No. 248,982

Int. Cl. C07c *3/18*

U.S. Cl. 260—683.15 B **10 Claims**

Polymerization of olefins of the formula



$$CH_2{=}\overset{\overset{\displaystyle R}{|}}{\underset{\underset{\displaystyle R'}{|}}{C}}$$

wherein —R is selected from the class consisting of —CH_3 and —C_2H_5 and —R′ is an alkyl group of from 1 to 10 carbon atoms, to form oils having a relatively high viscosity index as compared to other comparable oils using stannic chloride as the catalyst and a solvent selected from the class consisting of nitromethane, nitroethane and mixtures thereof together and with nitropropane, at from —30 to 100° C. and preferably from —30° to 50° C. The stannic chloride is present in from 0.1 to 5 and preferably 0.3 to 3 volume percent as based on the solvent present.

3,836,597

HYDROCARBON ISOMERIZATION PROCESS

Swan T. Sie, Amsterdam, Netherlands, assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Mar. 5, 1973, Ser. No. 338,113

Claims priority, application Netherlands, Apr. 25, 1972, 7205563

Int. Cl. C07c *5/24*

U.S. Cl. 260—683.65 **9 Claims**

A decline of the activity of Pt/mordenite isomerization catalysts is prevented when during calcination and/or regeneration at temperatures between 350–530° C. the water vapor pressure in the gas surrounding the catalyst is such that the logarithm of this pressure (in mm. mercury) is between *T*—450/50 and 2.8 T being the temperature in degrees C.

3,836,598

OLEFINIC SILICONE-ORGANIC GRAFT COPOLYMERS

Marshall L. Wheeler, Jr., Olean, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Application July 23, 1970, Ser. No. 57,797, now Patent No. 3,674,891, which is a continuation-in-part of application Ser. No. 422,037, Dec. 29, 1964, now Patent No. 3,573,334, which in turn is a continuation-in-part of abandoned application Ser. No. 356,944, Apr. 22, 1964. Divided and this application Apr. 17, 1972, Ser. No. 244,852

Int. Cl. C08f *29/50;* **C08g** *47/10*

U.S. Cl. 260—827 6 Claims

This invention provides non-crosslinked copolymers of olefinic siloxanes grafted to a polyacrylate polymer. The graft copolymers of this invention are useful as rubber lubricants, particularly for tire molds, lubricants for metal-to-metal moving surfaces, textile lubricants, and as additives to thermoplastic organic polymers to improve the levelling and other properties thereof.

3,836,599

LIQUID PRODUCTS PRODUCED BY REACTION OF PHOSPHONITRILIC ESTERS WITH PHOSPHORIC ANHYDRIDE

Borivoj Richard Franko-Filipasic, Morrisville, Pa., and John Francis Start, Mercerville, N.J., assignors to FMC Corporation, New York, N.Y.

No Drawing. Filed Mar. 1, 1972, Ser. No. 230,955

Int. Cl. C07f *9/24;* **C09k** *3/28*

U.S. Cl. 260—927 N 5 Claims

Novel liquid oligomeric flame-retardant compounds are prepared by heating together liquid polyphosphonitrilic esters with phosphoric anhydride.

3,836,600

STABILIZED LOW PROFILE RESINS

James L. Brewbaker, Robert M. Nowak, and Kent S. Dennis, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Feb. 5, 1973, Ser. No. 329,702

Int. Cl. C08f *43/08*

U.S. Cl. 260—836 34 Claims

Improved stability to low profile thermosettable resin compositions is obtained by the addition thereto of an ethylene oxide block copolymer having the formula

$$B_x—CH_2CH_2(OCH_2CH_2)_yOH$$

or

$$HO(CH_2CH_2O)_yCH_2CH_2—B_x—CH_2CH_2(OCH_2CH_2)_yOH$$

where B is a block segment of a polymerized alkenylaromatic or conjugated diene monomer.

3,836,601

NITRATION PROCESS

Walter Frey, Muttenz, Basel-Land, and William Yarborough, Binningen, Basel-Land, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

Filed Apr. 25, 1972, Ser. No. 247,425

Claims priority, application Switzerland, Apr. 30, 1971, 6,387/71

Int. Cl. C07c *79/10, 79/36*

U.S. Cl. 260—369 19 Claims

Disclosed is a nitration process in which the starting material, e.g. anthraquinone, is nitrated using concentrated nitric acid and in which the rate of reaction is reduced by the addition of dilute nitric acid, the amounts of concentrated and dilute acids used being such that the concentration of nitric acid in the resulting residual acid solution is greater than at the azeotropic point of said solution, the solution subsequently being fractionated to yield a concentrated nitric acid fraction and a dilute nitric acid fraction, which fractions can conveniently be recycled, the former to nitrate further starting material, the latter to reduce the rate of nitration of the further starting material.

3,836,602

METHOD OF CYCLOTRIMERIZING 1-BUTEN-3-YNE TO FORM 1,2,4-TRIVINYLBENZENE

Lawson G. Wideman, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Nov. 16, 1973, Ser. No. 416,715

Int. Cl. C07c *3/04, 15/10*

U.S. Cl. 260—669 4 Claims

There is disclosed a method of preparing 1,2,4-trivinylbenzene by cyclotrimerizing 1-buten-3-yne. The catalyst employed in this cyclotrimerization comprises (1) iron salts or iron complexes, (2) an organometallic reducing agent and (3) certain ligands containing nitrogen.

3,836,603

PROCESS FOR PREPARING PARA-XYLENE

James E. Connor, Jr., Wynnewood, Robert W. Rieve, Springfield, and Harold Shalit, Drexel Hill, Pa., assignors to Atlantic Richfield Company

No Drawing. Filed Mar. 29, 1973, Ser. No. 346,227

Int. Cl. C07c *5/26*

U.S. Cl. 260—673.5 9 Claims

Method for the conversion of isobutane to para-zylene wherein the isobutane is thermally oxidized with molecular oxygen to produce an oxidate which is predominantly a mixture of tertiary butyl hydroperoxide and tertiary butyl alcohol. The oxidate is employed as the oxidizing agent together with a catalyst such as a molybdenum catalyst in the epoxidation of an olefin such as propylene to produce the olefin oxide and reduce the tertiary butyl hydroperoxide to tertiary butyl alcohol. The total tertiary butyl alcohol stream or any portion thereof is dehydrated preferably over alumina to isobutylene which is then thermally dimerized to produce trimethylcyclopentanes, or alternatively the tertiary butyl alcohol is passed directly into the dimerization zone wherein it is dehydrated and dimerized to the trimethylcyclopentanes which in turn are aromatized to para-xylene by passing them over a chromia-alumina catalyst which has high selectivities for the aromatic.

3,836,604

BINDERS FOR THE ELECTROSTATIC POWDER-SPRAYING PROCESS

Hermann Hagemann, Cologne, Frank Wingler, Leverkusen, and Dieter Pollheide, Leichlingen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 31, 1972, Ser. No. 258,386

Claims priority, application Germany, June 4, 1971, P 21 27 684.6

Int. Cl. C08g *45/04*

U.S. Cl. 260—836 1 Claim

Copolymers of 25 to 60% by weight of styrene or its derivatives, 30 to 65% of (meth)acrylic esters [excepted (methacrylic acid methyl ester) which may be used in amounts up to 24% by weight] and 3 to 15% by weight of unsaturated copolymerizable carboxylic acids are homogeneously mixed with triglycidyl isocyanurate and optionally with pigments and levelling agents. The mixture is applied by electrostatic powder-spraying processes to metallic surfaces and cured at temperatures of about 130 to 220° C. The backed films of the mixture show outstanding bond strength and hardness coupled with elasticity, high gloss and weather resistance.

3,836,605

POLYCONDENSATES OF DIAMIDES, N,N'-UREAS AND FORMALDEHYDE ADMIXED WITH OXYMETHYLENE POLYMERS

Ernst Ricker, Frankenthal, Pfalz, Bruno Sander, Ludwigshafen (Rhine), Franz Schmidt and Erich Schwartz, Mannheim, and Heinrich Sperber and Hans Wilhelm, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Original application Apr. 19, 1968, Ser. No. 722,564, now abandoned. Divided and this application Mar. 8, 1973, Ser. No. 339,159

Claims priority, application Germany, Apr. 21, 1967, B 92,175, B 92,178

Int. Cl. C08g *37/32, 51/58*

U.S. Cl. 260—849 5 Claims

A process for the production of polycondensates by polycondensing in aqueous acid medium (A) diamides of dicarboxylic acids having at least four carbon atoms, (B) N,N'-substituted ureas and (C) formaldehyde, products obtained in this way and a stabilized moldable admixture of said polycondensates with oxymethylene polymers.

3,836,606

UNSATUPATED POLYESTER RESINS

Melvin E. Baum, Monroeville, Pa., assignor to Koppers Company, Inc.

No Drawing. Continuation of abandoned application Ser. No. 29,370, Mar. 20, 1970. This application Apr. 24, 1972, Ser. No. 247,214

Int. Cl. C08f *21/02*

U.S. Cl. 260—861 7 Claims

A crosslinkable unsaturated polyester resin, which can be used to prepare articles having improved electrical and thermal stability properties, is prepared by reacting maleic anhydride or fumaric acid with 1-cyclohexene-1,2-dicarboxylic anhydride, cyclohexanedimethanol and neopentyl glycol. Polymerizable compositions containing the aforementioned resins and a vinyl monomeric crosslinking agent and articles made from the polymerizable composition are disclosed also.

3,836,607

THERMOPLASTIC MOLDING COMPOSITION COMPRISING POLYBUTENE AND POLYPROPYLENE

Hans-Ulrich Finkmann and Bernhard Engeln, Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

No Drawing. Filed July 28, 1972, Ser. No. 275,906

Claims priority, application Germany, Aug. 3, 1971, P 21 38 685.6

Int. Cl. C08f *29/12*

U.S. Cl. 260—897 A 3 Claims

Thermoplastic molding compositions for producing dimensionally stable and impact resistant shaped articles from a mixture of poly-1-butene and polypropylene, wherein 60–85 percent by weight of the composition is predominantly isotactic low pressure poly-1-butene having up to 5 mole percent of ethylene as a copolymer, a molecular weight of about 1,000,000 to 2,400,000 and a density of about 0.910 to 0.920 grams per cubic centimeter, and about 15–40 percent by weight of the composition is predominantly isotactic polypropylene produced in the gaseous phase having a molecular weight of about 1,000,000 to 1,600,000 and a density of about 0.890 to 0.896 grams per cubic centimeter.

3,836,608

PROCESS FOR SELF CONDENSING PHOSPHONITRILIC CHLOROESTERS AND PRODUCT

Borivoj Richard Franko-Filipasic, Morrisville, and Edward Francis Orwoll, Langhorne, Pa., and John Francis Start, Mercerville, N.J., assignors to FMC Corporation, New York, N.Y.

No Drawing. Filed Aug. 17, 1972, Ser. No. 281,318

Int. Cl. C07d *105/04;* **C07f** *9/24, 9/26*

U.S. Cl. 260—926 8 Claims

A novel process consisting of reacting a phosphonitrilic chloride with an alcohol or alkoxide of 1 to 12 carbon atoms to produce a partially esterified phosphonitrilic chloride, removing impurities from the chloroester and heating the ester to form a condensed polymeric phosphazene with P—O—P oxygen linkages. This new class of polymer phosphazenes, with P—O—P oxygen linkages, is unusually efficacious in rendering rayon flame-retardant.

3,836,609

PROCESS FOR ACYLATING DIALKYL ACYL PHOSPHONATES

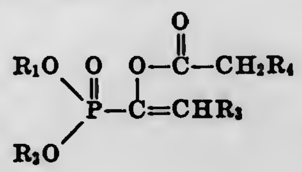
Peter Golborn, Lewiston, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed June 21, 1971, Ser. No. 155,296

Int. Cl. C07f *9/40*

U.S. Cl. 260—971 3 Claims

Compounds of the formula:



in which

R_1 and R_2 are alkyl groups;
R_3 is —H or an alkyl group; and
R_4 is —H, —Cl or an alkyl group

are produced by acylating a dialkyl acyl phosphonate under conditions of either acid or base catalysis with an alkanoic acid anhydride, halide or a mixture thereof. The dialkyl 1-alkanoyloxy-alk-1-enyl-phosphonates of this invention are useful as flame retarding agents for textile materials and in the production of polymers and copolymers which possess flame retardant properties.

3,836,610

PROCESS FOR MAKING AN O,O-DI(C_1–C_8 ALKYL) THIOPHOSPHORYL CHLORIDE

William R. Diveley, New Castle, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 7,262, Jan. 30, 1970. This application June 12, 1973, Ser. No. 369,351

Int. Cl. C07f *9/14*

U.S. Cl. 260—986 12 Claims

Disclosed is a process for making from an O,O-di(C_1–C_8 alkyl) dithiophosphoric acid and chlorine a reaction product comprising the corresponding di(C_1–C_8 alkyl) thiophosphoryl chloride, which product is substantially free of sulfur monochloride, O-(C_1–C_8 alkyl) phosphoryl dichloride and bis[O,O-di(C_1–C_8 alkyl) thiophosphoryl] disulfide. In this process the acid, preferably dissolved in inert anhydrous solvent, is reacted in a temperature range from about —10 to about 10° C. with about one molar equivalent of chlorine, whereby a reaction mixture containing sulfur monochloride is formed. The reaction mixture is established and maintained in a temperature range from about 85 to about 110° C. until it is substantially free of sulfur monochloride, and in preferred embodiments until the relatively thermally unstable sulfur that forms becomes more thermally stable. The resulting reaction mixture consists essentially of O,O-di(C_1–C_8 alkyl) thiophosphoryl chloride and sulfur. In preferred embodiments, the desired chloride can be distilled from the reaction mixture with the risk of an uncontrollable exothermic decomposition reaction being at a minimum.

3,836,611

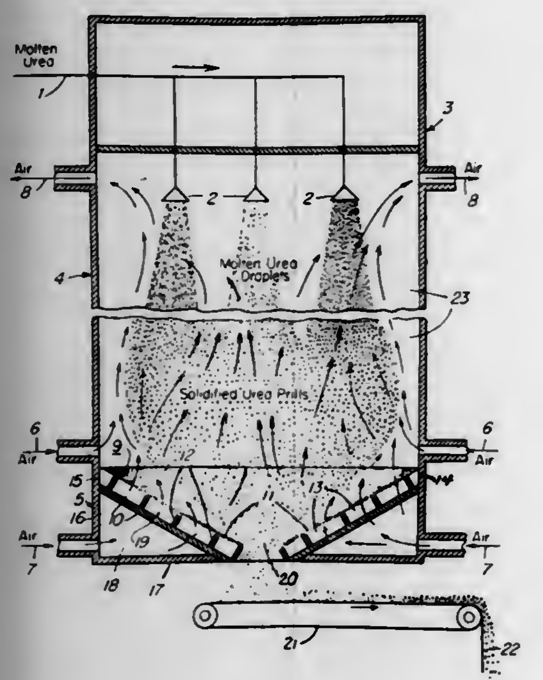
PROCESS FOR PRILLING UREA

Ivo Mavrovic, 530 E. 72nd St.,
New York, N.Y. 10021

Continuation-in-part of abandoned application Ser. No. 104,998, Jan. 8, 1971, which is a continuation-in-part of application Ser. No. 255,726, May 22, 1972. This application May 22, 1972, Ser. No. 255,760

Int. Cl. B01j *2/04*

U.S. Cl. 264—14 **4 Claims**



Urea is prilled by spraying urea droplets downwardly into a solidification zone where it is contacted with a substantially inert gas. Prills are directed into a collector by diverting their flow by directing a gas through a perforated, inverted cone or pyramid located at the bottom of and in communication with said zone.

3,836,612

METHOD FOR LINING ROTARY KILNS

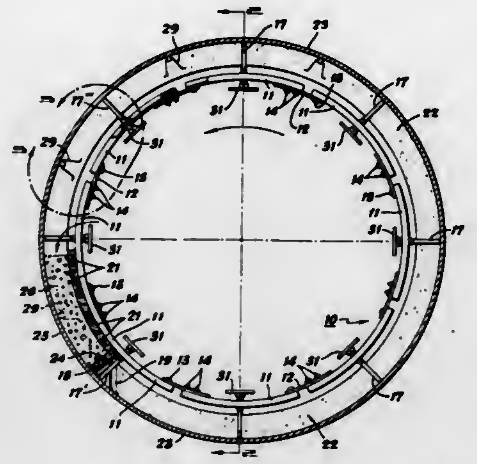
Larry L. Mann, Mexico, Mo., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

Original application Feb. 18, 1971, Ser. No. 116,484, now Patent No. 3,733,045, dated May 15, 1973. Divided and this application Jan. 11, 1973, Ser. No. 322,894

Int. Cl. F27d *1/16*

U.S. Cl. 264—30 **5 Claims**

A method for lining rotary kilns with monolithic castable refractory comprizing placing rings made of segments preferably adjustably attached to each other so the rings can be adjusted to the desired circumference, the rings having removable spacer elements which support the rings on and space them from the kiln shell. Forms are attached to the rings and castable refractory placed between the forms and the kiln shell to form the lining. The lining is cast in sections, the kiln being rotated so that the casting of each section is done in a downward direction. The spacer elements are removed from each section prior to casting refractory material in that section.



3,836,613

METHOD OF MAKING LINER IN AN INDUCTION MELTING FURNACE

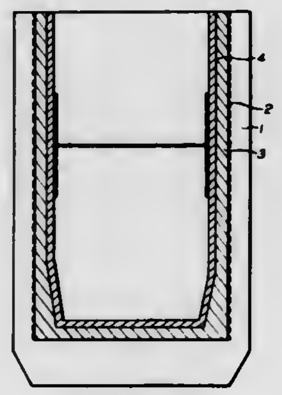
Karl Ernst Granitzki, Viersen, Paul Schiefer, Hennef-Uckerath, and Heinrich Hess, Troisdorf, Germany, assignors to VFG Vertriebsgesellschaft fur feuerfeste und giesstechnische Erzeugnisse mbH, Viersen, Germany

Filed Nov. 2, 1971, Ser. No. 194,949

Claims priority, application Germany, Nov. 4, 1970, P 20 54 136.0

Int. Cl. F27d *1/16*

U.S. Cl. 264—30 **9 Claims**



A method of preparing a self supporting liner for an induction melting furance is disclosed.

A dry refractory tertiary quartzite granular composition is filled between the furnace wall and a form defining the inner shape of the liner and densified as by vibration applied to the form. The form is removed to leave a self-supporting liner. The exposed inner surface of the liner is impregnated with a binder to a depth less than the total thickness of the liner to form an inner strengthened shell having a thickness of from 1–8 mm. The inner shell is then sintered leaving the outer zone of said linear unsintered.

3,836,614

TIRE CURING MONITORING AND CONTROL METHOD

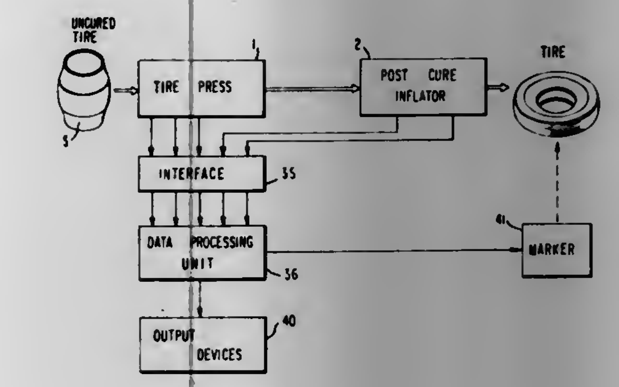
Ernst J. Neugroschl, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Original application Aug. 6, 1968, Ser. No. 750,512, now Patent No. 3,659,974. Divided and this application Nov. 5, 1971, Ser. No. 196,243

Int. Cl. B29h *5/00, 17/00*

U.S. Cl. 264—40 **1 Claim**

In the process of molding and curing pneumatic tires, a means senses certain selected quantities (e.g., cure cycle length) in the tire press and, in some applications, a post cure inflator, and feeds the sensed signals to a digital computer. The computer scans the input and compares it with pre-stored ideal values. If the sensed data differs from the stored values by too great a degree, the computer provides an appropriate output. Further, the computer may control a tire marker to mark those tires which fail the comparison. In addition, by feeding information to the computer from a plurality of presses, accurate inventory counts, production requirements, production and press break-down history, and so forth, may be maintained automatically.



3,836,615

METHOD OF FORMING CYLINDRICAL FOAMED CELLULOSE RODS ENCLOSED IN A RIGID SKIN

Saunders E. Jamison, Summit, and Gene H. Anthony, Whitehouse Station, N.J., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Original application July 1, 1966, Ser. No. 562,095, now Patent No. 3,554,202, dated Jan. 12, 1971. Divided and this application Sept. 8, 1970, Ser. No. 70,140

Int. Cl. B29d *27/00;* **B29f** *3/01*

U.S. Cl. 264—47 **5 Claims**

A cylindrical rod particularly suitable as a cigarette filter is described which is comprised predominantly of foamed fibrous cellulose and a water-insoluble polymer having a glass transition temperature of at most 50° C. and a minor amount of wetting agent, the weight ratio of the polymer to the fibrous cellulose being at least about 0.4, said rod being encased by a skin of said polymer.

3,836,616

METHOD OF PRODUCING FIBERS HAVING POROUS STRUCTURES

Toshiyuki Kobashi, Tsukubo-gun, Okayama Prefecture, and Noboru Abe, Okayama, Japan, assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed July 9, 1973, Ser. No. 377,700

Claims priority, application Japan, Aug. 16, 1972, 47/81,977

Int. Cl. B29h *7/20*

U.S. Cl. 264—50 **5 Claims**

There are disclosed improvements in the process of preparing porous fibers by wet-spinning a spinning composition containing dispersed gas, the improvements including preparation of spinning solutions satisfying specific mathematic relationships as to surface tension and viscosity thereof and as to relative volume of solution and gas as well as limiting particle size of the dispersed gas bubbles.

3,836,617

PROCESS OF PRODUCING A FOAMED POLYSTYRENE RESIN MOLDED PRODUCT

Jay A. Lankheet, 1329 Bayview Drive,
Holland, Mich. 49423

No Drawing. Filed Dec. 15, 1972, Ser. No. 315,335

Int. Cl. B29d *27/00*

U.S. Cl. 264—51 **4 Claims**

A process for producing strong, lightweight, cellular molded products in which a mixture of expandable polystyrene beads, fine particles of inorganic material, water, thermosetting polyester resin and catalyst is heated to expand the beads and cure the resin.

3,836,618

PROCESS FOR THE UNIFORM DISTRIBUTION OF A DRUG ON A GRANULATED BASE

Robert T. Stevens, Springfield, Pa., assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Dec. 23, 1971, Ser. No. 211,707

Int. Cl. A61k *9/00;* **B32b** *31/12*

U.S. Cl. 264—101 **8 Claims**

A method for making tablets containing a solid biologically active compound in non-granular form fixed to the external surface of a granular base material by:

(a) combining a predetermined amount of said biologically active compound with an inert volatile liquid,
(b) contacting said liquid and said active compound with an agitated mass of said granular base, and
(c) removing said voltaile liquid,
(d) directly compressing the coated granular base to form a tablet.

3,836,619

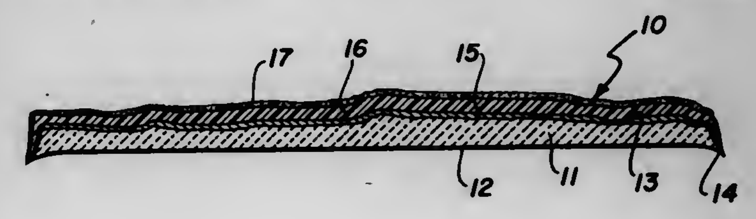
METHOD OF FORMING ARTIFICIAL STONE

Stanley C. Volent, West Boylston, Mass., assignor to Dacor Manufacturing Co., Inc., Worcester, Mass.

Filed Jan. 6, 1972, Ser. No. 215,879

Int. Cl. B44d *1/094*

U.S. Cl. 264—131 **3 Claims**



Method of forming artifiical stone, comprising molding a main body, spraying the body with a color layer, spraying a transparent layer over the color layer, applying a layer of sand to the transparent layer while it is still tacky and curing.

3,836,620

METHOD OF FORMING POLYAMIDE-POLYETHYLENE COMPOSITE FILMS

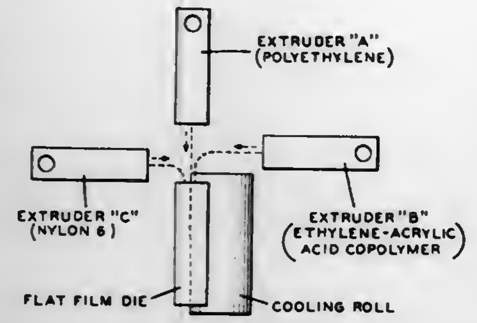
Mahendra Bhuta, Mendham, and William Sacks, Gillette, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Original application Feb. 26, 1971, Ser. No. 119,325, now Patent No. 3,697,368. Divided and this application June 27, 1972, Ser. No. 266,785

Int. Cl. B29f *3/08*

U.S. Cl. 264—171 **6 Claims**

Composite films are provided by coextruding a polyamide with at least one combination of polymeric materials selected from the group of (1) (a) an ethylenic acidic polymer and (b) a polyolefinic hydrocarbon; or (2) a mixture of an ethylenic acidic polymer and a polyolefinic hydrocarbon or (3) (a) a mixture of an ethylenic acidic polymer and a polyolefinic hydrocarbon and (b) a polyolefinic hydrocarbon in a novel process which provides films having an excellent balance of properties including high strength, clarity and low moisture and gas permeability.


EXTRUDER "A" (POLYETHYLENE)
EXTRUDER "C" (NYLON 6)
EXTRUDER "B" (ETHYLENE-ACRYLIC ACID COPOLYMER)
FLAT FILM DIE
COOLING ROLL

3,836,621
PROCESS FOR THE HOT DRAWING OF POLYBENZIMIDAZOLE FIBROUS MATERIALS WHEREIN A HEATED DRAW SURFACE IS EMPLOYED

Arthur E. Prince, Jr., Charlotte, N.C., assignor to Celanese Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 239,898, Mar. 31, 1972. This application Nov. 3, 1972, Ser. No. 303,456

Int. Cl. D01d *5/12*

U.S. Cl. 264—210 F **8 Claims**

Polybenzimidazole fibrous materials are known to possess an inherent tendency to absorb moisture from the atmosphere. An improved process is provided for drawing a polybenzimidazole fibrous material while in contact with a heated draw surface (e.g., one or more hot shoes). Immediately prior to contact with the heated draw surface the polybenzimidazole fibrous material while in association with a minor quantity of moisture (e.g., about 0.5 to 2 percent by weight) is contacted with an auxiliary heated surface in the absence of elongation and brought to a temperature below the glass transition temperature of the polybenzimidazole with the simultaneous removal of moisture. A draw technique of satisfactory stability is provided and a superior drawn fibrous product is produced.

3,836,622
METHOD OF FORMING PIPES

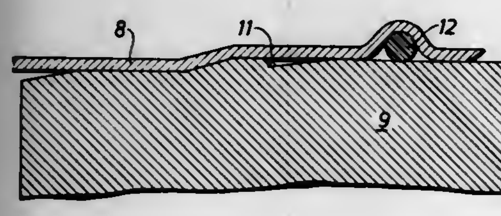
Sten Ragnar Sporre, Forsheda, Sweden, assignor to Forsheda Ideutveckling AB, Varnamo, Sweden

Filed June 30, 1972, Ser. No. 267,999

Claims priority, application Sweden, July 1, 1971, 8,527/71

Int. Cl. B29d *3/00*

U.S. Cl. 264—249 **2 Claims**



A method of forming pipes wherein the pipe wall may be constructed from fiber or threaded reinforced plastic and is formed on a mandrel and the pipe wall is provided with an inner annular wall for receiving element in the form of a ring which is stretched onto the mandrel and the pipe wall is formed around the mandrel and the sealing ring.

3,836,623
METHOD FOR SEALING HIGH PRESSURE FUEL TANKS AND SEALING COMPOSITION THEREFOR

James E. Matherly, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Original application Sept. 13, 1971, Ser. No. 180,158, now Patent No. 3,755,380. Divided and this application Jan. 19, 1973, Ser. No. 324,917

Int. Cl. B29c *13/00, 25/00*

U.S. Cl. 264—267 **11 Claims**

High pressure fuel tanks are sealed by injecting under pressure into sealant grooves an admixture of an inert permanently plastic non-curing sealing composition with organic peroxide where the amount of organic peroxide is sufficient to alter the flowability of the sealing composition but insufficient to cure the sealing composition to a non-reinjectable material after the organic peroxide has been activated and thereafter heating the fuel tank above the activation temperature of the organic peroxide. A mixture of poly-3,3,3-trifluoropropylmethylsiloxane fluid, poly-3,3,3-trifluoropropylmethylsiloxane gum, an extending filler, a polytetrafluoroethylene resin and a small amount of an organic peroxide is a particular inert permanently plastic non-curing sealing composition admixture.

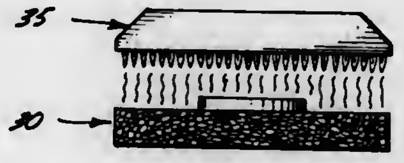
3,836,624
METHOD OF PRODUCING THREE-DIMENSIONAL FOAM PLASTIC FORMS

Byron S. Ferris, 3264 SW. Evergreen Terrace, Portland, Oreg. 97201

Filed Nov. 6, 1972, Ser. No. 303,805

Int. Cl. B29d *27/100*

U.S. Cl. 264—321 **5 Claims**



A method for producing three-dimensional forms of foam plastic wherein a heat-resistant mask is applied to a surface of a heat-collapsible foam body, and the mask-bearing body is exposed to a spaced source of heat energy for a time sufficient to collapse the unmasked areas of the foam.

3,836,625
REPROCESSING OF SPENT NUCLEAR FUEL

Lothar Schäfer, Steinbach, Taunus, and Bernhard Wojtech, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Nov. 22, 1971, Ser. No. 201,216

Claims priority, application Germany, Nov. 24, 1970, P 20 57 760.0

Int. Cl. B01d *11/00*

U.S. Cl. 423—10 **3 Claims**

Reprocessing of nuclear fuel is improved by recovering uranium and thorium during an additional anticyclic liquid-liquid extraction process which is applied to the

organic phase of the first extraction cycle. The improvement of the process is based on the addition of ethylenediaminetetra-acetic acid (EDTA) to the aqueous reextracting solution.

3,836,626
CANINE DISTEMPER VIRUS VACCINE

John F. Lavender, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed Jan. 29, 1973, Ser. No. 327,552

Int. Cl. C12k *9/00, 5/00*

U.S. Cl. 424—89 **11 Claims**

A canine distemper virus vaccine is produced by growth of an attenuated canine distemper virus in

$$LLC—MK_2$$

monkey kidney cell line culture.

3,836,627
PROCESS FOR MAKING MAGNESIUM OXIDE AND MAGNESIUM HYDROXIDE FROM CALCINED DOLOMITE AND MAGNESIUM CHLORIDE

Klaus Wiensz, Wulfrath, and Friedrich Bischoff, Hagen, Germany, assignors to Kali und Salz Aktiengesellschaft, Kassel, Germany

No Drawing. Filed Feb. 29, 1972, Ser. No. 230,527

Int. Cl. C04b *3/00;* **C01f** *5/06, 5/14, 11/02*

U.S. Cl. 423—169 **4 Claims**

Magnesium oxide or magnesium hydroxide are made by forming an intimate mixture of calcined dolomite and the stoichiometric amount of magnesium chloride (relative to the CaO contents of the dolomite), then dehydrating the mixture by heating it above 100° C., introducing the thus formed solid into water and recovering the magnesium oxide or -hydroxide residue by filtration.

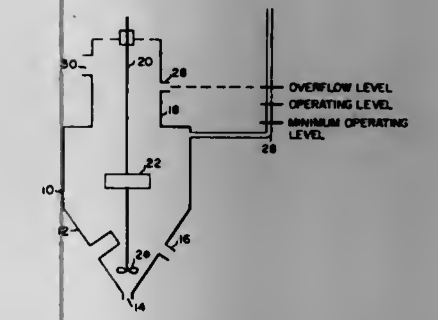
3,836,628
CRYSTAL GROWTH MODIFiER

Joseph M. Ilardi, Kendall Park, and Eric Rau, Trenton, N.J., assignors to Intermountain Research and Development Corporation, Green River, Wyo.

Filed May 22, 1972, Ser. No. 255,417

Int. Cl. C01d *7/12, 7/40*

U.S. Cl. 423—206 **3 Claims**



Soda ash is prepared from crude trona containing organic impurities by calcining the crude trona to crude soda ash at a temperature too low to remove the organics, preparing a clarified saturated aqueous sodium carbonate solution from the crude ash, and crystallizing sodium carbonate monohydrate from the solution without removing organics, by having present during the crystallization a small quantity—about 4 to 400 parts per million—of a mineral oil solution of a surfactant which is soluble in the mineral oil and not soluble in the sodium carbonate solution, but which lowers the surface tension between the oil and the carbonate solution.

3,836,629
METHOD OF INHIBITING THE GROWTH OF LARVAE AND NYMPHS WITH AZASTEROIDS

Paul D. Klimstra, Northbrook, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 124,499, Mar. 15, 1971. This application Aug. 17, 1972, Ser. No. 281,492

Int. Cl. A01n *9/20*

U.S. Cl. 424—238 **1 Claim**

Described herein is a method of inhibiting the growth of larvae or nymphs of an insect which converts dietary C_{28} and C_{29} phytosterols to cholesterol or which utilizes dietary cholesterol in its metabolism by administering to said larvae or nymphs an effective amount of a hypocholestrolemic 3-etherified or 3-acylated 3-hydroxyazasteroid. New 3-cycloalkoxy, 3-(cycloalkyl)alkoxy and 3-(cycloalkyl)alkanoyloxy derivatives of 17β-[(N-alkyl-N-dialkylaminoalkyl)amino]androst-5-en-3-ols, corresponding saturated compounds and related monoazasteroids are also described. The subject compounds can be prepared by etherification or acylation of the corresponding 3-hydroxyazasteroids or by addition of the 17-side chain to the corresponding 3-etherified or 3-acylated 17-keto compounds. Anti-larval and anti-nymphal compositions containing the subject compounds are described also.

3,836,630
METHOD FOR TREATMENT OF GAS CONTAINING SULFUR DIOXIDE

Masaaki Noguchi and Hiroshi Yanagioka, Tokyo, Toshio Kanai, Yokohama, Kazuo Nishiguchi and Hideo Hashimoto, Sagamihara, Katuhiro Abe and Tomio Masuko, Yokohama, Zenichi Mashino, Kawasaki, and Yosio Kogawa, Yokohama, Japan, assignors to Chiyoda Chemical Engineering & Construction Co., Ltd., Yokohama, Japan

Filed Mar. 22, 1972, Ser. No. 237,035

Claims priority, application Japan, Mar. 29, 1971, 46/18,192; June 28, 1971, 46/47,000; Aug. 6, 1971, 46/59,391

Int. Cl. C01b *17/00*

U.S. Cl. 423—242 **7 Claims**

A gas containing sulfur dioxide is treated in the sulfurous acid-absorbing process to have the sulfur dioxide present in the gas absorbed by dilute sulfuric acid and then the solution containing the absorbed sulfur dioxide is treated in the oxidizing process under conditions suitable for the oxidation of sulfurous anhydride. The sulfur dioxide contained in the gas can be removed substantially completely by thus allowing the SO_2 absorption and the SO_2 oxidation to be accomplished under respectively suitable conditions in separate processes. The gas can be treated advantageously without requiring the waste water to be discharged out of the system when part of the formed sulfuric acid is used as the absorbent liquid in the absorbing process, the remaining portion of sulfuric acid is used for reaction with a calcium-containing alkali solution to produce harmless gypsum, and the mother liquid is recycled for use as the wash liquid or absorbent liquid for the gas.

3,836,631
METHOD OF MAKING URANIUM SESQUICARBIDE

Hiroaki Tagawa and Kimio Fujii, Naka-gun, Japan, assignors to Eiji Munekata, Tokyo, Japan

No Drawing. Filed July 18, 1972, Ser. No. 272,794

Claims priority, application Japan, July 19, 1971, 46/53,107

Int. Cl. C01g *43/00*

U.S. Cl. 423—256 **4 Claims**

This invention relates to a method of making uranium sesquicarbide U_2C_3 by mixing uranium dicarbide UC_2 with metal oxide and subjecting the mixture to heating vacuum.

ERRATUM

For Class 423—345 see:
Patent No. 3,836,673

3,836,632

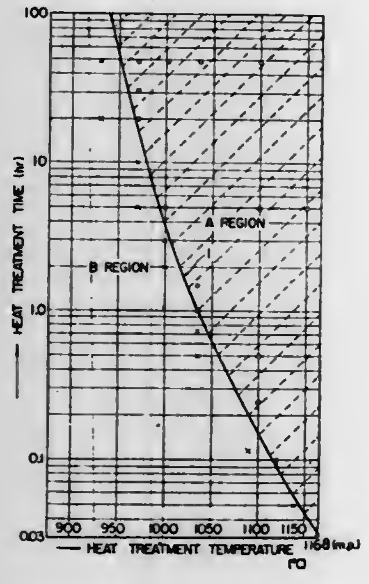
METHOD FOR IMPROVING TRANSPARENCY OF GADOLINIUM MOLYBDATE SINGLE CRYSTAL

Seikichi Akiyama, Kokubunji, and Hirotsugu Kozuka and Koichi Megumi, Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed July 28, 1972, Ser. No. 276,175

Int. Cl. C01g ***57/00***

U.S. Cl. 423—263 19 Claims



In cases where a gadolinium molybdate single crystal of low transparency is produced this crystal is subsequently subjected to heat treatment under specified conditions of temperature and time, thereby to improve its transparency. In accordance with the present method, when a crystal having, for example, a light permeability of 20% at a wavelength of 6,328 A. was heat-treated at 1,100° C. for 5 hours, the light permeability became 73% and was improved by 265%.

ERRATUM

For Class 423—322 see:
Patent No. 3,836,675

3,836,633

PROCESS FOR THE PRODUCTION OF COPPER SILICATES

Helmut Beschke, Grossauheim, Germany, assignor to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed July 20, 1971, Ser. No. 164,428

Claims priority, application Germany, July 23, 1970, P 20 36 554.2

Int. Cl. C01b ***33/20***

U.S. Cl. 423—326 8 Claims

A process for the production of a copper silicate by precipitation of the silicate from a reaction medium consisting essentially of an aqueous solution of an alkali silicate and a copper salt, wherein the improvement comprises precipitating the copper silicate from the solution at an elevated temperature. The copper silicates are useful as additives to coatings such as paints, and especially as anti-fouling agents in coatings for ships.

3,836,634

PRODUCTION OF NICKEL FLUORIDE

Jerome Saldick, Princeton, N.J., assignor to FMC Corporation, New York, N.Y.

No Drawing. Continuation of application Ser. No. 798,130, Feb. 10, 1969, now Patent No. 3,607,013, dated Sept. 21, 1971. This application Mar. 5, 1971, Ser. No. 121,554

Int. Cl. C01g ***53/08***

U.S. Cl. 423—489 1 Claim

A highly active, anhydrous nickel fluoride which is resistant to pick-up of atmospheric water and is superior as a battery element in high energy lithium-nickel fluoride batteries, is produced by passing anhydrous gaseous hydrogen fluoride over amorphous basic nickel carbonate at a temperature of between 150°–300° C. and preferably 225°–250° C.

3,836,635

PROCESS FOR PRODUCING ALUMINUM FLUORIDE

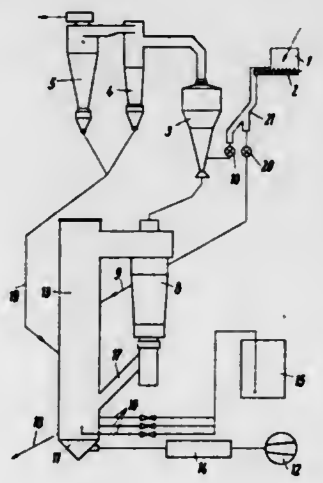
Lothar Reh, Bergen Enkheim, Eberhard Bohm, Frankfurt am Main, and Gunter Schoene, Kelsterbach, Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed Jan. 5, 1972, Ser. No. 215,611

Claims priority, application Germany, Feb. 10, 1971, P 21 06 306.9

Int. Cl. C01f ***7/50***

U.S. Cl. 423—489 6 Claims



Aluminum fluoride is produced from hydrogen fluoride and aluminum hydroxide or hydrated alumina in an expanded fluidized bed. A solid gas mixture is discharged at the top of the bed and the solids therein are separated and recycled into the fluid bed. Liquid hydrogen fluoride is supplied directly to the fluid bed above the bottom grate thereof but below the point where the solids are recycled into the bed.

3,836,636

OXIDATIVE TREATMENT OF HUMAN HAIR WITH AN ACYLATED GLYCOLURIL AND AN OXIDIZER

Dieter Kuhling, Monheim, Rhineland, Germany, assignor to Henkel & Cie G.m.b.H., Dusseldorf-Holthausen, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 787,597, Dec. 27, 1968. This application May 7, 1971, Ser. No. 141,373

Claims priority, application Germany, Dec. 30, 1967, P 16 95 219.5

Int. Cl. A61k ***7/12***

U.S. Cl. 424—62 8 Claims

The method of oxidative treatment of human hair which comprises treating said hair with an aqueous solution of (1) water-soluble peroxyhydrates or hydrogen peroxide and (2) an activator acylated glycoluril.

3,836,637

STABLE HAIR LACQUER GEL COMPOSITIONS

Irving R. Schmolka, Grosse Ile, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Continuation-in-part of application Ser. No. 580,204, Sept. 19, 1966, now Patent No. 3,740,421. This application Jan. 2, 1973, Ser. No. 320,521

The portion of the term of the patent subsequent to Feb. 1, 1989, has been disclaimed

Int. Cl. A61k ***7/00, 7/10***

U.S. Cl. 424—70 5 Claims

Stable hair lacquer gel compositions are prepared from alkylmonoesters of poly(methylvinylether/maleic acid) and as a matrix therefor, aqueous gels of certain polyoxyethylene polyoxypropylene block copolymers.

3,836,638

CERTAIN HYDROXYLATED POLYMERS USEFUL IN FORMING PESTICIDAL PHOSPHATE GELS

Ronald S. Smith, Gilroy, Jerome G. Kuderna, Jr., Modesto, and Richard C. Potter, Lafayette, Calif., assignors to Shell Oil Company

No Drawing. Continuation-in-part of abandoned application Ser. No. 166,978, July 28, 1971. This application May 3, 1973, Ser. No. 356,858

Int. Cl. A01n ***9/36***

U.S. Cl. 424—78 10 Claims

A gel-like composition useful for controlling invertebrate pests comprising an activated vinyl phosphorus ester admixed with a hydroxylated polymer, compatible with said ester, a certain proportion of said ester being interacted with said hydroxylated polymer to form a cross-linked polymer network.

ERRATUM

For Class 424—89 see:
Patent No. 3,836,626

3,836,639

USE OF AROMATIC GLYOXALS, THEIR HYDRATES AND BISULFITE ADDITION SALTS IN REDUCING BLOOD PLATELET AGGREGATION

Daniel M. Teler, Devon, Charles J. Guinosso, King of Prussia, Stanley C. Bell, Penn Valley, and Richard L. Fenichel, Wyncote, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Sept. 19, 1973, Ser. No. 398,898

Int. Cl. A61k ***17/00, 27/00***

U.S. Cl. 424—101 9 Claims

Certain aromatic glyoxal derivatives, their hydrates and bisulfite addition salts are useful anti-blood platelet aggregation agents *in vitro* and *in vivo*.

3,836,640

METHOD FOR THE CHEMICAL STERILIZATION OF MALE ANIMALS

Kenneth A. Laurence, 38 Pamela Lane, Valhalla, N.Y. 10595

No Drawing. Filed Apr. 28, 1972, Ser. No. 248,409

Int. Cl. A61k ***17/06***

U.S. Cl. 424—108 8 Claims

Male animals can be sterilized by administering a foreign luteinizing hormone to the animal before it has attained puberty. The luteinizing hormone must be capable of producing an antibody in the animal which has cross-reactivity with the gonadotropins normally produced by the animal. The presence of the antibody deters the maturation of the gonads and adnexal glands and inhibits spermatogenesis at the spermatogonial level.

3,836,641

TOOTHPASTES

Ronald Hoyles, Epsom Downs, and Stanley Alan Mitchell, Bagshot, England, assignors to Lever Brothers Company, New York, N.Y.

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,419

Claims priority, application Great Britain, Oct. 5, 1971, 46,231/71

Int. Cl. A61k ***7/16***

U.S. Cl. 424—49 4 Claims

A translucent or transparent toothpaste which contains as abrasive agent a silica-alumina xerogel or silica-magnesia xerogel.

3,836,642

GRANATICIN B AND METHOD OF PREPARING SAME

Walter Keller, Dubendorf, Zurich, Switzerland, and Hans Zaehner, Tubingen, Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Feb. 15, 1967, Ser. No. 616,345

Claims priority, application Switzerland, Feb. 22, 1966, 2,510/66

Int. Cl. A61k ***21/00***

U.S. Cl. 424—121 2 Claims

The antibiotic Granaticin B, a red substance having the empirical formula $C_{28}H_{30}O_{12}$, molecular weight 558, yielding on acid hydrolysis granaticin of empirical formula $C_{22}H_{20}O_{10}$ and a trideoxyhexose $C_6H_{12}O_3$ (L-rhodinose).

3,836,643

PESTICIDAL COMPOSITIONS CONTAINING PHOSPHORIC ESTERS AND DIVALENT SULPHUR COMPOUNDS

Claude Hennart, Aubervilliers, France, assignor to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Sept. 13, 1971, Ser. No. 180,137

Int. Cl. A01n ***9/36, 11/06***

U.S. Cl. 424—175 8 Claims

Pesticidal composition comprising: a pesticidal, phosphoric ester the molecule of which has at least one alkyl group of 1 to 3 carbon atoms, 0.05 to 10% of an agent stabilising the said ester against decomposition by protonisation, together with adjuvants characterised in that the stabilising agent comprises at least one sulphur compound containing per molecule at least one divalent sulphur atom of which one valence is bonded to an atom chosen from sulphur, carbon, nitrogen, hydrogen, and metals capable of giving a salt, the other valence being bonded to an atom chosen from hydrogen, the carbon atom already noted, a second carbon atom, the nitrogen atom already noted, a second nitrogen atom, the metal atom already noted in the case of a metal of valence greater than one, a second atom of metal and oxygen when the first valence is not attached to an atom of hydrogen, the proportion of sulphur calculated with reference to the weight of the sulphur compound being between 5 and 99%. Process for stabilising a phosphoric ester of which the molecule possesses at least one alkyl group containing 1 to 3 carbon atoms characterised in that there is added to the phosphoric ester or to a mixture which contains it 0.05 to 10% calculated on the weight of the phosphoric acid ester of an agent capable of stabilising the said phosphoric ester against protonisation and comprising at least one sulphur compound such as that defined thereupon.

3,836,644

TREATMENT OF WOUNDS

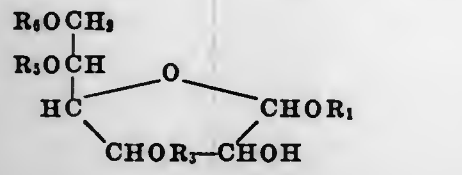
Gerhard Wilhelmi, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Dec. 15, 1972, Ser. No. 315,733

Int. Cl. A61k *27/00*

U.S. Cl. 424—180 **8 Claims**

The treatment of wounds by orally administering a pharmaceutical preparation containing a compound of the formula I



(I),

wherein R_1 is hydrogen or alkyl with up to 7 carbon atoms, and R_3, R_5 and R_6 each independently is hydrogen, alkyl with up to 7 carbon atoms, alkenyl with up to 7 carbon atoms, benzyl, halogeno-benzyl, (C_1–C_7-alkyl)-benzyl, (C_1–C_7-alkoxy)-benzyl or trifluoromethyl-benzyl.

3,836,645

ANTI-VIRAL COMPOSITIONS CONTAINING 3-DEAZA NUCLEOSIDES

Richard L. Tolman, Costa Mesa, and Robert W. Sidwell, Irvine, Calif., assignors to ICN Pharmaceuticals, Inc., Irvine, Calif.

No Drawing. Filed June 23, 1972, Ser. No. 265,482

Int. Cl. A61k *13/00, 27/00*

U.S. Cl. 424—180 **19 Claims**

The use of 3-deazacytidine and 3-deazauridine as anti-viral agents is disclosed. Such compounds have demonstrated significant ability to inhibit the development of RNA viruses.

3,836,646

PHARMACEUTICAL COMPOSITION ESSENTIALLY CONTAINING, AND METHOD OF TREATMENT WITH, $\Delta^{4,20,22}$-BUFATRIENOLIDE RHAMNOSIDE ETHERS

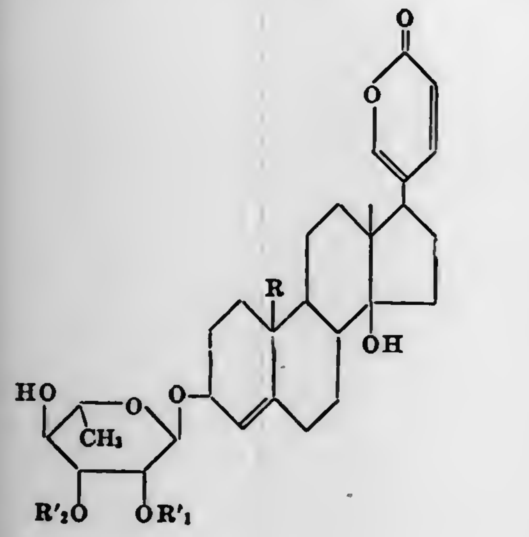
Hugo Kubinyi, Leimen, Germany, assignor to Knoll A.G. Chemische Fabriken, Ludwigshafen (Rhine), Germany

No Drawing. Original application Feb. 25, 1970, Ser. No. 14,218, now Patent No. 3,726,857. Divided and this application Dec. 1, 1972, Ser. No. 311,249

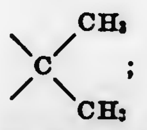
Int. Cl. A61k *27/14*

U.S. Cl. 424—182 **15 Claims**

Cardioactive $\Delta^{4,20,22}$-bufatrienolide rhamnoside ethers of the formula



wherein R is methyl or formyl; R_1 and R_2 taken alone are hydrogen, lower alkyl, or acetyl; R_1 and R_2 taken together are



;

R_3 is hydrogen, lower alkyl, or acetyl; and wherein at least one of R_1, R_2, or R_3 is alkyl, and the method of preparing them by reaction of the corresponding 2′,3′,4′-hydroxy compounds or 2′,3′-isopropylidene-4′-hydroxy compounds with an alkyl halide, optionally followed by hydrolysis of the isopropylidene group and/or acetylation of unetherified hydroxy groups.

3,836,647

WASH-RESISTANT SKIN PREPARATION

Paul M. Lange, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 83,149, Oct. 22, 1970, which is a continuation-in-part of application Ser. No. 645,591, June 13, 1967, both now abandoned. This application May 7, 1973, Ser. No. 358,254

Int. Cl. A01n *9/00;* **A61k** *21/00;* **A61l** *13/00*

U.S. Cl. 424—184 **8 Claims**

The present invention relates to novel skin preparations which, when applied to the extremities or other parts of the body will resist removal from the surface of the skin by repeated washings or the like. Illustrative of the skin preparations of this invention is a mixture consisting essentially of a trimethylsilyl endblocked diorganopolysiloxane, a hydroxyl or alkoxyl endblocked diorganopolysiloxane that is compatible with the above, a benzene-soluble organosilicon resin copolymer, and a pharmaceutically effective medicament for the skin. The skin preparations can be in the form of ointments, emulsions, dispersions, or as solutions which have been prepared in a nontoxic, volatile solvent. It has been found that the preferred form is as a dispersion. This invention also relates to methods for preventing irritation of the skin by water or water-borne irritants which comprise applying thereto the skin preparations disclosed herein.

3,836,648

TREATMENT OF CANINE DISTEMPER WITH A MICROBIAL PRODUCT DERIVED FROM THE BACTERIUM *ACHROMOBACTER STENOHALIS*

Joseph K. Chang, 3–21, 6-chome Seijomachi, Setagaya-ku, Tokyo, Japan

No Drawing. Filed Aug. 16, 1971, Ser. No. 172,289

Int. Cl. A61k *27/00*

U.S. Cl. 424—195 **7 Claims**

Canine distemper is treated by administering to the animal a therapeutic agent containing the filtrate of an admixture of water and inactivated bacteria belong to *Achromobacter stenohalis.*

3,836,649

ECTOPARASITICIDAL COMPOSITIONS AND PROCESS FOR THEIR PREPARATION

Otto Telle, Cologne, and Hans-Heinz Mölls and Karl-Ernst Fetting, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Feb. 16, 1973, Ser. No. 333,037

Claims priority, application Germany, Feb. 24, 1972, P 22 08 618.6

Int. Cl. A61k *27/00;* **A61l** *23/00*

U.S. Cl. 424—203 **4 Claims**

Ectoparasiticidal aqueous suspensions of O,O-diethyl-O-(3-chloro - 4 - methylcoumarin-7-yl)thionophosphate which maintain their activity after repeated use are prepared by comminuting the compound in an aqueous medium and in the presence of a dispersing agent to an average particle size of from about 0.3 to about 1.5μ with 80% of the particles having a size less than 1μ.

3,836,650

METHOD FOR COMBATING MAREK'S DISEASE IN POULTRY

Joseph Bernard Schleicher, Lake Bluff, and William Rodney Roderick, Libertyville, Ill., assignors to Abbott Laboratories, Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 119,056, Feb. 25, 1971, now Patent No. 3,767,795. This application June 8, 1973, Ser. No. 366,933

Int. Cl. A61k *27/00*

U.S. Cl. 424—212 **4 Claims**

A method of preventing or treating Marek's disease in poultry by administering phosphonoacetic acid or its salts.

ERRATUM

For Class 424—238 see:
Patent No. 3,836,629

3,836,651

NOVEL ORAL CONTRACEPTIVE COMBINATION

Harry W. Rudel and Fred A. Kincl, New York, N.Y., assignors to Biological Concepts, Inc., New York, N.Y.

No Drawing. Filed Feb. 22, 1972, Ser. No. 228,365

Int. Cl. A61k *17/00*

U.S. Cl. 424—239 **8 Claims**

A method for the control of the ovulatory cycle comprises administering orally to a woman during a period of at least about 28 days in consecutive sequence, beginning on the fifth day of the menstrual cycle, and continuing for a period of 20 to 21 days thereafter, a daily single dosage of a combination of about 1 part by weight of an estrogenic substance and from about 7 to 14 parts by weight of a progestational substance, the amount of estrogenic substance, expressed as ethynyl estradiol, or equivalent thereof, being not more than 0.05 mg. per day.

3,836,652

PHARMACEUTICAL COMPOSITIONS CONTAINING A 5-PHENYL-7-TRIFLUOROMETHYL-1H-1,5-BENZODIAZEPINE-2,4-DIONE

Karl Heinz Weber, Gau-Algesheim, Karl Zeile and Peter Danneberg, Ingelheim am Rhein, and Rolf Giesemann, Bingen, Germany, and Karl Heinz Hauptmann, deceased, late of Ingelheim am Rhein, Germany, by Maria Hauptmann, heir, Bonn (Rhine), Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

No Drawing. Application Feb. 1, 1971, Ser. No. 111,713, now Patent No. 3,707,539, which is a continuation-in-part of application Ser. No. 89,482, Nov. 13, 1970, which in turn is a continuation of application Ser. No. 703,188, Feb. 5, 1968, both now abandoned. Divided and this application Sept. 27, 1972, Ser. No. 292,749

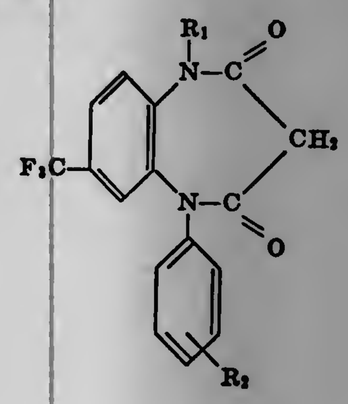
Claims priority, application Germany, Feb. 7, 1967, B 91,071; Jan. 18, 1968, B 96,281, B 96,282

The portion of the term of the patent subsequent to Sept. 18, 1990, has been disclaimed

Int. Cl. A61k *27/00*

U.S. Cl. 424—244 **3 Claims**

Psychosedative and anticonvulsive pharmaceutical compositions containing as an active ingredient a compound of the formula



wherein

R_1 is hydrogen, alkyl of 1 to 3 carbon atoms, hydroxyalkyl of 2 to 3 carbon atoms, allyl or (cycloalkyl of 3 to 6 carbon atoms)-methyl, and R_2 is hydrogen, halogen, trifluoromethyl or methoxy;

and a method of inducing psychosedation and suppressing convulsions in a warm-blooded animal therewith.

3,836,653

PHARMACEUTICAL COMPOSITIONS CONTAINING A 5-PHENYL-7-BROMO-1H-1,5-BENZODIAZEPINE-2,4-(3H,5H)-DIONE

Karl Heinz Weber, Gau-Algesheim, Karl Zeile and Peter Danneberg, Ingelheim am Rhein, and Rolf Giesemann, Bingen, Germany, and Karl Heinz Hauptmann, deceased, late of Ingelheim am Rhein, Germany, by Marie Hauptmann, heir, Bonn (Rhine), Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

No Drawing. Application Feb. 1, 1971, Ser. No. 111,715, now Patent No. 3,711,509, which is a continuation-in-part of application Ser. No. 89,482, Nov. 13, 1970, which in turn is a continuation of application Ser. No. 703,188, Feb. 5, 1968, both now abandoned. Divided and this application Oct. 30, 1972, Ser. No. 301,896

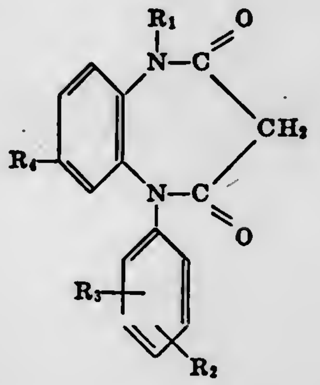
Claims priority, application Germany, Feb. 7, 1967, B 91,071; Jan. 18, 1968, B 96,281, B 96,282

The portion of the term of the patent subsequent to Sept. 18, 1990, has been disclaimed

Int. Cl. A61k *27/00*

U.S. Cl. 424—244 **3 Claims**

Psychosedative and anticonvulsive pharmaceutical containing as an active ingredient a compound of the formula



wherein

R_1 is hydrogen, straight or branched alkyl of 1 to 5 carbon atoms, hydroxy-alkyl of 2 to 4 carbon atoms or di(alkyl of 1 to 4 carbon atoms) amino-alkyl of 2 to 4 carbon atoms,
R_2 is halogen, trifluoromethyl or methoxy,
R_3 is hydrogen, halogen, methyl or ethyl, and
R_4 is hydrogen, fluorine or chlorine;

and a method of inducing psychosedation and suppressing convulsions in a warm-blooded animal therewith.

3,836,654

COMPOSITION CONTAINING HEXETIDINE AND 2-METHYL-2-NITRO-1,3-DIMORPHOLINOPROPANE

Edward B. Hodge, Terre Haute, Ind., assignor to Commercial Solvents Corporation, Terre Haute, Ind.

No Drawing. Filed Apr. 12, 1973, Ser. No. 350,426

Int. Cl. A61k *27/00*

U.S. Cl. 424—248 **3 Claims**

A composition consisting essentially of 5-amino-1,3-bis (2-ethylhexyl) - 5 - methyl-hexahydropyrimidine and 2-methyl-2-nitro-1,3-dimorpholinopropane in about a 1:1 ratio by weight. The composition is useful as a therapeutic agent when applied topically to the infected tissues of an animal at a concentration of 1–2% in a lotion, cream or ointment.

3,836,655
PRESERVATIVE COMPOSITION FOR MOIST GRAIN

Daniel L. Kensler, Jr., West Des Moines, and David D. Walgenbach, Des Moines, Iowa, assignors to Chevron Research Company, San Francisco, Calif.
No Drawing. Continuation-in-part of abandoned application Ser. No. 92,303, Nov. 23, 1970. This application Oct. 5, 1972, Ser. No. 295,392
Int. Cl. A01n *9/12, 9/24*
U.S. Cl. 424—286 **4 Claims**

A composition of sodium methyl dithiocarbamate and propionic acid can be used for preserving moist grain during storage.

3,836,656
SUBSTITUTED PURINES AS HYPOLIPIDEMICS

Mario G. Buzzolini, Morristown, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Filed Feb. 7, 1972, Ser. No. 224,327
Int. Cl. A61k *27/00*
U.S. Cl. 424—253 **8 Claims**

The d-isomer of optically active 3-(6-amino-9H-purin-9-yl)-1,2; propanediol is prepared from d-9-[(2-substituted and 2,2 - disubstituted-1,3-dioxol-4-yl)methyl]adenines and both the product isomer and starting materials are usful as hypolidemic agents.

3,836,657
ANTIFUNGAL METHODS EMPLOYING CERTAIN CARBOSTYRILS

John C. Sharp, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Mar. 20, 1972, Ser. No. 236,201
Int. Cl. A01n *9/22*
U.S. Cl. 424—258 **16 Claims**

Certain carbostyril compounds have been found to be active against fungi. When the compounds were applied to soil where seedling plants were growing or to the plants themselves, the plants were protected from pathogenic fungi that cause powdery mildew, e.g., *Erisyphe cichoracearum* and other fungal pathogens of plants. The compounds are prepared by known chemical processes. A new method for controlling fungi and new formulations are described.

3,836,658
TRI-SUBSTITUTED IMIDAZOLES IN THE TREATMENT OF GOUT

John J. Baldwin, Lansdale, and Frederick C. Novello, Berwyn, Pa., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Original application May 5, 1972, Ser. No. 250,505. Divided and this application July 30, 1973, Ser. No. 384,160
Int. Cl. A61k *27/00*
U.S. Cl. 424—267 **8 Claims**

This relates to a new class of imidazoles which are substituted at the 2-carbon by an aryl or heterocyclic moiety and which are substituted at the 4 and 5 carbons by cyano, carboxy, alkoxycarbonyl, carbamoyl or N-substituted carbamoyl. These products have utility as anti-hyperuricemic agents in the treatment of gout.

3,836,659
GLUTARIMIDES FOR REDUCING THE NUMBER OF FETUSES IN MATED OR IMPREGNATED FEMALE MAMMALS

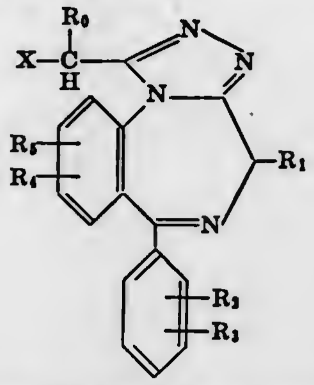
Bernard George Steinetz, Jr., Mountain Lakes, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed June 1, 1971, Ser. No. 149,025
Int. Cl. A61k *27/00*
U.S. Cl. 424—268 **3 Claims**

Pharmaceutical compositions comprising an effective amount of an α-(4-aminophenyl)-α-lower alkyl - glutarimide, a salt or N-lower alkanoyl derivative thereof and a pharmaceutical excipient, are agents for reducing the number of fetuses in mated or impregnated female mammals.

3,836,660
ANIMAL FEED AND PROCESS

Robert J. Collins, 7127 Winter Forest Drive, Portage, Mich. 49081
No Drawing. Filed Aug. 9, 1971, Ser. No. 170,273
The portion of the term of the patent subsequent to Sept. 17, 1991, has been disclaimed
Int. Cl. A61k *27/00*
U.S. Cl. 424—269 **6 Claims**

An animal feed for increasing meat, milk or egg production comprising a compound of the group consisting of a 1-substituted-6-phenyl-4H - s - triazolo[4,3-a][1,4] benzodiazepine of the formula:



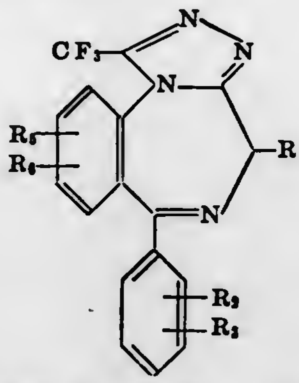
Formula 1

wherein R_0 is selected from the group consisting of hydrogen, methyl, ethyl, fluorine, chlorine, and bromine; wherein X is fluorine, bromine, or chlorine; wherein R_1 is selected from the group consisting of hydrogen and alkyl of 1 to 3 carbon atoms, inclusive; and wherein R_2, R_3, R_4, and R_5 are selected from the group consisting of hydrogen, alkyl as defined above, halogen, nitro, cyano, trifluoromethyl, and alkoxy, alkylthio. alkylsulfinyl, and alkylsulfonyl, in w'iich the carbon chain moieties are of 1 to 3 carbon atoms, inclusive and a pharmaceutically acceptable acid addition salt thereof in combination with nutrient feeds.

3,836,661
ANIMAL FEED AND PROCESS

Robert J. Collins, 7127 Winter Forest Drive, Portage, Mich. 49081
No Drawing. Filed Aug. 9, 1971, Ser. No. 170,318
The portion of the term of the patent subsequent to Sept. 17, 1991, has been disclaimed
Int. Cl. A61k *27/00*
U.S. Cl. 424—269 **6 Claims**

An animal feed for increasing meat, milk or egg production comprising a compound of the group consisting of a compound of the formula:



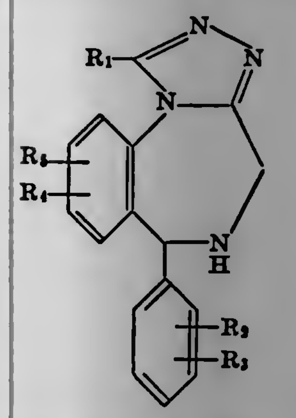
Formula 1

wherein R_1 is selected from the group consisting of hydrogen and alkyl, of 1 to 3 carbon atoms, inclusive, and wherein R_2, R_3, R_4, and R_5 are selected from the group consisting of hydrogen, alkyl as defined above, halogen, nitro, cyano, trifluoromethyl, and alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, dialkylamino, and alkanoylamino, in which the carbon chain moieties are of 1 to 3 carbon atoms, inclusive, and the pharmacologically acceptable acid addition salts in combination with the nutrient feed.

3,836,662
ANIMAL FEED AND PROCESS

Robert J. Collins, 7127 Winter Forest Drive, Portage, Mich. 49081
No Drawing. Filed Aug. 9, 1971, Ser. No. 170,342
The portion of the term of the patent subsequent to Sept. 17, 1991, has been disclaimed
Int. Cl. A61k *27/00*
U.S. Cl. 424—269 **6 Claims**

An animal feed for increasing meat milk or egg production comprising a compound of the group consisting of triazolobenzodiazepines of the formula:



Formula 1

wherein R_1 is selected from the group consisting of hydrogen, alkyl of 1 to 3 carbon atoms, inclusive; wherein R_2, R_3, R_4 and R_5 are selected from the group consisting of hydrogen, alkyl defined as above, fluorine, chlorine, bromine, nitro, cyano, trifluoromethyl, alkoxy of 1 to 3 carbon atoms, inclusive, amino, alkanoylamino, in which the alkanoyl group is of 1 to 3 carbon atoms, inclusive, alkylthio in which the alkyl group is defined as above, alkylsulfinyl in which the alkyl group is defined as above, and dialkylamino in which the alkyl group is defined as above, and the pharmacologically acceptable acid addition salts and N-5 oxides in combination with the nutrient feed.

3,836,663
N-TRITYLIMIDAZOLES AS ANTIFUNGAL AGENTS

Erik K. Regel, Wuppertal-Kronenberg, Karl-Heinz Buchel, Leverkusen, and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Application Oct. 8, 1971, Ser. No. 187,814, which is a division of application Ser. No. 873,098, Oct. 31, 1969. Divided and this application June 22, 1973, Ser. No. 372,813
Claims priority, application Germany, Nov. 5, 1968, P 18 06 995.6
Int. Cl. A61k *27/00*
U.S. Cl. 424—273 **15 Claims**

Bis-imidazolyl-bisphenylmethane and pharmaceutically acceptable non-toxic salts thereof are useful as antimycotics especially against dermatomycosis caused by *Trichophyton* and *Microsporium* species and also against yeast infections of the skin and internal organs.

3,836,664
N-TRITYLIMIDAZOLES AS ANTIFUNGAL AGENTS

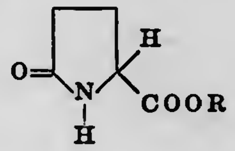
Erik K. Regel, Wuppertal-Kronenberg, Karl-Heinz Buchel, Leverkusen, and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Application Oct. 8, 1971, Ser. No. 187,814, which is a division of appplication Ser. No. 873,098, Oct. 31, 1969. Divided and this application June 22, 1973, Ser. No. 372,807
Claims priority, application Germany, Nov. 5, 1968, P 18 06 995.9
Int. Cl. A61k *27/00*
U.S. Cl. 424—273 **17 Claims**

Bis-imidazolyl-bisphenylmethane and pharmaceutically acceptable non-toxic salts thereof are useful as antimycotics especially against dermatomycosis caused by *Trichophyton* and *Microsporium* species and also against yeast infections of the skin and internal organs.

3,836,665
DERMATOLOGICAL COMPOSITIONS CONTAINING CERTAIN HIGHER ALKYL ESTERS OF 5-PYRROLIDONE-(2)-CARBOXYLIC ACID

Hans Eberhardt, Biberach an der Riss, and Hans Schaefer, Berlin, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany
No Drawing. Filed Jan. 12, 1972, Ser. No. 217,290
Claims priority, application Germany, Jan. 18, 1971, P 21 02 172.7
Int. Cl. A61k *27/00*
U.S. Cl. 424—274 **4 Claims**

Topical dermatological compositions containing from 0.1 to 10% by weight of a higher alkyl ester of 5-pyrrolidone-(2)-carboxylic acid of the formula

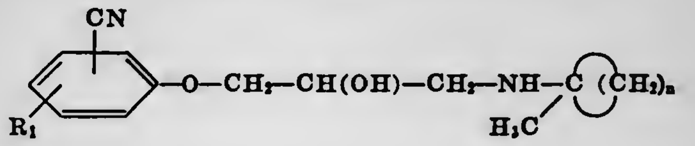


wherein R is straight or branched alkyl of 8–30 carbon atoms.

3,836,666
PHARMACEUTICAL COMPOSITIONS CONTAINING CERTAIN 1 - (CYANO-PHENOXY)-2-HYDROXY - 3 - (CYCLOALKYL-AMINO)-PROPANES AND METHOD OF USE

Herbert Köppe, Werner Kummer, Helmut Stähle, and Karl Zeile, Ingelheim am Rhein, Albrecht Engelhardt, Mainz, and Werner Traunecker, Munster-Sarmsheim, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany
No Drawing. Original application July 22, 1970, Ser. No. 57,353, now Patent No. 3,755,413. Divided and this application Apr. 30, 1973, Ser. No. 355,708
Claims priority, application Germany, July 23, 1969, P 19 37 477.7
Int. Cl. A61k *27/00*
U.S. Cl. 424—304 **12 Claims**

β-Adrenolytic pharmaceutical compositions containing as an active ingredient a compound of the formula



wherein

R_1 is hydrogen or methyl, and
n is 4, 5 or 6,

or a non-toxic, pharmacologically acceptable acid addition salt thereof; and methods of using the same.

3,836,667
METHOD OF PRODUCING BRONCHODILATION

Henry Oswald Jackson Collier, London, and Brian Thomas Warren, Ickenham, England, assignors to Miles Laboratories, Inc., Elkhart, Ind.
No Drawing. Filed Mar. 19, 1973, Ser. No. 342,741
Claims priority, application Great Britain, Mar. 24, 1972, 14,067/72
Int. Cl. A61k *27/00*
U.S. Cl. 424—318 **3 Claims**

The invention relates to the use of prostaglandin A_1 as a bronchodilating agent; the prostaglandin can be used in particular in alleviating the symptoms of *status asthmaticus* by injection.

3,836,668

THERAPEUTIC COMPOSITION AND METHOD OF TREATING PATIENTS THEREWITH

Jorge Ferrer Batlles, Carlos Ferrer Salat, and Juan Colome Riera, Barcelona, Spain, assignors to Laboratories Ferrer S.L., Barcelona, Spain

No Drawing. Continuation-in-part of applications Ser. No. 318,110, Oct. 22, 1963, and Ser. No. 433,470, Feb. 17, 1965, both now abandoned. Said Ser. No. 433,470 being a continuation-in-part of application Ser. No. 78,778, Dec. 27, 1960. Said Ser. No. 318,110 being a division of said application Ser. No. 78,778, now Patent No. 3,714,486. This application Oct. 14, 1965, Ser. No. 496,127

Int. Cl. A61k *27/00*

U.S. Cl. 424—319 **12 Claims**

The neurological treatment of patients using Mg alpha-amino glutarate HBr.

3,836,669

METHOD OF KILLING BACTERIA USING DIDECYL DIMETHYL AMMONIUM CHLORIDE

Zaven A. Dadekian, Suffern, N.Y., assignor to Baird Chemical Industries, Inc., New York, N.Y.

No Drawing. Continuation of application Ser. No. 703,598, Feb. 7, 1968, which is a continuation-in-part of application Ser. No. 617,805, Feb. 23, 1967, both now abandoned. This application Aug. 25, 1971, Ser. No. 174,933

Int. Cl. A01n *9/20*

U.S. Cl. 424—329 **3 Claims**

A method of killing bacteria in the presence of hard water and blood serum by contact with didecyl dimethyl ammonium chloride.

3,836,670

BENZOBICYCLOALKANE AMINES FOR INDUCING ANALGESIA

Meler E. Freed, Paoli, and John R. Potoski, Spring City, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 200,517, Nov. 19, 1971, which is a continuation-in-part of application Ser. No. 94,983, Dec. 3, 1970, both now abandoned. This application June 14, 1972, Ser. No. 262,849

Int. Cl. A61k *27/00*

U.S. Cl. 424—330 **8 Claims**

Benzobicycloalkane amines, their pharmacologically acceptable addition salts, intermediates therefore and processes for their preparation and use. The compounds of the invention exert analgesic and anti-inflammatory activity.

3,836,671

ALKANOLAMINE DERIVATIVES FOR PRODUCING β-ADRENERGIC BLOCKADE

Arthur Michael Barrett, Leeds, and John Carter, Roy Hull, David James Le Count, and Christopher John Squire, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation-in-part of application Ser. No. 9,451, Feb. 6, 1970, now Patent No. 3,663,607, which is a continuation-in-part of abandoned application Ser. No. 199,011, Nov. 15, 1971. This application Mar. 10, 1972, Ser. No. 233,781

Claims priority, application Great Britain, Nov. 19, 1970, 55,028/70; Nov. 18, 1971, 53,544/71; Sept. 24, 1969, 47,048/69; Feb. 21, 1969, 9,445/69

Int. Cl. A61k *27/00*

U.S. Cl. 424—324 **5 Claims**

1-(electronegatively - substituted - alkyl- or alkenylphenoxy)-3-alkylamino-2-propanol derivatives, for example 1-*p*-carbamoylmethylphenoxy-3-isopropylamino-2-propanol and pharmaceutical compositions containing them possess β-adrenergic blocking activity and are useful in the treatment of heart diseases and other complaints in man.

3,836,672

TOPICAL ANTIFUNGAL 1,3-DIOLS

Donald L. Wright, 35 E. 75th St., New York, N.Y. 10021, and John W. Frankenfeld, 2 Ballinswood Road, Atlantic Highlands, N.J. 07716

No Drawing. Filed Nov. 11, 1971, Ser. No. 197,931

Int. Cl. A01l *13/00*

U.S. Cl. 424—343 **4 Claims**

The present invention is based on the discovery that certain 1,3-diols and mono-esters of certain 1,3-diols are effective in controlling microorganisms associated with infections in humans and animals. Anti-microbial preparations having as the active ingredient these specified diols, monoesters of the diols or mixtures thereof are provided. The active ingredient in these preparations is generally present in an amount ranging from about 0.5 to about 10 weight percent based on the total weight of the preparation.

3,836,673

SINTERED SILICON CARBIDE

Gerald Q. Weaver, Worcester, and Bradford A. Olson, Leicester, Mass., assignors to Norton Company, Worcester, Mass.

No Drawing. Filed Mar. 23, 1972, Ser. No. 237,545

Int. Cl. C01b *31/36*

U.S. Cl. 423—345 **1 Claim**

A dense silicon carbide product is described. The product has a flexural strength above 100,000 p.s.i. at room temperature, above 80,000 p.s.i. at 1200° C., above 60,000 p.s.i. at 1375° C. and above 45,000 p.s.i. at 1500° C. The product has a grain size of less than 5 microns and essentially all of the silicon carbide is in the alpha form. The product has a density in excess of 99% of theoretical density and contains about .5% to 5% aluminum. A preferred process for preparing the product is also described.

3,836,674

COMPOSITION AND METHOD FOR STABILIZING TRANS-DIETHYLSTILBESTROL

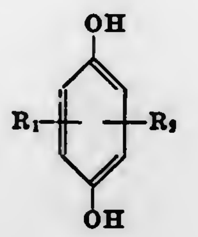
Richard W. Griscom and James J. Brader, Jr., Morristown, Tenn., assignors to Chemetron Corporation, Chicago, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 119,929, Mar. 1, 1971. This application June 25, 1973, Ser. No. 372,999

Int. Cl. A61k *17/06, 27/00*

U.S. Cl. 424—346 **15 Claims**

In an environment in which isomerism occurs, diethylstilbestrol is stabilized in the active trans form by the presence of a stabilizing quantity of a compound of the formula:



wherein R_1 is hydrogen or a tertiary loweralkyl group and R_2 is a tertiary loweralkyl group.

3,836,675

PURIFICATION OF YELLOW PHOSPHORUS

Gerhard Hartlapp, Hurth-Hermulheim, Hans Haas, Hurth-Knapsack, and Karl-Heinz Stendenbach, Bruhl, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, Germany

Filed July 17, 1972, Ser. No. 272,436

Claims priority, application Germany, July 16, 1971, P 21 35 546.4

Int. Cl. C01b *25/02, 25/04*

U.S. Cl. 423—322 **7 Claims**

Purification of yellow phosphorus. Phosphorus is mixed in a mixing zone with between 0.5 and 5 weight percent of an aqueous suspension of active carbon containing between 50 and 500 kg./cubic meter of active carbon, the percentages being based on phosphorus, the active carbon and the phosphorus are allowed to remain in contact with one another for a period of time between 0.5 and 15 minutes, and the phosphorus is filtered in a filtration zone so as to separate the active carbon therefrom.

3,836,676

FEEDSTUFF FOR FOWL, FISH AND DOMESTIC ANIMALS

Chukei Komakine, 6–1, 3-chome, Taira Aza, Iwaki, Japan

No Drawing. Original application June 29, 1971, Ser. No. 158,077, now Patent No. 3,776,188. Divided and this application Jan. 4, 1973, Ser. No. 320,956

Int. Cl. A23k *1/175*

U.S. Cl. 426—74 **4 Claims**

An odorless composition useful as a feedstuff for fowl, fish and domestic animals consisting essentially of a dried mixture of droppings from fowl, coarse powder crystalline ferrous sulfate heptahydrate, and a finely powdered adsorbent selected from the group consisting of fly ash and zeolite, and containing about 7% by weight of said ferrous sulfate heptahydrate and about 3.5% by weight of said adsorbent, said percentage by weight being based on the weight of the droppings.

3,836,677

PROCESS FOR MAKING SIMULATED MEAT AND CHEESE PRODUCTS

James A. Freck, Naperville, and Leonard V. Kondrot, Chicago, Ill., assignors to American Maize-Products Company

No Drawing. Filed May 19, 1972, Ser. No. 255,054

Int. Cl. A23l *1/00, 1/10*

U.S. Cl. 426—103 **6 Claims**

An improved process for preparing simulated meat and cheese products is disclosed. The improvement comprises the inclusion in the product of a high amylose material whereby substantial processing costs are saved.

3,836,678

SAUSAGE ANALOG

Harold T. Leidy, New City, N.Y., Charles M. Kerrigan, Wayne, N.J., and Duane C. Byble, Ossining, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 35,267, May 6, 1970. This application Dec. 4, 1972, Ser. No. 312,174

Int. Cl. A23j *3/00*

U.S. Cl. 426—350 **2 Claims**

A sausage-like food product is prepared by autoclaving a gel precursor which is a mixture of non-fibrous gelable soy protein isolate and a material selected from albumen, casein, whey and mixtures thereof.

3,836,679

PACKAGE AND METHOD OF MAKING SAME

Oscar E. Seiferth, Robert L. Goller, and Paul E. Grindrod, Madison, and Harry L. Radloff, Sun Prairie, Wis., assignors to Oscar Mayer & Co., Inc., Madison, Wis.

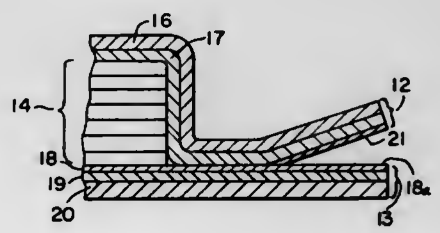
Continuation-in-part of application Ser. No. 754,361, Aug. 21, 1968, now Patent No. 3,647,485. This application Feb. 7, 1972, Ser. No. 223,986

The portion of the term of the patent subsequent to Mar. 7, 1989, has been disclaimed

Int. Cl. B65b *25/06*

U.S. Cl. 426—126 **20 Claims**

A hermetically sealed package and method of making the same which includes a breakaway or peelable seal formed between the respective seal forming surfaces of first and second sheets of packaging material. The first sheet of packaging material includes a seal forming surface which consists essentially of a saran film or coating having a suitable oxygen barrier film, for example, a saran film of 85% vinylidene chloride and 15% vinyl chloride, adhered to the surface of the saran film or coating which is opposite its seal forming surface. The second sheet of packaging material has a seal forming surface which consists essentially of an ethylene-polar monomer copolymer film or coating, for example, an ethylene-vinyl acetate film or coating, having a metallic foil, for example aluminum foil, adhered to the surface of the ethylene-polar monomer film or coating which is opposite its seal forming surface. The foil lamina is, in turn, adhered to a suitable backing member, for example a sheet of paperboard or similar material. Preferably, during seal formation, the seal interface is heated to a temperature below the melt temperatures of the film materials which make up the seal, for example from 80° F. to 200° F., to provide improved sealing without destroying the breakaway property or peelability of the seal so formed.



3,836,680

PROTEIN-FREE ALIMENTARY PASTES AND A PROCESS FOR THEIR PRODUCTION

Silvio Salza, 46 Via Sottoborgo, 56100 Pisa, Italy

No Drawing. Filed July 11, 1972, Ser. No. 270,737

Claims priority, application Italy, July 21, 1971, 69,449/71; Nov. 30, 1971, 70,938/71

Int. Cl. A23l *1/16*

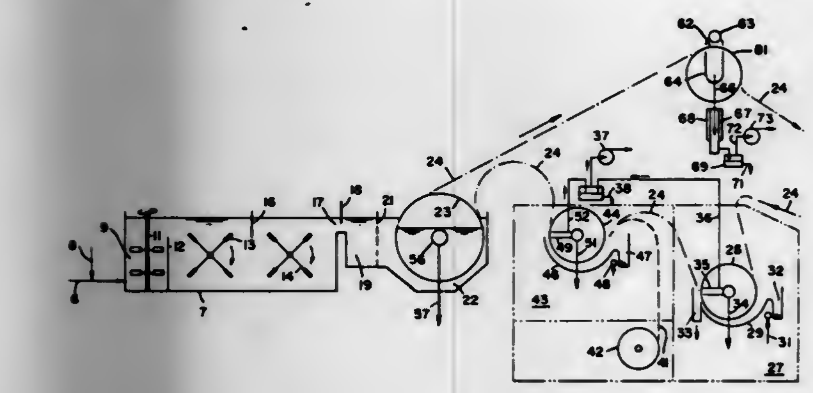
U.S. Cl. 426—158 **9 Claims**

Producing protein-free starch base alimentary pastes by forming the desired shapes of alimentary pastes from a mixture of ungelatinized starch and gelatinized starch, the latter acting as a binder for the former.

3,836,681

DEVICE AND METHOD OF RECOVERING STICKY PARTICULATE MATERIALS SUCH AS ALGAE

**Joseph C. Dodd, 945 Craig Place,
Davis, Calif. 95616
Filed Mar. 1, 1972, Ser. No. 230,697
Int. Cl. B01d** *33/04, 37/02*
U.S. Cl. 426—272 9 Claims



Sticky particles (algae) are recovered from environmental liquid by being passed through a precoat on a screen, the particles being entrapped in the precoat. Dewatering and drying follow and the precoat with the entrapped particles is removed from the screen for subsequent use. The device for carrying out the method includes a screen moving in a set path. A coating unit supplies a precoat to the advancing screen. A depositing unit supplies particles in their environmental liquid to the precoat. Dewaterers and driers remove much of the liquid. The remaining, particle-precoat combination is removed from the screen preferably by a sonic whistle, and is discharged from the machine. A washer cleans the screen for reuse when necessary.

3,836,682

METHOD FOR ENHANCING SOLUBLE FOODSTUFFS

**Slawko Yadlowsky, Manville, N.J., assignor to General Foods Corporation, White Plains, N.Y.
No Drawing. Filed May 12, 1972, Ser. No. 252,779
Int. Cl. A23f** *1/04*
U.S. Cl. 426—312 9 Claims

A process for producing an enhanced soluble foodstuff which will exhibit a pleasant aroma when dissolved in water has been developed. Aromas such as coffee aroma are fixed in a liquid glyceride-carbohydrate solids medium which is then solidified, subdivided, blended with a liquid extract and dried. The fixed aroma may be frozen in order to facilitate subdivision. According to a preferred embodiment of this invention coffee aroma is added to a vegetable oil having suspended therein particles of soluble coffee.

3,836,683

METHOD OF PREPARING SHELF-STABLE PÂTÉS

**Joseph W. Hoos, Waldwick, and Bohdan O. Hreschak, Hawthorne, N.J., assignors to Nabisco, Inc., New York, N.Y.
No Drawing. Filed May 10, 1971, Ser. No. 141,927
Int. Cl. A23c** *23/00;* **A23l** *1/00*
U.S. Cl. 426—357 8 Claims

Method of making a shelf stable simulated meat pâté, spread or dip from dairy products by preparing a dry blend of dehydrated cultured milk product, with or without dehydrated soft cheese, and edible thickener and/or other ingredients, mixing edible vegetable oil and edible emulsifier and/or other ingredients with the dry blend, adding water and pasteurizing at a temperature of about 170° F. to about 185° F. by steam injection and adding edible antimycotic agent and edible flavoring agent at a temperature of about 170° F. to about 175° F. in the pasteurization.

3,836,684

METHOD AND APPARATUS FOR PREPARATION OF RICOTTA CHEESE

**Nicholas E. Pontecorvo, 18075 Ventura Blvd.,
Encino, Calif. 91316
Continuation-in-part of applications Ser. No. 39,721, May 22, 1970, now Patent No. 3,741,773, Ser. No. 121,709, Mar. 8, 1971, now Patent No. 3,732,110, and Ser. No. 193,469, Oct. 28, 1971, now abandoned. This application May 21, 1973, Ser. No. 362,279
The portion of the term of the patent subsequent to May 8, 1990, has been disclaimed
Int. Cl. A23c** *19/02*
U.S. Cl. 426—361 16 Claims

Ricotta cheese is prepared using a method and apparatus wherein a heated body of whey or milk or both is treated in a processing vat by injection of acid to develop curd which is allowed to separate and rise to the surface of the body of liquor from which it has been separated. The body of liquor is then drained off, lowering the floating curd to a level where it approaches the open upper ends of a plurality of strainer-canisters assembled within a pan sealed to and communicating with a bottom opening in the vat so as to provide a closed bottom therefor. The pan is detachable from the vat and is embodied in a mobile cart in which the strainer-canisters can be transported to an unloading zone where they are removed for discharge of individual bodies of curd collected therein. At least the final stage of draining of the liquor is performed by draining through the perforations of the strainer-canisters and out of the pan so as to direct all of the curd into the canisters.

3,836,685

PROCESS FOR INHIBITING FAT-CAPS IN MEAT-IN-GRAVY PRODUCTS

**Robert E. Schara, Myron D. Shoaf, and Charles P. Berry, Battle Creek, Mich., assignors to General Foods Corporation, White Plains, N.Y.
No Drawing. Filed Sept. 15, 1972, Ser. No. 289,706
Int. Cl. A23l** *1/31, 3/10*
U.S. Cl. 426—371 2 Claims

A filler material is incorporated within the meat portion of a packaged meat-in-gravy product which is retorted so as to prevent the formation of fat-caps within the packaged and retorted meat-in-gravy product.

3,836,686

RECOVERY OF PROTEIN HYDROLYSATE FROM FISH OR FISH PRODUCTS

**Oswald A. Roels, Demarest, N.J. 07627
No Drawing. Continuation of abandoned application Ser. No. 126,358, Mar. 19, 1971. This application Oct. 27, 1972, Ser. No. 301,371
Int. Cl. A23j** *1/04*
U.S. Cl. 426—376 2 Claims

A process for recovering a protein hydrolysate from whole fish or fish products, such as, for example, fish meal comprising digesting a homogenized slurry of the fish at elevated temperature in an acid medium at a pH of about 1 and separating and purifying the aqueous phase of the digestion step; the protein hydrolysate resulting from the aforedescribed procedure being extremely low in fish oil content and consequently more palatable and resistant to spoilage.

3,836,687

ROLL-FORMING PROCESS

**Gay M. Bonebrake, Chicago, Ill., assignor to TAB Engineers, Inc., Northbrook, Ill.
Filed Dec. 13, 1971, Ser. No. 207,318
Int. Cl. A21d** *8/02*
U.S. Cl. 426—496 3 Claims

Balls of dough are carried in inverted cup-shaped pockets and on a conveyor belt assembly, part of the belt assembly moving continuously longitudinally and intermittently reciprocated laterally to shape the balls into rolls. Portions of the belt assembly are moved at speeds differing from that of the pockets. The formed rolls are delivered to peel boards moved in timed relationship with the belt assembly.

3,836,688

DEVICE FOR USE IN THE PRODUCTION OF CHEESE

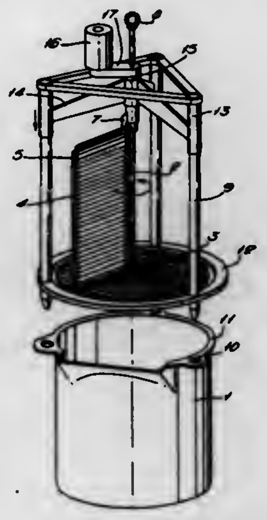
Wilhelm Fischer, Durach, Friedrich Krause, Durach-Heberlings, Walter Riesner, Durach, and Hubert Sonnenmoser, Kempten, Germany, assignors to Lever Brothers Company, New York, N.Y.

Filed Mar. 19, 1973, Ser. No. 342,911

Claims priority, application Germany, Mar. 21, 1972, P 22 13 545.1

Int. Cl. A23c *19/02*
U.S. Cl. 426—518 5 Claims

A device for cutting cheese curd during its coagulation which comprises a vertical frame of parallel wires and a horizontal frame of parallel wires. These are carried on a rotary shaft which enables three cuts at right angles to one another to be made in the curd to form cubes. The particular arrangement avoids double cutting which would result in undesirable curd dust.



ELECTRICAL

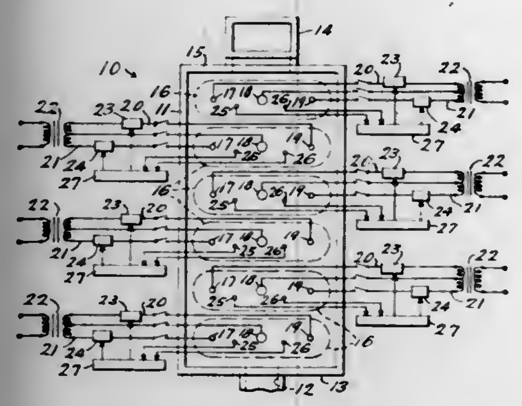
3,836,689
ELECTRIC GLASS FURNACE WITH ZONE TEMPERATURE CONTROL

Robert W. Holler, and Richard E. Rothrock, both of Toledo, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Continuation-in-part of Ser. No. 273,063, July 19, 1972, abandoned. This application Apr. 19, 1973, Ser. No. 352,833

Int. Cl. C03b *5/02*

U.S. Cl. 13—6 **15 Claims**



An improved furnace for electrically heating material such as molten glass. At least one and, preferably, a plurality of controlled thermal zones are established transverse to the direction of glass flow through the furnace. For each thermal zone, at least two electrical circuits supply power to at least three submerged electrodes for heating the glass. A control circuit is provided to maintain substantially constant the square of the average current in each circuit. If a predetermined permissible temperature variation is exceeded in the molten glass in any thermal zone, power to all electrodes for such thermal zone is either reduced or interrupted. The thermal zones may also be interdependent for maintaining a desired temperature profile in the material flow direction.

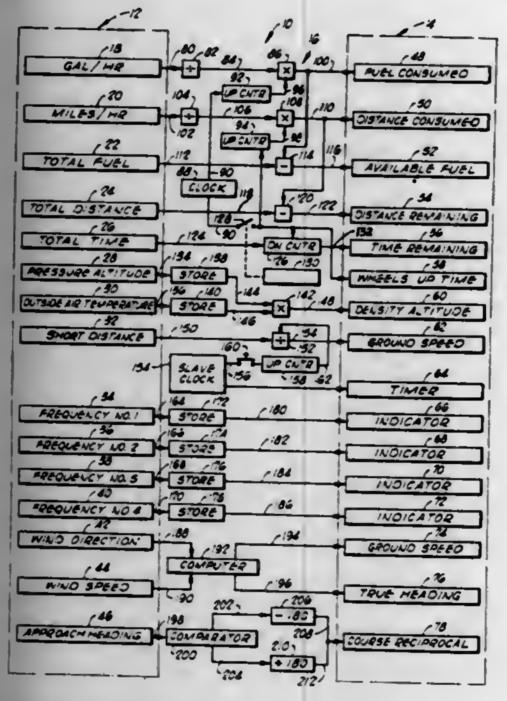
3,836,690
NAVIGATION DATA COMPUTATION APPARATUS

Homer Purtle, Jr., 731A Fernander Ave., Wheeler AFB, Hawaii 96515

Filed Dec. 6, 1972, Ser. No. 312,612

Int. Cl. G01c *21/00*; G09b *19/16*

U.S. Cl. 35—10.2 **12 Claims**



An improved navigation data computation apparatus having manually settable data entry devices receiving pilot entered data, a data computation assembly receiving the pilot entered data and providing output signals indicative of predetermined navigation data, and decimal display devices receiving the output signals and providing pilot perceivable output indications indicative of the predetermined navigation data.

3,836,691
FILM ADVANCING SYSTEM FOR PHOTOGRAPHIC CAMERAS

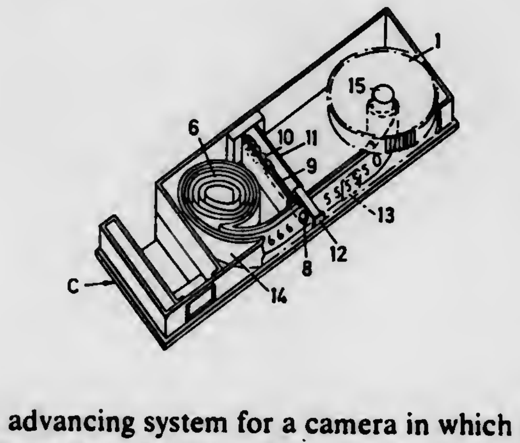
Maynard Frank Wolfe, 18 B Venice Ct., 41 Conduit Rd., Sai Ying Pun, Hong Kong

Filed June 15, 1972, Ser. No. 262,997

Claims priority, application Great Britain, June 17, 1971, 28486/71

Int. Cl. G03b *19/04*

U.S. Cl. 354—213 **1 Claim**



A film advancing system for a camera in which the number of film frames exposed is indicated by a marked tape that is wound in unison with the film upon a compartmented take-up spool. As each frame length of film is presented at the exposure zone, the spool is locked by the action of a releasable spring-loaded plunger that inserts through an opening in the tape.

3,836,692
SIGNAL-SELECTING SYSTEM FOR A KEYBOARD TYPE ELECTRONIC MUSICAL INSTRUMENT

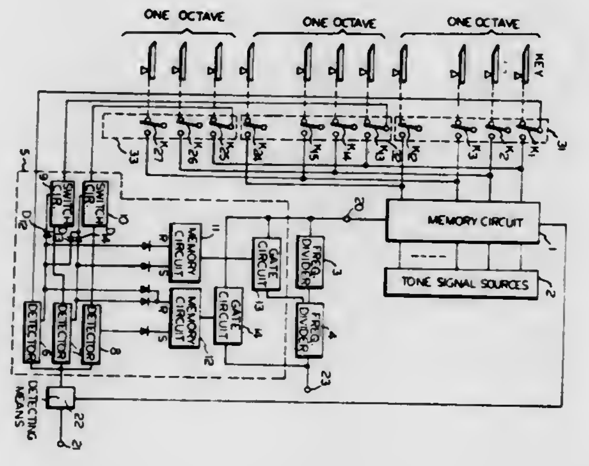
Takatsugu Nakajima, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 24, 1972, Ser. No. 300,256

Claims priority, application Japan, Oct. 25, 1971, 46-84821

Int. Cl. G10k *1/00*

U.S. Cl. 84—1.01 **5 Claims**



A signal-selecting system for a keyboard type electronic musical instrument comprising keyswitches, memory means, tone signal sources, signal-switching means, frequency dividers, key-selecting means, octave-selecting means, detecting means and a power source. By employing memory means and tone signal sources corresponding to the notes of one octave, a signal selecting operation for several octaves can be carried out by detecting the extreme keyswitch group and detecting the extreme keyswitch in each of the keyswitch groups even when a plurality of keyswitches corresponding to several octaves are closed simultaneously. The tone signals which do not correspond to the provided tone signal sources are provided by dividing the frequency of the corresponding original octave by a factor of two in each divider.

3,836,693
PIANO TONE-SYNTHESIZING SYSTEM FOR ELECTRONIC MUSICAL INSTRUMENTS

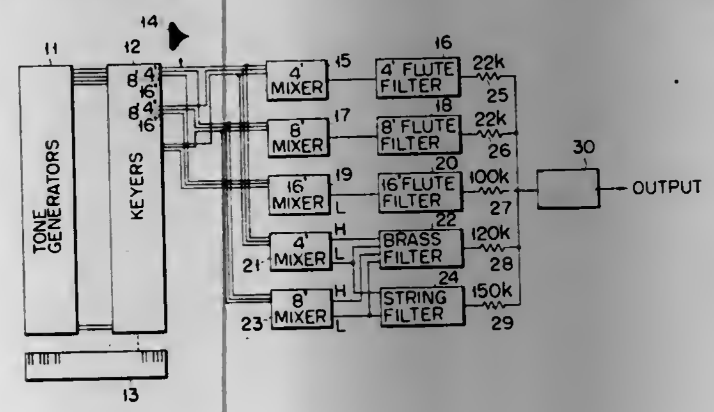
Kiyoshi Ichikawa, Hamakita, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-ken, Japan

Filed June 28, 1973, Ser. No. 374,309

Claims priority, application Japan, June 30, 1972, 47-65488

Int. Cl. G10h *5/02*

U.S. Cl. 84—1.19 **18 Claims**



A piano tone-synthesizing system for an electronic musical instrument comprising tone generators and a keyboard provided with a plurality of keys. Operation of each key on the keyboard causes tone signals of 4′, 8′ and 16′ to be derived from the tone generators by a keyer. The tone signals of 4′, 8′ and 16′ are supplied with the color of flute tones by flute tone coloring filters. The tone signals of 4′ and 8′ are further furnished with the colors of brass and string tones by a brass tone coloring filter and a string tone coloring filter. The tone signals bearing the various tone colors are mixed to provide a piano tone.

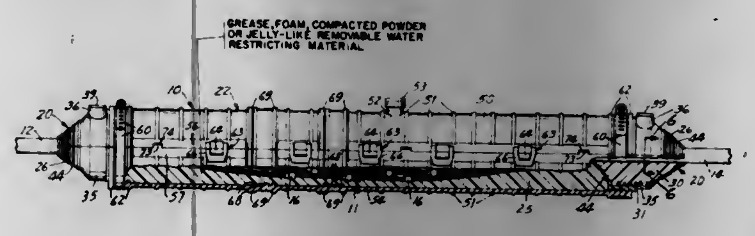
3,836,694
RE-ENTERABLE SPLICE ENCLOSURE

Henry K. Kapell, P.O. Box 33427, Mahtomedi, Wash. 55133

Continuation-in-part of Ser. No. 274,479, July 24, 1972, abandoned. This application July 5, 1973, Ser. No. 376,285

Int. Cl. H02g *15/20*

U.S. Cl. 174—22 **12 Claims**


GREASE, FOAM, COMPACTED POWDER OR JELLY-LIKE REMOVABLE WATER RESTRICTING MATERIAL

A re-enterable splice enclosure including anchor members in permanent secure engagement adjacent the terminal ends of spliced cables, a separable two part housing releasably attached between the anchor members and forming a cavity about the splice and a layer of a water restricting material about the splice within the cavity.

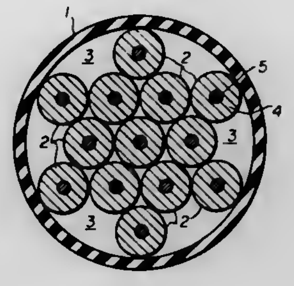
3,836,695
CABLE SEALANT COMPOSITION AND METHOD OF SEALING CABLE

Larry A. Strecker, and James E. Wood, both of St. Louis, Mo., assignors to Inmont Corporation, New York, N.Y.

Division of Ser. No. 227,956, Feb. 22, 1972,. This application Sept. 4, 1973, Ser. No. 393,761

Int. Cl. H01b *3/30*, *7/02*

U.S. Cl. 174—23 C **4 Claims**



A cable sealant to seal the voids between the strands of electrical and similar cables to prevent water flow through same and to seal the cable elements from the atmosphere. The preferred cable sealant composition comprises about 10 percent by weight ethylene propylene rubber copolymer, about 40 percent discrete particles of butadiene-acrylonitrile rubber copolymer, about 15 percent polypropylene, about 11 percent polyethylene, about 10 percent paraffin wax and about 13 percent liquid parafinnic hydrocarbons. About 1 percent of colorant such as iron oxide is normally added to this composition, which is blended to form the cable sealant.

A method of sealing cable by filling the voids between cable strands with the above composition at a temperature preferably in the range between 225° and 275°F.

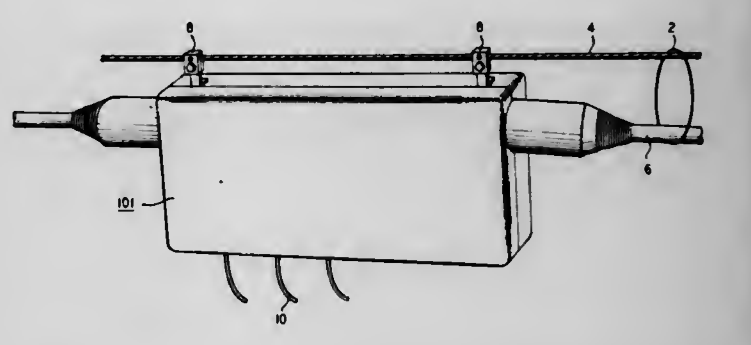
3,836,696
CABLE TERMINAL

Tillman Johnson Gressitt, Long Valley; Peter Paul Koliss, Mendham, both of N.J., and Raymond Bolton Ramsey, Dunwoody, Ga., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

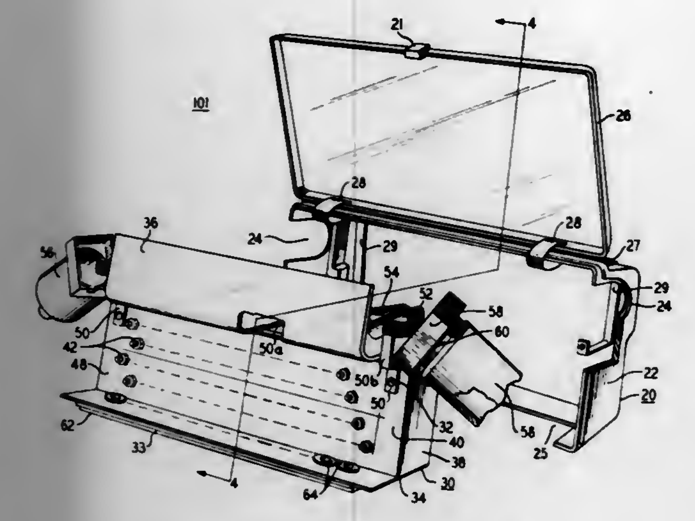
Filed Nov. 23, 1973, Ser. No. 418,197

Int. Cl. H02g *15/10*, *7/06*; H01r *9/00*

U.S. Cl. 174—41 **9 Claims**



A cable terminal unit includes a housing having a door or cover hinged thereto by an integral hinge. A one-piece terminal panel mounts within the housing and divides it into a plurality of chambers including a cable splicing chamber which is covered by the panel and inaccessible when the panel is installed even when the door is open. Conductors of a stub cable are spliced to selected ones of the cable conductors within this chamber and are fastened to terminals which have one end extending from the panel into an accessible chamber. Thereafter service wires can be connected to the terminals without requiring access to the splicing chamber. Cable shield continuity across the terminal is provided by a flexible bonding system which allows substantial pullback of the cable sheath and shield within the terminal unit.



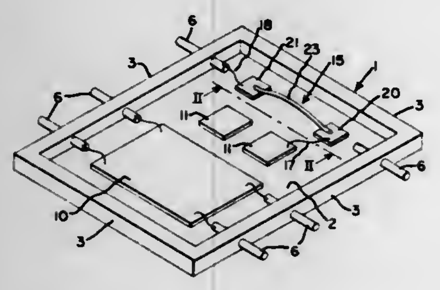
3,836,697
HIGH CURRENT INTERCONNECTION ASSEMBLY IN A MICROCIRCUIT PACKAGE

Warren J. Schultz, Barneveld, N.Y., assignor to General Electric Company, Utica, N.Y.

Filed Apr. 21, 1971, Ser. No. 135,841

Int. Cl. H05k *3/30*

U.S. Cl. 174—68.5 **1 Claim**



A high current interconnection is provided in a microcircuit package comprising first and second contacts each bonded to a substrate mounted in a package interconnected by a high current wire. The contacts are discrete pads of beryllium oxide and the high current wire is formed of Nichrome which is welded at its ends to a conductive surface layer provided on each pad. The wire is bowed away from the substrate for thermal stress relief.

3,836,698
INSULATING SLEEVE FOR METALLIC CONDUIT

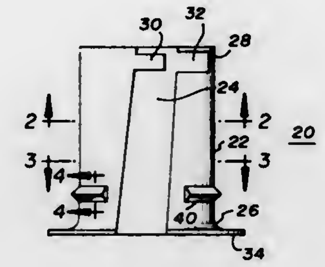
Jaspal S. Bawa, South Plainfield, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

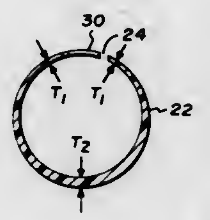
Filed Aug. 27, 1973, Ser. No. 391,749

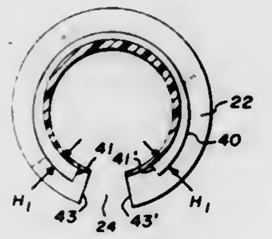
Int. Cl. H02g *3/04*; **H01b** *17/58*

U.S. Cl. 174—83 **9 Claims**

An insulating sleeve for metallic conduit comprises a selectively slit tubular body member having a circumferentially disposed rib of preferably triangular cross section disposed adjacent a flared end of the body member and proportioned to have a height adjacent the slit portion of the body member somewhat greater than that along the remainder thereof to provide a generally uniform height about the periphery of the body member as the portion of the body member adjacent the slit is overlapped for insertion into the open end of a metallic conduit or the like. The body member is also selectively proportioned to have a thickness adjacent the slit portion thereof somewhat thinner than its thickness diametrically opposite thereto so that the body member may more closely approximate a circular configuration as it is selectively closed upon itself. The body member may be slit in such manner as to provide an interlocking tang and a tang receiving notch, respectively, adjacent the end of the body member remote from the flared end to prevent longitudinal displacement of the slit edges of the sleeve in use.







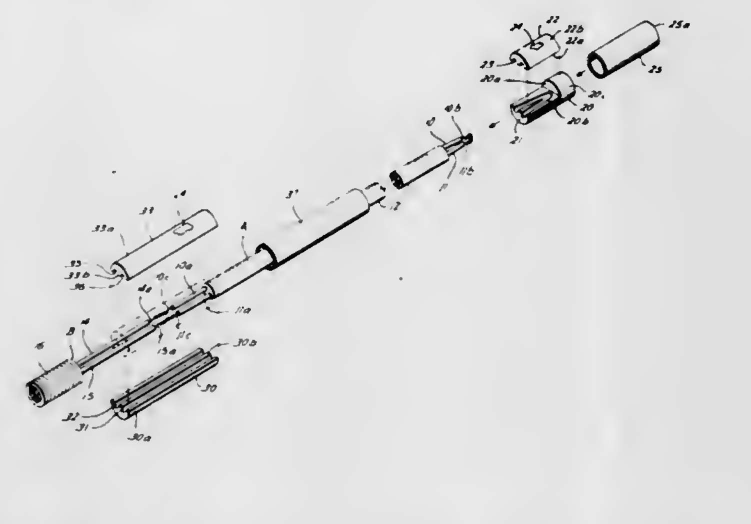
3,836,699
INSULATED ELECTRICAL CONNECTION

Kenneth G. Downing, San Marcos, Tex., assignor to Thermon Manufacturing Company, San Marcos, Tex.

Continuation of Ser. No. 226,769, Feb. 16, 1972, abandoned. This application Sept. 10, 1973, Ser. No. 395,531

Int. Cl. H02g *15/08*

U.S. Cl. 174—87 **4 Claims**



An electrical connector for connecting electrical conductors, which have been joined by soldering splicing or other means, including first and second insulation members having grooves therein for receiving the joined conductors between said members; and, a sleeve slidably mounted about said insulation members, the sleeve being crimped to secure the insulation members about the joined conductors.

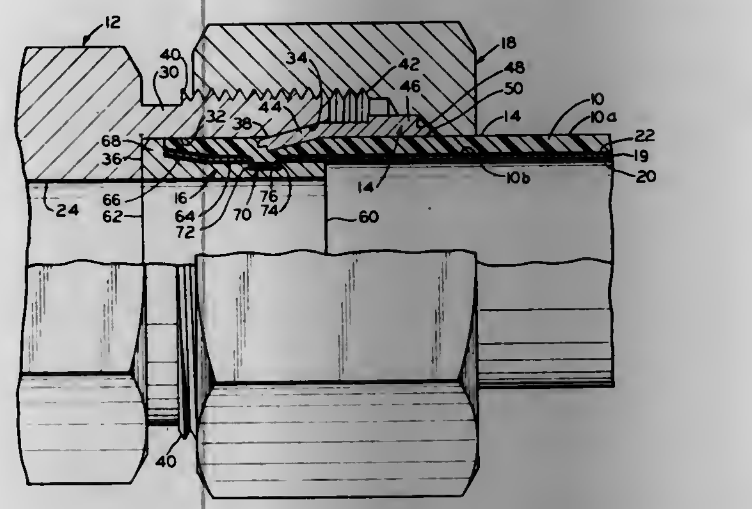
3,836,700
CONDUIT COUPLING

Robert W. Niemeyer, Avon Lake, Ohio, assignor to Alco Standard Corporation, Valley Forge, Pa.

Filed Dec. 6, 1973, Ser. No. 422,309

Int. Cl. H02g *15/08*

U.S. Cl. 174—89 **8 Claims**



A coupling connection is disclosed for providing a fluid tight seal, electrical continuity and restraint against axial separation between a metal coupling body and tubular plastic telephone wire conduit, the inner surface of which conduit is lined with an electrically conductive metal foil and a covering film of plastic. During assembly of the coupling connection, the coupling components cooperate to axially displace and radially deform the plastic conduit to establish areas of sealing engagement therebetween. The radial deformation provides an interengaging relationship between the conduit and coupling components to restrain axial separation of the conduit from the coupling body, and cause penetration of the plastic film covering the conductive foil by one of the coupling components to establish electrical contact therebetween.

3,836,701
APPARATUS FOR SPLICING CABLES

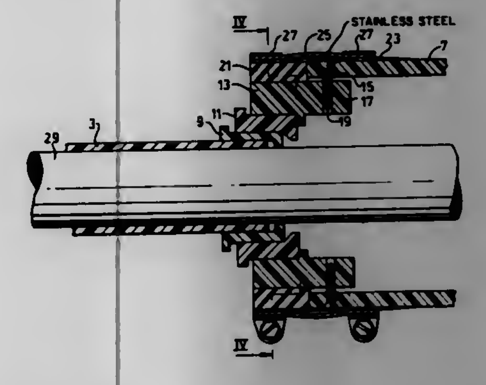
Owen Winram Worden, 2809 Uplands Crescent, Abbotsford, British Columbia, Canada

Filed Oct. 18, 1972, Ser. No. 298,484

Claims priority, application Canada, Apr. 11, 1972, 139387

Int. Cl. H02g *15/08*

U.S. Cl. 174—93 **7 Claims**



A cable splice method and housing includes a central section with an internal diameter larger than the diameter of the cable to be spliced whereby the housing is movable lengthwise to permit access to a splicing zone. A pair of end plugs are arranged to accommodate the outer covering carrying the cable in fluid-tight engagements, each end having an outside diameter such as to accept an end part of the central section and a sealing ring fitted to each end plug and encircling the plug in close proximity to the adjacent end of the central section. Anchoring means secure the central section to the end plug and clamp means are arranged to encircle both the sealing ring and the adjacent end of the central section to complete a fluid-tight seal between the end plug and said central section.

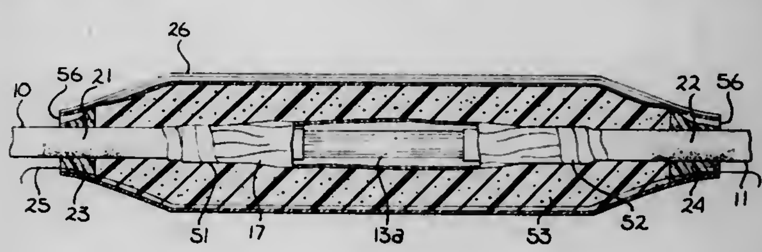
3,836,702
MEANS FOR SEALING AND PROTECTING A CABLE SPLICE

Walter A. Plummer, 3546 Crowridge Dr., Sherman Oaks, Calif. 91403

Filed Apr. 3, 1973, Ser. No. 347,435

Int. Cl. H02g *15/08*

U.S. Cl. 174—92 **11 Claims**



A cable splice assembly is disclosed for connecting a first and a second cable, each of which include a plurality of conductors. An inner cover placed about the conductors is surrounded by an outer jacket having a valve and which is sealed at the first and second cable. An expandable liquid foam is injected through the valve into the volume defined by the jacket. The foam, after expanding and hardening, forms a relatively solid insulating mass about the conductors.

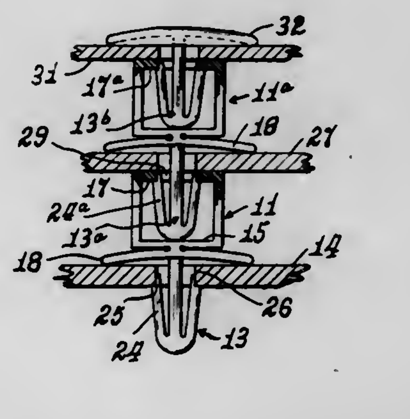
3,836,703
CIRCUIT BOARD SPACER-SUPPORT

Ronald A. Coules, Chicago, Ill., assignor to Richco Plastic Company, Chicago, Ill.

Filed Oct. 19, 1973, Ser. No. 408,073

Int. Cl. H05k *7/12*; **F16b** *5/06, 19/00*

U.S. Cl. 174—138 D **6 Claims**



A one-piece spacer-support for a circuit board fabricated from plastic dielectric material and having resiliently flexible means for securing it to a chassis and an apertured top wall upon which a circuit board is seated and secured thereto as by means of another spacer-support or the like.

3,836,704
INSULATOR GROMMET OR SPACER

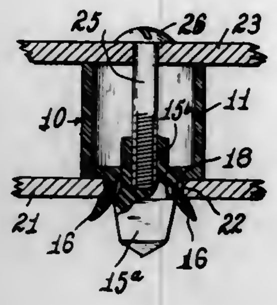
Ronald A. Coules, Chicago, Ill., assignor to Richco Plastic Company, Chicago, Ill.

Filed Oct. 19, 1973, Ser. No. 408,074

Int. Cl. H05k *7/12*; **F16b** *5/00, 29/00*

U.S. Cl. 174—138 D **10 Claims**

A chassis-panel assembly including an insulator grommet or spacer for securing the panel spaced apart over the chassis, and wherein said grommet includes a spacer body, a spreader block and securing wings. To assemble, the spreader block and wings are projected through an aperture in the chassis and a headed screw is extended through an aperture in the panel and engaged in the spreader block to draw the spreader block into the body and force the wings outwardly under the chassis until the screw head is seated tightly against the panel.



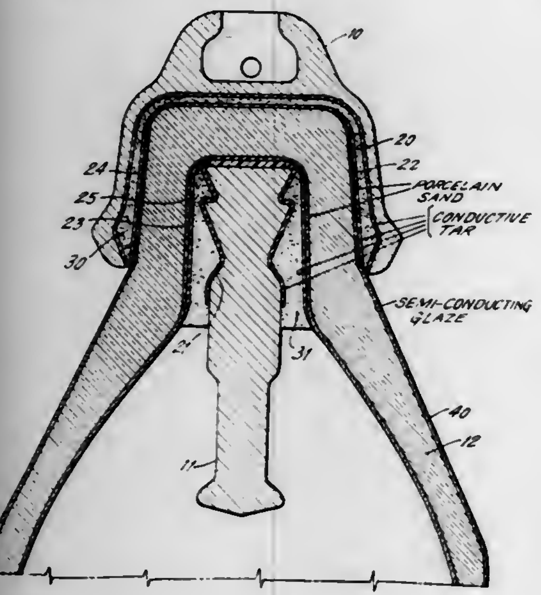
3,836,705
ELECTRICAL INSULATOR AND CONDUCTING TAR THEREFOR

Gordon Rosenblatt, Burlington, Ontario, Canada, assignor to Canadian Porcelain Company Limited, Ontario, Canada

Filed Dec. 14, 1972, Ser. No. 315,119

Int. Cl. H01b *17/42, 17/50*

U.S. Cl. 174—140 C **11 Claims**



A conducting tar coating is placed on the surfaces of the conductive hardware of an insulator, and on the surfaces of an insulator shell connected to the hardware by a cement. The insulator surface has a semiconducting coating. The conducting tar is formed by admixing carbon black in an asphalt base after dissolving the asphalt with a suitable solvent.

3,836,706
FLYING SPOT SCANNING SYSTEM

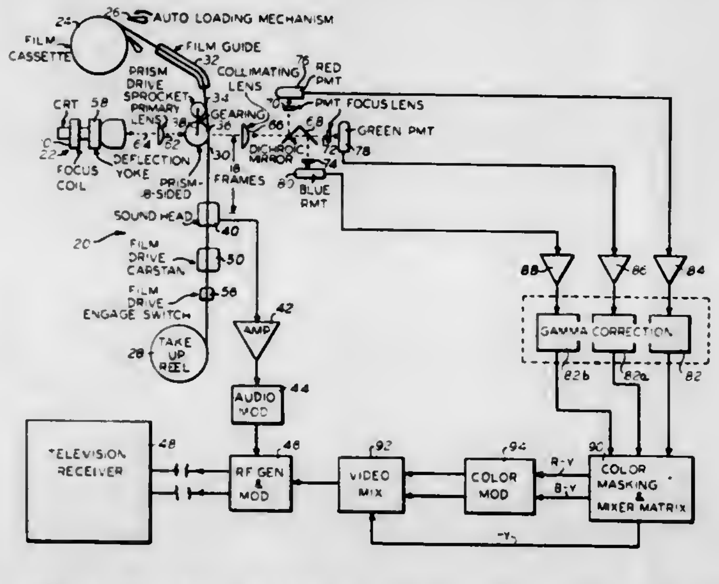
Patrick J. Keegan, Van Nuyes, and Carl J. Roberts, Northridge, both of Calif., assignors to Cassette Sciences Corp., New York, N.Y.

Filed June 18, 1973, Ser. No. 370,718

Int. Cl. H04n *5/36*

U.S. Cl. 178—5.2 D **21 Claims**

A flying spot scanning system includes a flying spot scanner arrangement utilizing a multi-facetted prism, such as an 18-sided prism, for scanning a movie film and producing color video signals therefrom for display on a conventional color television receiver. Red, blue, and green photomultiplier tubes in conjunction with a dichroic mirror arrangement provide the color signals which are gamma corrected, and phosphor corrected and processed to provide the composite color video signal. The film preferably contains a separate audio track which is separately processed and mixed with the color video signal to provide the composite video signal. The control for the flying spot scanner is provided by a digital synchronizing generator which utilizes the color burst frequency as the basic timing reference signal for generating all of the control signals for the television receiver, the scanner, and the synchronizing signals for ant external devices, such as a computer terminal and a computer, to lock these external devices to the scanning of the flying spot scanner, which digital signals are utilized to directly drive analog circuitry. Specifically, the digital synchronizing generator generates the vertical sweep drive and the horizontal sweep drive signals for the cathode ray tube flying spot scanner, the composite sync, chromo clamp, video clamp, color burst, and composite blanking signals which are provided to the flying spot scanner and subsequently to the television receiver in the composite video signal, and the horizontal sync and vertical sync signals which are utilized for external control of video so as to lock the external device to the television sweep provided from the digital synchronizing generator. The audio portion of the signal is processed through an audio FM modulator utilizing a field effect transistor to modulate an LC oscillator, the field effect transistor being utilized as a phase variance circuit. The gamma correction circuitry utilized in the system is substantially temperature independent. The phosphor correction circuitry and chroma processing circuitry utilize multi function elements to increase efficiency.



3,836,707
VIDEO SIGNAL PROCESSING DEVICE FOR EXTRACTING THE CHROMINANCE AND LUMINANCE SIGNALS FROM A COMPOSITE VIDEO SIGNAL IN A COLOR TELEVISION RECEIVER

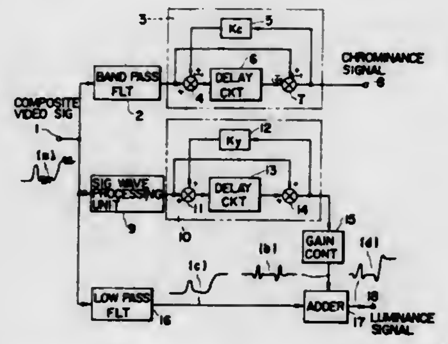
Toshio Murakami, and Akira Shibata, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 27, 1972, Ser. No. 318,987

Claims priority, application Japan, Feb. 4, 1972, 47-12221; Feb. 4, 1972, 47-12225; Dec. 27, 1971, 46-105307

Int. Cl. H04n *5/38*

U.S. Cl. 178—5.4 R **25 Claims**



A video signal processing device for a color television receiver includes a low-pass filter for obtaining lower frequency components out of a composite video signal consisting of a luminance signal and a carrier chrominance signal, a band-pass filter for obtaining higher frequency components of the composite video signal, and a signal wave processing unit for delivering the second order differential of the composite video signal. There is provided in the device a first comb-shaped filter and a second comb-shaped filter for obtaining carrier chrominance signal components and luminance signal components from the outputs of the band-pass filter and the signal wave processing unit, respectively, and an adder for adding the luminance signal components extracted from the output of the signal wave processing unit by means of the second comb-shaped filter to the output obtained from the low-pass filter, whereby a low noise luminance signal added with a preshoot and an overshoot can be obtained from the adder, and a carrier chrominance signal also of low noise can be obtained from the first comb-shaped filter. Alternate embodiments are also simplified by the fact that only a single comb-shaped filter is required.

3,836,708
COLOR TELEVISION SATURATION CONTROL

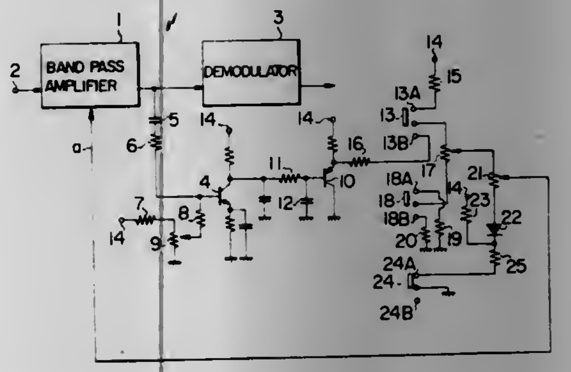
Nori Meki, Takatsuki, and Hiroyuki Irie, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed June 28, 1973, Ser. No. 374,666

Claims priority, application Japan, June 30, 1972, 47-66143; June 30, 1972, 47-66144

Int. Cl. H04n *9/48*

U.S. Cl. 178—5.4 AC **4 Claims**



A color television receiver having a system for controlling the color saturation in which either of a divided dc voltage signal of a dc source or a mean-rectified dc signal of the output of a band pass amplifier in the color signal circuit can be selectively derived through a change-over switch and applied to said band pass amplifier through a common variable resistance to control the gain of said band pass amplifier and thereby control the color saturation.

3,836,709
PROCESS AND APPARATUS FOR PREPARING PRINTING PLATES USING A PHOTOCURED IMAGE

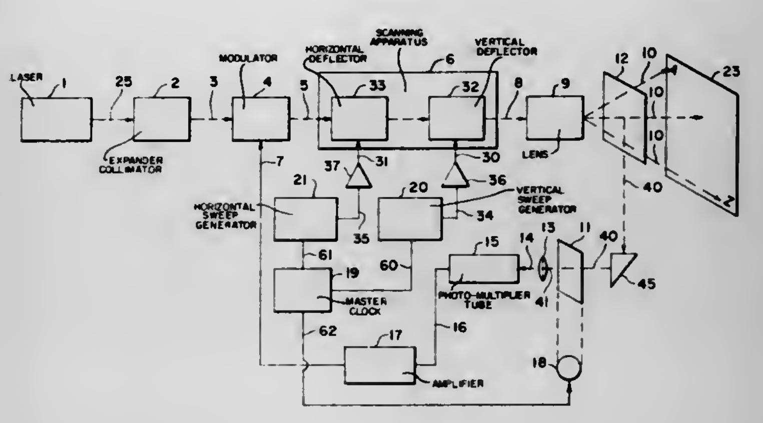
John Grear Hutchison, Catonsville, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed Apr. 12, 1972, Ser. No. 243,388

Int. Cl. G03f *1/02;* **H04n** *1/28*

U.S. Cl. 178—6.7 R **22 Claims**

A printing plate is prepared by subjecting a uniform coating of the photocurable composition on a support layer to a beam of laser radiation, varying in a controlled manner the point at which the laser beam impinges on the coating so that a predetermined pattern of cured photocurable composition is formed, and thereafter removing the uncured portions of the photocurable composition.



3,836,710
PATTERN DISCRIMINATION SYSTEM USING TELEVISION

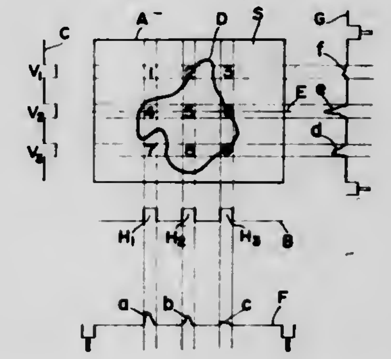
Masaaki Takahashi, Yokohama, Japan, assignor to n a c Incorporated, Tokyo, Japan

Filed Sept. 11, 1972, Ser. No. 287,733

Claims priority, application Japan, Dec. 9, 1971, 46-99008; Jan. 20, 1972, 47-7238; May 4, 1972, 47-43727

Int. Cl. H04n *7/18*

U.S. Cl. 178—6.8 **2 Claims**



A pattern discrimination system for automatic and rapid detection of occurrences of an abnormal condition in a pattern under surveillance comprising the means and steps of producing at least one horizontal gate pulse and vertical gate pulse of any required width and position by utilizing the television art, sampling a video signal with the horizontal and vertical gate pulses to form at least one sample surface variable in position, size or shape thereof in the field of view of a monitor, producing an integrated value of voltage of a video signal corresponding to the sample surface of the pattern under surveillance, digitally storing the integrated value of voltage of the video signal in a digital memory, and producing another integrated value of voltage of the video signal corresponding to said sample surface of the pattern under surveillance after a lapse of a predetermined time interval and comparing the second integrated value of voltage with the integrated value of voltage stored previously.

3,836,711
Patent Not Issued For This Number

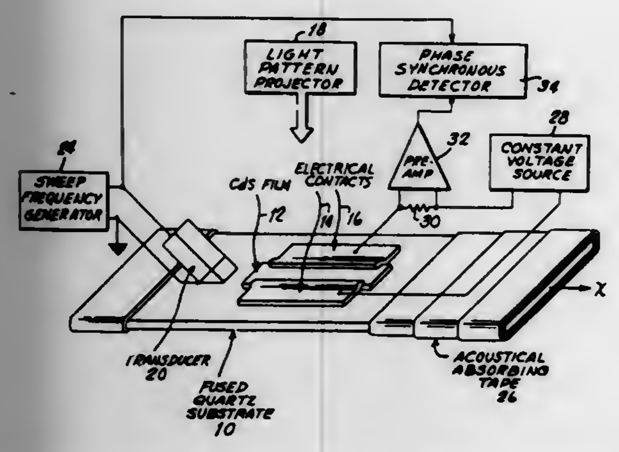
3,836,712
DIRECT ELECTRONIC FOURIER TRANSFORMS OF OPTICAL IMAGES

Philipp G. Kornreich, 5548 Bear Rd., North Syracuse, N.Y. 13212 and Stephen T. Kowel, 111 Lafayette Rd., Syracuse, N.Y. 13205

Division of Ser. No. 319,680, Dec. 29, 1972. This application May 30, 1973, Ser. No. 365,054

Int. Cl. H04n *5/30*

U.S. Cl. 178—7.1 **36 Claims**



Method and apparatus for directly converting between optical images and the spatial Fourier transforms of optical images by interacting sound waves and light. Controlled sound waves couple with optical images, and electrical signals may be derived from this coupling which are functions of the spatial Fourier transforms of the entire optical images. In a reverse process, optical images are obtained directly by coupling controlled sound waves with electrical signals which are a function of the spatial Fourier transforms of the optical images and with light.

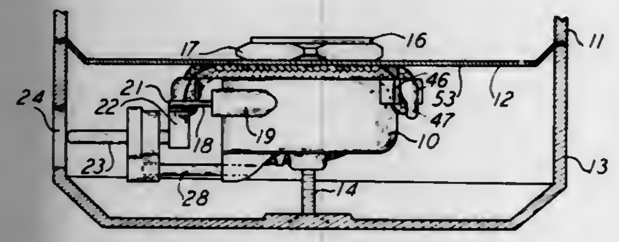
3,836,713
UNITIZED ELECTRIC HEATER ASSEMBLY FOR A COFFEE PERCOLATOR

Kenneth M. Halvorson, Sr., 2909 Ruby Ave., Racine, Wis. 53402

Filed Sept. 4, 1973, Ser. No. 394,305

Int. Cl. F27d *11/02*

U.S. Cl. 219—441 **9 Claims**



A unitized electric heater assembly for a coffee percolator and having a body member which contains and supports a heater wire and a warming coil. An electric connector block is fixedly mounted on the body by means of a bar which spaces the block from the body, and the block has electric connection pins embedded therein and extending therefrom for releasable connection with the usual electric plug. The pins and the wires are electrically connected, and a thermostat is included in the circuit. The body member has recesses and ears for snugly securing the warming coil on a surface on the body member, and the surface has a shoulder thereon, all so that the warming coil can be securely held in a fixed position on the body member and the entire structure is unitized so that it can be assembled with a coffee percolator without further positioning or manipulation of the warming coil or any other part.

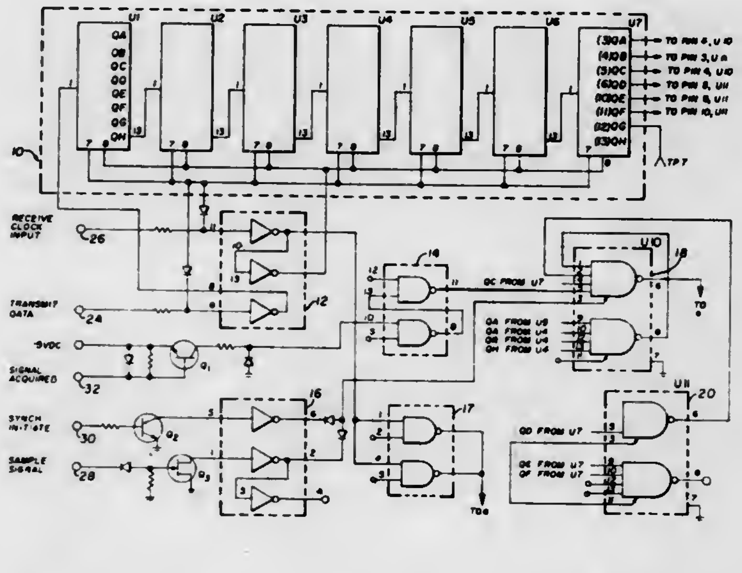
3,836,714
DIGITAL VOICE DETECTOR

William J. Pomper; Charles G. Wilhelm, and Leonard M. Yancey, all of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 24, 1973, Ser. No. 391,186

Int. Cl. G10l *1/04*

U.S. Cl. 179—1 SC **5 Claims**



Digital apparatus for detecting the presence of voice in a vocoder output signal to produce a push-to-talk (PTT) signal for simplex operation of communication apparatus. When voice is detected by shift register and logic detection apparatus, a signal is generated that sets a hold circuit which supplies a PTT output for generation of an isolated key signal. The hold circuit is reset each time that voice is detected in the vocoder signal; therefore, PTT is maintained until there are no voice signals present during a complete hold period which is switch-selectable. A sampling signal for voice detection and a synchronization signal are supplied to the voice detection circuit by interface circuitry.

3,836,715
DECODER FOR USE IN 4-2-4 MATRIX PLAYBACK SYSTEM

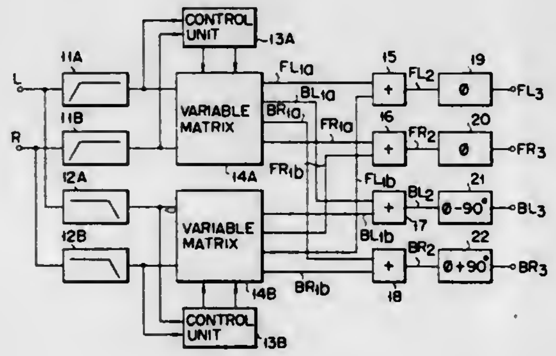
Ryosuke Ito, and Susumu Takahashi, both of Tokyo, Japan, assignors to Sansui Electric Co., Ltd., Tokyo, Japan

Filed Sept. 4, 1973, Ser. No. 394,107

Claims priority, application Japan, Sept. 9, 1972, 47-90591

Int. Cl. H04r *5/04*

U.S. Cl. 179—1 GQ **8 Claims**



A decoder is provided with variable matrixes capable of improving separation characteristics of four outputs. Two channel signals are divided by filters into a plurality of frequency bands, and the variable matrix is provided for each band to assure a better operation of each variable matrix.

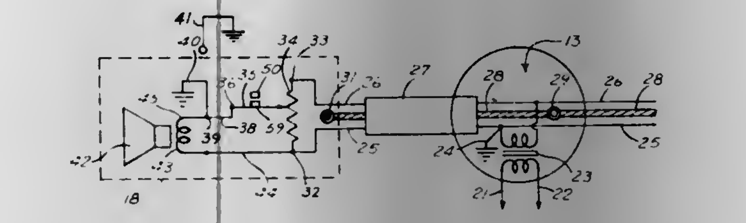
3,836,716
DRIVE-IN SPEAKER INSTALLATION

Samuel M. Reed, 2121 Routt, Lakewood, Colo. 80215

Filed Mar. 14, 1972, Ser. No. 234,609

Int. Cl. H04r *27/00*

U.S. Cl. 179—1 DD **4 Claims**



In a sound system for drive-in theatres, speakers are connected in parallel to a common sound signal source in a junction head on a center support post between adjacent automobile spaces. A volume control for each speaker includes a limit stop on the volume control knob to assure that at least a limited amount of resistance is in the loudspeaker circuit so that when the speaker circuit is shunted by replacing it on the post to cut off the sound, it will not cut off the sound to the other speaker in use. Also, a high strength cable is associated with the connecting wires between each speaker and the junction head to prevent accidental or intentional removal or separation of the speaker from its support post.

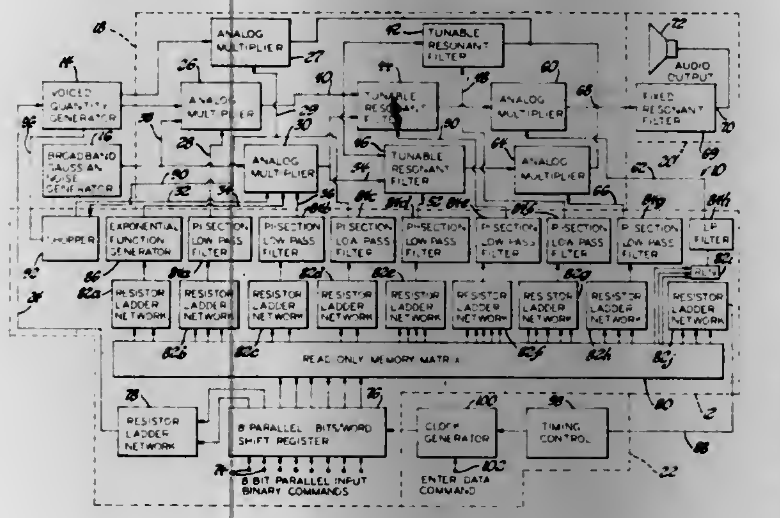
3,836,717
SPEECH SYNTHESIZER RESPONSIVE TO A DIGITAL COMMAND INPUT

Richard T. Gagnon, Birmingham, Mich., assignor to Scitronix Corporation, Birmingham, Mich.

Continuation-in-part of Ser. No. 119,473, March 1, 1971, abandoned. This application July 21, 1972, Ser. No. 274,029

Int. Cl. G10l *1/10*

U.S. Cl. 179—1 SA **35 Claims**



A voice synthesizer including a voiced quantity generator, an unvoiced quantity generator, a control circuit including amplitude and resonance control devices, and an input system for receiving eight-bit digital signals and for producing step function analog control signals to the various phoneme forming control devices. Slow acting filters are connected between the step function generators and the control devices to produce smooth transitions between the analog levels, thus, to realistically simulate the smoothly-changing dynamic quality of human speech. Circuit details are disclosed.

3,836,718
INTERCOMMUNICATION SYSTEM WITH A TIME LIMITED ADVANCE NOTICE SIGNAL

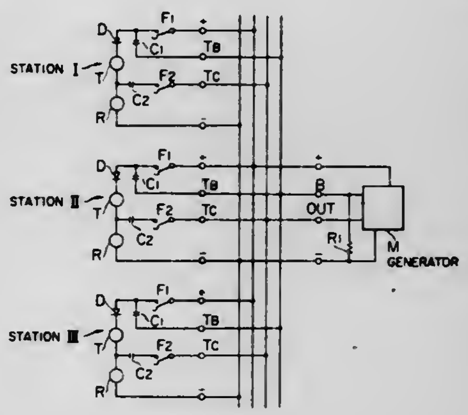
Shigemasa Ichikawa, Nagoya, Japan, assignor to Aiphone Kabushiki Kaisha, Aichi-ken, Japan

Filed Dec. 29, 1972, Ser. No. 319,709

Claims priority, application Japan, May 6, 1972, 47-53068; May 6, 1972, 47-44866

Int. Cl. H04m *11/00*

U.S. Cl. 179—1 H **10 Claims**



An intercommunicating system provided with at least one generator which produces an advance notice signal controlled by a capacitor for supplying a time-limit bias to the generator whenever an intercommunicating station starts its operation, whereby another station or other stations can be forewarned that some intercommunicating station is cutting in or is ready for listening to.

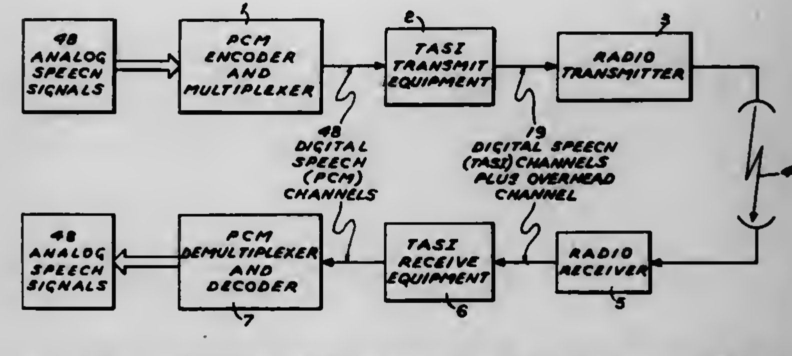
3,836,719
TASI ASSIGNMENT CONTROL ARRANGEMENT

James M. Clark, Cedar Grove, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed July 2, 1973, Ser. No. 376,095

Int. Cl. H04j *5/00*

U.S. Cl. 179—15 AS **23 Claims**



48 ANALOG SPEECH SIGNALS
PCM ENCODER AND MULTIPLEXER
TASI TRANSMIT EQUIPMENT
RADIO TRANSMITTER
48 DIGITAL SPEECH (PCM) CHANNELS
13 DIGITAL SPEECH (TASI) CHANNELS PLUS OVERHEAD CHANNEL
48 ANALOG SPEECH SIGNALS
PCM DEMULTIPLEXER AND DECODER
TASI RECEIVE EQUIPMENT
RADIO RECEIVER
1
2
3
4
5
6
7

A TASI communication system includes P input PCM speech channels to a transmitter and P output PCM speech channels from a receiver and T PCM channels for T of the P channels to be propagated between the transmitter and the receiver, where P is an integer greater than one and T is an integer greater than one but less than P. P PCM speech words corresponding to the P input and output channels are arranged to form a first TDM frame format and T speech words corresponding to the T channels and one-half of a control word are organized to form a second TDM frame format with $2(T+1)$ frames of the second format being organized to form a multiframe. The first $[2(T+1)-2]$ frames of the second frame format in the multiframe includes a different one of transmitted assignment code words for each of the first T of the control words. An assignment control arrangement is provided at both the transmitter and the receiver. The transmitter assignment control arrangement includes a storage means to store in sequence code words identifying the previous assignment for each of the P channels. Logic circuitry is provided responsive to a first transmit timing signal identifying each of the P speech words in sequence in the first format, a second transmit timing signal identifying each of the T speech words in sequence in the second format, a third transmit timing signal identifying each of the T control words in sequence during each search cycle, a fourth transmit timing signal identifying each of the T control words in sequence during each update cycle at the transmitter and the code words at the output of the storage means to determine the connection and activity status of each of the P channels and to produce code words identifying the assignment of previously connected ones or active ones of the P channels to particular ones of the T channels that are still connected and active and to identify new assignments to enable newly active ones of the P channels to be connected to available ones of the T channels and second logic circuitry responsive to at least the code words at the output of the storage means, the first and fourth transmit timing signals to return the code words to the storage means identifying previously established assignments (previous connections) that are to remain as before and to update the code words stored in the storage means for any new assignments. The receiver assignment control arrangement also includes a storage means to store in sequence code words identifying the previous assignment for each of the P channels as received from the transmitter and third logic circuitry responsive to transmitted code words, a first receive timing signal identifying each of the P speech words in sequence in the first format, a second receive timing signal identifying each of the T speech words in sequence in the second format, a third timing signal identifying each of the T control words in sequence during each update cycle at the receiver and the code words at the output of the receiver storage means to return the code words to the receiver storage means identifying previously established connections that are to remain and to update the code words stored in the receiver storage means for the new assignments.

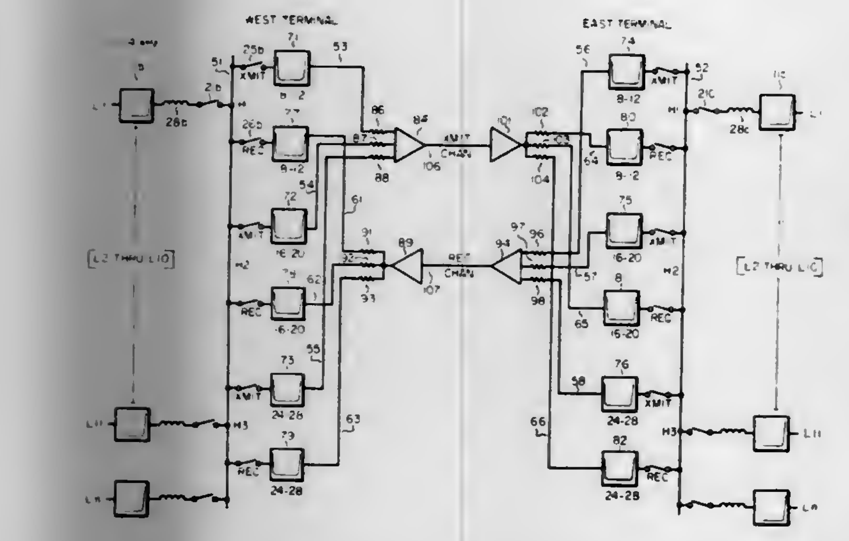
3,836,720
COMBINATION HYBRID AND SWITCHING CIRCUIT AND METHOD UTILIZING RESONANT TRANSFER

Lawrence E. Getgen, Redwood City, Calif., assignor to Armour-Moore Marine Service Limited, Surrey, England

Continuation-in-part of Ser. No. 349,572, April 9, 1973, and a continuation-in-part of Ser. No. 392,720, Aug. 29, 1973. This application Nov. 16, 1973, Ser. No. 416,479

Int. Cl. H04j *1/06*

U.S. Cl. 179—15 FD **14 Claims**



A two-way communication terminal having a plurality of lines and resonant transfer means for effecting selective hybrid separation of any of the lines into unidirectional transmission and receive paths. Sampling gates are mounted in the lines and paths and co-function to simultaneously produce the hybrid and line switching functions. Where several hybrids are used, the resonant transfer filters in the transmit and receive paths may be bandpass filters selecting different portions of the frequency spectrum to thus take advantage of a phenomenon inherent in the circuit to provide frequency division multiplexing of the hybrid paths.

3,836,721
TIME MULTIPLEX COMMUNICATION SYSTEM FOR USE WITH A SPACE SATELLITE

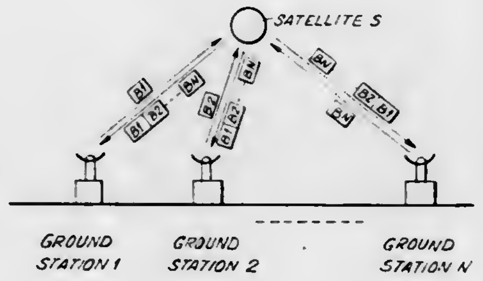
Ryoichi Sugioka, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 850,205, Aug. 14, 1969, abandoned. This application Dec. 23, 1971, Ser. No. 211,766

Claims priority, application Japan, Aug. 15, 1968, 43-58321; Aug. 15, 1968, 43-58322

Int. Cl. H04j *3/06*

U.S. Cl. 179—15 BS **3 Claims**



The time of radiating information signals from a plurality of ground stations to a common satellite is regulated, as is the amount of radiated information, in order to prevent confusion of the signals at the satellite. The instant of receipt, at each ground station, of each time-regulated series or burst of signals is forecast and the forecast controls the operation of the transmitting synchronizing device and the receiving synchronizing device at each ground station.

3,836,722
SYNCHRONIZING METHOD IN TIME-DIVISION MULTIPLEX TRANSMISSION SYSTEMS

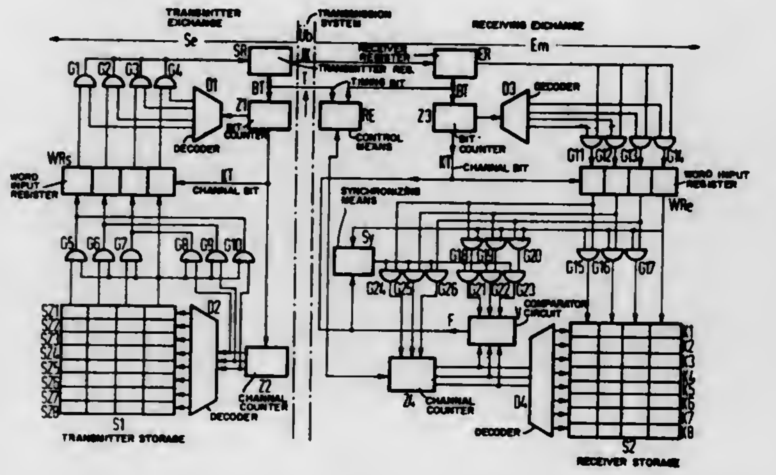
Henrik Muller, and Peter Weidner, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Postfach, Germany

Filed Apr. 17, 1973, Ser. No. 351,973

Claims priority, application Germany, May 3, 1972, 2221629

Int. Cl. H04j *3/06*

U.S. Cl. 179—15 BS **5 Claims**



A method for synchronizing transmitting and receiving exchange stations is disclosed, wherein in unused portions of a time channel a channel number and accompanying designator are stored and transmitted. Upon receipt and detection of the designator, the channel number is compared in a comparator with the current value of a channel counter which designates storage locations in a receiver storage. If a mismatch is found a synchronizing unit is energized causing the next succeeding channel number to be loaded in the channel counter, establishing synchronization. As a safety measure, successive comparisons are carried out in the comparator to ensure that not a single isolated comparative match was established.

3,836,723
ANSWERING SYSTEM FOR PBXS

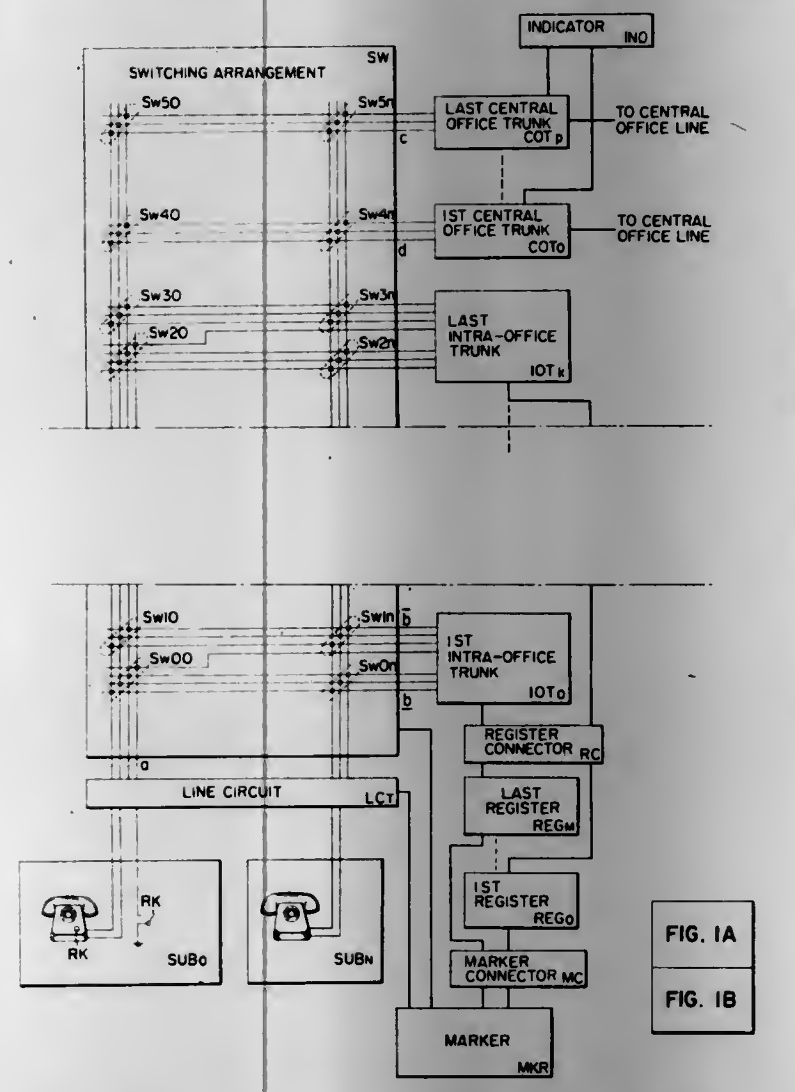
Sigeo Ohara; Fumio Yoshimura, and Kazuhiko Sugai, all of Tokyo, Japan, assignors to Meisei Electric Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 12,239, Feb. 18, 1970, abandoned. This application Sept. 14, 1972, Ser. No. 289,163

Claims priority, application Japan, Feb. 26, 1969, 44-14480

Int. Cl. H04q *3/62*

U.S. Cl. 179—18 AD **4 Claims**



In a PABX a subscriber responds to an incoming call from a central office trunk by going off-hook so a marker can establish a connection to a register through an idle intra-office trunk. The register produces a dial tone. The subscriber then dials a predetermined digit, to which the register responds by engaging the marker which seizes the one central office trunk on which the incoming call appears and changes the route from the subscriber to that trunk. Instead of dialing the subscriber may press a key that affects the register as if the predetermined digit had been dialed. When all registers are busy the marker bypasses the register and responds directly to change the route.

3,836,724
FOUR CHANNEL HEADPHONE

Haruji Yamazaki, Tokyo, Japan, assignor to Chuo Denshi Kogyo Co., Ltd., Gunma, Japan

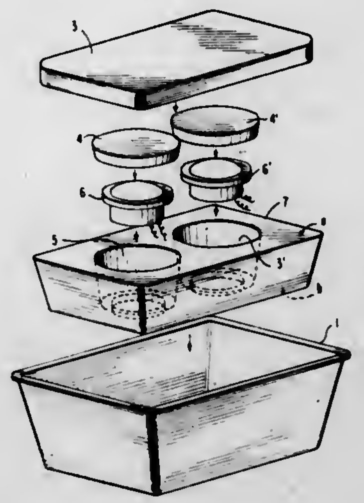
Filed Dec. 26, 1972, Ser. No. 318,041

Claims priority, application Japan, Dec. 27, 1971, 46-122648

Int. Cl. H04r *1/28*

U.S. Cl. 179—182 R **4 Claims**

An earphone for a four channel headphone has a filling material of light weight and good sound absorbing nature closely fitted inside a unit case. Two cylindrical or conical holes are provided in the filling material in the unit case. A sound generating element is provided at the bottom of each of the holes so that the sound generating element is directed toward the free open end of the unit case and a space is maintained in front of each of the sound generating elements. The free open end of each of the holes is closed by a lid made of a gas permeable material.



3,836,725
SCANNER FOR AUTOMATIC TELEPHONE EXCHANGES

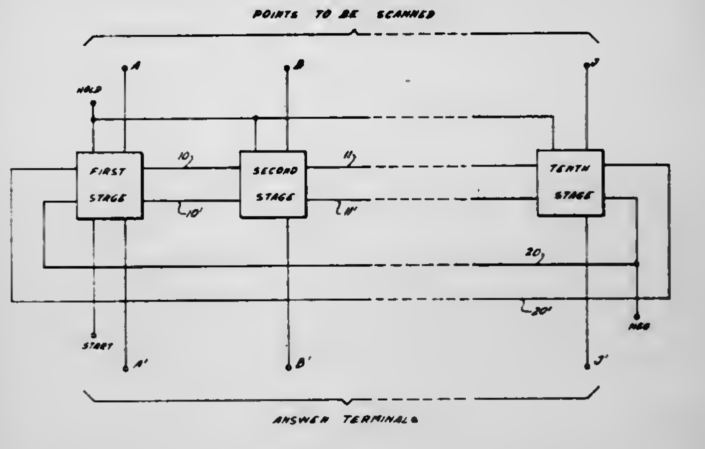
Nadios Celestini, Milan, Italy, assignor to GTE International Incorporated, Stamford, Conn.

Filed Oct. 10, 1972, Ser. No. 295,968

Claims priority, application Italy, Feb. 12, 1972, 19256/72

Int. Cl. H04m *3/22*

U.S. Cl. 179—18 FG **14 Claims**

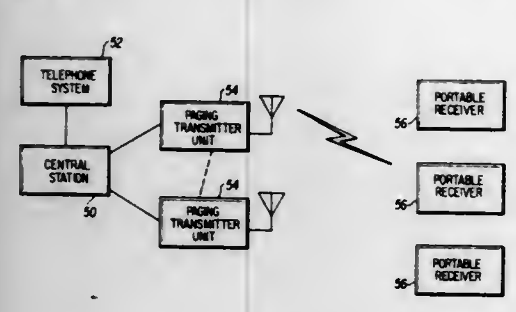


A scanner for repetitively sampling each of a group of telephone circuits to determine whether they are busy or free. The scanner employs a first terminal set containing a selected number of terminals, a second terminal set containing a like number of terminals and scanning means disposed between these sets. Each first set terminal is at a first potential when its circuit is free and at a second potential when its circuit is busy. Each second set terminal is at a third potential when the corresponding circuit is free. The means scans each first terminal in turn to locate the first terminal in the first set which identifies a free circuit. At this point the scanning means discontinues the scanning action and changes the potential of the corresponding second set terminal to indicate that the corresponding circuit is free. The action is cyclical. The means includes a number of like stages, each stage being coupled between a corresponding first set terminal and a corresponding second set terminal. Each stage includes a read relay and a thyristor. The scanner operates much faster than conventional electromechanical scanners.

3,836,726
DATA TRANSMISSION METHOD AND APPARATUS

Joel D. Wells; Albert S. Sabin, both of Orlando; William J. Kahn, Maitland, and William K. Wigner, Kissimmee, all of Fla., assignors to Martin Marietta Corporation, New York, N.Y.

Filed Oct. 25, 1971, Ser. No. 191,855
Int. Cl. H04m *7/04*
U.S. Cl. 179—41 A **75 Claims**

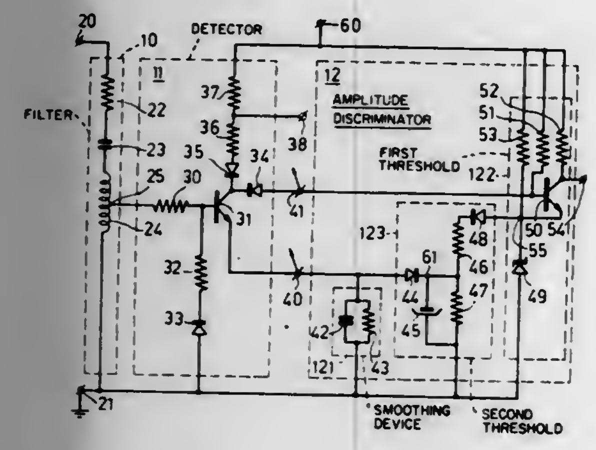


A plural transmitter, digital data transmission and remote control system in the environment of a paging system in which mutual interference by the transmitters is eliminated through the sequencing thereof. Embodiments compatible with existing tone systems are disclosed for both plural system-single area operation and for plural system-plural area operation. A novel receiver and method of receiver synchronization and time slot selection as a function of received signal characteristics are also disclosed, as is the novel evaluation of a digital data signal, power conservation, and fail safe operation with existing telephonic switching equipment.

3,836,727
SIGNAL RECEIVER FOR RECEIVING SIGNALS OF DIFFERENT FREQUENCY

Conrardus Ludovicus Anthonius Hillekens, Hilversum, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 221,245, Jan. 27, 1972, abandoned. This application June 29, 1973, Ser. No. 374,905
Int. Cl. H04m *1/50*
U.S. Cl. 179—84 VF **4 Claims**

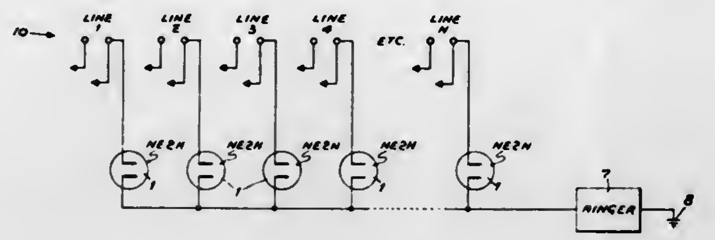


A signal receiver for receiving signals of different frequencies comprising a group of frequency channels; each of which comprises a filter device tuned to a signal frequency and a detector connected to the filter. A device responsive to increases in the signal amplitudes is coupled to the filter devices of the group of frequency channels. A signal testing device is connected to the output of and is continuously activated by the device responding to increases in the signal amplitude to determine the validity of the received signals. The device for responding to increases in the signal amplitude comprises a smoothing filter connected to the detector, a first threshold circuit for obtaining a threshold value determined by the amplitude of the signals supplied to the detector, and a second threshold device for limiting the varying threshold value to a given value.

3,836,728
TELEPHONE RINGER SHARING ARRANGEMENT

Harlan E. Miller, Old San Juan, P.R., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Feb. 14, 1973, Ser. No. 332,466
Int. Cl. H04m *3/02*
U.S. Cl. 179—84 R **3 Claims**

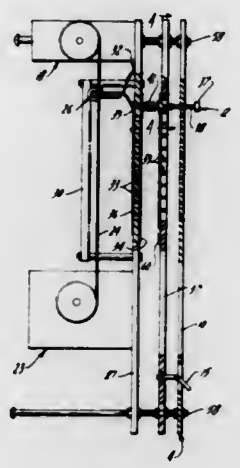


This telephone ringer arrangement permits two or more telephone lines to share a single ringer and ringer multiplier. A neon lamp is connected to the ring side of the telephone line and in series with the telephone ringer. Additional neon lamps are connected in parallel to additional telephone lines, while also being connected in series with the same ringer. Use of, for example, NE2H high voltage neon lamps allows enough current to pass to operate the ringer, while a particular one does not interfere with the associated lines as it will not ring through the neon of another line.

3,836,729
AUTOMATIC TELEPHONE SIGNALLING APPARATUS

Anthony J. Wodenka, c/o Mr. Harry G. Kososki, 5840 E. Lafayette Blvd., Phoenix, Ariz. 85018

Filed July 3, 1972, Ser. No. 268,527
Int. Cl. H04m *1/45*
U.S. Cl. 179—90 B **8 Claims**

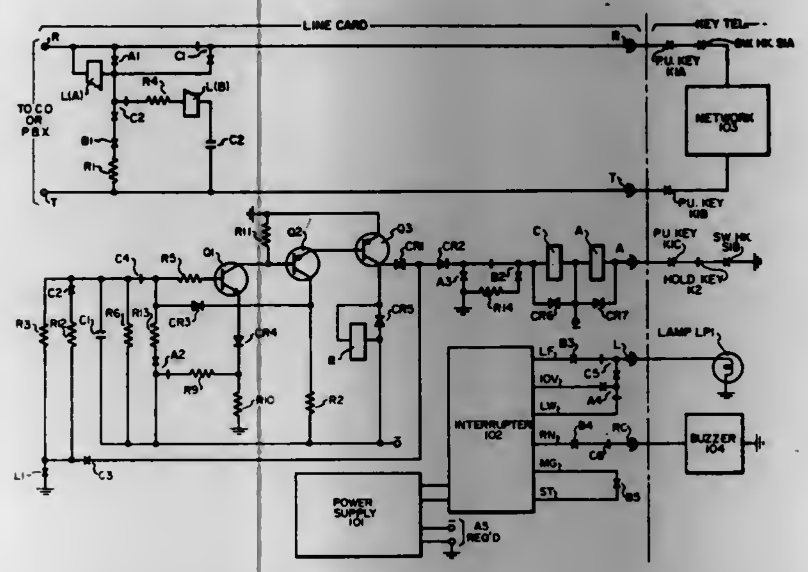


An electromechanical telephone dialer for connection to a conventional telephone system including a dial switchboard matrix having a plurality of columns each with 10 openings, one each of the telephone number digits. A contact strip is secured adjacent each column. An input board has a contact button for each opening, with depressions extending the contact button passed the associated strip. A carriage moves a leaf spring contact over each column to complete the circuit from the depressed button to the strip. A similar interlock board is mounted in stacked relation and has a common switch for each column actuated by the aligned buttons. The circuit boards and a stripping switch are interconnected to sequentially scan each of the columns, with the first column scanned until the appropriate character related contact means is engaged. The carriage is spring reset and coupled to actuate the dialing means. The cycle continues until the last number in the final column is transmitted. A drum timer is connected to initiate a code transmitting cycle, transmit a message, if desired, over the telephone lines and then reset the apparatus.

3,836,730
LINE CARD CIRCUIT FOR A KEY TELEPHONE SYSTEM

Richard A. Marshall, Elmhurst, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Mar. 14, 1973, Ser. No. 341,020
Int. Cl. H04m *1/00*
U.S. Cl. 179—99 **4 Claims**

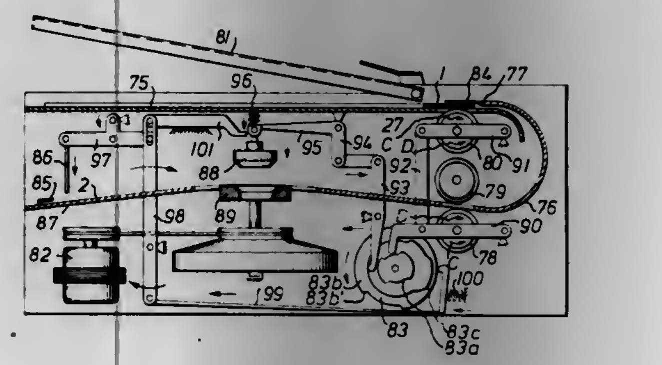


A line card circuit for a key telephone system in which means are provided for sensing ringing current on the line conductors the card is connected to. Also included are means to connect audible and visual signal equipment and to effect placement of the connected line in a hold condition.

3,836,731
PLAYBACK DEVICE AND METHOD FOR FOIL-SHAPED RECORDING CARRIERS

Jurgen Willisch; Rudolf Goetze; Frank Jaeck; Dietrich Nackmayr; Heinz Rehberg, and Hans-Joachim Thuy, all of Berlin, Germany, assignors to Ted. Bildplatten Aktiengesellschaft AEG-Telefunken Teldec, Zug, Switzerland

Filed Oct. 6, 1972, Ser. No. 295,726
Claims priority, application Germany, Oct. 6, 1971, 2150524
Int. Cl. G11b *17/10, 17/04, 5/82*
U.S. Cl. 179—100.4 R **12 Claims**

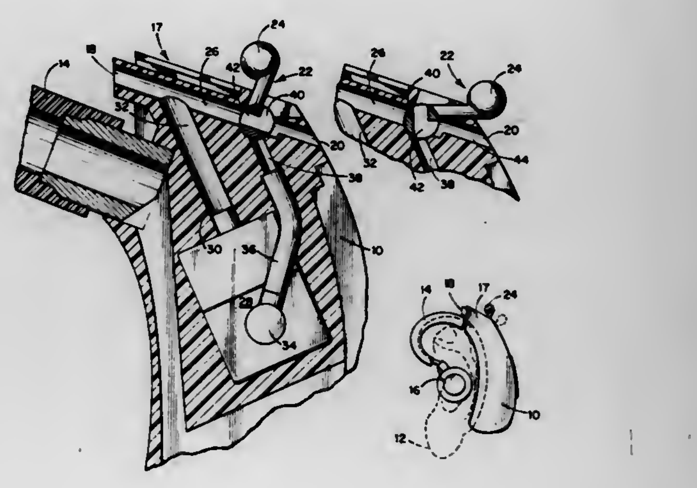


For playing a flexible, disc-shaped record, the record is inserted into and removed from a playback device while contained within a protective cover, the device including a depositing surface, a playback surface and a guide surface, and a drive arrangement for moving the record disc from its protective cover at the depositing surface, into engagement with the guide surface, onto the playback surface, and then, after being played, back again to the depositing surface and into its protective cover.

3,836,732
HEARING AID HAVING SELECTABLE DIRECTIONAL CHARACTERISTICS

Donald L. Johanson, and Rolf Stutz, both of Wayland, Mass., assignors to Audivox, Inc., Newton, Mass.

Filed Sept. 7, 1972, Ser. No. 286,577
Int. Cl. G02c *11/06*
U.S. Cl. 179—107 FD **6 Claims**

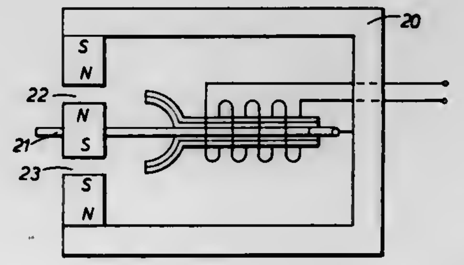


A hearing aid in which the sound reception characteristics are selectable by a user to provide omnidirectional or directional reception, as desired. The hearing aid employs a differential transducer for converting sound information into an electrical output and to which sound energy can be directed in one of two modes. In one mode of operation, for providing omnidirectional reception, sound is received from a front and rear aperture of the hearing aid and directed to a first input of the transducer. In a second mode of operation, for providing directional reception, sound energy received by the front facing aperture of the hearing aid is directed to the first input of the transducer, while energy received by the rearwardly facing aperture is directed to a second input of the transducer to substantially minimize the magnitude of sounds received from rearward positions.

3,836,733
ELECTRO-ACOUSTIC ARMATURE TRANSDUCER

William Donald Cragg, Harlow, England, assignor to International Standard Electric Corporation, New York, N.Y.

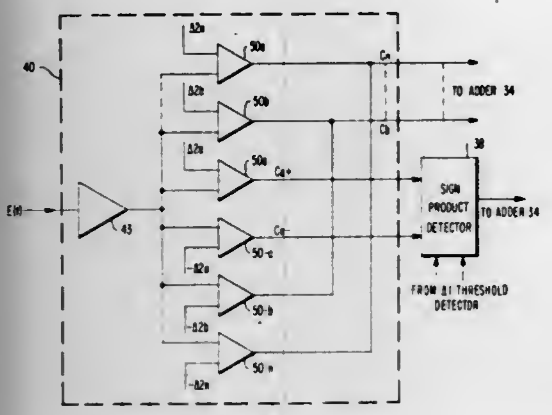
Filed Nov. 21, 1972, Ser. No. 308,381
Claims priority, application Great Britain, Dec. 23, 1971, 59930/71
Int. Cl. H04r *11/00*
U.S. Cl. 179—119 A **3 Claims**



A balanced armature electro-acoustic transducer has small permanent magnets on its armature and on the pole-pieces with each armature magnet's poles facing like poles on the pole-pieces. Thus equal centering forces are set up. The arrangement uses rare-earth/cobalt alloys, which have a very high coercivity.

3,836,734
ADAPTIVE ECHO CANCELLER WITH MULTI-INCREMENT GAIN COEFFICIENT CORRECTIONS

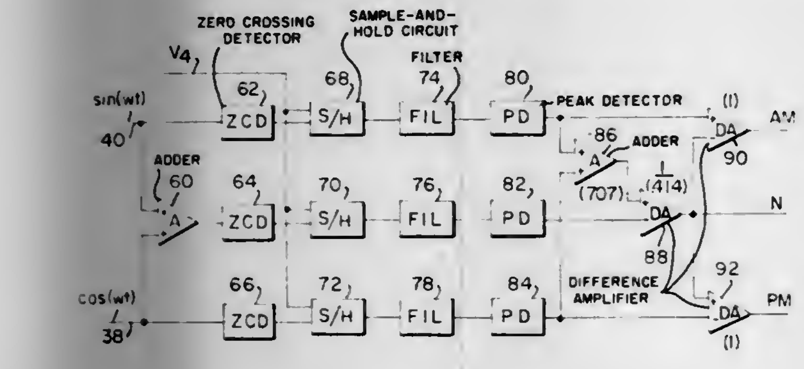
Samuel J. Campanella, Gaithersburg; Henri G. Suyderhoud, Potomac, and Michael Onufry, Jr., Gaithersburg, all of Md., assignors to Communications Satellite Corporation, Washington, D.C.
Filed Dec. 3, 1971, Ser. No. 204,507
Int. Cl. H04b *3/20*
U.S. Cl. 179—170.2 **8 Claims**



Disclosed herein is an improved adaptive echo canceller including an adaptive control loop for modifying the coefficients of the impulse response values used in performing the digital convolution. The adaptive control loop includes a multi-increment threshold detector producing a plurality of different control signals corresponding to different residual echo signals, e(t), realized by subtracting a synthesized echo from the real echo. An adder, responsive to the different control signals, modifies the coefficients by different amounts corresponding to the plurality of increments.

3,836,735
TELEPHONE LINE CHARACTERISTIC MEASURING INSTRUMENT

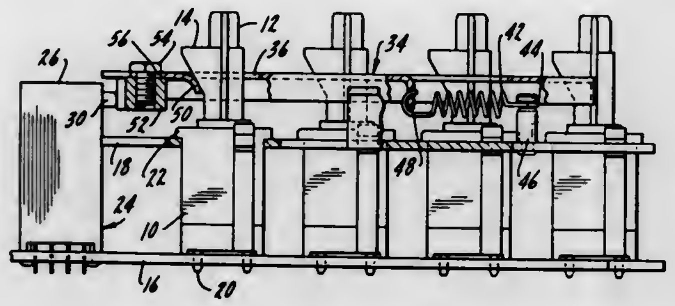
Frank R. Bradley, 9 Dash Pl., Bronx, N.Y. 10463
Filed Oct. 16, 1972, Ser. No. 297,756
Int. Cl. H04b *3/46*
U.S. Cl. 179—175.3 R **24 Claims**



There is disclosed a telephone line characteristic measuring instrument which provides separate indications of the amplitude modulation, phase modulation and uncorrelated noise interference on a transmitted test tone. In my copending application Ser. No. 270,953, there is disclosed an instrument for subtracting a generated tone from the received signal; the three parameters of interest are represented in the difference signal. In the present invention, the difference signal is sampled at three different times during each half cycle of the test tone and the three sequences of samples, after filtering, peak detection and arithmetic combination, provide separate indications of the three parameters of interest.

3,836,736
OPERATOR PLATE COMMON TO MULTIPLE PUSHBUTTON SWITCH OPERATORS ALLOWING SIMULTANEOUS ACTUATION OF PLURAL SWITCH ASSEMBLIES DURING MOMENTARY OR INTERLOCKING MODES OF OPERATION

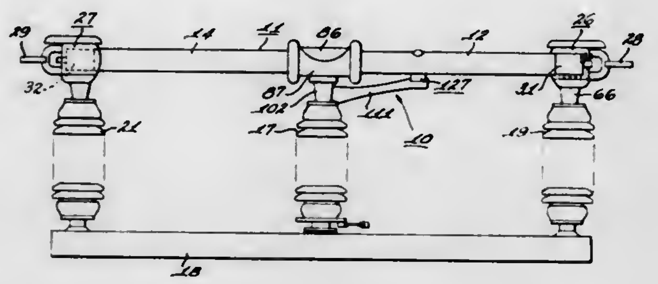
Bernard J. Golbeck, Crystal Lake, Ill., assignor to Oak Industries Inc., Crystal Lake, Ill.
Filed Aug. 10, 1973, Ser. No. 387,316
Int. Cl. H01h *9/26;* **G05g** *11/00*
U.S. Cl. 200—5 B **9 Claims**



A pushbutton switch array has separate switches, each with an independently operable plunger, said switches being arranged in rows and columns. A plate overlays the switch array and has an opening for each switch plunger. Movement of any one switch plunger causes movement of the plate, with movement of the plate in turn closing a separately positioned switch member.

3,836,737
POSITIVE BLADE ROTATION ARRANGEMENT FOR DISCONNECT SWITCH

Calvin E. Redfern, Portland, Oreg., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed July 16, 1973, Ser. No. 379,802
Int. Cl. H01h *31/00*
U.S. Cl. 200—48 A **8 Claims**

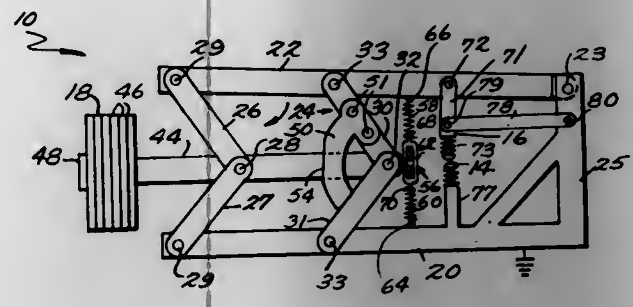


A cam guide on the stationary contact portion of the disconnect switch cooperates with a hook follower on the rotary blade. The hook follower operates to control the rotation of the blade only when the blade has made positive positioning engagement with the contact. The cam and follower arrangement also insures that the blade is orientated to correct angular position as the blade is bodily rotated to the open position. A contact housing is provided for the current carrying contact fingers which mounts the contact fingers and also serves as an ice and rain shield with corona protection also being provided by the housing.

3,836,738
IMPACT SWITCH WITH INERTIA OPERATED TOGGLE LINKAGE ACTUATOR MECHANISM

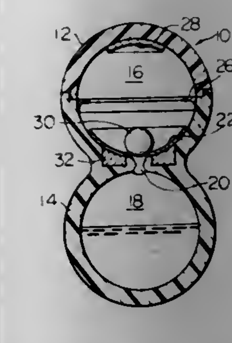
Raymond W. Baland, 2208 Milam, Amarillo, Tex. 79109
Filed Apr. 13, 1973, Ser. No. 350,989
Int. Cl. H01h *35/02, 3/46*
U.S. Cl. 200—61.45 R **5 Claims**

An impact-responsive, inertia-actuated switch includes a pair of arms at least one of which is pivoted at its end for swinging movement toward and away from the other arm and a toggle linkage connected between the arms. Upon impact or high deceleration an inertia member connected to the toggle linkage causes the latter to move over-center against a spring bias, and the resulting movement of the pivoted arm engages or disengages a pair of electrical contact members carried by the arms. The switch has special utility as the actuator in an automatic crash signal device for aircraft.



3,836,739
LIQUID CONTACT TILT INERTIAL SWITCH WITH MOVABLE METALLIC CONDUCTIVE MEANS RESPONSIVE TO ACCELERATION AND DECELERATION FORCES

Takuya Endo, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama City, Japan
Filed Nov. 12, 1973, Ser. No. 414,942
Claims priority, application Japan, Nov. 14, 1972, 47-130341
Int. Cl. H01h *35/02, 29/10*
U.S. Cl. 200—61.47 **1 Claim**

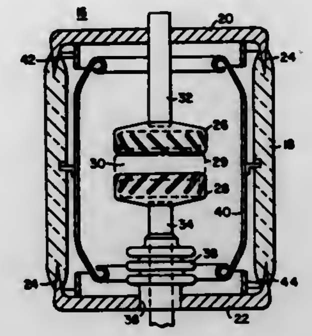


Upper and lower chambers are connected by a restricted passageway and contain three electrical contacts and a conductive fluid respectively. A ball disposed in the upper chamber and biased by a magnet to close the passageway connects one contact with another when the vehicle undergoes excessive deceleration or when it is tilted on its side. Fluid flows from the lower into the upper chamber to connect the one contact with the third when the vehicle is inverted.

3,836,740
VACUUM TYPE CIRCUIT INTERRUPTER HAVING IMPROVED CONTACTS

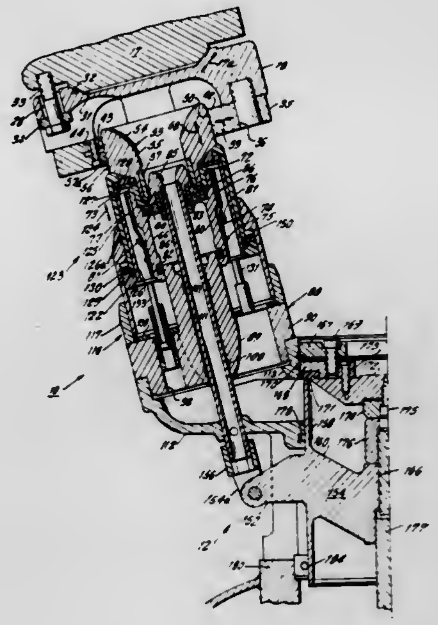
Richard L. Hundstad, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed May 3, 1972, Ser. No. 249,990
Int. Cl. H01h *33/66*
U.S. Cl. 200—144 B **11 Claims**

A vacuum type circuit interrupter comprising cup-shaped electrodes for improved arc movement during circuit interruption. The contact structures of the vacuum-type circuit interrupter are shaped so that when an arc is established between the contacts during circuit interruption the current path through the contacts to the arc is substantially perpendicular to the arc, for improved arc movement. The arc is initiated at the primary contacting surfaces during circuit interruption and is moved rapidly around the contact area thereby preventing the contact area from being grossly eroded.



3,836,741
ADJUSTABLE CONTACT NOZZLE AND RETRACTABLE ARCING CHAMBER FOR GAS BLAST CIRCUIT BREAKERS

John H. Golota, Los Angeles, Calif., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.
Filed Nov. 6, 1967, Ser. No. 680,778
Int. Cl. H01h *33/82*
U.S. Cl. 200—148 R **3 Claims**

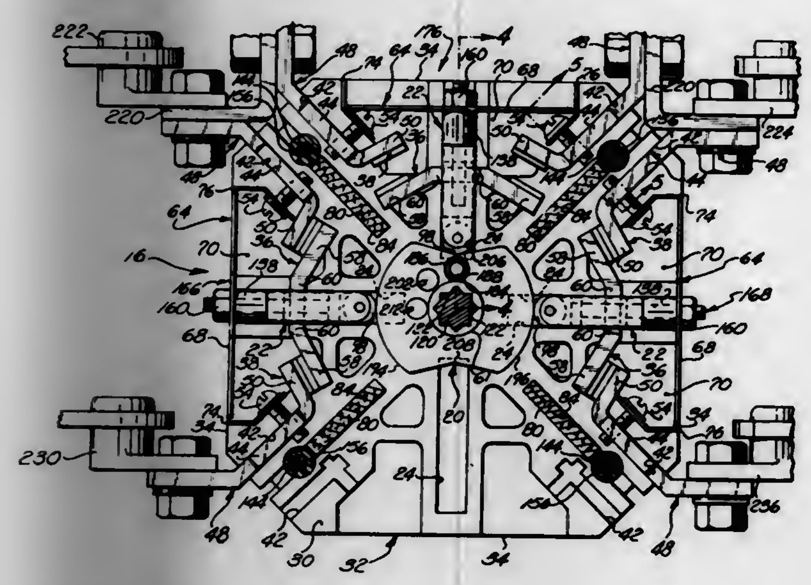


A high voltage gas blast circuit breaker has a stationary contact with a central opening and an axially projecting neck. A movable contact, mechanically connected to the same operating rod that temporarily opens a blast valve, moves axially with respect to the stationary contact. A cylindrical baffle surrounds the stationary contact and is pressed against the stationary contact during gas blast conditions to form a gas blast channel which extends through the center of the stationary contact. Biasing springs bias the baffle axially away from the stationary contact.

3,836,742
SWITCH WITH PERIPHERAL CAM ACTUATOR

Steven W. Soos, Chagrin Falls, Ohio, assignor to Lake Shore Electric Corporation, Cuyahoga, Ohio
Filed July 2, 1973, Ser. No. 375,479
Int. Cl. H01h *19/62, 19/64, 33/91*
U.S. Cl. 200—153 LB **17 Claims**

An improved switch assembly includes a plurality of housing plates or walls having opposite major sides in which a plurality of fixed contact mounting slots are formed. Fixed contacts extend between the slots in adjacent housing walls. A carrier assembly is reciprocated by rotation of a cam to move movable contacts into and out of engagement with the fixed contacts. The movable contacts are resiliently mounted on a cross bar of a generally H-shaped body of the carrier assembly. The opposite legs of the H-shaped body are slidably disposed in guide slots formed in the major sides of the adjacent housing walls. To retard arcing upon opening of the contacts, a bellow plate is mounted on the carrier assembly and is moved in a chamber formed between the adjacent housing walls to induce a flow of air around the contacts as they are opened. This flow of air is promoted by shield members which extend between the housing walls and prevent a sideways escape of air upon movement of the bellow plate In addition, barrier plates extend between the adjacent housing walls to further prevent the escape of air as the contacts are opened.



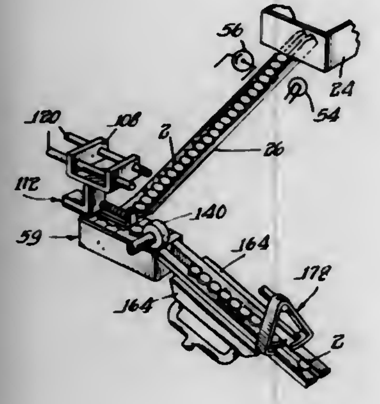
3,836,743
LOCALIZED HEAT TREATING MACHINE

Charles H. Wardwell, and Norman L. Holcomb, both of South Dartmouth, Mass., assignors to Research Engineering & Manufacturing, Inc., New Bedford, Mass.

Continuation of Ser. No. 334,879, Feb. 22, 1973, abandoned, which is a division of Ser. No. 128,040, March 25, 1971, Pat. No. 3,769,103. This application Jan. 21, 1974, Ser. No. 435,333

Int. Cl. H05b *5/02*

U.S. Cl. 219—10.43 **6 Claims**



An article is hardened or tempered in a localized zone. Where the article is a thread-forming device the zone is that part of its thread that does the thread-forming in the workpiece. The hardness of the remainder of the body of the article is left unchanged. The localized hardening is carried out by a method that includes high frequency induction heating only of the zone followed by quenching of the zone whereby the hardened zone is a skin of predetermined depth. A machine for making articles in accordance with the method comprises means for delivering the articles in succession to an induction heating element, a mechanism for advancing the articles through the heating element for progressive heating of the surface of the article in the localized zone to a predetermined depth, a quenching manifold for applying a spray of quenching liquid to the heated articles from the heating element and conveying them to the quenching manifold.

3,836,744
INDUCTION HEATING APPARATUS HAVING A COVER PLATE FOR MINIMIZING THERMAL EXPANSION EFFECTS

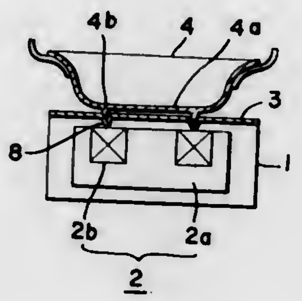
Kiyoshi Taketo, Itami; Toshio Ito, Osaka, and Fikutaro Kishimoto, Nishinomiya, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 4, 1973, Ser. No. 357,171

Claims priority, application Japan, May 17, 1972, 47-48970; Oct. 5, 1972, 47-100100; Nov. 21, 1972, 47-134146

Int. Cl. H05b *5/04*

U.S. Cl. 219—10.49 **1 Claim**



An induction heating apparatus for induction-heating a heated apparatus by an exciter excited by the standard line frequency for generating an alternating magnetic field. The apparatus comprises a high resistant non-magnetic metal plate, preferably of stainless steel, placed at the surface between the heated apparatus and the exciter. Various configurations of grooves can be provided in the plate to minimize the effects of thermal expansion.

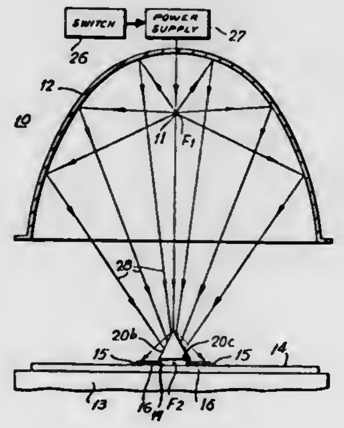
3,836,745
SOLDERING METHOD

Bernard J. Costello, Ringoes, N.J., assignor to Argus Engineering Company, Hopewell, N.J.

Division of Ser. No. 828,041, March 13, 1969, Pat. No. 3,592,992, which is a division of Ser. No. 561,112, June 28, 1966, Pat. No. 3,469,906. This application July 9, 1971, Ser. No. 161,305

Int. Cl. B23k *1/02, 1/04*

U.S. Cl. 219—85 **4 Claims**



A method for selectively heating predetermined portions of members through the use of a radiant energy absorbent material deposited upon the member which is heated by a source of radiation, preferably of the infra red type. The technique is also extremely advantageous for use in solder coating member and/or joining members through the use of a solder.

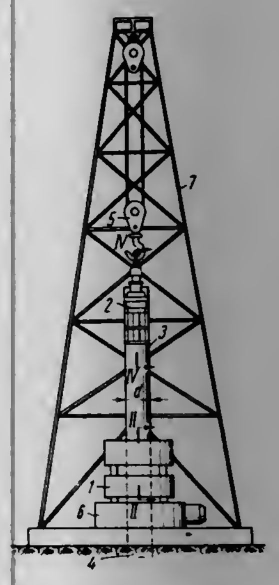
3,836,746
EQUIPMENT FOR RESISTANCE BITT-WELDING

Vasily Alexeevich Sakharnov, bulvar Likhacheua, 3, kv. 64; Alfred Nikolaevich Popov, ulitsa Sholom Aleikhema, 15/2, kv. 106; Vladimir Ivanovich Tishura, ulitsa Nikolaya Gaitsana 6, kv. 7; Boris Afanasievich Galyan, ulitsa Lenina 88/92, kv. 110, and Jury Valentinovich Skulsky, ulitsa Bastionnaya 10, kv. 30, all of Kiev, U.S.S.R.

Filed June 1, 1973, Ser. No. 366,211

Int. Cl. B23k *11/02*

U.S. Cl. 219—101 **10 Claims**



A resistance butt-welding equipment for welding casing pipes above the well head into a string and subsequent running the string into the well, comprising a grip whose maximum overal dimensions do not exceed the outer diameters of the casing pipe. This allows the welded casing string to be lowered through a welding machine thereby achieving higher production efficiency.

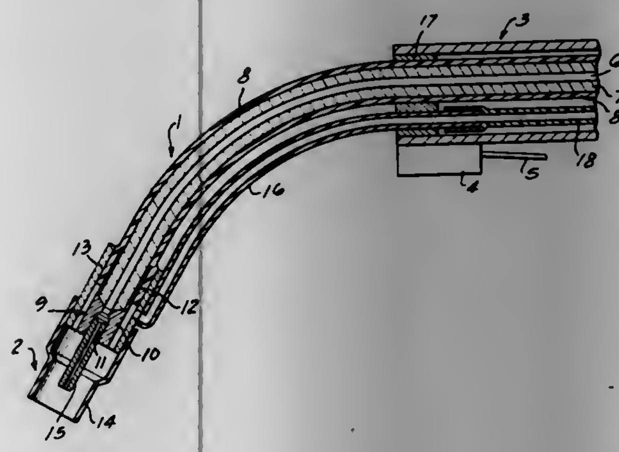
3,836,747
GAS WELDING CABLE AND GUN THEREFOR

Paul M. Wlos, Crete, Ill., assignor to Welding Specialties, Inc., Thornton, Ill.

Filed Feb. 26, 1973, Ser. No. 335,955

Int. Cl. B23k *9/12*

U.S. Cl. 219—130 **9 Claims**



An arc welding gun, particularly for the use of the so-called MIG and TIG welding processes, in which the gun is constructed from an integral end portion of a welding cable, which is preferably of hollow construction, having a bore therethrough for the passage therethrough of a wire welding electrode or a shielding gas. Where wire electrode is supplied to the cable, a shielding gas may be supplied through an additional conduit external to the electrical conductor or the cable. The gun may be provided with control means, for example a manually actuatable switch, and as the terminal fitting of the welding head assembly is connected directly to the metallic conductor of the cable, all electrical joints are eliminated between the terminal fitting of the gun and the opposite end of the cable, preferably the connector terminal to the welding proper. As the gun utilizes the welding cable as an integral part, thereof, the terminal end portion, if desired, may be flexible permitting various gun configurations.

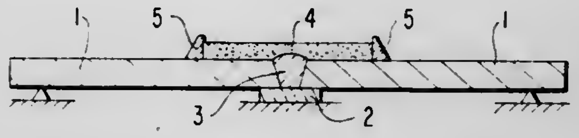
3,836,748
PROCESS OF WELDING A HIGH TENSION STEEL

Kiyoshi Terai, and Isao Masumoto, both of Kobe, Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe-shi, Hyogo, Japan

Continuation-in-part of Ser. No. 144,206, May 17, 1971, abandoned. This application Mar. 20, 1973, Ser. No. 343,088

Int. Cl. B23k *9/00, 9/16*

U.S. Cl. 219—137 **8 Claims**



A process of welding a high tension steel comprising welding said high tension steel by the Metal-arc-Inert-Gas welding method with an electrode by which a metastable austenitic steel weld metal is obtained and, thereafter, subjecting said welded high tension steel to (1) a sub-zero cooling to transform the austenitic steel into martensitic steel and (2) an aging treatment at a temperature and for a period of time sufficient to improve the tensile strength and yield strength of the product.

3,836,749
HAIR DRYER

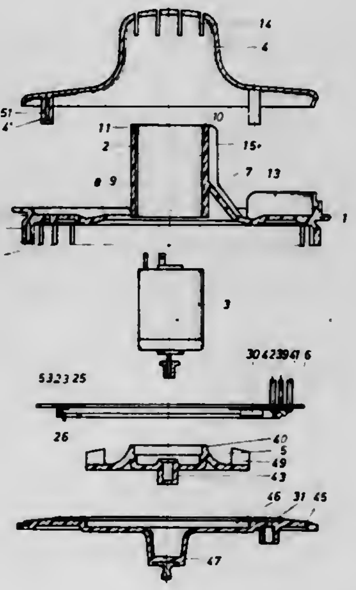
Otto Hubner, Mauerkirscherstrasse 199, 8000 Munich 81, Germany

Continuation-in-part of Ser. No. 231,503, March 3, 1972,. This application Feb. 20, 1973, Ser. No. 333,488

Claims priority, application Germany, Apr. 5, 1972, 2216314

Int. Cl. F24h *3/04*

U.S. Cl. 219—370 **7 Claims**



Hair dryer with a low voltage direct current motor driving a blower in a housing to whose air outlet opening is detachably secured a double-walled inflatable hood having an inner jacket provided with several air outlet openings. A ring shaped heating resistor is mounted concentrically with respect to the impeller. The housing includes a ring-shaped cover plate spaced from and coaxial with a base plate forming a first ring gap for serving as an air intake opening for the blower and a second ringtgap as the air outlet opening for the blower.

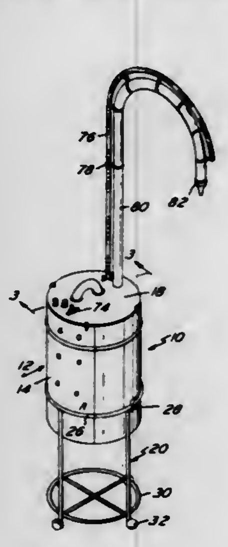
3,836,750
HAIR DRYER

Richard Caruso, 7801 Montgomery Ave., Elkins Park, Pa. 19117

Filed Feb. 20, 1973, Ser. No. 333,923

Int. Cl. A45d *20/08;* **H05b** *1/00*

U.S. Cl. 219—370 **6 Claims**



A hair dryer is disclosed having a mobile housing containing a pump and a source of radiant heat. A flexible conduit is connected to an outlet supported on the housing for use in directing the heat and air where desired. The conduit is removably attached to a flexible support on the housing and terminates in a nozzle.

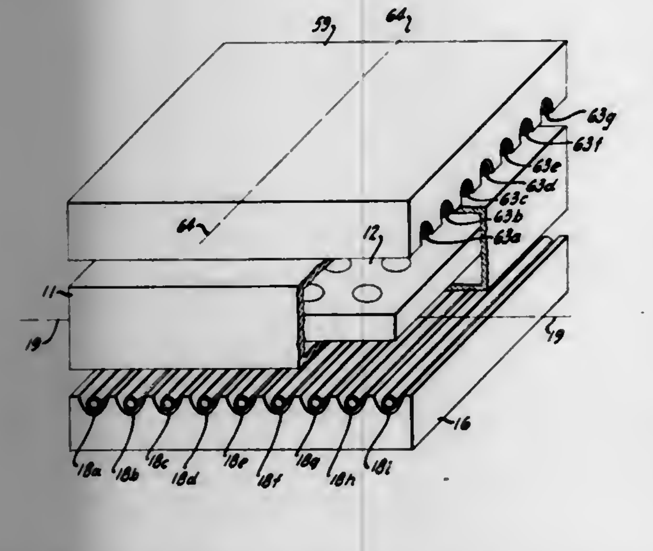
3,836,751
TEMPERATURE CONTROLLED PROFILING HEATER

Emmett R. Anderson, Saratoga, Calif., assignor to Applied Materials, Inc., Santa Clara, Calif.

Filed July 26, 1973, Ser. No. 382,738

Int. Cl. F27d *11/02*

U.S. Cl. 219—411 **14 Claims**



Heater for producing and maintaining a desired temperature profile along angularly displaced axes. The heater includes a pair of radiant heat sources each having a plurality of heating elements spaced along an axis outside a chamber fabricated of a material which is transparent to the heat energy produced by the heating elements, thermal sensors for monitoring the temperature in regions disposed on angularly displaced axes within the chamber, and means for adjusting the amount of heat energy produced by the heating elements to maintain a desired temperature in each region.

ERRATUM

For Class 219—441 see:
Patent No. 3,836,713

3,836,752
READING APPARATUS FOR A PROGRAM CONTROL SYSTEM

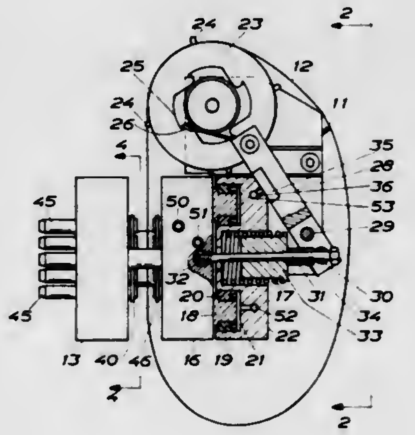
Tommy Henning Bruno Gustavsson, Skarholmen; Karl Gosta Karden, Nacka, and Sven Peter Jonas Westerberg, Saltsjo-Boo, all of Sweden, assignors to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Nov. 17, 1972, Ser. No. 307,564

Claims priority, application Sweden, Nov. 22, 1971, 14890/71

Int. Cl. G06k *7/02*

U.S. Cl. 235—61.11 J **33 Claims**



An apparatus for stepwise advancing and reading a record carrier in the form of a perforated tape, the tape being clamped between two blocks which have aligned channels that form pneumatic signal lines from one block to the other when there are holes in the tape in registration with channels in the blocks. One reader block is fixed and the other is spring biased open and moved to clamping position by a pneumatic piston. The tape is reeled over a driver roller having a cam curve. A lever mechanism is connected to the movable block and engages with a cam on the driver roller so as to transform the movement of the movable block away from its clamped position into an advancing movement of the tape.

3,836,753
MAGNETIC CARD READER

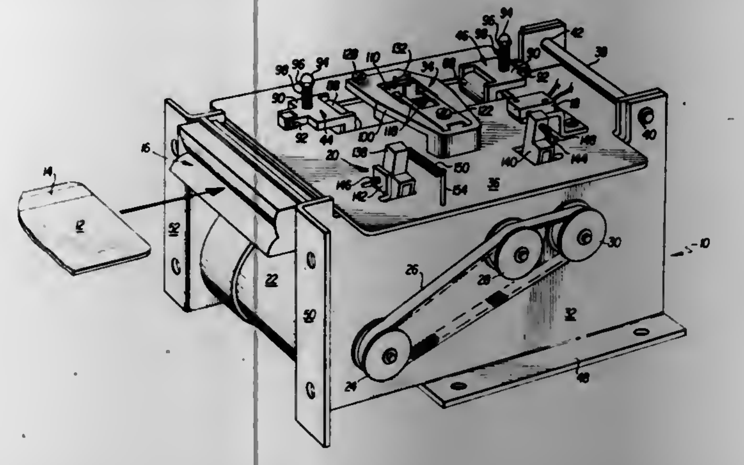
Raymond Vincent Pass, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Continuation of Ser. No. 205,091, Dec. 5, 1971. This application Oct. 4, 1973, Ser. No. 403,388

Int. Cl. G06k *7/10, 13/24;* **G11b** *5/48;* **B02c** *13/02;* **G01d** *15/08*

U.S. Cl. 235—61.11 D **12 Claims**

A reader assembly is disclosed for detecting recorded information carried by credit or identification cards. The reader assembly preferably includes a magnetic transducer for reading conventional magnetic codes. The transducer is moveably mounted in the top or cover plate of the reader assembly, which is hinged to permit ready access to the interior of the reader assembly, for emergency servicing or routine maintenance. A card transport mechanism is provided, which is preferably powered by a reversible D.C. motor. The transport mechanism is activated by insertion of a card into the reader assembly. The mechanism is adjustable to permit the reader to handle cards of varying thicknesses and widths.



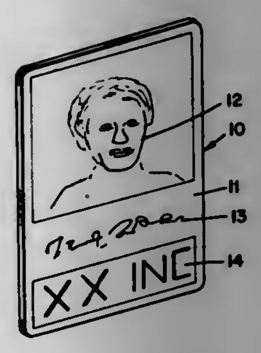
3,836,754
CODED CARD EMPLOYING DIFFERENTIAL TRANSLUCENCIES

Frederick D. Toye, 23511 Tiara St., Woodland Hills, Calif. 91364, and Frederick N. Toye, 3853 Dixie Canyon Ave., Sherwood Oaks, Calif. 91405

Filed Sept. 18, 1972, Ser. No. 289,974

Int. Cl. G06r *19/06*

U.S. Cl. 235—61.12 N **21 Claims**



A translucent but not completely transparent card providing one or more areas or data zones where the light transmissivity through the card significantly differs from the overall light transmissivity of the card. At least two levels of light transmissivity are used in an assortment of cards with both levels being different from that of the card itself as well as from each other. A series of such levels may be used in a system with sensors that detect different levels of light transmissivity. A plurality, large or small, of such data zones may be used in either static or dynamic systems and with digital or other types of coding, enabling a large number of differentiable data to be put on any one of a series of cards and making counterfeiting very difficult. The cards may be plastic with fused-together laminations, and the data zones may be provided on one of the inner laminations, or it may be paper with the data zones provided by surface printing.

3,836,755
SELF-SERVICE SHOP

Kurt Ehrat, Zurich, Switzerland, assignor to Gretag Aktiengesellschaft, Regensdorf, Switzerland

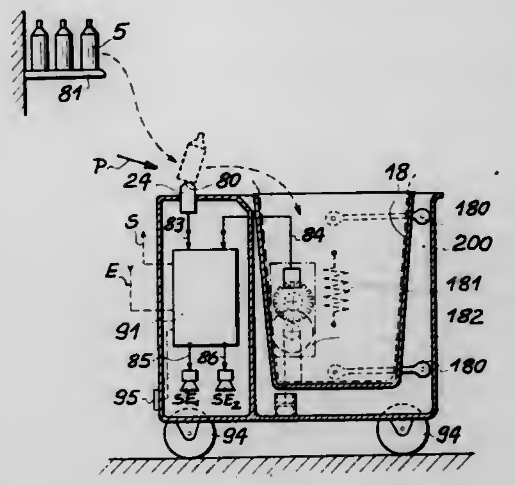
Filed Feb. 12, 1973, Ser. No. 331,884

Claims priority, application Switzerland, Feb. 14, 1972, 2087/72

Int. Cl. G06k *7/00, 15/00*

U.S. Cl. 235—61.7 R **16 Claims**

Equipment for a self-service shop having a check-out station for determining sales data from machine readable data relating to the type of article and its weight applied to articles purchased by a customer; the equipment comprising a container in which the customer places the articles that he wishes to purchase, the container including means for reading the data applied to each article as it is placed in or removed from the container, and weighing means for indicating the increase and decrease in weight of the container resulting from placing or removing an article therein. The equipment also includes a system for evaluating the data read by the reading means and the weight indication to determine whether the purchased article has been put in or removed from the container and the data correctly read, a signalling system being provided to indicate if either the article data has been correctly read but the article has not been put in or removed from the container or the correct weight has been indicated but the data has not been correctly read. The evaluation system may be in the container or in the check-out station in which case communication between it and the container is by radio.



3,836,756
DIGITAL CONTROL SYSTEM

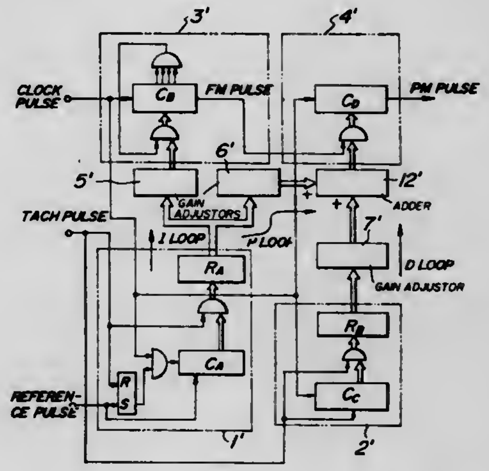
Makoto Yammoto, Tokyo; Tomio Fukuda, Tokyo; Masamichi Nakatake, Tokyo; Takeshi Yoshida, and Hironobu Katayama, both of Sagamihara, all of Japan, assignors to Shiba Electric Co., Ltd. and Nippon Hoso Kyokai, both of Tokyo, Japan

Filed Apr. 5, 1973, Ser. No. 348,418

Claims priority, application Japan, Apr. 5, 1972, 47-33436; June 6, 1972, 47-55572; Nov. 25, 1972, 47-117708

Int. Cl. H04n *5/76;* **G05b** *21/02*

U.S. Cl. 235—150.1 **30 Claims**



A digital control system comprises a digital phase comparator, a digital frequency discriminator, a digital frequency modulator and a digital phase modulator, in said digital phase comparator a phase difference between a reference pulse and a pulse to be controlled being converted into a binary number by quantizing said phase difference with clock pulses having a sufficiently high frequency, said binary number being supplied to said digital frequency modulator consisted of a counter as a set count to produce frequency modulated carrier pulses, in said digital frequency discriminator a frequency difference between said reference pulse and said pulse to be controlled being converted into a binary number by counting said clock pulses, said binary number being supplied to said digital phase moudulator consisted of a counter to produce phase modulated carrier pulses.

3,836,757

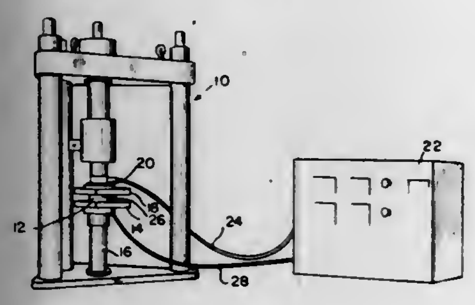
METHOD AND APPARATUS FOR THE COMPUTATION OF DYNAMIC PROPERTIES

Chester L. Nachtigal; Benny M. Hillberry, and Raymond E. Goodson, all of West Lafayette, Ind., assignors to GLN Inc., Lafayette, Ind.

Continuation-in-part of Ser. No. 231,557, March 3, 1972, abandoned. This application May 22, 1973, Ser. No. 363,180

Int. Cl. G06g *7/32*

U.S. Cl. 235—151.3 **13 Claims**



A method and apparatus for computing the dynamic properties of a material or substance. A transducer is used to generate an electrical signal which is representative of an excitation that is dynamically applied to the material, and a second transducer is used to generate an electrical signal which is representative of the response of the material to such excitation. Independent compensation circuits operate on the generated excitation signal and the generated response signal to compensate for any dynamic errors which are introduced into the phase and/or magnitude ratio existing between the signals by the transducing instruments. A pair of generating circuits, whose characteristics are identically and dynamically matched over the frequency range of interest, accept the compensated excitation signal and the compensated response signal, respectively, and operate thereon. The outputs of one of these matched generating circuits is a first generated signal which is closely related to the compensated response signal and a second generated signal which represents the exact time derivative of the first generated signal, i.e., the related response signal. The output of the second matched generating circuit is a third generated signal which is closely related to the compensated excitation signal. These matched generating circuits preserve the gain and phase relationships which exist between the applied excitation and the actual resultant response.

3,836,758

WIDE FREQUENCY RANGE COUNTER SYSTEM UTILIZING AUTOMATIC RANGE SEARCHING AND LOOP COMPENSATION

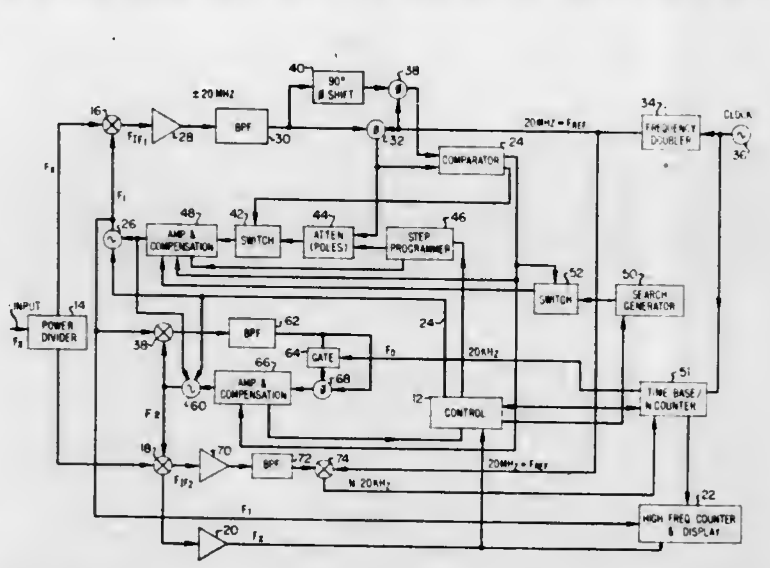
Richard F. Schneider, Sunnyvale, and Arthur R. Bloedorn, Los Altos, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Nov. 1, 1972, Ser. No. 302,776

Int. Cl. G01r *23/02*

U.S. Cl. 235—151.31 **8 Claims**

A microwave frequency counter operable over the frequency range of from 1 Hz to 18 GHz is provided employing an input phase lock loop and automatic transfer oscillator techniques for determining the harmonic number at which the input phase lock loop locks, means being provided for automatically searching over a plurality of N number ranges in succession, with means for changing the loop compensation of the input phase lock loop for different N ranges and also changing the VCO sweep voltage rates for the various N ranges to insure phase loop lock on the preferred N number.



3,836,759

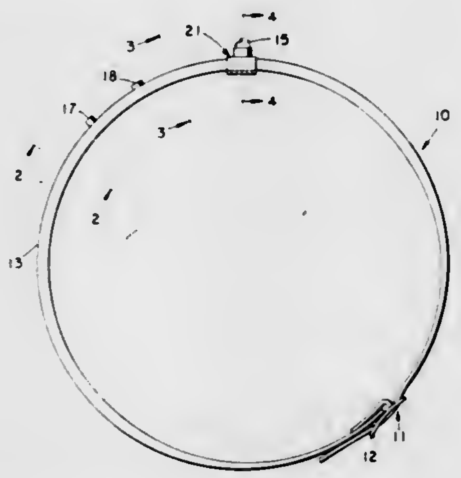
SAFETY LIGHT CIRCUIT

Stephen E. Silverman, 187 Wilton Rd., Westport, Conn. 06880

Filed Aug. 20, 1973, Ser. No. 389,573

Int. Cl. F21v *19/00, 33/00*

U.S. Cl. 240—6.4 W **6 Claims**



A circlet attachable around a body portion enfolds rechargeable batteries which operate a safety light which may flash with the battery circuit. The light is optionally positionable to make good electrical contact.

3,836,760

LIGHTING FIXTURE UNIT

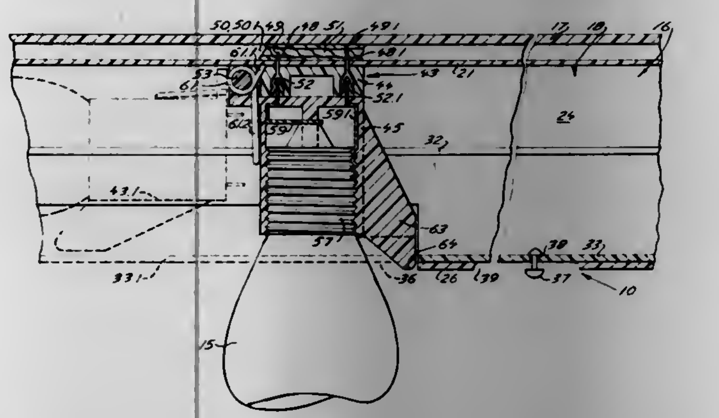
Samuel Harper Robinson, Edmonton, Alberta, Canada, assignor to Hide-A-Lite Industries Ltd., Edmonton, Alberta, Canada

Filed Jan. 6, 1972, Ser. No. 215,895The portion of the term of this patent subsequent to Sept. 17, 1990, has been disclaimed.

Int. Cl. F21p *1/02*

U.S. Cl. 240—10 R **5 Claims**

A lighting fixture unit having a housing adapted to be mounted on a building or similar structure, the housing having a wall having a plurality of longitudinally spaced apart openings, a sliding door mounted on the housing, the door having openings adapted to be positioned into and out of register with the housing openings and an electric light socket assembly adapted to receive an electric light bulb hingedly mounted in the housing at each housing opening for swinging the light bulbs from a hidden position within the housing to an exposed position extending out of the housing when the door is moved from a position covering the housing openings to a position in which each door opening registers with a housing opening.



3,836,761

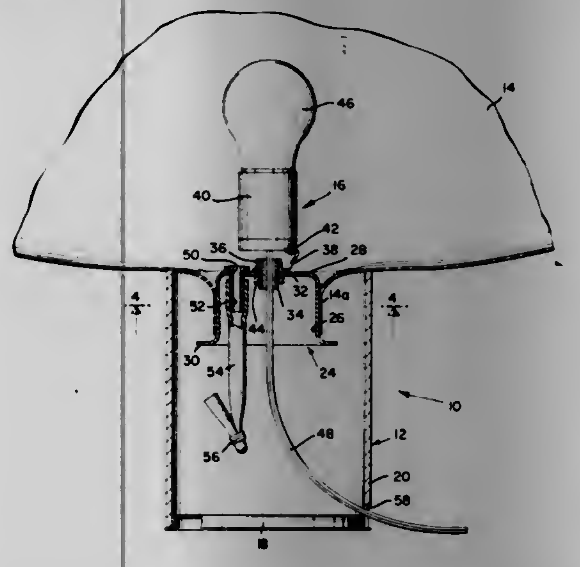
ELECTRIC LAMP WITH BALLOON DOME

Leonard Kleinman, P.O. 163 Bergen, Brooklyn, N.Y. 11217, and Harry Zelenko, P.O. 240 E. 61st. St., New York, N.Y. 10021

Filed May 30, 1973, Ser. No. 365,170

Int. Cl. F21p *1/02*

U.S. Cl. 240—10 C **7 Claims**



An electric lamp has a dome in the form of a large inflated balloon containing an electric light bulb and a portion of the socket therefor. The socket is mounted on a heavy metal cup upon which the neck of the balloon dome is mounted with an air-tight seal. In assembling the lamp, the metal cup is located within a hollow cylindrical base, the weight of the cup being sufficient to maintain the balloon dome seated firmly on the base.

ERRATUM

For Class 240—25 see:
Patent No. 3,836,954

3,836,762

DIVER'S LIGHT APPARATUS

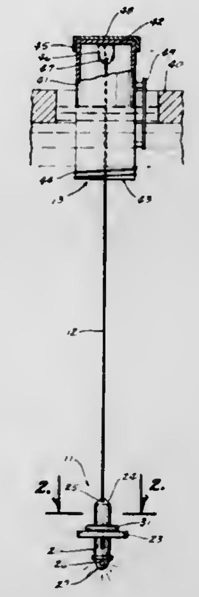
Ivor L. Thomason, 2015 S.W. 1st, Des Moines, Iowa 50315

Filed Apr. 26, 1973, Ser. No. 354,491

Int. Cl. F21v *31/00*

U.S. Cl. 240—26 **5 Claims**

A diver's light for various underwater usages which comprises a light means, a container means which may enclose the light means, and a suspension means which connects the light means and container means and holds the light means in positions external to the container means.



3,836,763

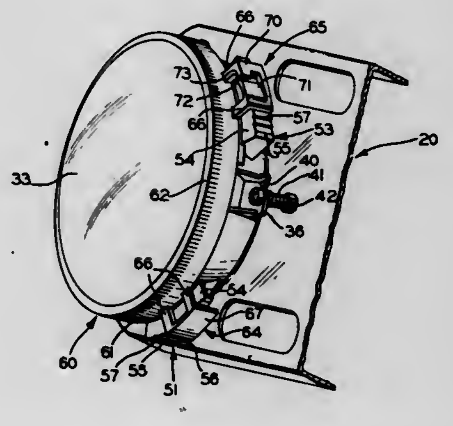
VEHICLE LIGHTING UNIT ASSEMBLY

John J. Hoffman, Spring Arbor, and Jay E. White, Jr., Southfield, both of Mich., assignors to Woodall Industries Inc., Detroit, Mich.

Filed Oct. 12, 1973, Ser. No. 405,773

Int. Cl. F21v *7/00*

U.S. Cl. 240—41.6 **11 Claims**



A vehicle lighting unit assembly of the adjustable type including a generally cup-shaped housing having a frontal opening surrounded by a rim on which a sealed beam head lamp is seated. Radially outwardly projecting surfaces are provided on the housing adjacent the opening therein and cooperate with lugs provided on a separate retaining ring to clamp the head lamp between the ring and the housing rim when the ring is turned or rotated in one direction relative to the housing. Portions of a locking device are provided on one of the surfaces and its cooperating lug to prevent rotation of the ring in the opposite direction after the desired clamped position is obtained.

3,836,764

FLUQRESCENT LAMP CASINGS

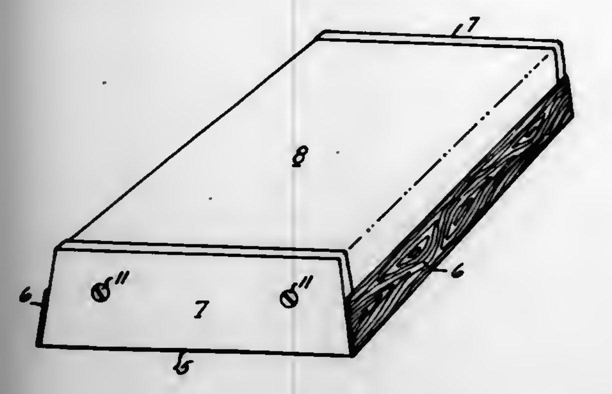
Leon Szer, 35 Bealiba Rd., South Caulfield, Australia

Filed Sept. 26, 1973, Ser. No. 400,892

Int. Cl. F21s *3/00*

U.S. Cl. 240—51.11 R **2 Claims**

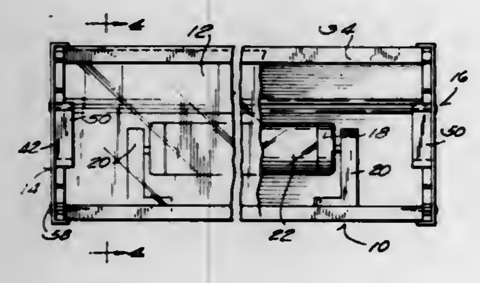
A casing for fluorescent lamps having side members each of which includes a longitudinal slot for cooperation with a base member, an end slot for cooperation with an end member and a longitudinal retaining shoulder for cooperation with a diffuser cover.



3,836,765
LIGHTING FIXTURE FOR AQUARIUM OR SIMILAR ARTICLE

Gerald R. Ritzow, 6300 Parkview Rd., Greensdale, Wis. 53129, and Roger C. Ritzow, S53 W 23581 Big Bend Rd., Waukesha, Wis. 53186

Filed Feb. 11, 1974, Ser. No. 441,676
Int. Cl. H05b *33/02*
U.S. Cl. 240—51.11 R **6 Claims**



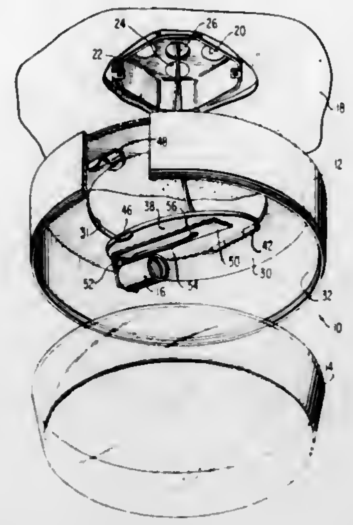
An elongated lighting fixture comprising an elongated hood member, an elongated lens member, a pair of end cap members and a fluorescent light subassembly. The subassembly is comprised of a pair of socket members and a fluorescent bulb with the socket members slidably attached to the hood member. The end cap members are removably attached to opposite ends of the hood member. Each of the end cap members has a plurality of break-away spacer members formed integrally therewith to facilitate adjustment of the overall length of the fixture.

3,836,766
LIGHT FIXTURE

Seymour Auerbach, 1225 19th St. N.W., Washington, D.C. 20036

Filed Feb. 1, 1973, Ser. No. 328,622
Int. Cl. F21s *1/02, 3/02, 5/00*
U.S. Cl. 240—73 DA **30 Claims**

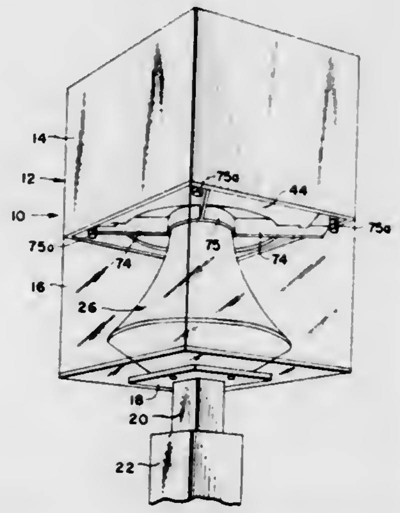
The light fixture includes a base secured either directly to the ceiling or wall surface about the opening to the junction box, i.e., independently of the junction box, or directly to the junction box. The base carries an element movable between a position overlying the junction box precluding access thereto and a position spaced from the junction box and providing access to the junction box. The element is preferably hinged to the base but may be otherwise connected thereto, i.e., by screwthreads, cams, snap fit, or the like whereby access to the junction box can be selectively obtained. The receptacle for the light source is carried by either the movable element or the base of the light fixture. By first securing the base to the ceiling or junction box and moving the element to the position providing access to the junction box, quick electrical connection can be effected without the need for simultaneously supporting the fixture while effecting the connection. Also, selective access to the junction box after the light fixture is installed is obtained.



3,836,767
LIGHTING FIXTURES

Martin Lawrence Lasker, Metuchen, N.J., assignor to Moldcast Manufacturing Company, Newark, N.J.

Filed Feb. 26, 1973, Ser. No. 335,538
Int. Cl. F21s *3/10*
U.S. Cl. 240—25 **44 Claims**

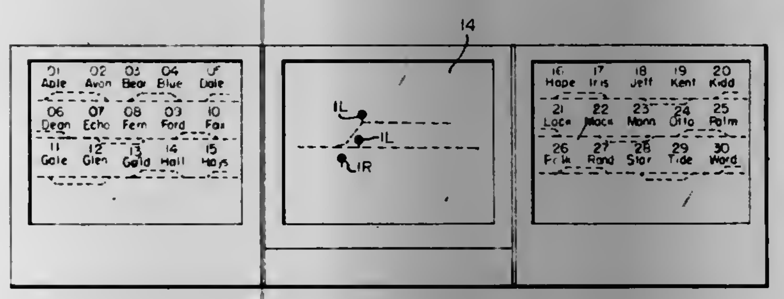


A compact lighting fixture, principally for outdoor use, employs a pair of reflectors in conjunction with a lamp having an elongated light source. One of the reflectors has a downwardly facing concave internal reflecting surface which surrounds the light source. The other reflector is located beneath the first reflector and has a concave external reflecting surface which faces outwardly and upwardly. The light source is aligned with the vertical axis of the fixture, which is the common axis of both reflectors. Light emitted from the source is reflected from the upper reflector to the lower reflector and is then projected outwardly, some light being projected outwardly directly from the source, without reflection. A glare baffle extends inwardly from the bottom of the upper reflector. As a result of this optical system, most of the light is projected from the fixture at a high angle relative to downward vertical, but light cut-off occurs at a selected angle less than 90° relative to downward vertical. The light is evenly distributed on the ground illuminated by the fixture. Glare is minimized. The upper reflector can be modified to produce asymmetrical horizontal light distribution patterns. The reflectors are surrounded by an enclosure having an opaque upper section and a light-transmitting lower section. Reflections from the inner surface of the loser section may provide fill-in illumination near the vertical axis of the fixture. A structural tube extends upwardly through the lower reflector and supports the upper reflector and the upper section of the enclosure upon radially extending arms. The tube may contain a spring-biased, centered receptacle for the lamp, which rests upon a seat at the top of the tube. The upper reflector may be formed in two parts, one part being fixed to a removable top wall of the upper section of the enclosure to provide access to the lamp.

3,836,768
CENTRALIZED TRAFFIC CONTROL SYSTEM FOR RAILROADS

James A. Clarke, Hilton; John J. Jacobus, Rochester, and Eric Peter Lager, Honeoye Falls, all of N.Y., assignors to General Signal Corporation, Rochester, N.Y.

Filed Sept. 22, 1972, Ser. No. 291,519
Int. Cl. B61l *27/04*
U.S. Cl. 246—3 **10 Claims**



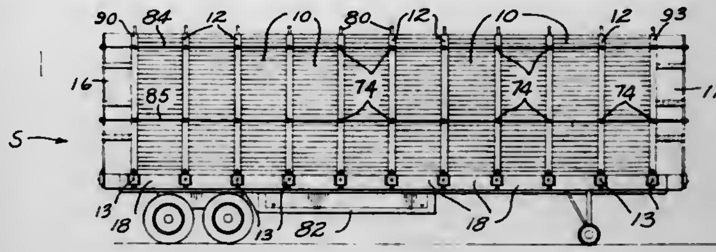
A centralized traffic control system for governing from a central office a plurality of groups of track switches and signals which are disposed along a stretch of railway track. At the central office, a plurality of switch means designates a selected control for any switch or signal in any selected group. Also, an indication storage means is provided at the central office which is responsive to the conditions of the track switches and signals at each of the field stations and also responds to indicate the occupancy of the associated trackway. The indication storage means may drive a cathode ray tube display. An electonic digital computer is also provided which includes means for storing a program comprising a plurality of sub-routines each of which is associated with a corresponding one of the groups of switches and signals, also known as field stations. When a particular control is designated at the central office for any selected one of the field stations, the particular subroutine of the program which is associated with that particular field station is selected, and thereafter, on successive steps of the sub-routine, selected ones of the indications are interrogated in order to make possible a final determination as to whether the designated control is a permissible control. If the designated control is permissible, a code is transmitted to the selected field station to effect that control and thereafter an indication is transmitted back to the central office indicating that the control has become effective.

3,836,769
RETRACTABLE WALLS

Walter Fred Wilson, 133 W. Wilken Way, Barstow, Calif. 92802

Filed Nov. 9, 1972, Ser. No. 305,055
Int. Cl. B60p *3/42*
U.S. Cl. 296—10 **8 Claims**

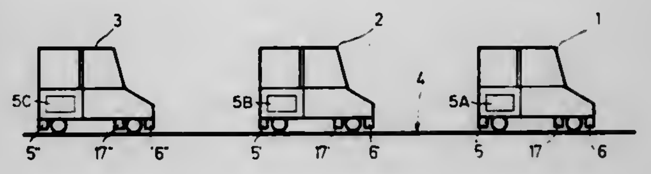
Retractable side walls for a flat bed semitrailer comprising panels which can be mechanically raised to form the trailer walls, as needed, and subsequently retracted to convert the trailer back into a flat bed vehicle. Each of these panels is flexible enough for rolling around a core drum, to which one end is affixed, and there is a separate core drum for each of the panels rotatably mounted in a housing situated at an edge of the truck bed. This housing has a space for in-and-out movement of the panel to permit lowering and raising of the truck walls. Within the housing, there is a mechanism for causing the panel to unwind from its core drum, or wind onto the drum, when driven by an air impact wrench. Anchored in pockets around the outer edge of the trailer bed are a number of relatively flat upright stakes. The stakes are positioned so that there is one in the space between each pair of adjacent panels. The edges of the stakes have grooves of V-shaped cross section, and the panels have male edges of V-shaped cross section to slide matingly in the grooves of the stakes. The panels are thus guided upwardly, between the stakes, as they are unwound from the core drums, to form the trailer walls.



3,836,770
APPARATUS FOR MEASURING THE DISTANCE BETWEEN TWO SUCCESSIVE OBJECTS

Conrad Helmcke, Munich; Walter Hermann, Weissenfeld, and Peter Kraus, Munich, all of Germany, assignors to Messerschmitt-Bolkow-Blohm GmbH, Munich, Germany

Filed Aug. 3, 1972, Ser. No. 277,783
Claims priority, application Germany, Aug. 7, 1971, 2139617
Int. Cl. B61l *3/22*
U.S. Cl. 246—167 D **11 Claims**



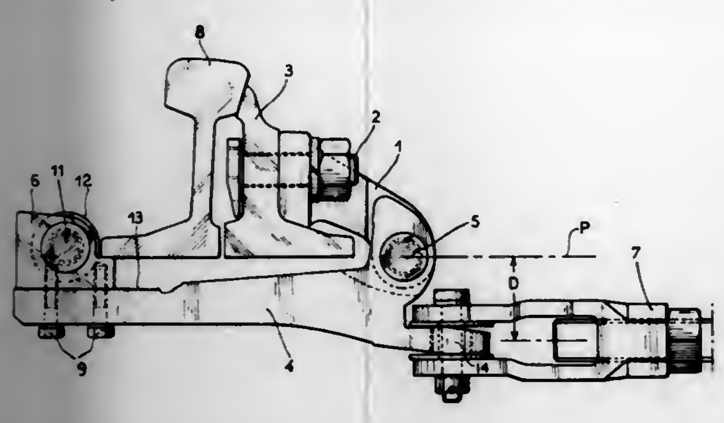
The invention relates to and an apparatus for measuring the distance between two spaced objects and wherein either or both of said objects may be movable with respect to each other and/or with respect to a fixed point. Said objects, such as vehicles arranged along a track, each carry a transmitter for the emanation of signals and a receiver for the reception of signals emanated by an adjacent object. The signals are fed to a conductor extending along said track and able to provide a sufficiently rapid attenuation of said signals whereby same may serve as an accurate indicator of relatively short distances between the objects. For example, such conductor can comprise at least two parallel conductors connected throughout their length by resistive means of relatively high conductivity. Supplemental transmitters may also be applied to said objects to suppress transmitted signals in one direction while permitting such transmission in another direction in order to minimize interference with the signal received from another object, as a vehicle, in the one direction. Thus, in a line of three vehicles, the transmitter on the second vehicle will not interfere with the receiver on the second vehicle but will effectively send signals to the receiver of the third vehicle.

3,836,771
TRACK SWITCH WITH LATCH

Jean-Jacques Berst, Reichshoffen, France, assignor to Pierre Andre Berst, Reichshoffen (Bas-Rhin), France, a part interest

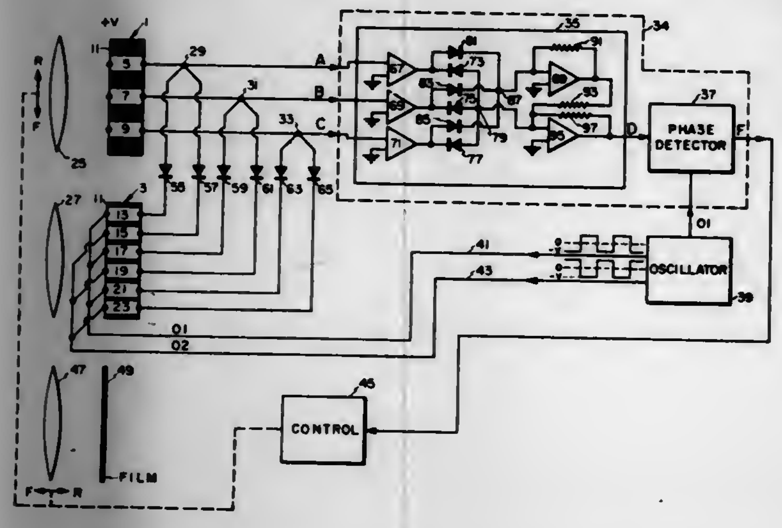
Filed Jan. 26, 1973, Ser. No. 327,092
Int. Cl. E01b *7/00*
U.S. Cl. 246—448 **3 Claims**

A track switch for moving a horizontal switch tongue, comprises a bracket mounting the tongue for limited vertical swinging movement on a latching member, a control rod for horizontally moving the latching member, and on the side of the fixed rail opposite the bracket, a support carried by the latching member and supporting a roller whose axis is parallel to the fixed rail, the roller projecting beyond its support. The support is adjustable toward and away from the bracket.



3,836,772
DETECTING APPARATUS FOR DETERMINING WHEN IMAGE IS IN FOCUS

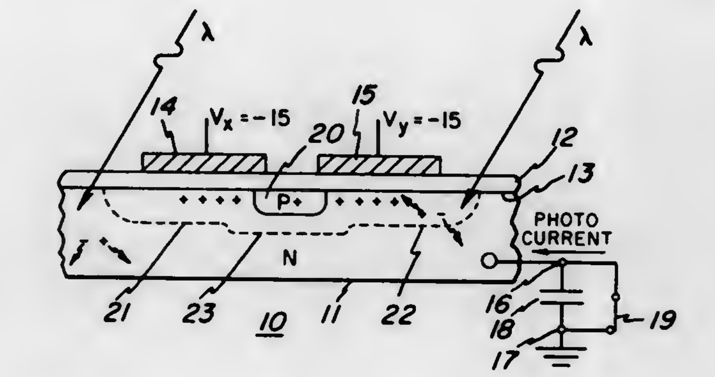
Norman L. Stauffer, Englewood, Colo., assignor to Honeywell Inc., Minneapolis, Minn.
Filed July 18, 1973, Ser. No. 380,500
Int. Cl. G01j *1/36*
U.S. Cl. 250—204 **6 Claims**



A focus detecting system includes first and second lens devices for forming first and second auxiliary images of an object on first and second detector devices, respectively. Each detector device includes a plurality of linearly displaced light responsive elements. One of the lens devices is movable with respect to its associated detector device to shift the light distribution pattern of the corresponding auxiliary image in the direction of linear displacement of the light responsive elements. The movable lens device is so coupled to a movable objective lens, which focusses a principal image of the object on a light sensitive film, that when the principal image is in focus, the light distribution patterns of the first and second images will be correspondingly positioned with respect to the first and second detector devices, respectively. A reference signal of a predetermined frequency controls a switching circuit to compare the electrical signals from the light responsive elements in the first detector device, alternately, at the predetermined frequency of the reference signal, with electrical signals provided by first and second predetermined groups of the light responsive elements in the second detector array. Signals are thereby provided which are processed and phase detected to provide an output signal representative of the direction that the objective lens is displaced from a focus position at which the principal image is in sharpest focus.

3,836,773
DEVICES FOR SENSING RADIATION

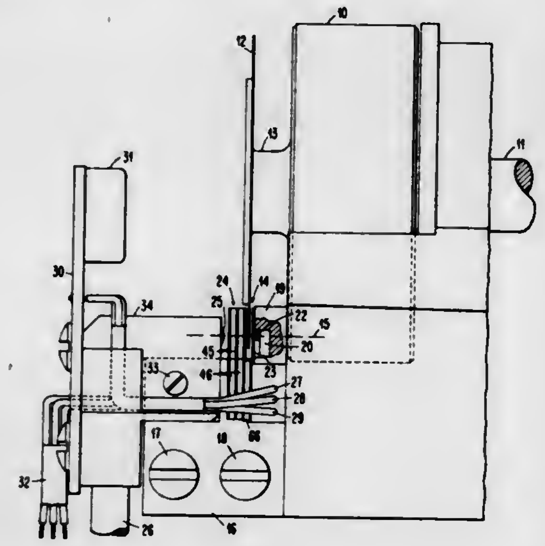
Hubert K. Burke, Scotia, and Gerald J. Michon, Waterford, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed Apr. 30, 1973, Ser. No. 355,571
Int. Cl. H01j *39/12*
U.S. Cl. 250—211 J **10 Claims**



In an array of radiation sensitive devices each including a pair of closely coupled conductor-insulator-semiconductor cells on a common substrate of one conductivity type, stored charge is repeatedly transferred from one cell of the pair to the other cell of the pair before being injected into the substrate and an electrical signal developed thereby. In order to minimize charge loss to the substrate and noise ultimately produced in the electrical signal due to the repeatedly incomplete transfer of charge between the cells of a pair, a region of opposite conductivity type is provided in the substrate substantially surrounding the semiconductor portions of the capacitor cells and contiguous therewith.

3,836,774
CAPSTAN-TACHOMETER ASSEMBLY

Adolfo M. Guzman; Paul Y. Hu, both of Boulder, and Tracy N. Waller, Broomfield, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 6, 1973, Ser. No. 385,942
Int. Cl. G01d *5/34, 5/36*
U.S. Cl. 250—231 R **9 Claims**

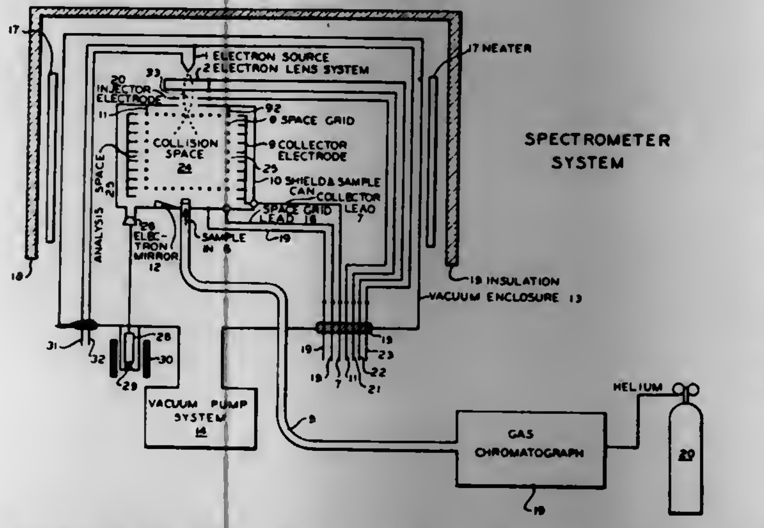


A tape drive capstan includes an optical see-thru tachometer disc having a large number of alternating opaque and transparent regions, such that the passage of each opaque region is a measure of a unit distance of capstan rotation. Rotational movement and direction are sensed by a two-phase tachometer which includes the capstan disc as the moving member thereof. Two phototransitors are closed spaced and view the tachometer disc through a stationary slit mask. A single light source and a mechanical light collimator illuminate the capstan disc with two closely spaced and parallel light

paths having minimum crosstalk. The phototransistors, mask and light collimator are accurately aligned.

3,836,775
ELECTRON IMPACT SPECTROMETER OF HIGH SENSITIVITY AND LARGE HELIUM TOLERANCE AND PROCESS OF CHARACTERIZING GASEOUS ATOMS AND MOLECULES BY THE ENERGY LOSS SPECTRUM

Stuart L. Ridgway, Princeton, N.J., assignor to Princeton Applied Research Corporation, West Windsor Township, N.J.
Filed Mar. 8, 1973, Ser. No. 339,544
Int. Cl. G01n *23/02*
U.S. Cl. 250—305 **55 Claims**

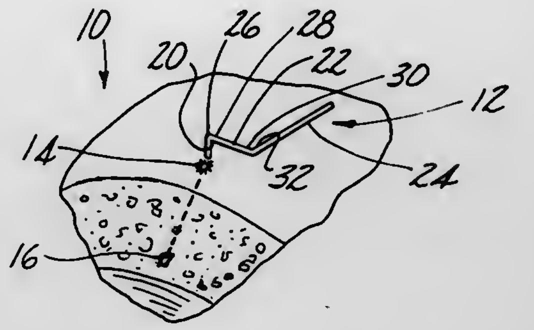


Process of and apparatus for measuring the energy loss of electrons in collisions with gaseous material, e.g., gaseous sample atoms and molecules for the purpose of characterizing (identifying, discriminating between or determining the molecular structure of) the atoms or molecules by the electron energy loss spectrum are provided. A current of low energy electrons is introduced into a region defined by being enclosed in a fine wire grid. The sample atoms or molecules are also in this region. The sample may or may not be diluted with helium gas. Electrons that have collided with the sample or with helium attempt to diffuse from this region out toward a collector electrode whose potential may be varied during the course of obtaining a spectrum. In general, if the kinetic energy of an electron is sufficient for it to surmount the potential hill (in the gravitational plot sense) or electrostatic potential between the collector and the grid, it will eventually be absorbed by the collector, since the area of the collector is purposely made enormously greater than that of the grid. If the kinetic energy of the electron is insufficient to reach the collector, i.e., is insufficient to surmount the potential hill or electrostatic potential between the potential of the grid and the potential of the collector, the electron is eventually absorbed on the grid. Thus the current to the grid is made up of those electrons that have lost sufficient kinetic energy in collisions with the sample a atoms or molecules that they cannot surmount the electrostatic potential between the grid and collector and reach the collector. The measure of this current as a function of the collector potential, e.g., the derivative of the current to the grid with respect to the collector potential, provides a spectrum of energy loss of the electrons particularly useful in characterizing, i.e., identifying, discriminating between, or determining the molecular structure, of the sample gaseous atoms or molecules.

3,836,776
THREE DIMENSIONAL X-RAY OPAQUE FOREIGN BODY MARKER DEVICE

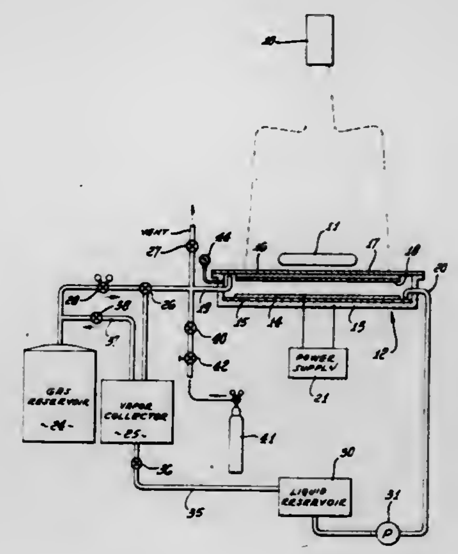
Edwin H. Gullekson, 1721 Laurel Oak Dr., Flint, Mich. 48507
Filed Mar. 1, 1973, Ser. No. 337,017
Int. Cl. G01b *15/00*
U.S. Cl. 250—312 **2 Claims**

A three dimensional X-ray opaque device for aiding in the location of foreign bodies embedded in human flesh, the device having three elongated members disposed at right angles to each other and including an indicating spot to identify a predetermined point on the device. With the use of an X-ray machine the device aids in determining the location of a foreign object embedded in some parts of the human body.



3,836,777
LIQUID DISPLACEMENT GAS RECOVERY SYSTEM FOR ELECTRON RADIOGRAPHY IMAGING CHAMBER

John Henry Lewis, West Los Angeles; Arthur Lee Morsell, Tarzana, and Murray Samuel Welkowsky, Los Angeles, all of Calif., assignors to Xonics, Inc., Van Nuys, Calif.
Filed July 23, 1973, Ser. No. 381,862
Int. Cl. G03b *41/16*
U.S. Cl. 250—315 **8 Claims**

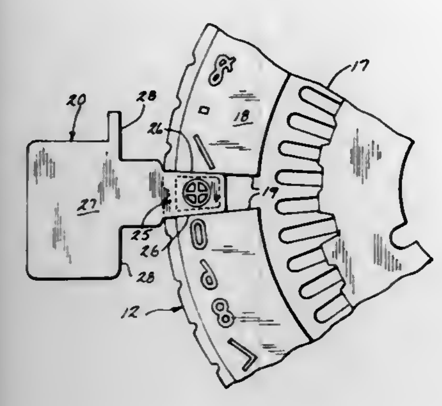


Process and apparatus for providing imaging gas under pressure to the imaging chamber of an electronradiographic system. A pump for providing a flushing liquid under pressure to the imaging chamber for flushing air to exhaust, and a source of imaging gas under pressure for flushing the liquid from the chamber and for charging the chamber, with the pump and liquid also flushing the imaging gas from the chamber after an exposure for recovery of the imaging gas under pressure.

3,836,778
INSERT TEMPLATE FOR A LABEL MAKING MACHINE

James M. Mrozek, Milwaukee, Wis., assignor to W. H. Brady Company, Milwaukee, Wis.
Filed July 25, 1973, Ser. No. 382,510
Int. Cl. B41b *17/22*
U.S. Cl. 95—4.5 R **3 Claims**

A template has a tab portion in which a special character is formed. The template is insertable into the tape discharge opening of a label-making machine and the tab is positioned in an image-forming station at which the special character is formed on an ultraviolet light sensitive label material when the machine is operated.



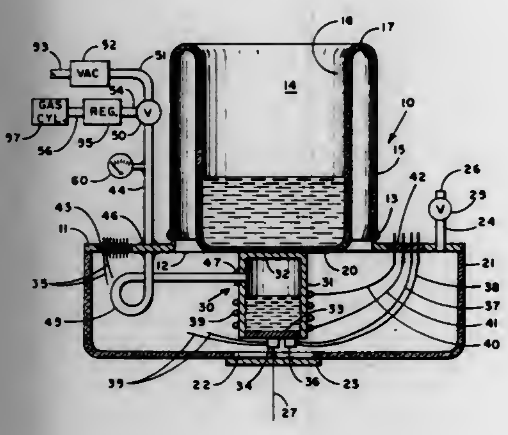
3,836,779
COOLING APPARATUS FOR INFRARED DETECTORS

Robert Peter Bruno, Watertown, and Albert Winston Naugler, Wayland, both of Mass., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 22, 1971, Ser. No. 210,668

Int. Cl. G01j *3/02;* **F17c** *7/00*

U.S. Cl. 250—352 **2 Claims**



A variable temperature dewar in which a heat load is thermally connected to a heat sink by a short heat pipe, the temperature of the load being varied by varying the pressure in the heat pipe to vary the boiling temperature of a cryogenic fluid contained therein, of which the liquid phase is in conductive thermal contact with the load and the gas phase is in conductive thermal contact with the sink.

3,836,780
DEVICE FOR SPARK DISCHARGE CHAMBER EMPLOYING SEGMENTED CATHODE

Lars Ebbe Amqvist, Taby, Sweden, and Floris Timmer, Eindhoven, Netherlands, assignors to AGA Aktiebolag, Lidingo, Sweden

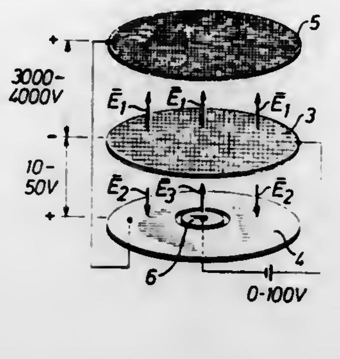
Filed Jan. 17, 1972, Ser. No. 218,385

Claims priority, application Sweden, Jan. 29, 1971, 1119/71

Int. Cl. G01t *1/18*

U.S. Cl. 250–385 **2 Claims**

A spark discharge chamber for detailed study of gamma and beta radiation comprising a plane cathode, a lattice-shaped auxiliary electrode and an anode, said cathode being divided into at least two cathode sections which are electrically insulatable from one another.



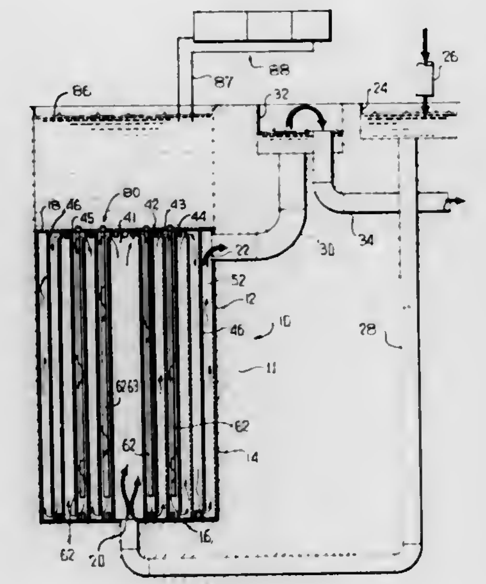
3,836,781
IRRADIATOR FOR WATER PURIFICATION

Charles V. Ellison, Alexandria, Va., assignor to Water Purification Corporation of America, Washington, D.C.

Filed Aug. 1, 1972, Ser. No. 276,929

Int. Cl. G21h *5/00*

U.S. Cl. 250—432 **8 Claims**



An irradiator for sterilizing fluids, particularly contaminated effluents such as sewage. A housing is provided with a plurality of tubular partitions defining a flow path for causing sewage and the like to flow, alternately, back and forth past a series of source tubes containing radioactive material whereby the sewage provides shield means surrounding the radioactive source and becomes sterilized as it passes into and out of the housing.

3,836,782
APPARATUS FOR VIEWING A DISTANT FLUORESCENT OBJECT

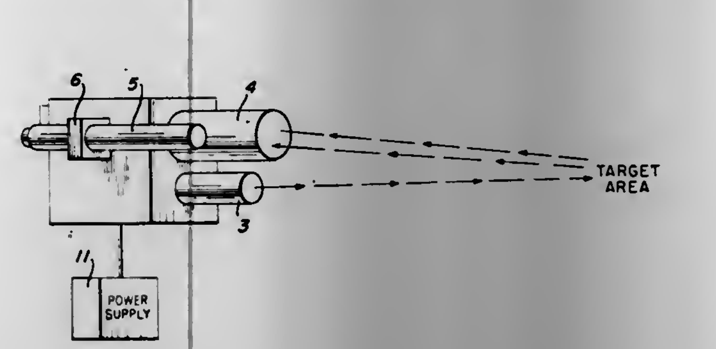
David K. Forbes, 2116 Crownhill Rd., San Diego, Calif. 92109, and Richard B. Nehrich, Jr., 4019 Marlesta Dr., San Diego, Calif. 92111

Filed May 3, 1968, Ser. No. 726,617

Int. Cl. G01n *21/38*

U.S. Cl. 250—461 **6 Claims**

A portable casing mounts a short arc ultra-violet light source and an optical system for collimating the light from the source and beaming it onto a distant object which has been marked with a fluorescent material. The casing further mounts a conventional telescope for detecting and viewing the resulting fluorescence and a second telescope focused into a spectroscope.



3,836,783
RADIOGRAPHIC FILM CASSETTE

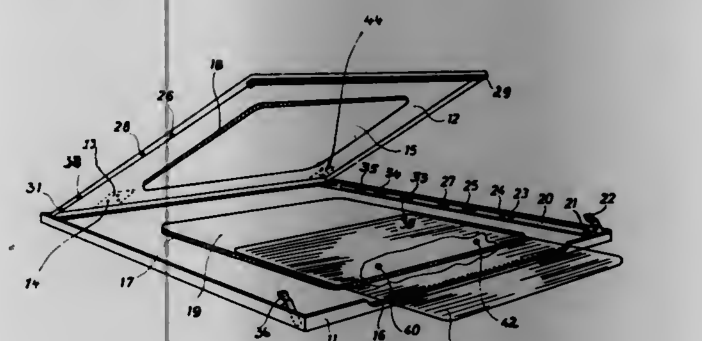
Emile Frans Stievenart, Hoboken; Leo Paul Van Bouwel, Mortsel, and Hendrik Sylvester Plessers, Boechout, all of Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

Filed Dec. 27, 1972, Ser. No. 319,062

Claims priority, application Great Britain, Dec. 29, 1971, 60344/71

Int. Cl. G03b *17/26*

U.S. Cl. 250—481 **7 Claims**



A radiographic film cassette suited for being used in combination with a daylight unloading system is presented. It comprises a cover and a bottom frame which are hingedly connected to each other in such a way that not only a rotation at the hinges occurs, but also a lifting up of the cover near the hinges. In this way the sheet of X-ray material becomes completely free. Further, two deformable pins are provided in the bottom part in order to permit the air to flow under the sheet, avoiding thereby a sticking of the latter to the screens. The cassette is advantageously used with a simple unloading device, placed in front of the entrance slit of a processing machine; the unloading device itself may be supplementarily equipped with means to print identification data on the sheet of X-ray material.

3,836,784
ACTIVATED IODIDE X-RAY IMAGE INTENSIFIER SCREEN

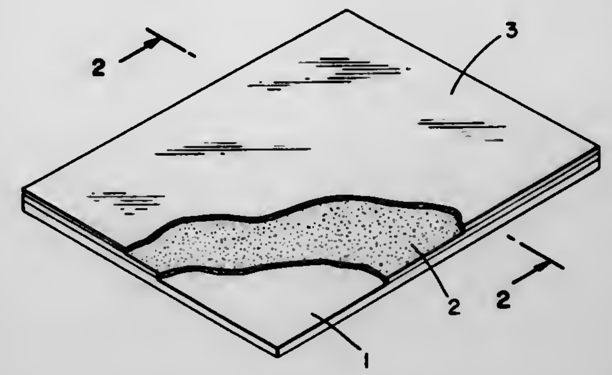
Clayton W. Bates, 755 Rhode Island St., San Francisco, Calif. 94107, and Richard A. Wallace, 43 Kingcote Gardens, Stanford, Calif. 94305

Filed Mar. 6, 1973, Ser. No. 338,500

Int. Cl. H01j *1/62*

U.S. Cl. 250—483 **10 Claims**

X-ray image intensifier screens are provided having a thin film of activated iodide phosphor in a polyfluorinated, polymeric binder. The greatly enhanced response of the activated iodide phosphor greatly reduces X-ray dosages to patients as compared to present X-ray dosages employing calcium tungstate as the luminescent material.



3,836,785
NEUTRON GENERATOR HAVING A TARGET ON WHICH A BEAM OF HYDROGEN IONS IS INCIDENT

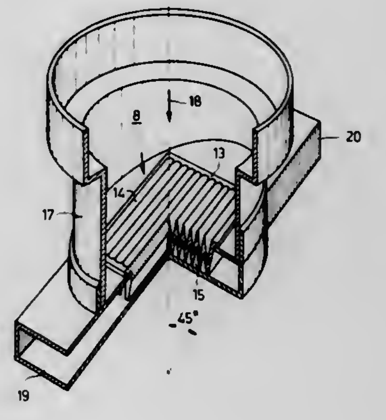
Otto Reifenschweiler, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 158,389, June 30, 1971, abandoned.
This application June 5, 1973, Ser. No. 367,169

Claims priority, application Netherlands, July 15, 1970, 7010431

Int. Cl. G21g *3/04*

U.S. Cl. 250—501 **10 Claims**



A target for a neutron generator having a surface formed of a plurality of V-shaped funnels or grovves with edges coinciding at an acute angle for reducing sputtering of the reaction layer by the hydrogen ions incident upon the target surface.

3,836,786
DIELECTRIC LIQUID-IMMERSED CORONA GENERATOR

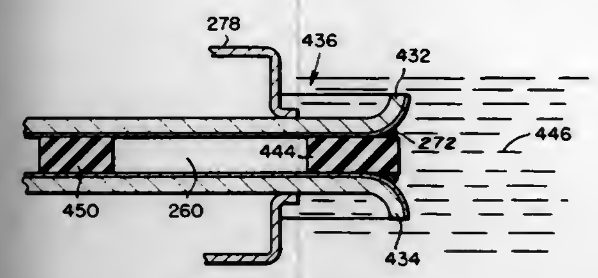
Frank E. Lowther, Severna Park, Md., assignor to Purification Sciences, Inc., Geneva, N.Y.

Continuation-in-part of Ser. No. 141,148, May 7, 1971, abandoned, which is a continuation-in-part of Ser. No. 709,485, Feb. 29, 1968, abandoned, which is a continuation-in-part of Ser. No. 612,751, Jan. 4, 1967, abandoned, Continuation-in-part of Ser. No. 830,248, June 4, 1969,. This application Aug. 17, 1972, Ser. No. 281,451

Int. Cl. C01b *13/10;* **B01k** *1/00*

U.S. Cl. 250—540 **18 Claims**

A plurality of air-tight corona generating cells of a corona generator are supported in a liquid-tight housing where they are immersed in a dielectric liquid such as transformer oil for preventing arcing between the edges of the two electrodes of each corona generating cell. The dielectric liquid is in heat exchange relationship with the external surface of each electrode and is circulated between a cooler and the housing for cooling the electrodes. A center support disc located between



the electrodes of a cell unexpectedly increases the ozone yield.

3,836,787
APPARATUS FOR EXAMINING THE SURFACE OF AN OBJECT USING ELECTROMAGNETIC RADIATION

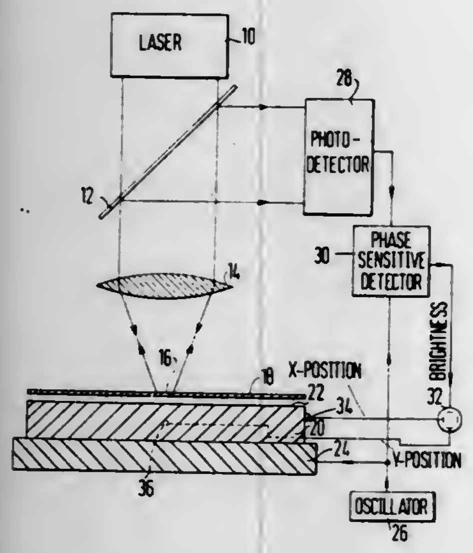
Eric Albert Ash, London, England, assignor to National Research Development Corporation, London, England

Filed July 7, 1972, Ser. No. 269,875

Claims priority, application Great Britain, July 16, 1971, 33560/71

Int. Cl. G01n *21/30*

U.S. Cl. 250—572 **8 Claims**



In order to examine the surface of an object to view detail substantially smaller than the wavelength of the radiation used, the object is mounted behind a plate having an aperture of size equal to the desired resolution and radiation is directed on to the plate and thence, through the aperture on to the surface of the object. The object is vibrated relative to the plate so that light reflected from the surface of the object back through the aperture is modulated with the frequency of this vibration and can thus be distinguished from radiation reflected from the surface of the plate. The apparatus can operate with electromagnetic radiation of optical and microwave frequencies.

3,836,788
INTERNAL COMBUSTION ENGINE CRANKING MOTOR CIRCUIT

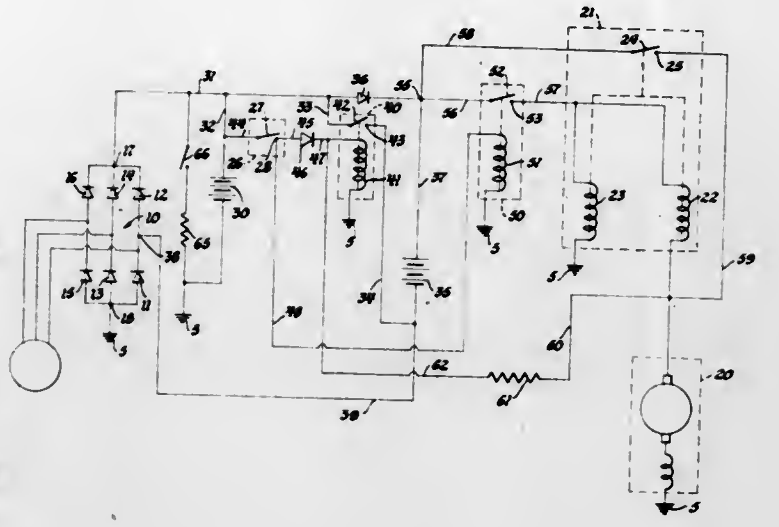
Richard A. Carlson, Pontiac, and Robert E. Eddy, Metamora, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed June 28, 1973, Ser. No. 374,778

Int. Cl. H02p *7/00*

U.S. Cl. 290—50 **4 Claims**

An internal combustion engine cranking motor circuit in which a main and an auxiliary battery are connected in series with the cranking motor during the engine cranking operation. Upon the operation of the normally open electrical contacts of an electrical switch to the electrical circuit closed condition, the operating coils of separate electrical relays are energized. Upon the energization of the operating coil of the first relay, the main and auxiliary batteries are connected in series



through the normally open contacts thereof and upon the energization of the operating coil of the second relay, the cranking motor is connected in series with the main and auxiliary batteries through the normally open contacts thereof.

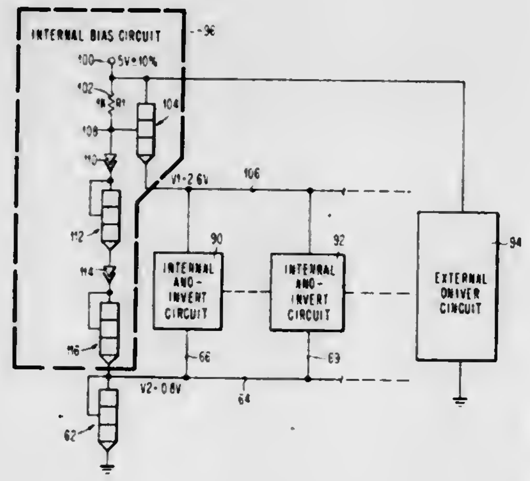
3,836,789
TRANSISTOR-TRANSISTOR LOGIC CIRCUITRY AND BIAS CIRCUIT

James R. Struk, Wappingers Falls, and Robert G. Werner, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 22, 1973, Ser. No. 372,891

Int. Cl. H03k *19/08*

U.S. Cl. 307—203 **6 Claims**



An improved modified transistor-transistor logic (T^2L) circuit having operating voltage compatible with existing T^2L logic blocks which includes a coupling transistor having its base connected to a current source and being selectively responsive to switch current either between its respective base emitter terminals or base collector terminals, and an output transistor having its base connected to the collector of the coupling transistor for generating an output signal at its collector terminal, and an on diode connected to the emitter of the output transistor for providing a current path constituted by the base-to-collector terminals of the coupling transistor, the base-to-emitter terminals of the output transistor, and the on diode. The modified T^2L circuit is also compatible with a lower power supply voltage source.

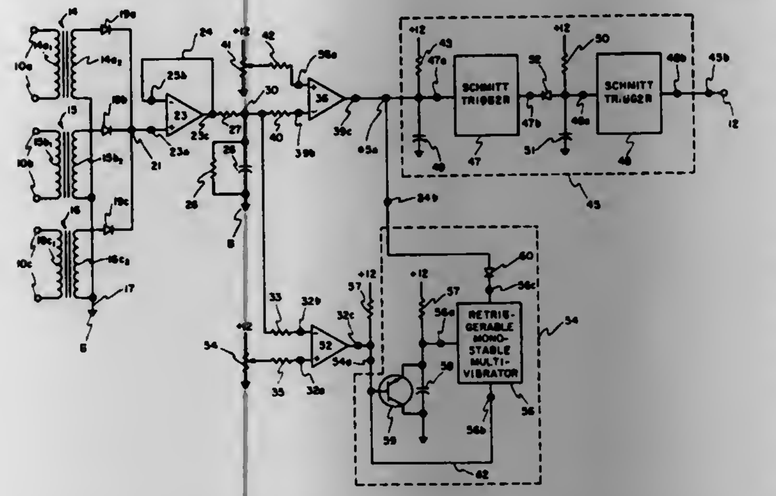
3,836,790
A-C VOLTAGE DETECTOR

Dustin J. Becker, Sheffield Lake, Ohio, assignor to Lorain Products Corporation, Lorain, Ohio

Filed Aug. 22, 1973, Ser. No. 390,349

Int. Cl. H03k *5/20;* **H02h** *3/28*

U.S. Cl. 307—235 R **17 Claims**



A circuit for detecting whether the peak magnitude of one or more phases of a polyphase voltage has varied outside of acceptable high and low voltage limits. A high voltage detecting network produces a first voltage when the peak amplitude of the input voltage remains below an acceptable maximum and produces a second voltage when the peak amplitude of the input voltage exceeds that acceptable maximum. A low voltage detecting network produces a first voltage when the peak amplitude of the input voltage exceeds an acceptable minimum and produces a second voltage when the peak amplitude of the input voltage fails to exceed that acceptable minimum. A timing network indicates a fault condition if either detector produces its second voltage on a recurrent basis for more than a predetermined time. Together these networks assure that fault indications do not occur in the presence of occasional excessive input voltage excursions or in the presence of normally occurring a-c voltage transients and thus prevent false indications of input voltage faults.

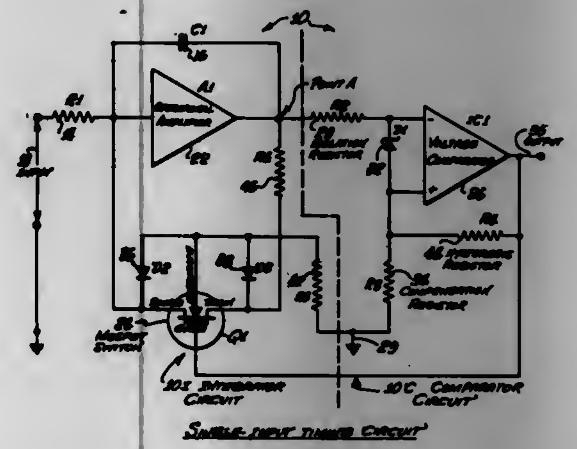
3,836,791
PRESETTABLE SINGLE-INPUT VOLTAGE-TIME INTEGRATOR

Glen L. Galloway, Los Angeles, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 13, 1973, Ser. No. 379,144

Int. Cl. H03k *17/26;* **G06g** *7/12*

U.S. Cl. 307—293 **5 Claims**



A timing circuit capable of operation from a single-input waveform, comprising an integrator circuit which includes: (1) a series resistor-capacitor (R–C) combination, one end of the resistor of the R–C combination comprising the input to the timing, and integrator, circuit; (2) an operational amplifier connected across the capacitor of the R–C combination, the amplifier serving to integrate the single-input waveform; and (3) a metal-oxide, semiconductor, field-effect transistor (MOSFET), serving as a switch, connected across the operational amplifier, the source of the MOSFET switch being connected to the input of the operational amplifier, at the junction of the R–C combination, the drain of the MOSFET switch being connected to the output of the operational amplifier.

The timing circuit further comprises a comparator circuit which includes (1) a voltage comparator, which compares the two voltages at its inputs, and can detect when the difference between its two inputs equals zero, the output of the comparator being connected to the gate of the MOSFET; (2) an isolation resistor connected between the output of the operational amplifier and one of the inputs of the voltage comparator; (3) a zener diode connected across the two inputs of the voltage comparator; and (4) a compensation resistor having one end connected to the other input of the voltage comparator, the other end of the resistor being grounded.

The result being that, when the output of the amplifier reaches zero, the signal at the output lead of the comparator, and therefore at the gate of the MOSFET, causes the MOSFET to conduct, clamping the output of the operational amplifier at a zero voltage level, thus providing initialization of the timing cycle.

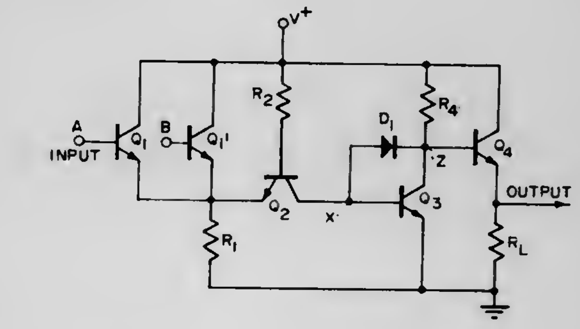
3,836,792
FOUR STAGE STORAGE ENHANCED LOGIC CIRCUIT

John P. Eckert, Jr., Gladwyne, and Robert M. Bucks, Norristown, both of Pa., assignors to Sperry Rand Corporation, New York, N.Y.

Continuation of Ser. No. 842,276, July 16, 1969, abandoned. This application Oct. 6, 1971, Ser. No. 187,035

Int. Cl. H03k *17/00*

U.S. Cl. 307—300 **15 Claims**



There is disclosed herein a four stage circuit which utilizes charge storage in a transistor together with its inverse Beta to obtain fast switching. A diode anti-saturation clamp is also utilized in one of the stages to enhance rapid switching. The circuit is designed such that it is suitable for integration in a monolithic semiconductor device.

3,836,793
PHOTON ISOLATOR WITH IMPROVED PHOTODETECTOR TRANSISTOR STAGE

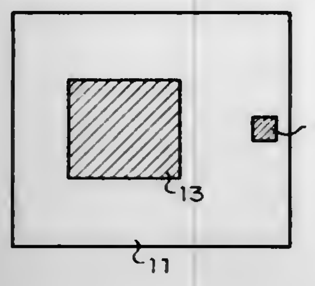
Roland H. Haitz, Portola Valley; Paul G. Sedlewicz, Menlo Park; Keith A. Stirrup, Los Altos; David F. Hilbiber, Los Altos Hills, and Robert W. Teichner, Palo Alto, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 225,896, Feb. 14, 1972, abandoned. This application Oct. 19, 1973, Ser. No. 408,033

Int. Cl. H03k *3/26, 3/42*

U.S. Cl. 307—303 **4 Claims**

A photon isolator device wherein the photon emitter and photodetector are matched such that the photodetector and transistor unit can be fabricated utilizing standard integrated circuit monolithic isolation techniques resulting in a high efficiency, high speed photon isolator; one preferred emitter utilizes $GaAs_{(1-x)}P_x$ with x ranging from .20 to .48. A special technique is employed to provide a buried layer under the photodetector region that increases the collection layer depth. The elements in the integrated circuit transistor gain stage are formed so as to provide temperature compensation to balance the temperature dependence of the emitted light of the photon isolator. A novel plastic film insulation is utilized to mount and space the emitter and the photodetector elements of the photon isolator.



3,836,794
PIEZOELECTRIC TRANSFORMERS

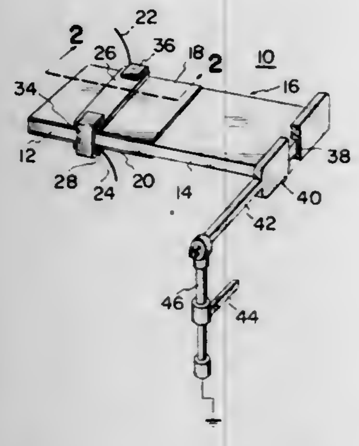
Masao Shimizu, Tokyo; Yasunoeu Sakurai, Kawasaki; Hideo Sato, Tokyo, and Keiji Inoue, Yokohama, all of Japan, assignors to Denki Onkyo Company Limited, Tokyo, Japan

Filed July 23, 1970, Ser. No. 57,462

Claims priority, application Japan, Sept. 9, 1969, 44-85304[U]; Sept. 9, 1969, 44-85305[U]; Sept. 9, 1969, 44-85306[U]; Sept. 9, 1969, 44-85308[U]; Aug. 1, 1969, 44-72864[U]

Int. Cl. H04r *17/00*

U.S. Cl. 310—9.7 **6 Claims**



In a piezoelectric transformer comprising an elongated ceramic body with one-half polarized in the direction of the thickness and the remaining half polarized in the longitudinal direction, a pair of input electrodes applied to the first half and an output electrode applied to the outer end of the second half, the input electrodes are comprised by electroconductive rubber covering substantially the entire surface of the first half and the output electrode is comprised by electroconductive rubber fitted over the outer end of the second half.

3,836,795
PARALLEL MULTIPLE CHANNEL DISPLAY SYSTEM

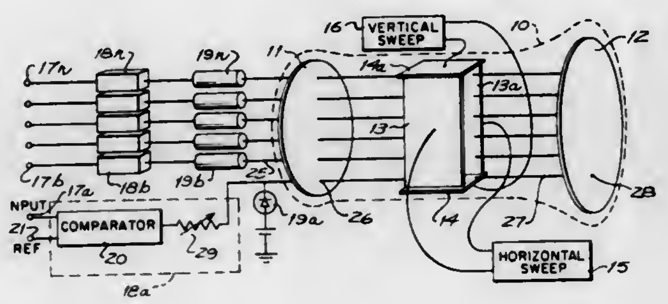
Stephen J. Halasz, Claremont, and Charles D. Winston, Glendora, both of Calif., assignors to Aerojet-General Corporation, El Monte, Calif.

Continuation of Ser. No. 85,908, Nov. 2, 1970, abandoned. This application Apr. 2, 1973, Ser. No. 347,278

Int. Cl. H01j *29/50*

U.S. Cl. 315—13 C **7 Claims**

Visual signal information from multiple electronic signal channels are displayed simultaneously on the screen of a cathode ray tube by impressing each signal channel on the input of an individual electronic comparator which also has applied to it a reference wave-form. The signal of the channel interacting with the reference wave-form results in an output from the comparator in the form of pulses of varying width depending on the amplitude of the signal at each pulse of the wave-form. These output pulses are applied to a light emitting diode whose output light pulses in response to the pulses impressed on the diode are focused on a photoemitter cathode of the cathode ray tube. Beam deflecting means within the tube produce lines visible on the screen so that pulse information from all the channels are observed visually and simultaneously.



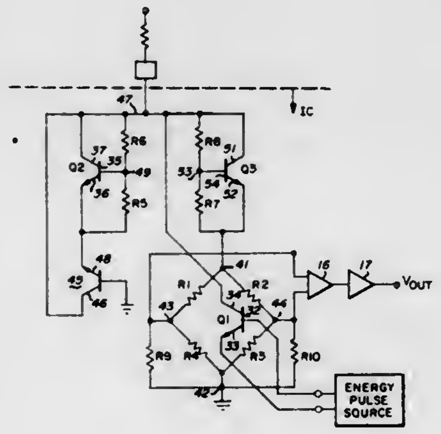
3,836,796
SEMICONDUCTOR PRESSURE TRANSDUCER EMPLOYING NOVEL TEMPERATURE COMPENSATION MEANS

James E. Solomon, Saratoga, and Arthur R. Zias, Palo Alto, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Sept. 24, 1973, Ser. No. 400,355

Int. Cl. H03k *23/22, 23/08*

U.S. Cl. 307—310 **3 Claims**



A semiconductor pressure transducer having a cavity with one thin wall diaphragm on which a piezoresistive bridge is formed of four resistors diffused into the thin wall semiconductor diaphragm and coupled together as a Wheatstone bridge, a voltage regulator including a zener diode coupled to the bridge, and a pair of nV_{BE} circuits coupled to the bridge and the regulator circuit for temperature compensation of the bridge and regulators over the operating temperature range, each of said nV_{BE} circuits comprising a transistor and two associated resistors connected so as to provide an irrational number of V_{BE} voltage drops for temperature compensation.

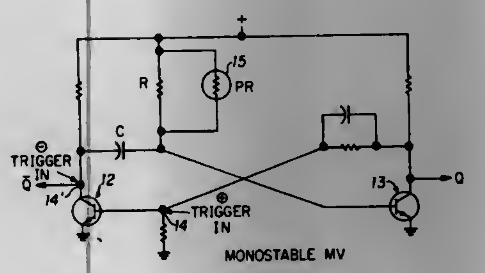
3,836,797
AUTOMATIC INTENSITY CONTROL FOR ELECTRONIC DISPLAYS

Carl E. Steen, Cedar Rapids, Iowa, assignor to Collins Radio Company, Dallas, Tex.

Filed Oct. 29, 1973, Ser. No. 410,587

Int. Cl. H03k *17/00*

U.S. Cl. 307—311 **7 Claims**



A pulsed waveform generation means with duty-cycle a function of ambient light intensity utilizes multivibrator means including a photo resistor to vary coupling time constant such that on-time half-cycle durations vary with ambient light. The waveform is usable in conjunction with bi-level logic means to apply power on a variable duty-cycle pulsed bias to indicator or annunciator lamps.

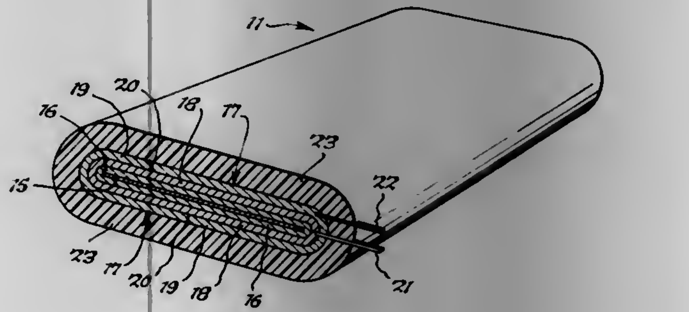
3,836,798
DEVICE FOR CONVERTING NUCLEAR ENERGY INTO ELECTRICAL ENERGY

Wilson Greatbatch, Clarence, N.Y., assignor to Wilson Greatbatch, Ltd., Clarence, N.Y.

Continuation of Ser. No. 36,182, May 11, 1970, abandoned. This application Aug. 15, 1972, Ser. No. 280,844

Int. Cl. G21d *7/00*

U.S. Cl. 310—3 B **3 Claims**



A device for converting nuclear energy into electrical energy comprising a radioactive nuclide, preferably a core of lithium enveloped by a coating of lithium hydride, an energy converting material enveloping the nuclide, and a pair of terminals connected in the converting material. The converting material preferably comprises silicon having diffused therein impurities of p-type and n-type material thereby defining opposite conductivity regions separated by a junction. The terminals are connected to corresponding ones of the regions, and electron-hole pairs are created in the regions upon bombardment by beta particles from the nuclide thereby creating a flow of current across the junction and an electrical potential across the terminals. The device advantageously can be utilized in conjunction with an artificial cardiac pacemaker whereby the stimulating pacemaker output pulses are generated at a non-linear rate.

3,836,799
LINEAR INDUCTION MOTOR WITH ELECTROMAGNETIC LEVITATION

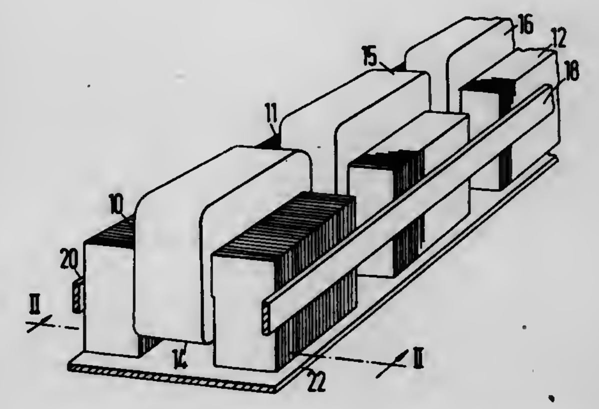
John Frederick Eastham, 6 Cumbrae Gardens, and Eric Roberts Laithwaite, 'The Circles', Wentworth Close, both of Ditton Hill, Long Ditton, Surrey, England

Filed May 14, 1973, Ser. No. 359,874

Claim priority, application Great Britain, May 25, 1972, 24746/72

Int. Cl. H02k *41/04*

U.S. Cl. 310—13 **9 Claims**



In a combined electromagnetic levitation arrangement and linear induction motor, the secondary consists of a sheet of electrically conductive non-magnetic material. The primary consists of a core of magnetic material providing paths for working flux in planes perpendicular to the desired direction of relative movement between the primary and the secondary, and polyphase windings on the core.

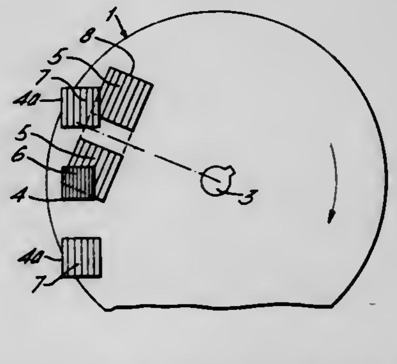
3,836,800
IGNITION SYTEM FOR INTERNAL-COMBUSTION-MICRO-ENGINES

Giacomo Bonvicini, Poviglio, Italy, assignor to Fox Motori di CECI Napoleone & C.s.a.s., Poviglio, Italy

Filed May 1, 1973, Ser. No. 356,088

Int. Cl. H02k *17/42*

U.S. Cl. 310—70 A **4 Claims**



An ignition system for internal-combustion micro-engines comprising an ignition magneto provided to energize a spark plug by means of an electric current fed through a contact breaker controlled by a cam and designed to become operative in conditions of maximum current, characterized by the fact that said magneto is so shaped and dimensioned as to be comprised within the engine clearance gauge, the inductor of said magneto being mounted into a housing defined between the blades of the engine fan which is fixed on the driving shaft, said inductor having its pole shoes set at a right angle to the rotation axis of the driving shaft, while the armature comprises a three leg core, where said legs are parallel to the said rotation axis and are simmetric with respect of a plane passing through said rotation axis, said armature core being constituted of a laminated iron structure, wherein the central leg which supports the primary and secondary winding, has a thickness smaller than that of the side legs which are identic, while the outer surfaces of said three legs are coplanar, the inductor being constituted of a two leg core, wherein the transverse centre plane passes through the axis or the fan rotor supporting said inductor, while the thickness of the inductor core legs is greater than that of the core legs of the armature so as to obtain towards the rotation axis of the ignition system a zone of electromagnetic leakage in order to produce a flattening of the peaks of the current curve.

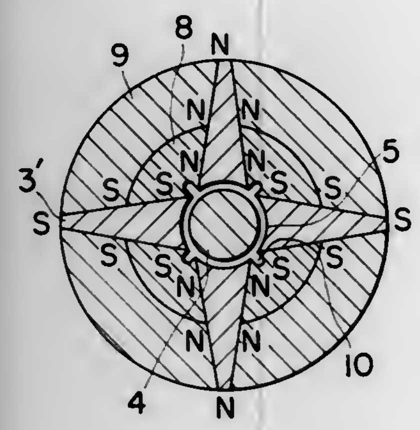
3,836,801
STATOR FOR DC MACHINES

Seizi Yamashita, and Kazuo Onishi, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 7, 1973, Ser. No. 338,939

Int. Cl. H02k *23/04*

U.S. Cl. 310—154 **6 Claims**



A stator of a DC machine comprising at least a pair of magnetic poles extending radially at a small distance to the peripheral portion of the armature and arranged equidistantly from each other, and at least two magnets each interposed between the magnetic poles in the manner so that each magnetic pole is sandwiched between the poles of the same polarity of those of the magnets which hold the magnetic pole therebetween.

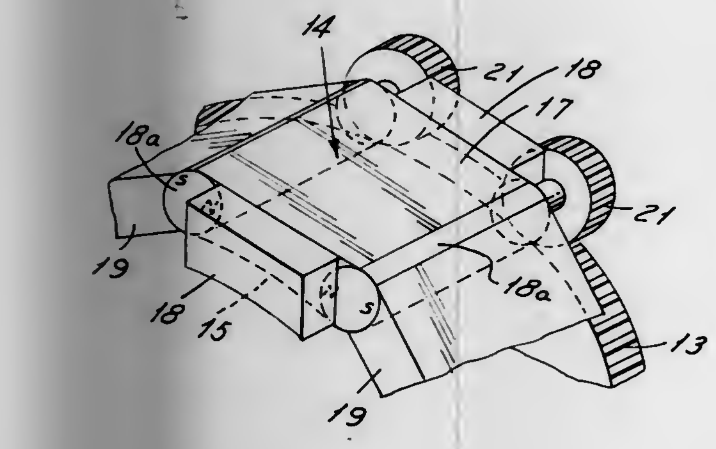
3,836,802
PERMANENT MAGNET MOTOR

Rollin James Parker, Greenville, Mich., assignor to General Electric Company

Filed Sept. 6, 1973, Ser. No. 394,633

Int. Cl. H02k *21/38*

U.S. Cl. 310—154 **6 Claims**



A dynamoelectric machine in which the stator has permanent magnet poles composed of a soft magnetic material. The sides of each magnet pole have rare earth magnets around and in contact with their outer extremities. The surfaces of these rare earth magnets in contact with the magnet poles have the same polarity as the surface of the magnet poles which they contact. The rare earth magnets serve to reduce stray magnetic flux and thereby concentrate the magnetic flux in the air gap between the stator and the rotor.

3,836,803
ROTARY ANODE AND AN X-RAY TUBE PROVIDED THEREWITH

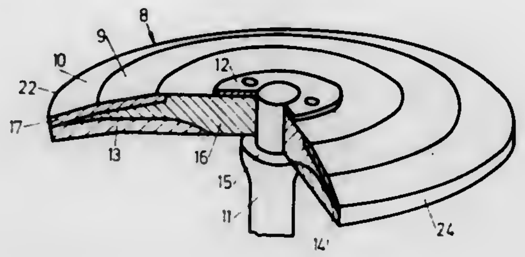
Kurt Dietz; August Lenert; Karl Silbermann; Gunther Appelt, all of Erlangen, Germany, and Adolf Elsas, deceased, late of Erlangen, Germany (by Agnes Elsas, heir), assignors to Siemens Aktiengesellschaft, Erlangen, Germany

Filed Dec. 22, 1971, Ser. No. 210,905

Claims priority, application Germany, Mar. 16, 1971, 2112672

Int. Cl. H01j *35/10*

U.S. Cl. 313—60 **7 Claims**



A rotary anode for an X-ray tube containing an anode plate of difficultly meltable material upon which lies the focal spot path, is characterized by the provision of radial cuts in the plate.

3,836,804
SLOTTED ANODE X-RAY TUBE

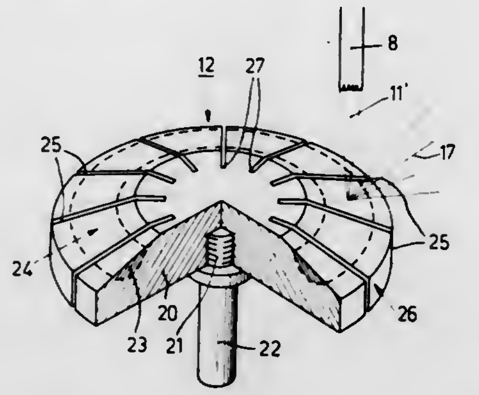
Gerrit Frens; Jan van Den Boomgaard, and Jaap van Suchtelen, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 10, 1972, Ser. No. 305,511

Claims priority, application Netherlands, Nov. 19, 1971, 7115946

Int. Cl. H01p *35/10*

U.S. Cl. 313—60 **4 Claims**



The anode disc of an X-ray tube is provided with slots extending through anode material in the target area. Each slot has a width within the range of thermal expansion of the anode material so as to prevent thermal stresses in the anode body. In rotating anodes the slots extend from the circumference of the anode disc or the anode tyre well beyond the focal path. Radiation through the slots of the anode can be prevented by arranging the slots at an angle with respect to the direction of incidence of the electron.

3,836,805
ROTATING ANODE X-RAY TUBE

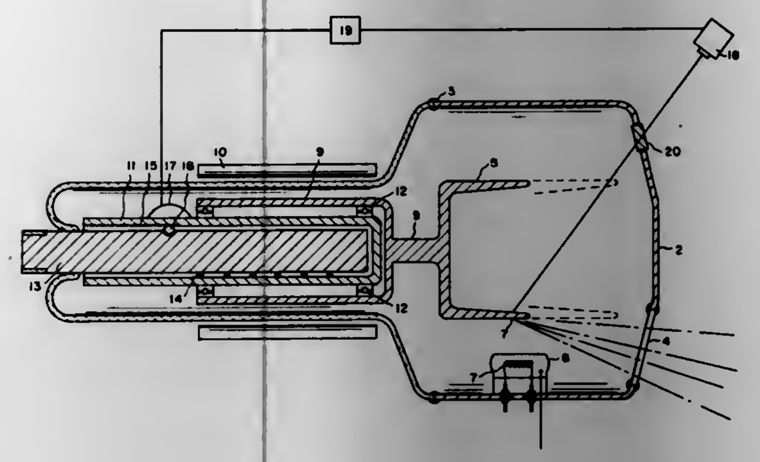
Pieter W. Kok, Trumbell, Conn., assignor to North American Philips Corporation, New York, N.Y.

Filed May 21, 1973, Ser. No. 362,423

Int. Cl. H01j *35/10*

U.S. Cl. 313—60 **10 Claims**

A rotating anode x-ray tube employing a generally cylindrical anode which is axially moveable relative to the cathode so that the focal spot traverses a spiral path as the anode rotates and moves axially. The axial displacement of the anode can be controlled by the temperature of the focal spot, i.e. by measuring the light emitted from the focal spot area.



3,836,806
LUMINESCENCE DISPLAY TUBE BASE PLATE COMPRISING PROTRUSIONS EXTENDED SIDEWAYS BEYOND GRID SUPPORTS

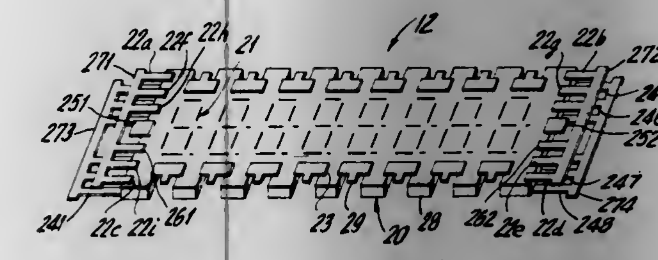
Masaki Kobayakawa; Kazufumi Yawata, and Shigeru Yamashita, all of Kagoshima, Japan, assignors to Nippon Electric Kagoshima, Limited, Kagoshima, Japan

Filed Sept. 17, 1973, Ser. No. 397,796

Claims priority, application Japan, Sept. 20, 1972, 47-110000; Nov. 7, 1972, 47-128749

Int. Cl. H01j *1/92, 1/94*

U.S. Cl. 313—108 R **4 Claims**



In a base plate assembly including an insulative substrate for a luminescence display tube and grid supports formed on the substrate along side edges thereof, a plurality of protrusions are extended sideways from the body of the substrate beyond the grid supports. When each of the grid supports has a protrusion left after cutting of the supports from two frames, the protrusions of the substrate are extended beyond the protrusions of the grid supports.

3,836,807
ROTARY ANODE FOR X-RAY TUBES

Horst Schreiner, Nurnberg; Ernst Geldner, Rosstal, and Helmut Dietz, Nurnberg, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

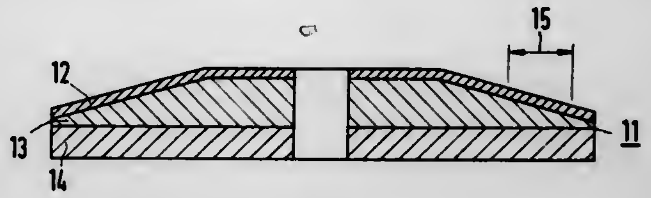
Filed Mar. 1, 1973, Ser. No. 336,963

Claims priority, application Germany, Mar. 13, 1972, 2212058

Int. Cl. H01j *35/10*

U.S. Cl. 313—330 **8 Claims**

An x-ray tube anode of the rotary type has a target surface formed by a thin layer of tungsten/rhenium alloy, supported by laminates comprising first a tungsten alloy lamination comprising at least 70 percent tungsten by weight and behind this a molybdenum alloy lamination, the anode being made by powdered metal technology so the three components are integrated with a porosity of low value. The target surface is resistant to roughening and the anode is substantially free from the development of cracks even when heavily loaded.



3,836,808
ROTARY ANODE FOR AN X-RAY TUBE

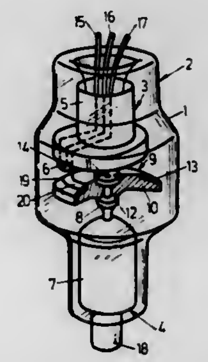
Rudolf Friedel, Erlangen, Germany, and Bernd Natter, Reutte, Austria, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed June 12, 1973, Ser. No. 369,395

Claims priority, application Germany, June 28, 1972, 2231687

Int. Cl. H01j *35/08*

U.S. Cl. 313—330 **3 Claims**



A rotary anode of an X-ray tube delivers X-rays from at least the surface struck by electrons and consisting mostly of molybdenum. According to the present invention at least the struck location consists of substantially 75 percent molybdenum and up to 25 percent of a metal having an atomic number of 39 to 46.

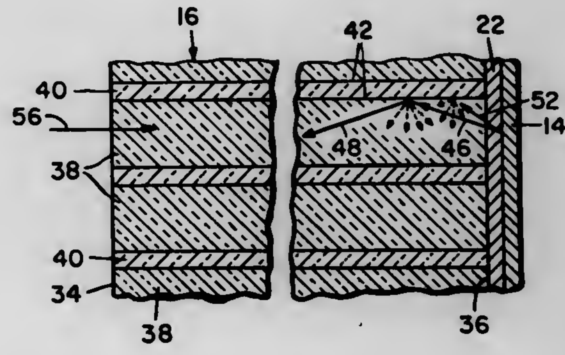
3,836,809
FIBER OPTIC PLATE WITH DENSE OPAL GLASS CLADDING

Edward U. Condon, Boulder, Colo., assignor to Corning Glass Works, Corning, N.Y.

Filed July 19, 1971, Ser. No. 163,721

Int. Cl. H01j *29/12;* G02b *5/16;* C03c *13/00*

U.S. Cl. 313—465 **8 Claims**



An image storage device is disclosed which consists of a multiplicity of light conducting fibers secured together in side-by-side relation to form a fiber optic plate. Each of the fibers comprises a photochromic glass core and a layer of dense opal glass disposed on the surface of the core, the index of refraction of the opal glass being lower than that of the core. In image storage devices of this type light which is incident on the core-cladding interface at an angle less than the critical angle passes into the cladding and may darken adjacent photochromic fibers. The opal glass functions to scatter light passing through the core-cladding interface and thereby reduce the amount of light leaking to adjacent fibers, some of the scattered light being returned to the photochromic core from which it originated and contributing to the darkening thereof.

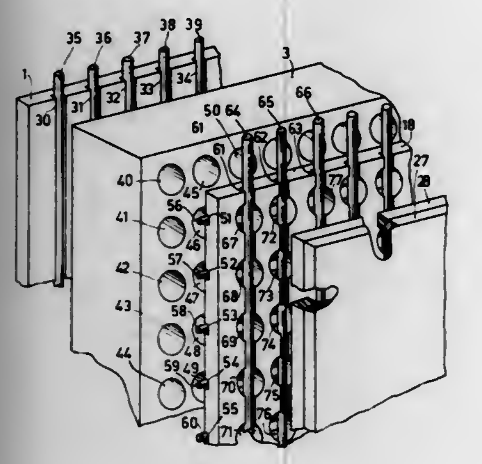
3,836,810
PICTURE DISPLAY DEVICE COMPRISING A PLURALITY OF LIGHT PRODUCING ELEMENTS

Johannes Hendricus Maria Johanns; Thijs Johannes De Boer; Edward Fokko De Haan; Zeger Van Gelder, and Mathieu Martinus Maria Petrus Matthelj, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y.

Continuation of Ser. No. 173,482, Aug. 20, 1971, abandoned. This application July 12, 1973, Ser. No. 378,590

Int. Cl. H01j *61/42*

U.S. Cl. 313—484 **4 Claims**



A gas-discharge picture-display panel comprising a plurality of gas-discharge tubes. The gas-discharge tubes are closed on one side by a window. An electrode is arranged at each end of each gas-discharge tube. The length of the gas-discharge tubes is at least twice the dimension normal to the directions of length and the wall of the tube is coated with a phosphor material. A positive column is formed in the gas-discharge tubes and the ultra-violet radiation produced thereby causes the phosphor to luminesce. A device which reduces the ignition voltage of the positive column is connected in series with the gas-discharge tubes. The device produces either a glow discharge or a plasma to reduce the ignition voltage.

3,836,811
MEANS FOR REDUCING EFFECTS OF DIFFERENTIAL CUTOFF

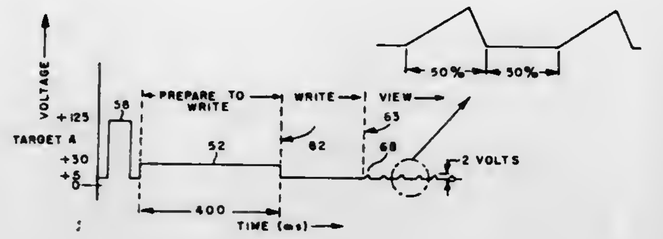
John Durecka, and Philip S. Crosby, both of Beaverton, Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Filed May 17, 1973, Ser. No. 361,089

Int. Cl. H01j *29/70*

U.S. Cl. 315—12 **6 Claims**

A half-tone storage tube is disclosed which, after a storage target has been electrically prepared, has information written on such storage target in a writing mode, said storage target is subjected to a small amplitude alternating voltage means while in a reading mode, thereby minimizing the effects of differential cutoff so that the image produced on the storage tube screen can easily be viewed, thereby permitting information written at higher writing rates to be viewable.



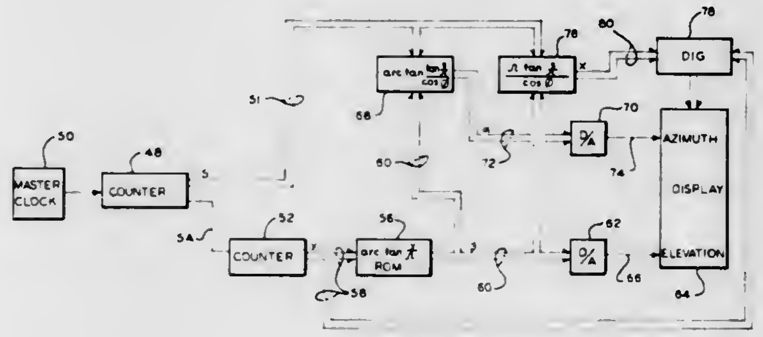
3,836,812
DISPLAY OF DIGITALLY STORED IMAGE ON A SPHERICAL VIEWING SURFACE

William S. Bennett, Chenango Bridge, N.Y., assignor to The Singer Company, New York, N.Y.

Filed Jan. 22, 1973, Ser. No. 325,573

Int. Cl. H01j *29/70*

U.S. Cl. 315—18 **8 Claims**



In response to timing signals, a first read-only memory provides elevation signals to a display having a spherical viewing surface. The timing signals and the output of the first read only memory are additionally provided to a second and a third read only memory which respectively provide azimuth signals to the display and input signals to a digital image generator. In response to the elevation and azimuth signals, a beam provides a raster of great circles on the viewing surface. The timing signals are additionally provided to the digital image generator which provides to the display a representation of a stored image which is viewed in a desired perspective from an eyepoint.

3,836,813
POWER SUPPLY FOR USE WITH A DISPLAY SYSTEM

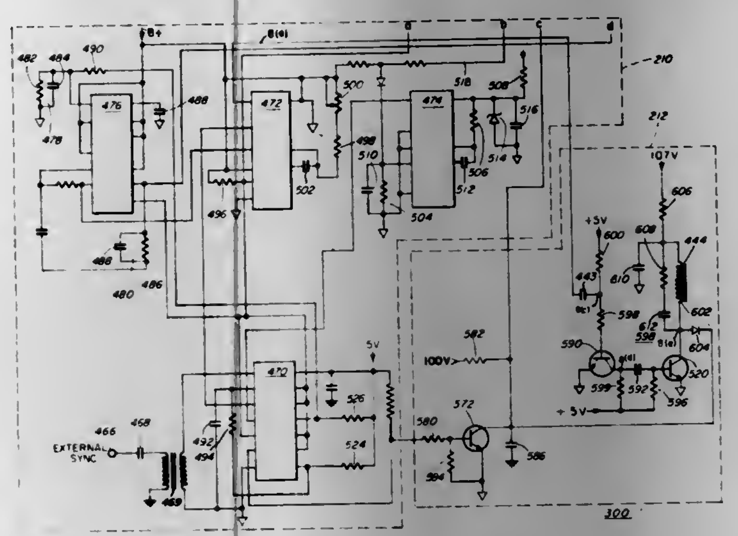
Derek Chambers, Framingham, Mass., assignor to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 224,202, Feb. 7, 1972, abandoned. This application Sept. 14, 1973, Ser. No. 397,562

Int. Cl. H01j *29/70*

U.S. Cl. 315—18 **22 Claims**

A synchronized power supply for use with display systems and data processing equipment in general in which information is displayed on a screen such as a cathode ray tube in which the power supply is synchronized to the display such that internal synchronization is maintained regardless of variation in external synchronization. A unique converter arrangement transfers regulated power to the loads at high efficiency such that both improved power supply and display operation result.



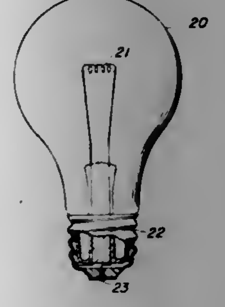
3,836,814
THREE-WAY LAMP CONVERTER

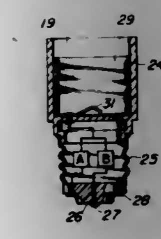
Edward T. Rodriquez, 16 Sargeant Rd., Winchester, Mass. 01890

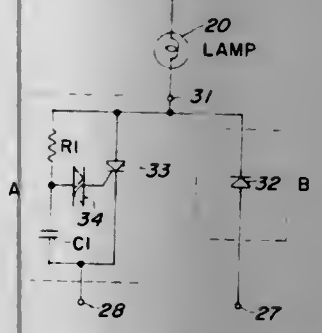
Filed Dec. 22, 1972, Ser. No. 317,630

Int. Cl. H01j *7/44, 19/78*

U.S. Cl. 315—51 **2 Claims**







A conversion device is disclosed which adapts a three-way light fixture to the use of an ordinary electric bulb of the type having but a single filament. The device employs a pair of current controllers which can be activated separately or together by the three-way switch of the light fixture. Each controller governs the current flow to the filament during different half cycles of the full cycle of the impressed a.c. line voltage. One controller employs a trigger circuit to gate an SCR on at a predetermined phase of the a.c. wave whereby the SCR conducts current to the filament for a portion of a half wave to provide the lowest level of illumination. The other controller utilizes a diode to permit one half of the full wave alternating current to flow in the filament to provide an intermediate level of illumination. The highest level of illumination is obtained where the current controllers are activated together so that the diode conducts for one half of the a.c. cycle and the SCR conducts for a portion of the other half of the a.c. cycle.

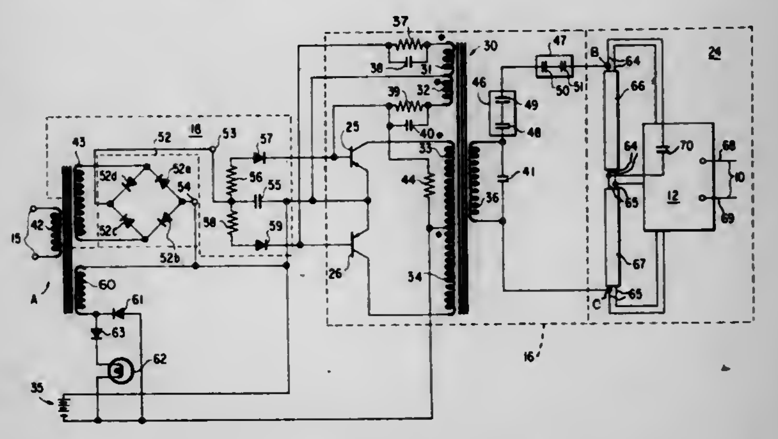
3,836,815
EMERGENCY INSTANT-START LIGHTING SYSTEM FOR ARC DISCHARGE DEVICES

Rollie R. Herzog, Danville, Ill., assignor to General Electric Company, Indianapolis, Ind.

Filed May 24, 1972, Ser. No. 256,252

Int. Cl. H02j *9/06*

U.S. Cl. 315—86 **11 Claims**



An emergency lighting system for at least one arc discharge device, utilizing an impedance mismatch between the emergency lighting system and a ballast provided for normal 60 Hz. power operation. This emergency lighting system will be activated when a normal AC voltage source falls below a predetermined level, and operates the arc discharge devices in an instant-start lighting system mode without the requirement for active switching between the normal and emergency modes of operation.

3,836,816
ARRANGEMENT FOR IGNITING AND SUPPLYING A GAS-AND/OR VAPOUR DISCHARGE LAMP

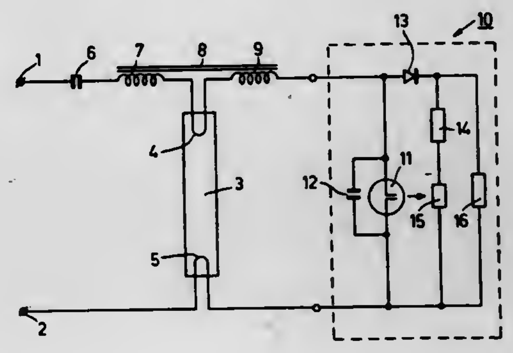
Cornelis Johannes Adrianus Gerardus Heck, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 1, 1972, Ser. No. 311,442

Claims priority, application Netherlands, Dec. 22, 1971, 7117622

Int. Cl. H05b *39/00, 41/08*

U.S. Cl. 315—94 **13 Claims**

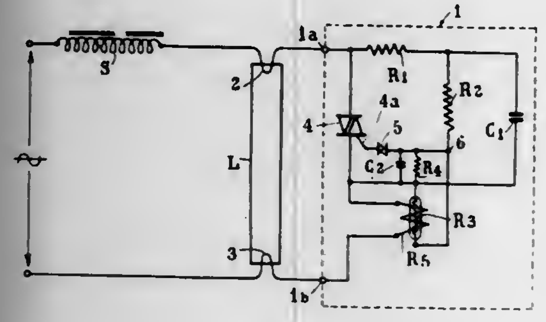


A supply circuit for a discharge lamp includes a glow starter tube and a photosensitive resistor in parallel across the preheated electrodes of the discharge lamp. The photo-resistor is exposed to the light from the starter tube whereby its impedance drops sharply to increase the heating current of the lamp electrodes and thereby reduce the electrode warm up time. An inductor in series with the discharge lamp combines with the subsequent opening of the starter tube electrodes to generate a voltage ignition pulse for the discharge lamp.

3,836,817
TWO-POLE ELECTRONIC STARTER FOR FLUORESCENT LAMPS

Liang-Ing Tchang, Bourg la Reine, and Jean Dolezon, Puteaux, both of France, assignors to Compagnie des Lampes, Paris, France

Filed Jan. 10, 1973, Ser. No. 322,358
Int. Cl. H05b *41/04*
U.S. Cl. 315—100 **13 Claims**



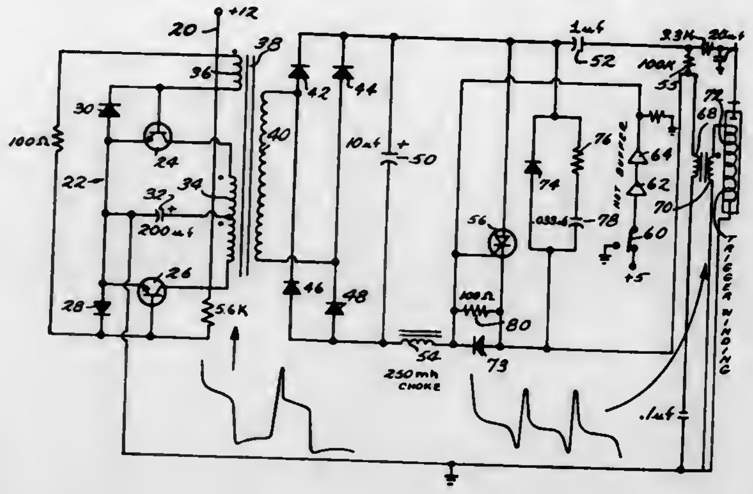
A two-pole electronic starter for use with a fluorescent lamp of the type having filament-like electrodes, for preheating the filament-like electrodes of the fluorescent lamp an thereafter for starting said lamp, said starter comprising a pair of terminals adapted to be electrically connected each to a respective one of the filaments of said fluorescent lamp in order to form with said filaments a series circuit adapted to be electrically connected in turn to a source of alternating current voltage, a bidirectional-conduction electronic switch having a control input and connected between said pair of terminals, and a threshold trigger circuit for delivering control pulses to said control input of said bidirectional-conduction electronic switch, said threshold trigger circuit comprising a threshold diode having one electrode connected to said control input of said electronic switch, a capacitor having one plate connected to the other electrode of said threshold diode, and a voltage divider connected in series across said pair of terminals and provided with an intermediate tap connected to the junction point between said threshold diode and said capacitor, said voltage divider comprising means for shifting the potential of said tap in such a direction that at each half-wave of the supply a.c. voltage, after a predetermined time period for which the voltage applied to the fluorescent lamp is normally sufficient for starting same, becomes lower than the threshold level of said threshold diode in order to keep said electronic switch in a non-conducting state.

3,836,818
STROBE LIGHT TRIGGER CIRCUIT

Robert E. Berglas, 30 East End Ave., New York, N.Y. 10028

Filed Feb. 22, 1973, Ser. No. 334,691
Int. Cl. H05b *41/14*
U.S. Cl. 315—240 **12 Claims**

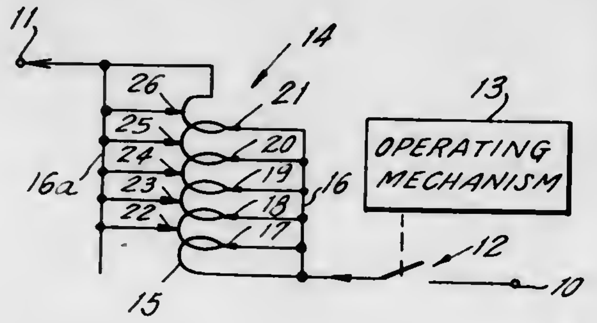
A fast recycling trigger circuit for firing a strobe light on a camera with the camera's own X-synchronization switch with an oscillator powered by the camera battery, a tank circuit consisting of a capacitor charged by the oscillator and an inductor, and an SCR which is rendered conductive by manually operating the X-synchronization switch to discharge the capacitor through a strobe light trigger winding until the overswing caused by the resonance of the tank circuit back biases the SCR permitting the capacitor to thereafter rapidly recharge for another trigger.



3,836,819
CURRENT LIMITING CIRCUIT INTERRUPTER DEVICE

Challiss I. Clausing, Marlton, N.J., assignor to I-T-E Imperial Corporation, Spring House, Pa.

Filed Aug. 20, 1973, Ser. No. 390,064
Int. Cl. H02h *7/22*
U.S. Cl. 317—11 C **17 Claims**



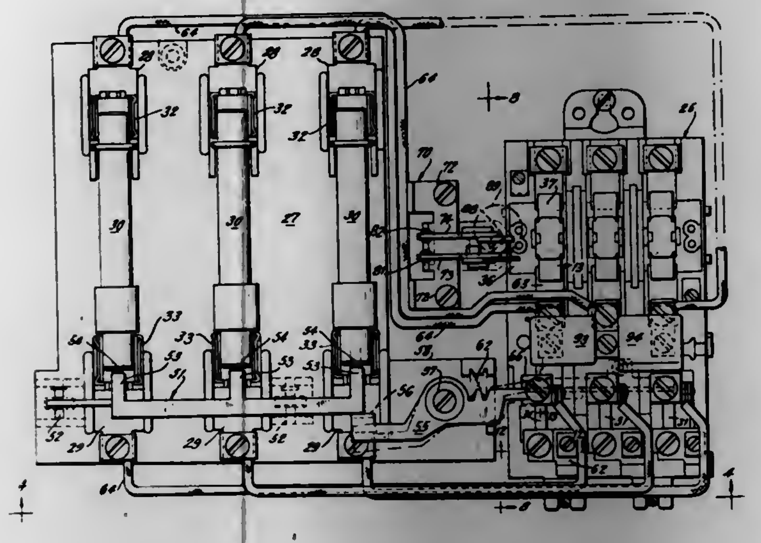
A helically wound coil is connected in series with a circuit interrupter and electrical contacts on diametrically opposite sides of each turn of the coil form direct current paths in parallel for each coil so that substantially no inductance is in the power circuit when the contacts are closed. The contacts are opened sequentially in response to a fault current to gradually introduce one or more turns of the coil in the series circuit in order to limit the rise of fault current before the series interrupter device is operated.

3,836,820
MANUAL MOTOR STARTER COMBINED WITH FUSED CIRCUIT PROTECTORS

Bernard Di Marco, Bellefontaine, Ohio; Frank W. Kussy, Haverford, Pa., and John B. Cataldo, Moorestown, N.J., assignors to I-T-E Imperial Corporation, Spring House, Pa.

Filed Mar. 1, 1973, Ser. No. 336,995
Int. Cl. H02h *7/08*
U.S. Cl. 317—13 B **9 Claims**

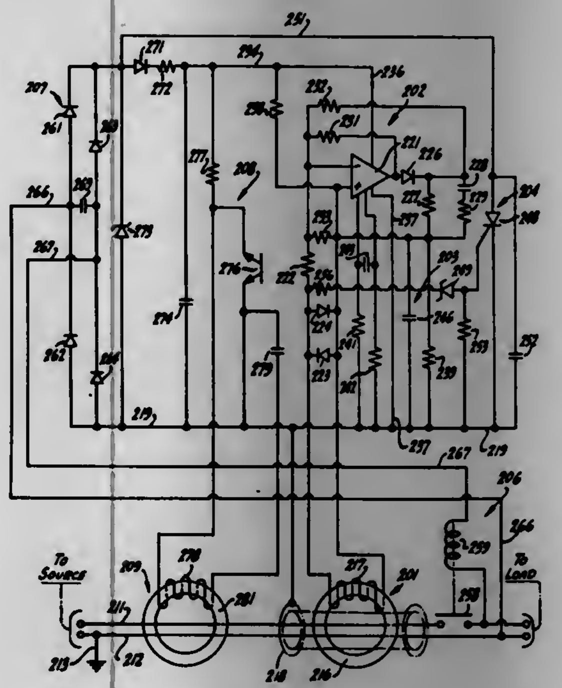
A manual motor starter having interchangeable heaters for its overload sensing means is combined with fusible motor short-circuit protectors (MSCPs) to achieve electrical coordination in which the MSCPs provide protection against severe fault conditions and the overload sensing means of the manual motor starter provides protection against running overloads. The MSCPs act on a common trip bar mounted to operate a crank engageable with the common trip bar of the starter for automatic opening of the starter contacts in the event an MSCP blows. Each MSCP is electrically wired in series with one pole of the starter in a circuit position between the contacts and the heater of the overload sensing means, so that the protector is not bypassed if heater burnout produces a phase-to-phase short.



3,836,821
GROUND FAULT PROTECTIVE SYSTEM

Wallace W. Wahlgren, Oakland, and Ellwood S. Douglas, Orinda, both of Calif., assignors to The Rucker Company, Oakland, Calif.

Continuation-in-part of Ser. No. 141,297, May 7, 1971, abandoned. This application Mar. 12, 1973, Ser. No. 340,169
Int. Cl. H02h *3/16*
U.S. Cl. 317—18 D **21 Claims**

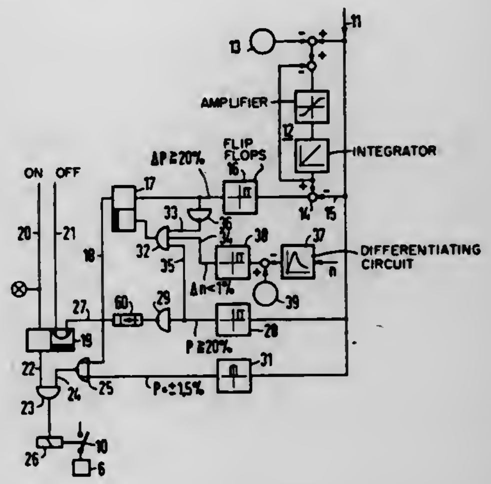


Highly sensitive ground fault protective system utilizing an operational amplifier, integrator and switching means for interrupting the flow of current in a distribution system when the amplified and integrated signal produced by a fault current reaches a sharply defined threshold value. The system can be built in highly miniaturized, modular form which can be incorporated in small circuit breakers and receptacle outlet boxes.

3,836,822
CONTROL APPARATUS FOR TEMPORARILY REDUCING TURBINE TORQUE

Peter Schonfeld, Essen; Heinz Borgmann, Muhlheim-Ruhr, and Gerhard Plohn, Bamberg, all of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Muhlheim-Ruhr, Germany

Filed Aug. 30, 1972, Ser. No. 284,865
Claims priority, application Germany, Mar. 22, 1972, 2213951
Int. Cl. H02p *9/04*
U.S. Cl. 317—21 **13 Claims**

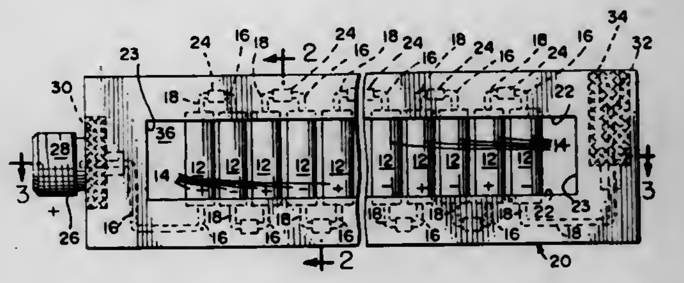


In the event the load on a generator of a turbo generator is temporarily removed, either partially or completely, the turbine setting or control valves are closed by providing a brief interruption of a power control device until the malfunctioning part of the system is disconnected and power is again called for by the system. This is accomplished by providing control apparatus which is operable in parallel to the power control device and which responds to load jumps exceeding predetermined and adjustable valves to interrupt the power control device and thereby close the turbine setting valves.

3,836,823
ELECTRICAL ASSEMBLY

Marvin L. Shields, Bloomington, Ind., assignor to Sarkes Tarzian, Inc., Bloomington, Ind.

Filed July 17, 1973, Ser. No. 380,008
Int. Cl. H01k *1/12*
U.S. Cl. 317—100 **12 Claims**



In combination one or more heat producing electrical components, each component having an elongated body and electrical connector leads extending from one or both opposite ends thereof; electrical insulating means provides a tubular conduit structure for containing a fluid heat exchange medium for cooling contact with the body of the electrical components, said conduit encapsulates and supports at least one end of the body of each electrical component body and also encapsulates and holds the electrical leads extending therefrom in secure electrically insulating arrangement with respect to other components, said conduit structure includes inner wall surfaces spaced apart from the exposed body surfaces of the electrical components except for short end portions encapsulated and supported thereby.

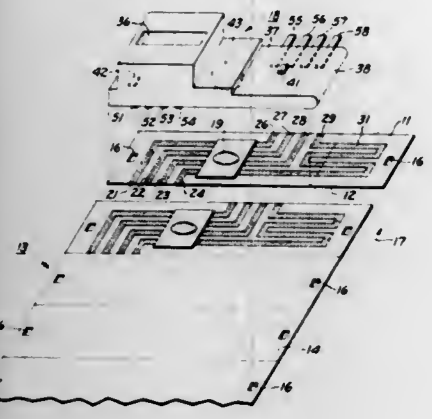
3,836,824
MOUNTING ARRANGEMENT FOR FLEXIBLE CIRCUIT

Donald L. Watrous, Liverpool, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 24, 1972, Ser. No. 299,657

Int. Cl. H05k *1/04*

U.S. Cl. 317—101 F **14 Claims**



A flexible electrical circuit arrangement, comprising a strip-like member carrying circuitry thereon, is folded around the edge of a support member and attached thereto, resulting in a compact space-saving arrangement. In a preferred embodiment, the circuit is a sequential flashing circuit for sequentially firing a plurality of photoflash lamps, and the support member is an elongated shoulder of a socket for receiving an array of flash lamps. The flexible circuit is elongated and is provided with openings near the ends thereof, which openings engage with posts on opposite sides of the support member for attaching the folded circuit.

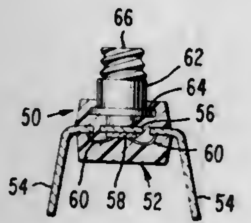
3,836,825
HEAT DISSIPATION FOR POWER INTEGRATED CIRCUIT DEVICES

William Bernard Hall, Stockton, and Joseph Allen Koskulitz, Raritan, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 6, 1972, Ser. No. 295,536

Int. Cl. H01l *1/12*

U.S. Cl. 317—100 **6 Claims**



An integrated circuit chip having circuit elements capable of relatively high power operation is encapsulated in a body of polymeric material having the form of an elongated prism. Conductors are electrically coupled to the circuit elements in the chip and extend outwardly of the body through a relatively long side thereof. A heat conducting stud is anchored in the body and is thermally coupled to the chip. The stud extends outwardly of the package through another of its relatively long sides. A heat sink may be coupled to the stud outside of the package.

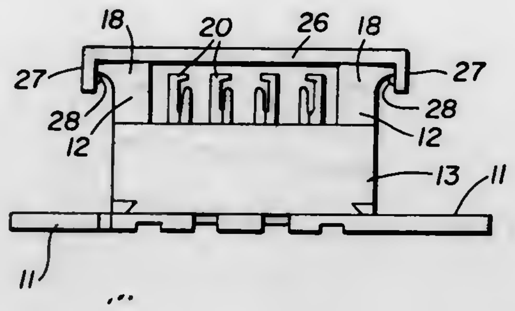
3,836,826
COVERS FOR TERMINAL BOXES

Kenneth W. Hotchkiss, Blue Mountain, and Gerald S. Byers, Coal Creek Canyon, both of Colo., assignors to Photo Production Plastics, Inc., Boulder, Colo.

Filed May 18, 1973, Ser. No. 361,590

Int. Cl. H01r *13/44*

U.S. Cl. 317—122 **4 Claims**



Covers for terminal boxes generally rectangular in shape used in telephone installation equipment, said covers being made of transparent plastic material, each comprising a flat top for contacting and covering the open face of a terminal box, integral side walls provided with inwardly projecting means for engaging outwardly extending side wall members on said terminal box, and means preventing longitudinal sliding movement of the cover relatively to the terminal box. Said sliding movement preventing means may be and extensions at opposite ends of the cover top at right angles thereto partially closing said box ends and also serving to prevent foreign matter from falling into the box, or may be a rib on the inner surface of the top extending onto the inner surface of the cover side wall for entering spaces between the side wall members of the terminal box. The cover occupies limited space sidewise of the terminal box and thus permits the covered boxes to be mounted adjacent each other on a wall or support with little space between them for manipulation of the covers.

3,836,827
CURIE POINT AMBIENT TEMPERATURE SENSOR

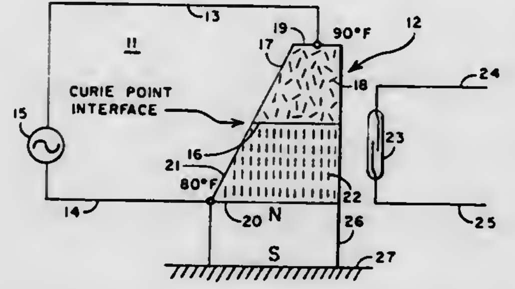
Kenneth J. Cuthbertson, Willowdale, Ontario, Canada, assignor to Honeywell Inc., Minneapolis, Minn.

Filed Aug. 1, 1973, Ser. No. 384,527

Claims priority, application Canada, Mar. 2, 1973, 162803

Int. Cl. H01h *37/58;* **G01k** *7/00*

U.S. Cl. 317—133 **10 Claims**



A thermoferrite thermostat is disclosed which includes a thermoferrite material having a temperature gradient established from one end to the other and having a Curie point temperature selected to fall between the extremes of said temperature gradient such that a Curie point interface is established which is defined as the dividing region between that portion of material which lies below said temperature and is therefore magnetic and a magnetic sensor which may be in form of a reed switch for sensing the position of said interface. Said temperature gradient may be established by either supplying current to a Curie point material having a non-uniform cross section or to a heater located at one end of a Curie point material.

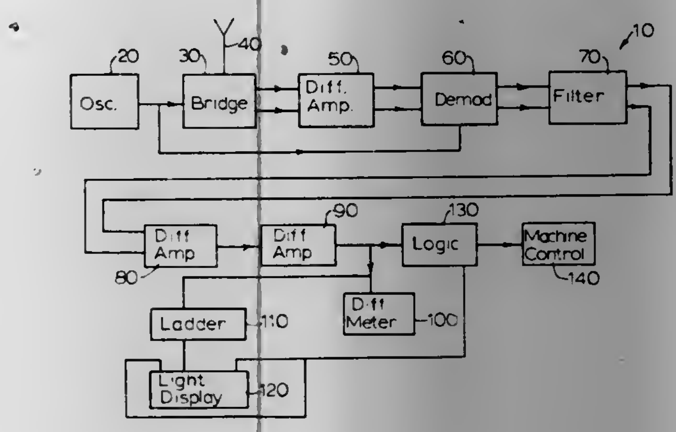
3,836,828
ELECTRONIC PROTECTION AND SENSING APPARATUS

Leon J. Siegel, Livingston, N.J., assignor to Weldotron Corporation, Piscataway, N.J.

Continuation-in-part of Ser. No. 273,692, June 21, 1972, abandoned. This application June 18, 1973, Ser. No. 370,783

Int. Cl. H01h *47/12*

U.S. Cl. 317—146 **11 Claims**



The apparatus comprises an electronic system including an antenna positioned about the equipment to be protected and coupled to a resistor-capacitor bridge, to which is coupled an oscillator. The output of the bridge is coupled through a differential amplifier to a demodulator, and the output of the oscillator is also coupled directly to the demodulator. The demodulator output is coupled through an amplifying system both to a display device, which is used to indicate the state of balance of the system, and to a control circuit for generating a signal which is coupled to the equipment to be protected to turn it off or to otherwise exert a protective control action when a certain level of unbalance in the bridge occurs.

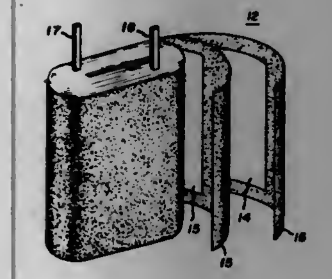
3,836,829
POLYOLEFIN FILM CONTAINING THEREIN WIDELY DISPERSED FINE PARTICLES OF A DIELECTRIC LIQUID SOLUBLE MATERIAL

John W. Eustance, Glens Falls, N.Y., assignor to General Electric Company, Hudson Falls, N.Y.

Filed Dec. 29, 1969, Ser. No. 888,233

Int. Cl. H01g *1/00, 1/02;* **H02b** *3/18*

U.S. Cl. 317—258 **9 Claims**



Polyolefin resin has combined therewith, in a widely dispersed manner, discrete fine particles of a material which is readily soluble in a capacitor dielectric liquid impregnant. A capacitor grade dielectric film made from this resin includes the noted particles dispersed therein, so that when the film is impregnated, in a capacitor modification, the fine particles dissolve to pass the dielectric liquid impregnant throughout the film.

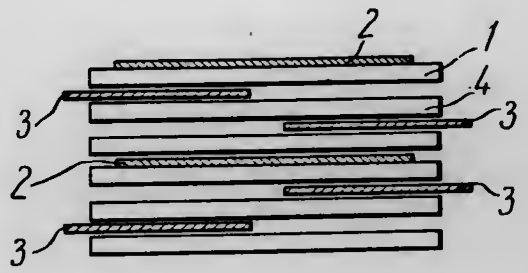
3,836,830
POWER CAPACITOR SECTION

Vladimir Amayakovich Akopian, ulitsa Komitasa, 33, kv. 33, and Jury Smbatovich Chatinian, ulitsa Tamanlana, 1, kv. 6, both of Erevan, U.S.S.R.

Filed Apr. 17, 1973, Ser. No. 352,028

Int. Cl. H01g *1/00*

U.S. Cl. 317—261 **5 Claims**



A power capacitor section comprising three layers of a dielectric material and metal plates, characterized, according to the invention, in that one of the metal plates is a metal coating layer applied to the surface of one of the dielectric layers, while the other metal plate consists of two foil plates placed on the surface of the other non-metallized dielectric layer with the metal coating layer overlapping the foil plates.

3,836,831
PLURAL MOTOR TENSION CONTROLLED TAPE DRIVE

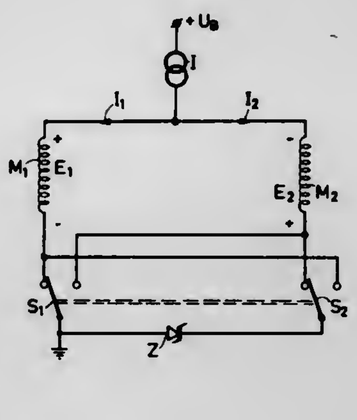
Teunis Robert Van Heelsbergen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 11, 1972, Ser. No. 288,109

Claims priority, application Netherlands, Sept. 25, 1971, 7113225

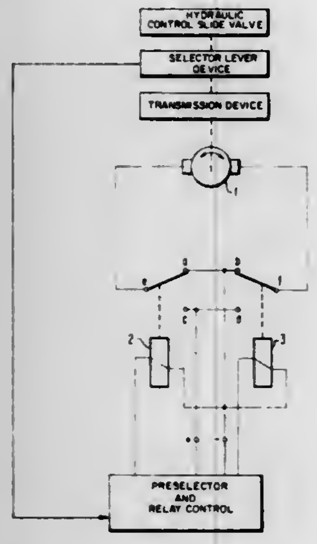
Int. Cl. B65h *59/38*

U.S. Cl. 318—7 **18 Claims**



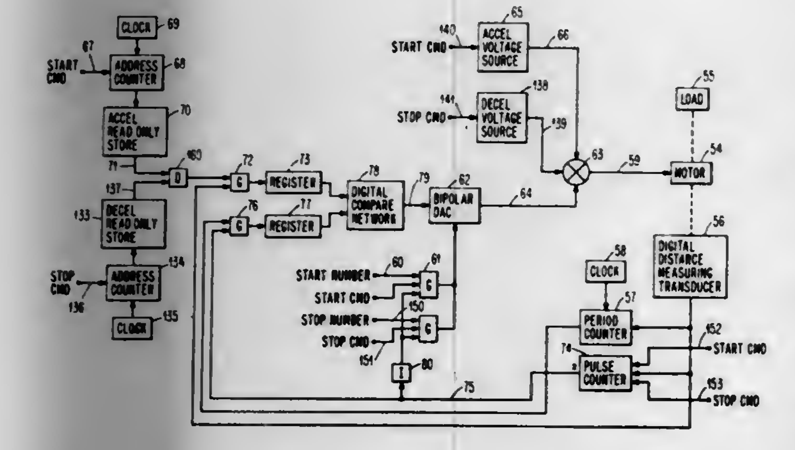
Arrangement intended in particular for driving a tape-shaped record carrier accommodated in a cassette, which arrangement is provided with two direct-current motors which each drive one reel. In the "fast forward" and "fast rewind" functions one end of each of the two motor windings is connected via a common impedance to one terminal of the supply source, the other end of the winding of the take-up motor being directly connected to the other terminal, whilst the other end of the winding of the take-off motor is connected to this other terminal of the supply source via a Zener diode. As a result the brake torque exerted by the take-off motor always is automatically regulated to a value such that the sum of the speeds of the two motors is constant. Consequently the tape tension produced is substantially independent of the friction produced. Also the time required for the "wind" functions is substantially constant.

3,836,832
RAPID-STOPPING SYSTEM FOR TRANSMISSIONS
Arwed Von Koch, Stuttgart, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Mar. 6, 1972, Ser. No. 232,176
Claims priority, application Germany, Mar. 8, 1971, 2110897
Int. Cl. H02p *3/12*
U.S. Cl. 318—265 **6 Claims**



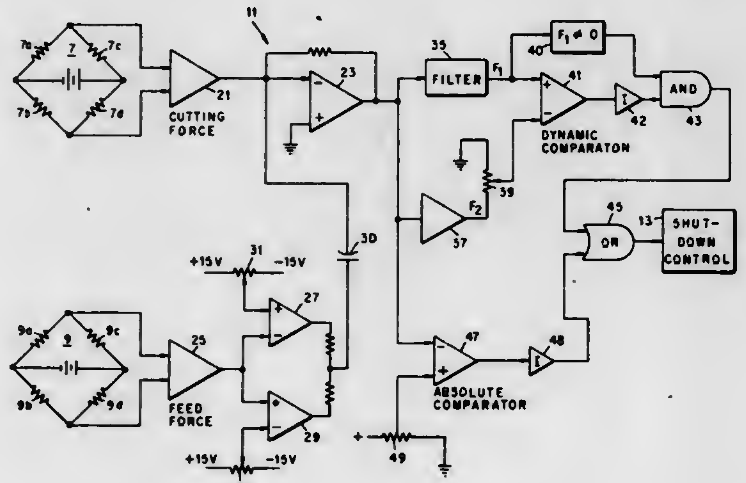
A rapid stopping installation for an electric range selector mechanism in an automatic transmission which includes a selector lever to be displaced into a position determined by a pre-selector; a permanent magnet motor is used for the drive of the pre-selector whereby the deenergization of the motor, when reaching the pre-selected lever position, is coupled with an immediate short-circuiting of the supply terminals of the motor to brake the same.

3,836,833
ADAPTIVE MOTOR ACCELERATION
John P. Harris; John P. Mantey, both of Boulder, Colo., and David R. Wood, Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 28, 1973, Ser. No. 374,600
Int. Cl. H02p *1/04, 3/08*
U.S. Cl. 318—270 **21 Claims**



A magnetic tape unit's DC capstan motor is closed-loop speed controlled from a rest position to a steady-state speed and is subsequently controlled from the steady-state speed to a rest position. The motor's acceleration and/or deceleration profile, during the acceleration and/or deceleration interval, is adaptively defined by a read-only-store, or memory. An address counter selects a unique command speed from the store at the occurrence of an output pulse from the motor's digital feedback tachometer. The address counter begins counting as soon as a motor start and/or stop command is received. In this manner, the addresses used during a given acceleration and/or deceleration interval are adaptively variable in accordance with the unique motor rest position from which acceleration begins, and/or the motor's unique position from which deceleration begins, as these positions relate to time-subsequent or adjacent digital tachometer pulses.

3,836,834
MACHINE PROTECTION SYSTEM
Leonard A. Abbatiello; Robert E. Hewgley, Jr., both of Oak Ridge, and Paul C. Turner, Knoxville, all of Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed Nov. 13, 1973, Ser. No. 415,460
Int. Cl. G05b *9/02*
U.S. Cl. 318—563 **5 Claims**

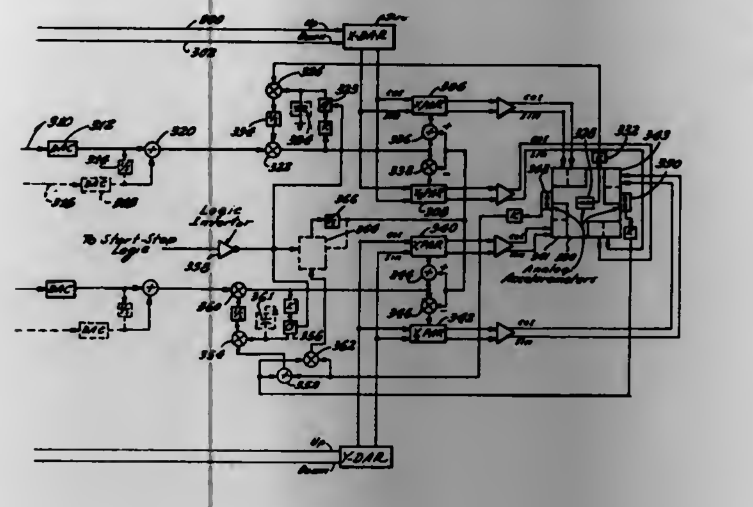


A protection system has been provided for preventing damage to a numerically controlled machining device in the event of a wreck. The protection system consists of a strain-gage-instrumented tool holder or tool holder support; amplifying; filtering; and comparing circuitry; and quick acting machine shutdown circuitry. The instrumented tool holder senses the cutting and side forces by means of strain gages mounted on the tool holder. The system initiates a shutdown whenever (1) an instantaneous force exceeds a preselected maximum (absolute failure), or (2) an average force suddenly changes its level by a preselected factor (dynamic error). Although the system does not prevent a wreck, the effects of the wreck are restricted to limited part damage rather than damage to the machine.

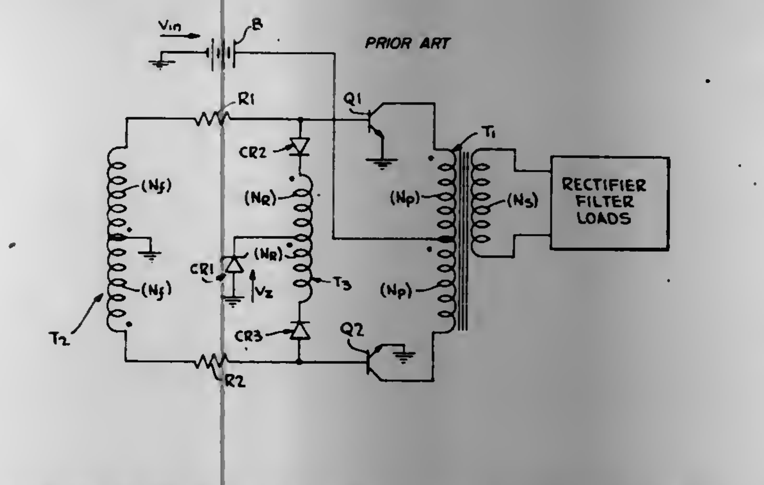
3,836,835
MULTI AXES LINEAR MOVEMENT POSITIONING SYSTEM
Bruce A. Sawyer, 20120 Allentown Dr., Woodland Hills, Calif. 91364
Filed Apr. 19, 1971, Ser. No. 135,077
Int. Cl. G05b *19/40*
U.S. Cl. 318—685 **25 Claims**

A synchronous motor having a movable member and a stationary member receives signals which apply a controllable power angle to the motor as measured between the actual displacement between the movable and stationary members and the input signals to the motor. The power angle is used to control the operation of the motor and may be produced by combining in a particular relationship input signals which may be provided with a periodic relationship. The motor may be a linear type of motor wherein a head is disposed in contiguous relationship to a platen and is movable along the platen on a single axis or a pair of coordinate axes.

A servo loop may also be provided for the synchronous motor. The servo loop receives signals representing a function of the actual displacement of the movable member relative to the stationary member. Such signals may represent the displacement, velocity or acceleration, or any combination of such parameters, of the movable members relative to the stationary member. The signals produced by the servo loop control the power angle produced in the motor. When the signals represent velocity, the servo loop acts to damp the displacement of the movable member relative to the stationary member. When the signals represent displacement or acceleration, the servo loop acts to control on an optimal basis the displacement of the movable member relative to the stationary member.

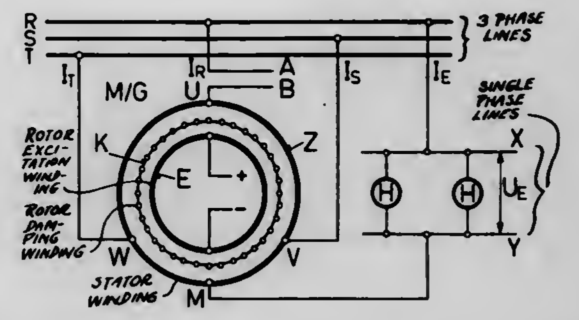


3,836,836
METHOD FOR NUCLEAR RADIATION HARDENING OF DC-TO-DC CONVERTERS
Philip M. Cowett, Jr., Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Feb. 16, 1973, Ser. No. 333,234
Int. Cl. H02m *3/32*
U.S. Cl. 321—44 **2 Claims**



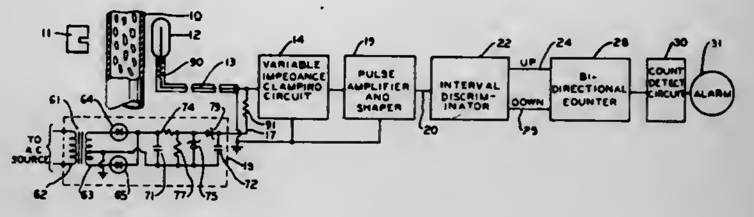
A novel technique for nuclear radiation hardening DC-to-DC converters is disclosed, the technique being particularly applicable to battery powered DC-to-DC transistor converters of the common emitter type having the collector-emitter paths of two transistors connected together in a current loop including an output transformer, and having a base drive circuit including a feedback winding coupled to the base of each transistor to effect oscillation of the converter. Such circuits, when placed in a nuclear environment, suffer adverse affects, particularly as concerns transistor gain, saturation voltage drop, and regulator output. The adverse affects accompanying incident nuclear radiation can be compensated for and largely cancelled by the provision of a regulating secondary winding assembly electrically disposed across the respective bases of each of the two transistors, which secondary winding assembly is magnetically coupled to the output transformer and includes oppositely poled series diodes, and by further connecting a Zener reference diode between the electrical midpoint of the regulating winding assembly and ground.

3,836,837
PHASE CONVERTER
Paul Rauhut, Ennetbaden, Switzerland, assignor to Brown Boveri & Company Ltd., Baden, Switzerland
Filed May 10, 1973, Ser. No. 358,977
Claims priority, application Switzerland, May 12, 1972, 6926/72
Int. Cl. H02m *5/32*; **G05f** *3/00*
U.S. Cl. 321—55 **41 Claims**



In the phase converter disclosed, a rotating machine has a stator winding connected at suitable terminals to a multiphase system with a plurality of lines and a single-phase system composed of one of the multiphase lines and a single-phase line. In the machine, a rotor in the form of a squirrel cage winding coacts with the stator voltages to produce unsymmetrical electromotive forces in the multiphase systems. An auxiliary voltage source having a continuously variable magnitude and phase, and connected between the line common to both systems and one of the terminals of the stator, compensates for the unsymmetrical electromotive forces.

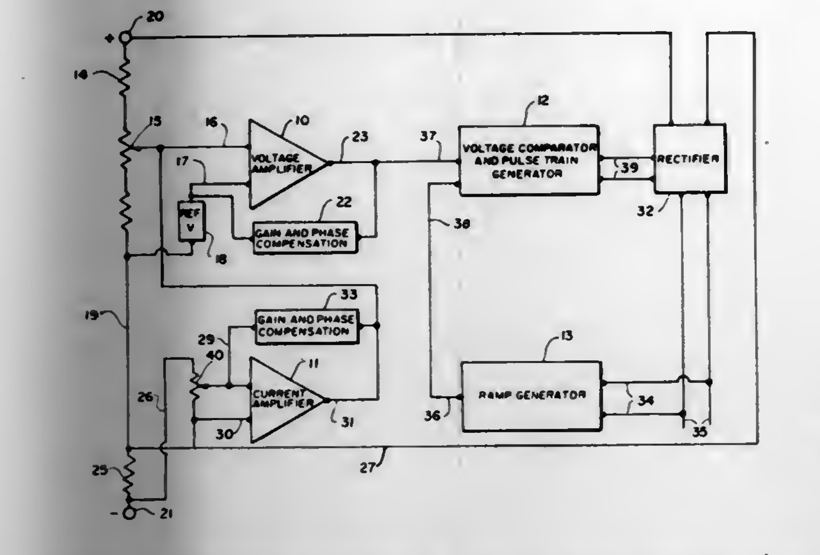
3,836,838
HIGH VOLTAGE POWER SUPPLY
John C. Homer, Willoughby, and John R. Stock, Fairview, both of Ohio, assignors to Stock Equipment Company, Cleveland, Ohio
Division of Ser. No. 140,519, May 5, 1971, Pat. No. 3,763,380. This application Dec. 4, 1972, Ser. No. 311,859
Int. Cl. G05f *3/14*
U.S. Cl. 323—7 **2 Claims**



A high voltage power supply having a clamping zener diode in series between a regulating zener diode and an output filter capacitor to clamp the capacitor to the peak voltage across the regulating zener diode. A bleeder resistor across the regulating zener diode provides a discharge path for the output capacitor through the zener impedance of the clamping zener diode when the supply is turned off.

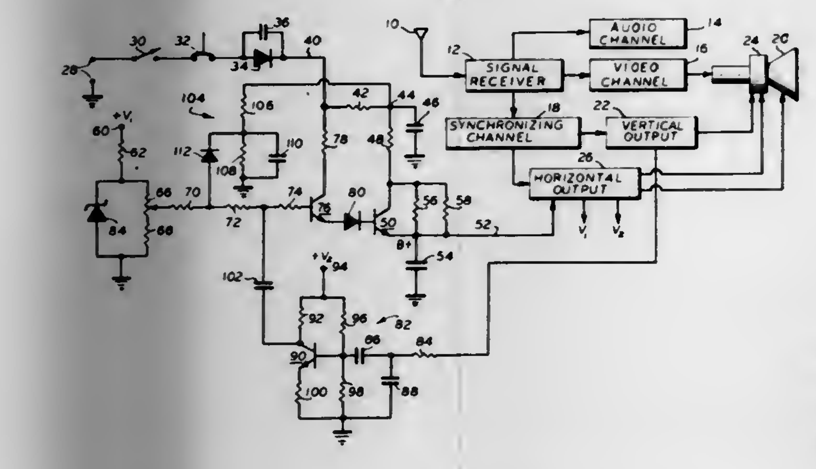
3,836,839
CONTROLLED APPARATUS FOR SILICON CONTROLLED RECTIFIERS
Raymond Becky, McKeesport, Pa., assignor to TUC Industries, Inc., Hickory, Pa.
Filed Nov. 14, 1972, Ser. No. 306,193
Int. Cl. G05f *1/56*
U.S. Cl. 323—20 **2 Claims**

Control apparatus for controlled rectifier battery chargers and battery eliminators includes a reference voltage source, error amplifiers for voltage and current control, apparatus comparing error voltage with a ramp voltage synchronized with the power line frequency, and apparatus triggered by the voltage comparator generating a train of gating pulses for silicon controlled rectifiers and the like.


VOLTAGE AMPLIFIER
REF V
GAIN AND PHASE COMPENSATION
GAIN AND PHASE COMPENSATION
CURRENT AMPLIFIER
VOLTAGE COMPARATOR AND PULSE TRAIN GENERATOR
RECTIFIER
RAMP GENERATOR

3,836,840
VOLTAGE REGULATOR WITH SATURATION PROTECTION

Harry John Radloff, Williamsville, N.Y., assignor to GTE Sylvania Incorporated, Stanford, Conn.
Filed Aug. 14, 1973, Ser. No. 388,252
Int. Cl. G05f *1/56*
U.S. Cl. 323—22 T **8 Claims**

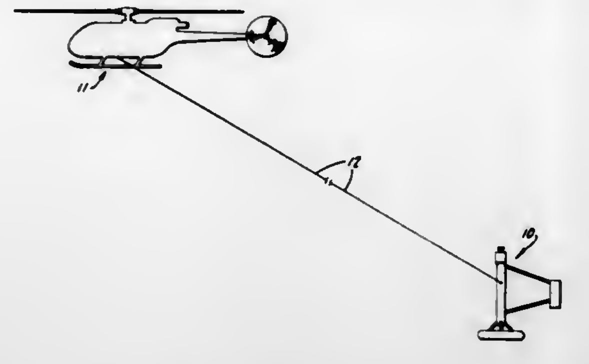


A voltage regulator having a series regulator transistor with a potential threshold device for preventing saturation. The potential threshold device includes a voltage divider and diode connected between the input electrode and a control device connected to the control electrode of the series regulator transistor whereby a control voltage applied to the control electrode is decreased when the potential difference between the input and control electrodes decreases below a threshold level. A pincushion correction waveform is also applied to the control electrode to modulate the regulated voltage with a pincushion correction signal.

3,836,841
ELECTROMAGNETIC DEVICE FOR DETERMINING THE CONDUCTANCE OF A NEARBY BODY BY A SINGLE SUPERCOOLED INDUCTOR COIL

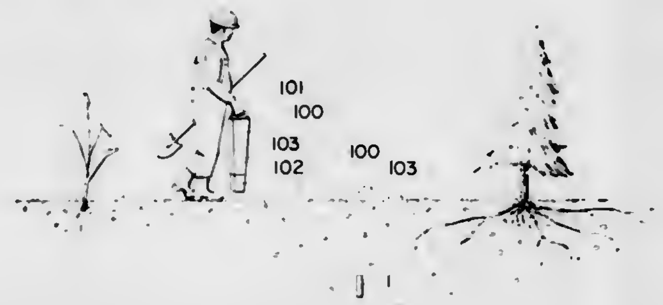
H. Frank Morrison, Berkeley, Calif., assignor to The Regents of the University of California, Berkeley, Calif.
Filed Jan. 15, 1973, Ser. No. 323,782
Int. Cl. G01v *3/08, 3/16*
U.S. Cl. 324—5 **7 Claims**

A towed electromagnetic prospecting device has a single inductor coil used for both transmitting and receiving secondary electromagnetic radiation from the ground which has been induced by the transmitted radiation. Such secondary fields from the ground are sensed as a change in the effective resistance of the superconducting inductive transmitter coil employed in the resonant resistance type bridge circuit.



3,836,842
ENCAPSULATED ELECTRICALLY RESONANT CIRCUIT AND INTERROGATING APPARATUS AND METHOD FOR FINDING SAME IN VARIOUS LOCATIONS

Detlef Zimmermann, Ottawa, Ontario, and James Hugh Lougheed, Kanata, Ontario, both of Canada, assignors to Bell Canada-Northern Electric Research Limited, Ottawa, Ontario, Canada
Filed Jan. 22, 1973, Ser. No. 325,518
Int. Cl. G01v *33/00*
U.S. Cl. 324—34 R **5 Claims**

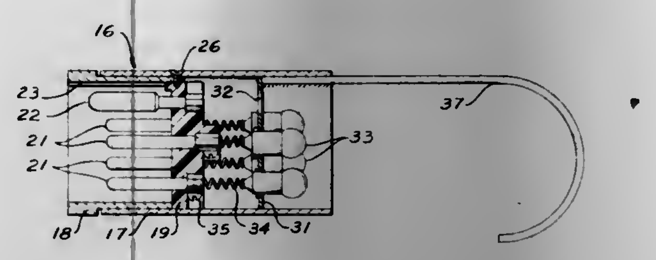


Locations, typically outside locations, are marked by a passive marking device placed therewith. The marking device is responsive in a damped oscillatory manner when radiated by at least one pulse of magnetic energy, i.e., an induction field. An interrogating instrument is the source of the induction field. After an induction field has been generated, the interrogating instrument monitors the frequency spectrum within which the marking device is resonantly responsive. When a response is detected the interrogating instrument provides an indication of the response. The marking device is particularly useful for marking locations which are buried or are from time to time concealed. With a portable interrogating instrument, an operator, traversing the general area of a location, is thus able to find the location without the aid of a visible stake or other similar fixture.

3,836,843
ELECTRIC CIRCUIT TESTER CONNECTOR FOR HIGHWAY VEHICLES

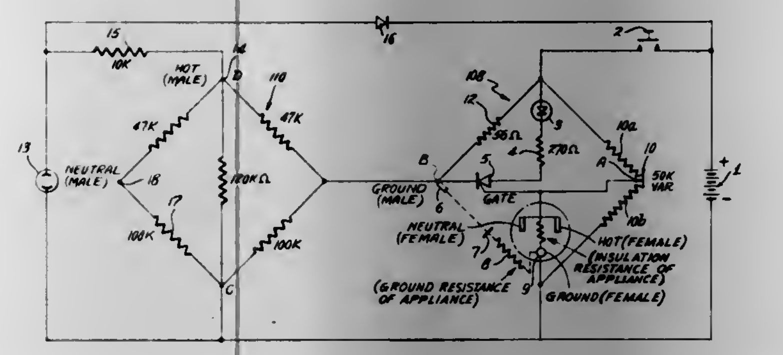
Everett R. Yonce, 259 E. 12th St., Oakland, Calif. 94606
Continuation of Ser. No. 192,445, Oct. 26, 1971, abandoned. This application Apr. 9, 1973, Ser. No. 349,261
Int. Cl. G01r *31/02;* **H01r** *3/06*
U.S. Cl. 324—51 **4 Claims**

A test connector is provided for checking electrical circuits between a truck and a towed trailer, or between two sections of a semi-trailer highway vehicle. The test connector includes a cylindrical body enclosing a configuration of small indicator lamp bulbs visible through one end thereof. Electrical prongs may be plugged into a mating electrical connector for coupling each of the lamps into a corresponding electrical circuit to be tested. A hook of electrically conductive material extends from the test connector to provide (1) a means for supporting the connector to a frame member or other part of a vehicle, and (2) an electrical ground connection between the test connector and the vehicle.



3,836,844
SAFETY TESTER FOR ELECTRICAL APPLIANCES AND RECEPTACLES

Richard W. Prugh, 24 Ivy Ln., Glen Mills, Pa. 19342
Filed May 17, 1973, Ser. No. 361,125
Int. Cl. G01r *31/02, 19/14*
U.S. Cl. 324—51 **10 Claims**

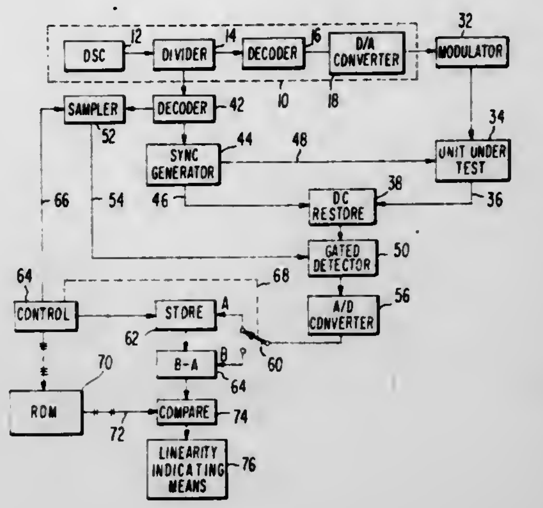


A simple, portable, handy tester for simultaneously testing electrical appliances to assure that the grounding system has continuity and to insure that power wiring is adequately insulated from exposed metal parts. The device may also be used to insure that receptacles for appliances are properly wired.

3,836,845
APPARATUS FOR TESTING THE LINEARITY OF A CIRCUIT BY USING RATIO DETERMINING MEANS

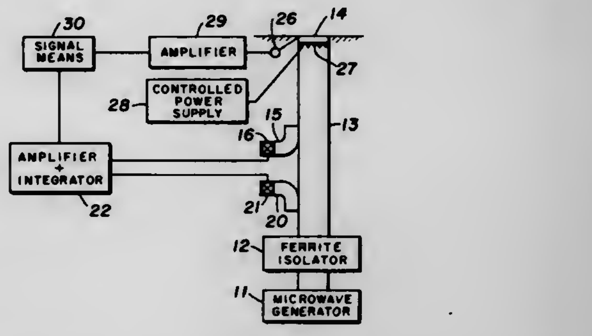
Michael Ian Payne, Dunellen, and James Dimitri Mazgy, Parsippany, both of N.J., assignors to RCA Corporation, New York, N.Y.
Filed Aug. 3, 1973, Ser. No. 385,299
Int. Cl. G01r *27/00*
U.S. Cl. 324—57 PS **13 Claims**

Apparatus for testing the linearity of a circuit includes means for applying a staircase waveform to the circuit under test. The staircase waveform has known ratios between the values of one step and the remaining steps. The staircase waveform as altered by the circuit under test has unknown ratios between the one altered step and the remaining altered steps. Means are provided for determining the ratios of the one step to the remaining steps of the altered staircase waveform and for comparing these ratios to the known ratios existing in the original waveform. The difference between these ratios, if any, is determined and provides by way of a ratio comparator an indication of the linearity of the circuit under test.



3,836,846
ICE DETECTION APPARATUS EMPLOYING MICROWAVE REFLECTANCE

Wilson W. Overall, Warson Woods, Mo., and Joseph G. deKoning, San Jose, Calif., assignors to Monsanto Company, St. Louis, Mo.
Filed Sept. 9, 1971, Ser. No. 178,871
Int. Cl. G01r *27/04*
U.S. Cl. 324—58.5 B **2 Claims**

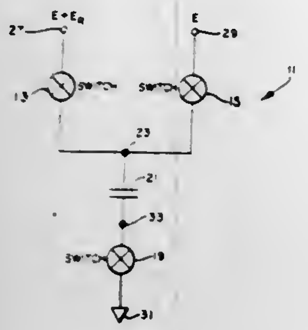


Apparatus and method for detecting the presence of ice or water on a road or other surface by means of reflected microwaves wherein microwave energy is directed through a window installed in the surface to be monitored and the condition of the surface is indicated by the level of microwave energy reflected.

3,836,847
CIRCUIT FOR MEASURING AN UNKNOWN RESISTANCE BY USING A VOLTAGE RATIO

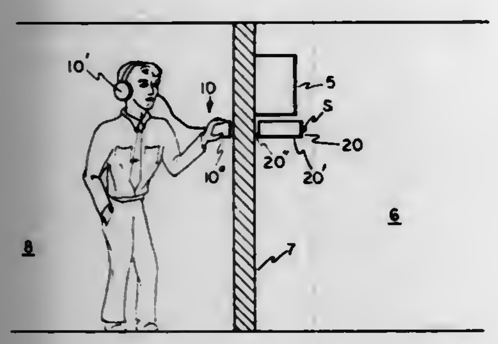
Paul G. Lucas, Sudbury, Mass., assignor to Gordon Engineering Company, Wakefield, Mass.
Division of Ser. No. 207,440, Dec. 13, 1971, Pat. No. 3,750,146. This application Mar. 22, 1973, Ser. No. 343,632
Int. Cl. G01r *27/02*
U.S. Cl. 324—62 **15 Claims**

A reference source is AC coupled to a converter for selectively providing both positive and negative reference signals to the converter. A reference signal potential is selectively applied to a first side of a first capacitor via a sequence of switches and a second side of the first capacitor is selectively connected to a common signal through a return switch. A first signal is presented at the second side of the first capacitor when a first switch of the sequence of switches and the return switch are closed. A second signal is presented at the second side of the first capacitor when the first and return switches are opened and a second switch of the sequence of switches is closed. The second signal presented at the second side of the first is the reference signal having a given polarity with respect to the common signal. Automatic zeroing of an offset voltage generated by an integrator and a comparator of the analog to digital converter is provided by a second capacitor serially connected between an input terminal of the integrator and the common signal, the integrator and comparator being connected in a closed loop configuration. A voltage ratio measurement by the analog to digital converter, the ratio of the voltage across a first resistor having a known resistance to the voltage across a second resistor having an unknown resistance, represents the resistance value of the second resistor.



3,836,848
METHOD OF TRANSLATING THE LOCATION OF A PREDETERMINED POSITION ON ONE SIDE OF A SUBSTANTIALLY NONFERROUS STRUCTURAL BARRIER OF A BUILDING TO AN OPPOSITE SIDE OF SAID BARRIER

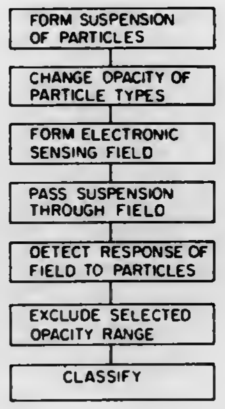
Maurice E. Blevins, 98 Canterbury Rd., Spartanburg, S.C. 29302
Division of Ser. No. 1,100, Jan. 7, 1970, Pat. No. 3,704,413. This application Nov. 1, 1972, Ser. No. 302,666
Int. Cl. G01m *27/00;* **G01r** *19/16, 33/00*
U.S. Cl. 324—67 **8 Claims**



A device for locating objects through a substantially nonferrous barrier, the use of which may also be applied for determining the thickness transmitter such a barrier and for localized surveying. An audio oscillator serves as a transmitter which emits signals that are picked up by headphones connected to a resonant tuned circuit. The transmitter is placed on or adjacent an object to be located and is set to transmit. Signals from the transmitter may then be located by the headphones and the peak sound from the signal or a null in the signal may be detected to pinpoint the position of the transmitter on the opposite side of the barrier. Whether or not the peak sound or the null is detected depends upon the attitude of the tranmitter coil with respect to the receiver coil. For measuring thickness of a particular barrier, the transmitter is located as stated above after which a null circle is detected radially out from the point where the tranmiter was located. The distance between the point of location of the transmitter and the null circle is a function of the thickness of the barrier. Alternatively, the null circle diameter may be detected and used to determine barrier thickness.

3,836,849
METHOD FOR CLASSIFYING PARTICLES

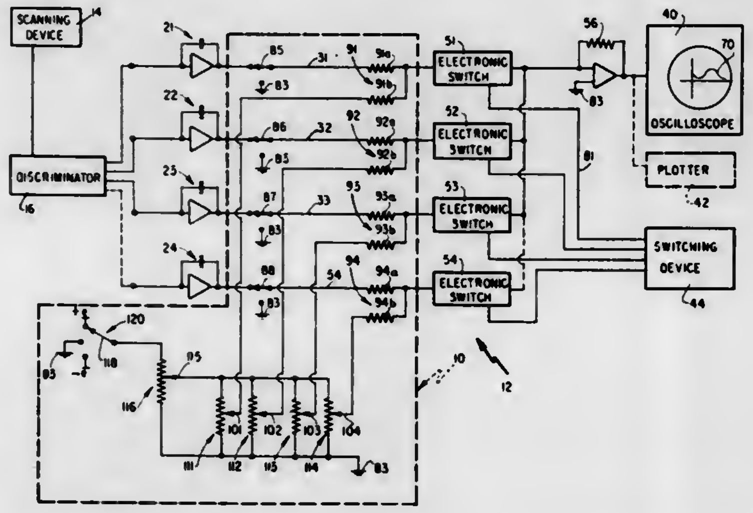
Wallace H. Coulter, Miami Springs, Fla.; Marylou Ingram, La Canada, Calif., and Patrick Vincent Ferro, Miami Lakes, Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.
Filed Oct. 14, 1971, Ser. No. 189,105
Int. Cl. G01r *27/04, 27/00*
U.S. Cl. 324—71 CP **22 Claims**


FORM SUSPENSION OF PARTICLES
CHANGE OPACITY OF PARTICLE TYPES
FORM ELECTRONIC SENSING FIELD
PASS SUSPENSION THROUGH FIELD
DETECT RESPONSE OF FIELD TO PARTICLES
EXCLUDE SELECTED OPACITY RANGE
CLASSIFY

To enhance the selectivity of the electronic classification of particles which are to be sensed in an electronic field which includes a high frequency energization and which thereby employs the electronic opacity of the particles as a basis for their classification, the particles are treated, for example, by a lysing agent, which selectively causes the opacity of certain types of the particles to change; whereby, each distinctive type of particle acquires a distinctive opacity range that is subject to electronic detection. Further selectivity can be obtained by electronically excluding after the treatment and before classification any undesired opacity range.

3,836,850
APPARATUS FOR PARTICLE SIZE DISTRIBUTION DISPLAY WITH MEANS TO SELECTIVELY ALTER THE DISPLAY BY ADDING PREDETERMINED D.C. SIGNALS TO THE DATA

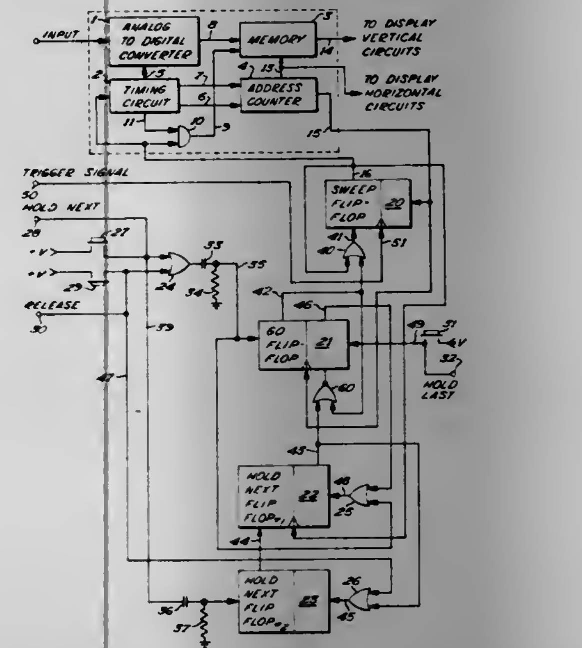
Wallace H. Coulter, Miami Springs, Fla., assignor to Coulter Electronics, Inc., Hialeah, Fla.
Continuation-in-part of Ser. No. 195,730, Nov. 4, 1971, abandoned. This application Oct. 16, 1973, Ser. No. 406,917
Int. Cl. G01n *27/00*
U.S. Cl. 324—71 CP **10 Claims**



The system includes a plurality of potentiometers and summing networks and a switching mechanism for alternately connecting the potentiometers to a neutral position, to a negative voltage source or to a positive voltage source. Each potentiometer is connected through a switch and one of the summing networks to the output of an accumulator in a particle size analyzing device and is adapted to add or subtract a signal to or from the accumulator output signal or, when the switching mechanism is in the neutral position, to have no effect upon the accumulator output signal. Each accumulator accumulates pulses generated by particles within a particular size range and the accumulator output signal is indicative of the quantity of particles in that size range. The particle analyzing device includes an electronic switching device for sequentially and cyclically connecting the outputs of the accumulators to a visual display device for presenting a visual display of a particle size distribution curve. The system of the invention permits the size distribution curve to be altered to compensate for erroneous signals (noise). It also permits the showing of a graph of the deviation between a standard particle size distribution curve and the sample particle size distribution curve. It further permits the replacement of the output signal from a selected accumulator with a desired D.C. signal level.

3,836,851
DIGITAL OSCILLOSCOPE CONTROL APPARATUS

Robert W. Schumann, Madison, Minn., assignor to Nicolet Instrument Corporation, Madison, Wis.
Filed Mar. 8, 1973, Ser. No. 339,180
Int. Cl. G01r *1/00, 19/00, 13/32*
U.S. Cl. 324—112 **14 Claims**

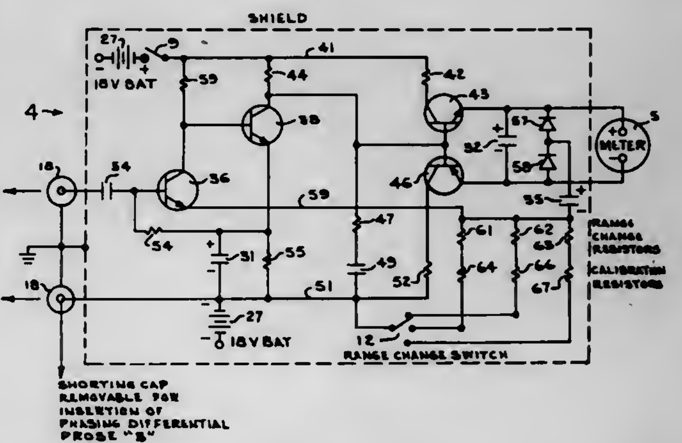


A digital oscilloscope having improved control apparatus which comprises first means for providing a single signal to control apparatus which will arm the oscilloscope to receive and hold only the next properly triggered input signal; second means for providing a single signal to the control apparatus which will then control the oscilloscope to hold the last properly measured signal and not to receive any further signals for measurement; and third means for providing a single signal to the control apparatus for placing the oscilloscope into a normal mode of operation. All of the first, second or third means may be manually or remotely operated.

3,836,852
SOLID-STATE HIGH INPUT IMPEDANCE METER SYSTEM

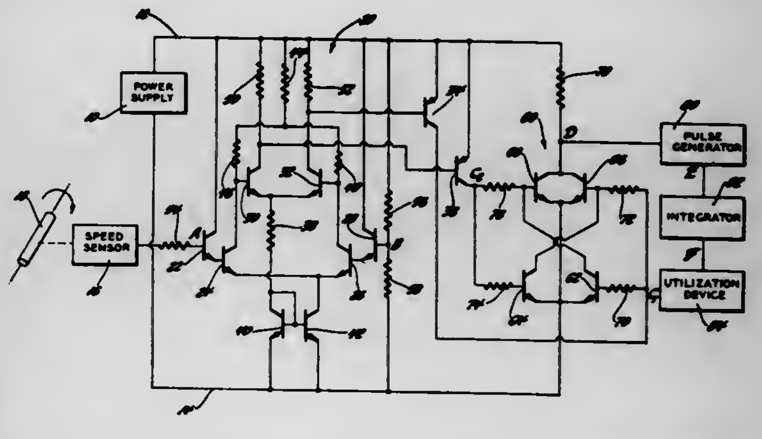
Hugh C. Ross, 11915 Shadybrook Ct., Saratoga, Calif.
Filed May 3, 1968, Ser. No. 726,452
Int. Cl. G01r *1/30, 15/08, 5/22*
U.S. Cl. 324—123 R **24 Claims**

Presented is a system, including apparatus and methods of operation thereof, for effecting isolated measurement and sensing of line to ground voltages, differential voltages, currents, insulation leakage and resistances, Corona levels, and other parameters in insulated conductors and related systems associated with low and high power, low and high voltage electrical and electronic systems. The system includes a high input impedance meter unit actuated by a solid-state amplifier circuit including a pair of feedback circuits that cooperate with transistor amplifiers to maintain substantially constant the ratio of input and output from the circuit over a wide range of AC and DC voltages and currents. In its different applications, the high input impedance meter including solid-state amplifier circuit is used in conjunction with a variety of probes, both low voltage and high voltage types, for measurements of various voltages, and may be utilized with a proximity probe for direct sensing of AC fields. The high input impedance of the meter movement and solid-state circuit also permits the use of Corona voltage level and detecting probes for both high voltage direct and low voltage indirect or proximity measurement of various levels of voltages. Inasmuch as it is important that systems of this type be predictably accurate and operative, the system also includes a high voltage portable test unit to test the voltmeter and probes. To insure complete reliability of values being measured, the high voltage portable test source itself is subject to test to determine that it is operating properly before it is used to test the voltmeter and probes, and for this purpose a high voltage megohmmeter insulation leakage current-emission detector is provided to test the high voltage portable test voltage source, and to measure the high voltage insulation associated with the high voltage point or terminal being measured. Inasmuch as the high input impedance metering system is used in conjunction with high voltages, a collapsible and detachable insulating "hot stick" is provided to isolate the high voltage components from human contact while in use.



3,836,853
APPARATUS FOR MEASURING THE SPEED OF A MOVING MEMBER

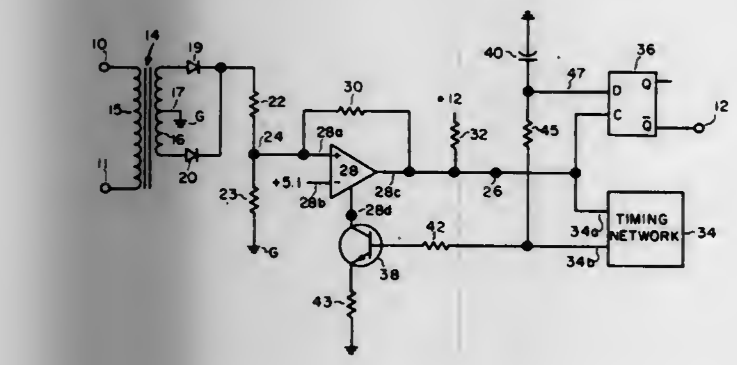
Larry F. Cracraft; Richard C. Oppmann, and Edward G. Whitaker, all of Kokomo, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Oct. 10, 1973, Ser. No. 404,987
Int. Cl. G01p *3/48*
U.S. Cl. 324—166 **2 Claims**



A pair of complementary bilevel signals are cyclically produced at a frequency proportional to the speed of a moving member. The bilevel signals are derived through at least a pair of junction transistors for delaying either the rise or the fall of the bilevel signals due to the minority carrier storage effect in at least the pair of transistors. Successive trigger pulses are each developed in response to the resulting overlap between the complementary bilevel signals during level transitions. Successive incremental pulses of constant width and constant amplitude are produced in response to the trigger pulses. The incremental pulses are integrated to provide an analog signal which is substantially constant at a level proportional to the speed of the moving member.

3,836,854
ALARM CIRCUIT FOR MONITORING THE AMPLITUDE OF A-C VOLTAGES

Alan W. Wehman, Elyria, Ohio, assignor to Lorain Products Corporation, Lorain, Ohio
Filed July 2, 1973, Ser. No. 375,730
Int. Cl. G01r *19/16, 31/02*
U.S. Cl. 324—133 **13 Claims**

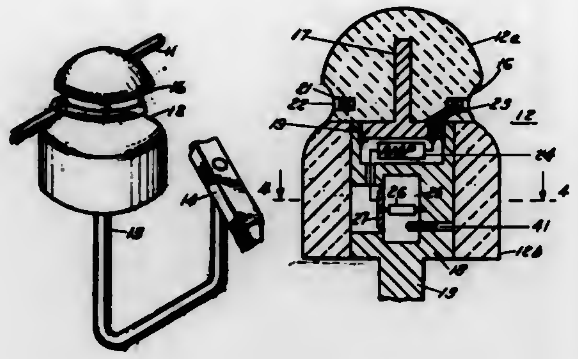


A circuit for rapidly and accurately indicating whether an a-c voltage has a magnitude greater than a predetermined minimum value. A two-state voltage comparing circuit establishes a first output voltage when the rectified a-c input voltage exceeds a preset reference voltage and establishes a second output voltage state when the rectified a-c input voltage is less than that reference voltage. A two-state switching circuit forces the comparing circuit to assume and remain in its first state for a preset time after it assumes its second state, the preset time being greater than the time required for an acceptably high a-c voltage to pass through the reference voltage region established by the comparing circuit, as the a-c voltage varies through zero volts twice during each full cycle thereof. A two-state output control circuit indicates an a-c voltage fault if and when the comparing circuit returns to its second state within a relatively short time after having been forced to assume its first state. In this manner actual a-c voltage faults are distinguished from the apparent a-c voltage faults which tend to occur each time the a-c voltage varies through zero.

3,836,855
MODULATING SYSTEM

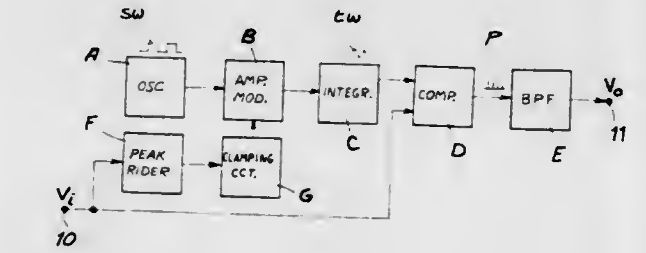
John F. Zaleski, Valhalla, N.Y., assignor to The Singer Company, New York, N.Y.
Filed May 5, 1958, Ser. No. 733,210
Int. Cl. G01s *9/56;* **H04b** *7/14;* **H02j** *13/00*
U.S. Cl. 325—113 **12 Claims**

10. A modulating system comprising, an electronic valve, an amplifier circuit connected to said valve and including an input circuit and an output circuit, means for connecting a signal voltage to said input circuit, a unidirectional conducting device connected in said output circuit serving the triple function of the power supply for said valve, the load across which the useful output voltage is developed, and a modulating element, and an antenna for concentrating incident electromagnetic wave energy upon said device and for reradiating a portion of the incident energy after modulation by said signal voltage.



3,836,856
SYSTEM FOR LIMITING THE RANGE OF A-C SIGNALS

Armando Lovadina, and Franco Morelli, both of Milan, Italy, assignors to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy
Filed May 11, 1972, Ser. No. 252,466
Claims priority, application Italy, May 12, 1972, 24392/71
Int. Cl. H04b *1/04*
U.S. Cl. 325—187 **10 Claims**

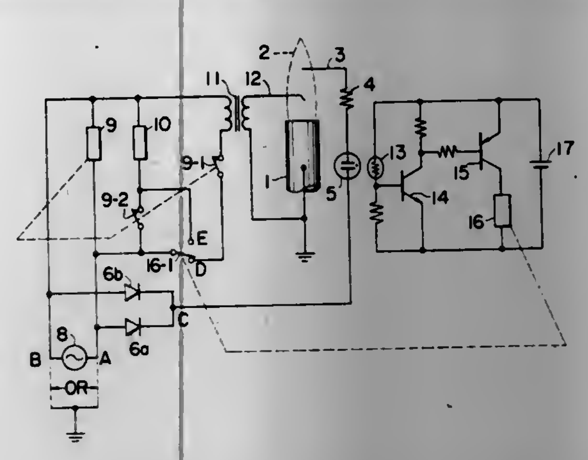


A sinusoidal signal voltage of varying amplitude V_f is compared with a triangular voltage wave of relatively elevated frequency and amplitude to generate a binary voltage with a first value for signal amplitudes higher than the wave amplitude and a second value for signal amplitudes lower than the wave amplitude. The resulting pulse train, upon integration, produces a replica of the original signal having an amplitude V_o. To vary the ratio V_o/V_f, specifically to reduce it for higher signal amplitudes, a square wave giving rise to the triangular wave is amplitude-modulated in response to the peaks of the signal voltage V_f.

3,836,857
FLAME DETECTOR

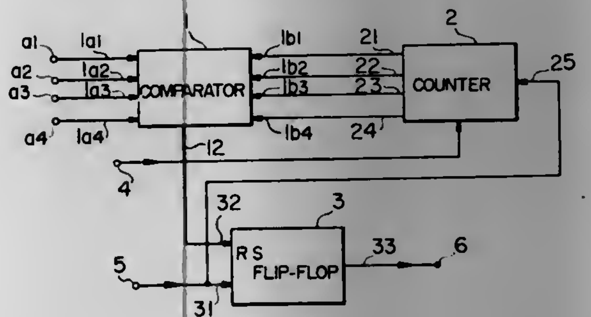
Kazutoshi Ikegami, Kokubunji; Juichi Honda, Fujisawa; Motosi Miyanaka, Yanai, and Mitsuoki Yamamoto, Suginami, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Apr. 24, 1973, Ser. No. 354,078
Claims priority, application Japan, May 12, 1972, 47-46406; May 12, 1972, 47-46407; May 12, 1972, 47-46408
Int. Cl. H03k *3/26;* **G01n** *27/00*
U.S. Cl. 328—6 **6 Claims**

A flame detector wherein a pair of diodes are connected in series with opposite directions of conduction across the respective terminals of an AC power source, and a light emitting device, such as a discharge tube, is connected between the point of connection of the two diodes and a flame rod disposed in a flame to be detected. With this construction, a predetermined voltage is applied between a burner and the flame rod, whichever side of the AC power source is grounded.



3,836,858
PULSE WIDTH SETTING APPARATUS

Akira Kitano, Nagoya, Japan, assignor to Nippondenso Co., Ltd., Aichi-ken, Japan
Filed June 20, 1972, Ser. No. 264,589
Claims priority, application Japan, June 30, 1971, 46-47789
Int. Cl. H03k *5/04*
U.S. Cl. 328—58 **4 Claims**

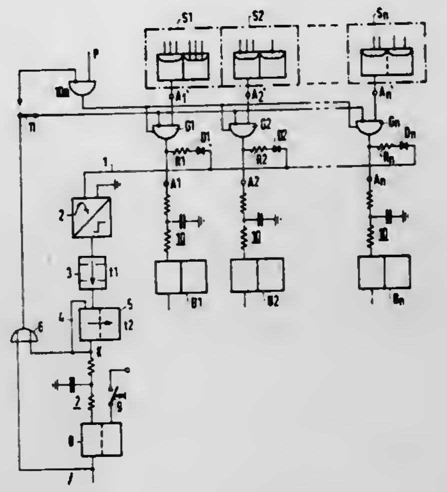


A pulse width setting apparatus provided with a switching circuit which is switched from one state to the other state upon receipt of a trigger pulse, a counting circuit for counting clock pulses, and a comparator for comparing a count of said counting circuit with a given binary code for determining a pulse width and generating a signal when the count becomes equal to the binary code to thereby restore said switching circuit to the original one state.

3,836,859
CONTROL CIRCUIT FOR PREVENTING THE RESPONSE OF A PROGRAMMED CONTROLLER TO SIMULTANEOUSLY GENERATED CONTROL SIGNALS

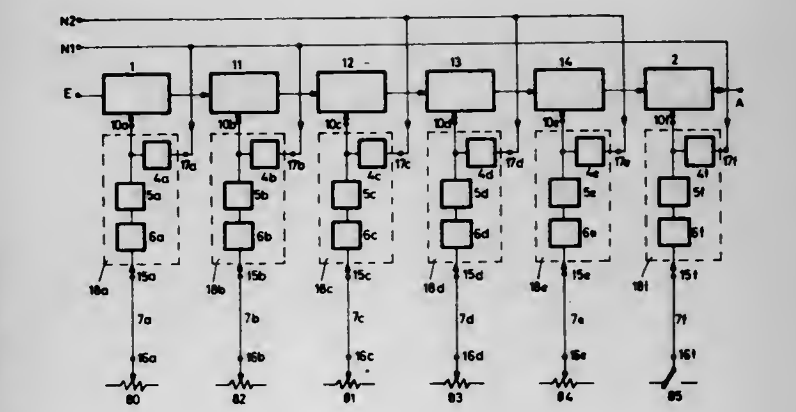
Dieter Behrens, and Lothar Wache, both of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Filed Apr. 5, 1973, Ser. No. 348,277
Claims priority, application Germany, Apr. 6, 1972, 2216591
Int. Cl. H03k *17/26, 17/28*
U.S. Cl. 328—75 **10 Claims**

A control circuit for preventing the response of a programmed controller to a plurality of simultaneously generated control signals, comprising a plurality of AND gates coupled to the signal generators of the controller; a monostable flip-flop means coupled to the outputs of the and gates for generating a first gate control signal whenever two or more control signals are generated simultaneously by the signal generators; and a bistable flip-flop means, coupled to the monostable flip-flop means, for generating a second gate control signal a predetermined time period after generation of the first gate control signal. The first and second gate control signals prevent the generation of output signals by the AND gates and the transmission of the signals to control signal storage devices in the controller.



3,836,860
MEASURING TEST SIGNALS OF TEST LINES WHICH HAVE PASSED THROUGH AN AMPLIFIER, PARTICULARLY A VIDEO AMPLIFIER

Hans Horneff, Darmstadt, Germany, assignor to Robert Bosch Fernsehanlagen GmbH, Darmstadt, Germany
Filed May 22, 1972, Ser. No. 255,340
Int. Cl. H03f *19/00*
U.S. Cl. 330—2 **11 Claims**

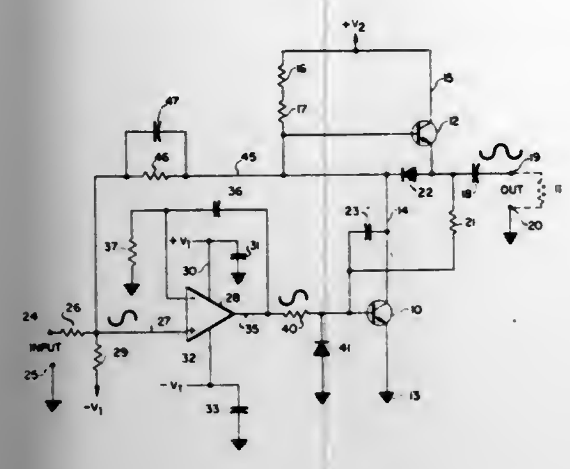


Measuring test signals which have passed through a video amplifier having continuously adjusted amplification characteristics during transmission of a video signal. The test signal is fed during a blanking interval of the picture thus transmitted with switching provided to cause selected elements of the amplifier to have nonvariable amplification characteristics during the part of the blanking interval used for testing.

3,836,861
LOW DISSIPATION POWER AMPLIFIER

Allen M. Diamond, Orange, Calif., assignor to Beckman Instruments Inc., Fullerton, Calif.
Filed Mar. 2, 1973, Ser. No. 337,420
Int. Cl. H03f *3/26*
U.S. Cl. 330—15 **2 Claims**

A push-pull amplifier utilizing substantially identical first and second transistors, the collector of the first transistor being directly coupled to the base of the second transistor, the base of the first transistor being coupled through a resistor to the emitter of the second transistor. The bias for the first transistor is supplied through an operational amplifier through a current limiting resistor to the base thereof, while the bias to the second transistor is controlled by a feedback loop interconnecting the base thereof and the input of the operational amplifier. A diode is connected between the emitter and base of the second transistor to prevent conduction of both transistors at the same time.

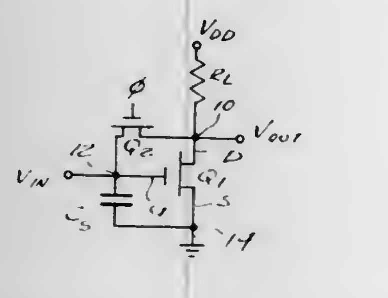


3,836,862
FIELD EFFECT TRANSISTOR LINEAR AMPLIFIER WITH CLOCKED BIASING MEANS

John Leland Seely, Northport, N.Y., and Frank M. Wanlass, Cupertino, Calif., assignors to General Instrument Corporation, Newark, N.J.

Filed Aug. 14, 1972, Ser. No. 280,534
Int. Cl. H03f *3/16*

U.S. Cl. 330—25 **18 Claims**



A self-biasing MOS linear amplifier is provided with improved means for maintaining the circuit biased to its linear amplification range. That means comprises a clocked feedback FET operatively connected between the output and input terminals and adapted to charge a storage capacitor at the input during a first clock interval, the bias level applied at the input being a function of the operating characteristic of the switching FET. The storage capacitor is effective to maintain the device so biased throughout the remainder of the clock cycle.

In a second embodiment the circuit comprises a plurality of inverter stages, a single clocked feedback FET being operatively connected between the output and input terminals whereby the circuit is designed to stabilize in its operative linear amplification range during the first clock interval.

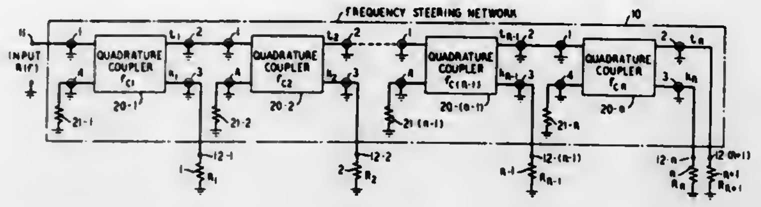
3,836,863
BROADBAND FREQUENCY STEERING NETWORK

Harold Seidel, Warren, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 22, 1972, Ser. No. 317,620
Int. Cl. H03f *3/60*

U.S. Cl. 330—53 **12 Claims**

A frequency steering network, comprising an array of reactive couplers, is described. By suitable selection of the coupler parameters, and the circuits connected thereto, the network can be used to provide a broadband resistance having a prescribed resistance-frequency characteristic; to suppress spurious oscillations in the bias circuit of certain types of oscillators and amplifiers; and as a conventional multiplexer and demultiplexer.

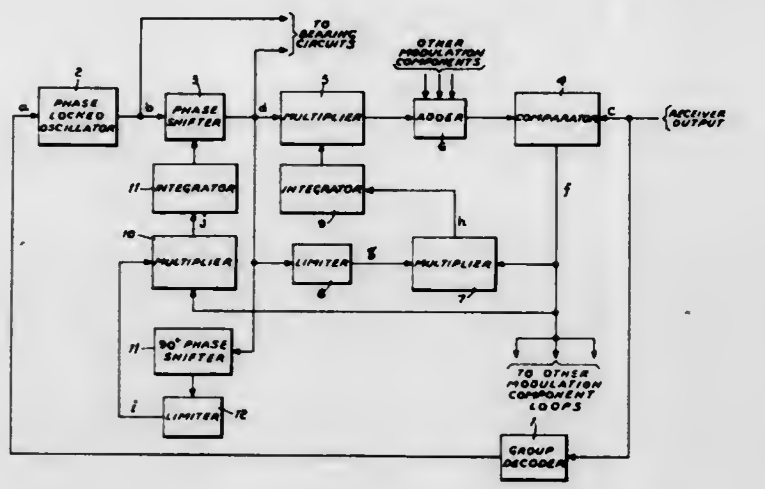


3,836,864
METHOD AND APPARATUS FOR DETERMINING TACAN BEARING

Maurice L. Jezo, Cedar Grove, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Apr. 19, 1973, Ser. No. 352,755
Int. Cl. H03b *3/02, 3/04*

U.S. Cl. 331—1 R **4 Claims**



This invention relates to a method and apparatus for extracting antenna modulation components by phase locking a locally generated sine wave at the desired frequency with the actual antenna modulation. A phase locked oscillator is triggered at predetermined reference points on the received Tacan signal. The output of the oscillator is phase shifted in the direction of coincidence with th received modulation envelope. A comparator compares the phase shifted signal and the envelope of the received signal and generates an error signal if coincidence does not exist. The error signal is fed back and multiplied betwen phase shifted signal; in one case after the phase shifted signal is limited and in another case after the phase shifted signal is further shifted by 90° and limited. In the first case the result of the multiplication is integrated and used to modify the amplitude of the phase shifted signal. In the second case, the result of the multiplication is integrated and controls the amount of the phase shift imparted on the locally generated signal to achieve coincidence.

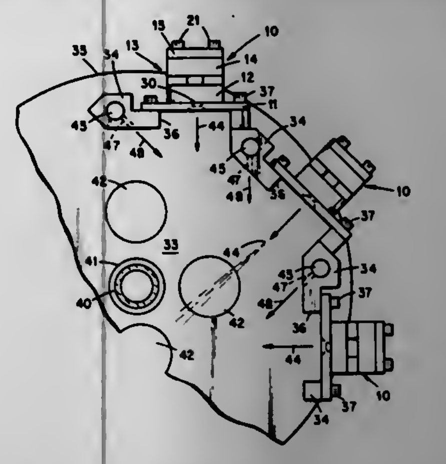
3,836,865
PYROTECHNICALLY EXCITED LASER SYSTEM

Helmut A. Koehler, Livermore; David L. Redhead, Dublin, and George A. Clough, Livermore, all of Calif., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Jan. 10, 1973, Ser. No. 322,563
Int. Cl. H01s *3/09*

U.S. Cl. 331—94.5 P **10 Claims**

A pyrotechnic means for optically pumping a lasing medium wherein a plurality of small, confined, pressed cylinders of a pyrotechnic mixture, e.g., 80/20 wt. % Hf/KClO$_4$, are ignited simultaneously to provide an energy fluence suitable for optically pumping an active (lasing) medium, e.g., Nd-Glass, Nd-YAG.

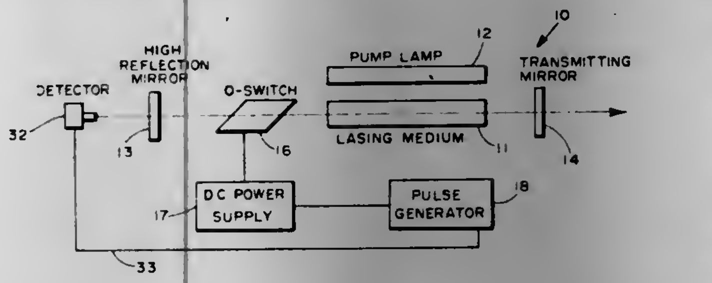


3,836,866
Q-SWITCHED LASER MODE SELECTION SYSTEM

Eugene O. Ammann, Menlo Park, and Joe Michael Yarborough, Santa Clara, both of Calif., assignors to GTE Sylvania Incorporated, Mountain View, Calif.

Filed Jan. 29, 1973, Ser. No. 327,691
Int. Cl. H01s *3/11*

U.S. Cl. 331—94.5 Q **5 Claims**



The subject of this invention is a mode selection technique which applies specifically to continuously-pumped, repetitively Q-switched lasers. When the gain of such a laser becomes slightly greater than the hold-off loss of the Q-switch, there is a premature output consisting of a series of relaxation oscillation pulses (or spikes). In the technique of this invention, the presence of the first such relaxation oscillation pulse is detected by a detector external to the laser cavity and consequently used to trigger the opening of the Q-switch. It is important that the Q-switch be opened shortly after the occurrence of the first relaxation oscillation pulse, and in particular, before the occurrence of the second such pulse. The resulting output pulse from the laser has significantly fewer longitudinal and transverse modes than obtained with normal operation of a repetitively Q-switched laser. Since the opening of the Q-switch is triggered by the onset of relaxation oscillations, pulse-to-pulse variations caused by laser mirror vibrations, pump-lamp intensity fluctuations, etc. have no effect on the accuracy of mode control. This mode control is achieved without otherwise affecting the normal Q-switced operation of the lasers; no additional components are required inside the laser other than those normally used in Q-switched lasers.

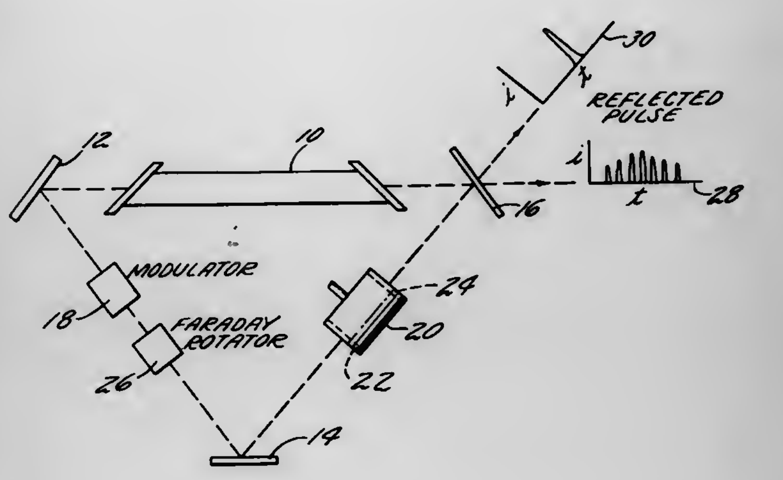
3,836,867
GAS BREAKDOWN LASER PULSE SELECTOR

David C. Smith, Glastonbury, and Peter R. Solomon, Bloomfield, both of Conn., assignors to United Aircraft Corporation, E. Hartford, Conn.

Filed Mar. 27, 1973, Ser. No. 345,406
Int. Cl. H01s *3/00*

U.S. Cl. 331—94.5 Z **6 Claims**

A single pulse or a selected number of pulses from a mode-locked laser may be isolated from the laser pulse train. A gas breakdown cell is positioned in the path of the laser pulse train and the laser pulses are focused within the cell. When the intensity of the pulses exceeds the gas breakdown threshold, a plasma is generated which acts as a highly reflecting mirror. In the preferred embodiment using a ring cavity geometry, the laser pulse train travels through the cell in one direction and the gas pressure in the cell is adjusted so that breakdown of the gas occurs near the peak intensity of the traveling pulse. The breakdown plasma reflects a portion of the breakdown pulse which propagates in the opposite direction from the original pulse train. A single nonmode-locked laser pulse may be shaped by using the reflection capabilities of the breakdown plasma formed in a gas cell.

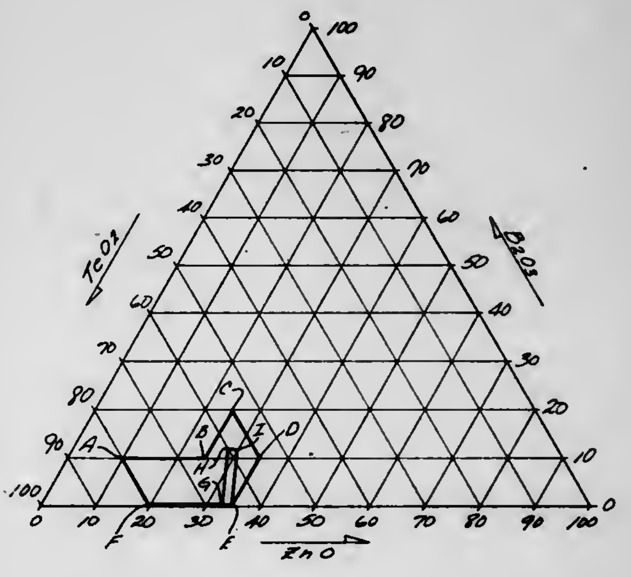


3,836,868
LASER GLASS HOST COMPOSITIONS COMPRISING TeO$_2$ B$_2$O$_3$ ZnO

Richard F. Cooley, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed June 27, 1973, Ser. No. 373,905
Int. Cl. H01s *3/16*

U.S. Cl. 331—94.5 **14 Claims**



Laser glass host compositions for effective lasing amounts of Nd$_2$O$_3$ are disclosed, the host compositions comprising TeO$_2$, B$_2$O$_3$ and ZnO in certain molar proportions. Also disclosed are methods of making highly effective laser articles, such as rods and discs, and the new use of the above-described glass compositions for forming laser articles, the new use including forming laser articles from the compositions, pumping the resultant laser articles to provide an energy inversion, and lasing the pumped article.

3,836,869

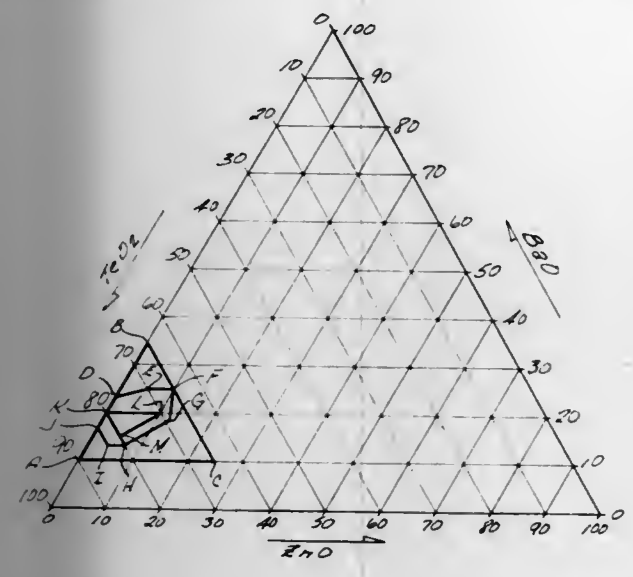
LASER GLASS HOST COMPOSITIONS COMPRISING TeO_2, BaO AND ZNO AND METHODS OF MAKING AND USING THE SAME

Richard F. Cooley, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed June 27, 1973, Ser. No. 373,906

Int. Cl. H01s *3/16*

U.S. Cl. 331—94.5 **19 Claims**



Laser glass host compositions for effective lasing amounts of Nd_2O_3 are disclosed, the host compositions comprising TeO_2, BaO and ZnO in certain molar amounts. Methods of making highly effective laser articles, including laser rods, also are disclosed. The new use of the above-described TeO_2/BaO/ZnO glass compositions for forming laser articles are disclosed, the new use including forming laser articles from the glasses, pumping the laser articles to provide an energy inversion, and lasing the pumped articles.

3,836,870

LASER GLASS HOST COMPOSITIONS COMPRISING TeO_2 AND BaO

Richard F. Cooley, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed June 27, 1973, Ser. No. 374,107

Int. Cl. H01s *3/16*

U.S. Cl. 331—94.5 **15 Claims**

Laser glass host compositions for effective lasing amounts of Nd_2O_3 are disclosed, the laser glass compositions comprising TeO_2 and BaO, the compositions generally being:

1. about 77–90 mole percent TeO_2 and about 10–23 mole percent BaO; and
2. about 67–73 mole percent TeO_2 and about 27–33 mole percent BaO.

Also disclosed are methods of making highly effective laser articles, such as rods and discs, and the new use of the above-described TeO_2/BaO glass compositions for forming laser articles, the new use including forming laser articles from the glass compositions, pumping the resultant laser articles to provide an energy inversion, and lasing the pumped article.

3,836,871

LASER GLASS HOST COMPOSITIONS COMPRISING TeO_2, Li_2O AND ZnO

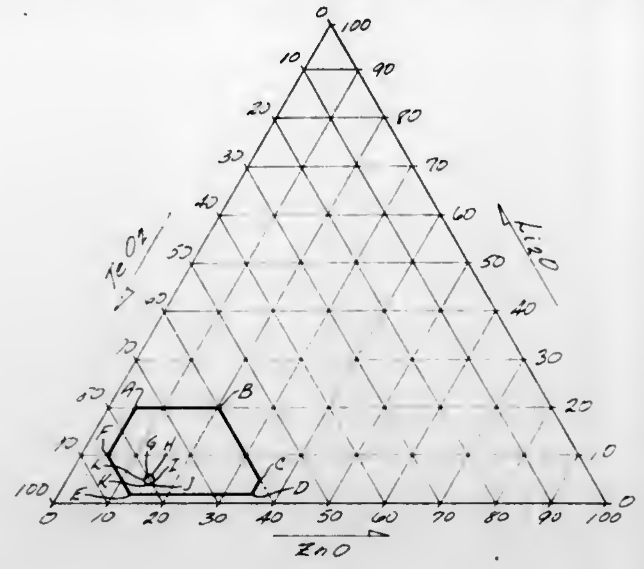
Richard F. Cooley, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed June 27, 1973, Ser. No. 374,108

Int. Cl. H01s *3/16*

U.S. Cl. 331—94.5 **14 Claims**

Laser glass host compositions for effective lasing amounts of Nd_2O_3 are disclosed, the host compositions comprising TeO_2, Li_2O and ZnO in certain molar amounts. Also disclosed are methods of making highly effective laser articles, such as rods, and also the new use of the above-described glass compositions for forming laser articles, the new use including forming laser articles from the compositions, pumping the resultant laser articles to provide an energy inversion, and lasing the pumped articles.



3,836,872

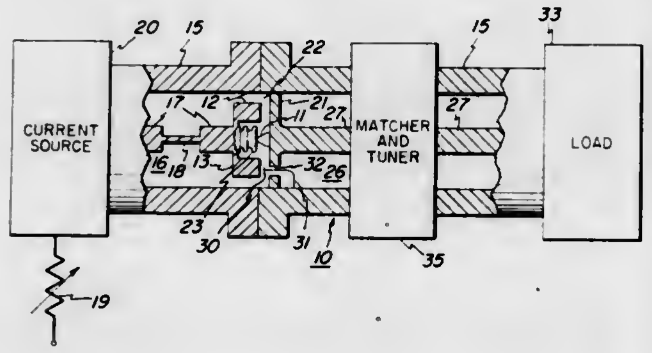
AVALANCHE DIODE OSCILLATOR

Se Puan Yu, and Wirojana Tantraporn, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Sept. 21, 1973, Ser. No. 399,314

Int. Cl. H03b *5/12*

U.S. Cl. 331—107 R **7 Claims**



A circuit for the operation of an avalanche diode in the TRAPATT mode includes a capacitor connected in shunt with the diode and charged from a high impedance current source to a voltage which produces oscillations across the capacitor. Means are provided for varying the charging rate of the capacitor to vary inversely the frequency of the TRAPATT oscillations.

3,836,873

LOW NOISE VHF CRYSTAL HARMONIC OSCILLATOR

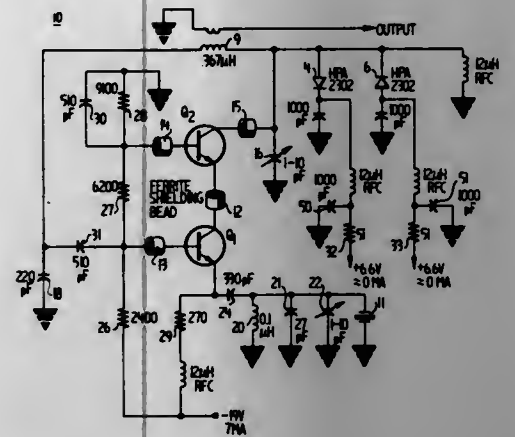
Daniel J. Healey, III, and Michael M. Driscoll, both of Baltimore, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 2, 1973, Ser. No. 375,524

Int. Cl. H03b *5/36*

U.S. Cl. 331—116 R **10 Claims**

A two transistor VHF crystal controlled harmonic oscillator provides a large ratio of output power to crystal unit power dissipation without significant degradation of oscillating resonator Q from the crystal unit Q defined herein as Q_r. A cascode amplifier configuration comprising first and second transistors in combination with inductance and capacitance elements provides an oscillator configuration with phase shift in the vicinity of the oscillator frequency dominantly controlled by the quartz crystal unit motional impedance parameters. The first and second transistors are operated under linear conditions during the complete cycle of oscillation current, and two hot carrier diodes operated with appropriate biasing voltages provides the limiting characteristic required in harmonic oscillators. Circuit applications may use one or two VHF crystal units with appropriate antiresonating of circuit capacitance to achieve a desired minimum of phase noise power spectral density in the oscillator circuit.



3,836,874

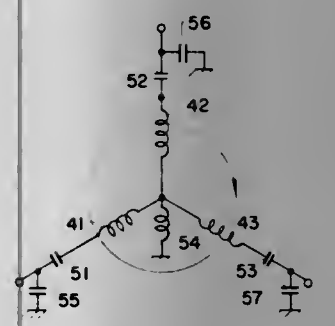
LUMPED ELEMENT CIRCULATOR

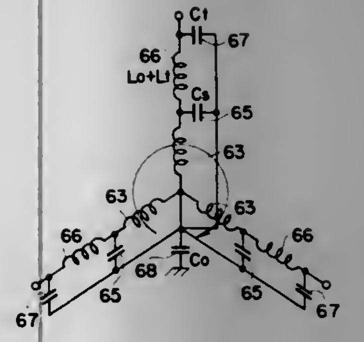
Minoru Maeda, Hachioji, and Ichiro Ikushima, Kokubunji, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed June 25, 1973, Ser. No. 372,937

Int. Cl. H01p *1/32*

U.S. Cl. 333—1.1 **16 Claims**





In a lumped element circulator wherein three line conductors are arranged on the surface of a ferrimagnetic substrate with cross angles of 120° with respect to one another and in a manner to be insulated from one another, capacitive elements are connected between the input ends of the respective line conductors and an outer conductor. Terminating parts of the respective line conductors are connected to a conductor plate provided on the back of the ferrimagnetic substrate, and a DC magnetic field is applied perpendicularly to the plane of the ferrimagnetic substrate. The lumped element circulator comprises capacitors connected in series with the respective line conductors, and a coil connected between the conductor plate and the outer conductor.

3,836,875

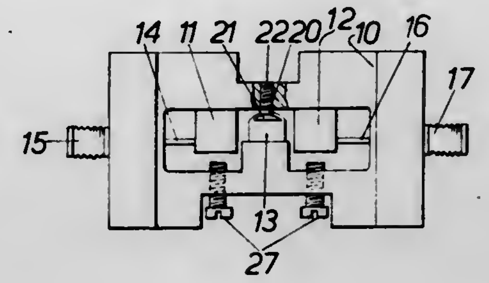
MICROWAVE LIMITER HAVING VARIABLE CAPACITANCE DIODE IN TUNED CAVITY

James Ritchie Duncan, Dundee, Scotland, and Colin Donald Hannaford, Milnthorpe, England, assignors to Ferranti Limited, Hollinwood, England

Filed Jan. 17, 1973, Ser. No. 324,326

Int. Cl. H03g *11/04, 11/02*; H01p *1/22*

U.S. Cl. 333—17 **5 Claims**



A microwave-frequency power limiting device comprises a voltage-sensitive reactance arranged to form a tuned circuit having a resonant frequency dependent upon the power applied to the device. The tuned circuit is coupled to an input transmission line by a step-up transformer.

3,836,876

ACOUSTIC SURFACE WAVE DEVICES

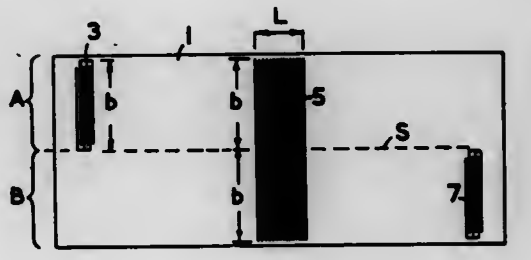
Frank Graham Marshall, and Edward George Sydney Paige, both of West Malvern, England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed May 2, 1972, Ser. No. 249,573

Claims priority, application Great Britain, May 5, 1971, 13125/71

Int. Cl. H03h *7/30*

U.S. Cl. 333—30 **36 Claims**



Acoustic surface wave devices of a novel class characterized by the provision of coupling means comprising at least several spaced filamentary electrical conductors extending over a first region and a second region for causing acoustic surface waves propagated across the coupling means in the first region to interact with acoustic surface waves propagated across the coupling means in the second region, by means of alternating electric signals induced on the filamentary electric conductors. The regions to be coupled are preferably formed on piezoelectric material, but modified forms of the coupling means can be made operable with other materials and suitable biassing fields. The described devices include acoustic beam width changing, impedance matching, track changing and phase-sensitive switching devices; a hybrid junction device, resonator and recirculating filter devices, tapped acoustic delay lines, unidirectional transducers, acoustic surface wave reflectors and mode discriminators, electrically-controlled acoustic beam switches and directional couplers, acoustic beam splitters, and means for reducing unwanted reflections of acoustic surface waves.

3,836,877
PIEZOELECTRIC FILTER

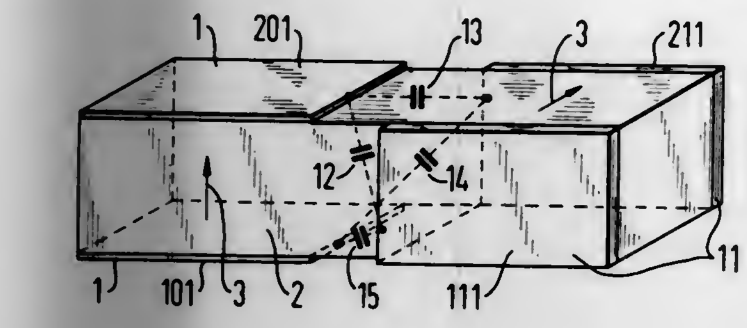
Max Guntersdorfer, Zorneding, and Helmut Thomann, Munich, both of Germany, assignors to Siemens Aktiengesellschaft, Berling & Munich, Germany

Filed June 27, 1973, Ser. No. 374,123

Claims priority, application Germany, June 27, 1972, 2231467

Int. Cl. H03h *9/26, 9/32*

U.S. Cl. 333—72 **6 Claims**



A piezoelectric filter arrangement is provided utilizing a piezoelectric body on which are arranged pairs of input and output electrodes. The electrodes are electrically isolated from one another, and the piezoelectric body is permanently polarized so that the polarization is aligned between these pairs of electrodes.

3,836,878
TILTING SYSTEM

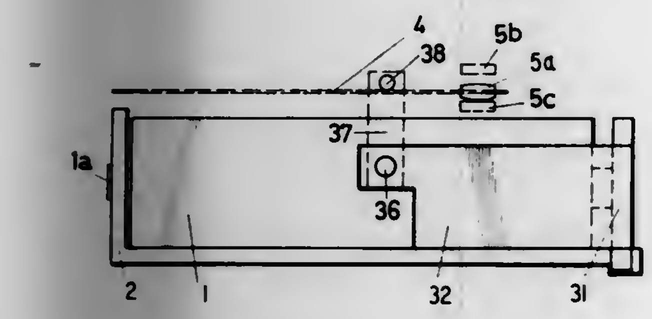
Werner Minks, Kleingeschaidt, Germany, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Oct. 31, 1973, Ser. No. 411,369

Claims priority, application Germany, Oct. 31, 1973, 2253456

Int. Cl. H01h *50/26*

U.S. Cl. 335—128 **6 Claims**



A relay or similar electromagnetic device in which an armature is tilted in response to the operating magnetic flux, and in which an orthogonal tilt freedom is provided to increase the ability of the relay to free sticking contacts, particularly in a double pole arrangement.

3,836,879
DUAL REVERSING SOLENOID OPERATED SWITCH

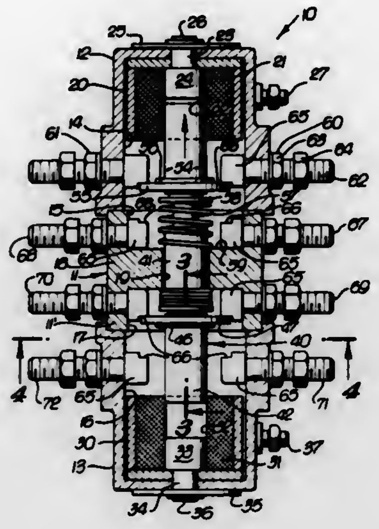
David Frye, Gardena, Calif., assignor to Norco Sales and Manufacturing Company, Gardena, Calif.

Filed Oct. 15, 1973, Ser. No. 406,591

Int. Cl. H01h *50/58*

U.S. Cl. 335—136 **7 Claims**

A reversing solenoid operated switch unit has a single central plunger which carries two heavy gage copper contact discs. Facing opposite surfaces of each disc are pair of diametrically spaced heavy duty electrical contact shoulders at locations adapted to be contacted by and interconnected by the adjacent disc as each disc moves axially from one pair of shoulders to the other, thereby to periodically reverse the flow in each of two circuits.



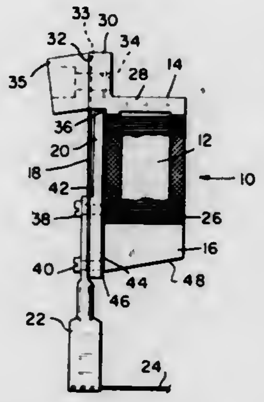
3,836,880
MATRIX PRINTER DRIVE ELEMENT

Arthur L. Matschke, Westport, Conn., and Jack K. Horowitz, Laurelton, N.Y., assignors to Tele Speed Communications, Inc., Long Island City, N.Y.

Filed Oct. 25, 1973, Ser. No. 409,699

Int. Cl. H01f *7/13*

U.S. Cl. 335—274 **11 Claims**



An improved electromagnet design for use as a dot-matrix printer drive element. A solid winding core is provided with integral pole pieces at both ends. A leaf spring is secured to a first pole piece and extends generally parallel to the axis of the core. A magnetic field shunt piece is secured at the free end of the spring on the side facing the core. A printing wire shoe is also secured to the leaf spring at its free end, and extends away from it. The printing wire is affixed in the shoe and extends back across the axis of the core. In the un-energized condition, there is a gap between the shunt and the second pole piece that is roughly one-half of the desired stroke of the printing wire. The electromagnet is of very low mass, but operates at high speed with a long printing stroke having maximum force at the moment of impact of the printing wire on the printing medium. This design allows a plurality of such drive elements to be radially mounted in a circle with all of the respective printing wires close to the center of that circle. The center of the circle will also coincide with the centerline axis of the printed characters.

3,836,881
DOUBLE-TUNED CIRCUIT DEVICE WITH ADJUSTABLE COUPLING COEFFICIENT MEANS

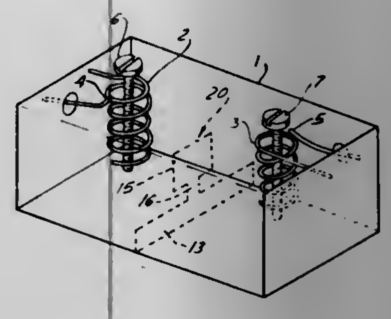
Yasumi Koizumi, Tokyo, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Sept. 26, 1973, Ser. No. 401,053

Claims priority, application Japan, Nov. 14, 1972, 47-113985

Int. Cl. H01f *21/10*

U.S. Cl. 336—87 **10 Claims**



A double-tuned circuit device includes a housing, a pair of helical resonator units mounted in the housing and means for adjusting the electromagnetic coupling coefficient between the resonator units. The adjusting means is interposed between the units and comprises a movable electromagnetic shielding member electrically connected to the housing and means for mounting the member within the housing such that the position of the member relative to the resonator units may be varied. In the first embodiment the shielding member is connected to the mounting means by a bendable neck portion. In the second embodiment the shielding member is formed in slidable engagement with the mounting means. In the third embodiment the shielding member is frictionally held to the sides of the housing by the mounting means.

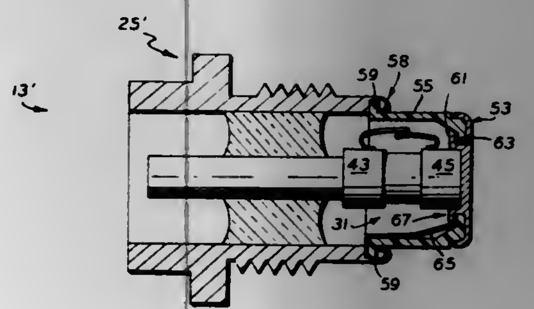
3,836,882
TEMPERATURE COMPENSATED FLUID SENSOR DEVICE

Nikolaus A. Szeverenyi, and David F. Thompson, both of Warren, Pa., assignors to GTE Sylvania Incorporated, Stamford, Conn.

Filed Aug. 16, 1973, Ser. No. 388,940

Int. Cl. H01h *61/02, 37/04*

U.S. Cl. 337—102 **8 Claims**



There is described an improved sensor device for detecting the presence or absence of fluid. The device comprises a housing member defining a chamber, a tip member adapted for being exposed to a fluid and secured to the housing, a heat conductive member within the chamber, a heater means within the chamber in conductive relationship to both the tip member and the heat conductive member, and first and second heat responsive means. The improvement comprises providing the tip member with a first portion of a relatively thermally conductive material and a second portion of a relatively thermally insulative material.

3,836,883
FUSE AND RESISTOR DEVICE

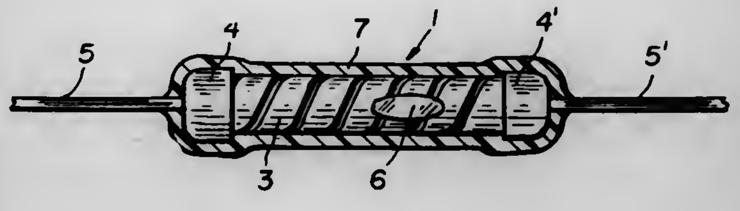
Tatsunori Takayasu, Irima, and Kouzi Higashi, Kaminiikawa, both of Japan, assignors to Hokuriku Electric Industry Co., Ltd., Toyama-Prefecture, Japan

Filed Dec. 6, 1972, Ser. No. 312,500

Claims priority, application Japan, Dec. 8, 1971, 46-98713, June 5, 1972, 47-55135

Int. Cl. H01h *85/04*

U.S. Cl. 337—163 **17 Claims**



A fuse and resistor device is disclosed comprising a substrate of insulating material, a resistance film of tin oxide deposited on said substrate, a layer of glass material having a relatively lower melting point and deposited on said resistance film and an insulation layer surrounding both said resistance layer and said glass layer. When overcurrent passes through the device it acts as a fuse resulting from the resistance film partially or wholly migrating into the glass layer now melted on the resistance film thus preventing the current from flowing through the device.

3,836,884
SEQUENTIAL ACTIVATION OF ELECTRICAL APPARATUS

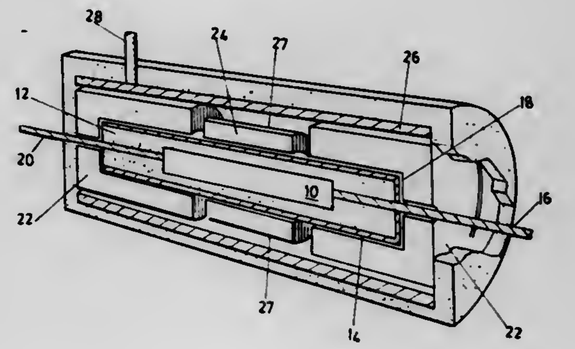
George Albert Oliver, Johannesburg, South Africa, assignor to Exec (Proprietary) Limited and AE & CI Limited, Johannesburg, South Africa, part interest to each

Filed Jan. 18, 1973, Ser. No. 324,569

Claims priority, application South Africa, 72/0375

Int. Cl. H01h *85/04*

U.S. Cl. 337—163 **16 Claims**



A time delay device consists of a pair of spaced conductors a conductive link made from a low melting material located between the two conductors and in contact with one of the conductors, and a heating resistor to cause the link after a predetermined time to melt and bridge across the two conductors.

ERRATA

For Classes 339—17, 339—25, 339—21, 339—45, 339—56, 339—91, 339—95, 339—97, 339—99, 339—119, 339—177, 339—97 and 339—259 see: Patents Nos. 3,836,935 thru 3,836,947

3,836,885
ELECTRICAL CONNECTORS

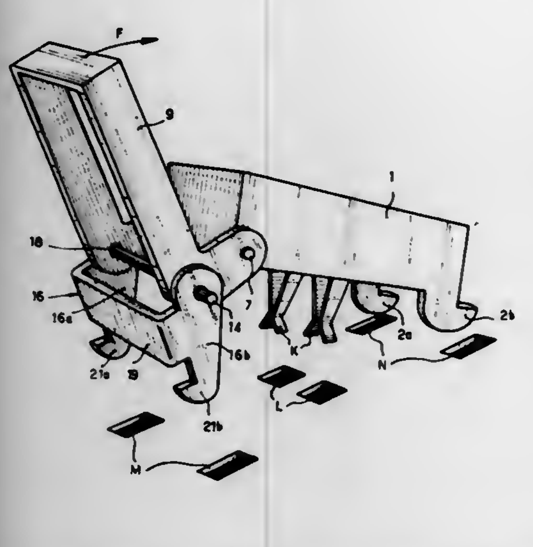
Jacques Larsile, La Varenne-St-Hilaire, France, assignor to Technilec, Gonesse, France

Filed May 31, 1973, Ser. No. 365,742

Claims priority, application France, June 13, 1972, 72.21157

Int. Cl. H01r *13/54*

U.S. Cl. 331—75 R **10 Claims**



An articulated plug-in connector suitable for attachment to a duct carrying electrical conductors has a base including a lever pivoted about a first axis located opposite hook fixing means integral with the base and engaging in anchoring apertures in the duct. A yoke carrying second hook fixing means is pivoted about a second axis carried by the lever, and the second hook fixing means engages in further anchoring apertures in the duct when the lever is depressed bringing the axes into line with the second hook fixing means on a line at right angles to the duct.

ERRATA

For Classes 340—1, 340—3, 340—5, 340—6, 340—15 and 340—16 see:
Patents Nos. 3,836948 thru 3,836,953

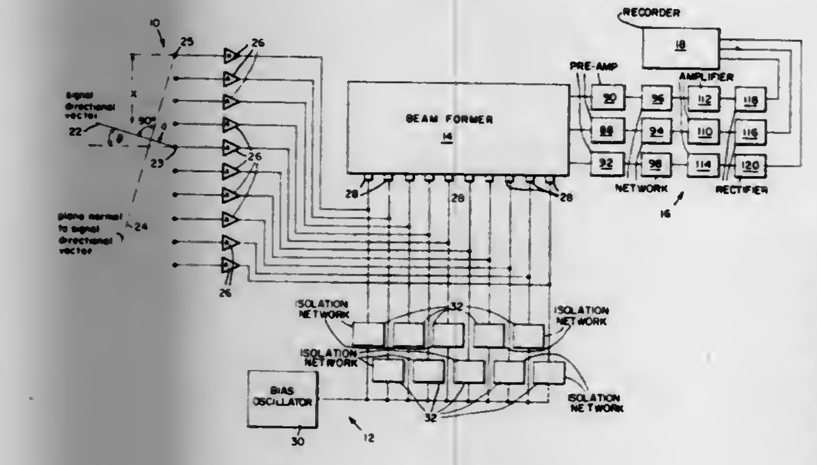
3,836,886
BEAMFORMER SCANNING SYSTEMS

Charles O. Mallinckrodt, Woodland Hills, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Jan. 28, 1966, Ser. No. 523,670

Int. Cl. G01s *3/80*

U.S. Cl. 340—6 R **24 Claims**



Beamformer scanning systems having a magnetic signal recording medium and a plurality of magnetic recorders for recording transducer signals generated by a plurality of transducers arranged in an array on the recording medium in response to input signals received from a plurality of elevation angles through a transmission medium such as air, water or earth. Apparatus is provided for moving the recording medium adjacent to the recorders in a direction to produce magnetic tracks of the transducer signals on the recording medium. A magnetic reproducer scans the tracks for generating a predetermined number of output signals, the output signals each having an instantaneous amplitude equal to the algebraic sum of the instantaneous amplitudes of the transducer signals produced by one of the input signals. A variable speed motor is provided for moving the recording medium which can be operated either at a constant rotational speed to provide output signals at the predetermined beam angle elevations, or the speed can be varied over a selected range of speeds to steer the beams about the elevation angles. Additionally, provision is made for compensating the output signals so that the gain versus frequency characteristics will be substantially linear in a predetermined frequency band. Azimuth angle search can be achieved by the provision of apparatus for moving the magnetic reproducers laterally with respect to the magnetic tracks.

ERRATUM

For Class 340—15.5 see:
Patent No. 3,835,953

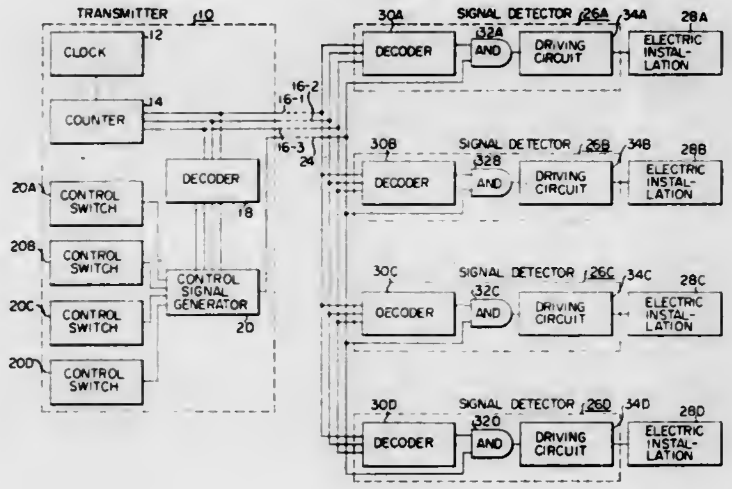
3,836,887
CONTROL SYSTEM FOR ELECTRIC INSTALLATIONS ON VEHICLE

Atsushi Ueda, and Mitsuaki Ishii, both of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 18, 1972, Ser. No. 315,835

Int. Cl. H04q *9/00*

U.S. Cl. 340—163 **3 Claims**



3-bit counts on a binary counter counting clock pulses are decoded and a control signal generator responds to those decoded counts assigned to four control switches to generate a time-divided multiplexed control signal including pulses resulting from the switches in their "ON" position. The control signal and 3-bit counts are transmitted in parallel to all four detectors. In each detector that count assigned to the associated switch is decoded to extract that pulse originating from that switch, if present, from the control signal. The extracted pulse causes the associated electric installation to be put in operation. An analog PAM multiplexed signal may be used as the control signal.

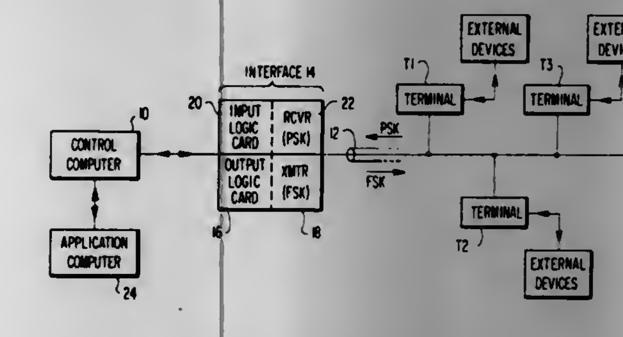
3,836,888
VARIABLE MESSAGE LENGTH DATA ACQUISITION AND RETRIEVAL SYSTEM AND METHOD USING TWO-WAY COAXIAL CABLE

Clyde O. Boenke, 1409 Orborview Blvd.; Murray H. Miller, 1534 Glastonbury, both of Ann Arbor, Mich. 48103; Michael R. Levine, 3605 Fredrick; Victor H. Rigotte, B595 Greenbrier Blvd., both of Ann Arbor, Mich. 48105; Weston E. Vivian, 2717 Kerutworth Dr., and William C. Hall, 10 Ridgeway, both of Ann Arbor, Mich. 48104

Filed May 22, 1972, Ser. No. 255,477

Int. Cl. G06f *3/04;* **H04j** *9/00;* **H04n** *7/14*

U.S. Cl. 340—172.5 **8 Claims**



A control computer is connected via a coaxial cable to a plurality of remote terminals. Data and command signals are transmitted in the forward direction from the computer to the terminals by time-multiplexing the signals on one channel of the cable and data and request signals are transmitted in the return direction from the terminal to the computer by time-multiplexing these signals on a different channel of the cable. Each terminal is equipped with several input-output devices which operate at different speeds. The computer operates at high speed to fill its main memory with commands. An interface is connected between the computer and the cable and is capable of operating at different speeds, i.e., at different time intervals between transmissions of digital words to different terminals or between repeated transmissions to the same terminal. It normally operates at a speed lower than the speed of the computer to service the low speed terminal devices. However, when a command for a high speed operation at a terminal is recognized, the interface enters a burst mode which supplies commands to the terminal at the high speed of the computer. Transmission in the forward direction is accomplished by frequency shift keying, and in the return direction by phase shift modulation. Words are transmitted serial-by-bit. Each terminal has a unique means for storing its permanent terminal address parallel-by-bit for comparison with serial address bits transmitted by the computer. The terminals are divided into several different major groups. The computer addresses the terminals by first transmitting a major address to select the proper group, and then sends a minor address to select the terminal within the major group. Each terminal is provided with a local storage and a novel keyboard for entering request codes into the storage. Each terminal is also provided with a visual display means for displaying data transmitted from the computer. A novel one-line display also provides the terminal with a visual display of the information entered on the keyboard or a message sent to the terminal.

3,836,889
PRIORITY INTERRUPTION CIRCUITS FOR DIGITAL COMPUTER SYSTEMS

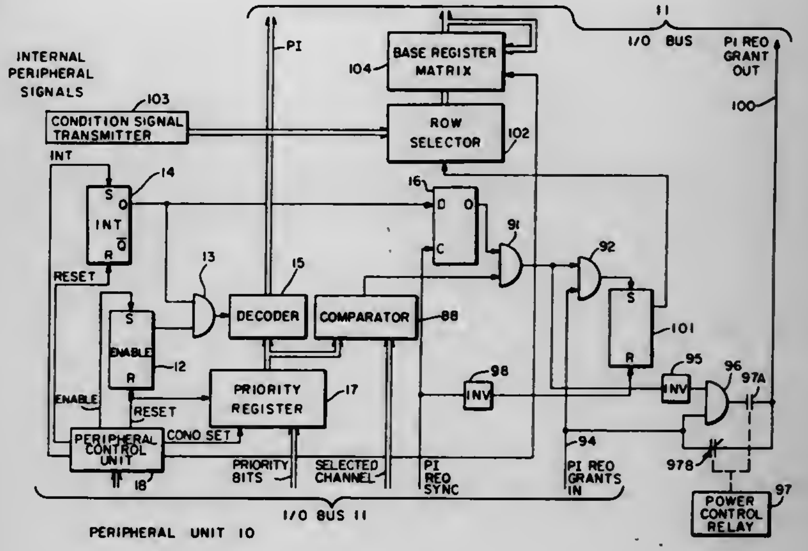
Alan Kotok, Waltham; Allan R. Kent, Framingham, and David A. Gross, Acton, all of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Mar. 23, 1973, Ser. No. 344,089

Int. Cl. G06f *9/18*

U.S. Cl. 340—172.5 **17 Claims**

A priority interruption circuit for use in a digital computer system. When a peripheral unit requires communication with a central processor unit or memory unit, it transmits a signal over a priority interruption line which corresponds to an assigned system priority level. The central processor unit receives this signal and a priority circuit starts a priority request sequence concurrently with other central processor unit operations. During this sequence the central processor unit generates data and control signals onto predetermined conductors in an interconnecting bus. One peripheral unit responds to all these signals and generates data onto the bus identifying itself and the nature of the service required. The central processor unit then uses a priority interruption instruction sequence to process this data the peripheral unit generates and it may then establish the needed communications without performing any polling operations.



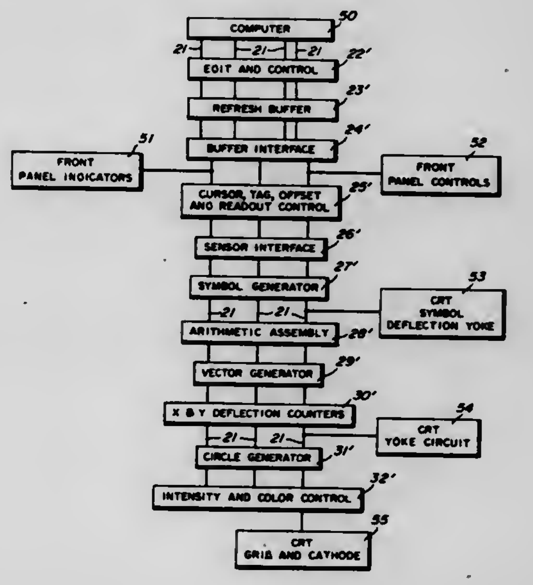
3,836,890
VISUAL DISPLAY SYSTEM

Frank J. Arkell, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Apr. 9, 1973, Ser. No. 349,908

Int. Cl. G06f *3/14*

U.S. Cl. 340—172.5 **3 Claims**



A visual display device adapted to perform a plurality of functions with the electronics for each function being incorporated into a separate module. A bus oriented receptacle, having a plurality of module receiving positions is connected to bus lines so that each module can be received in the receptacle in any of a plurality of positions and each module can be separately addressed by the visual display device as the function performed by each module is desired.

3,836,891

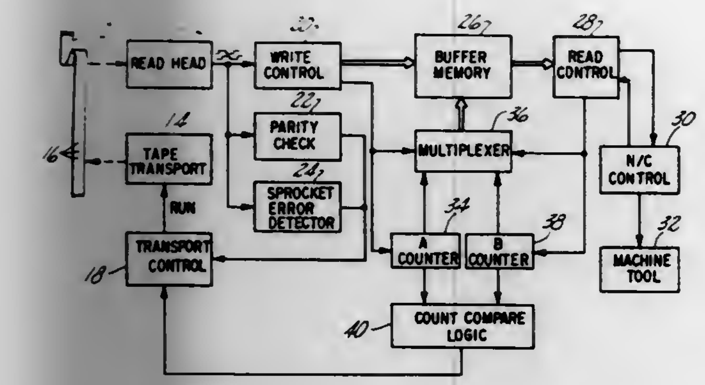
TAPE READER SYSTEM WITH BUFFER MEMORY

George H. McDaniel, Northville, Mich., assignor to The Bendix Corporation, Detroit, Mich.

Filed July 5, 1973, Ser. No. 376,484

Int. Cl. G06f *7/00*

U.S. Cl. 340—172.5 14 Claims



A tape reader system for numerical control systems including a segmented buffer memory into which characters are read from tape and stored sequentially. One address counter keeps track of "write" addresses and another counter keeps track of "read" addresses. The most significant digits of the two counters are compared to control the writing of fresh data into memory whenever the read address bears other than a selected proximity of the write address.

3,836,892

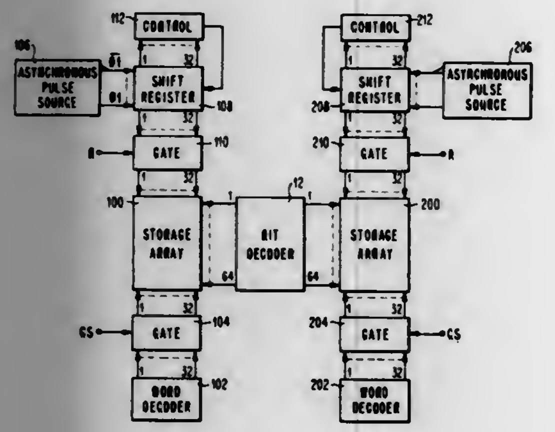
D.C. STABLE ELECTRONIC STORAGE UTILIZING A.C. STABLE STORAGE CELL

Roy R. De Simone, Burlington; Nicholas M. Donofrio; Richard H. Linton, both of Essex Junction; George Sonoda, and William T. Wade, both of Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 29, 1972, Ser. No. 267,719

Int. Cl. G11c *11/40*

U.S. Cl. 340—173 DR 9 Claims



An electronic data storage which operates as a DC stable storage array, but retains the advantages of an AC stable storage cell circuit. The AC stable storage cells are regenerated at a frequency asynchronous with respect to the storage cycle time. Gating means inhibit the regenerating signals when the system desires access, thereby permitting the storage cells to be accessed for information at any time in a completely random access mode.

3,836,893

CAPACITIVE COMPUTER CIRCUITS

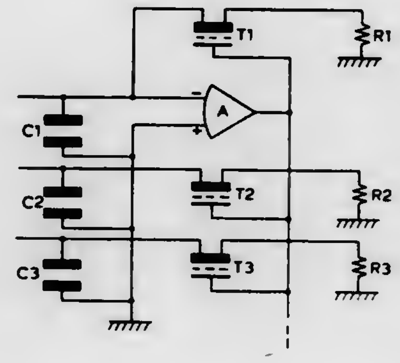
Ralph James Lamden, Reading, England, assignor to Ultra Electronics Limited, Marlow, Buckingham, England

Filed Feb. 22, 1973, Ser. No. 334,766

Claims priority, application Great Britain, Feb. 25, 1972, 8732/72

Int. Cl. G11c *11/40, 11/24*

U.S. Cl. 340—173 CA 7 Claims



A capacitive computer circuit comprises a field effect switch connected to a storage capacitor, means for applying a signal characteristic to or deriving a signal characteristic from the capacitor, and means for compensating for errors in the derived signal due to leakage current or stray capacitance in the circuit.

3,836,894

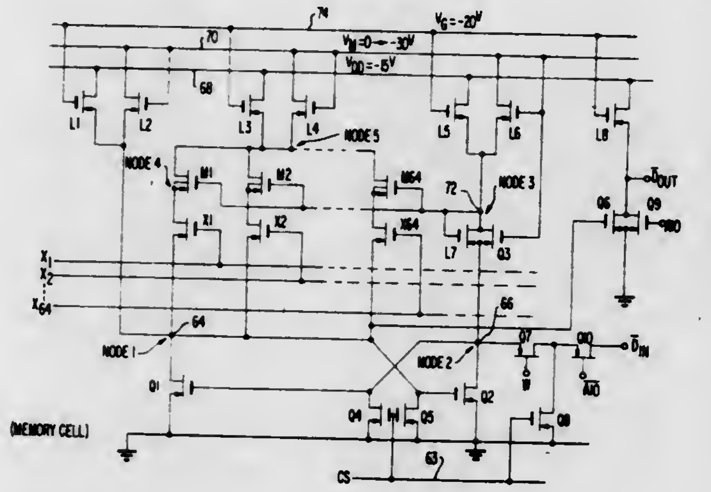
MNOS/SOS RANDOM ACCESS MEMORY

James R. Cricchi, Catonsville, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 22, 1974, Ser. No. 435,552

Int. Cl. G11c *11/40, 7/00*

U.S. Cl. 340—173 R 9 Claims



A non-volatile random access memory comprising silicon on sapphire MNOS memory elements incorporated in an array having a plurality of like memory cells. Each cell is configured to provide charge enhancement symmetrically in both the read and write modes to restore or refresh the threshold voltage states of the memory elements and particularly the high or more negative threshold voltage state.

3,836,895

OPTO-MAGNETIC MEMORY

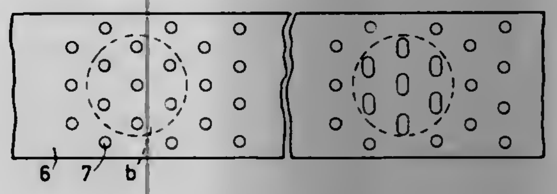
Frederik Ate De Jonge, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 7, 1972, Ser. No. 304,389

Claims priority, application Netherlands, Nov. 13, 1971, 7115633

Int. Cl. G11c *11/14, 11/42*

U.S. Cl. 340—174 YC 4 Claims



A device for the magnetic storage of data which comprises a plate of a magnetizable material having a periodic structure of magnetic domains. Recording data occurs with an external magnetic field having a value at which 2 types of magnetic domains having different sizes can occur. The size of a magnetic domain can be varied by selective irradiation with light.

3,836,896

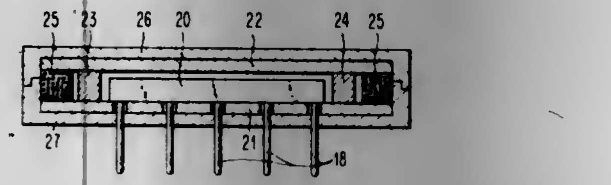
NON-VOLATILE MAGNETIC DOMAIN DEVICE HAVING BINARY VALUED BIAS FIELD EXCITATION

Alfred Aaron Rifkin, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 29, 1972, Ser. No. 267,295

Int. Cl. G11c *11/14*

U.S. Cl. 340—174 TF 8 Claims



A packaged magnetic domain device provided with a bias magnetic field whose magnitude is adjustable to one of two different values for domain formation and domain erasure, respectively. The domain devices are packaged with a permanent magnet and an electromagnet whose additive magnetic fields constitute the bias field. Additional provision is made in the same package for a pair of orthogonal in-plane switching magnetic fields for domain propagation. Thermocouple means within the package and adjacent the magnetic domain chips monitors chip temperature and produces a proportional signal to control the electromagnet to maintain constant magnetic domain bubble size irrespective of temperature variations.

3,836,897

CIRCULAR MAGNETIC DOMAIN DEVICES

Anthony Marsh, Blisworth, England, assignor to Plessey Handel und Investments A.G., Zug, Switzerland

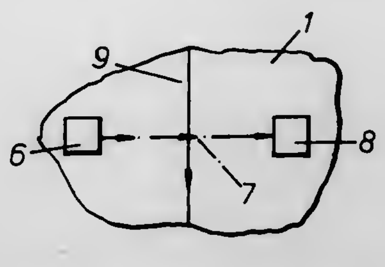
Filed Oct. 6, 1972, Ser. No. 295,785

Claims priority, application Great Britain, Oct. 13, 1971, 47621/71

Int. Cl. G11c *11/14, 19/00*

U.S. Cl. 340—174 TF 11 Claims

A circular magnetic domain device wherein propagating circular magnetic domains are detected by causing the domains to interact with a wave, i.e., a magnetic wave or an acoustic wave, generated in, or on the surface of, a layer of uniaxial magnetic material within which the domains are generated and caused to propagate. Interaction of a domain with the wave causes the wave to be attenuated, amplified, phase shifted or distorted.



ERRATA

For Classes 340—52, 340—146 and 340—148 see:
Patents Nos. 3,836,955 thru 3,836,959

3,836,898

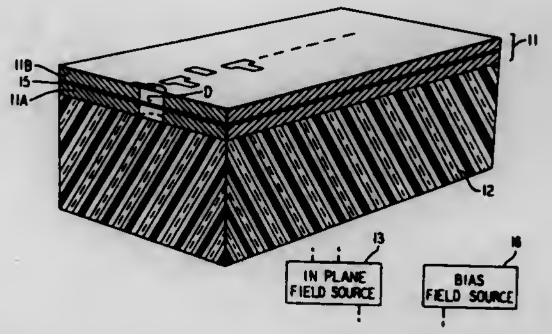
MAGNETIC BUBBLE STRUCTURE FOR SUPPRESSION OF DYNAMIC BUBBLE CONVERSION

Andrew Henry Bobeck, Chatham; Joseph Edward Geusic, and Fred Bassett Hagedorn, both of Berkeley Heights, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 9, 1973, Ser. No. 404,424

Int. Cl. G11c *11/14, 19/00*

U.S. Cl. 340—174 TF 7 Claims



The dynamic conversion of a normal magnetic bubble to a relatively low mobility form during high-speed operation of bubble devices is suppressed in structures which tolerate only negligible changes in the magnetic configuration of the wall of the bubble.

3,836,899

INTRUSION DETECTION AND LOCATING SYSTEM

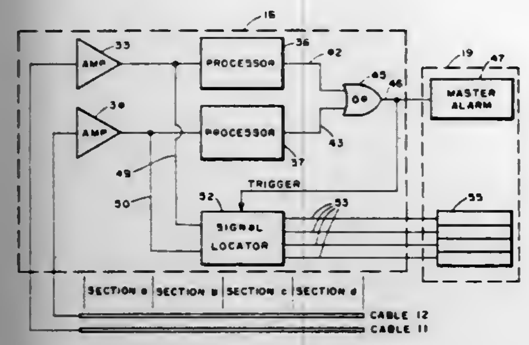
Kenneth M. Duvall, Sunnyvale, and Gerald K. Miller, Saratoga, both of Calif., assignors to GTE Sylvania Incorporated, Mountain View, Calif.

Filed Sept. 4, 1973, Ser. No. 393,797

Int. Cl. G08b *13/02*

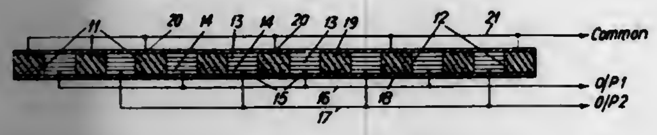
U.S. Cl. 340—261 9 Claims

A disturbance detection and location system comprises an elongated composite sensor line having a pair of closely spaced coaxial electret cables with known different sensitivities over their lengths and circuits responsive to electrical signals from the cables caused by a disturbance for producing an indication of the disturbance and its location. Such a system is useful for fence-type perimeter intrusion detection where the disturbances to be identified are intruders climbing or cutting the fence. The cables have predetermined different responses to the same mechanical disturbance occurring at the different locations throughout their lengths and measurement of this response difference provides a basis for identifying the location of the disturbance along the monitored line. The cables are electrically connected at one of their adjacent ends to signal processing circuits which correlate the difference in known sensitivity-distance variations of the cables to indicate both the existence of a disturbance (climbing of fence, cutting of fence, etc.) and its location along the cables.



3,836,900
RECORDING OR ALARM DEVICES

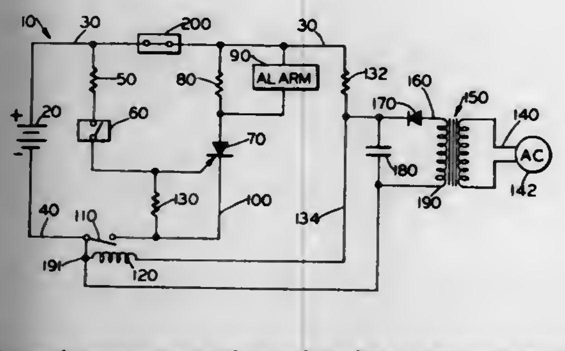
John William Brian Mansfield, Bromley, England, assignor to Fleet Electronics Limited, London, England
Filed Jan. 26, 1973, Ser. No. 326,876
Int. Cl. A61b *5/10*
U.S. Cl. 340—279 **6 Claims**



A mattress for detecting the presence or absence of movement of a living creature resting upon it embodies resilient resistor material connected to electrical circuit leads in such manner that movements of the living creature e.g. breathing, produce output electrical pulses that are transmitted to a monitoring unit. The resilient resistor material is arranged in stacks of separate layers of such material alternated with intervening regions of resiliently deformable support material so that the movements to be detected are transmitted to the resilient resistor material without the latter becoming unduly compressed.

3,836,901
MOTION-SENSITIVE ALARM WITH LINE-CORD-RESPONSIVE AUTOMATIC ARMING MEANS

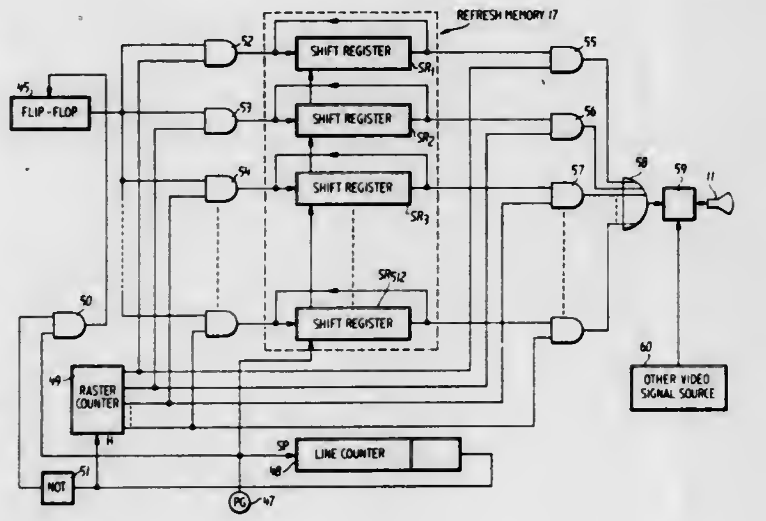
Victor G. Matto, Kinnelon, and Howard C. Schubert, Leonia, both of N.J., assignors to Aerolite Electronics Corporation, Union City, N.J.
Division of Ser. No. 119,115, May 15, 1972, , which is a continuation-in-part of Ser. No. 820,169, April 29, 1969,. This application Nov. 30, 1973, Ser. No. 420,536
Int. Cl. G08b *13/14*
U.S. Cl. 340—280 **7 Claims**



A circuit and apparatus adapted to be mounted entirely or in part within the device to be protected includes an alarm circuit loop and a control loop, with the state of the control loop being determined by whether the line cord of the protected device is in or out of the wall socket. The control loop can thus disable or enable the alarm circuit, depending on the position of the power cord. However, actual operation of the alarm circuit requires both a change in the state of the control circuit due to the state of the line cord and a change in the alarm circuit due to movement of the protected device.

3,836,902
GRAPHIC DISPLAY HAVING RECIRCULATING VIDEO MEMORY

Nobuo Okuda, Yokohama, and Tomoo Kunikyo, Tokyo, both of Japan, assignors to Tokyo Shibaura Electric Company, Ltd., Kawasaki-shi, Kanagawa-ken, Japan
Filed Dec. 14, 1972, Ser. No. 315,012
Claims priority, application Japan, Dec. 14, 1971, 46-101628
Int. Cl. G06f *3/14*
U.S. Cl. 340—324 AD **5 Claims**

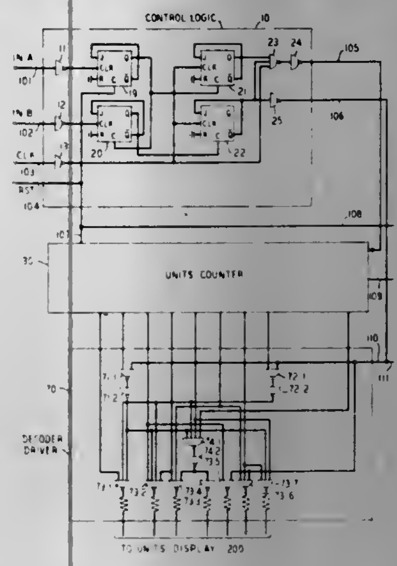


Graphic information from an electronic computer or the like is written into a memory matrix in a dotted pattern corresponding to a figure to be displayed using a function generator which generates line segments, corresponding to the graphic information. The information in the memory matrix is then shifted into a recirculating memory for displaying the graphic information in the form of a figure on a CRT, such as the screen of a TV set. The recirculating memory is synchronized with the raster scan of the TV set, and thus there is no need for synchronizing the display system with the computer.

3,836,903
DISPLAY BLANKING CIRCUIT

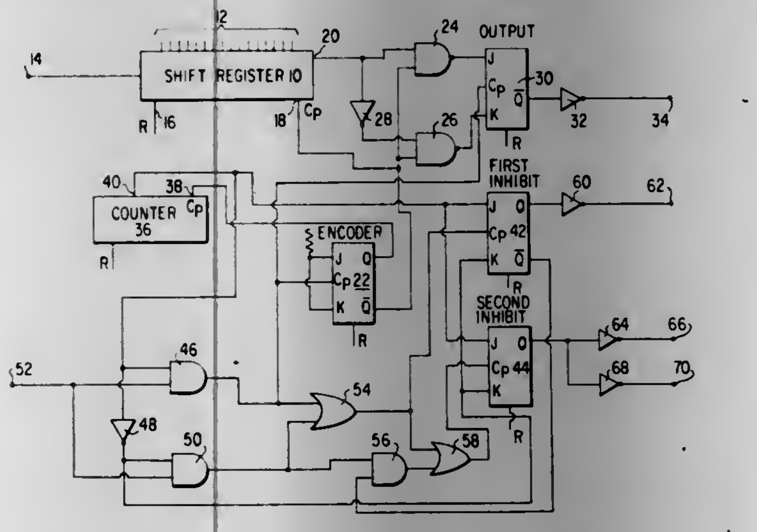
Thomas Russell Lawrence, Omaha, Nebr., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 22, 1972, Ser. No. 317,728
Int. Cl. G09f *9/32*
U.S. Cl. 340—336 **4 Claims**

A representation of the phase difference between two digital signals is gated to, and displayed on, a plurality of indicator elements. The gating circuitry is enabled when both signals contain transitions having a sufficiently steep slope to define signals digital in nature and when the signal transitions arrive in the proper sequence. At all other times the gating circuitry is disabled so as to blank the display, whereby only representations of the phase difference between valid digital input signals are displayed.



3,836,904
OUTPUT ENCODER AND LINE DRIVER

Charles Cross, Glenside, Pa., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Dec. 12, 1972, Ser. No. 314,306
Int. Cl. H03k *13/24*
U.S. Cl. 340—347 DD **5 Claims**

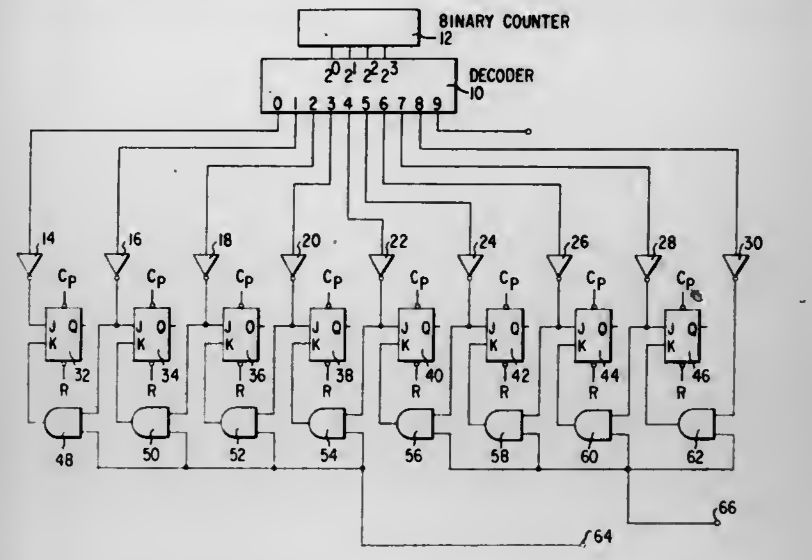


A transmitter sequencer is disclosed having an encoder section and a transmission line driving section. The encoder serves to generate a biphase output code from an input level and to pass the coded message to the line driver. The line driver is normally inhibited to prevent undue loading of the transmission line, but is enabled when a message in biphase code is to be transmitted.

3,836,905
ANALOG TO DIGITAL CONVERTER

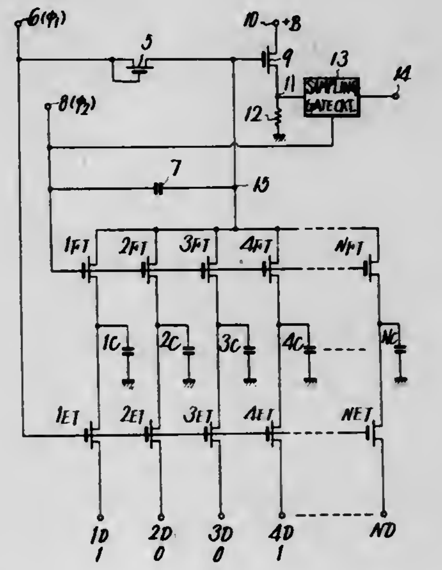
Charles Cross, Glenside, Pa., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Dec. 12, 1972, Ser. No. 314,308
Int. Cl. H03k *13/06*
U.S. Cl. 340—347 AD **2 Claims**

An analog to digital converter is disclosed having control and comparator portions. The control portion is formed by a number of J-K flip flops arranged to sequentially receive on their J inputs the decoded output of a binary counter. The flip flops in turn control by their Q outputs a number of analog switches in the comparator portion. The switches are connected to feed a reference voltage to a ladder network and obtain a voltage for comparison with a multiplexed analog voltage in a comparator. The output of the comparator controls the setting and resetting of the flip flops with their final set giving the binary analog to digital output.



3,836,906
DIGITAL-TO-ANALOG CONVERTER CIRCUIT

Tetsuo Ando, Ebina, and Hiroyuki Matsumoto, Isehara, both of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Feb. 28, 1973, Ser. No. 336,817
Claims priority, application Japan, Mar. 2, 1972, 47-21874
Int. Cl. H03k *13/04*
U.S. Cl. 340—347 DA **7 Claims**

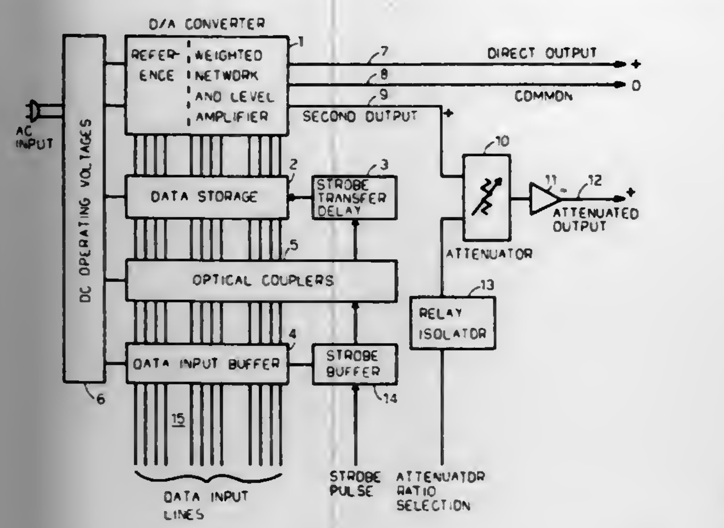


A circuit for converting binary-coded number signals into analog voltages. The 1 and 0 voltage levels of the binary signals are applied through individual switching means to charge separate charge storage elements, the quantity of charge being weighted according to the position of the digit in the number. The total charge is subsequently transferred to a common output charge storage element by way of separate transfer switching elements to produce a voltage that corresponds to the sum of the charge transferred and is, therefore, an analog voltage that corresponds to the binary number.

3,836,907
DIGITAL TO ANALOG CONVERTER

Sarkis Nercessian, Long Island City, N.Y., assignor to Forbro Design Corp., New York, N.Y.
Filed Mar. 21, 1973, Ser. No. 343,420
Int. Cl. H03k *13/02*; **G11c** *11/42*
U.S. Cl. 340—347 DA **12 Claims**

Complementary BCD or binary input signals are transferred through isolating optical couplers to storage. Strobing for storage selects network switches to provide an analog voltage corresponding to the digital input. Two independent outputs are provided through repeater amplifiers. One output may be divided by 10 or 20 under signal control. The entire converter is powered from the AC line. Isolation between input and output is maintained up to 1000 volts. The converter is intended for use as a programming voltage for a voltage or current regulated power supply.



3,836,908
DIGITAL TO ANALOG CONVERTER

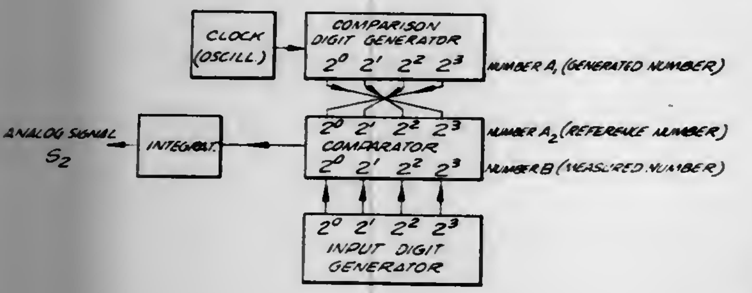
Max Hegendorfer, Forchheim, Germany, assignor to Grundig E.M.V. Elektro-Mechanische Versuchsanstalt, Furth/Bayern, Germany

Filed Dec. 19, 1973, Ser. No. 426,362

Claims priority, application Germany, Apr. 10, 1973, 2317851

Int. Cl. H03k *13/06*

U.S. Cl. 340—347 DA **9 Claims**


CLOCK (OSCILL.)
COMPARISON DIGIT GENERATOR
2^0 2^1 2^2 2^3
NUMBER A_1 (GENERATED NUMBER)
ANALOG SIGNAL S_2
INTEGRAT.
COMPARATOR
NUMBER A_2 (REFERENCE NUMBER)
NUMBER B (MEASURED NUMBER)
INPUT DIGIT GENERATOR

An arrangement for converting digital signal to analog signals comprising a comparator, a comparison digit generator and an input digit generator. The ordered inputs and outputs of the comparator and the comparison digit generator, respectively, are connected in a predetermined permuted manner.

3,836,909
DATA INPUT DEVICES

David Cockerell, London, England, assignor to Electronic Music Studios (London) Limited, London, England

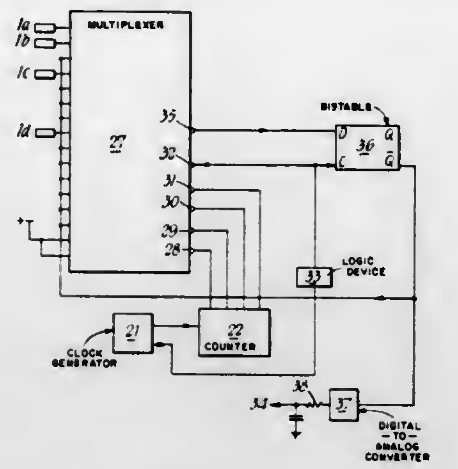
Filed Jan. 8, 1973, Ser. No. 321,799

Claims priority, application Great Britain, Apr. 6, 1972, 16008/72

Int. Cl. G10h *1/02*

U.S. Cl. 340—365 C **16 Claims**

A keyboard is disclosed having static, conductive, pads and means for sensing the change in charge on said pads produced by finger proximity, these means being respective gating circuits each having a plural emitter transistor, one emitter in each case being connected to an associated pad and the other emitters being supplied with gating signals which will cause the associated pad to be charged by way of the one emitter. Such a keyboard is disclosed for musical use having additional such pads for creating signals defining transposition intervals by means of pulse width modulation, and means responsive to impact on the keyboard.



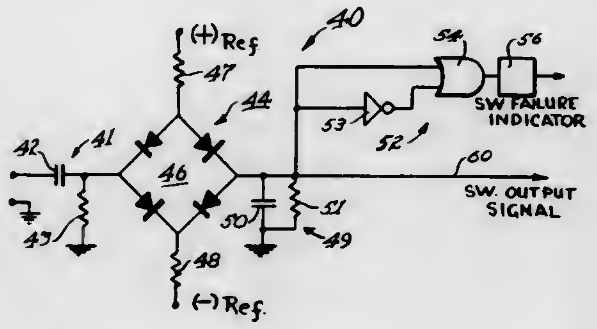
3,836,910
SOLID STATE PHASE OUTPUT SWITCH WITH NOISE IMMUNITY AND DIAGNOSTIC CAPABILITIES

Victor M. Bernin, Mt. Prospect, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Mar. 27, 1973, Ser. No. 345,300

Int. Cl. H04l *15/06*

U.S. Cl. 340—365 L **11 Claims**



The embodiment of the invention disclosed herein is directed to a solid state switch having noise detection and diagnostic capabilities for use in switching systems. The switch includes first and second closed loop magnetic paths which are alternately rendered magnetically saturated and unsaturated so that a common phase signal from the associated drive and sense lines can be obtained at all times. Upon sensing the absence of a signal of either phase, automatic triggering means are provided to indicate the failure of operation of the switch.

3,836,911
CODING ARRANGEMENT FOR FIBER OPTIC DIGITAL DISPLAY DEVICE

Richard D. Gibson, Wilbraham, and Robert D. Whelan, West Springfield, both of Mass., assignors to General Instrument Corporation, Newark, N.J.

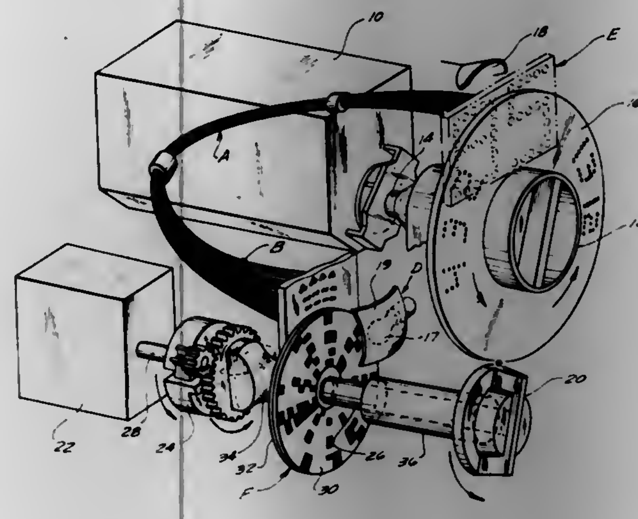
Filed July 16, 1973, Ser. No. 379,212

Int. Cl. G08b *5/36*

U.S. Cl. 340—380 **13 Claims**

A display device utilizes a fiber optic bundle having a light input end and a light output end. The light input end is divided into a plurality of distinct groups of one or more fibers, the groups being arranged generally radially in a relatively narrow sector of a circle. The fibers at the light output end are arranged in an indicia producing matrix. Means are provided for illuminating the light input end of the bundle and masking means are interposed between the input end and the illuminating means. The masking means has a plurality of masks

thereon, each of which is operative in a circle sector substantially the same shape as the input group sector. The mask means are movable to bring a selected one of the masks into position to block or expose certain groups of fibers in such a way as to form representations of different indicia at the output end.



The first embodiment has a fiber coding arrangement composed of ten groups of fibers arranged vertically at the input end and in a figure 8 matrix at the output end. In the second embodiment the arrangement has twenty groups of fibers arranged in two even vertical columns at the input end and arranged in a matrix consisting of three rows intersecting three columns at the output end.

ERRATA

For Classes 343—5, 343—6, 343—7, 343—8, 343—14, 343—18, 343—100, 343—113, 343—208— 343—792, 343—795, 343—815, 343—854 and 313—881 see: Patents Nos. 3,836,960 thru 3,836,979

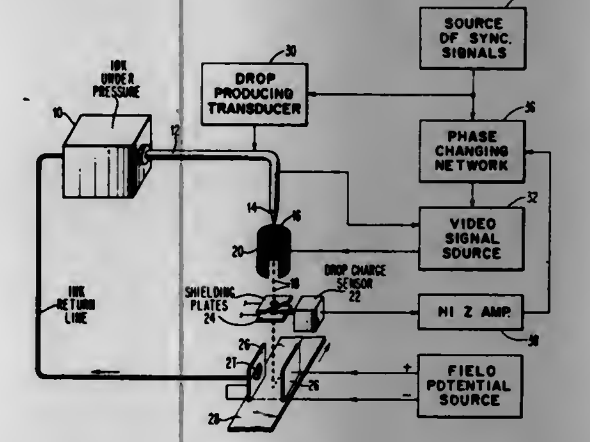
3,836,912
DROP CHARGE SENSING APPARATUS FOR AN INK JET PRINTING SYSTEM

John Ghougasian, Mahopac, N.Y.; Jon Hart, Cambridge, Mass.; Hans Yohanan Juliusburger, Putnam Valley, N.Y., and Paul Lowy, Peekskill, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 11, 1972, Ser. No. 313,913

Int. Cl. G01d *15/18*

U.S. Cl. 346—75 **3 Claims**



An inductive charge sensing device is disclosed in accordance with the teachings of the present invention for use with an ink jet printing system wherein ink under pressure is applied to a nozzle and ink emitted by the nozzle thereafter breaks up into a series of drops which are electrostatically charged and subsequently deflected in order to achieve controlled printing upon a recording surface moved in front of said apparatus. The charging and deflection of individual droplets is effected under control of an applied video signal. In order for the proper information to be recorded, the charging and deflection operation must be performed in precise synchronization with the ink droplet formation. As droplets are emitted from the nozzle, the charge sensor detects charges impressed on said droplets passing adjacent to but in non-impinging relationship with said sensor and a signal is developed which may be used to control an electrical or electromechanical drop forming means associated with said nozzle and ink supply.

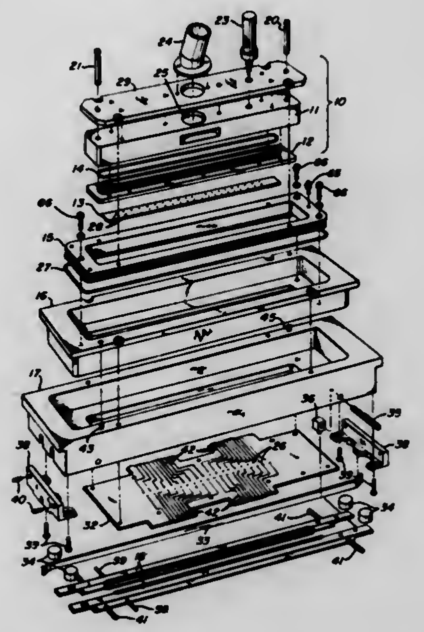
3,836,913
RECORDING HEAD FOR A JET ARRAY RECORDER

Mackenzie Burnett; Cyrus T. Brady, both of Dayton; Peter L. Duffield, Kettering, and Philip H. Houser, Chillicothe, all of Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Dec. 20, 1972, Ser. No. 317,075

Int. Cl. G01d *15/18*

U.S. Cl. 346—75 **8 Claims**



There is disclosed a recording head for a jet array recorder wherein the electrical components thereof are attached to a supporting yoke and the fluidic components thereof are suspended within the yoke. The primary fluidic components are separately assembled as a manifold subassembly and suspended inside a wobble plate. The wobble plate in turn is inserted inside an inner yoke, and rides within an O-ring which provides freedom of movement for vertical adjustment and tilting. Thus the manifold subassembly, which includes an orifice plate provided with one or more rows of jet orifices, may be accurately positioned with respect to the inner yoke. In final assembly the inner yoke is mounted inside the main supporting yoke to which the electrical components have been attached and aligned. A set of dowel pins is provided to insure alignment between the inner yoke and the outer yoke.

There is also disclosed means for supplying a flow of purging air through the recording head and a magnetic catcher mounting arrangement. The purging air is supplied to an air tube fitting which attaches to the manifold subassembly. In the completed assembly the air flows around the outside of the orifice plate and then exits the recording head by flowing outwardly through apertures in a charge ring plate which is fastened to the lower surface of the main yoke. The catchers are mounted below the charge ring plate by attraction to a set of permanent magnets which are set into the lower surface of the main yoke.

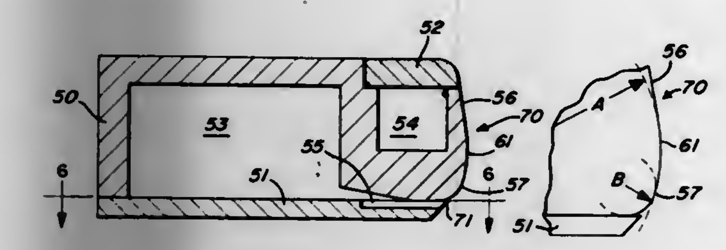
3,836,914
CATCHER FOR A JET DROP RECORDER

Peter L. Duffield, Kettering, Ohio, assignor to The Mead Corporation, Dayton, Ohio

Continuation-in-part of Ser. No. 317,073, Dec. 20, 1972, Pat. No. 3,777,307. This application July 20, 1973, Ser. No. 381,256The portion of the term of this patent subsequent to Dec. 4, 1990, has been disclaimed.

Int. Cl. G01d *15/18*

U.S. Cl. 346—75 **2 Claims**



There is disclosed an elongated catcher for use with a jet drop recorder which comprises a convex catching face and a recessed drop ingesting blade. The catcher is preferably grounded and positioned in spaced relation to an electrically charged deflection ribbon so as to create a static electrical field between the deflection ribbon and the face of the catcher. Drops of recording fluid which are deflected by the electrical field impact against the backwardly sloping upper portion of the catching face and then flow downwardly along the curving surface of the catching face to the upper surface of the blade. The captured recording fluid, which has preferably spread out into a continuous film, is then ingested into an internal cavity via a series of channels in the upper surface of the blade. To prevent build up of accumulated spray at the top of the catcher there is provided a porous upper surface which connects with a special compartment within the catcher. This compartment is separate from a larger main compartment into which is delivered the ink which is ingested by the blade. Each of these compartments has its own vacuum source for drawing off the liquid accumulated therein. In order to improve downward flow of recording liquid the lower portion of the catching face has a compound radius.

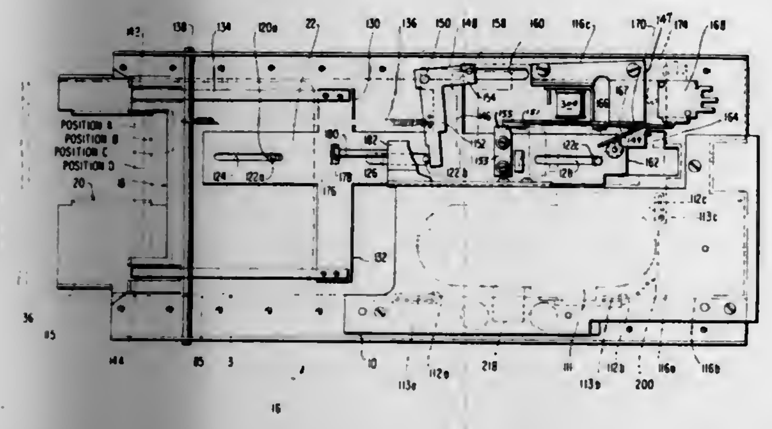
3,836,915
TIME RECORDER

Dominick Tringali, and John W. Dillard, both of Columbia, S.C., assignors to Universal Business Machines, Incorporated, Columbia, S.C.

Division of Ser. No. 239,124, March 29, 1972, Pat. No. 3,743,641. This application July 16, 1973, Ser. No. 379,492

Int. Cl. G01d *15/28;* G07c *1/18*

U.S. Cl. 346—104 **12 Claims**



A recorder for automatically printing a record receiver, such as a card, with actual time and elapsed time. The recorder includes a chute assembly with cooperating electronic elements for automatically positioning a card therein prior to selectively operating a print actuator assembly. The record receiver is initially positioned in said chute assembly by a manual effort and then drawn completely into said chute by automatically actuated gripping means whereby printing members impart a recording upon said record receiver. The chute assembly is provided with a mechanism to effect automatic ejection of the card subsequent to said recording operation.

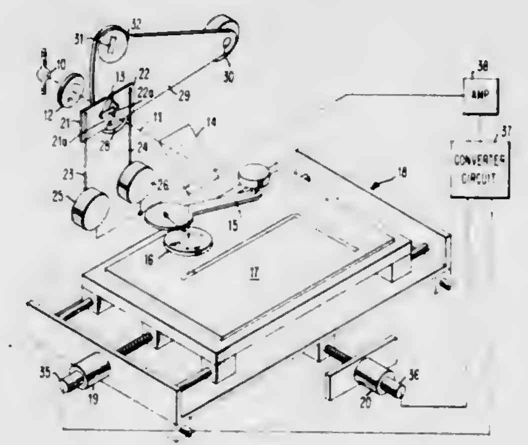
3,836,916
APPARATUS FOR EXPOSING LINES ON A PHOTOSENSITIVE SURFACE

John P. Wiley, Vestal, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 26, 1973, Ser. No. 336,128

Int. Cl. G03b

U.S. Cl. 354—4 **13 Claims**



Apparatus for exposing lines on a photosensitive surface by means of relative movement between a light beam and the surface in which the quantity of radiant energy impinging upon the surface is controlled by movable, opaque blades that block variable portions of the light beam, with the blade movement being varied in accordance with the relative velocity between the beam and surface. A rectangular aperture is used to define the shape of the beam and the blades are oppositely moved along the direction of travel of the aperture to alter the quantity of light admitted therethrough. Several embodiments of this apparatus are disclosed and include blades having straight ends, variously shaped ends, and a variable iris diaphragm, all of which can controllably limit energy impingement upon the photosensitive surface.

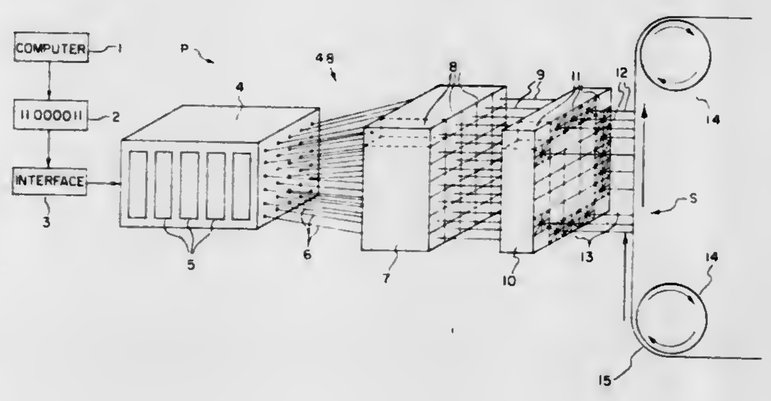
3,836,917
HIGH-SPEED NON-IMPACT LASER PRINTING APPARATUS

John L. Mee, 42 Highwood Rd., Farmington, Conn. 06032

Filed Apr. 16, 1973, Ser. No. 351,620

Int. Cl. B41b *21/14*

U.S. Cl. 354—5 **14 Claims**



A printing apparatus for laser recording of data in which a complete row of characters is simultaneously formed by a two dimensional matrix of parallel diode lasers selectively activated to emit light in character shapes upon a photosensitive medium. The invention is adapted to provide rapid non-impact printout, in alphanumeric characters, of computer data. The system simultaneously imprints a complete row of characters on a medium transported through the system at high speed, and for each character in the row the system includes a decoder for converting data in computer binary code into individual signals each representing a single alphanumeric character. The individual signals are applied through a hardwiring distribution circuit or core distribution circuit to selected diode lasers in the two dimensional matrix to cause those lasers to emit parallel beams of light in a pattern approximating the shape of the character. The emitted light beams directly strike a photosensitive medium, causing it to record the character shape. Spacing between rows of characters is controlled by a timing signal supplied by the means transporting the photosensitive medium through the system.

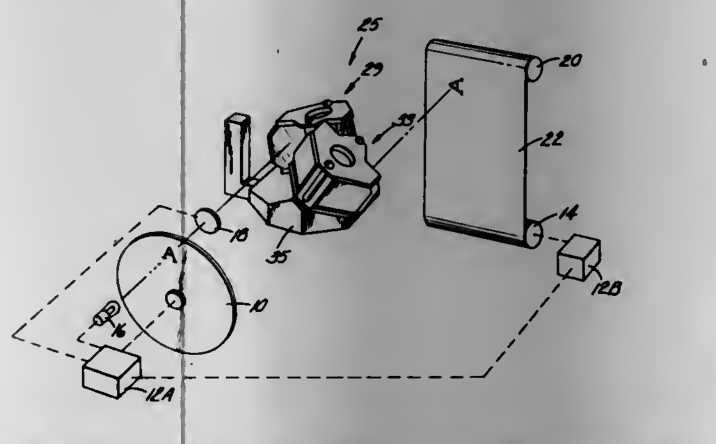
3,836,918
OPTICAL IMAGE ROTATING DEVICE

William Rosenstein, South Orange, and Thomas Allan Booth, Flanders, both of N.J., assignors to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Dec. 19, 1973, Ser. No. 425,955

Int. Cl. B41b *21/18*

U.S. Cl. 354—5 **4 Claims**



In the environment of a photocomposition machine normally projecting images across a column, with the 'ines "leaded" after each line is composed, this modification provides an image rotation to permit larger letters in longer text than could be obtained in the normal column width.

The image rotation is distortion-free by reason of a set of two roof mirrors in an angular relationship to provide the exact desired degree of rotation, which is normally 90°.

An enlarging lens, or curved mirror surface, is used to produce enlargment.

3,836,919
AUTOMATIC FOCUSING DEVICE FOR USE WITH A PHOTOGRAPHIC CAMERA

Seiichi Matsumoto, Tokyo; Kuzuya Hosoe, Kawasaki, and Noritaka Mochizuki, Zushi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

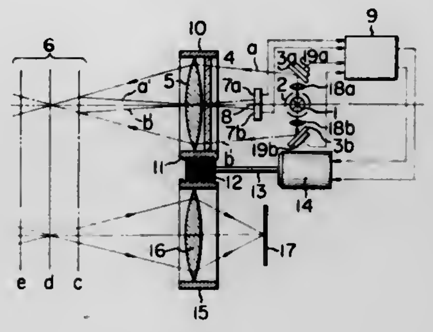
Continuation-in-part of Ser. No. 204,843, Dec. 6, 1971, abandoned. This application Dec. 8, 1972, Ser. No. 313,518

Claims priority, application Japan, Dec. 8, 1970, 45-108770; Dec. 28, 1970, 45-128420; Germany, Dec. 8, 1971, 2160901

Int. Cl. G03b *3/00*

U.S. Cl. 95—44 C **32 Claims**

Disclosed is an automatic focusing device including a radiation source for projecting a radiant ray such as a light ray or the like to an object, light receiving elements for detecting the reflected radiant ray from the object, a chopper or a mirror for time-sharing the radiant ray into two projected beams, and a mechanism for arbitrarily varying the distance between the merging point of the two beams and the radiation source, whereby the distance to the object is optically and photoelectrically measured by utilizing the fact that the images resulting from the two projected beams, respectively, are superposed on each other at the surface of the light receiving elements only when the merging point of the two projected beams lies on the object. Also disclosed are various arrangements for detachably mounting the said automatic focusing device or any other automatic focusing device on a photographic camera or the like.



3,836,920
EXPOSURE CONTROL SYSTEM FOR FLASH PHOTOGRAPHY

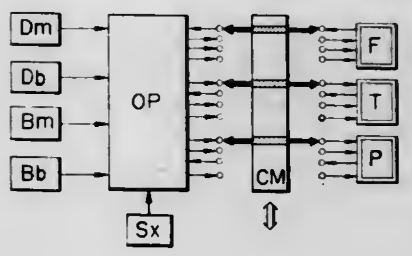
Takashi Uchiyama, Yokohama; Tetsuya Taguchi, Kawasaki, and Yukio Mashimo, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 15, 1973, Ser. No. 332,595

Claims priority, application Japan, Feb. 16, 1972, 47-16166

Int. Cl. G03b *7/16*

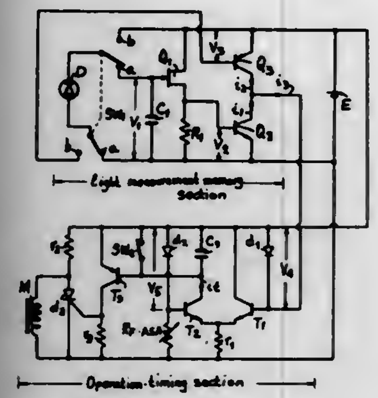
U.S. Cl. 354—27 **7 Claims**



In the flash photography exposure control system disclosed, an illuminating device produce flash light quantity P for a main portion and subordinate portion of an object to be photographed. A shutter device opens for a time T and closes on the basis of the light from the illumination means. Distance measuring means measure the distance Dm to the main portion of the object. A diaphragm arrangement cooperates with the shutter device and produces a diaphragm value F for adjusting the exposure amount. A brightness measuring device measures the brightness Bm of the main portion and the brightness Bb of the subordinate portion of the object. Operating means adjust at least two of the following parameters: flash light quantity P, the opening time T of the shutter device, and the diaphragm value F of the diaphragm device determined by the distance obtained by the distance measuring means and brightness obtained by the brightness measuring means. The operating means thus produces a proper exposure which takes into account the natural light and flash light supplied to the main and subordinate portions of the objects.

3,836,921
CAMERA EYEPIECE LIGHT COMPENSATION ARRANGEMENT

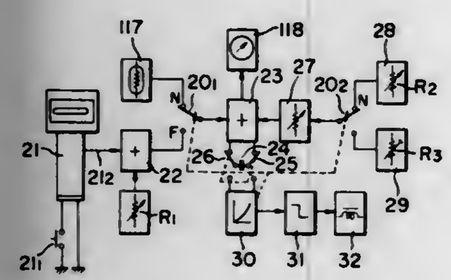
Chiharu Mori, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed May 5, 1971, Ser. No. 140,512
Claims priority, application Japan, May 28, 1970, 45-45808
Int. Cl. G03b ***7/08, 17/00;*** **G01j** ***1/46***
U.S. Cl. 354—31 **16 Claims**



A camera having circuitry capable of compensating for light entering through an eyepiece of the camera, so that the exposures will not be rendered inaccurate due to light entering through the eyepiece. The circuitry is capable of measuring the light entering through the objective of the camera as well as through the eyepiece of the camera, and the total of the light entering through the objective and eyepiece is converted into an electrical quantity in the form of a collector current of a transistor. Also, the circuitry measures only the light entering through the eyepiece and converts this light into an electrical quantity in the form of the collector current of a second transistor. The electrical circuitry has conductors which direct these collector currents to a common junction to which there is connected an output conductor for conducting an electrical quantity in the form of an output current equal to the difference between the collector current corresponding to the total light entering through the objective and eyepiece and the collector current corresponding to the light entering only through the eyepiece, so that in this way the output current corresponds only to the light entering through the objective and can be used in the determination of the extent to which film in the camera is exposed.

3,836,922
EXPOSURE SETTING DEVICE FOR FLASH PHOTOGRAPHING

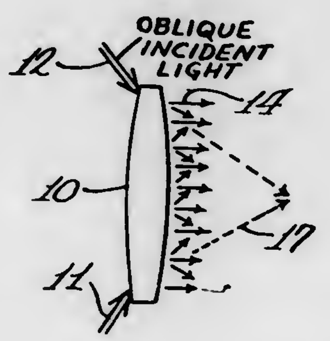
Goro Hasegawa; Soichi Nakamoto; Yoshiyuki Takishima; Yukio Mashimo; Tatsuya Taguchi, all of Tokyo; Zenzo Nakamura, Saitama, and Tetsuya Taguchi, Kanagawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed June 11, 1973, Ser. No. 368,468
Claims priority, application Japan, June 15, 1972, 47-59686
Int. Cl. G03b ***7/08***
U.S. Cl. 354—51 **12 Claims**



In the apparatus disclosed, a camera includes facilities for providing electrical values corresponding to the diaphragm opening, film sensitivity, ambient measured light, and object focusing distance. When the camera is set in its available-light photography mode, an operating circuit utilizes the electrical values for diaphragm openings, film sensitivity, and ambient light to time a shutter. In the flash mode, the operating circuit combines the electrical values of the flash power with the film sensitivity and object focusing distance to adjust the required diaphragm opening while timing the shutter for a preset timing interval.

3,836,923
CONTRAST CONTROL APPARATUS FOR A CAMERA

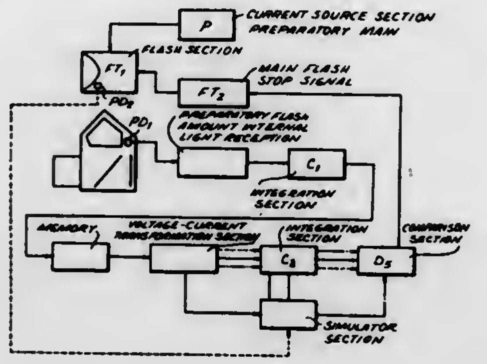
Christopher B. Malick, 2342½ Broadway, Boulder, Colo. 80302
Filed Nov. 15, 1971, Ser. No. 198,672
Int. Cl. G03b ***27/72***
U.S. Cl. 354—32 **18 Claims**



An apparatus for reducing the contrast of image light received by a camera and the film therefor including a device for obliquely adding light to the resolving lens of a camera to produce diffused light through the lens by a "flare" effect so that the contrast can be reduced to a level which films can more effectively accommodate; there being provided a control for varying the amount of added light to produce this flare effect and thus control the contrast by increasing by equal amounts the absolute intensity of the bright and dim areas of a scene to be photographed so that the ratio of intensity of the bright to dim areas of a scene will be reduced.

3,836,924
FLASH CONTROL SYSTEMS FOR CAMERAS

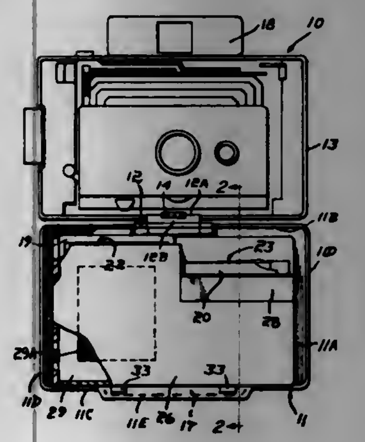
Masahiro Kawasaki, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Itabashi-ku, Tokyo-to, Japan
Filed Sept. 19, 1973, Ser. No. 398,807
Claims priority, application Japan, Sept. 21, 1972, 47-94930
Int. Cl. G03b ***15/03;*** **H05b** ***41/36***
U.S. Cl. 354—33 **14 Claims**



A control system for flash illumination of a camera which operates with preparatory and main flash illumination. The camera has an internal photosensitive element which receives only the light created during the preparatory flash illumination and converts this light into a corresponding electrical quantity. A suitable preparatory electrical circuit receives this latter electrical quantity and converts it into a corresponding current. A flash terminating control is provided for automatically terminating the main flash operation, and between this latter control and the preparatory electrical circuit there is a main electrical circuit which receives one input in the form of the current provided by the preparatory electrical circuit, so as to utilize this one input to determine when to actuate the flash terminating control. A simulating electrical circuit is electrically connected with the main electrical circuit to provide a signal simulating that which would be provided if the main flash illumination were received by the internal photosensitive element, and by way of this simulated signal it is possible to provide a second input to be combined together with the above first input to provide a proper determination of the instant when the main flash will be terminated.

3,836,925
HOLDER FOR PROCESSED PHOTOGRAPHS

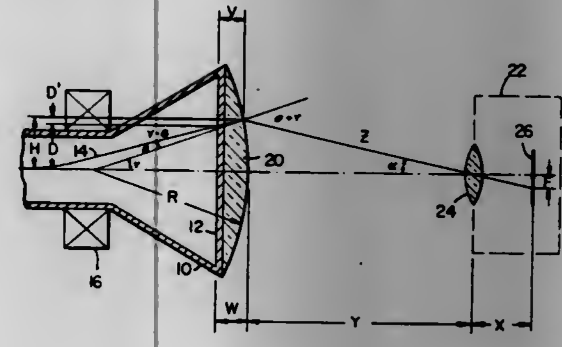
Vincas P. Steponaitis, 60 Ocean St., Dorchester, Mass. 02124
Filed June 23, 1972, Ser. No. 265,593
Int. Cl. G03d ***3/00***
U.S. Cl. 354—75 **2 Claims**



Picture holders are disclosed for use in conjunction with cameras the film for which is self-processing with respect to each exposure. Each holder contains a compartment subdivided to provide a series of slots, one for each processed picture. Where the film to be used includes discardable materials, the holders have a second compartment to receive them. In one embodiment of the invention, the holders are attachable to the person. Where the cameras have a cover hingedly connected thereto, the holders are detachably secured within the opened covers.

3,836,926
PIN CUSHION DISTORTION CORRECTION LENS

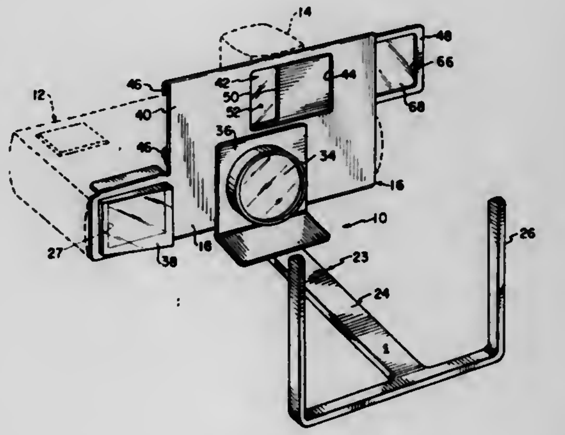
Paul N. Seitz, Milpitas; Gerald C. Cox, Fremont, and Rolf D. Kahle, Saratoga, all of Calif., assignors to Quantor Corporation, Cupertino, Calif.
Continuation-in-part of Ser. No. 59,614, July 30, 1970, abandoned. This application Mar. 27, 1972, Ser. No. 238,549
Int. Cl. G03b ***29/00***
U.S. Cl. 95—12 **2 Claims**



A pin cushion distortion correction system for magnetically deflected cathode ray tubes in which a planoconvex lens adapted to optically correct for pin cushion distortion is disposed in front of the cathode ray tube. The curvature of the lens is suitably selected to impart greater optical gain in the center and lesser optical gain towards the edges so as to complement, and thereby cancel or correct, the pin cushion distortion.

3,836,927
CLOSE-UP FLASH CAMERA ATTACHMENT

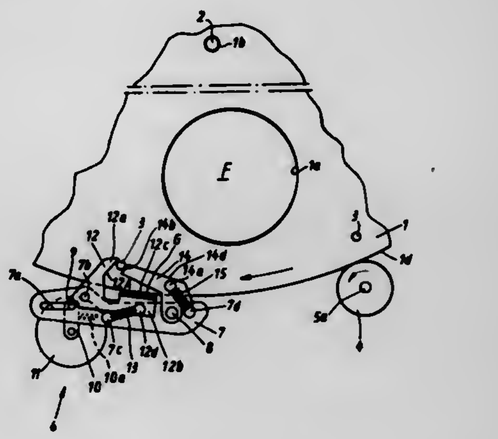
Lester A. Dine, 145 Grist Mill Ln., Great Neck, and Edgar S. Lemmey, 73 Lester Ave., Freeport, both of N.Y.
Filed Dec. 22, 1972, Ser. No. 317,836
Int. Cl. G03b ***17/56***
U.S. Cl. 354—80 **1 Claim**



A flash camera attachment for close-up use including a mounting member attachable to the camera so that a variable size aperture is positioned between the camera flash and the subject. An interchangeable locator unit locates the subject to be photographed at a predetermined distance and modifies the focal length of the camera to the same distance. A legend is associated with each locator unit and corresponding indicia is provided on the variable size aperture to indicate the extent to which the aperture is opened to permit an appropriate amount of the flash light to be transmitted.

3,836,928
APPARATUS FOR BRAKING AND ARRESTING INDEXIBLE CARRIERS FOR FILTERS OR THE LIKE

Boris Koleff, Munich, and Erich Nagel, Anzing, both of Germany, assignors to AGFA Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Aug. 1, 1973, Ser. No. 384,400
Claims priority, application Germany, Aug. 3, 1972, 2238193
Int. Cl. G03b ***33/08***
U.S. Cl. 354—100 **14 Claims**

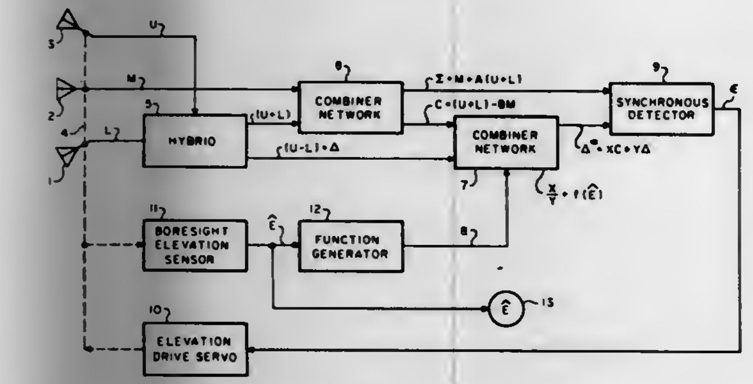


Photographic apparatus wherein a disk which carries several filters is indexible by a friction wheel to move a selected filter to a predetermined position. The disk is braked by a device wherein a pivotable holder supports a bell crank lever one arm of which constitutes a feeler and another arm of which constitutes a braking element for the disk. The holder is pivotable by an electromagnet to move the feeler into the path of projections provided on the disk adjacent to the filters. When an oncoming projection strokes against the feeler, the bell crank lever pivots relative to the holder and moves the braking element into frictional engagement with the peripheral surface of the disk.

3,836,929
LOW ANGLE RADIO DIRECTION FINDING

Warren D. White, Northport, N.Y., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Mar. 15, 1973, Ser. No. 341,547
Int. Cl. G01s *3/06*
U.S. Cl. 343—113 R **5 Claims**



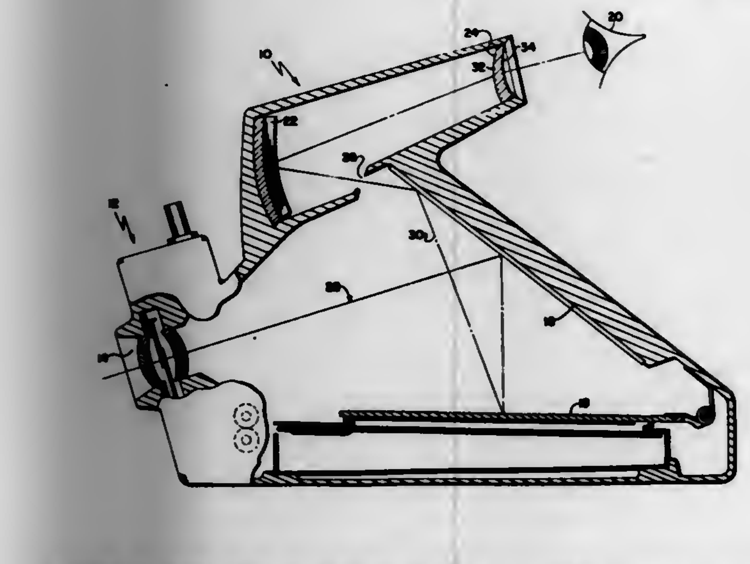
A radio direction finder system with a beam-forming antenna capable of accurate operation with its boresight axis nearly parallel to a reflecting surface, by automatically directing a pattern null toward the image of a radiating target whereby signals received indirectly from the target by reflection from the surface are rejected.

3,836,930
Patent Not Issued For This Number

3,836,931
EYE LENS IN A SINGLE LENS REFLEX CAMERA VIEWFINDER PROVIDING FIELD TILT COMPENSATION

William T. Plummer, Concord, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 197,851, Nov. 11, 1971, Pat. No. 3,810,221. This application Nov. 7, 1973, Ser. No. 413,658
Int. Cl. G03b *19/12*
U.S. Cl. 354—155 **9 Claims**

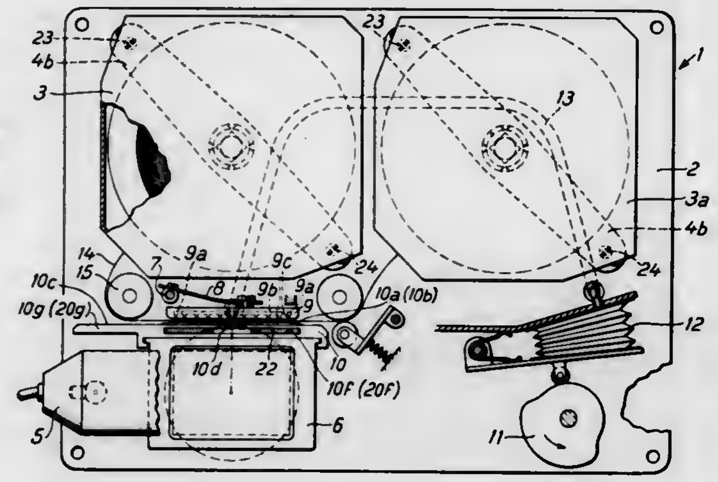


A special eye lens in a viewfinder for a reflex camera compensates for field tilt in a virtual image, thereby minimizing the depth accommodation required of an observer's eye to focus the virtual image at top and bottom. The field tilt stems from an oblique orientation of the axis of the viewfinder at its incidence with a focusing screen in the reflex camera. To compensate for it, a special refracting surface is formed on the eye lens. The ophthalmic power of the special refracting surface varies with its vertical distance from the axis, causing the power of the eye lens to vary accordingly. A polynomial of at least the third order best describes the three-dimensional shape of the special refracting surface having mirror symmetry, but not rotational symmetry.

3,836,932
PHOTOGRAPHIC CAMERA WITH INTERCHANGEABLE FILM SYSTEM

Gunter Lohl, Wetzlar; Wolfgang Schneider, Braunfels; Heinz Schroder, Steindorf, and Rudolf Noack, Wetzlar, all of Germany, assignors to Firma Ernst Leitz GmbH, Wetzlar, Germany

Filed Nov. 9, 1973, Ser. No. 414,232
Claims priority, application Germany, Nov. 14, 1972, 2255661
Int. Cl. G03b *1/50, 27/60, 19/00*
U.S. Cl. 354—159 **22 Claims**



A photographic camera having a film-changing and multicircuit vacuum system, especially for application in process photography. The improvements include:

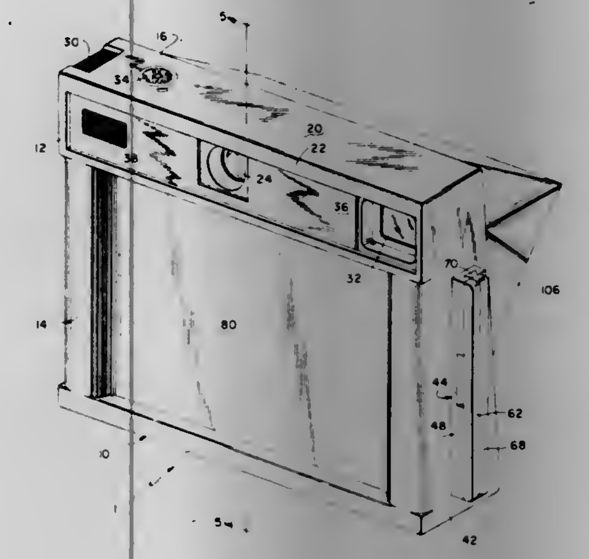
- guides for the use of arbitrary film widths provided in the camera;
- a film plate to accommodate the seating of the largest anticipated film width and having at least two centering pins for each film container;
- a couple for each film container centered between the centering pins forming a connection between the camera drive and the film container for film transport; and
- interchangeable bridging members located on the centering pins which couple both the couples and the film containers so that any kind of film width and film container which fits on the film plate may be used.

3,836,933
COLLAPSIBLE CAMERA

William T. Hochreiter, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 30, 1973, Ser. No. 383,636
Int. Cl. G03b *17/04*
U.S. Cl. 95—11 R **25 Claims**

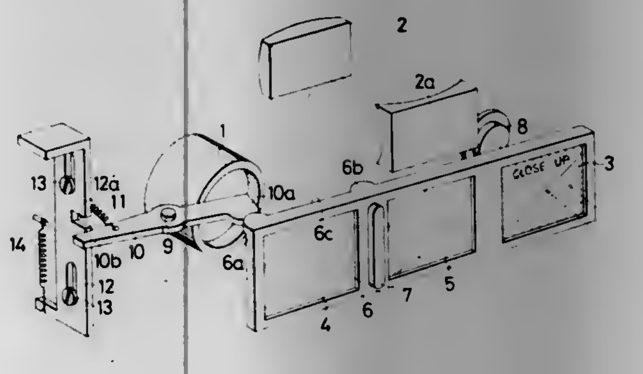
A large-format camera has a relatively thin, vertically oriented housing that includes a lower body section for receiving film with its exposure surface facing rearwardly and an upper head section that contains a forwardly facing objective lens. Behind the lens, a sloped upper mirror deflects the image rays downwardly to an oppositely sloped lower mirror, which then deflects those rays forwardly to locate the focused image in coincidence with the film plane. One or both of the mirrors may extend partially into the housing, but in their operative positions the major portions of both mirrors project rearwardly beyond the housing and are covered by a substantially conforming enclosure. To render the whole camera thinner and more compact when not in use, the mirrors are coupled to the housing by a collapsible linkage arrangement and the mirror enclosure is foldable, thereby permitting movement of both the mirrors and the enclosure to respective inoperative positions close to the housing. The head section of the housing permits convenient location of interacting camera mechanisms in close proximity to one another, while the external configuration of the camera provides a comfortable grip and a stable holding position for the user.



3,836,934
LENS ASSEMBLY FOR PHOTOGRAPHING AT NEAR OR CLOSE DISTANCE

Shogo Suzuki, Tahara, and Maki Yamashita, Osaka, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Nov. 29, 1973, Ser. No. 420,131
Claims priority, application Japan, Dec. 27, 1972, 48-4798
Int. Cl. G03b *13/14*
U.S. Cl. 354—197 **6 Claims**

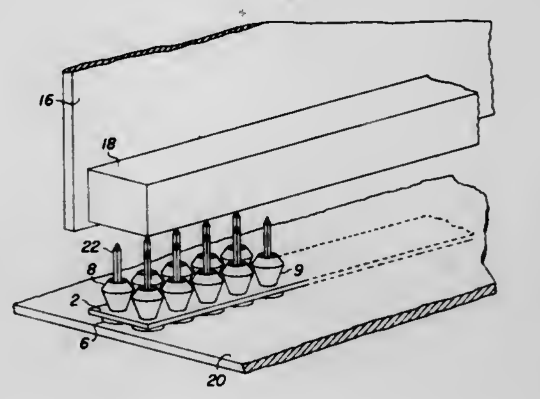


A finder parallax correction lens capable of giving a visual indication, a supplementary lens and a glass protector for the main taking lens are aligned in a planar arrangement and movably built in the camera. When the supplementary lens for photographing subjects at near or close distances is placed in front of the main taking lens with its optical axis in alignment with that of the taking lens, the correction lens is set in position for the finder optical system, visually indicating that it is so positioned, with the glass protector brought to its retracted position. A lock mechanism is further provided which permits the shutter to be tripped only when the lenses and glass protector are set in correct photographing positions respectively and which otherwise locks the shutter against tripping.

3,836,935
MOISTURE SEAL FOR ELECTRICAL CONNECTOR

Frederick W. Johnson, Cedar Rapids, Iowa, assignor to Collins Radio Company, Dallas, Tex.

Division of Ser. No. 198,920, Nov. 15, 1971, Pat. No. 3,781,764. This application June 1, 1973, Ser. No. 365,880
Int. Cl. H05k *1/02*
U.S. Cl. 339—17 LM **6 Claims**



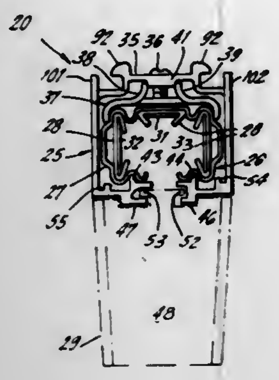
Disclosed is a printed circuit board interconnect system having moisture seal means for precluding the formation of a moisture film between electrical contacts. The seal means comprises a resilient seal strip having one or more integral hollow seals disposed on either side thereof, each hollow seal surrounding a male connecting pin of the system and being compressed between printed circuit boards that are electrically connected.

3,836,936
ELECTRIFIED DUCT AND FITTINGS THEREFOR

Ralph C. Clement, Bellefontaine, Ohio, assignor to I-T-E Imperial Corporation, Spring House, Pa.

Filed Nov. 24, 1972, Ser. No. 308,975
Int. Cl. H01r *9/00*
U.S. Cl. 339—21 R **12 Claims**

A stylized electrical duct is formed by inserting a conventional duct with a formed sheet metal casing inside of an extruded housing. Internal formations of the extruded housing are utilized to maintain polarity between duct section and to properly position the housing and casing relative to each other. External formations of the extruded housing are used to mount and maintain polarity for appliances, and to mount a strip providing a support for a ceiling which engages the latter from below.

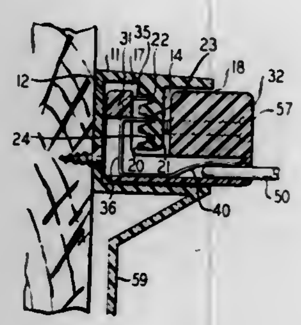


3,836,937

POWER DISTRIBUTION SYSTEM FOR CONVENIENCE OUTLETS

Anthony Carl Donato, 529 Wychwood Rd., Westfield, N.J. 07090

Filed July 9, 1973, Ser. No. 377,335
Int. Cl. H01r *9/00*
U.S. Cl. 339—21 R **9 Claims**



A convenience outlet system is disclosed by which electric power is distributed. The system comprises a slideway, including a continuous track, and one or more outlet components or adapters which are selectively located by being moveably positioned along the track. The track houses a plurality of independent electrical strip conductors. The hazard of shock is prevented by shielding the conductors from direct access while simultaneously permitting direct electrical contact between the conductors and the moveable outlet components due to the system geometry.

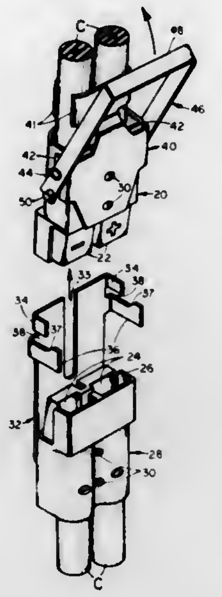
3,836,938

SAFETY ELECTRICAL PLUG RELEASE MECHANISM

James H. Barrett, Jr., 3863 Surrey Rd., Toledo, Ohio 43615, and Lee R. Marcussen, Toledo, Ohio, assignors to said Barrett, by said Marcussen

Filed Sept. 13, 1972, Ser. No. 288,522
Int. Cl. H01r *13/54*
U.S. Cl. 339—45 R **24 Claims**

A lever operated safety connect-and-disconnect mechanism for a pair of telescopic electrical cable terminal connectors comprising a guide means attached to one of the connectors projecting beyond the entrance thereof and having a pair of slotted flanges and a lever means connected and pivoted to the other connector having a pair of trunnion pins for fitting into the slots of the flanges of the guide means, whereby oscillation of the lever moves the two connectors into and out of engagement. The improvement in this mechanism resides in means for preventing jamming, over-riding, and breakage of the connectors and insuring their operation by providing stops, wedges and/or additional pin means on the guide means and lever means.

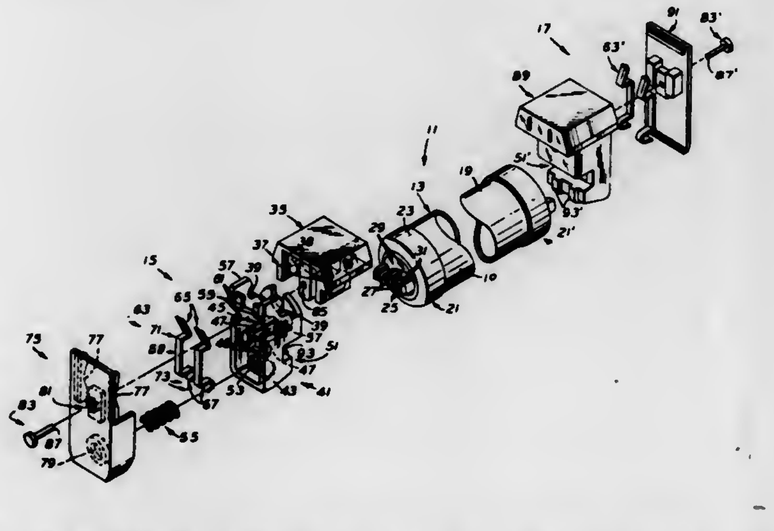


3,836,939

FLUORESCENT LIGHTING ASSEMBLY

Wade E. Barre, Warren, and Robert S. Orbanic, East Warren, both of Pa., assignors to GTE Sylvania Incorporated, Stamford, Conn.

Filed Mar. 5, 1973, Ser. No. 337,949
Int. Cl. H01r *33/08*
U.S. Cl. 339—56 **17 Claims**



A fluorescent lighting assembly is disclosed which comprises a fluorescent lamp and a pair of socket members. The first of said socket members has a base member, a movable member, a backcover, and at least two pliable metallic contacts positioned therein. A resilient means positioned substantially between the backcover and movable member permits this member rotatable movement during initial insertion by a terminal end of the lamp. A base member for the fluorescent lamp is also disclosed.

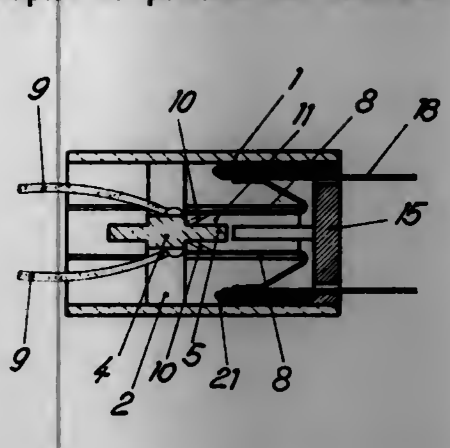
3,836,940

DEVICE FOR THE ELECTRICAL CONNECTION BETWEEN CABLES AND RIBBON-LIKE

Giuseppe Codrino, Via Stazione, Quattordio (Alessandria), Italy

Filed Jan. 15, 1973, Ser. No. 323,930
Claims priority, application Italy, May 9, 1972, 24105-A/72
Int. Cl. H01r *13/54, 13/64*
U.S. Cl. 339—91 R **4 Claims**

Device for the electrical connection between cables and ribbon-like flexible conductors, and more particularly a connecting device, adapted to perform the electrical continuity between the traditional-type cables and ribbon-like flexible conductors.

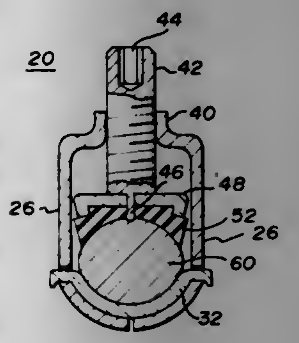


3,836,941

ELECTRICAL CONNECTOR WITH RESILIENT PRESSURE PAD

Hyman Izraeli, West Caldwell, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed July 5, 1973, Ser. No. 376,601
Int. Cl. H01r *11/20*
U.S. Cl. 339—95 R **10 Claims**



The connector of the present invention is arranged to couple an electrical conductor to a terminal point and to compensate for the different coefficients of expansion between the connector and the conductor. A resilient pressure pad is added to the normal metallic pressure plate of a mechanically operated connector to force a conductor, placed within the connector, against a contact portion of the connector regardless of changes in the dimensions of the conductor and connector resulting from thermal expansion and contraction of the dissimilar metals. The connector consists of a tubular body for the receipt therein of an electrical conductor and a pressure plate, operated by a mechanical screw, to exert connecting pressure between the conductor and the connector body. A resilient pad member, added to the pressure plate, permits the connector to accommodate dimensional changes, while the coupling between the pressure plate and resilient pad member limits tightening of the connector to prevent destruction of the resilient pad member.

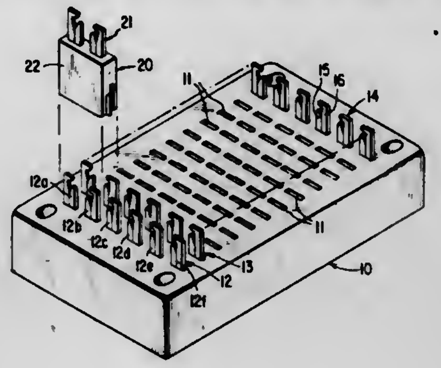
3,836,942

SEPARABLE ELECTRICAL CONNECTOR

Robert H. Knickerbocker, 29 Westmore Rd., Cheshire, Conn. 06795

Continuation-in-part of Ser. No. 277,165, Aug. 2, 1972, abandoned. This application Apr. 13, 1973, Ser. No. 350,915
Int. Cl. H01r *31/08, 9/08*
U.S. Cl. 339—97 R **10 Claims**

There is disclosed a separable electrical connector which permits a large number of additional electrical conductors to be connected to a terminal block containing clip-type electrical connectors without increasing the size of the block. The separable connector comprises a flat, elongate, electrically conductive element and a dielectric retaining member for holding the electrically conductive element in contact with the upper portions of laterally adjacent electrical connectors which project upwardly from a terminal block. The conductive element comprises a flat base portion and at least one, e.g., one or two, pair of opposing contact fingers which project upwardly from the base portion and are integral with the base portion. The adjacent edge portions of the contact fingers are adapted to receive an electrical conductor therebetween. The retaining member comprises a casing which encloses a portion of the electrically conductive element. The top portions of the opposing contact fingers project above the casing so that an electrical conductor may be inserted between the opposing fingers.

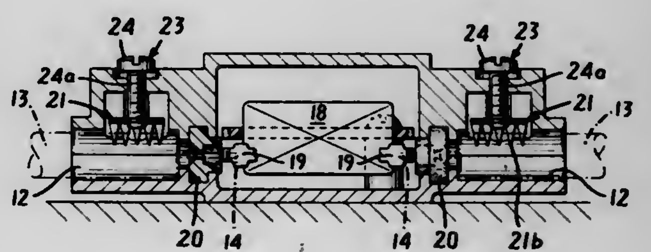


3,836,943

ELECTRICAL CONNECTOR FOR COAXIAL CABLE

Martin S. Horak, Morganville, N.J., assignor to Gamco Industries, Inc., Roselle, N.J.

Filed May 29, 1973, Ser. No. 364,725
Int. Cl. H01r *9/08*
U.S. Cl. 339—97 P **6 Claims**



An electrical connector for a coaxial cable. The connector body contains a longitudinal bore which receives one end of the coaxial cable. Teeth which face inwardly towards the bore are slidably movable in the connector body at right angles to the longitudinal bore and are driven into the cable to make contact with the outer conductor of the cable by the rotation of a screw which is operatively connected to the teeth.

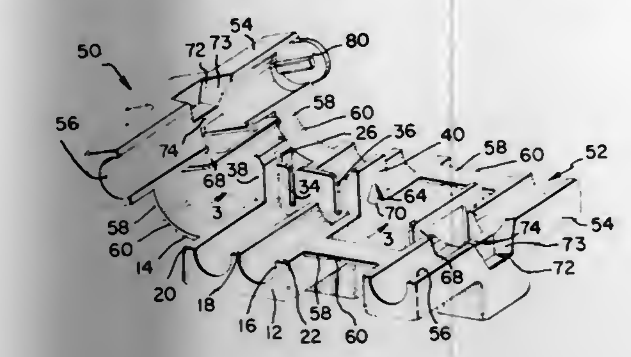
3,836,944

SOLDERLESS CONNECTOR FOR INSULATED WIRES

Gustaf Rudolph Lawson, Willingboro, N.J., assignor to AMP Incorporated, Harrisburg, Pa.

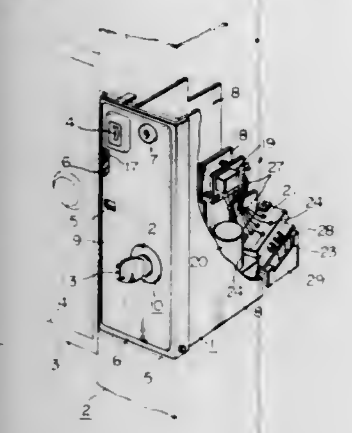
Continuation-in-part of Ser. No. 262,801, June 14, 1972, abandoned. This application Aug. 31, 1973; Ser. No. 393,541
Int. Cl. H01r *9/08*
U.S. Cl. 339—99 R **6 Claims**

A solderless insulated wire connector is disclosed which is formed of a unitary piece of dielectric material. The solderless connector includes a centrally disposed resilient electrical contact member which includes a pair of wire gripping notches, and a pair of flexibly hinged, self-locking cover portions for completely enclosing the contact member to complete a solderless connection. The contact member is mounted in a slot which is elongated to facilitate expansion of the contact member as wires are inserted into the wire gripping notches. The flexible hinges secured to the cover portions include sections of reduced thickness which cause the flexible hinges to bend at a particular spot, facilitating alignment of the cover portions with the base portions of the solderless connector structure.



3,836,945
RENTAL LOCKER SYSTEM

Yoshio Kinoshita, and Mitsuhiro Akamatsu, both of Himeji, Japan, assignors to Glory Kogyo Kabushiki Kaisha, Hyogo-ken, Japan
Filed Apr. 2, 1973, Ser. No. 346,881
Claims priority, application Japan, Apr. 13, 1972, 47-43542
Int. Cl. H01r *13/08*
U.S. Cl. 339—119 R **5 Claims**

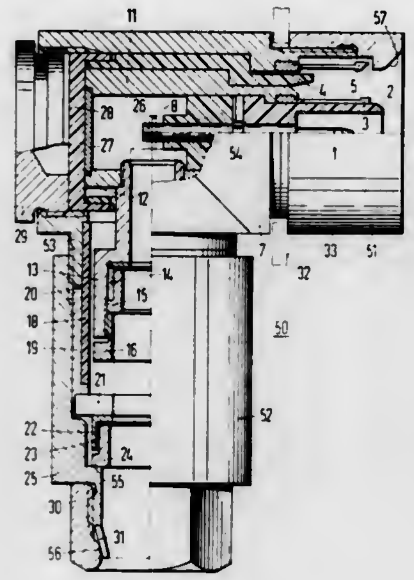


A rental locker system including a lock control mechanism freely removable from its installed position thereon and comprising an electrical control means supported by a support means in the lock control mechanism, a required number of electrical contact means provided on a contact board secured stationarily on a structural part of the rental locker, and a corresponding number of electrical contacting means provided on a contact board secured to the lock control mechanism thereby to be connected with the electrical control means included therein, each of the electrical contacting means on one of the two contact boards being made reciprocative and urged toward a corresponding contact means on the other contact board, whereby a good electrical connection is always assured between the electrical control means and electrical members in the rental locker through the electrical contacting means when the lock control mechanism is inserted into its position.

3,836,946
COAXIAL CONNECTOR

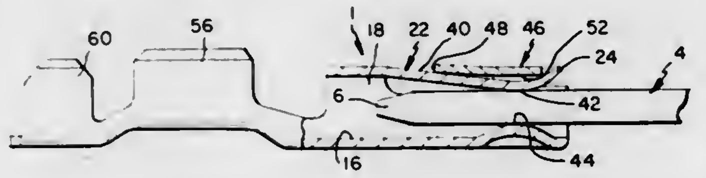
Alfons Geiger, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Mar. 22, 1973, Ser. No. 343,839
Claims priority, application Germany, Mar. 30, 1972, 2215757
Int. Cl. H01r *17/04*
U.S. Cl. 339—177 R **3 Claims**

A coaxial connector for coaxial cables which, in addition to an outer conductor and an inner conductor, comprise a screen surrounding the outer conductor, and wherein a section provided for the connection with a cable and a section provided for connection with another connection member of a connector part are inclined with respect to each other. The screen is continued in the area of the connector by means of a contact side section comprising a threaded cap which closes the section at the side facing away from the contact side and a cable side section which is screwed onto a stud shaped rim of the contact side screen case. The contact side sections of an outer conductor casing which are supported by other stages and which are supported at the screen casing of the inner conductor, and insulation members required for electric insulation in the radial direction are inserted into the contact side screen casing section through the opening which is closed by the threaded cap.



3,836,947
ELECTRICAL CONTACT RECEPTACLE WITH HELPER SPRING

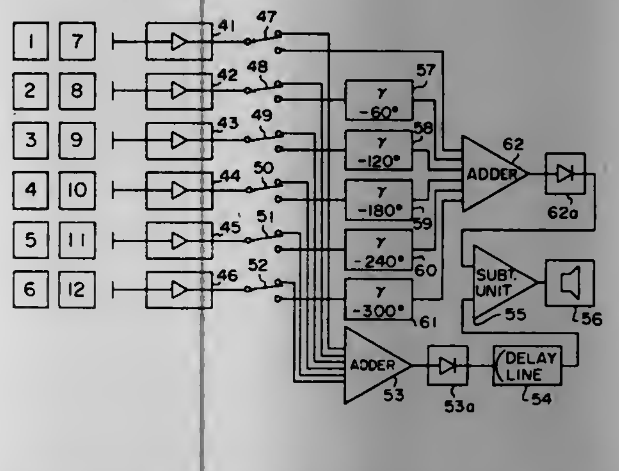
Marvin Leo Yeager, Carlisle, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Feb. 23, 1973, Ser. No. 335,263
Int. Cl. H01r *13/16*
U.S. Cl. 339—259 R **6 Claims**



The present invention relates to a female electrical receptacle for receiving and making electrical contact with a male electrical terminal. One side of the receptacle is in the form of a resilient leaf spring folded about a side margin thereof which is integral with the receptacle. The leaf spring resiliently engages against a male terminal received in the receptacle to make an electrical connection therewith. The receptacle is further provided with an elongated helper spring folded about a side margin thereof which is integral with the receptacle. The helper spring is shorter than the leaf spring and has a free end which overlies the leaf spring. Upon insertion of a male terminal into the receptacle, the male terminal will resiliently deflect the leaf spring contact against the helper spring. The helper spring thereby serves to stiffen the spring contact to provide a relatively high gripping pressure on the male terminals. The spring contact further is deflected by the male terminal into engagement with the helper spring along its folded edge margin which resists the tendency of the spring contact to unfold and further serves to limit the deflection of the leaf spring to prevent deformation thereof. The helper spring also distributes the stresses along a substantial length of the leaf spring to prevent deformation thereof due to overstressing. In a modification, the receptacle may be provided with a folded tab portion overlying the free end of the spring contact against which the free end of the contact will engage to limit the deflection thereof when a male terminal is received in the receptacle.

3,836,948
ECHO SOUNDING TECHNIQUE

Christoph Benedikt Burckhardt, Muttenz; Pierre Andre Grandchamp, Arlesheim, both of Switzerland, and Heinz Hoffmann, Grenzach, Germany, assignors to Hoffman-La Roche Inc., Nutley, N.J.
Filed Feb. 7, 1973, Ser. No. 330,364
Claims priority, application France, Feb. 11, 1972, 72.2032; Dec. 7, 1972, 72.17818
Int. Cl. G01s *9/66, 7/66*
U.S. Cl. 340—1 R **16 Claims**

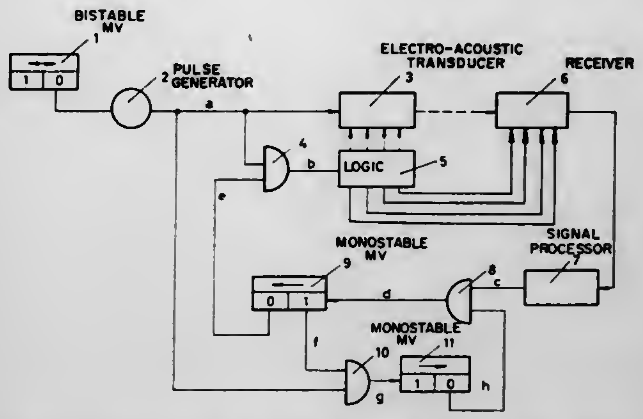


An ultrasonic echo sounding technique for reducing echoes from reflectors outside the field of interest comprising: a substantially annular ultrasonic transducer assembly having a plurality of equally sized segmental transducer elements whose radiation surfaces are inclined towards the annular axis; a transmitter with a generator; phase shifting means for driving selected transducer elements with signals having relative phase shift; transmitter switches for optionally switching the aforementioned apparatus between generator and transducer to produce first and second waves; a receiver with a first and second adder; phase rotation means connected with said second adder; receiver switches operated in synchronism with the transmitter switches for optionally switching the transducer elements between the phase rotation means and first adder; rectifier means for rectifying the outputs of the adders; a delay line for delaying signals from the first adder; and, subtraction means for taking the difference of the first and second adder outputs and displaying the results.

3,836,949
DEVICE FOR THE LOCALISATION OF AN OBJECT

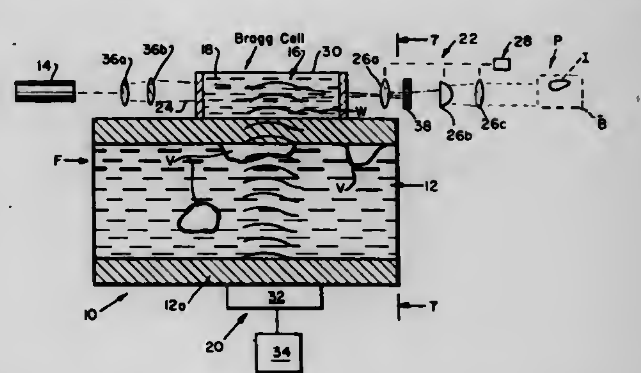
Rolf Otto Torbjorn Ergon, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden
Filed Mar. 27, 1972, Ser. No. 238,224
Claims priority, application Sweden, Apr. 2, 1971, 4303/71
Int. Cl. G01s *9/66*
U.S. Cl. 340—3 R **6 Claims**

An improved echo-sounding device is disclosed which is suitable for use in an acoustic proximity fuse of an underwater weapon. The transmitter of the device is controlled so that predetermined electrical pulse sequences, including at least two different types of pulses, which are produced by the transmitter and then converted into acoustic signals transmitted into the surrounding medium, are varied in response to electrical echo-pulses registered by a receiver and converted from reflected acoustic signals, the receiver being arranged to register only pulses of a type corresponding to the last generated pulse. By varying the predetermined pulse sequence to generate a pulse of the same type as last generated and thereafter continuing with the same sequence as before, only objects inside the range of action of the weapon can cause continuously registered echo pulses.



3,836,950
ACOUSTO-OPTICAL MULTI-CONSTITUENT FLOW MONITORING METHOD AND APPARATUS

Pravin G. Bhuta; Robert L. Johnson; Douglas J. Graham, and Robert Aprahamian, all of Los Angeles, Calif., assignors to TRW Inc., Redondo Beach, Calif.
Continuation of Ser. No. 16,744, March 5, 1970, abandoned. This application July 26, 1972, Ser. No. 275,175
Int. Cl. G01v *13/00*
U.S. Cl. 340—5 H **6 Claims**



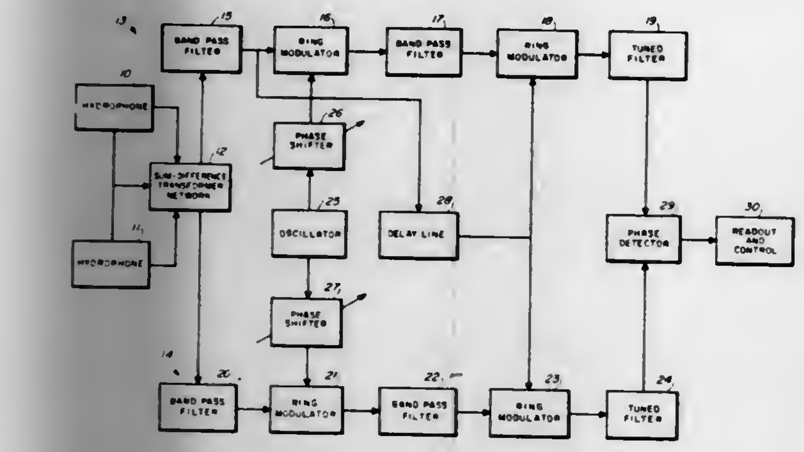
An acousto-optical method and apparatus for monitoring individual constituents of differing acoustical transparency in a multi-constituent flow through a conduit. The conduit is acoustically coupled to an external acoustic source of fixed frequency and an external acoustic wave transmission medium in a manner such that acoustic wave energy from the source is transmitted laterally through a section of the conduit into the acoustic medium to produce within the medium distorted acoustic waves containing information representing each constituent present within the conduit section. This acoustic information is transformed to equivalent light information by a light-sound wave interaction yielding a light sideband which may be optically processed to image the constituents or converted to an electrical output representing the constituents.

3,836,951
HETERODYNE AUTOCORRELATION GUIDANCE SYSTEM

Keith E. Geren; Milton D. Papineau, and Claude C. Routh, all of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed May 5, 1960, Ser. No. 20,225
Int. Cl. G01s *3/80*
U.S. Cl. 340—6 R **15 Claims**

1. In a guidance system adapted to sense incoming energy and ascertain the direction thereof comprising in combination

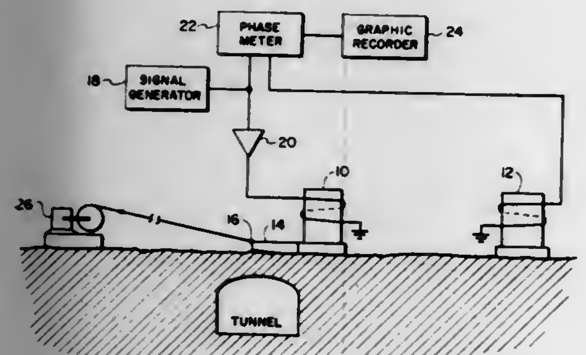
a first means for receiving incoming radiant energy and producing a first electrical output signal proportional thereto, a second means for receiving incoming radiant energy and producing a second electrical output signal proportional thereto, means coupled to said first and second receiving means for accepting the electrical output signals therefrom and transforming same into a sum signal representing the addition thereof and a difference signal representing the subtraction thereof, means connected to said transforming means for receiving said sum signal and said difference signal and for converting same into a pair of electrical signals having identical fixed frequencies and a phase relationship in accordance with the relative left and right direction of said incoming energy, means connected to said sum and difference signal converting means for comparing the phase relationship between said identical fixed frequency signals and producing an output signal in accordance therewith, and readout means coupled to said relative phase comparing means for indicating said relative phase relationship in terms of said relative left and right direction of said incoming energy.



3,836,952
METHOD AND APPARATUS FOR RAPID SUBSURFACE EXPLORATION

Ronald F. Johnson, Eatontown, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 3, 1972, Ser. No. 231,760
Int. Cl. G01v *1/00*
U.S. Cl. 340—15.5 CP **4 Claims**

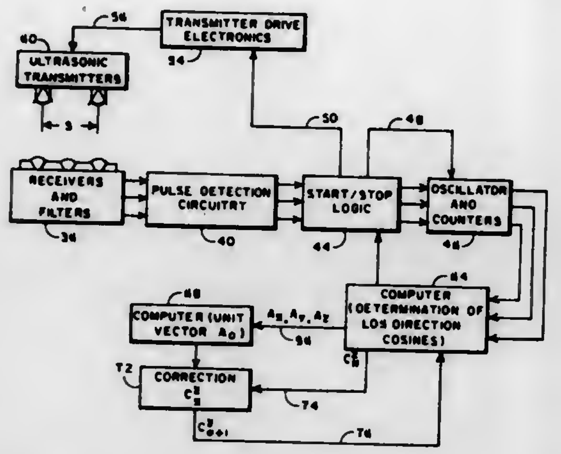


Exploring a selected zone of the earth to a shallow depth for a tunnel excavation, hollow, or other anomaly, without digging, which includes the use of a transmitter electroseismic transducer and at least one receiver electro-seismic transducer for causing seismic energy to transmit from transmitter transducer to receiver transducer, through the ground in the selected zone, and examining for any unusual deviation in the phase angle difference between energy at the emitting transducer and energy at the receiving transducer as the span between transducers is displaced or as the span length is changed.

3,836,953
PROPAGATION SPEED DETERMINING APPARATUS

Donald J. Rotier, St. Paul, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Mar. 30, 1973, Ser. No. 346,560
Int. Cl. G01s *5/18*
U.S. Cl. 340—16 R **11 Claims**

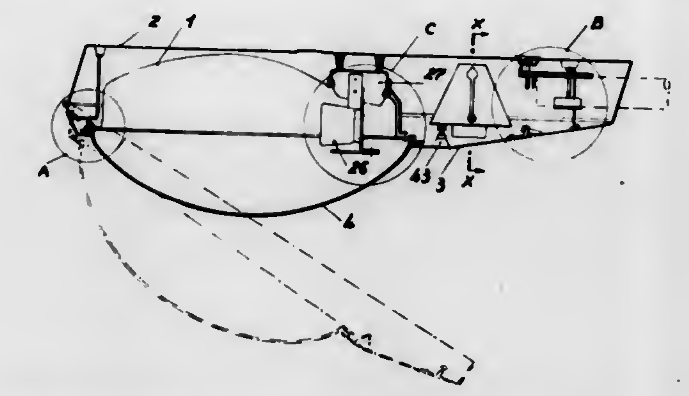

TRANSMITTER DRIVE ELECTRONICS
ULTRASONIC TRANSMITTERS
RECEIVERS AND FILTERS
PULSE DETECTION CIRCUITRY
START/STOP LOGIC
OSCILLATOR AND COUNTERS
COMPUTER (UNIT VECTOR A0)
COMPUTER (DETERMINATION OF LOS DIRECTION COSINES)
CORRECTION

Aline-of-sight determining system using ultrasonic transducers mounted on a helmet and on a reference object, including means for determining the propagation speed of ultrasonic signals. The means for determining propagation speed uses a known distance between transducers and compares the known distance with a distance calculated using an assumed propagation speed value to generate a more accurate value.

3,836,954
LIGHT FIXTURES

Marie Henri Hubert Adam, Lorey-par-Bayon, France, assignor to Societe Anonyme l'Eclairage Technique, Nancy (Meurthe et Moselle), France

Division of Ser. No. 219,740, Jan. 21, 1972. This application Mar. 8, 1973, Ser. No. 339,274
Claims priority, application France, Oct. 1, 1971, 71.35397
Int. Cl. F21s *13/10, 1/10*
U.S. Cl. 240—25 **1 Claim**



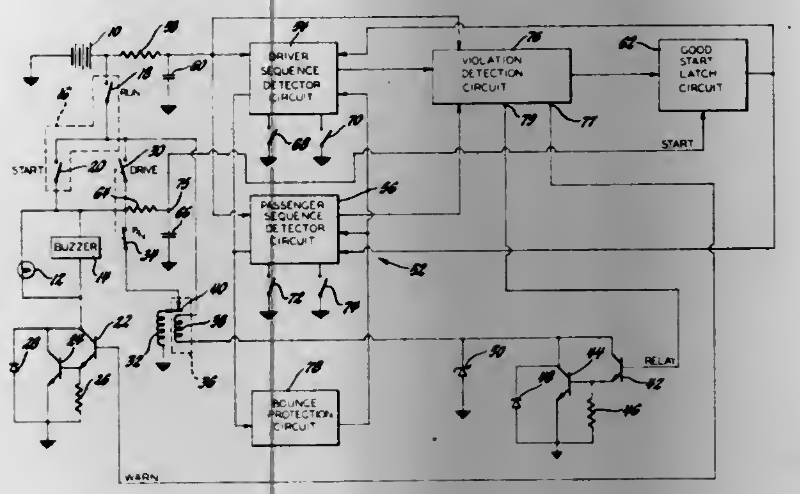
The present light fixture has a body with an upper portion to which is attached a bowl, a reflector, a light and a power supply gear and includes means which is movable within and detachable from said upper portion and support said power supply gear.

3,836,955
MOTOR VEHICLE SEAT BELT SAFETY SYSTEM

Larry F. Cracraft; David E. Houser, and Edward G. Whitaker, all of Kokomo, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 23, 1973, Ser. No. 353,598
Int. Cl. B60r *21/10*
U.S. Cl. 340—52 E **8 Claims**

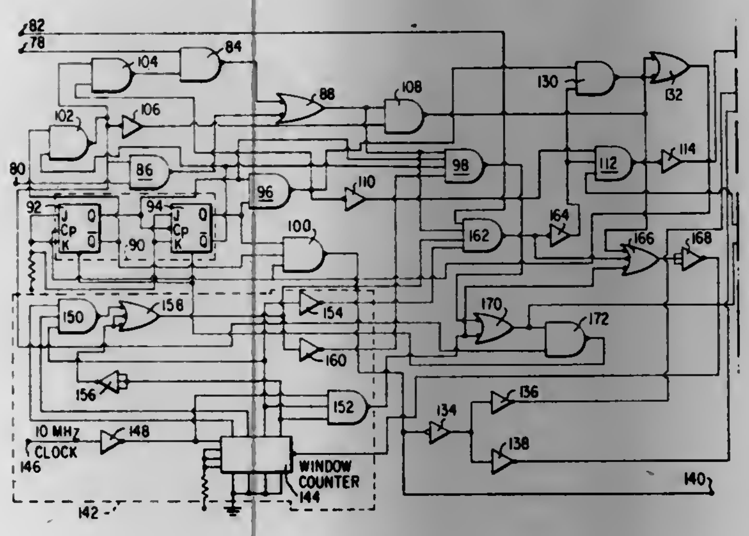
A bipolar integrated circuit is disclosed which includes a sequence latch for detecting an improper sequential operation of a seat switch and a seat belt switch for providing a violation signal which permits energization of a vehicle seat belt warning circuit and prevents energization of the vehicle starter solenoid. The circuit further includes a good start latch which permits restarting of the vehicle as long as the driver's seat is occupied. The latches are interconnected so that when the sequence latch is enabled and the good start latch is disabled and once the good start latch is enabled the sequence latch is disabled. Means are provided in each latch circuit to stabilize the latches against voltage transient prevalent in vehicle operation. A seat bounce protection circuit is proposed which prevents momentary deactuation of the seat switch from affecting the state of the latches.


DRIVER SEQUENCE DETECTOR CIRCUIT
VIOLATION DETECTION CIRCUIT
GOOD START LATCH CIRCUIT
START
BUZZER
PASSENGER SEQUENCE DETECTOR CIRCUIT
BOUNCE PROTECTION CIRCUIT
RELAY
WARN

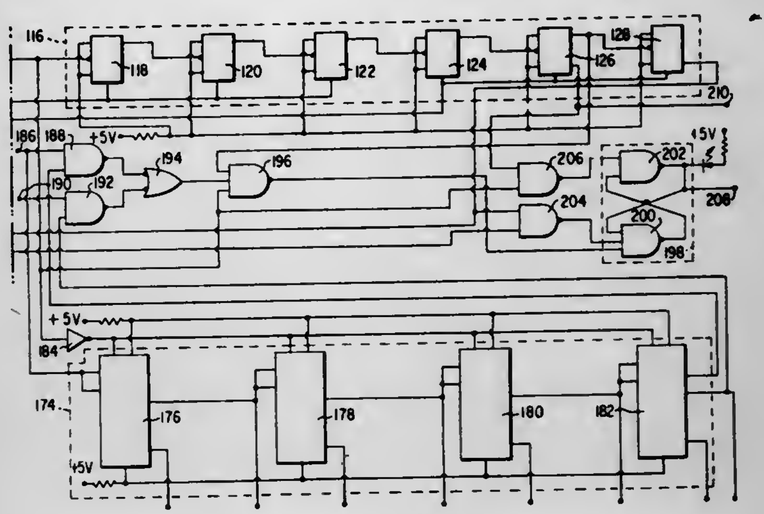
3,836,956
METHOD AND APPARATUS FOR DECODING BIPHASE SIGNALS

Charles Cross, Glenside, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Dec. 12, 1972, Ser. No. 314,307
Int. Cl. G08c *25/00*; H04b *15/00*
U.S. Cl. 340—146.1 AB **12 Claims**



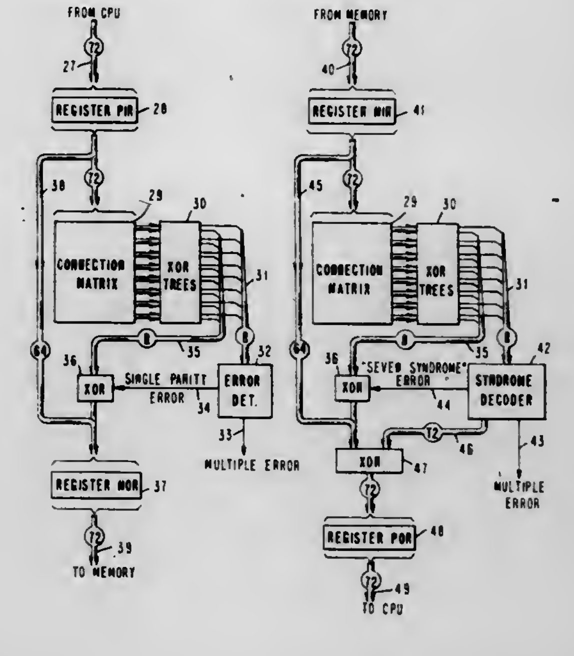
A method and apparatus for decoding biphase signals are disclosed in which each bit of a received biphase signal causes generation of a window in which the next successive bit must fall. By this means the received message is distinguished from noise and timed. The received signal message preferably includes a synchronization code and a double word body formed by a single word which is transmitted twice. The synchronization code is examined for both timing and pattern. The second word is compared bit by bit with the first word to verify the received message and further preclude the possibility of noise being erroneously considered as a message bit. If the two words are not identical this indicates an error and all further action is inhibited.



3,836,957
DATA STORAGE SYSTEM WITH DEFERRED ERROR DETECTION

Keith A. Duke, Wappingers Falls, and Benedicto U. Messina, Pougkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 26, 1973, Ser. No. 373,708
Int. Cl. H04l *1/10*; G06f *11/12*
U.S. Cl. 340—146.1 AL **7 Claims**

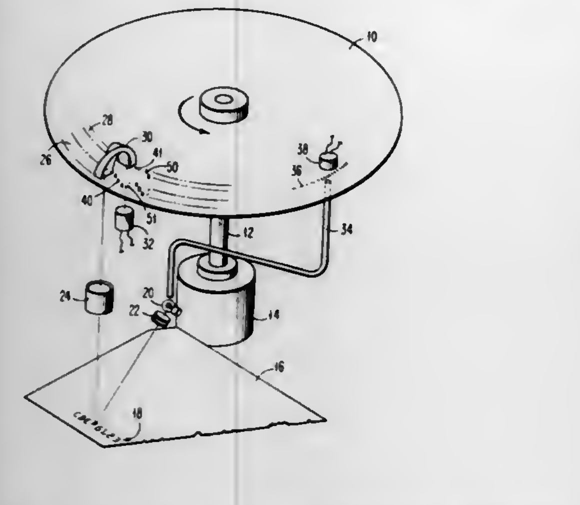


Disclosed is a data transfer mechanism between the data bus of a data processing system and a data store. The data transfer mechanism includes common logic for converting between parity coded data on the data bus and error checking and correcting (ECC) coded data associated with the data store. Parity errors in data for presentation to the data store are detected, and single error correction and double error detection (SEC/DEC) syndrome bits are generated from the original ECC bits when data is to be read from the store and presented to the data bus. Additional circuitry is included to cause a signal indicating a single parity error on the data bus to modify the ECC bits generated for presentation to the data store with the data. On a subsequent read of the data from the data store, the modified ECC bits will produce a set of syndrome bits, specially recognized, to cause the data to be presented to the data bus with the original byte parity error recreated for subsequent detection.

3,836,958
OPTICAL CHARACTER RECOGNITION SCANNING APPARATUS

David Harwood McMurtry, Portola Valley, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed July 3, 1972, Ser. No. 268,244
Int. Cl. G06k *9/18*
U.S. Cl. 340—146.3 F **25 Claims**



The recognition of human and machine readable characters of a family of type of which each character comprises one or more constrained segments is enhanced by a single element shutter and light conducting and optical image rotating component in an opto-mechanical subassembly for precisely scanning short straight line segments in seriatim. The movable shutter is arranged with apertures in two parallel tracks moving past the field of scan and preferably the apertures are arranged for scanning a multiple of characters for each full movement of the shutter. The apertures for each character are divided into slits and slots with a slit in one track cooperating by way of the image rotating component with a slot in the other track moving in the direction of an image line segment under consideration. Drum, belt and disk shutters are contemplated, and plural image rotating elements and associated sets of aperture tracks are feasible with optical fiber bundles. A moving mirror illuminating and scanning system is also disclosed. Opto-electronic circuitry produces electric representations in response to the presence and absence of character line segments in the image. The basic opto-electronic circuitry comprises a photosensitive diode arranged to receive light from the scanning field of a document and suitable logical circuitry.

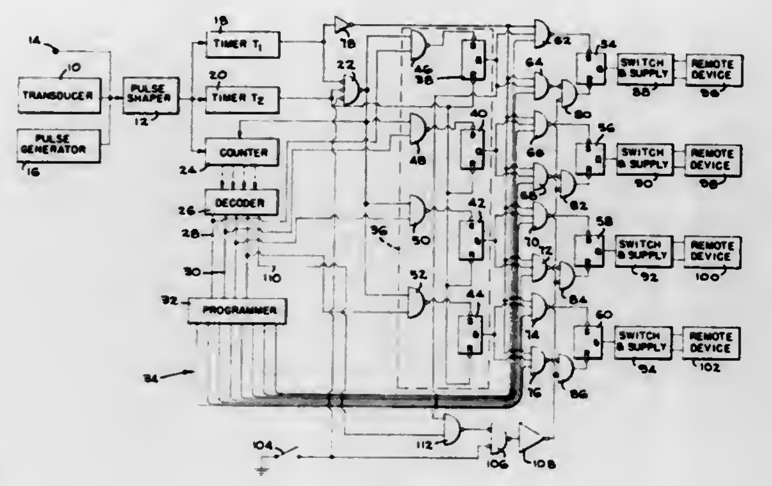
3,836,959
APPARATUS FOR ACTIVATING REMOTELY LOCATED DEVICES IN RESPONSE TO ACOUSTICAL SIGNALS

John Pao, San Mateo; Raymond Wang, Santa Clara; Ben Tsutomu Takashima, San Jose; Chuck Y. Pon, San Francisco, and Thomas T. Kanetake, Mountain View, all of Calif., assignors to Pantex Corporation, San Mateo, Calif.

Filed Feb. 5, 1973, Ser. No. 329,569
Int. Cl. H04q *5/00*
U.S. Cl. 340—148 **4 Claims**

The disclosed embodiment of the present invention is a system which is responsive to the ringing tones of a telephone instrument for controlling the energization of one or more remote devices. The system includes a counter and decoder responsive to the ringing tones to provide a plurality of outputs each representing a particular number of sensed telephone rings. A pair of timers is actuated by the first ringing tone which is received when in their quiescent state; one of which has a shorter timing period than the other. A plurality of latches are each responsive to a respective output of the decoder. At the end of the first of the shorter timing periods, the particular decoder output which is high sets the corresponding latch, thereby storing the information representing the number of telephone ringing tones received during that timing period, which number of rings is controlled by the user at the calling station.

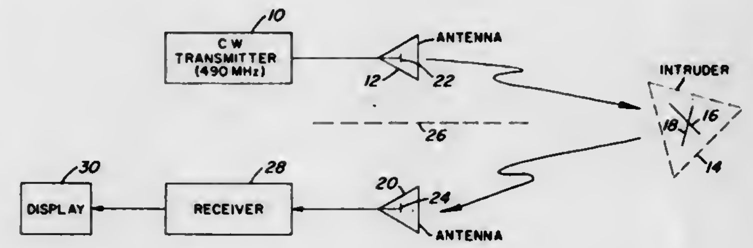
A programmable means, such as a plurality of switches, connects the outputs of the decoder to appropriate enabling gates of a second set of latches. These gates are enabled at the end of the second of the shorter timing periods and have, as a second input, an output of one of the first set of latches, such that one of the second set of latches is either set or reset when the correct number of rings is sensed in the first of the shorter timing periods and the correct number of rings is sensed in the second of the shorter timing periods. Each of the second set of latches controls a switching element to connect supply voltage to the corresponding remote device. Both timers reset the counter at the end of their timing period and the first set of latches is reset at the end of the longer timing period, such that the operation must be completed by the user and the information in the form of telephone ringing tones must be generated at the called station within this longer timing period.



3,836,960
SENSOR SYSTEM

John B. Gehman, La Jolla, and Joseph V. J. Ravenis, San Diego, both of Calif., assignors to General Dynamics Corporation, St. Louis, Mo.

Filed Mar. 12, 1970, Ser. No. 24,442
Int. Cl. G01s *9/02*
U.S. Cl. 343—5 PD **22 Claims**

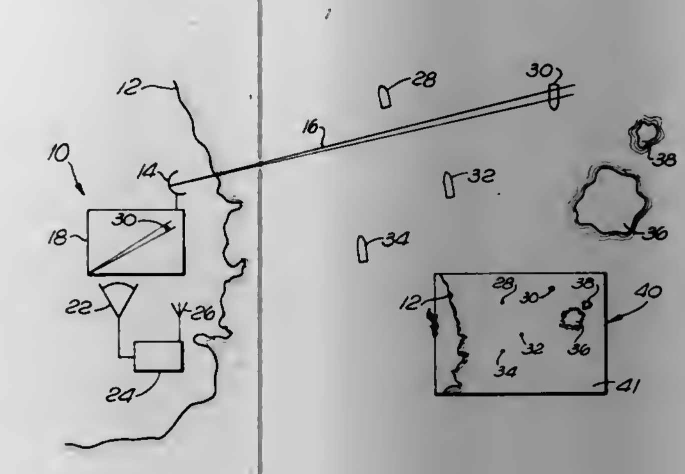


A sensor system suitable for use as an intrusion detector or metal detector is described. The system transmits CW signals in the VHF or UHF frequency bands and receives modulation components of these signals which are being re-radiated from metal to metal bodies that are in contact with each other in or on the object to be detected. When the amplitude of these re-radiated modulation components exceeds a predetermined threshold, the presence of the object is indicated.

3,836,961
NAVIGATION AID

Joseph C. Ennis, Sylmar, Calif., and Ray Winn, Wakefield, Mass., assignors to Development Associates, Goleta, Calif.

Filed Aug. 14, 1972, Ser. No. 280,623
Int. Cl. G01s *9/00*
U.S. Cl. 343—6 TV **15 Claims**



A navigation aid for use by moving vehicles such as boats and airplanes and which utilizes ground-based radar in conjunction with television, the receiver portion being carried by the vehicle. More specifically, in one form there is disclosed a sector scan radar system which provides a typical plan position indicating (PPI) display which is viewed by a television camera. The PPI display utilizes phosphors of extremely short persistence so that effectively the only targets appearing on the PPI display are those then being illuminated by the radar signal. A television camera (vidicon) generates signals in response to the PPI display which remain on the vidicon photo mosaic until electronically removed. The signals generated by the vidicon are transmitted over a television antenna to vehicles within range of the radar. Each of the vehicles carries its own television receiver responsive to the signals transmitted from the television antenna. In addition thereto, each of the receivers carries a special circuit which receives the radar pulses transmitted from the radar antenna. The envelope representative of the radar signals is generated by a detector means. The thus generated envelope is differentiated thereby to provide a signal responsive to the moment of greatest illumination by the radar antenna which is utilized to contrast the signal then appearing on the television screen. Thus, each vehicle can identify itself independently from all other vehicles within the area of the range of the radar. The television tube carried by the vehicle utilizes long decay time phosphors of the type normally encountered in radar displays.

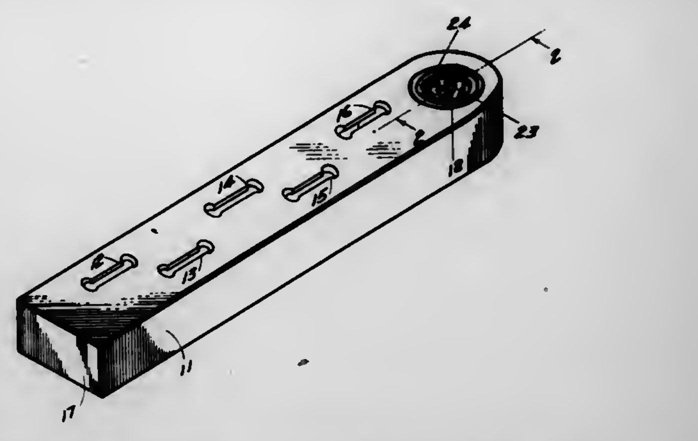
Also disclosed in another form is the provision of radar-generated range and azimuth information to a data processor means which may also receive data from other sources. The data processor converts the radar and other signal information to television-compatible format for subsequent transmission to vehicle-carried receivers as above disclosed.

3,836,962
PASSIVE MICROWAVE RECEIVER-TRANSMITTER

John F. Zaleski, Valhalla, N.Y., assignor to The Singer Company, New York, N.Y.

Filed Aug. 22, 1956, Ser. No. 605,663
Int. Cl. G01s *9/56*
U.S. Cl. 343—6.8 R **14 Claims**

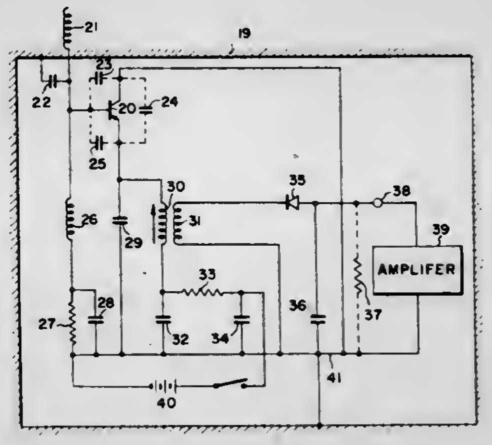
1. A microwave transducer comprising, a microwave resonant cavity, a randomly embossed thin metallic diaphragm closing one face thereof, a conical metallic post extending from one wall of said cavity towards said diaphragm having a sharp tip in close proximity to but spaced from said diaphragm, and means for coupling microwave energy into and out of said microwave resonant cavity.



3,836,963
TRANSISTOR OSCILLATOR-DETECTOR FOR PROXIMITY FUZES

Collins Arsem, Bethesda, Md., and Marshall M. Algor, Washington, D.C., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 28, 1967, Ser. No. 665,197
Int. Cl. F42c *13/04*; G01s *9/04*
U.S. Cl. 343—7 PF **3 Claims**



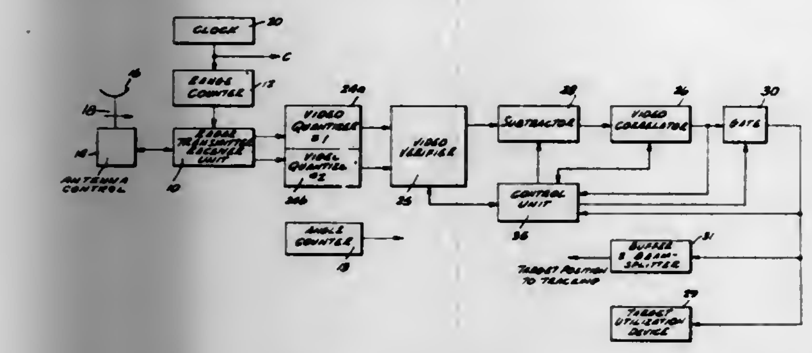
A transistor oscillator-detector for use as the transmitting oscillator and the detector of a received doppler signal in a radio proximity fuze is described. The oscillator is a transistor oscillator circuit in which the tank coil acts as both the oscillator tank inductance and as the antenna. One end of this inductor is connected both mechanically and electrically while the other end of the coil is mechanically free but electrically connected to the circuit by means of stray capacitances. In one embodiment the doppler signal is detected by a semiconductor diode loosely coupled to the oscillator by means of a grounded inductive loop. In another embodiment detection is accomplished by means of changes in voltages across an emitter resistance and these voltages changes are AC coupled to an output terminal. In the former embodiment the transistor oscillator-detector disclosed employs a PNP transistor and in the latter embodiment the transistor oscillator-detector employs a NPN transistor.

3,836,964
AUTOMATIC DATA PROCESSOR

Norol T. Evans, San Pedro, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 18, 1967, Ser. No. 676,243
Int. Cl. G01s *9/02*
U.S. Cl. 343—7 A **9 Claims**

An automatic data processor which allows a completely automatic track-while-scan function to be performed with a pencil beam radar. Multi-level detection systems are employed to process quantized and verified signals which have been reduced from an analog signal to digital data words indicative of the weight thereof. The codes in the verifier are compared with other codes so that only predetermined known values shown on one of two input channels are gated for further processing. A video correlator is employed which implements a moving window detector in three dimensions to help organize the information for subsequent processing. When the data words in the same range bin on adjacent beams in azimuth and elevation meet a predetermined criteria, a target detection is declared. The detection information is then sent through a detection blanking system to a beamsplitter and buffer unit. The video correlator also keeps track of how many detections occur sequentially in both azimuth and elevation at the same range bin. If the number of detections exceed a preset value, the clutter reject bit will be set and the beamsplitter will reject this data as clutter. The beamsplitter makes use of the video data words on adjacent beams in both azimuth and elevation to calculate beamsplit coordinates, and thereby determines the target location within a fraction of a beamwidth. A detector criteria control unit performs two functions for reducing the sensitivity of the system in automatically selected portions of the three-dimensional surveillance volume. The criteria control unit maps all target reports and distinguishes them from clutter. It blanks signals to a utilization device when there is clutter present; it may also modify the quantizer to reduce its sensitivity without blanking in certain cells. The criteria control unit also may incorporate a target rate counter for reducing detection sensitivity in sectors with a high detection rate.



3,836,965
METHOD AND APPARATUS FOR THE DETECTION OF A PRESENCE

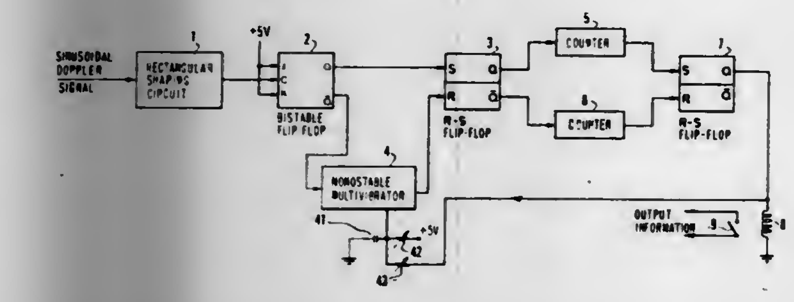
Jean-Claude Preti, Clamart, France, assignor to Societe De Fabrication D'Instruments De Measure (S.F.I.M.), Massy, France

Filed Jan. 31, 1973, Ser. No. 328,288

Claims priority, application France, Sept. 12, 1972, 72.32248

Int. Cl. G01s ***9/44***

U.S. Cl. 343—8 **6 Claims**



A vehicle presence detector circuit for the control of coloured light traffic signals in which the output of a Doppler radar system, representing the speed of vehicles, operates a relay when the speed drops below a threshold value and the relay is only reset when the speed signal exceeds a higher threshold value.

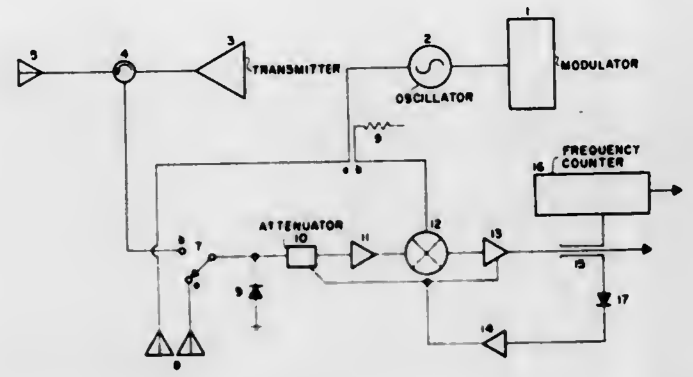
3,836,966
DUAL MODE RADAR SYSTEM

Belmont Frisbee, Jr., Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 5, 1972, Ser. No. 298,096

Int. Cl. G01s ***9/04, 9/24***

U.S. Cl. 343—14 **1 Claim**



A dual mode electronic system combining the seeker radar system and the altimeter radar system of a missile. The present invention includes a switch for selecting the operative mode from either of the two modes incorporated (seeker radar system or altimeter radar system). The components of one system which duplicate the components of the other system are eliminated since the duplicated components will be shared.

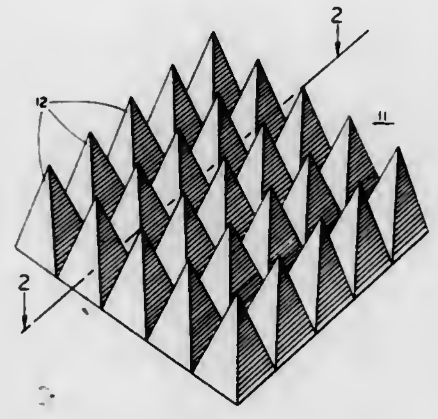
3,836,967
BROADBAND MICROWAVE ENERGY ABSORPTIVE STRUCTURE

Rufus W. Wright, 12 Westmoreland Rd., Alexandria, Va. 22308

Continuation-in-part of Ser. No. 720,512, March 10, 1958, abandoned. This application May 28, 1962, Ser. No. 199,226

Int. Cl. H01g ***17/00***

U.S. Cl. 343—18 A **7 Claims**



The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

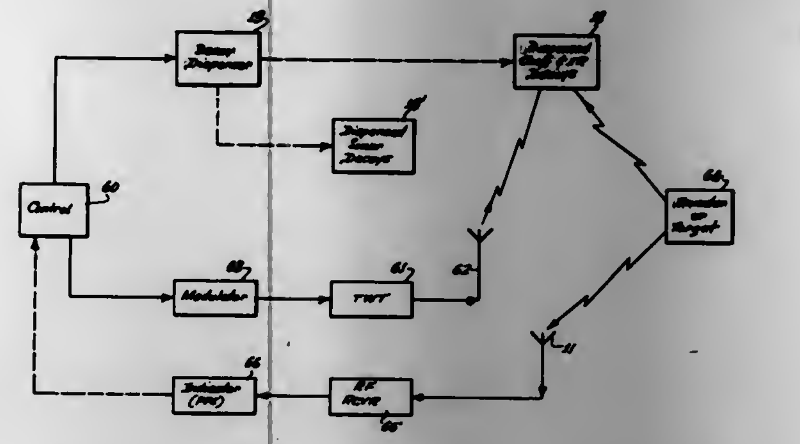
3,836,968
COUNTER MEASURES SYSTEM

George H. Schillreff, Glendora, Calif., assignor to General Dynamics Corporation, Pomona, Calif.

Filed Aug. 12, 1964, Ser. No. 389,525

Int. Cl. H04k ***3/00***

U.S. Cl. 343—18 E **8 Claims**



6. A system for providing protective cover for a craft subject to attack comprising: electronic apparatus adapted for receiving signals from a possible attacker, apparatus operatively connected with said electronic apparatus for indicating the position of an attacker, decoy dispensing means, means for controlling said decoy dispensing means, said decoy dispensing means being adapted to launch infrared and microwave-reflecting decoys, and means for intermittently illuminating said microwave reflecting decoys with energy corresponding in frequency and phase with the signals received from an attacker, said illuminating means being operatively connected to said controlling means.

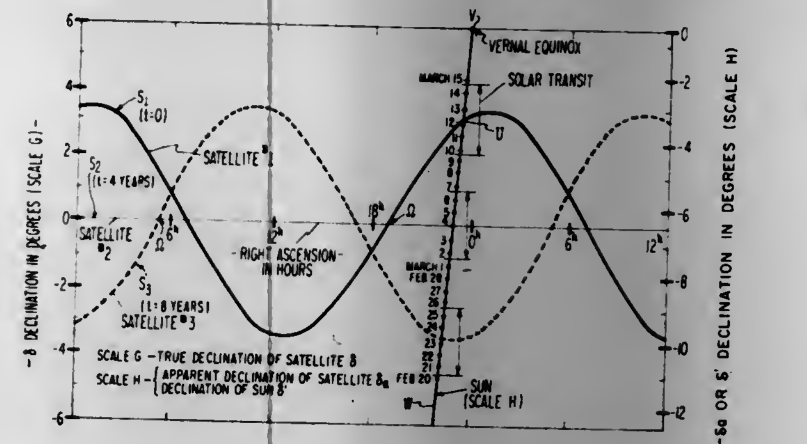
3,836,969
GEO-SYNCHRONOUS SATELLITES IN QUASI-EQUATORIAL ORBITS

Dold Spencer Bond, Princeton, and John Michael Leigh Holman, Cranbury, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 26, 1971, Ser. No. 192,083

Int. Cl. H04b ***7/20***

U.S. Cl. 343—100 ST **18 Claims**



The method of the selection of launch conditions for a satellite at substantially synchronous altitude above the earth in a slightly inclined orbit relative to the equatorial plane of the earth to limit the inclination that may be induced by perturbations for significantly long periods of time without the need of orbit adjusting means (north-south station keeping means) aboard the satellite. One or more such satellites are arranged in a communication system in cooperation with at least one ground station. In a two-satellite system a communication channel is continuously operated between at least one satellite and the ground station notwithstanding solar outages.

3,836,970
ANTENNA ARRAY FOR AIRCRAFT NAVIGATION SYSTEM

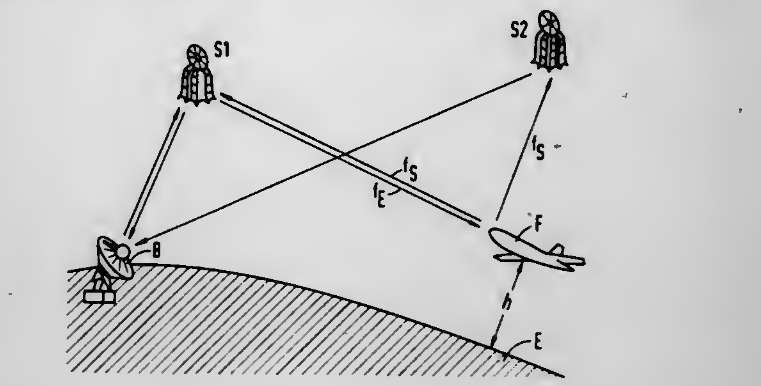
Rafael Reitzig, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Filed May 19, 1972, Ser. No. 254,893

Claims priority, application Germany, June 8, 1971, 2128524

Int. Cl. H01q ***3/26***

U.S. Cl. 343—100 ST **11 Claims**



An electronically phased control antenna array having a number of radiators which are to be controlled so as to form two beams respectively pointed toward two separate earth satellites in an aeronautical satellite navigation system and wherein the two antenna arrays are controlled through a Butler matrix comprising a distribution network having phase rotation elements and wherein a plurality of outputs which differ in phase are selectively obtained so as to control the direction of the antenna beam, thus maintaining the antenna arrays respectively pointed at the satellites. The selection of the switching control for the matrices which control the antenna arrays may be accomplished by the use of a computer which has a memory for programming the switching in response to a prior flight path over the same region. Alternatively, the outputs from the antenna arrays and matrix may be sampled and the switches of the matrices controlled so as to obtain the largest signal thus assuring that the arrays are pointing toward the satellites.

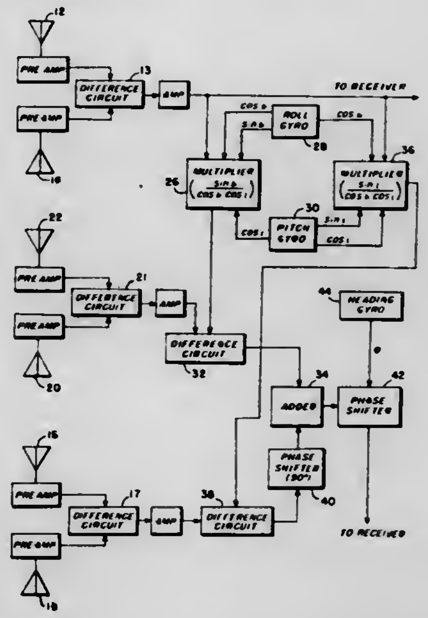
3,836,971
AIRCRAFT VLF RECEIVING ANTENNA

John E. Bickel, and Robert J. Gallenberger, both of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 12, 1973, Ser. No. 331,431

Int. Cl. H04b ***7/00***

U.S. Cl. 343—100 PE **4 Claims**



Apparatus for receiving the horizontal electric field component of incoming VLF signals to improve airborne communication systems. Vertical antenna elements and horizontal antenna elements are positioned in space quadrature with respect to each other about the fuselage of an aircraft to receive the vertical component and noise, and the horizontal component, respectively, when the aircraft is flying level. Vertically polarized signal and noise received by the two antennas when the aircraft bank angle and pitch are not zero are subtracted from the output of the horizontal antenna elements.

3,836,972

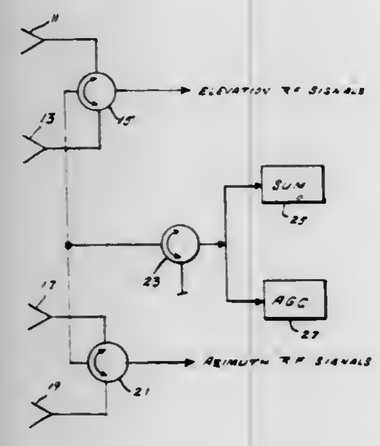
FOUR-HORN RADIOMETRIC TRACKING RF SYSTEM

William H. Conway, Hacienda Heights, and Jerry C. Aukland, Fullerton, both of Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Apr. 16, 1973, Ser. No. 351,670

Int. Cl. G01w *1/00*

U.S. Cl. 343—100 ME **3 Claims**



A radiometric system having two pairs of null seeking horns with two positional outputs and an amplitude output for summing and automatic gain control. The positional output in each pair is constantly switched alternately between adjacent horns in each pair. Each of the horns not connected to the positional outputs is fed to a third switch which feeds the sum and the AGC circuits.

3,836,973

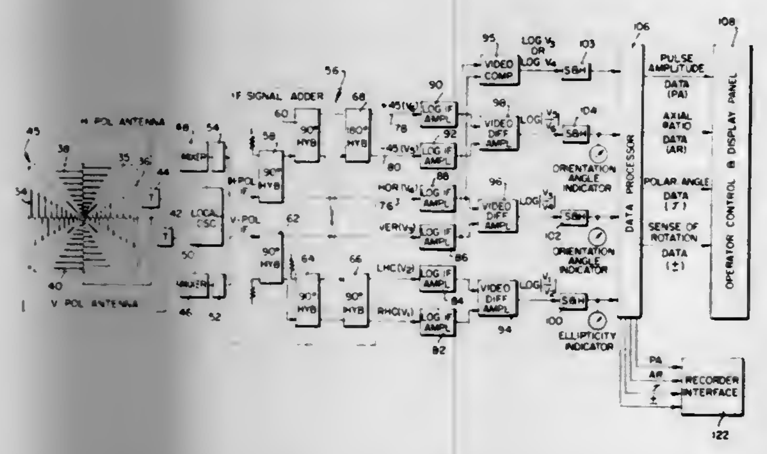
POLARIMETER APPARATUS

Harold Shnitkin, Roslyn; Albert Tashjian, Islip, and Edward J. Shubel, Plainview, all of N.Y., assignors to Maxson Electronics Corporation, Great River, N.Y.

Filed Sept. 29, 1972, Ser. No. 293,443

Int. Cl. G01s *5/02*

U.S. Cl. 343—113 R **8 Claims**



An antenna and receiver system measures the polarization characteristics of an incident radio frequency signal. The system employs a signal processor for generating digital output signals indicating the angular orientation of the electric field vector of the arriving wave for a linearly polarized wave, or the degree of ellipticity and the orientation of the major axis for elliptically polarized incident waves. The signal processing is accomplished by means of a signal adder, six channels of log IF amplification and three video difference amplifiers.

3,836,974

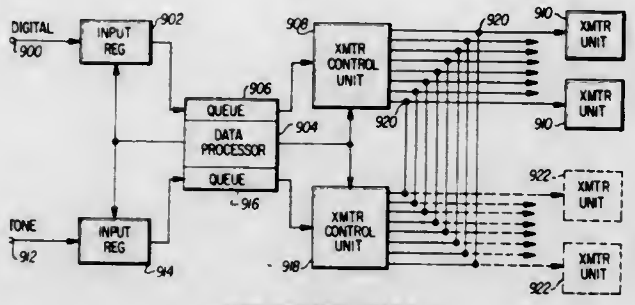
TRANSMITTER SEQUENCING METHOD AND APPARATUS

Joel Douglas Wells, Orlando, Fla., assignor to Martin Marietta Corporation, Orlando, Fla.

Filed Oct. 25, 1971, Ser. No. 191,727

Int. Cl. H04b *1/02*

U.S. Cl. 343—208 **12 Claims**



DIGITAL/TONE SYSTEM COMPATABILITY

A plural transmitter, digital data transmission and remote control system in the environment of a paging system in which mutual interference by the transmitters is eliminated through the sequencing thereof. Embodiments compatible with existing tone systems are disclosed for both plural system-single area operation and for plural system-plural area operation.

3,836,975

LOGARITHMIC, PERIODICAL ANTENNA ARRAY

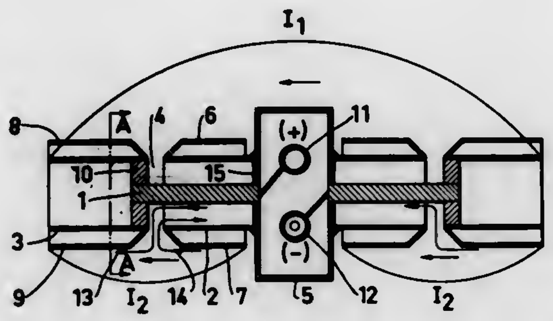
Erland Cassel, Djursholm, Sweden, assignor to Allgon Antenn AB, Akersberga, Sweden

Filed Mar. 1, 1973, Ser. No. 337,176

Claims priority, application Sweden, Mar. 9, 1972, 4082/72

Int. Cl. H01q *9/16, 9/28, 11/10*

U.S. Cl. 343—792.5 **7 Claims**



The invention relates to a logarithmic, periodical antenna array with dipoles of varying length attached to a boom, surrounding feeders in contact with the radiator elements of the dipoles. The antenna preferably has adjustable operating direction. In order to enable the use of the antenna for two different frequency ranges, each half-wave dipole has a central portion protruding from the boom and surrounded by two tubular collinear members separated by a gap. The inner member is only secured to the boom, and the outer member only to the end of the arm. Free outside and along it, at least one of the tubular members has a metal member, only attached to the end of the tube at the gap. In the lower frequency range the current distribution half-wave reaches between the outer tubular members in each dipole pair, and in the higher frequency range the outside metal members will give one current distribution half-wave over each radiator element in a dipole pair.

3,836,976

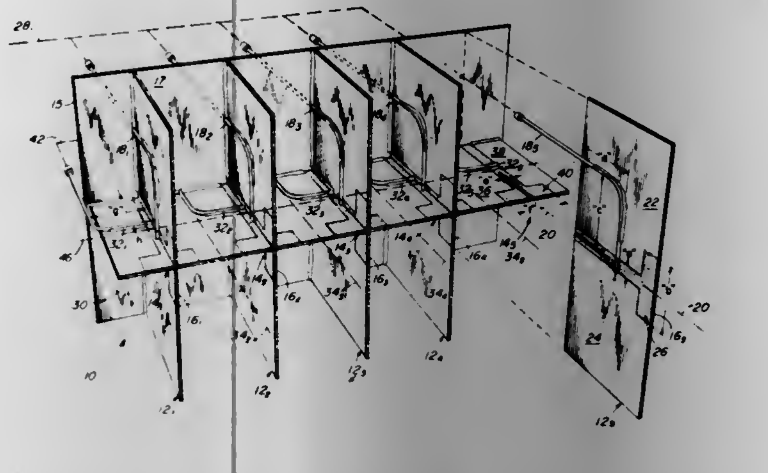
CLOSELY SPACED ORTHOGONAL DIPOLE ARRAY

George J. Monser; George S. Hardie; John R. Ehrhardt, Santa Barbara, and Terry M. Smith, San Francisco, all of Calif., assignors to Raytheon Company, Lexington, Mass.

Filed Apr. 19, 1973, Ser. No. 352,760

Int. Cl. H01q *9/28*

U.S. Cl. 343—795 **8 Claims**



A broadband phased array antenna is shown wherein pairs of mutually orthogonal printed radiating elements, each one of such elements having a flared notch formed therein, are adapted to transmit or receive radio frequency energy having any one of a variety of polarizations.

3,836,977

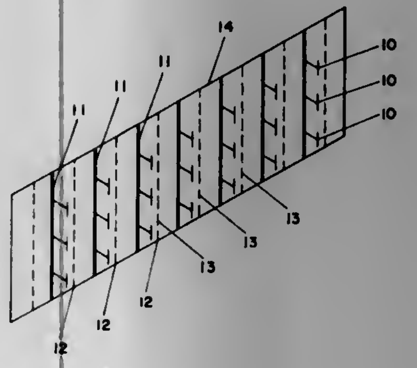
ANTENNA SYSTEM HAVING A REFLECTOR WITH A SUBSTANTIALLY OPEN CONSTRUCTION

Harold A. Wheeler, Smithtown, N.Y., assignor to Hazeltine Corporation, Greenlawn, N.Y.

Filed June 25, 1973, Ser. No. 373,203

Int. Cl. H01q *21/12*

U.S. Cl. 343—815 **13 Claims**



Disclosed is an antenna system having a reflector with an open construction and improved suppression of radiation leakage through the reflector. One embodiment of the invention includes a planar grid of parallel conductive columns having linearly polarized antenna elements mounted on the columns, with the polarization of the elements parallel to the columns. Colinear arrays of tuned reflective elements are interspersed with the columns to cause suppression of radiation leakage through the grid of conductive columns. The planar grid and colinear arrays collectively form a reflector which is open to passage of wind but closed to passage of electromagnetic wave energy.

3,836,978

COMMUTATED ANTENNA ARRAY WITH GRATING LOBE REDUCTION MEANS IN A DOPPLER RADIO NAVIGATION BEACON SYSTEM

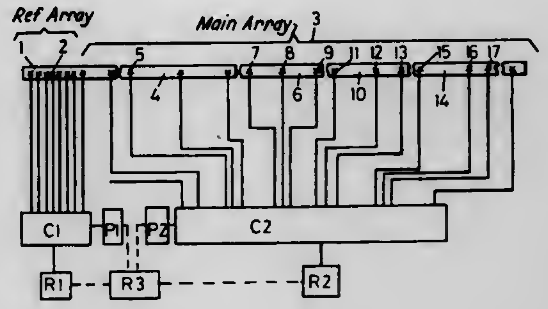
Francis Giles Overbury, Cuffley, England, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Oct. 23, 1973, Ser. No. 408,460

Claims priority, application Great Britain, Oct. 31, 1972, 50050/72

Int. Cl. H01q *3/24;* **G01s** *1/44*

U.S. Cl. 343—854 **6 Claims**



A commutated antenna array for a Doppler type radio navigation beacon system in which there are reference and main arrays. A limited number of additional elements are added to the main array on a semi-random basis and an adjustment in the commutated reference cycle is made in accordance with main array element spacing. Multi-path problems resulting from use of wide antenna spacing in the main array of a commutated reference Doppler Beacon are reduced.

3,836,979

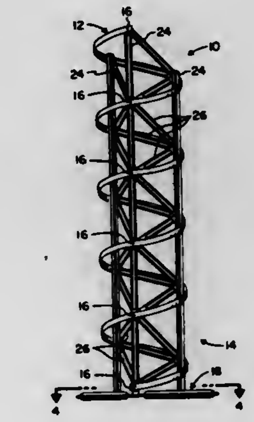
LIGHTWEIGHT DEPLOYABLE HELICAL ANTENNA

Richard M. Kurland, Sherman Oaks, and Gelb N. Fruktow, Los Angeles, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Dec. 14, 1973, Ser. No. 425,022

Int. Cl. H01q *1/36*

U.S. Cl. 343—881 **9 Claims**



A lightweight deployable helical antenna having a thin, flat electrically conductive radiator strip helically coiled about an axially extensible and contractable supporting structure and pivotally secured at intervals to the structure in a manner such that the antenna is longitudinally contractable to a collapsed configuration and extendible to a deployed configuration. In the preferred embodiment, the antenna supporting structure is a truss frame structure constructed of tubular, resiliently flexible elastic strain energy deployable beams which deform when the frame structure is contracted to store elastic strain energy for extending the antenna to its deployed configuration.

3,836,980

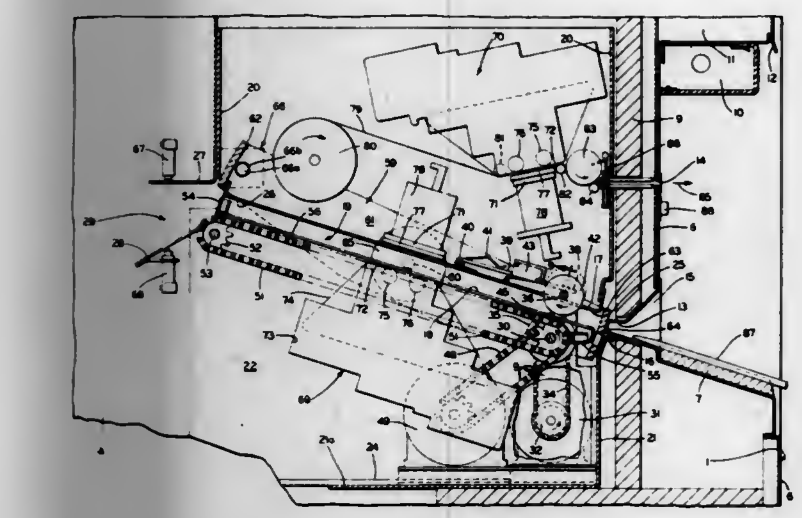
REMOTE DEPOSITORY CONSTRUCTION

Leo J. Grosswiller, Jr., East Canton; Fritz A. Deutsch, Cleveland, and Paul A. Leipelt, Canton, all of Ohio, assignors to Diebold, Incorporated, Canton, Ohio

Filed May 3, 1973, Ser. No. 356,715

Int. Cl. G07g *5/00*

U.S. Cl. 346—22 **27 Claims**



A depository construction for accepting bank deposits at an unattended deposit station unit which may be installed as an individual unit or in conjunction with remote automatic cash dispensing banking equipment. The depository procedure is initiated for automatic operation by pressing a button, use of a key or the insertion of a customer identifying card. A horizontal entry slot is opened to accept a deposit-containing envelope having a predetermined maximum size and maximum thickness when filled. The inserted envelope automatically is power conveyed slightly upward during an operating cycle from the deposit station through the opened entry slot into a security chamber. The entry slot is closed on arrival of the envelope at the security chamber and a receipt number and preferably other selected transaction data is printed on the deposit envelope. At the same time, identical data is printed on a receipt. The deposit envelope then is discharged through an exit opening from the security chamber to a deposit chest. Passage of the envelope to the deposit chest is sensed and then the receipt is delivered to the depositor-customer at the deposit station. A pivoted or rocking control member closes the exit opening when the entry slot is opened, and the exit opening is opened when the entry slot is closed. The entry slot preferably closes after a predetermined time interval if no deposit is made during such time interval. The operation of the various components of the depository mechanism is coordinated to protect the deposit at all times, once operation of the mechanism is initiated and completed by the issuance of a receipt after the deposit envelope has safely reached the deposit chest.

3,836,981

MULTIPLE NEEDLE ELECTRODE DEVICE FOR ELECTROSTATIC RECORDING

Haruo Kusano, Yokohama, and Norisada Takeuchi, Ksaukabe, both of Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

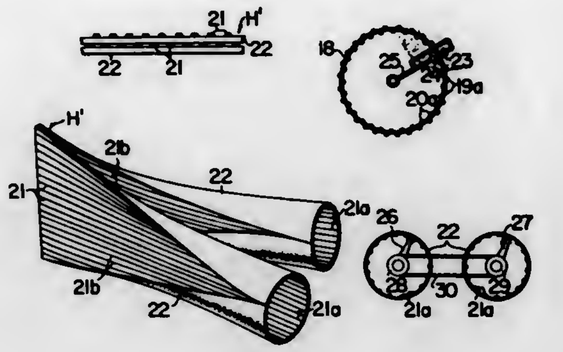
Filed May 10, 1972, Ser. No. 251,907

Claims priority, application Japan, May 15, 1971, 46/32584

Int. Cl. G03g *13/00, 15/00*

U.S. Cl. 346—74 ES **5 Claims**

A multiple needle electrode device comprising at least one signal introducing section including a number of input terminals arranged in a circle, a recording head having a number of electrodes adjacently arranged in two rows with the electrodes of the two rows being disposed in staggered relationship such that the electrodes of one row are disposed adjacent the spaces between the electrodes of the other row, and a number of lead-in conductors connecting the input terminals to the respective electrodes. The electrodes, conductors and terminals may be mounted on one or more insulating base boards whose portions may be twisted into various cylindrical shapes



to facilitate the introduction of input signals to the input terminals. Signals supplied to the signal introducing section can be recorded on an electrostatic recording sheet by the recording head at greater speed and with improved resolution.

3,836,982

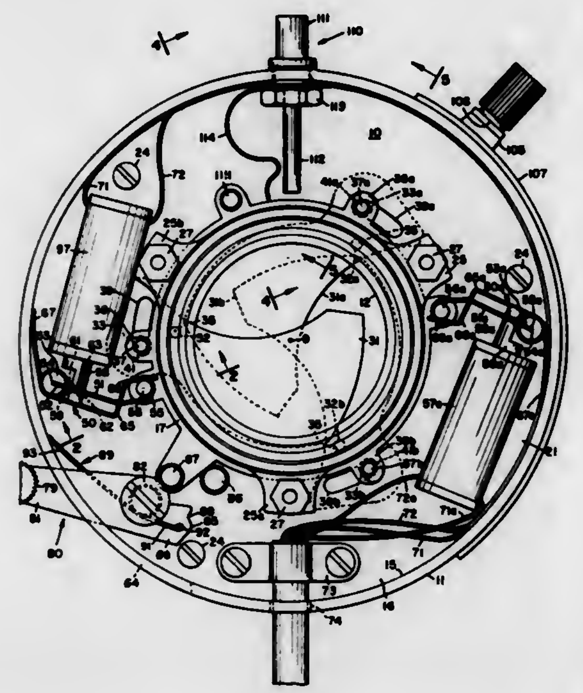
LOW INERTIA ELECTRONIC CAMERA SHUTTER

Joseph E. Schwartz, Irondequoit, N.Y., assignor to Opto Dynetics Inc., Rochester, N.Y.

Filed July 23, 1973, Ser. No. 381,757

Int. Cl. G03b *9/22*

U.S. Cl. 354—234 **10 Claims**



A low inertial electronic camera shutter is disclosed wherein a ring member coaxially aligned with a bore in a housing pivotally moves a plurality of shutter blades in registry with the bore between open and closed positions for controlling light radiation through the bore. In accordance with the invention, a low inertial means including a longitudinal wire member connected between the ring member and the frame at a pivot point thereon, drives the plurality of shutter blades between the two positions in response to a pulse applied to a solenoid having an armature connected to the wire member at a point thereon to amplify armature movement. The camera shutter includes a flash means including an electrical contact switch actuated by the ring member when the shutter blades are driven into the open position.

3,836,983

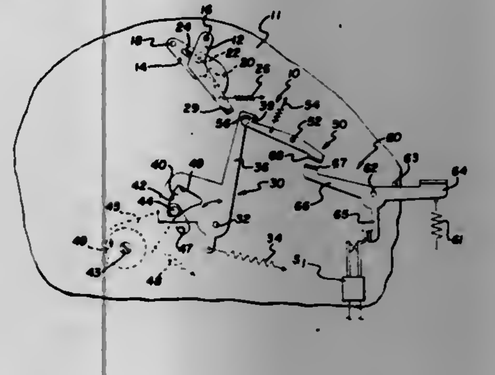
EXPOSURE CONTROL APPARATUS

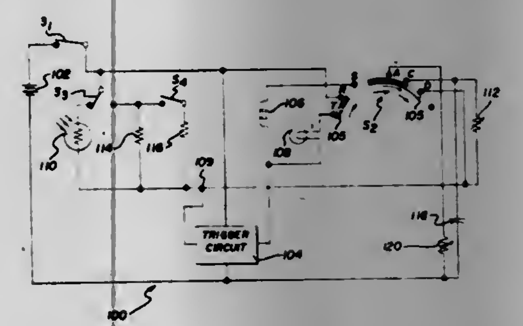
Lawrence M. Wood, Spencerport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 278,908, Aug. 9, 1972, abandoned. This application Nov. 29, 1973, Ser. No. 420,184

Int. Cl. G03b *7/08*

U.S. Cl. 354—258 **2 Claims**





Exposure control apparatus for use in photographic equipment for providing an exposure of a light sensitive medium to light. The apparatus includes means defining an exposure aperture through which the light passes to strike the medium, and shutter means movable to define open and closed conditions of the exposure aperture. Impact means are provided for moving the shutter means to define the open and closed conditions, and light responsive, circuit means control the movement of the impact means. The impact means position the shutter means to define the open condition for an interval of time which varies in relation to the intensity of the light. During exposure in light intensity above a preselected intensity level, the circuit means control the impact means for automatically actuating the shutter means to define the open condition for a preselected interval of time.

3,836,984

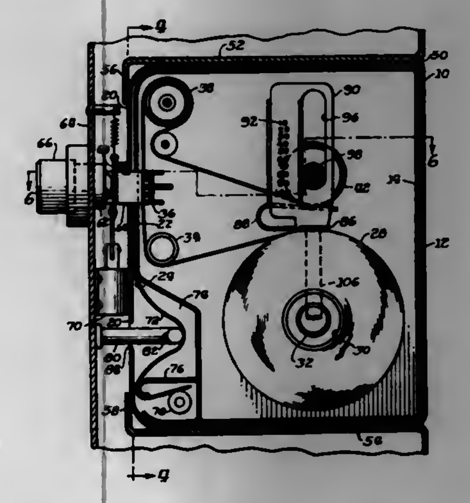
LIGHT SEALED FILM CARTRIDGE

Heinz E. Hertel, Mount Prospect, and George K. Konagamitsu, Chicago, both of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed Apr. 9, 1973, Ser. No. 349,495

Int. Cl. G03b *17/26*

U.S. Cl. 354—275 **10 Claims**



A self-threading, light sealed film cartridge having a curtain device located outside the light sealed portion of the cartridge and adapted to automatically cover and uncover an exposure window in the cartridge. The film end is fixed to the core of a film supply reel, whereby a portion of the film remains adjacent the exposure window after the film in the cartridge has been exposed, enabling removal of the exposed film through the exposure window in the cartridge without destroying the cartridge. A combined film spring compression device, film footage indicator and end-of-reel switch actuator is located in the cartridge, and is formed from a single piece of molded material.

3,836,985

MINIATURE CAMERA WITH FRONT WALL COVER

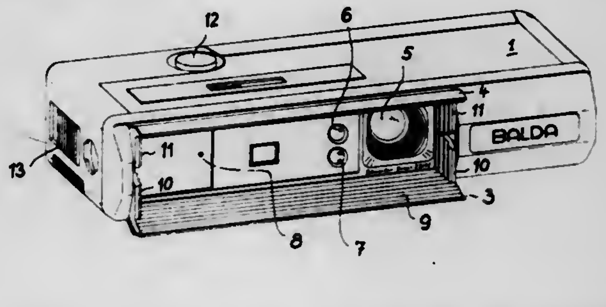
Karl-Heinz Lange, Bunde, Germany, assignor to Balda-Werke Photographische Gerate Und Kunststoff GmbH & Co. KG, Bunde, Germany

Filed May 29, 1973, Ser. No. 364,856

Claims priority, application Germany, June 2, 1972, 2226808

Int. Cl. G03b *11/04, 19/00*

U.S. Cl. 354—287 **10 Claims**



A miniature camera having a generally rectangular front wall provided with elongated top and bottom edges and opposed end edges which are substantially shorter than the top and bottom edges. At least one cover plate is pivotally connected to the housing of the camera for swinging movement about an axis parallel to the top and bottom edges of the front wall between a closed position covering at least part of the front wall and an open position uncovering the latter part of the front wall. This part of the front wall is provided with openings through which light can reach an objective and a viewfinder, so that when the cover plate is in its closed position these openings are covered to protect the objective and viewfinder against dust, foreign matter, and the like.

3,836,986

TRIPOD FOR CAMERA

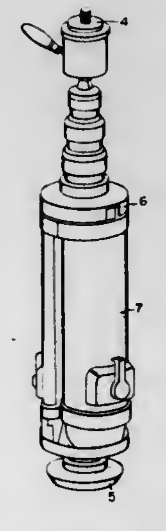
Michio Kawazoe, 799-17, Higashi-Oizumi, Nerima-ku, Tokyo, Japan

Filed Feb. 9, 1973, Ser. No. 331,255

Claims priority, application Japan, Feb. 10, 1972, 47-16989

Int. Cl. G03b *17/56*

U.S. Cl. 354—293 **1 Claim**



A camera support comprises a spindle within which are telescopically fitted sleeves which can be extended so that the spindle can be extended vertically from a relatively small length to a larger length at the top of which a camera can be attached. The spindle is provided with three pivoting legs each having telescoping sections so that the legs can be extended. The legs can be pivoted from the spindle outwardly toward the bottom to form a tripod. The legs are in the shape of partial sectors of a circle so that when the legs with their telescoped sections retracted, are pivoted inward to the spindle they form a cylindrical surface around the spindle, in which form the camera support is a unipod.

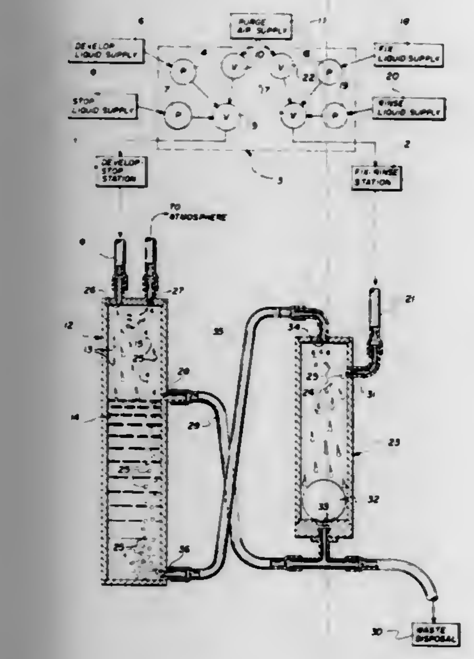
3,836,987

PHOTOGRAPHIC CHEMICAL WASTE HANDLING APPARATUS AND METHOD

Burton C. Gibbons, Henrietta, and Harry L. Westacott, Fairport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed June 4, 1973, Ser. No. 366,819
Int. Cl. G03d *7/00*

U.S. Cl. 354—300 **8 Claims**



A waste gas and a waste liquid, containing chemicals which have been used in the processing of film, are brought into contact with each other in a waste holding chamber. During such contact, the waste liquid serves to substantially completely remove a noxious substance from the waste gas. Thereafter, the waste gas is vented from the chamber into the atmosphere without the polluting affect that the noxious substance might otherwise produce.

3,836,988

SEMICONDUCTOR DEVICES

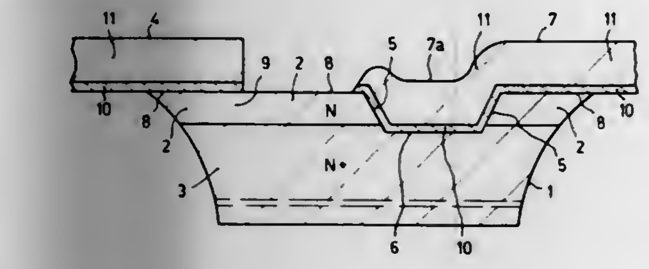
Kenneth Board, Salfords, near Redhill, England, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 19, 1973, Ser. No. 416,992

Claims priority, application Great Britain, Nov. 24, 1973, 54388/73

Int. Cl. H03b *7/00*

U.S. Cl. 357—3 **9 Claims**



A beam lead contact arrangement for a Gunn diode, having a lightly doped active layer on a heavily doped substrate. One contact connects to the top surface of the active layer, while the other contact is connected to the heavily doped substrate through a hole in the active layer. The second contact also makes contact to the active layer, but current flow is vertical through the layer due to spreading resistance.

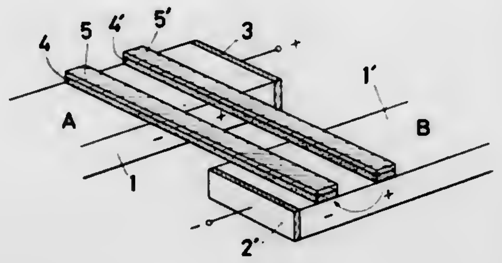
3,836,989

BULK SEMICONDUCTOR DEVICE

Shoei Kataoka; Nobuo Hashizume, both of Tokyo; Kazutaka Tomizawa, Kamagaya; Mititada Morisue, Urawa, and Yasuo Komamiya, Yokohama, all of Japan, assignors to Agency of Industrial Science & Technology, Tokyo, Japan

Filed Feb. 15, 1973, Ser. No. 332,730
Int. Cl. H03k *17/72*

U.S. Cl. 357—3 **28 Claims**



Disclosed is a semiconductor device comprising at least two semiconductor elements integrally connected by an insulator, each semiconductor showing negative differential conductivity under the influence of a high electric field. A high electric field domain or space charges which are generated in one of the semiconductor elements can be transferred to the other element by directly affecting the other element via an insulator.

3,836,990

ELECTRICAL COMPONENT

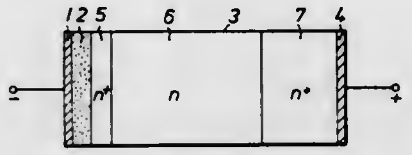
Wolfgang Harth, Braunschweig, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt/Main, Germany

Filed Feb. 16, 1973, Ser. No. 332,814

Claims priority, application Germany, Mar. 2, 1972, 2209979

Int. Cl. H01l *3/00*

U.S. Cl. 317—234 **9 Claims**



An electrical component comprises a multilayer body having a layer sequence metal, insulator, semiconductor, metal.

3,836,991

SEMICONDUCTOR DEVICE HAVING EPITAXIAL REGION OF PREDETERMINED THICKNESS

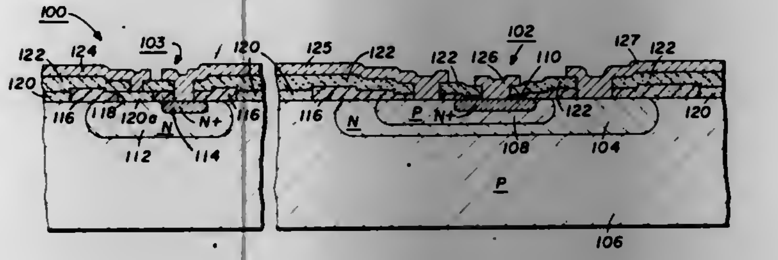
William M. Portnoy, Richardson; Warren P. Waters, Dallas, and Emery C. Wisman, Richardson, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 88,139, Nov. 9, 1970, abandoned, which is a division of Ser. No. 470,456, July 8, 1965, Pat. No. 3,615,929. This application Feb. 23, 1973, Ser. No. 335,270
Int. Cl. H01l *19/00*

U.S. Cl. 357—15 **8 Claims**

This disclosure concerns a semiconductor device including a semiconductor substrate, an oxide layer of preselected thickness disposed on a surface of the substrate, and a

semiconductor epitaxial plug located within an opening provided in the oxide layer so as to be disposed on the surface of the substrate. The thickness of the epitaxial plug is predetermined and controlled by the thickness of the oxide layer which is arranged in confining relationship therewith. In one specific application, the device may take the form of a metal-semiconductor diode construction where the epitaxial plug is of high resistivity and overlies a portion of a diffused region of lower resistivity formed in the surface of the substrate. The oxide layer in which the epitaxial plug is confined has a second opening extending through the thickness thereof in registration with the diffused region of lower resistivity in the substrate, with a first conductor strip extending through the second opening in the oxide layer into ohmic contact with the diffused region and a second conductor strip being disposed in rectifying contact with the epitaxial plug.



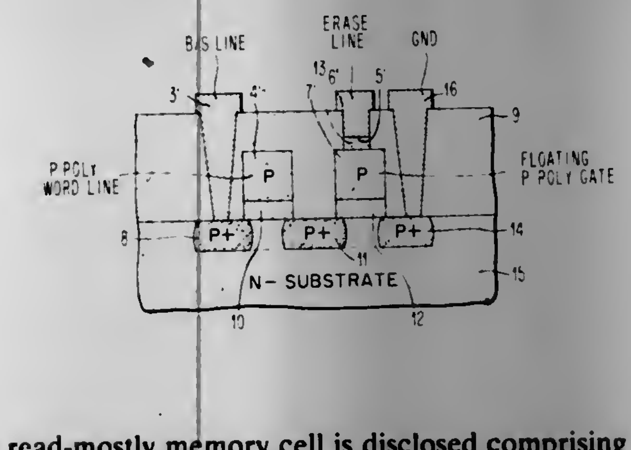
3,836,992

ELECTRICALLY ERASABLE FLOATING GATE FET MEMORY CELL

Shakir A. Abbas; Conrad A. Barile; Ralph D. Lane, all of Wappingers Falls, and Peter T. Liu, Beacon, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 16, 1973, Ser. No. 341,814
Int. Cl. H01l *11/14*

U.S. Cl. 357—23 **6 Claims**



A read-mostly memory cell is disclosed comprising a floating gate avalanche injection field effect transistor storage device equipped with an erasing electrode. The memory portion of the erasable storage devices comprises a P channel FET having a floating polycrystalline silicon gate separated from an N-doped substrate by a layer of silicon dioxide. The erasing portion of the device comprises an erasing electrode separated from the polycrystalline silicon floating gate by a thermally grown layer of silicon dioxide having a leakage characteristic which is low in the presence of low electrical fields and high in the presence of high electrical fields. The floating gate is heavily doped with boron which also partially dopes the thermally grown silicon dioxide layer. The floating gate is charged negatively by avalanche breakdown of the FET drain while the erase gate is grounded to the substrate. The floating gate is discharged (erased) upon the application of a positive pulse to the erase electrode with respect to the semiconductor substrate causing electrodes on the charged floating gate to leak through the thermal oxide to the erasing electrode.

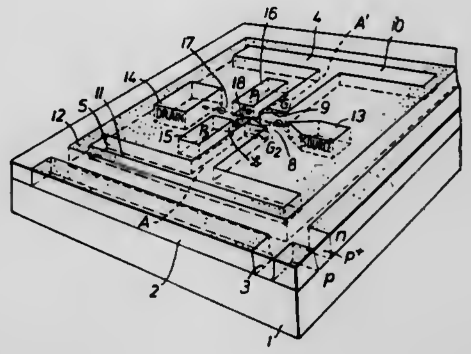
3,836,993

MAGNETIC FIELD DEPENDENT FIELD EFFECT TRANSISTOR

Vishnuprakash Joshi, Bangalore, India, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Continuation of Ser. No. 212,510, Dec. 27, 1971, abandoned. This application Oct. 18, 1973, Ser. No. 407,669
Int. Cl. H01l *11/14*

U.S. Cl. 357—27 **15 Claims**



A magnetic field effect transistor comprises a semiconductor body with a region of a specific type of conductivity, a source and a drain electrode between which is provided a channel region formed by a narrowed part of the region of the specific type of conductivity at least one barrier layer defining the channel region and controlling the channel region through the space charge region issuing from the barrier layer, and at least one additional electrode positioned laterally of the direct charge carrier path between the source and drain electrodes and to which at least part of the charge carrier can be deflected in the presence of a suitable magnetic field.

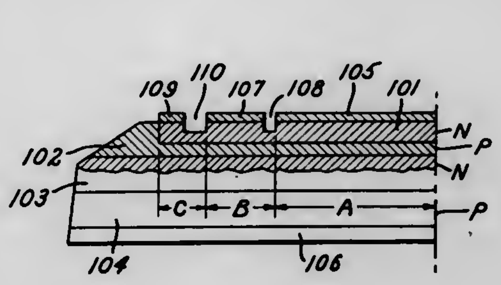
3,836,994

THYRISTOR OVERVOLTAGE PROTECTIVE ELEMENT

Dante E. Piccone, Philadelphia; Istvan Somos, and James E. McIntyre, both of Lansdowne, all of Pa., assignors to General Electric Company, Philadelphia, Pa.

Continuation of Ser. No. 198,798, Nov. 15, 1971, abandoned, which is a division of Ser. No. 88,853, Nov. 12, 1970, , which is a continuation-in-part of Ser. No. 820,959, May 1, 1969, Pat. No. 3,662,845. This application July 5, 1973, Ser. No. 376,766. The portion of the term of this patent subsequent to Nov. 23, 1988, has been disclaimed.
Int. Cl. H01l *9/12*

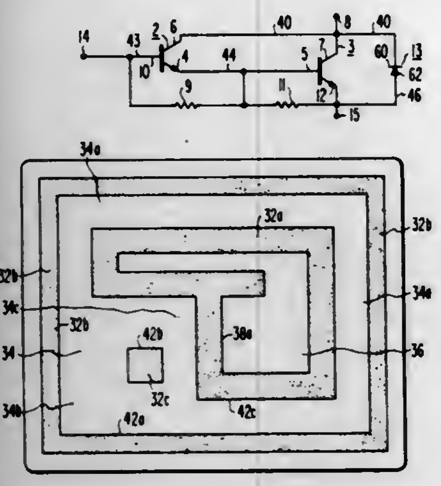
U.S. Cl. 357—38 **7 Claims**



A PNPN semiconductor element comprises an improved double-triggering device wherein two concentric electrodeless auxiliary regions are provided in one end layer, the two regions being so constructed and arranged that the outboard one has an underpass effect and the other one does not.

3,836,995
SEMICONDUCTOR DARLINGTON CIRCUIT

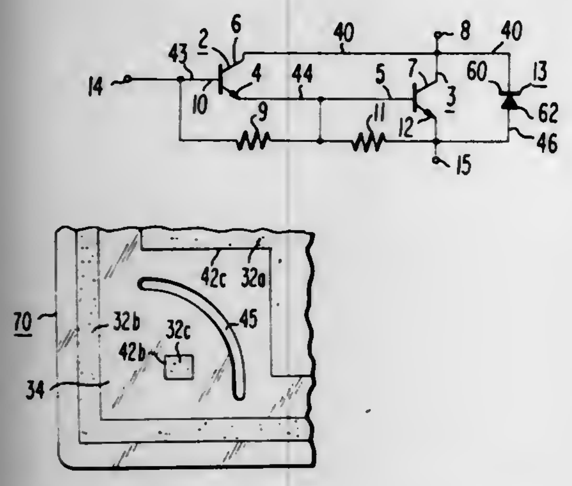
Carl Franklin Wheatley, Jr., Somerset, and Willem Gerard Einthoven, Belle Mead, both of N.J., assignors to RCA Corporation, New York, N.Y.
Filed May 25, 1973, Ser. No. 363,881
Int. Cl. H01l *12/00*
U.S. Cl. 357—46 4 Claims



A semiconductor integrated Darlington circuit is provided comprising two transistors, two resistors, and a diode within a body of semiconductor material. The emitter region of one of the transistors completely encircles the emitter region of the other transistor at a surface of the body, whereby certain paths for current from the base contact of the one transistor beneath and around the emitter region thereof are significantly longer than those present in prior art devices, thus contributing to a higher value of one of the device resistors.

3,836,996
SEMICONDUCTOR DARLINGTON CIRCUIT

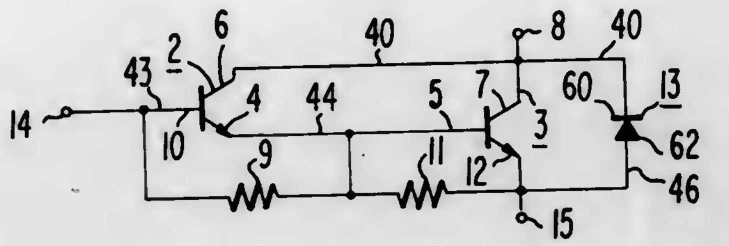
William Henry Schilp, Flemington, and Albert Alexander Todd, Piscataway, both of N.J., assignors to RCA Corporation, New York, N.Y.
Filed Sept. 26, 1973, Ser. No. 400,974
Int. Cl. H01l *12/00*
U.S. Cl. 357—46 3 Claims

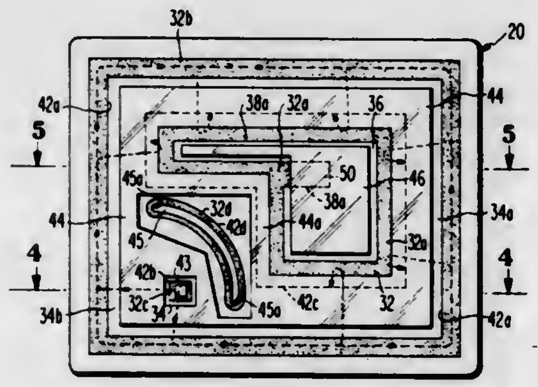


A semiconductor integrated Darlington circuit is provided including an input transistor driving an output transistor, two resistors, and a diode within a body of semiconductor material. The emitter and base regions of the transistors extend to a surface of the body, and, at such surface, the base region of the input transistor is surrounded by the emitter region thereof while a portion of the base region of the output transistor is disposed between the emitter regions of the two transistors. For increasing the resistance between the base regions of the two transistors, a slot is provided through the surface at a position within the emitter region of the input transistor and between the base regions of the two transistors.

3,836,997
SEMICONDUCTOR DARLINGTON CIRCUIT

Willem Gerard Einthoven, Belle Mead; William Henry Schilp, Flemington, and Albert Alexander Todd, Piscataway, all of N.J., assignors to RCA Corporation
Filed Sept. 26, 1973, Ser. No. 400,975
Int. Cl. H01l *12/00*
U.S. Cl. 357—46 4 Claims



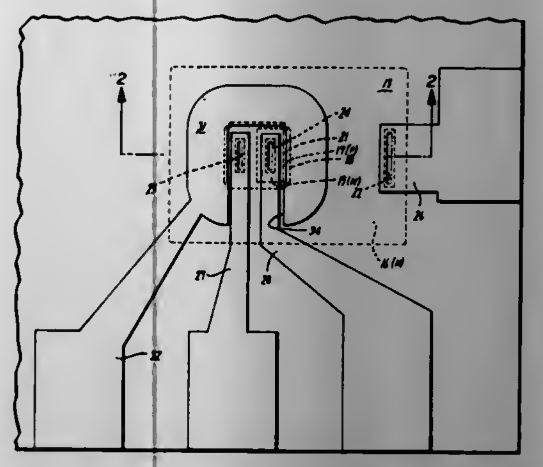


A semiconductor integrated Darlington circuit is provided including an input transistor driving an output transistor, two resistors, and a diode within a body of semiconductor material. The emitter and base regions of the transistors extend to a surface of the body, and, at such surface, the base region of the input transistor is surrounded by the emitter region thereof while a portion of the base region of the output transistor is disposed between the emitter regions of the two transistors. For increasing the resistance between the base regions of the two transistors, a slot is provided through the surface at a position within the emitter region of the input transistor and between the base regions of the two transistors.

3,836,998
HIGH VOLTAGE BIPOLAR SEMICONDUCTOR DEVICE AND INTEGRATED CIRCUIT USING THE SAME AND METHOD

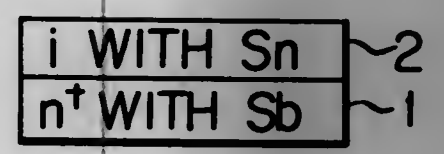
Joseph Kocsis, Mountain View, and Bohumil Polata, Los Altos, both of Calif., assignors to Signetics Corporation, Sunnyvale, Calif.
Continuation of Ser. No. 111,704, Feb. 1, 1971, abandoned, which is a continuation of Ser. No. 791,665, Jan. 16, 1969, abandoned. This application June 21, 1973, Ser. No. 372,427
Int. Cl. H01l *19/00*
U.S. Cl. 357—53 16 Claims

Planar bipolar semiconductor device in which a substantial portion of the collector base junction is covered by an insulating layer and has a layer of metallization overlying a substantial portion of the collector region to cause the depletion layer to be moved into the bulk of the semiconductor body and to be spread over a large area whereby the electric field is greatly reduced to cause breakdown to take place within the semiconductor body rather than at the surface. In an integrated circuit, the bipolar device is isolated by the use of dielectric isolation.



3,836,999
SEMICONDUCTOR WITH GROWN LAYER RELIEVED IN LATTICE STRAIN

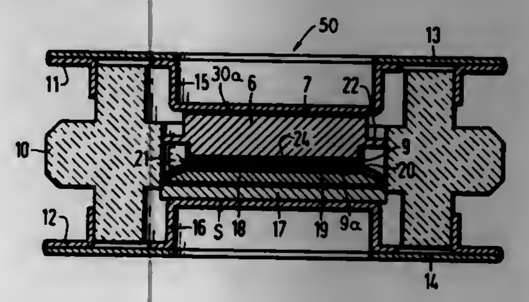
Jun-Ichi Nishizawa, Sendai, Japan, assignor to Semiconductor Research Foundation, Kawauchi, City of Sendai, Japan
Continuation of Ser. No. 181,321, Sept. 17, 1971, abandoned. This application Dec. 5, 1973, Ser. No. 421,858
Claims priority, application Japan, Sept. 21, 1970, 45-83257
Int. Cl. H01l *9/10*
U.S. Cl. 357—63 6 Claims



A substrate of silicon intrinsic or highly doped with an impurity such as antimony has epitaxially grown on it a layer of silicon either highly doped with an impurity, for example, phosphorous or nearly intrinsic and doped with a neutral impurity such as tin to render the substrate equal to the grown layer in the lattice constant.

3,837,000
SEMICONDUCTOR DEVICEHAVING A SILVER LAYER IN PRESSURE CONTACT WITH THE DEVICE SURFACE

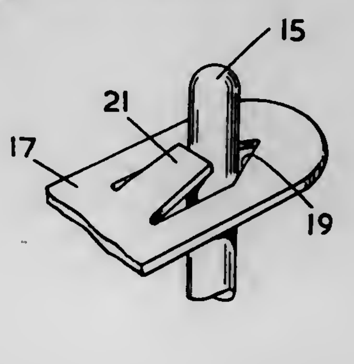
Karl Platzoeder; Heinz Martin, and Reimer Emeis, all of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Nov. 7, 1973, Ser. No. 413,650
Claims priority, application Germany, Nov. 21, 1972, 2257078
Int. Cl. H01l *3/00, 5/00*
U.S. Cl. 357—65 11 Claims



A semiconductor component having at least an outer diffusion doped zone and including a silver-plated aluminum electrode thereon and a supply electrode in pressure contact with said silver-plated aluminum electrode. The supply electrode is composed of a metal, such as aluminum or copper, which has a coefficent of thermal expansion different from that of the semiconductor body and has a contacting surface defined by a layer composed of a silver material, which layer is characterized by a thickness of at least 50μ and a surface roughness ranging between 2 to 10μ.

3,837,001
SPRING CONTACT FOR SEMI-CONDUCTOR DEVICES

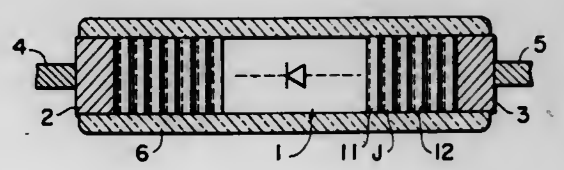
Thomas L. Hughes, and Peter Graham Massey, both of Solihull, England, assignors to Joseph Lucas (Electrical) Limited, Birmingham, England
Continuation of Ser. No. 310,995, Nov. 30, 1972, abandoned. This application Mar. 7, 1974, Ser. No. 448,879
Claims priority, application Great Britain, Dec. 9, 1971, 57143/71
Int. Cl. H01l *3/00, 5/00*
U.S. Cl. 356—65 2 Claims



A semi-conductor device includes a conductive header and a semi-conductor chip secured to the header so that a contact area of the chip is electrically and/or thermally connected to the header. A terminal pin is carried by the header and is insulated therefrom and a metal bridging member extends between the terminal pin and the chip with an end portion of the bridging member engaging a further contact area of the chip to electrically connect the further contact area to the terminal pin. The bridging member is formed remote from the end portion with a slot shaped to define an integral resilient tongue. The terminal pin is received between the free end of the tongue and the wall of the slot adjacent the free end of the tongue and is resiliently urged into engagement with the free end of the tongue and the adjacent wall of the slot at three separate positions angularly spaced around the longitudinal axis of the pin.

3,837,002
GLASS MOLD SEMICONDUCTOR DEVICE

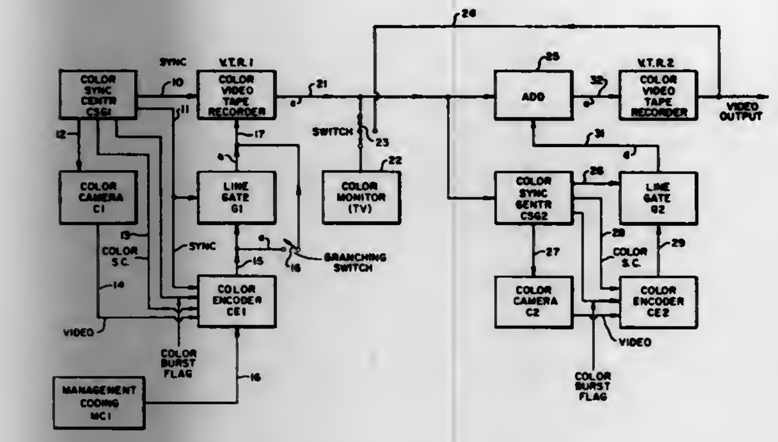
Hisashi Sakamoto; Takeshi Sasaki; Satoshi Mikami, and Yoichi Nakashima, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed May 2, 1973, Ser. No. 356,441
Claims priority, application Japan, May 12, 1972, 47-46337
Int. Cl. H01l *3/00, 5/00*
U.S. Cl. 357—72 26 Claims



A glass mold semiconductor device comprising a semiconductor pellet, a couple of electrodes disposed on both sides of the semiconductor pellet and a glass layer for covering the semiconductor pellet and at least part of the two of electrodes.

3,837,003
VIDEO TAPE RECORDING OF LINE-SHARED TV SIGNALS

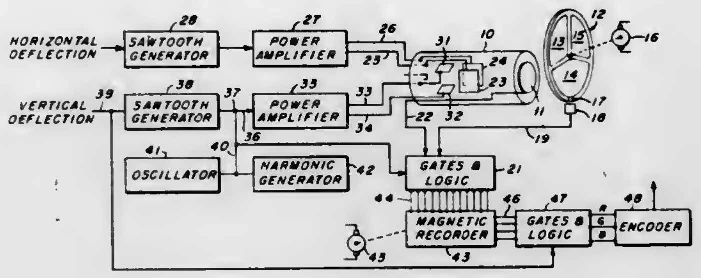
James W. H. Justice, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed May 25, 1973, Ser. No. 364,159
Int. Cl. H04n *5/78, 7/08*
U.S. Cl. 358—4 **10 Claims**



A method and apparatus for producing a tape recording of line-shared video signals corresponding to *n*-separate pictures is accomplished by recording every *n*th line of each picture commencing from a different preselected line. A first tape recorder is used to record a video signal corresponding to one of the *n*-separate pictures by selecting every *n*th line thereof commencing with a preselected line. This recorded video signal includes a recording of horizontal sync pulses and vertical sync pulses. A replayed signal of this recorded video signal is combined by an add circuit with a video signal of another of the *n*-separate pictures consisting of every *n*th line thereof commencing with a preselected line. The second video signal is produced without sync pulses such that one line thereof is followed by a replayed line of recorded video signal. The combined video signals from the add circuit are in the form of line-shared signals which are then recorded onto a single piece of tape.

3,837,004
SCAN CONVERSION WITH MAGNETIC DRUM OR DISC

Paul G. Kennedy, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 21, 1972, Ser. No. 317,332
Int. Cl. H04r *9/42*
U.S. Cl. 358—11 **18 Claims**



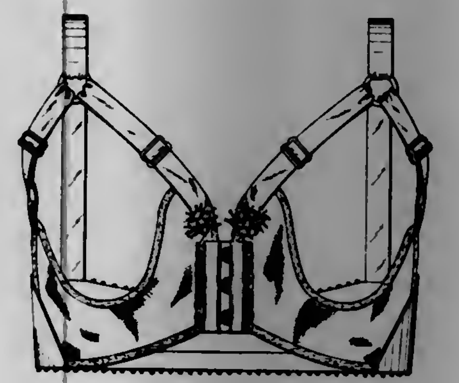
A scan conversion system for a sequential type color T.V. camera is employed to convert the sequential produced color video signals into simultaneous color video signals for use by an encoder at a desired rate. The vertical scan deflection control for the camera is added with a harmonically oscillated signal whereby the scanning of the picture field occurs in a direction perpendicular to the desired scan direction. The resulting waveform is sampled as many times per scan line as the ratio of the scan field rate in the camera to the display field rate for use by an encoder. The sampled waveforms are distributed to magnetic recording heads uniformly positioned around the periphery of spaced recording tracks of a magnetic recording means. One magnetic head from each track is used to read out the composite waveform at the standard rate of 60 fields per second, while the video signals actually occur at a rate of, for example, 180 fields per second. The recording means, in one form, consist of four tracks on a magnetic recorder with three recording heads per track. In another form, the recording means consist of three tracks on a magnetic recorder with two recording heads per track.

DESIGNS

SEPTEMBER 17, 1974

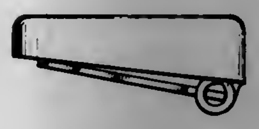
232,785
BRASSIERE

Mulford J. Nobbs, Hacienda Heights, Calif., assignor to Con-Stan Industries, Inc., City of Industry, Calif.
Filed Oct. 3, 1973, Ser. No. 402,895
Term of patent 14 years
Int. Cl. D2—*01*
U.S. Cl. D2—24



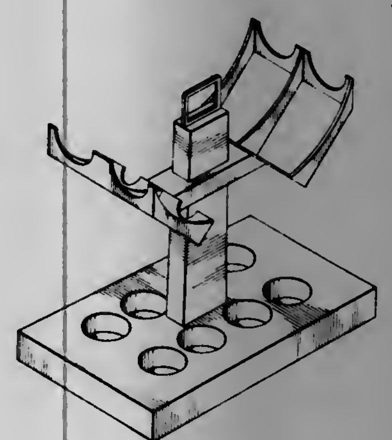
232,786
BUTTON TOPPER OR SIMILAR ARTICLE

Clarence D. Marer, Johnston, R.I., assignor to Swank, Inc., Attleboro, Mass.
Filed May 22, 1972, Ser. No. 255,952
Term of patent 14 years
Int. Cl. D2—*07*
U.S. Cl. D2—451



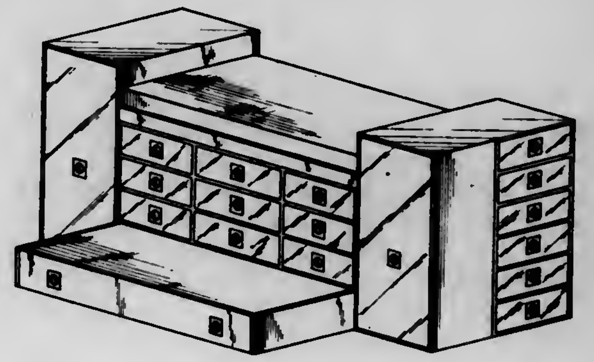
232,787
KETCHUP TRANSFER RACK

Marvin White, 15520 Tustin Village Way, Apt. 53, Tustin, Calif. 92680
Filed Nov. 13, 1972, Ser. No. 306,149
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—20



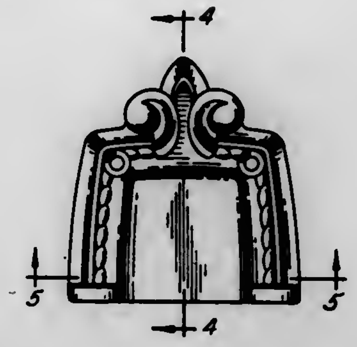
232,788
COMBINED BED AND STORAGE UNIT

Michael A. Mendlin, Springfield, N.J., assignor to Bunk Trunk Distributors, Paramus, N.J.
Original design application July 6, 1971, Ser. No. 160,237, now Patent No. 227,724. Divided and this application Apr. 16, 1973, Ser. No. 351,247
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—80



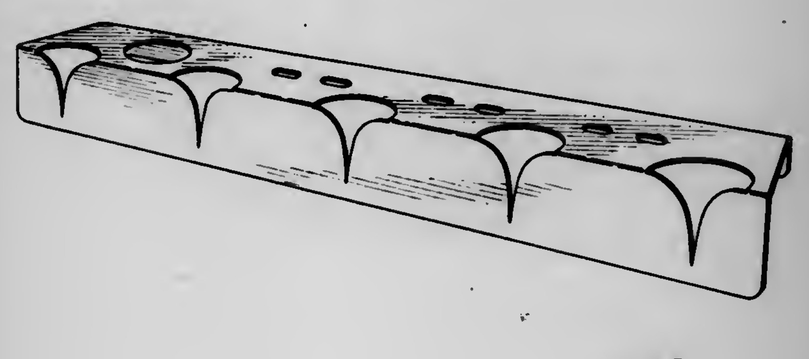
232,789
SUPPORTING BRACKET

Raymond U. H. Tegner, Lodi, Wis., assignor to Amerock Corporation, Rockford, Ill.
Original design application Nov. 10, 1972, Ser. No. 305,567. Divided and this application Oct. 24, 1973, Ser. No. 409,247
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—86

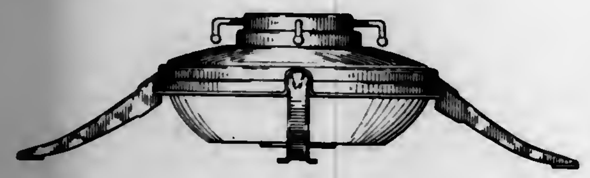


232,790
TOWEL AND TOOTHBRUSH RACK

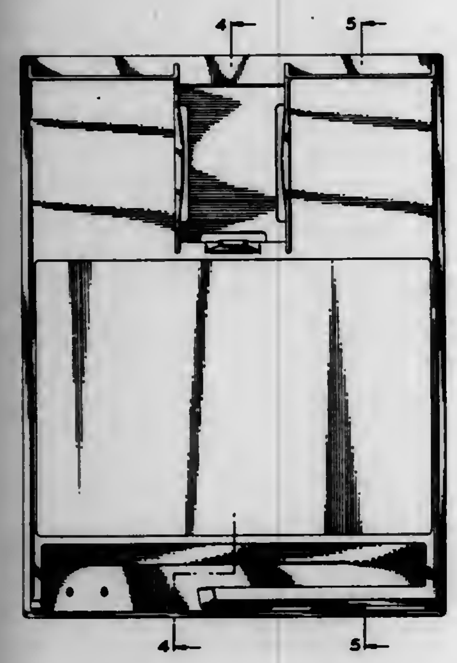
Ziedonis Kalnins, 1719 Coram Crescent, Mississauga, Ontario, Canada
Filed May 7, 1973, Ser. No. 357,949
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—91



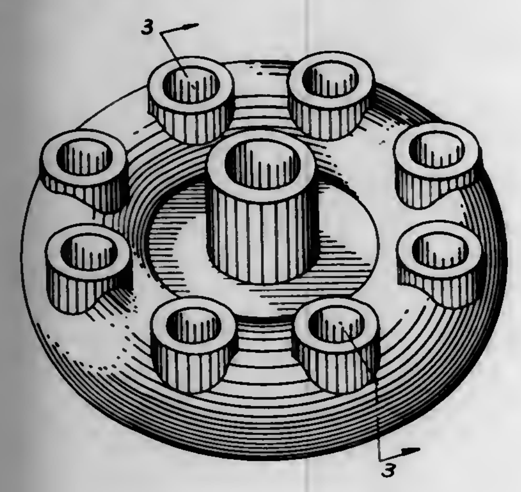
232,791
CHRISTMAS TREE STAND
Donald A. Schulz, Wauwatosa, Wis., assignor to S-B Manufacturing Co., Ltd., Milwaukee, Wis.
Filed Jan. 29, 1973, Ser. No. 327,253
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—105



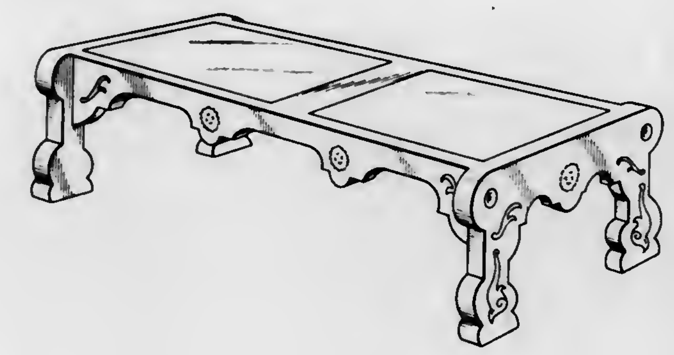
232,792
MESSAGE BOARD AND RACK
James C. Fry, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Oct. 24, 1972, Ser. No. 299,889
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—130



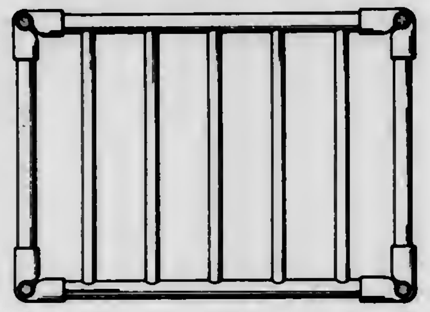
232,793
FLOATABLE TRAY
Leonard Marwood Bennett, 5 Alpine Road, Kalamunda, West Australia, Australia
Filed June 11, 1971, Ser. No. 152,476
Claims priority, application Australia May 12, 1971
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—146



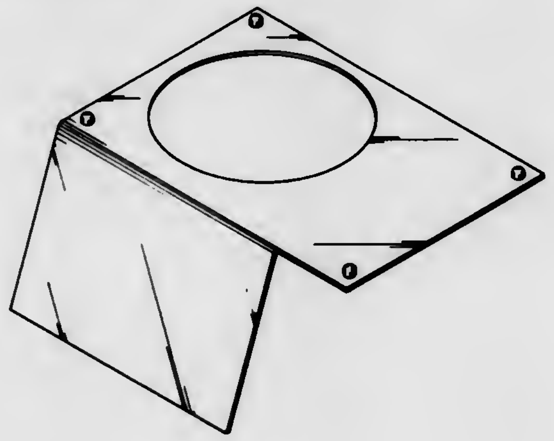
232,794
TABLE
Evalin S. Gilbert, 2121 North Bay Shore Drive, Miami, Fla. 33137
Filed Nov. 20, 1972, Ser. No. 308,041
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



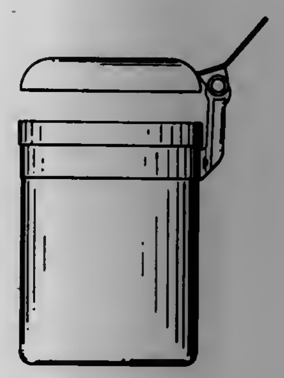
232,795
SIDE FRAME FOR A CHAIR OR SIMILAR ARTICLE
John W. Caldwell, 1829 Warwick Road, San Marino, Calif. 91108
Continuation-in-part of abandoned design applications Ser. No. 133,470 and Ser. No. 133,471, both Apr. 12, 1971. This application Aug. 22, 1973, Ser. No. 390,413
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—192



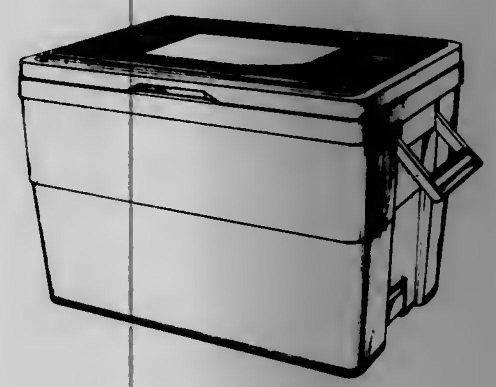
232,796
PLATE TRAY
Clement J. Smith, 1512 Tralle St., Houston, Tex. 77020
Filed Apr. 19, 1973, Ser. No. 352,526
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D7—37



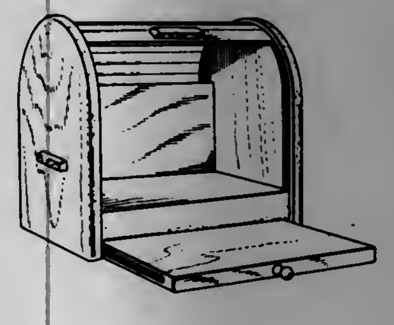
232,797
COMBINED BEVERAGE CAN HOLDER AND LID
John J. Doolittle, 411 59th Ave Terrace W., Bradenton, Fla. 33507
Filed Oct. 16, 1972, Ser. No. 297,815
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—70



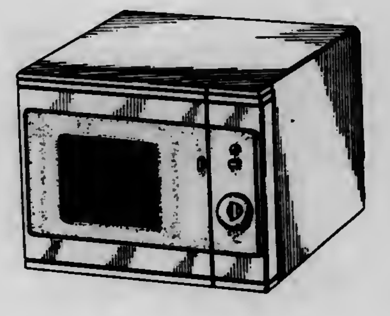
232,798
INSULATED CHEST
David Edward Roche, Nashua, N.H., assignor to Family Products, Inc., Tyngsboro, Mass.
Filed Dec. 14, 1972, Ser. No. 315,209
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—77



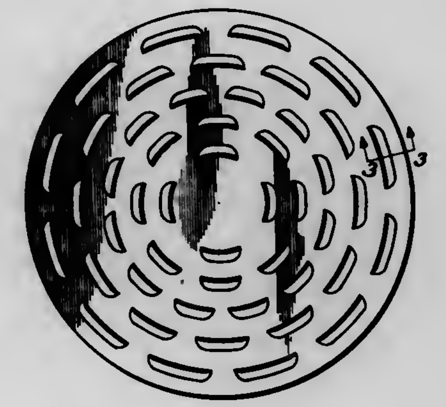
232,799
BREADBOX WITH BREADBOARD
Paul Knudson, Box 37, Occidental, Calif. 95465
Filed Dec. 7, 1972, Ser. No. 313,111
Term of patent 14 years
Int. Cl. D7—*07*
U.S. Cl. D7—82



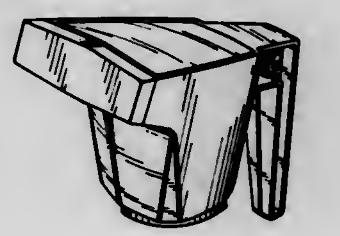
232,800
ELECTRONIC COOKING RANGE
Yoshio Suganoya and Kenji Imano, Osaka, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Jan. 8, 1973, Ser. No. 322,079
Claims priority, application Japan July 28, 1972
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—128



232,801
BROILER SHEET
Jeffrey M. Koblick, 1291 10th St., New Brighton, Minn. 55112
Filed Sept. 25, 1972, Ser. No. 291,893
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—129

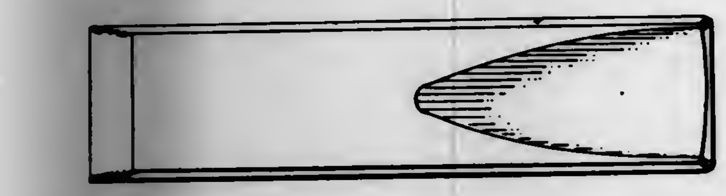


232,802
HOUSING FOR A STEAM GENERATING APPLIANCE
Norman A. Steinkamp, Chicago Heights, and Bernard B. Bluestein, Des Plaines, Ill., assignors to Sunbeam Corporation, Chicago, Ill.
Filed Mar. 19, 1973, Ser. No. 342,817
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D7—164



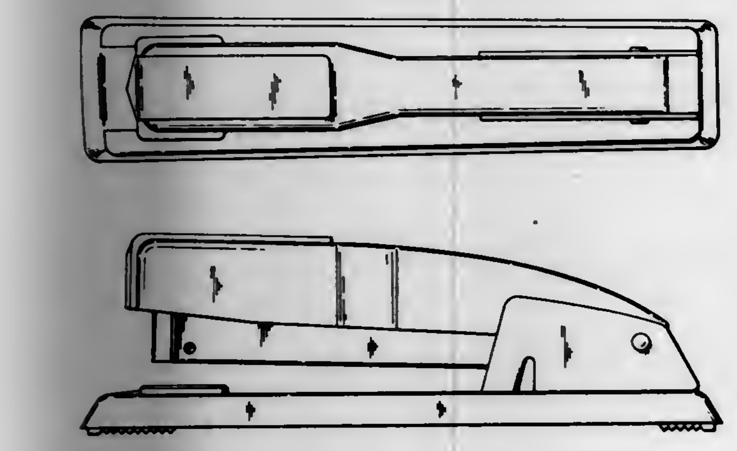
232,803
SPATULA FOR FILL-IN COMPOSITIONS
Charles Kleiman, Highland Park, Ill., assignor to
Lake Chemical Co., Chicago, Ill.
Filed Jan. 22, 1973, Ser. No. 325,382
Term of patent 14 years
Int. Cl. D8—*03*

U.S. Cl. D8—45



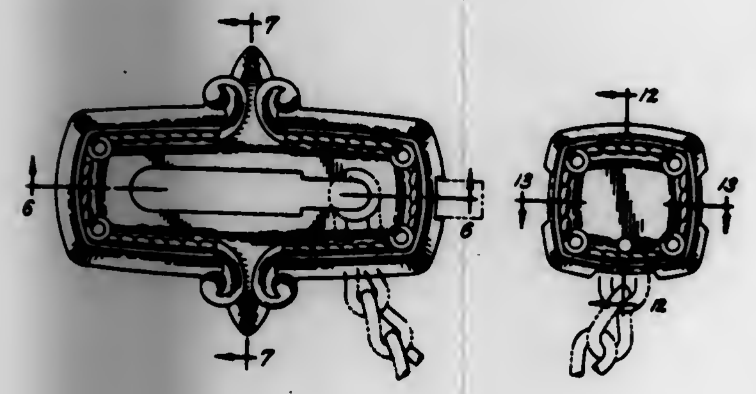
232,804
STAPLING MACHINE
John J. Power, Westbury, N.Y., assignor to Swingline
Inc., Long Island City, N.Y.
Filed Nov. 9, 1972, Ser. No. 304,989
Term of patent 14 years
Int. Cl. D19—*02*

U.S. Cl. D8—50



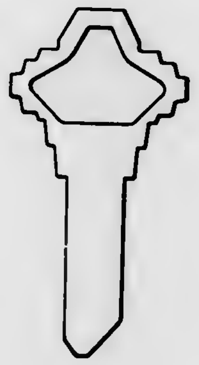
232,805
CHAIN GUARD
Raymond U. H. Tegner, Lodi, Wis., assignor to
Amerock Corporation, Rockford, Ill.
Original design application Nov. 10, 1972, Ser. No.
305,567. Divided and this application Oct. 24,
1973, Ser. No. 409,240
Term of patent 14 years
Int. Cl. D8—*07*

U.S. Cl. D8—131



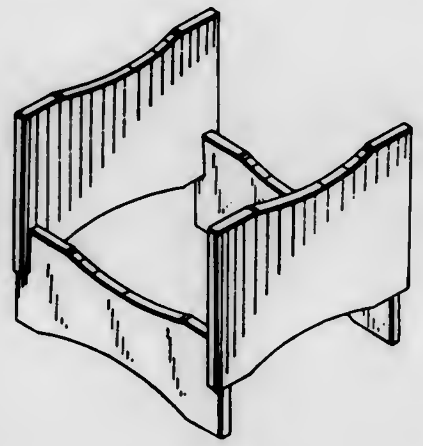
232,806
KEY BLANK
Ernest L. Schlage, Burlingame, Calif., assignor to
Schlage Lock Company
Filed Oct. 24, 1973, Ser. No. 409,137
Term of patent 14 years
Int. Cl. D8—*08*

U.S. Cl. D8—136



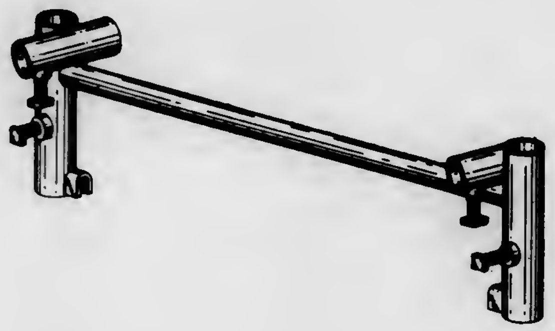
232,807
SPACER FOR CONCRETE REINFORCING RODS
Joseph Patrick Toner, 117 Rathmore Drive, Rathcoole,
Newtownabbey, County Antrim, Northern Ireland
Filed Mar. 23, 1973, Ser. No. 344,109
Term of patent 14 years
Int. Cl. D8—*08*

U.S. Cl. D8—228



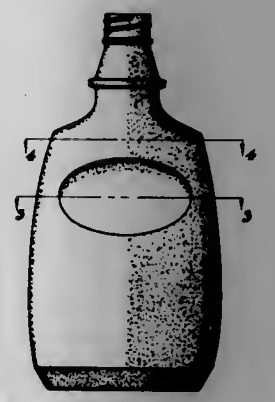
232,808
DOCK SUPPORTING BRACKET
Thomas C. Rockvam, Rte. 2, Box 755,
Mound, Minn. 55364
Filed Mar. 23, 1973, Ser. No. 344,762
Term of patent 14 years
Int. Cl. D8—*08*

U.S. Cl. D8—233



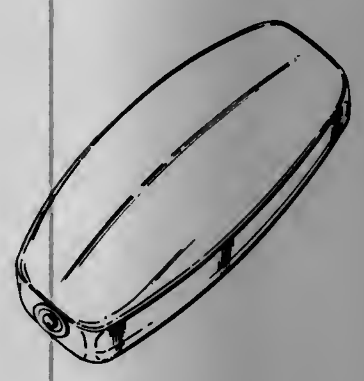
232,809
BOTTLE
John Pardo, Yonkers, N.Y., assignor to The Procter &
Gamble Company, Cincinnati, Ohio
Filed Oct. 11, 1972, Ser. No. 296,658
Term of patent 14 years
Int. Cl. D9—*01*

U.S. Cl. D9—45



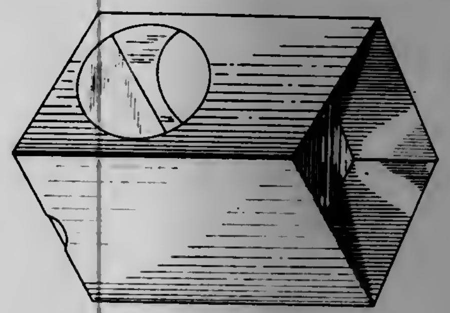
232,810
DISPENSING CONTAINER FOR LIQUIDS
Harry M. O'Hare, Anaheim, Calif., assignor to
Federal Investment Corporation
Filed June 1, 1972, Ser. No. 258,914
Term of patent 14 years
Int. Cl. D9—*01*

U.S. Cl. D9—71



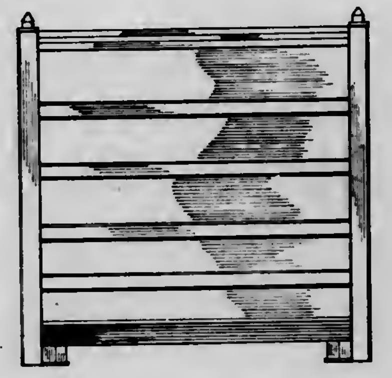
232,811
CARTON
James N. Edgeington, Richard G. Odell, and Edgar G.
Lowrance II, Albuquerque, N. Mex., assignors to IMS
Corporation, Albuquerque, N. Mex.
Filed Nov. 29, 1971, Ser. No. 203,122
Term of patent 14 years
Int. Cl. D9—*03*

U.S. Cl. D9—224



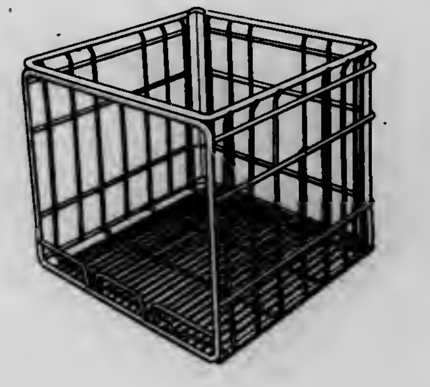
232,812
SHIPPING CONTAINER
Paul E. Ogle, Elmwood Park, and Kenneth L. Coleman,
Chicago, Ill., assignors to O-T-D Corporation, Itasca,
Ill.
Filed Sept. 22, 1972, Ser. No. 291,308
Term of patent 14 years
Int. Cl. D9—*03*

U.S. Cl. D9—246



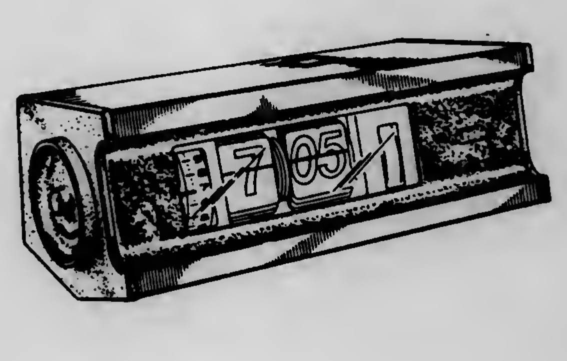
232,813
WIRE BASKET
James E. Myers, Niles, Mich., assignor to
Clark Equipment Company
Filed Mar. 21, 1972, Ser. No. 236,799
Term of patent 14 years
Int. Cl. D9—*04*

U.S. Cl. D9—247

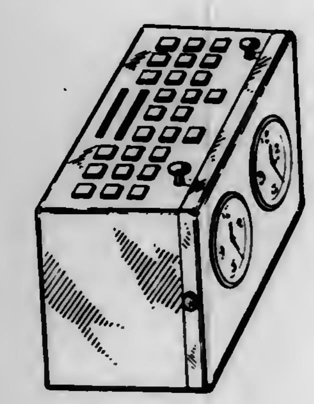


232,814
DIGITAL ALARM CLOCK
Riki Watanabe, Tokyo, Japan, assignor to Kabushiki
Kaisha Koparu, Itabashi-ku, Tokyo-to, Japan
Filed Oct. 30, 1972, Ser. No. 301,767
Claims priority, application Japan Apr. 28, 1972
Term of patent 14 years
Int. Cl. D10—*01*

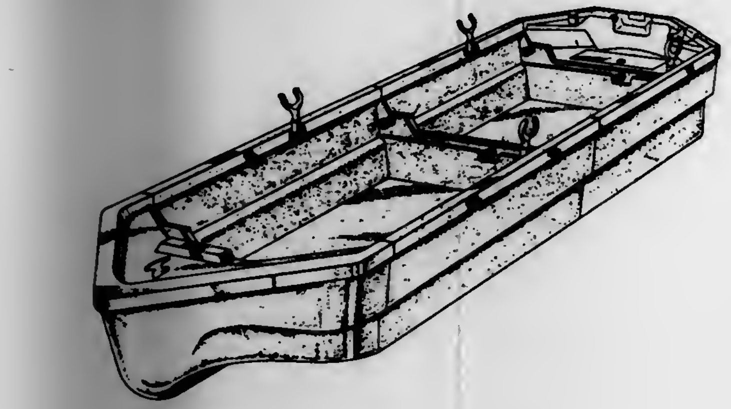
U.S. Cl. D10—15



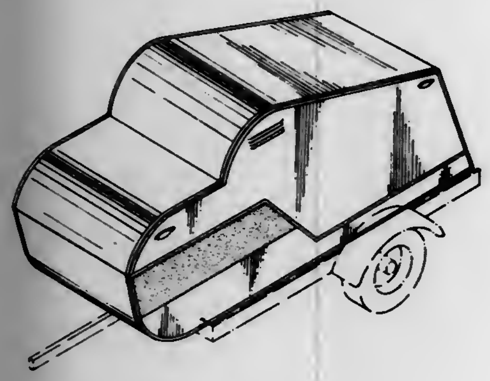
232,815
COMBINED CHESS GAME PLAY TIMER AND SCORER
Arnold W. Niwell, 11015 Kittridge St. 119,
North Hollywood, Calif. 91606
Filed Feb. 7, 1973, Ser. No. 330,362
Term of patent 14 years
Int. Cl. D10—*03*
U.S. Cl. D10—40



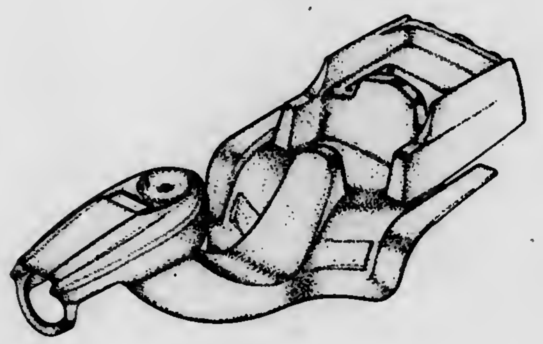
232,816
BOAT
Masami Miya and Masakazu Kitamori, Tokyo, Japan, assignors to Nepon Kabushiki Kaisha (Nepon Company Ltd.), Tokyo, Japan
Filed Nov. 22, 1972, Ser. No. 308,900
Claims priority, application Japan June 2, 1972
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D12—62



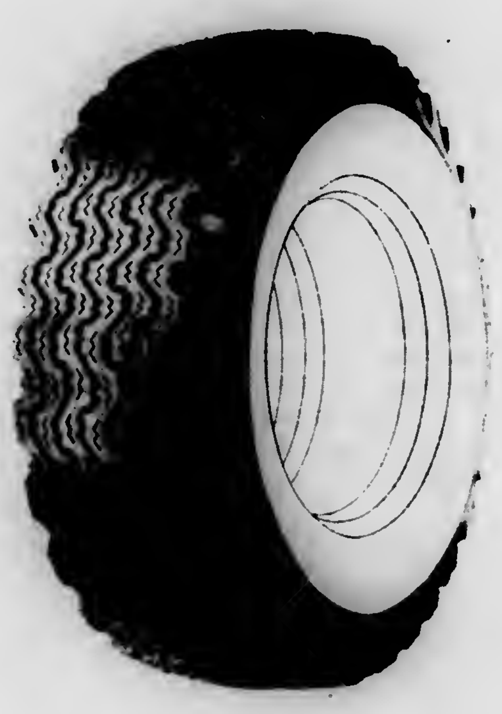
232,817
SNOWMOBILE PROTECTIVE COVER
Samuel V. Watson, Luzerne, Mich., assignor to
The S. V. Watson Co., Luzerne, Mich.
Filed July 24, 1972, Ser. No. 274,290
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D12—7



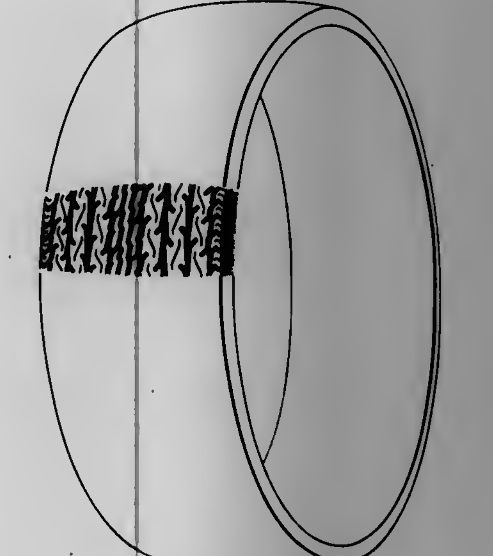
232,818
THREE WHEELED VEHICLE BODY
Edward Roth, 14245 San Feliciano,
La Mirada, Calif. 90638
Filed May 10, 1973, Ser. No. 359,111
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—85



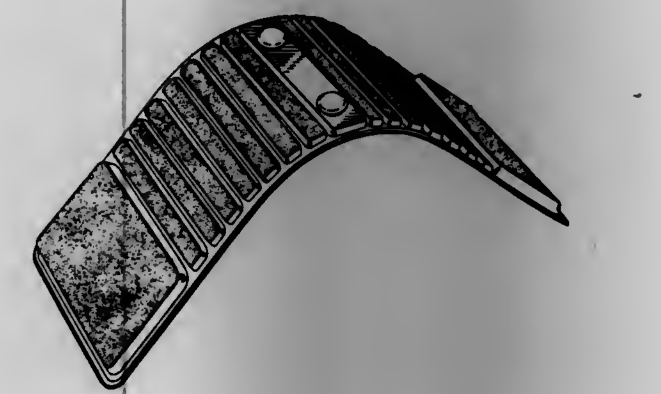
232,819
TIRE
Walter W. Hinkel, Massillon, and Philip S. Hammond, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed June 25, 1973, Ser. No. 373,236
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—142



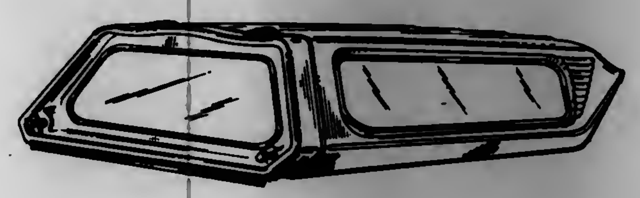
232,820
PNEUMATIC TIRE TREAD AND BUTTRESS
Arthur C. Blankenship, Detroit, Mich., assignor to
Uniroyal, Inc., New York, N.Y.
Filed Aug. 2, 1973, Ser. No. 385,132
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—149



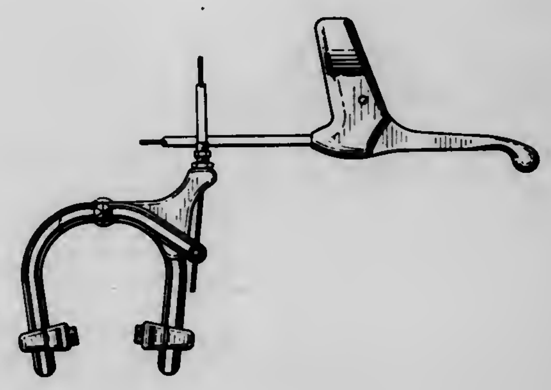
232,821
CAR WASTEBASKET SUPPORT STRAP
James C. Fry, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Nov. 13, 1972, Ser. No. 306,060
Term of patent 14 years
Int. Cl. D6—*11*
U.S. Cl. D12—155



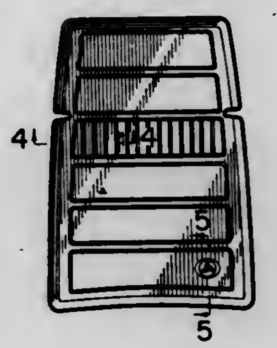
232,822
TOP FOR PICKUP TRUCK
Robert A. Knoss, Hopkins, and Alan B. Eke, Fridley, Minn., assignors to Glasstite, Inc., Dunnell, Minn.
Filed Apr. 6, 1973, Ser. No. 348,511
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—156



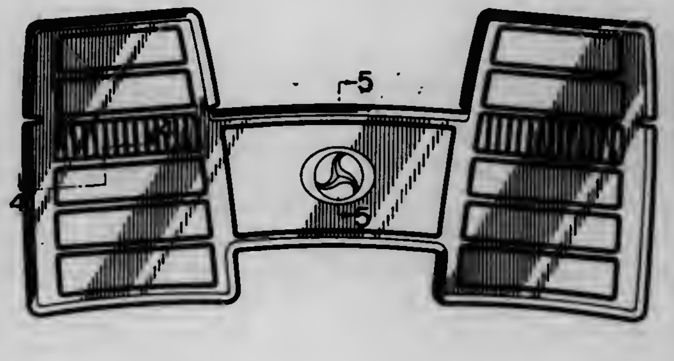
232,823
CALIPER BRAKE ASSEMBLY
John A. Carlson and Theodore M. Tigard, Wichita, Kans., assignors to Conchemco, Incorporated, Lenexa, Kans.
Filed Oct. 26, 1972, Ser. No. 301,147
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—179



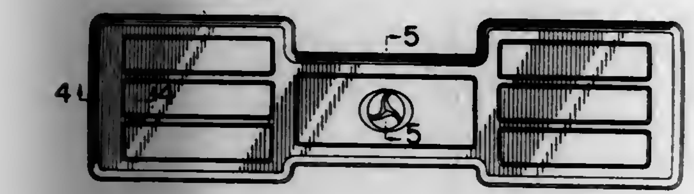
232,824
FRONT CAR MAT
William C. Gerber, Wooster, Ohio, assignor to
Rubbermaid Incorporated, Wooster, Ohio
Filed Nov. 13, 1972, Ser. No. 306,057
Term of patent 14 years
Int. Cl. D6—*11*
U.S. Cl. D12—203



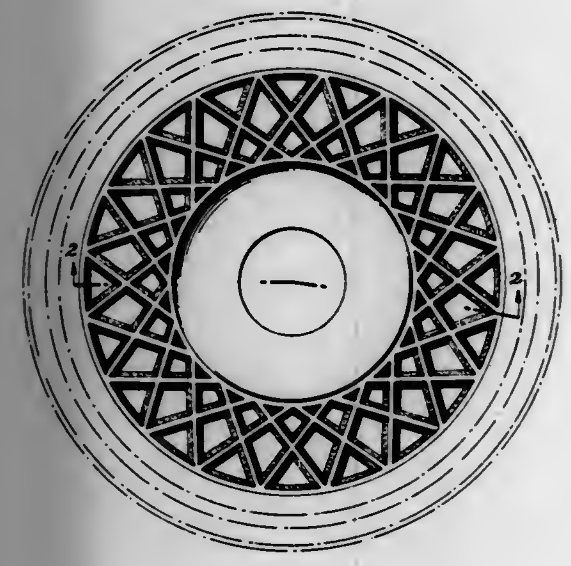
232,825
TWIN FRONT CAR MAT
William C. Gerber, Wooster, Ohio, assignor to
Rubbbermaid Incorporated, Wooster, Ohio
Filed Nov. 13, 1972, Ser. No. 306,374
Term of patent 14 years
Int. Cl. D6—*11*
U.S. Cl. D12—203



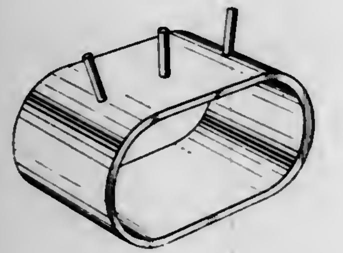
232,826
TWIN REAR CAR MAT
William C. Gerber, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Nov. 13, 1972, Ser. No. 306,375
Term of patent 14 years
Int. Cl. D6—*11*
U.S. Cl. D12—203



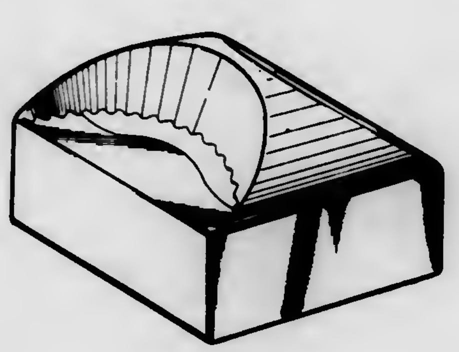
232,827
WHEEL CENTER
John Siroonian, 2640 W. Bullard St., Fresno, Calif. 93704, and Delmar D. Scott, 5020 Gloria Ave., Los Angeles, Calif. 91406
Filed May 7, 1973, Ser. No. 357,540
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—205



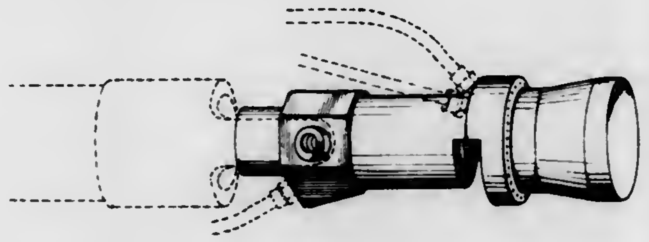
232,828
GUN SIGHT
Stanley J. Kwako, 1001 Hannifin St., Bismark, N. Dak. 58501
Filed Sept. 28, 1972, Ser. No. 294,928
Term of patent 14 years
Int. Cl. D22—*01*
U.S. Cl. D22—8



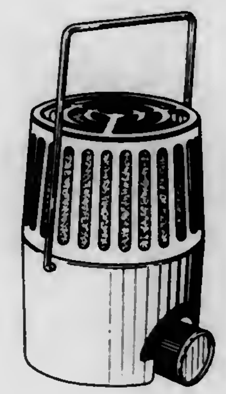
232,829
INSECT TRAP
J. Patrick Boyd, Carrollton, Tex., assignor to Thuron Industries, Inc., Dallas, Tex.
Filed June 29, 1973, Ser. No. 375,121
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—19



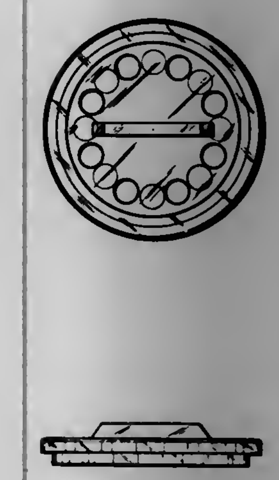
232,830
ATOMIZING HEAD FOR AN ELECTROSTATIC SPRAYER
Albert H. Moos and Norman S. Curtis, Indianapolis, Ind., assignors to Ransburg Corporation, Indianapolis, Ind.
Filed Aug. 30, 1972, Ser. No. 284,992
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34



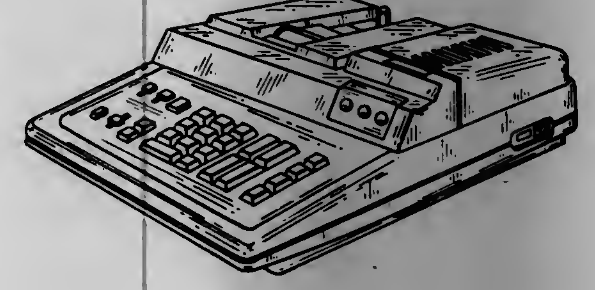
232,831
CATALYTIC HEATER HEAD ATTACHMENT
George G. Vidmar, Jr., Independence, Kans., assignor to Bruest Industries, Inc., Independence, Kans.
Filed May 21, 1973, Ser. No. 361,983
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—137



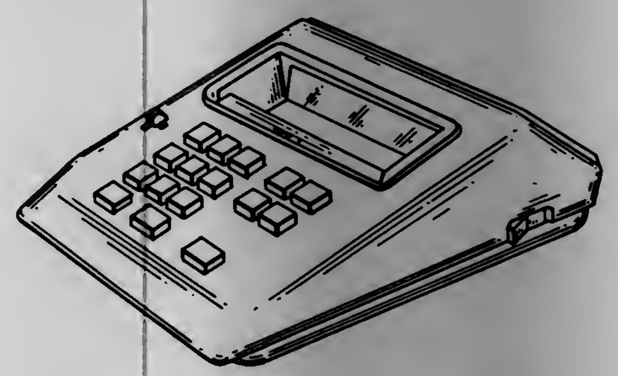
232,832
HUMIDITY CONTROLLER FOR TERRARIUMS
Louis J. Christen, Jr., St. Louis, Mo., assignor to Christen Incorporated, St. Louis, Mo.
Filed May 29, 1973, Ser. No. 364,554
Term of patent 14 years
Int. Cl. D23—*99*
U.S. Cl. D23—146



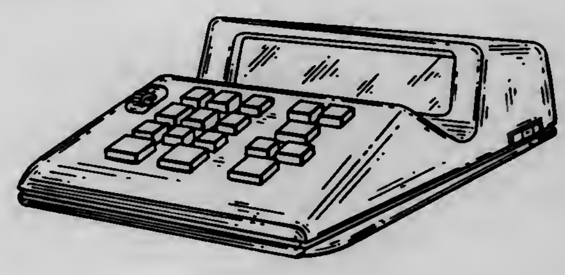
232,833
ELECTRONIC CALCULATING MACHINE
Isao Kitai and Masafumi Yamagami, Osaka, Japan, assignors to Sharp Kabushiki Kaisha (Sharp Corporation), Osaka, Japan
Filed Jan. 22, 1973, Ser. No. 325,564
Claims priority, application Japan July 26, 1972
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C



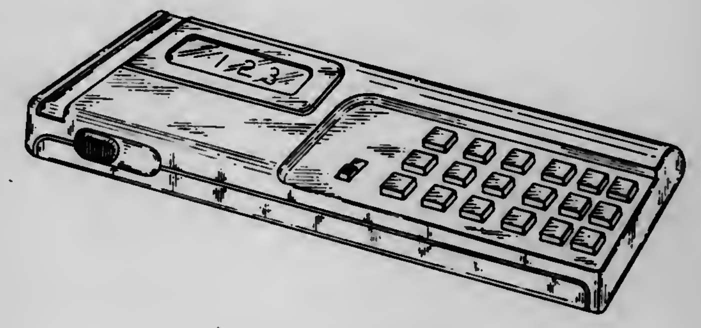
232,834
ELECTRONIC CALCULATING MACHINE
Masafumi Yamagami, Osaka, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
Filed May 23, 1973, Ser. No. 363,004
Claims priority, application Japan Nov. 25, 1972
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C



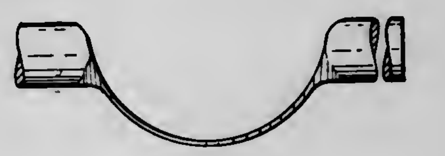
232,835
ELECTRONIC CALCULATING MACHINE
Isao Kitai and Shigetomo Onishi, Osaka, Japan, assignors to Sharp Kabushiki Kaisha (Sharp Corporation), Osaka, Japan
Filed May 24, 1973, Ser. No. 363,489
Claims priority, application Japan Nov. 25, 1972
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C



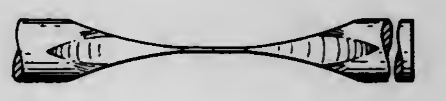
232,836
ELECTRONIC CALCULATING MACHINE
Isao Kitai, Osaka, Japan, assignor to Sharp Kabushiki Kaisha (Sharp Corporation), Osaka, Japan
Filed Aug. 2, 1973, Ser. No. 385,151
Claims priority, application Japan Feb. 6, 1973
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C



232,837
REED FOR A REED SWITCH ASSEMBLY
Bernard Edward Shlesinger, Jr., 9411 Macklin Court, Alexandria, Va. 22309, and Charlie Dwain Mariner, 121 Garrison St., Bolling Air Force Base, Washington, D.C. 20336
Filed July 16, 1973, Ser. No. 379,427
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13 R



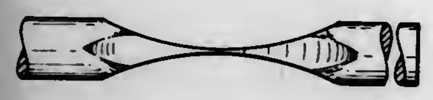
232,838
REED FOR A REED SWITCH ASSEMBLY
Bernard Edward Shlesinger, Jr., 9411 Macklin Court, Alexandria, Va. 22309, and Charlie Dwain Mariner, 121 Garrison St., Bolling Air Force Base, Washington, D.C. 20336
Filed July 16, 1973, Ser. No. 379,428
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13 R



232,839

REED FOR A REED SWITCH ASSEMBLY

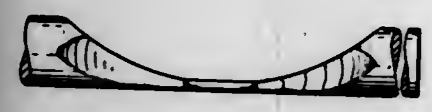
Bernard Edward Shlesinger, Jr., 9411 Macklin Court, Alexandria, Va. 22309, and Charlie Dwain Mariner, 121 Garrison St., Bolling Air Force Base, Washington, D.C. 20336
Filed July 16, 1973, Ser. No. 379,429
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13 R



232,840

REED FOR A REED SWITCH ASSEMBLY

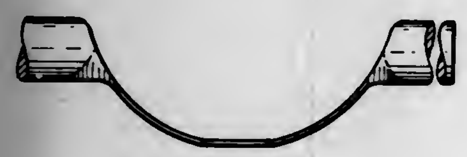
Bernard Edward Shlesinger, Jr., 9411 Macklin Court, Alexandria, Va. 22309, and Charlie Dwain Mariner, 121 Garrison St., Bolling Air Force Base, Washington, D.C. 20336
Filed July 16, 1973, Ser. No. 379,430
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13 R



232,841

REED FOR A REED SWITCH ASSEMBLY

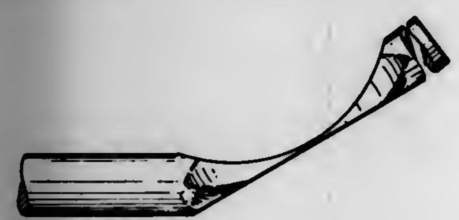
Bernard Edward Shlesinger, Jr., 9411 Macklin Court, Alexandria, Va. 22309, and Charlie Dwain Mariner, 121 Garrison St., Bolling Air Force Base, Washington, D.C. 20336
Filed July 16, 1973, Ser. No. 379,431
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13 R



232,842

REED FOR A REED SWITCH ASSEMBLY

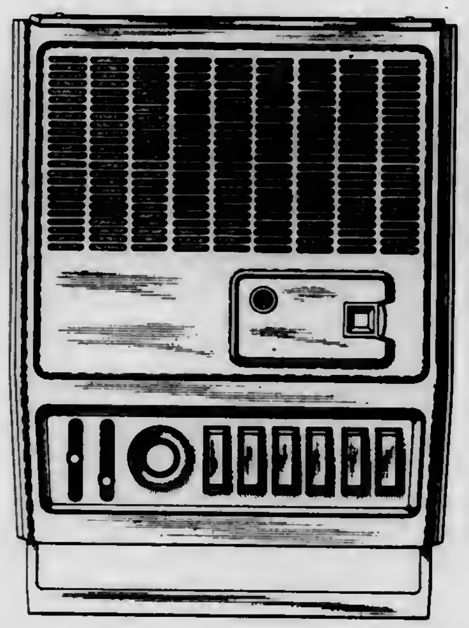
Bernard Edward Shlesinger, Jr., 9411 Macklin Court, Alexandria, Va. 22309, and Charlie Dwain Mariner, 121 Garrison St., Bolling Air Force Base, Washington, D.C. 20336
Filed Aug. 20, 1973, Ser. No. 389,863
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13 R

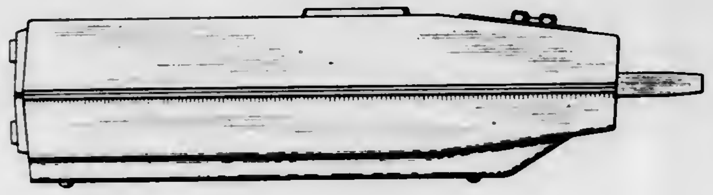


232,843

PORTABLE CASSETTE TAPE RECORDER

Richard Culbertson, Manlius, and Richard E. Lee, Cazenovia, N.Y., assignors to General Electric Company
Filed Dec. 8, 1972, Ser. No. 313,507
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14 B

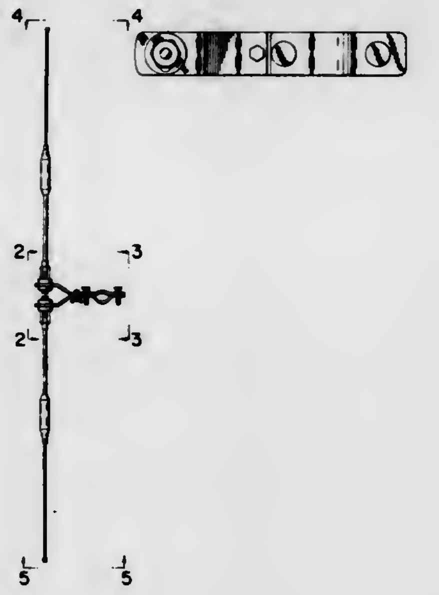




232,844

ANTENNA

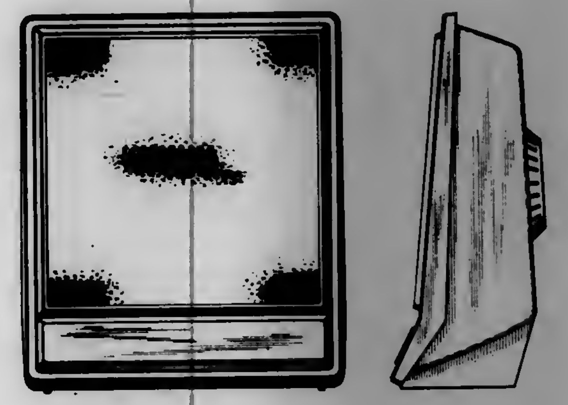
Aron Felt, 426 Sandhurst Road, Akron, Ohio 44313
Filed May 18, 1973, Ser. No. 361,522
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 F



232,845

LOUDSPEAKER

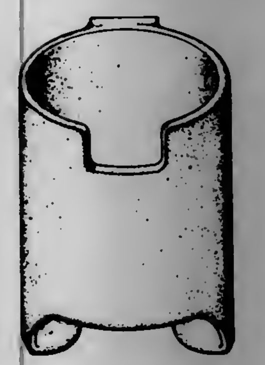
Kenneth R. Wilkes, Marcellus, N.Y., assignor to General Electric Company
Filed Nov. 7, 1973, Ser. No. 413,519
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14 G

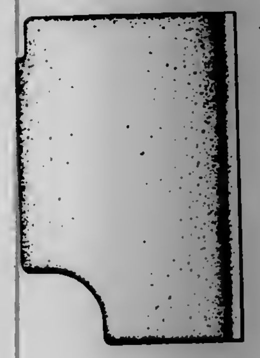


232,846

SALT BLOCK HOLDER

Leonard J. Fusco, Scott Road, Prospect, Conn. 06712, and Robert J. Perazzini, 456 Prospect Road, Waterbury, Conn. 06706
Filed July 21, 1972, Ser. No. 274,091
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—13

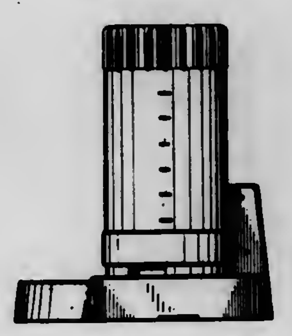


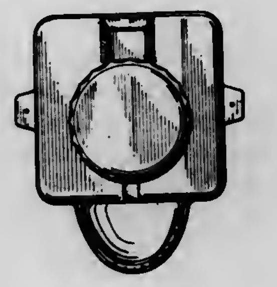


232,847

FEEDING CONTAINER FOR ANIMALS

Tadashi Okubo, Urawa, Japan, assignor to Kumiai Chemical Industry Co., Ltd., Tokyo, Japan
Filed Feb. 1, 1973, Ser. No. 328,728
Claims priority, application Japan Aug. 9, 1972
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—13

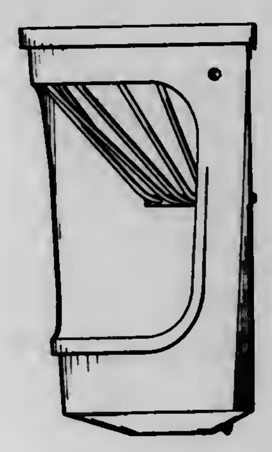


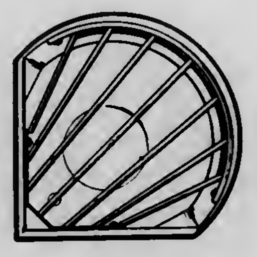


232,848

HORSE FEEDER

John T. Barton and Frank M. Barich, both of 8573 Zionsville Road, Indianapolis, Ind. 46268
Filed Feb. 16, 1973, Ser. No. 333,337
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—13

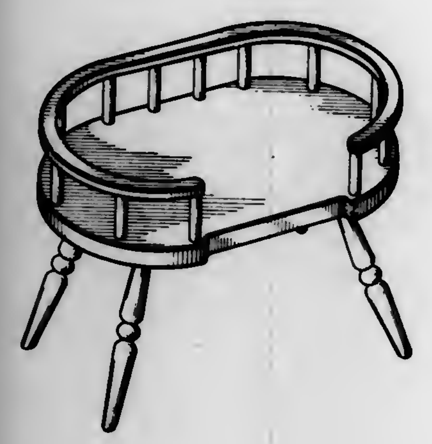




232,849

PET CHAIR

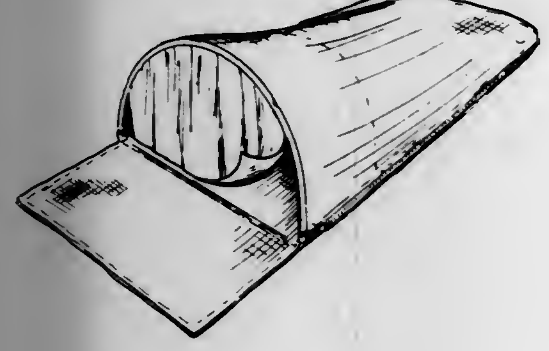
Mary E. Wilson, 30 Emerald Bay,
Laguna Beach, Calif. 92651
Filed Sept. 20, 1972, Ser. No. 291,362
Term of patent 14 years
Int. Cl. D30—*06*
U.S. Cl. D30—41



232,850

DOG BED

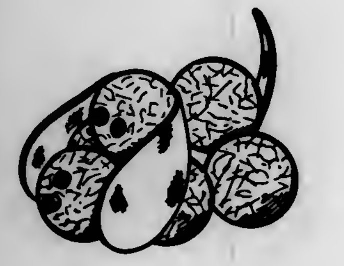
Betty L. Bloyd, Phoenix, Ariz., assignor to Harry Carr, Phoenix, and Cletus Caroland, Mesa, Ariz., fractional part interest to each
Filed Mar. 2, 1973, Ser. No. 337,756
Term of patent 14 years
Int. Cl. D30—*06*
U.S. Cl. D30—41



232,851

GLASS MARBLE DOG

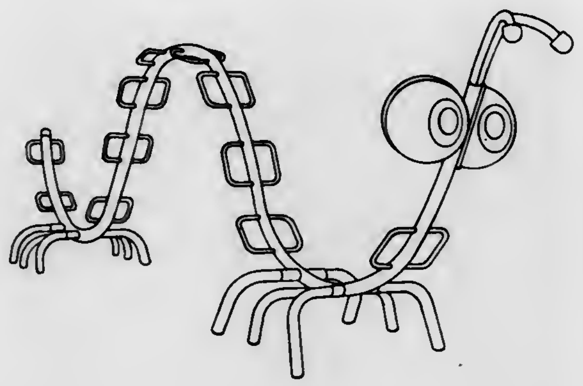
Thomas R. Mueller, 3600 W. Rodgers St.,
Milwaukee, Wis. 53215
Filed Nov. 29, 1972, Ser. No. 310,434
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—2 R



232,852

PLAYGROUND CLIMBER REPRESENTING A CATERPILLAR

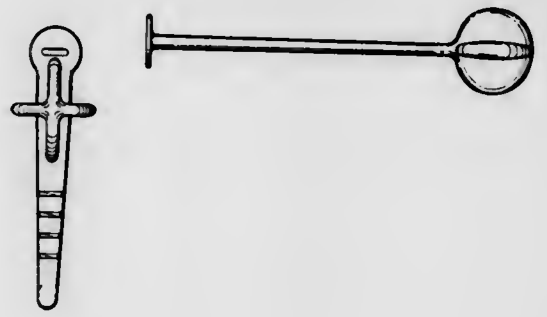
Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich.
Filed Feb. 23, 1973, Ser. No. 335,068
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 H



232,853

CRIB TOY MOBILE

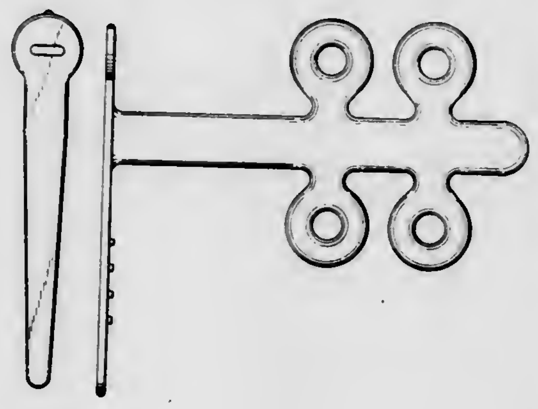
Jorma Vennola, Princeton, N.J., assignor to Columbia Broadcasting System, Inc.
Filed Feb. 16, 1973, Ser. No. 333,355
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 J



232,854

CRIB TOY MOBILE

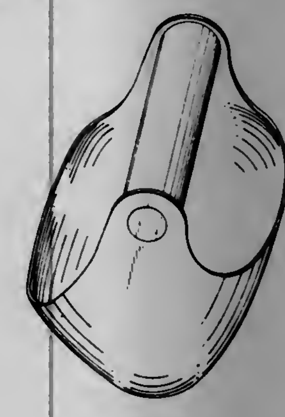
Jorma Vennola, Princeton, N.J., assignor to Columbia Broadcasting System, Inc.
Filed Feb. 16, 1973, Ser. No. 333,356
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 J



232,855

TOY SCOOP

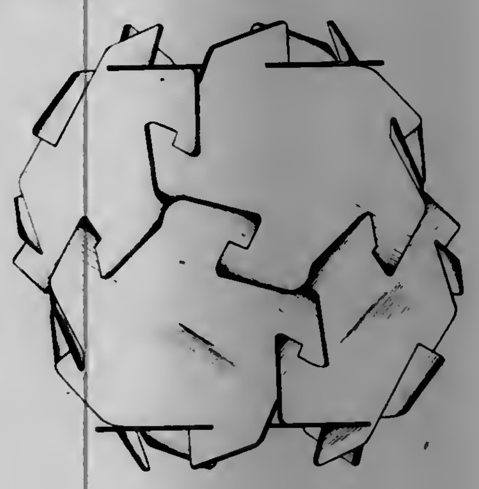
Jorma Vennola, Princeton, N.J., assignor to Columbia Broadcasting System, Inc.
Filed Feb. 16, 1973, Ser. No. 333,359
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 V



232,856

LAMPSHADE

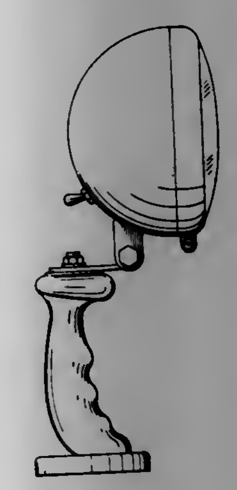
Richard Lary, Lowell, Mass., assignor to Hilda Erlich, Brooklyn, N.Y.
Filed June 8, 1973, Ser. No. 368,240
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—16 E



232,857

COMBINED HAND CARRIED LIGHTING UNIT AND MAGNETIC BASE THEREFOR

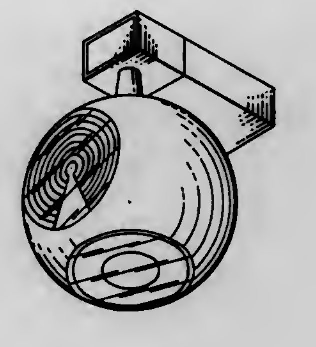
James W. Lang, 4523 Jennings,
Wichita Falls, Tex. 76310
Filed Apr. 26, 1973, Ser. No. 354,521
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D48—24 R



232,858

EXTERIOR LIGHTING FIXTURE

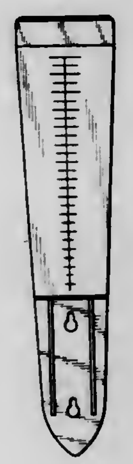
Donald E. Husby, Fairview Park, Ohio, assignor to Westinghouse Electric Corporation
Filed Oct. 6, 1972, Ser. No. 295,619
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D48—31



232,859

RAIN GAUGE

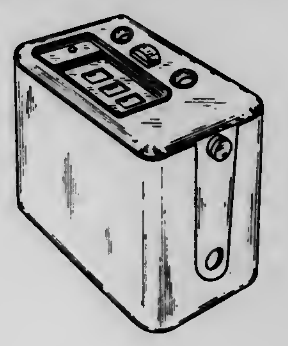
Coy W. Colquitt, Jr., 26 Normandy Road 28803, and Harvey A. Klumb, 40 Sleepy Hollow Road 28805, both of Asheville, N.C.
Filed Sept. 11, 1972, Ser. No. 288,168
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—6 R



232,860

ELECTRONIC CLINICAL THERMOMETER

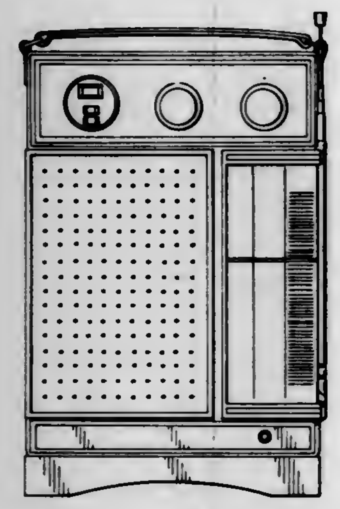
Isao Kitai, Osaka, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Dec. 4, 1972, Ser. No. 312,029
Claims priority, application Japan June 7, 1972
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—7 R



232,861

PORTABLE RADIO

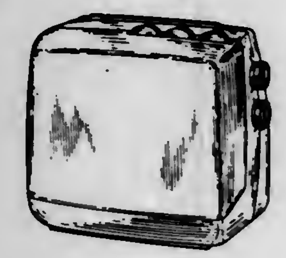
Taka Y. Takei, 145 Wai Yip St., Viet Shing Factory,
Kowloon, Hong Kong
Filed June 14, 1972, Ser. No. 262,723
Term of patent 3½ years
Int. Cl. D14—*03*
U.S. Cl. D56—4 B



232,862

TELEVISION RECEIVER

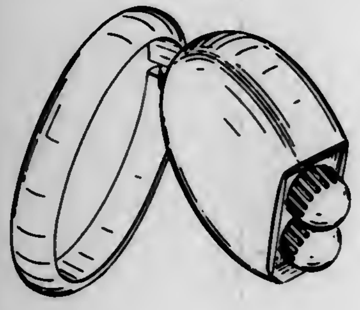
Teruo Takashima and Hikaru Asai, Osaka, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed July 13, 1972, Ser. No. 271,223
Claims priority, application Japan Jan. 17, 1972
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 D



232,863

RADIO RECEIVER

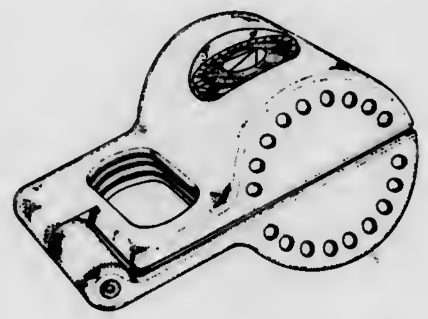
Vong Hoi Tong, Man Wah Bldg. (14th Floor) 18 Man
Wui St., Kowloon, Hong Kong
Filed Feb. 20, 1973, Ser. No. 333,712
Claims priority, application Great Britain Aug. 22, 1972
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 B



232,864

RADIO RECEIVER

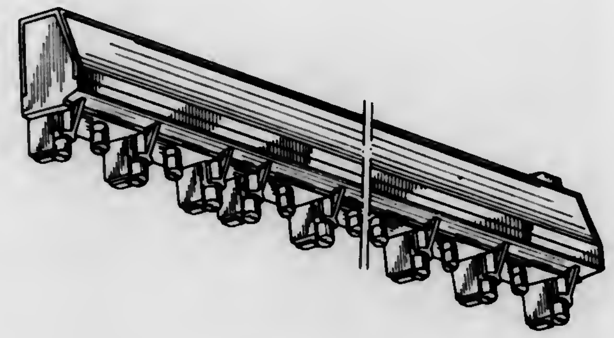
Masanori Hamada, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Mar. 21, 1973, Ser. No. 343,410
Claims priority, application Japan Dec. 8, 1972
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 B



232,865

SWITCH UNIT FOR USE WITH A PIANO KEYBOARD

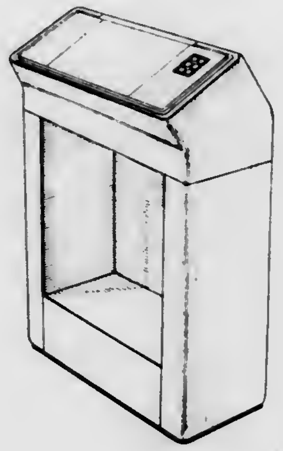
Brian Claude Jarvis, London, England, assignor to Moviecol Enterprises Limited, London, England
Filed June 5, 1972, Ser. No. 260,032
Claims priority, application Great Britain Dec. 21, 1971
Term of patent 14 years
Int. Cl. D17—*01*
U.S. Cl. D56—9



232,866

PRINTER

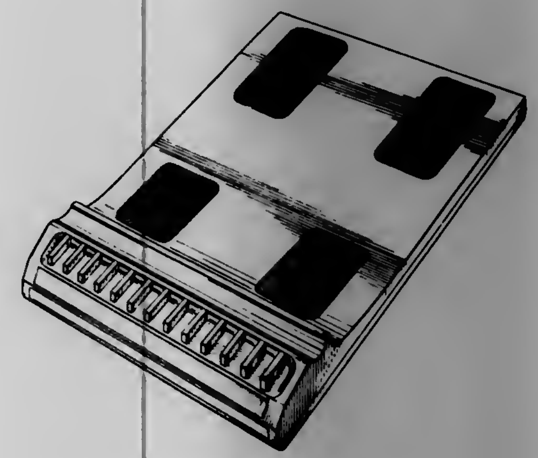
Samuel J. Mann, Englewood, N.J., assignor to Tele Speed Communication, Inc., Long Island City, N.Y.
Filed June 4, 1973, Ser. No. 366,780
Term of patent 14 years
Int. Cl. D18—*02*
U.S. Cl. D64—11 B



232,867

COMBINED TELEPHONE STAND AND INDEX

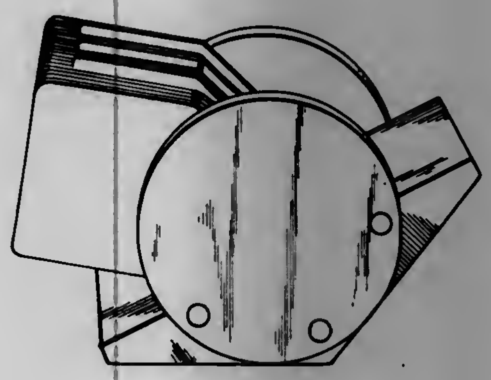
Yuen Se Kit, 46 Hoi Yuen Road, 4th Floor, Kwun
Tong, Kowloon, Hong Kong
Filed Mar. 27, 1973, Ser. No. 345,257
Claims priority, application Great Britain Oct. 4, 1972
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D74—1 C



232,868

CARD FILE

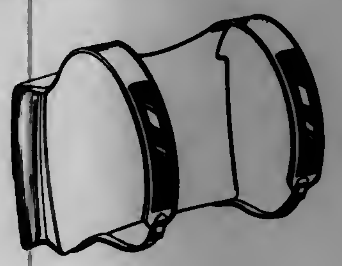
Richard P. Scholfield, Peekskill, N.Y., assignor to Wheeldex Manufacturing Co., Inc., Peekskill, N.Y.
Filed Sept. 26, 1972, Ser. No. 292,464
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D74—2 A



232,869

SIGNALIZED BACKPACK

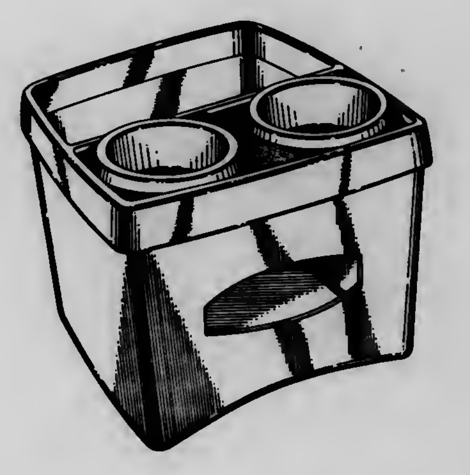
Masao Yoshimura, Inglewood, Calif., assignor to The Mailbox, Inc., Los Angeles, Calif.
Filed Dec. 6, 1972, Ser. No. 312,782
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—1 R



232,870

COMBINED CAR WASTEBASKET AND ACCESSORY HOLDER

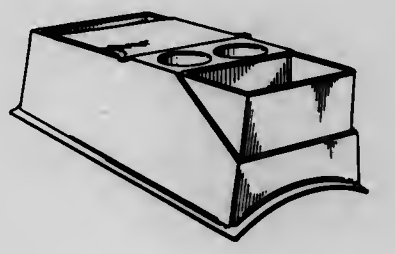
James C. Fry, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Dec. 15, 1972, Ser. No. 315,519
Term of patent 14 years
Int. Cl. D12—*16;* D7—*07*
U.S. Cl. D87—1 R



232,871

ARTICLE RECEPTACLE FOR VEHICLES

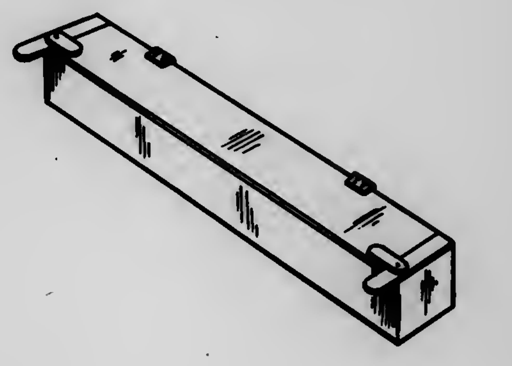
Elton G. George, 2167 NE. Loop 410, Apt. 10–B 78217,
and William T. McCollough, 908 Wiltshire 78209,
both of San Antonio, Tex.
Filed Jan. 12, 1973, Ser. No. 323,113
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—1 R



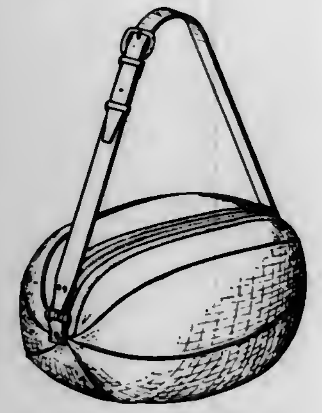
232,872

BOX FOR BINGO ACCESSORIES

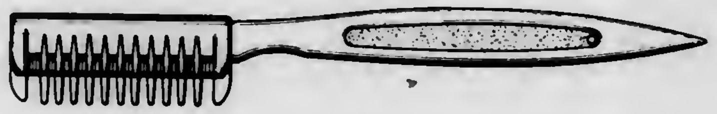
Anthony J. Ventimiglia, 24901 E. Jefferson, Apt. 202,
St. Clair Shores, Mich. 48080
Filed Feb. 20, 1973, Ser. No. 333,899
Term of patent 14 years
Int. Cl. D31—*00*
U.S. Cl. D87—1 R



232,873
HANDBAG
Kathy Lecube, 853 7th Ave., New York, N.Y. 10019
Filed Apr. 12, 1972, Ser. No. 243,540
Term of patent 3½ years
Int. Cl. D3—*01*
U.S. Cl. D87—3 F



232,874
HAIR TRIMMER
Jeffrey M. Koblick, 1291 10th St.,
New Brighton, Minn. 55112
Filed June 15, 1973, Ser. No. 370,343
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 17TH DAY OF SEPTEMBER, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. Ahlstrom Osakeyhtio: *See—*
Toumaala, Jorma Aarne Kullervo, 3,835,817.

A-T-O Inc.: *See—*
Gray, Robert F., 3,836,106.

A/S Kongsberg Vapenfabrikk: *See—*
Andersen, Gunnar Walter, 3,835,741.

Abbas, Shakir A.; Barile, Conrad A.; Lane, Ralph D.; and Liu, Peter T., to International Business Machines Corporation. Electrically erasable floating gate fet memory cell. 3,836,992, Cl. 357-23.000.

Abbatiello, Leonard A.; Hewgley, Robert E., Jr.; and Turner, Paul C., to United States of America, Atomic Energy Commission. Machine protection system. 3,836,834, Cl. 318-563.000.

Abbott Laboratories: *See—*
Hallas, Robert; Martin, Jerry Roy; and Tadanier, John Soloman, 3,836,519.
Schleicher, Joseph Bernard; and Roderick, William Rodney, 3,836,650.

Abe, Katuhiro: *See—*
Noguchi, Masaaki; Yanagioka, Hiroshi; Kanai, Toshio; Nishiguchi, Kazuo; Hashimoto, Hideo; Abe, Katuhiro; Masuko, Tomio; Mahino, Zenichi; and Kogawa, Yosio, 3,836,630.

Abe, Noboru: *See—*
Kobashi, Toshiyuki; and Abe, Noboru, 3,836,616.

Abe, Wataru; Muto, Akio; and Terada, Yasuyuki, to Oiles Kogyo Kabushiki Kaisha. Solid lubricant. 3,836,466, Cl. 252-12.000.

Abele, Manfred: *See—*
Roos, Ernst; Abele, Manfred; Nast, Roland; Kempermann, Theo; and Schubart, Rudiger, 3,836,562.

Abramov, Leonid Mikhailovich: *See—*
Gutman, Anatoly Lvovich; Prefsman, Vladimir Alexandrovich; Abramov, Leonid Mikhailovich; and Shokurov, Jury Stepanovich, 3,836,273.

ACF Industries, Incorporated: *See—*
Fossett, Wallace Lee, 3,836,203.

Achsel, Eberhard; and Sommer, Siegfried, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the manufacture of film and fiber-forming polyesters. 3,836,574, Cl. 260-475.00p.

Acrometal Products, Inc.: *See—*
Mozina, Henry F.; and Blue, Frank L., 3,836,093.

Adam, Marie Henri Hubert, to Societe Anonyme l'Eclairage Technique. Light fixtures. 3,836,954, Cl. 240-25.000.

Adams, James E.; Becker, James H.; and Haas, Werner E. L., to Xerox Corporation. Liquid crystal display system. 3,836,230, Cl. 350-160.0lc.

Adams, John Q., IV. Bandage dispensing package. 3,835,992, Cl. 206-390.000.

Adams, Kevin L.; and Wright, Ronald S. Three man chess game apparatus. 3,836,149, Cl. 273-131.0ab.

Addressorgraph-Multigraph Corporation: *See—*
Rosenstein, William; and Booth, Thomas Allan, 3,836,918.

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AGA Aktiebolag: *See—*
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AGFA-Gevaert AG: *See—*
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Ahrens, Claude W. Resiliently tiltable playground apparatus. 3,836,140, Cl. 272-54.000.

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Aiphone Kabushiki Kaisha: *See—*
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- American Parking Company, Inc.: *See—*
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- Anderson, Adrain P.: *See—*
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- Anderson, Emmett R., to Applied Materials, Inc. Temperature controlled profiling heater. 3,836,751, Cl. 219-411.000.
- Anderson, Gordon C.; and Brooks, Frank E., to Soco-Lowell Corporation. Spindle mounting. 3,835,634, Cl. 57-130.000.
- Anderson, Lloyd L.; and King, Richard J., to Amerock Corporation. Self-closing hinge. 3,835,585, Cl. 49-398.000.
- Anderson, Robert Alfred. Underwater breathing apparatus. 3,835,852, Cl. 128-146.500.
- Anderson, Robert L., Jr., to Essex International, Inc. Digital engine control apparatus and method. 3,835,819, Cl. 123-32.0ea.
- Andersson, Sven Ingemar, to Jeppsson, Torsten, AB and Svenska Agghandelsforbundet Foren U.P.A. Egg cartons. 3,836,067, Cl. 229-44.00r.
- Ando, Tetsuo; and Matsumoto, Hiroyuki, to Sony Corporation. Digital-to-analog converter circuit. 3,836,906, Cl. 340-347.0da.
- Andrews, Harry N.: *See—*
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  - Frisch, Erling; and Andrews, Harry N., 3,836,430.
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- Anthony, Gene H.: *See—*
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- Antonenko, Grigory Semenovich; Badamian, Avetik Artashesovich; Margulis, Grigory Borisovich; Moroz, Ilya Alexandrovich; and Shitsman, Mikhail Borisovich. Device for corrugation of strips. 3,835,689, Cl. 72-385.000.
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- Appelt, Gunther: *See—*
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- Aprahamian, Robert: *See—*
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- Aralt, Per Tybring, to Jebsen, Kristian G. Assembly for unloading powdered or similar material from a ship's hold. 3,836,019, Cl. 214-14.000.
- Arato, Laszlo. Craft washing plant. 3,835,498, Cl. 15-21.00e.
- Arcadia Refining Company: *See—*
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- Arens Controls, Inc.: *See—*
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- Aritaki, Hirakazu: *See—*
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- Ariyoshi, Yasuo: *See—*
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- Arkell, Frank J., to Motorola, Inc. Visual display system. 3,836,890, Cl. 340-172.500.
- Armour-Moore Marine Service Limited: *See—*
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- Armstrong Cork Company: *See—*
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- Arnold, Harold E. Anti-pollution exhaust burner and muffler for internal combustion engines. 3,836,338, Cl. 23-277.00c.
- Arsem, Collins; and Algor, Marshall M., to United States of America, Army. Transistor oscillator-detector for proximity fuzes. 3,836,963, Cl. 343-7.0pf.
- Arthur, George; and Brown, Derek James, to International Research & Development Company Limited. Cutting tools. 3,835,734, Cl. 76-101.00a.
- Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
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  - Yano, Nubumitsu; Fukushima, Masao; Fukinbara, Itaru; Kishi, Masanori; and Kimura, Kazuyoshi, 3,836,531.
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  - Mori, Chiharu, 3,836,921.
- Asano, Tetsumasa; Takamiya, Hiroshi; and Morimoto, Yoshinobu, to Mitsubishi Denki Kabushiki Kaisha. Apparatus for controlling the speed and spacing of vehicles. 3,835,950, Cl. 180-98.000.
- Ash, Eric Albert, to National Research Development Corporation. Apparatus for examining the surface of an object using electromagnetic radiation. 3,836,787, Cl. 250-572.000.
- Ashland Oil, Inc.: *See—*
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  - Taft, David D.; and Schmidt, Roger A., 3,836,491.
- Ashland Optical Corporation: *See—*
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- Atlantic Richfield Company: *See—*
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  - Lagerstedt, John Arne; and Persson, Jan Edvard, 3,835,936.
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- Audivox, Inc.: *See—*
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- Auerbach, Seymour. Light fixture. 3,836,766, Cl. 240-73.0da.
- Aukland, Jerry C.: *See—*

  - Conway, William H.; and Aukland, Jerry C., 3,836,972.
- Ault, Alfred S.; Johnson, Le Roy A.; and Van Dolah, Harry J., to Eagle-Picher Industries, Inc. Method of preparing porcelain enamel frit for dry process enameling. 3,836,373, Cl. 106-48.000.
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- Baasner, Wilhelm: *See—*
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  - Peytavin, Pierre; and Babel, Louis, 3,835,740.
- Babuliak, Josef: *See—*
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- Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
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  - Matthias, Guenther; Schulz, Gerhard; Kasper, Werner; and Feind, Klaus, 3,836,583.
  - Roller, Hermann; Stritzinger, Heinz; Hartmann, Job-Werner; Falk, Roland; and Balz, Werner, 3,836,395.
- Badische Anilin-& Soda-Fabrik Aktiengesellschaft: *See—*
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- Bailey, James D.: *See—*
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- Bainbridge, Wilfred Nicholas; and Pitcher, Robert Hazell, to Automotive Products Limited. Pneumatic suspension systems for vehicles. 3,836,166, Cl. 280-124.00f.
- Baird Chemical Industries, Inc.: *See—*
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- Baker, Don R.; and Teach, Eugene G. Sulfonyloxy bromoacetanilides and their utility as biocides. 3,836,564, Cl. 260-456.00a.
- Baker, Gordon W. Fishing game. 3,836,142, Cl. 273-1.00m.
- Baland, Raymond W. Impact switch with inertia operated toggle linkage actuator mechanism. 3,836,738, Cl. 200-61.45r.
- Balda-Werke Photographische Gerate Und Kunststoff GmbH & Co. KG: *See—*
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- Baldwin, John J.; and Novello, Frederick C., to Merck & Co., Inc. Trisubstituted imidazoles in the treatment of gout. 3,836,658, Cl. 424-267.000.
- Baldwin, Roger A.; Bowerman, Paul D.; and Lucid, Michael F., to Kerr-McGee Chemical Corporation. Simultaneous recovery of vanadium and uranium from oxidezed wet process acid. 3,836,476, Cl. 252-301.10r.
- Ballamy, Leslie Mark. Crank-driven reciprocating mechanisms. 3,835,716, Cl. 74-40.000.
- Ballard, Donnell A.: *See—*
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- Barber, Albert John; Massey, Derek James Rowland; McCartney, James; and Winterbottom, Kenneth, to Ciba-Geigy AG. Treatment of fibres. 3,836,390, Cl. 117-138.80a.
- Bargain, Michel, to Rhone-Poulenc S.A. Organopolysiloxane compositions. 3,836,489, Cl. 260-18.00s.
- Bargstedt, Gerd. Apparatus for transferring articles between a conveyor and a stack. 3,836,017, Cl. 214-6.0fs.
- Barile, Conrad A.: *See—*
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- Barker, Bernard A.; and Daggett, Ronald L., to Franklin Equipment, Inc. Float valve assembly. 3,835,882, Cl. 137-445.000.
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- Barnett, Thomas A., to Monsanto Company. Steel tire cord assembly. 3,836,426, Cl. 161-170.000.
- Barr, Courtland Hilyard, Jr. Multi-chambered syringe. 3,835,855, Cl. 128-218.00m.
- Barre, Wade E.; and Orbanic, Robert S., to GTE Sylvania Incorporated. Fluorescent lighting assembly. 3,836,939, Cl. 339-56.000.
- Barreca Products Co.: *See—*
  - Penniman, Robert; and Snelling, Richard A., 3,836,058.
- Barrett, Arthur Michael; Carter, John; Hull, Roy; Le Count, David James; and Squire, Christopher John, to Imperial Chemical Industries Limited. Alkanolamine derivatives for producing β-adrenergic blockade. 3,836,671, Cl. 424-324.000.
- Barrett, James H., Jr.: *See—*
  - Barrett, James H., Jr.; and Marcussen, Lee R. (said Marcussen assor. to said), 3,836,938.
- Barrett, James H., Jr.; and Marcussen, Lee R., said Marcussen assor. to said Barrett, James H., Jr. Safety electrical plug release mechanism. 3,836,938, Cl. 339-45.00r.
- Barringer, Anthony Rene, to Barringer Research Limited. Optical correlator with optimized maximum and minimum correlation masks. 3,836,254, Cl. 356-74.000.
- Barringer Research Limited: *See—*
  - Barringer, Anthony Rene, 3,836,254.
- Barry, Robert S. Firescreen support. 3,836,107, Cl. 248-251.000.
- Bartlo, Louis J.; and Bomberger, Howard B., Jr., to RMI Company. Method of forming tapered metal pieces. 3,835,526, Cl. 29-470.900.
- Barton, Oliver A.; and Murphy, Kevin P., to Allied Chemical Corporation. Novel non-flammable azeotrope solvent compositions. 3,836,474, Cl. 252-171.000.
- Bartsch, Friedrich F., to Sybron Corporation. Aromatic alcohol-aromatic aldehyde carrier dyeing of aromatic polyamides. 3,836,327, Cl. 8-173.000.
- Basf Wyandotte Corporation: *See—*
  - Schmolka, Irving R., 3,836,637.
- Basile, Mario. Method of treating soil for controlling termites and the like. 3,835,578, Cl. 43-132.000.
- Bass, Thomas R. Holding and support device for replaceable bags having a segmented lid. 3,836,037, Cl. 220-35.000.
- Bassi, Dario, to Verdol S.A. Loom jacquards of the double-lift type. 3,835,895, Cl. 139-65.000.
- Basu, Prithwis; Neumann, Guenter; and Gaudek, Jani, to AGFA-Gevaert AG. Arrangement for unloading a film cartridge. 3,835,745, Cl. 83-285.000.
- Bates, Clayton W.; and Wallace, Richard A. Activated iodide X-ray image intensifier screen. 3,836,784, Cl. 250-483.000.
- Batlles, Jorge Ferrer; Salat, Carlos Ferrar; and Riera, Juan Colome, to Laboratories Ferrer S. L. Therapeutic composition and method of treating patients therewith. 3,836,668, Cl. 424-319.000.
- Battle, Billy J., to United States Pipe and Foundry Company. Flange joint. 3,836,183, Cl. 285-363.000.
- Bauer Bros., Co., The: *See—*
  - Moore, William P., 3,835,999.
- Bauer, Richard J., to General Motors Corporation. Dry cleaning filter element assembly. 3,836,005, Cl. 210-266.000.
- Baum, Melvin E., to Koppers Company, Inc. Unsaturated polyester resins. 3,836,606, Cl. 260-861.000.
- Bausch & Lomb Incorporated: *See—*
  - Wrue, Richard J., 3,835,596.
- Bausenbach, Arthur E.; Seiple, Richard T.; and Palopoli, Frank D., to Sanitary Controls, Inc. Winch follower assembly. 3,836,123, Cl. 254-186.00r.
- Bawa, Jaspal S., to Thomas & Betts Corporation. Insulating sleeve for metallic conduit. 3,836,698, Cl. 174-83.000.
- Baxendale, Albert Edward; and Young, Edward John, to Brico Engineering Limited. Internal combustion engines. 3,835,825, Cl. 123-97.00b.
- Bayer Aktiengesellschaft: *See—*
  - Bockmann, August; Rudolph, Hans; and Nouvertne, Werner, 3,836,490.
  - de Montigny, Armand; Schnurrbusch, Karl; Seyfried, Klaus; and Noll, Walter, 3,836,558.
  - Hagemann, Hermann; Wingler, Frank; and Pollheide, Dieter, 3,836,604.
  - Hahnkamm, Volker; Rademachers, Jakob; Henkel, Hanno; Brandle, Karl; and Schafer, Kurt, 3,836,378.
  - Radlmann, Eduard; and Nischk, Gunther, 3,836,508.
  - Regel, Erik K.; Buchel, Karl-Heinz; and Plempel, Manfred, 3,836,663.
  - Regel, Erik K.; Buchel, Karl-Heinz; and Plempel, Manfred, 3,836,664.
  - Roos, Ernst; Abele, Manfred; Nast, Roland; Kempermann, Theo; and Schubart, Rudiger, 3,836,562.
  - Schirmar, Hermann; and Peilstocker, Gunter, 3,836,499.
  - Tacke, Peter; Haupt, Heinrich; Blank, Heinz Ulrich; Bockmann, August; and Rudolph, Hans, 3,836,501.
  - Telle, Otto; Molls, Hans-Heinz; and Fetting, Karl-Ernst, 3,836,649.
- Bayly, William I.: *See—*

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- Bazell, Seymour: *See—*
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- Bean, John B. Dwelling space air condition control and air change control system. 3,835,758, Cl. 98-33.000.
- Beasley, Donald L.: *See—*
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- Beauvais, Max P.; and Breil, Jacques, to Reynolds Metals Company. Surface sterilization. 3,836,328, Cl. 21-56.000.
- Becker, Dustin J., to Lorain Products Corporation. A-C voltage detector. 3,836,790, Cl. 307-235.00r.
- Becker, James H.: *See—*
  - Adams, James E.; Becker, James H.; and Haas, Werner E. L., 3,836,230.
- Beckman Instruments, Inc.: *See—*
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- Beckmann, Rudolf; and Seelmann-Eggebert, Dietrich, to Volkswagenwerk Aktiengesellschaft. Internal combustion engine. 3,835,826, Cl. 123-103.00e.
- Becky, Raymond, to TUC Industries, Inc. Controlled apparatus for silicon controlled rectifiers. 3,836,839, Cl. 323-20.000.
- Becton Dickinson and Company: *See—*
  - Huston, Paul O., 3,836,079.
- Beggs, Donald, to Mildrex Corporation, mesne. Apparatus for cooling a moving bed of solid, gas permeable particles. 3,836,131, Cl. 266-20.000.
- Behnke, Arnold F., to Kay-Brunner Steel Products, Inc. Swivel assembly. 3,836,268, Cl. 403-165.000.
- Behrens, Dieter; and Wache, Lothar, to Siemens Aktiengesellschaft. Control circuit for preventing the response of a programmed controller to simultaneously generated control signals. 3,836,859, Cl. 328-75.000.
- Behrens, Herbert; and Wohlbier, Gunther, to Olympia Werke A.G. Device for moving a print element carrier in typewriters. 3,835,976, Cl. 197-82.000.
- Belart, Juan, to ITT Industries, Inc. Separating valve for an antiskid brake system. 3,836,207, Cl. 303-21.00f.
- Belgonucleaire and Centre d'Elude de l'Energie Nucleaire: *See—*
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  - Hertel, Heinz E.; Kearney, Robert L.; and Weber, Paul E., 3,836,251.
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- Bell, Frank W., to Stanadyne, Inc. Shower head with flow control washer. 3,836,083, Cl. 239-572.000.
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  - Gressitt, Tillman Johnson; Koliss, Peter Paul; and Ramsey, Raymond Bolton, 3,836,696.
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  - Seidel, Harold, 3,836,863.
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- Bendler, Hellmut: *See—*
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- Bennett, William S., to Singer Company, The. Display of digitally stored image on a spherical viewing surface. 3,836,812, Cl. 315-18.000.
- Benoit, Roland A.; and Curran, John, to InterRoyal Corporation. Telescoping novel stand assembly. 3,835,486, Cl. 5-317.00r.
- Benton, Robert C. Gravure printing press with endless printing belts. 3,835,775, Cl. 101-151.000.
- Beretta, Paolo; and Magnani, Luigi, to Minnesota Mining and Manufacturing Company. Merocyaninic dyes and their use in silver halides photographic emulsions containing the same. 3,836,370, Cl. 96-127.000.
- Berglas, Robert E. Strobe Light trigger circuit. 3,836,818, Cl. 315-240.000.
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- Bernard, James A.; and Brucken, Byron L., to General Motors Corporation. Roll retractor for roller drive mechanism. 3,835,719, Cl. 74-208.000.
- Bernard, Michel, to Automobiles M. Berliet. Balancing device for a six crankpin crankshaft. 3,835,728, Cl. 74-603.000.
- Berner, Robert E. Pericranial splint and retainer assembly. 3,835,848, Cl. 128-76.00c.
- Bernin, Victor M., to Illinois Tool Works Inc. Solid state phase output switch with noise immunity and diagnostic capabilities. 3,836,910, Cl. 340-365.001.
- Berns, Harald, to Sehlbach, Herbert, KG. Cincher for packaging straps. 3,835,506, Cl. 24-68.00d.
- Berry, Arthur E. Power fishing reel. 3,835,571, Cl. 43-21.000.
- Berry, Charles P.: *See—*
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- Berst, Jean-Jacques, 1/2% to Berst, Pierre Andre. Track switch with latch. 3,836,771, Cl. 246-448.000.
- Berst, Pierre Andre: *See—*
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- Bertram, August H.; and Miller, Calvin L., to Caterpillar Tractor Company. Quick disconnect device for power trains. 3,835,722, Cl. 74-405.000.
- Beschke, Helmut, to Deutsche Gold-und Silber-Scheideanstalt vormals Roessler. Process for the production of copper silicates. 3,836,633, Cl. 423-326.000.
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  - Crump, Robert O.; and Bethsold, Karl R., 3,835,521.
- Beuter, Hermann: *See—*
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- Bhuta, Mahendra; and Sacks, William, to Allied Chemical Corporation. Method of forming polyamide-polyethylene composite films. 3,836,620, Cl. 264-171.000.
- Bhuta, Pravin G.; Johnson, Robert L.; Graham, Douglas J.; and Aprahamian, Robert, to TRW Inc. Acousto-optical multi-constituent flow monitoring method and apparatus. 3,836,950, Cl. 340-5.00h.
- Bickel, John E.; and Gallenberger, Robert J., to United States of America, Navy. Aircraft VLF receiving antenna. 3,836,971, Cl. 343-100.0pe.
- Biederman, William, to Orthodontic International Services, Inc. Orthopedic appliance. 3,835,540, Cl. 32-14.00e.
- Bielfeldt, Gerlinde: *See—*
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- Bielfeldt, Heinz; deceased (by Bielfeldt, Gerlinde; Diehl, Christiane; and Bielfeldt, Karsten, heirs), to Sauer, J. P., & Sohn, GmbH. Cylinder breech mechanism for small arms. 3,835,566, Cl. 42-16.000.
- Bielfeldt, Karsten, heirs: *See—*
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- Biesner, Walter: *See—*
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- Binder, Joseph, to Ashland Optical Corporation. Cylindrical mold for the production of a plurality of optical lenses. 3,836,111, Cl. 249-121.000.
- Bingham, Henry, to Hard Metals Limited. Cutting unit for use on rock boring machines. 3,835,944, Cl. 175-364.000.
- Bini, Rodney James, to Norman, George, & Co. Pty. Ltd. Connecting means. 3,835,508, Cl. 24-204.000.
- Binks Manufacturing Company: *See—*
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- Bischoff, Friedrich: *See—*
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- Bishton, Albert A., to Dunlop Company Limited, The. Pneumatic tires. 3,835,907, Cl. 152-153.000.
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  - Sides, Daniel Harrison; and Moores, Robert Gordon, Jr., 3,835,935.
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- Blankschein, Werner. Method and apparatus for producing tufts of hair or bristles. 3,836,199, Cl. 300-21.000.
- Blevins, Maurice E. Method of translating the location of a predetermined position on one side of a substantially nonferrous structural barrier of a building to an opposite side of said barrier. 3,836,848, Cl. 324-67.000.
- Bloedorn, Arthur R.: *See—*
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- Blytas, George C., to Shell Oil Company. Separation of closely related aliphatic hydrocarbons with cation-exchanged offretite zeolite. 3,836,455, Cl. 208-310.000.
- Board, Kenneth, to U.S. Philips Corporation. Semiconductor devices. 3,836,988, Cl. 357-3.000.
- Bobeck, Andrew Henry; Geusic, Joseph Edward; and Hagedorn, Bassett, to Bell Telephone Laboratories, Incorporated. Magnetic bubble structure for suppression of dynamic bubble conversion. 3,836,898, Cl. 340-174.0tf.
- Bochenek, Valerian S., Jr.: *See—*
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- Bock, Erich, to Register Systems GmbH. Device for attaching and adjusting flexible printing plates of printing cylinders. 3,835,778, Cl. 101-415.100.
- Bockemuehl, Johannes: *See—*
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  - Tacke, Peter; Haupt, Heinrich; Blank, Heinz Ulrich; Bockmann, August; and Rudolph, Hans, 3,836,501.
- Bockmann, August; Rudolph, Hans; and Nouvertne, Werner, to Bayer Aktiengesellschaft. Flameproof polycarbonates containing an alkali metal salt soluble in the polycarbonate melt. 3,836,490, Cl. 260-18.0tn.
- Boehringer Ingelheim G.m.b.H.: *See—*
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  - Koppe, Herbert; Kummer, Werner; Stahle, Helmut; Zeile, Karl; Engelhardt, Albrecht; and Traunecker, Werner, 3,836,666.
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  - Weber, Karl Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Karl Heinz, deceased, 3,836,653.
- Boenke, Clyde O.; Miller, Murray H.; Levine, Michael R.; Rigotte, Victor H.; Vivian, Weston E.; and Hall, William C. Variable message length data acquistion and retrieval system and method using two-way coaxial cable. 3,836,888, Cl. 340-172.500.
- Boerwinkle, Fred P.; and Waxberg, Donald L. Zwitterionic polymer hairsetting compositions and method of using same. 3,836,537, Cl. 260-29.6hn.
- Boesch, Roger, to Rhone- Poulenc S.A. Oxasiazolone derivatives. 3,836,539, Cl. 260-307.00a.
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- Boltz, Duane A.; Gardner, James J.; and Hautau, Charles F., to Alcan Aluminum Corporation. Apparatus for stacking panels or the like. 3,835,620, Cl. 53-157.000.
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- Bond, Donald Spencer; and Holman, John Michael Leigh, to RCA Corporation. Geo-synchronous satellites in quasi-equatorial orbits. 3,836,969, Cl. 343-100.0st.
- Bonebrake, Gay M., to TAB Engineers, Inc. Roll-forming process. 3,836,687, Cl. 426-496.000.
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- Bonvicini, Giacomo, to Fox Motori di CECI Napoleone & C.s.a.s. Ignition system for internal-combustion-micro-engines. 3,836,800, Cl. 310-70.00a.
- Bookless, George W.; Hertel, Heinz E.; and Kearney, Robert L., to Bell & Howell Company. Microfilm camera apparatus. 3,836,250, Cl. 355-65.000.
- Booth, Robert Ben, to American Cyanamid Company. Conveying polyelectrolyte fluidized aqueous suspensions powdered solids. 3,836,200, Cl. 302-66.000.
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  - Schwerin, Gunther, 3,835,966.
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  - Wurst, Bert, 3,835,733.
- Bosse, Frank, to Windmoller & Holscher. Bag-making machine. 3,835,756, Cl. 93-8.0wa.
- Botbol, Joseph M. Cleated emergency track. 3,836,075, Cl. 248-14.000.
- Bottcher, Siegfried; and Speck, Hans-Reimer, to Bosch, Robert, GmbH. Pump-and-motor unit, particularly for supplying fuel. 3,836,291, Cl. 417-423.000.
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- Bouniot, Albert, to Rhone-Progil. Process for the manufacture of methyl methacrylate. 3,836,575, Cl. 260-486.00d.
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- Boustany, Kamel; and Coran, Aubert Yaucher, to Monsanto Company. Preparation of discontinuous fiber reinforced elastomer. 3,836,412, Cl. 156-62.200.
- Bouy, Pierre; and Collard, Daniel, to Rhone-Progil. Frames for electrolytic cells of the filter-press type. 3,836,448, Cl. 204-270.000.
- Bowerman, Paul D.: *See—*
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- Bowker, John Kent, to Itek Corporation. Image standardizer apparatus. 3,836,246, Cl. 355-32.000.
- Bowman, Raymond D., to Cavalier Corporation. Circuit for multi-column vending machines having columns arranged for conjoint operation. 3,836,046, Cl. 221-67.000.
- Brachet, Max Jacques Roul: *See—*
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- Bradick, Rudolph A. Stock stop control assembly. 3,835,683, Cl. 72-36.000.
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- Braggins, George Roderick Derham; and Pooley, Donald Humphrey, to Wellman Bibby Company Limited, The. Torque limiting device. 3,835,973, Cl. 192-56.00r.
- Braidt, Helfried; and Figl, Johann. Shutoff valve with leak indicating means. 3,835,878, Cl. 137-246.130.
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- Bray, Richard Nicholas. Drilling apparatus and adaptor assembly for such apparatus. 3,835,943, Cl. 175-173.000.
- Bray, Robert S., to Anaconda Company, The, mesne. Method and apparatus for pre-heating and adding master alloy to a copper melt. 3,836,360, Cl. 75-135.000.
- Brecht, Carl T., to Senco Products, Inc. Nail and method and apparatus for making same. 3,835,991, Cl. 206-343.000.
- Brecht, Heinz: *See—*
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- Brewbaker, James L.; Nowak, Robert M.; and Dennis, Kent S., to Dow Chemical Company, The. Stabilized low profile resins. 3,836,600, Cl. 260-836.000.
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- Brinkmann, Bernd, to Schering AG. Stabilized adhesive compositions. 3,836,565, Cl. 260-464.000.
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Brookins, Richard H.; and Miller, John Paul, to Brown International Corporation. Filter screen mounting. 3,836,464, Cl. 210-413.000.
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Brooks, Juanita L., to Sears, Roebuck and Co., mesne. Panty girdle with stretchable leg support. 3,835,866, Cl. 128-547.000.
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Bruniche-Olsen, Henning Anton, to Aktieselskabet de Danske Sukkerfabrikker. Lixiviating apparatus. 3,836,337, Cl. 23-270.00r.
Bruno, Robert Peter; and Naugler, Albert Winston, to Honeywell Inc. Cooling apparatus for infrared detectors. 3,836,779, Cl. 250-352.000.
Brunswick Corporation: *See—*
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Buhl, Walter T., to Midland-Ross Corporation. Leveling system for vehicles with optical manual or automatic control. 3,836,161, Cl. 280-611.000.
Bundschuh, John J.; and Roman, Robert J., to Eastman Kodak Company. Cinematographic projectors of the like and cartridges for use therewith. 3,836,239, Cl. 352-73.000.
Bunyard, Alan Donald. Air cylinder. 3,835,753, Cl. 92-85.000.
Burckhardt, Christoph Benedikt; and Grandchamp, Pierre Andre, to Hoffmann, Heinz and Hoffmann-La Roche Inc. Echo sounding technique. 3,836,948, Cl. 340-1.00r.
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Bush, Clarence C., to United States of America, Army. Flow visualization using color reversible dyes. 3,835,703, Cl. 63-147.000.
Butter, Karl; and Knauer, Kuno, to Masserschmitt-Bolkow-Blohm GmbH. Regeneratively cooled rocket combustion chamber and thrust nozzle assembly. 3,835,644, Cl. 60-267.000.
Butterfield, Donald B.; and Marchetti, Albert A., to Ambac Industries, Inc. Fuel injection nozzle. 3,836,080, Cl. 239-96.000.
Butterworth, Arthur B.; deceased (by McCoy, Roland A.; executor), to Butterworth, Helen Libbey. Littoral flow trap or basin. 3,835,651, Cl. 61-4.000.
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Calvert, Rodney K.; and Fishback, Alton J., to Mead Corporation, The. Article handling machine. 3,835,979, Cl. 198-30.000.
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Campanella, Samuel J.; and Suyderhoud, Henri G., to Communications Satellite Corporation. Adaptive echo canceller with multi-increment gain coefficient corrections. 3,836,734, Cl. 179-170.200.
Campbell, George E., Jr.; and Lerner, Julius, to Sun Oil Company of Pennsylvania. Valve actuating means. 3,835,736, Cl. 81-180.00r.
Campbell, George Thomas Richardson, to Algoship International Limited. Trimming pipe system for free-flowing cargoes. 3,835,803, Cl. 114-73.000.
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Carr, Harry A. Maneuvering accessory for U-joint of socket wrenches. 3,835,735, Cl. 81-177.0uj.
Carr, Harry A. Keeper for socket wrenches. 3,835,737, Cl. 81-180.00r.
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Carter, Russell P., Jr., to Goodyear Tire & Rubber Company, The. High impact rigid self-skinned polyurethane foam and method. 3,836,487, Cl. 260-2.5ak.
Carter, Thomas, to Carrier Corporation. Motor compressor unit. 3,836,290, Cl. 417-415.000.
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Caruso, Richard. Hair dryer. 3,836,750, Cl. 219-370.000.
Case, Cecil L.; Elder, Robert L.; and Fell, Ferol S., to Hesston Corporation. Header frame. 3,835,628, Cl. 56-144.000.
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Cechetini, James A. Reflective pavement marker. 3,836,226, Cl. 350-103.000.
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Certain-Teed Products Corporation, mesne: *See—*
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Cetenko, Wiaczeslaw A.: *See—*
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Chambers, Derek, to Raytheon Company. Power supply for use with a display system. 3,836,813, Cl. 315-18.000.
Chambers, John Frederick. Framework connector. 3,836,270, Cl. 403-218.000.
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Chang, Joseph K. Treatment of canine distemper with a microbial product derived from the bacterium achromobacter stenohalis. 3,836,648, Cl. 424-195.000.
Charles Inc.: *See—*
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Child, Francis W., to University of Minnesota, The Regents of the. Pivoting disc-type heart valve with two-piece base. 3,835,475, Cl. 3-1.000.
Chiyoda Chemical Engineering & Construction Co., Ltd.: *See—*
Noguchi, Masaaki; Yanagioka, Hiroshi; Kanai, Toshio; Nishiguchi, Kazuo; Hashimoto, Hideo; Abe, Katuhiro; Masuko, Tomio; Mahino, Zenichi; and Kogawa, Yosio, 3,836,630.
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Cidzik, Daniel F., to Reynolds Metals Company. Easy-open wall. 3,836,038, Cl. 220-48.000.
Cimprich, Francis J., to Goodrich, B. F., Company, The. Method and apparatus for correcting dimensional variation in a rotating tire. 3,835,591, Cl. 51-106.00r.
Cincinnati Industries, Inc.: *See—*
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Clarke, Graham Morley, to Ferranti Limited. Device for detection of blemishes on opposite faces of a planar object. 3,836,261, Cl. 356-200.000.
Clarke, James A.; Jacobus, John J.; and Lager, Eric Peter, to General Signal Corporation. Centralized traffic control system for railroads. 3,836,768, Cl. 246-3.000.
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Claude, Beaudouin Jean, to Flaminaire. Gas lighters. 3,835,579, Cl. 431-344.000.
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Clear Hooters Limited: *See—*
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Cobb, Richard O.; and Lipp, James, to International Business Machines Corporation. Edge locating apparatus. 3,835,998, Cl. 209-111.700.
Cockerell, David, to Electronic Music Studies (London) Limited. Data input devices. 3,836,909, Cl. 340-365.00c.

Codet, Georgis; Dawans, Francois; De Charentenay, Francois-Xavier; and Teyssie, Philippe, to Institut Francais du Petrole des Carburants et Lubrifiants. Process for polymerizing conjugated diolefins using organic compounds of the transition metals as catalsts. 3,836,444, Cl. 204-159.240.
Codrino, Giuseppe. Device for the electrical connection between cables and ribbon-like. 3,836,940, Cl. 339-91.00r.
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Cole, Edward L.; Hess, Howard V.; and Franz, William F., to Texaco Inc. Coking of waste alkaline sulfite pulp liquor at lowered pH. 3,836,427, Cl. 162-31.000.
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Collins, Robert J. Animal feed and process. 3,836,660, Cl. 424-269.000.
Collins, Robert J. Animal feed and process. 3,836,661, Cl. 424-269.000.
Collins, Robert J. Animal feed and process. 3,836,662, Cl. 424-269.000.
Colomb, Henry Octave, Jr.; and Trecker, David John, to Union Carbide Corporation. Radiation convertible norbornene polymers. 3,836,509, Cl. 260-77.5bb.
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Connor, James E., Jr.; Rieve, Robert W.; and Shalit, Harold, to Atlantic Richfield Company. Process for preparing para-xylene. 3,836,603, Cl. 260-673.500.
Conrad, Sherman E.; and Bintner, Dennis W., to Delavan Manufacturing Company. Foam generating nozzle. 3,836,076, Cl. 239-8.000.
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Conwicke, Joel Alfred, to Du Pont du Nemours, E. I., and Company. Vanadium based resistor compositions. 3,836,340, Cl. 29-182.500.
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Cooley, Richard F., to Owens-Illinois, Inc. Laser glass host compositions comprising TeO_2, B_2O_3 and ZnO. 3,836,868, Cl. 331-94.500.
Cooley, Richard F., to Owens-Illinois, Inc. Laser glass host compositions comprising TeO2, BaO and ZnO and methods of making and using the same. 3,836,869, Cl. 331-94.500.
Cooley, Richard F., to Owens-Illinois, Inc. Laser glass host compositions comprising TeO2 and BaO. 3,836,870, Cl. 331-94.500.
Cooley, Richard F., to Owens-Illinois. Laser glass host compositions comprising TeO_2, Li_2O and ZnO. 3,836,871, Cl. 331-94.500.
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Coules, Ronald A., to Richco Plastic Company. Insulator grommet or spacer. 3,836,704, Cl. 174-138.00d.
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Coulter, Wallace H.; Ingram, Marylou; and Ferro, Patrick Vincent, to Coulter Electronics, Inc. Method for classifying particles. 3,836,849, Cl. 324-71.0cp.
Coulter, Wallace H., to Coulter Electronics, Inc. Apparatus for particle size distribution display with means to selectively alter the display by adding predetermined D.C. signals to the data. 3,836,850, Cl. 324-71.0cp.
Courten, Henry C.; and Mattal, Joseph P., to Grumman Aerospace Corporation. Angular orientation measuring apparatus. 3,836,258, Cl. 356-138.000.
Cowan, Larry Clyde, to Leesona Corporation. Fluid operated system. 3,835,751, Cl. 91-420.000.
Cowett, Philip M., Jr., to United States of America, Army. Method for nuclear radiation hardening of DC-to-DC converters. 3,836,836, Cl. 321-44.000.
Cox, Gerald C.: *See—*
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Cracraft, Larry F.; Oppmann, Richard C.; and Whitaker, Edward G., to General Motors Corporation. Apparatus for measuring the speed of a moving member. 3,836,853, Cl. 324-166.000.
Cracraft, Larry F.; Houser, David E.; and Whitaker, Edward G., to General Motors Corporation. Motor vehicle seat belt safety system. 3,836,955, Cl. 340-52.00e.
Cragg, William Donald, to International Standard Electric Corporation. Electro-acoustic armature transducer. 3,836,733, Cl. 179-119.00a.
Craig, John C., Jr., to American Parking Company, Inc. Fee collection device. 3,836,069, Cl. 232-1.00r.
Cramer, Jurgen: *See—*
  Alt, Hartmuth; Clasen, Hermann; and Cramer, Jurgen, 3,836,440.
Cranford, Wilbert W., Jr.: *See—*
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Cricchi, James R., to Westinghouse Electric Corporation. MNOS/SOS random access memory. 3,836,894, Cl. 340-173.00r.
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Croix-Marie, Francis Marie; and Dubois, Daniel Jean-Marie, to Bertin & Cie. Attitude compensation method and system for ground-effect machines. 3,835,952, Cl. 180-118.000.
Crosby, Philip S.: *See—*
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Cross, Charles, to Robertshaw Controls Company. Output encoder and line driver. 3,836,904, Cl. 340-347.0dd.
Cross, Charles, to Robertshaw Controls Company. Analog to digital converter. 3,836,905, Cl. 340-347.0ad.
Cross, Charles, to Robertshaw Controls Company. Method and apparatus for decoding biphase signals. 3,836,956, Cl. 340-146.1ab.
Crotti, Renato. Apparatus for the reforming of yarn package carriers made of plastic material. 3,836,310, Cl. 425-384.000.

Crowley, Charles L.: *See—*
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Crump, Robert O.; and Bethsold, Karl R., to Honeywell Information Systems, Inc. Gravity-fed selectable pin insertion device. 3,835,521, Cl. 29-203.00b.
Csongor, Desider G. Apparatus for extruding melted plastic mixtures. 3,836,127, Cl. 259-191.000.
Cubitt, Robert B.: *See—*
  Tilp, Robert F.; Fitzpatrick, William E.; and Cubitt, Robert B., 3,836,044.
Curran, John: *See—*
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Curran, Roger J., to Remington Arms Company, Inc. Shot container wad for hard shot. 3,835,783, Cl. 102-42.00c.
Cuthbertson, Kenneth J., to Honeywell Inc. Curie point ambient temperature sensor. 3,836,827, Cl. 317-133.000.
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Czuszak, Charles C., to Carrier Corporation. Nozzle structure for steam turbines. 3,836,281, Cl. 415-217.000.
Dadekian, Zaven A., to Baird Chemical Industries, Inc. Method of killing bacteria using didecyl dimethyl ammonium chloride. 3,836,669, Cl. 424-329.000.
Daggett, Ronald L.: *See—*
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Dal, Henry A.; and Keur, Robert I., to Dick, A. B., Company. Method for controlling ink characteristics. 3,835,881, Cl. 137-389.000.
D'Amata, Michael. Control for ball piston fluid transmission device. 3,835,752, Cl. 91-492.000.
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Dance, Harry Jr. Insert for a golf club head. 3,836,153, Cl. 273-173.000.
Daniel, Heston C. Dental cleaning device. 3,835,872, Cl. 132-92.00r.
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  Weber, Karl Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Karl Heinz, deceased, 3,836,653.
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Darpentigny, Charles; Lesserteur, Michel; Chatillon, Viry; and Lux, Daniel, to Anvar Agence Nationale de Valorisation de la Recherche. Antiobiotic disc distributors. 3,836,047, Cl. 221-93.000.
Dastoli, Joseph, Sr. Tension adjustment tool. 3,835,488, Cl. 7-1.00r.
David, Pierre Yvon; and Martin, Gilbert Marius, to Republic of France; as represented by State Minister charged with National Defence Delegation Ministerielle pour l'Armement, Bureau des Prevets et Inventions. Device for rotating passage through a wall subect to different pressures on either side. 3,835,801, Cl. 114-16.00r.
Davies, David W., Jr., to Carter-Waters Corporation. Sign frame assembly. 3,835,613, Cl. 52-656.000.
Davis, Jack Raymond. Work clamp. 3,836,136, Cl. 269-150.000.
Davis, John A., Jr.: *See—*
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Davis, Steven S., to Envirotech Corporation. Media feed system for a filtration device. 3,836,006, Cl. 210-387.000.
Davison, Clifford C.; and Ott, Reinhold A., to Gulf Oil Corporation. Packing ring. 3,836,158, Cl. 277-146.000.
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Dawson, George J.; Hannum, Kenneth O.; and Himmelman, Gerald L., to Alvey, Inc. Discrete article palletizing and depalletizing apparatus. 3,836,018, Cl. 214-6.0fs.
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Dayton-Walther Corporation: *See—*
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De Garcia, Horacio J., Jr.; and Zimmerman, Vincent H., to McDonnell Douglas Corporation. Nested toroid nozzle apparatus. 3,835,643, Cl. 60-230.000.
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De Jong, Maarten C.; and Gutowski, Antoni P., to Stanley Works, The. Level vial station assembly. 3,835,549, Cl. 33-379.000.
De Jonge, Frederik Ate, to U.S. Philips Corporation. Opto-magnetic memory. 3,836,895, Cl. 340-174.0yc.
De Koning, Joseph G.: *See—*
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De Mathe, Leslie L. Drafting instrument. 3,835,542, Cl. 33-109.000.
de Montigny, Armand; Schnurrbusch, Karl; Seyfried, Klaus; and Noll, Walter, to Bayer Aktiengesellschaft. Process for the production of tris-(trimethylsiloxy)-phenylsilane. 3,836,558, Cl. 260-448.20e.
De Simone, Roy R.; Donofrio, Nicholas M.; Linton, Richard H.; Sonoda, George; and Wade, William T., to International Business Machines Corporation. D.C. stable electronic storage utilizing A.C. stable storage cell. 3,836,892, Cl. 340-173.0dr.
Dean, Warren E.; and Makris, William E., to PPG Industries, Inc. Process for recovering mercury from brine solids. 3,836,442, Cl. 204-99.000.
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Del Priore, Vincent; Rous, Arthur; and Holtzman, Richard, to Federal Carton Corporation. Book carton. 3,836,066, Cl. 229-40.000.
Delahunty, John J. Cyanoacrylate adhesive composition. 3,836,377, Cl. 106-287.000.
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Di Marco, Bernard; Kussy, Frank W.; and Cataldo, John B., to I-T-E Imperial Corporation. Manual motor starter combined with fused circuit protectors. 3,836,820, Cl. 317-13.00b.
Diamond, Allen M., to Beckman Instruments, Inc. Low dissipation power amplifier. 3,836,861, Cl. 330-15.000.
Dick, A. B., Company: *See—*
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Dodd, Joseph C. Device and method of recovering sticky particulate materials such as algae. 3,836,681, Cl. 426-272.000.
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Douglas, Clarence J.; Young, Walter L.; and Phillips, Jack H., to Ozark-Mahoning Company. Methods and apparatus for submerged combustion (with air pollution control). 3,835,909, Cl. 159-16.00a.
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Driebelbis, Richard C., to Emerson Electric Co. Remote plastic dispensing head with fluid level actuated expension chamber shut off. 3,836,050, Cl. 222-66.000.
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Duclo, Marley J., to HVP, Inc. Liquid cooling system for use on snowmobiles. 3,835,948, Cl. 180-5.00r.
Dudko, Daniil Andreevich; and Danilovich, Mikhail. Planetary fluid motor with internal meshing. 3,836,292, Cl. 418-63.000.
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Duggins, James. Bowling glove. 3,835,472, Cl. 2-161.00a.
Duhy, Kenneth W.; and Jones, John, Jr., to Pfizer Inc. Dispensing container of folded disposable towels. 3,836,045, Cl. 221-63.000.
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Earley, James Valentine; Fryer, Rodney Ian; and Walser, Armin, to Hoffmann-La Roche Inc. 2-Lower alkylthio-1H-1,4-benzodiazepines. 3,836,521, Cl. 260-239.0bd.
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Eckert, John P., Jr.; and Bucks, Robert M., to Sperry Rand Corporation. Four stage storage enhanced logic circuit. 3,836,792, Cl. 307-300.000.
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Elazar, Shmuel; and Neville, Dee J., to Statham Instruments, Inc. Fluid flow meters. 3,835,704, Cl. 73-194.00a.
Elder, Robert L.: *See—*
Case, Cecil L.; Elder, Robert L.; and Fell, Ferol S., 3,835,628.
Electricity Council, The: *See—*
Millington, James Peter, 3,836,441.
Electronic Music Studies (London) Limited: *See—*
Cockerell, David, 3,836,909.
Elger, Ronald John, to Mannesmann-Meer Aktiengesellschaft. Hydraulic presses. 3,835,682, Cl. 72-14.000.
Ellin, Seymour, to Polaroid Corporation. Flash photographic system with camera inhibit feature. 3,836,930, Cl. 354-127.000.
Ellison, Charles V., to Water Purification Corporation of America. Irradiator for water purification. 3,836,781, Cl. 250-432.000.
Elmendorf, Armin, to Elmendorf Research, Inc. Method of composing wide continuous bands of veneer. 3,835,902, Cl. 144-310.00b.
Elmendorf Research, Inc.: *See—*
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Elsas, Adolf: *See—*
Dietz, Kurt; Lenert, August; Silbermann, Karl; Appelt, Gunther; and Elsas, Adolf, 3,836,803.
Else, George W.: *See—*
Paul, John M.; Heisler, William C.; and Else, George W., 3,835,788.
Emch, Brooke R.: *See—*
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Emeis, Reimer: *See—*
Platzoeder, Karl; Martin, Heinz; and Emeis, Reimer, 3,837,000.
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Emerson Electric Co.: *See—*
Driebelbis, Richard C., 3,836,050.
Wightman, Lawrance W., 3,836,135.
Emery, Lewis A.: *See—*
Thoreson, Gene A.; Ley, Richard A,; Miller, Cardell E.; and Emery, Lewis A., 3,836,125.
Emery, William M.; deceased (by Emery, William W.; administrator). Self-help bath seat. 3,835,483, Cl. 4-185.00s.
Emery, William W.: *See—*
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Emmons, Donald R. Probe for detecting the level of substances in fluid bodies. 3,836,447, Cl. 204-195.00r.
Endo, Takuya, to Nissan Motor Company, Limited. Liquid contact tilt inertial switch with movable metallic conductive means responsive to acceleration and deceleration forces. 3,836,739, Cl. 200-61.470.
Energy Sciences Incorporated: *See—*
Hughes, Nathaniel, 3,835,810.
Engel, Erland Christoffer, to Smidth, F. L., & Co. Pre-heating apparatus in rotary kiln plant. 3,836,323, Cl. 432-106.000.
Engelhard Minerals & Chemicals Corporation: *See—*
Zysk, Edward D.; Robertson, Allen R.; Cisz, Michael; and Sheridan, Robert W., 3,836,402.
Engelhardt, Albrecht: *See—*
Koppe, Herbert; Kummer, Werner; Stahle, Helmut; Zeile, Karl; Engelhardt, Albrecht; and Traunecker, Werner, 3,836,666.
Engelhart, John M.; and Morrish, William P., to Quality Pool Supply Co. Swimming pool coping. 3,835,481, Cl. 4-172.210.
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Englert, Werner: *See—*
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English Clays Lovering Pochin & Company Limited: *See—*
Luke, William George, 3,836,084.
ENM Company: *See—*
Polydoris, Nicholas G.; and Wollar, Burnell J., 3,835,543.
Ennis, Joseph C.; and Winn, Ray, to Development Associates. 3,836,961, Cl. Navigation aid.
Enterprise Machine and Development Corporation: *See—*
Schrader, Victor H.; Polney, Richard J.; and Vermilyea, Peter W., 3,835,511.
Environmental Data Corporation: *See—*
Egan, Dale W.; Holstrom, Geoffrey B.; Lord, Harry C.; Stevens, Robert W.; Port, Darrell P.; and Howard, Rollen D., 3,836,237.
Envirotech Corporation: *See—*
Davis, Steven S., 3,836,006.
Eppes, William R., to Corning Glass Works. Reagent storage and dispensing system. 3,836,335, Cl. 23-259.000.
Erdell, John Buckland. Method for obtaining photographic reproductions in color. 3,835,781, Cl. 101-464.000.
Ergon, Rolf Otto Torbjorn, to Aktiebolaget Bofors. Device for the localisation of an object. 3,836,949, Cl. 340-3.00r.
Ernst, Rudolf, to Kunststoff-Verfahrenstechnik Ernst, Dr. Ing., GmbH. Device for manufacturing coated hard-foam tiles of polyurethane. 3,836,298, Cl. 425-115.000.
Ernsthausen, Roger E.; and Emch, Brooke R., to Owens-Illinois, Inc. Process for applying stress-balanced coating composite to dielectric surface of gas discharge device. 3,836,393, Cl. 117-217.000.
Essex International, Inc.: *See—*
Anderson, Robert L., Jr., 3,835,819.
Esso Research and Engineering Company: *See—*
O'Farrell, Charles P.; and Serniuk, George E., 3,836,511.
Esterdahl, Richard B. Casket lid. 3,835,509, Cl. 27-19.000.
Etablissements Gatineau S.A.: *See—*
Rambaud, Michel, 3,835,762.
Eto, Yoshio, to Xerox Corporation. Development apparatus for electrophotographic printing machine. 3,835,811, Cl. 118-637.000.
Eustance, John W., to General Electric Company. Polyolefin film containing therein widely dispersed fine particles of a dielectric liquid soluble material. 3,836,829, Cl. 317-258.000.
Evans, Arthur J., to Whitlock, Inc. Blower control assembly for vacuum conveyor system. 3,836,288, Cl. 417-307.000.
Evans, Milton R., to Halliburton Company. Electronic combination lock selector unit. 3,835,680, Cl. 70-278.000.
Evans, Norol T., to Hughes Aircraft Company. Automatic data processor. 3,836,964, Cl. 343-7.00a.
Evans, William Thomas; and Fraser, Ian, to Fraser, Ian. Heating, cooling and ventilating grills. 3,836,073, Cl. 236-49.000.
Everlast World Boxing Headquarters Corporation: *See—*
Golomb, David L., 3,836,146.
Evers, William J.; Heinsohn, Howard H., Jr.; and Mayers, Bernard J., to International Flavors & Fragrances Inc. 3-Thioacetyl or benzoyl-alkane-1,4 diones. 3,836,563, Cl. 260-455.00r.
Excelermatic, Inc.: *See—*
Kraus, Charles E., 3,835,974.
Exec (Proprietary) Limited: *See—*
Oliver, George Albert, 3,836,884.
Ezaki Glico Kabushiki Kaisha, Osaka-fu, The: *See—*
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Taylor, Victor E.; Choate, Wallace R.; Banachowski, Stanley; Johnson, Robert W.; and Faison, Robert C., 3,835,743.
Falize, Claude; and Bouniot, Albert, to Rhone-Progil. Process for the transesterification of unsaturated esters. 3,836,576, Cl. 260-486.00r.
Falk, Edward J., to Wagner Electric Corporation. Brake shoe. 3,835,962, Cl. 188-73.100.
Falk, Roland: *See—*
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Farbwerke Hoechst Aktiengesellschaft: *See—*
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Schafer, Lothar; and Wojtech, Bernhard, 3,836,625.
Stache, Ulrich; Haede, Werner; Fritsch, Werner; Radscheit, Kurt; and Lindner, Ernst, 3,836,520.
Faris, George N.; and DesChamps, Nicholas Howard, to Donbar Development Corporation. Rotatable heat exchanger. 3,835,921, Cl. 165-86.000.
Farnsworth, John Leonard, to Rank Organisation Limited, The. Fully closing iris diaphragm. 3,836,234, Cl. 350-266.000.
Farrell, John J., to Farrell Patent Company. Stripping actuator for molding machine. 3,836,300, Cl. 425-165.000.

- Farrell Patent Company: *See—*
  - Farrell, John J., 3,836,300.
  - Grazine, William, 3,836,305.
- Fastenau, Werner: *See—*
  - Leonhardt, Fritz; Hahn, Volker; and Fastenau, Werner, 3,835,690.
- Favret, Uncas. Apparatus for recovering oil substances from the surface of a body of water. 3,836,004, Cl. 210-242.000.
- Fawzi, Maged M.; and Quebedeaux, Bruno, Jr., to Du Pont de Nemours, E. I., and Company. Ureidotriazoles as yield increasing agents for crop plants. 3,836,350, Cl. 71-92.000.
- Fechillas, Michael R., to Johnson & Johnson. Synthetic resin binder compositions. 3,836,514, Cl. 260-86.10e.
- Federal Carton Corporation: *See—*
  - Del Priore, Vincent; Rous, Arthur; and Holtzman, Richard, 3,836,066.
- Federal Paper Board Company, Inc., mesne: *See—*
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- Feind, Klaus: *See—*
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- Felkner, Floyd R. Self-levelling support for refrigerator or the like. 3,836,162, Cl. 280-6.00r.
- Fell, Ferol S.: *See—*
  - Case, Cecil L.; Elder, Robert L.; and Fell, Ferol S., 3,835,628.
- Fenichel, Richard L.: *See—*
  - Teller, Daniel M.; Guinosso, Charles J.; Bell, Stanley C.; and Fenichel, Richard L., 3,836,639.
- Fenton, Donald M., to Union Oil Company of California. Catalytic dehydrogenation of alcohols. 3,836,553, Cl. 260-409.000.
- Ferguson, Norman T.: *See—*
  - Hemsath, Klaus H.; Vereecke, Frank J.; and Ferguson, Norman T., 3,836,320.
- Ferment, George R.: *See—*
  - Calundann, Gordon W.; and Ferment, George R., 3,836,500.
- Fernholtz, Hans: *See—*
  - Krekeler, Hans; Fernholtz, Hans; Freudenberger, Dieter; Schmidt, Hans-Joachim; and Wunder, Friedrich, 3,836,567.
- Ferranti Limited: *See—*
  - Clarke, Graham Morley, 3,836,261.
  - Duncan, James Ritchie; and Hannaford, Colin Donald, 3,836,875.
- Ferrin, Charles R., to Combustion Engineering, Inc. Heater. 3,835,816, Cl. 122-156.000.
- Ferris, Byron S. Method of producing three-dimensional foam plastic forms. 3,836,624, Cl. 264-321.000.
- Ferro, Patrick Vincent: *See—*
  - Coulter, Wallace H.; Ingram, Marylou; and Ferro, Patrick Vincent, 3,836,849.
- Fetting, Karl-Ernst: *See—*
  - Telle, Otto; Molls, Hans-Heinz; and Fetting, Karl-Ernst, 3,836,649.
- Fibrex Corporation: *See—*
  - Myers, Homer S., 3,835,635.
- Fieber, Richard A.: *See—*
  - Santilli, Arthur A.; Kim, Dong H.; and Fieber, Richard A., 3,836,529.
- Figl, Johann: *See—*
  - Braidt, Helfried; and Figl, Johann, 3,835,878.
- Filtaflo (Proprietary) Limited: *See—*
  - Radford, Colin M., 3,836,002.
- Finch, Dan Milton. Roadway marker device. 3,836,275, Cl. 404-13.000.
- Findlay, Peter Michael; Savage, Sidney Clifford; Klee, John Michael; and Gamble, Joseph Eric, to Wildt Mellor Bromley Limited. Patterning mechanisms for knitting machines. 3,835,669, Cl. 66-50.00r.
- Finkman, Hans-Ulrich; and Engeln, Bernard, to Chemische Werke Huls Aktiengesellschaft. Thermoplastic molding composition comprising polybutene and polypropylene. 3,836,607, Cl. 260-897.00a.
- Firma Fordertechnik Hamburg Harry Lassig: *See—*
  - Lassig, Harry, 3,836,020.
- Fischer, Wilhelm; Krause, Friedrich; Biesner, Walter; and Sonnenmoser, Hubert, to Lever Brothers Company. Device for use in the production of cheese. 3,836,688, Cl. 426-518.000.
- Fishback, Alton J.: *See—*
  - Calvert, Rodney K.; and Fishback, Alton J., 3,835,979.
- Fisher, David G.; and Hill, Jerry W., to Dayco Corporation. Endless power transmission belt and method of making same. 3,835,720, Cl. 74-231.00c.
- Fitzpatrick, William E.: *See—*
  - Tilp, Robert F.; Fitzpatrick, William E.; and Cubitt, Robert B., 3,836,044.
- Fives Lille Cail: *See—*
  - Retali, Roger; Chielens, Alain; and Boussekey, Bernard, 3,836,103.
- Flach, Karl-Egon: *See—*
  - Grosch, Ernst; Gawlick, Heinz; Bendler, Hellmut; and Flach, Karl-Egon, 3,836,170.
- Flaminaire: *See—*
  - Claude, Beaudouin Jean, 3,835,579.
- Fleck, Adolf: *See—*
  - Steinberger, Siegfried; Pflugbell, Mathias; Nagel, Erich; Baasner, Wilhelm; Dreher, Karl; Englert, Werner; Ehrengruber, Paul; and Fleck, Adolf, 3,836,060.
- Fleet Electronics Limited: *See—*
  - Mansfield, John William Brian, 3,836,900.
- Fleissner, Heinz, to Vepa AG. Process for the continuous treatment of textile materials. 3,835,490, Cl. 8-149.100.
- Fleissner, Heinz; and Wilhelm, Ernst, to Vepa AG. Apparatus for the continuous treatment, particularly dyeing, of fibrous material. 3,835,671, Cl. 68-5.00d.
- Flipot, Alfred-Jean; Papeleux, Paul; and LaFontaine, Ivan, to Belgonucleaire and Centre d'Elude de l'Energie Nucleaire. Nuclear fuel rods having end plugs with bores there through sealed by frangible membranes. 3,836,431, Cl. 176-79.000.
- FMC Corporation: *See—*
  - Franko-Filipasic, Borivoj Richard; and Start, John Francis, 3,836,599.
  - Franko-Filipasic, Borivoj Richard; Orwoll, Edward Francis; and Start, John Francis, 3,836,608.
  - Houston, Robert K.; and Irving, Donald W., 3,836,299.
  - Saldick, Jerome, 3,836,634.
  - Tomelleri, Giordano, 3,835,765.
- Foote, Daniel J., to Master Lock Company. Laminated padlock body with incorporated band-forming slab. 3,835,676, Cl. 70-52.000.
- Forber, David K.; and Nehrich, Richard B., Jr. Apparatus for viewing a distant fluorescent object. 3,836,782, Cl. 250-461.000.
- Forbes Jones, Robin Mackay, to International Nickel Company, Inc., The. Addition agent. 3,836,358, Cl. 75-122.000.
- Forbro Design Corp.: *See—*
  - Nercessian, Sarkis, 3,836,907.
- Ford Motor Company: *See—*
  - Colvin, Alex D., 3,836,253.
  - Hilderbrandt, Lynn H., 3,836,415.
  - Lunsford, Max W., 3,836,128.
  - Van Wicklin, Warren A., Jr., 3,836,204.
  - Wolgemuth, James H., 3,835,827.
- Forgrave, Malcolm C., to Leelanau Industries, Inc. Word game apparatus. 3,836,150, Cl. 273-135.00d.
- Forsheda Ideutveckling AB: *See—*
  - Sporre, Sten Ragnar, 3,836,622.
- Foseco International Limited: *See—*
  - Jago, Edward John; and McCray, Walter A., 3,836,112.
  - Vandemark, William Jacob; and Wood, Michael Stuart, 3,835,913.
- Fossett, Wallace Lee, to ACF Industries, Incorporated. Flushing arrangement for railway cars. 3,836,203, Cl. 302-53.000.
- Foster Grant Co., Inc.: *See—*
  - Petitto, Albert C., 3,836,042.
- Foster, Jack D.: *See—*
  - Kirk, Russell F.; Moreno, Frederick E.; and Foster, Jack D., 3,836,236.
- Foster, Karl; and Seidel, Joseph, to Westinghouse Electric Corporation. Glass coated electrical steel sheet and articles prepared therefrom. 3,836,389, Cl. 117-129.000.
- Fouquet-Werk Frauz & Planck: *See—*
  - Schiebel, Alfred; Kuhn, Falk; Beuter, Hermann; and Planck, Alfred, Jr., 3,835,668.
- Fowler, William H., to Western Electric Company, Incorporated. Distributing a fluid evenly over the surface of an article. 3,836,388, Cl. 117-120.000.
- Fox Motori di CECI Napoleone & C.s.a.s.: *See—*
  - Bonvicini, Giacomo, 3,836,800.
- Fram Corporation: *See—*
  - DeJong, Allan W., 3,836,284.
- Francey, Melvin H.: *See—*
  - Spanke, Edwin A.; Carrieri, Louis F.; and Francey, Melvin H., 3,835,971.
- Franck, Howard S., to Philco-Ford Corporation. Refrigerator cabinet construction. 3,835,660, Cl. 62-277.000.
- Frankel, Alvin L.: *See—*
  - Newman, Martin; and Frankel, Alvin L., 3,835,869.
- Frankenfeld, John W.: *See—*
  - Wright, Donald L.; and Frankenfeld, John W., 3,836,672.
- Franklin Equipment, Inc.: *See—*
  - Barker, Bernard A.; and Daggett, Ronald L., 3,835,882.
- Franklyn, Robert Alan. Pneumatic chest exerciser. 3,836,141, Cl. 272-79.00c.
- Franko-Filipasic, Borivoj Richard; and Start, John Francis, to FMC Corporation. Liquid products produced by reaction of phosphonitrilic esters with phosphoric anhydride. 3,836,599, Cl. 260-927.00n.
- Franko-Filipasic, Borivoj Richard; Orwoll, Edward Francis; and Start, John Francis, to FMC Corporation. Process for self condensing phosphonitrilic chloresters and product. 3,836,608, Cl. 260-926.000.
- Franks, Aud J.; and Johnson, Will A. Pattern control for tufting machines. 3,835,797, Cl. 112-79.00a.
- Franz, John E., to Monsanto Company. Dicarbamoyl hydroxamates. 3,836,572, Cl. 260-472.000.
- Franz, William F.: *See—*
  - Cole, Edward L.; Hess, Howard V.; and Franz, William F., 3,836,427.
- Fraser, Ian: *See—*
  - Evans, William Thomas; and Fraser, Ian, 3,836,073.
- Frater, Georg; Greuter, Hans; and Schmid, Hans, to Hoffmann-La Roche Inc. Tricyclo[5,4,0,$0^{3,9}$] undeca-5,10-dien-ones. 3,836,584, Cl. 260-586.00m.
- Frazee, Orville P.: *See—*
  - Wolford, Earl W.; and Frazee, Orville P., 3,836,289.

- Freck, James A.; and Kondrot, Leonard V., to American Maize-Products Company. Process for making simulated meat and cheese products. 3,836,677, Cl. 426-103.000.
- Freed, Meier E.; and Potoski, John R., to American Home Products Corporation. Benzobicycloalkane amines for inducing analgesia. 3,836,670, Cl. 424-330.000.
- Freese, Martin P. Safety applique. 3,836,420, Cl. 161-19.000.
- Freisberg, Karl-Otto: *See—*
  - Irmscher, Klaus; Freisberg, Karl-Otto; Orth, Dieter; Nowak, Herbert; and Simane, Zdenek, 3,836,527.
- Frejd, Walter T. Pool device for handicapped players. 3,836,145, Cl. 273-23.000.
- Frenkel, Mark Isaakovich. Straightway valve. 3,835,883, Cl. 137-512.100.
- Frens, Gerrit; Van Den Boomgaard, Jan; and Van Suchtelen, Jaap, to U. S. Philips Corporation. Slotted anode X-ray tube. 3,836,804, Cl. 313-60.000.
- Fresard, Marcel, to Mefina S.A. Assembly comprising a presser foot and a graduated rule. 3,835,798, Cl. 112-150.000.
- Freudenberg, Carl: *See—*
  - Bischoff, Dieter, 3,836,422.
- Freudenberger, Dieter: *See—*
  - Krekeler, Hans; Fernholtz, Hans; Freudenberger, Dieter; Schmidt, Hans-Joachim; and Wunder, Friedrich, 3,836,567.
- Frey, Walter; and Toth, Istvan, to Sandoz Ltd. Process for the production of 1-nitroanthraquinones. 3,836,546, Cl. 260-369.000.
- Frey, Walter; and Yarborough, William, to Sandoz Ltd. Nitration process. 3,836,601, Cl. 260-369.000.
- Fricke, Gunter: *See—*
  - Singewald, Arno; Fricke, Gunter; and Juno, Detlef, 3,835,996.
- Fried, Krupp Gesellschaft mit beschrankter Haftung: *See—*
  - Schwarz, Wilhelm; Tromp, Henricus; and Heinz, Winfried, 3,835,790.
- Friedel, Rudolf; and Natter, Bernd, to Siemens Aktiengesellschaft. Rotary anode for an X-ray tube. 3,836,808, Cl. 313-330.000.
- Fries, Hjalmar Elias, to ITT Industries, Inc. Treatment for waste water or the like. 3,836,456, Cl. 210-6.000.
- Frigoscandia Contracting AB: *See—*
  - Londahl, Goran Stig; and Eek, Lars Inge, 3,835,764.
- Frisbee, Belmont Jr., to United States of America, Navy. Dual mode radar system. 3,836,966, Cl. 343-14.000.
- Frisch, Erling; and Andrews, Harry N., to Westinghouse Electric Corporation. Means for rapidly exposing the core of a nuclear reactor for refueling. 3,836,429, Cl. 176-29.000.
- Frisch, Erling; and Andrews, Harry N., to Westinghouse Electric Corporation. Cable support structure for enabling a nuclear reactor to be refueled rapidly. 3,836,430, Cl. 176-33.000.
- Fritsch, Werner: *See—*
  - Stache, Ulrich; Haede, Werner; Fritsch, Werner; Radscheit, Kurt; and Lindner, Ernst, 3,836,520.
- Fritz Buser AG., Maschinenfabrik: *See—*
  - Klemm, Martin, 3,836,367.
- Frohlich, Alfons; and Hochlehnert, Franz, to Opti-Holding A.G. Method of and apparatus for thermofixing of slide-fastener coupling chains. 3,836,413, Cl. 156-73.000.
- Frost, Lawrence W., to Westinghouse Electric Corporation. Compositions of cyanoimide polymers and heterocyclic polymers made from cyanoimide precursors. 3,836,506, Cl. 260-47.0cp.
- Fruktow, Gelb N.: *See—*
  - Kurland, Richard M.; and Fruktow, Gelb N., 3,836,979.
- Frungel, Frank: *See—*
  - Frungel, Frank; and Lohse, Horst (said Lohse assor. to said), 3,836,233.
- Frungel, Frank; and Lohse, Horst, said Lohse assor. to said Frungel, Frank. Anti-flash shutter with two compartments. 3,836,233, Cl. 350-266.000.
- Frye, David, to Norco Sales and Manufacturing Company. . 3,836,879, Cl. 335-136.000.
- Fryer, Rodney Ian: *See—*
  - Earley, James Valentine; Fryer, Rodney Ian; and Walser, Armin, 3,836,521.
- Fuchs, Otto: *See—*
  - Kirsch, Aloys; Fuchs, Otto; and Spietschka, Ernst, 3,836,379.
- Fuji Photo Film Co., Ltd.: *See—*
  - Kiritani, Masataka; Matsukawa, Hiroharu; and Aoki, Masayuki, 3,836,383.
  - Osada, Chiaki; and Murata, Masataka, 3,836,437.
- Fuji Photo Film Company, Ltd.: *See—*
  - Tamai, Yasuo, 3,836,384.
- Fuji Spinning Company Limited: *See—*
  - Kodama, Mikio, 3,836,086.
- Fujii, Kimio: *See—*
  - Tagawa, Hiroaki; and Fujii, Kimio, 3,836,631.
- Fujisawa, Hideya, to Nippondenso Co. Ltd. Fuel injection system for internal combustion engine. 3,835,820, Cl. 123-32.0ea.
- Fujisawa, Kiyoshi: *See—*
  - Yasui, Koichi; Yamamoto, Kazuo; Itami, Kazuo; Fujisawa, Kiyoshi; and Sasaki, Toshio, 3,836,336.
- Fujitou Limited: *See—*
  - Sugioka, Ryoichi, 3,836,721.
- Fujiware, Tadafumi: *See—*
  - Sumimoto, Toru; Matsushita, Shigeo; Fujiware, Tadafumi; Koizumi, Ken; and Yamazaki, Tetsuya, 3,836,348.
- Fukazawa, Kiyohiko: *See—*
  - Saito, Akio; Fukazawa, Kiyohiko; and Motoyama, Yukitoshi, 3,836,264.
- Fukinbara, Itaru: *See—*
  - Yano, Nubumitsu; Fukushima, Masao; Fukinbara, Itaru; Kishi, Masanori; and Kimura, Kazuyoshi, 3,836,531.
- Fukuda, Kazuo: *See—*
  - Yamada, Keisho; Umemura, Sumio; Ohdan, Kyoji; and Fukuda, Kazuo, 3,836,586.
- Fukuda, Tomio: *See—*
  - Yamamoto, Makoto; Fukuda, Tomio; and Nakatake, Masamichi, 3,836,756.
- Fukui, Shigetaka: *See—*
  - Furusho, Hirosuke; and Fukui, Shigetaka, 3,835,725.
- Fukushima, Juichi; and Nagahiro, Michinori, to Matsushita Electric Industrial Co., Ltd. Tape reel and tape reel storing magazine. 3,836,096, Cl. 242-197.000.
- Fukushima, Masao: *See—*
  - Yano, Nubumitsu; Fukushima, Masao; Fukinbara, Itaru; Kishi, Masanori; and Kimura, Kazuyoshi, 3,836,531.
- Fullerton, Baxter T., to Warner & Swasey Company, The. Machine tool with indexible tool support. 3,835,516, Cl. 29-47.000.
- Funk, John W.; Merlino, Eugene L., Jr.; and Woods, Daniel J., to Barasch, Stephen and Burroughs Corporation. Print train permitting accelerated printing speeds in a line printer. 3,835,771, Cl. 101-111.000.
- Funk, Roland: *See—*
  - Lux, Benno; Funk, Roland; Schachner, Herbert; and Triquet, Christian, 3,836,392.
- Furusho, Hirosuke; and Fukui, Shigetaka, to Daihatsu Kogyo Kabushiki Kaisha. Steering assembly of a motor vehicle. 3,835,725, Cl. 74-492.000.
- Gaenzler, Wolfgang: *See—*
  - Schroeder, Guenter; Gaenzler, Wolfgang; Uddrich, Peter; and Babuliak, Josef, 3,836,551.
- GAF Corporation: *See—*
  - Lewis, Alan Glueck, 3,836,228.
- Gagnon, Richard T., to Scitronix Corporation. Speech synthesizer responsive to a digital command input. 3,836,717, Cl. 179-1.0sa.
- Gaines, Lewis H., to Tyco Laboratories, Inc. Lithium batteries and method of preparing a positive electrode material therefor. 3,836,403, Cl. 136-83.00r.
- Galantay, Eugene E., to Sandoz-Wander, Inc. 4-Substituted-benzocyclohepta-[1,2,d]-oxazoles and thiazoles. 3,836,538, Cl. 260-302.00f.
- Gallenberger, Robert J.: *See—*
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- Galloway, Glen L., to United States of America, Navy. Pressetable singly-input voltage-time integrator. 3,836,791, Cl. 307-293.000.
- Galperin, Alexandr Lvovich; Serebryannikov, Albert Semenovich; Zabotin, Alexandr Alexandrovich; Onikov, Eduard Arshakovich; Lukoshkov, Vladimir Iosifovich; Lileev, Valeryan Petrovich; Loschilin, Evgeny Dmitrievich; Rutkevich, Zinovy Yakovlevich; Sakharov, oris Alexandrovich; and German, Zinovy Antolievich. Device for winding weft thread on the spools of weft carriers in travelling wave looms. 3,835,893, Cl. 139-12.000.
- Galyan, Boris Afanasievich: *See—*
  - Sakharnov, Vasily Alexeevich; Popov Alfred Nikolaevich; Tishura, Vladimir Ivanovich; Galyan, Boris Afanasievich; and Skulsky, Jury Valentinovich, 3,836,746.
- Gamble, Joseph Eric: *See—*
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- Gamble, Peter Dennis, to Lubrizol Corporation, The. Fuel meter. 3,835,700, Cl. 73-113.000.
- Gamco Industries, Inc.: *See—*
  - Horak, Martin S., 3,836,943.
- Garavelli, Frank D.: *See—*
  - Milette, Kenneth A.; Garavelli, Frank D.; and Tolleson, Thomas H., 3,836,194.
- Garcin, Maurice; and Gauthier, Adrien, to Societe les Piler Wonder. Electrochemical generators of the metal-air or metal-oxygen type. 3,836,398, Cl. 136-86.00a.
- Gardner, Clive D. Truck wheel dolly. 3,836,027, Cl. 214-331.000.
- Gardner, James J.: *See—*
  - Boltz, Duane A.; Gardner, James J.; and Hautau, Charles F., 3,835,620.
- Garner, Robert; and Bolliger, Hans Rudolf, to Ciba-Geigy AG. Pressure-sensitive copying material. 3,836,382, Cl. 117-36.200.
- Garretson, Henry D. Surgical bone punch. 3,835,860, Cl. 128-310.000.
- Garrett Corporation, The: *See—*
  - Goodrich, Joseph A., 3,835,641.
- Garrett, Wayne O., to Hansco, Inc. Sphere and angle turning attachment for milling machines. 3,835,528, Cl. 29-560.000.
- Gates & Sons, Inc.: *See—*
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- Gates, H. Gordon; and Brendel, Robert, to Gates & Sons, Inc. Knockdown window frame. 3,835,586, Cl. 49-463.000.
- Gaudek, Jani: *See—*
  - Basu, Prithwis; Neumann, Guenter; and Gaudek, Jani, 3,835,745.
- Gauthier, Adrien: *See—*
  - Garcin, Maurice; and Gauthier, Adrien, 3,836,398.
- Gawlick, Heinz: *See—*
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- Gearhart, Walter S. Hydrostatic leveling apparatus with control operator. 3,835,548, Cl. 33-367.000.
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- Gebr. Hofman KG: *See—*
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- Gehman, John B.; and Ravenis, Joseph V. J., to General Dynamics Corporation. Sensor system. 3,836,960, Cl. 343-5.0pd.
- Geier, Timothy D., to Caterpillar Tractor Company. Bucket positioner for loaders. 3,836,032, Cl. 214-764.000.
- Geiger, David H. Roof construction. 3,835,599, Cl. 52-2.000.
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  - Schillreff, George H., 3,836,968.
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  - Parker, Rollin James, 3,836,802.
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  - Carlson, Richard A.; and Eddy, Robert E., 3,836,788.
  - Cracraft, Larry F.; Oppmann, Richard C.; and Whitaker, Edward G., 3,836,853.
  - Cracraft, Larry F.; Houser, David E.; and Whitaker, Edward G., 3,836,955.
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  - Klees, Gerard T., 3,836,188.
  - Kochendorfer, Donald P.; and Whistler, Charles C., Jr., 3,835,661.
  - Marta, Henry A.; and Swenson, Curtis A., 3,835,787.
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  - Mondt, James R., 3,835,920.
  - Ranft, Ernst L.; Paddock, Gordon R.; and Murray, Jeremiah J., 3,835,646.
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  - Huffman, Theron, 3,835,647.
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- Gengard, Sven-Erik Olof; and Johansson, Yngve Lennart, to SDF Industrial Trading and Development Company B.V. Spiral groove bearings. 3,836,214, Cl. 308-159.000.
- Geren, Keith E.; Papineau, Milton D.; and Routh, Claude C., to United States of America, Navy. Heterodyne autocorrelation guidance system. 3,836,951, Cl. 340-6.00r.
- Gergoe, Bela: *See—*
  - Meyer, Barthold F.; Dully, Floyd I.; Gergoe, Bela; Kazewych, Bohdan; and Hebert, Robert M., 3,835,678.
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- Gess, Larry C. Apparatus for filling and labeling containers. 3,835,897, Cl. 141-98.000.
- Getgen, Lawrence E., to Armour-Moore Marine Service Limited. Combination hybrid and switching circuit and method utilizing resonant transfer. 3,836,720, Cl. 179-15.0fd.
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- Ghougasian, John; Hart, Jon; Juliusburger, Hans Yohanan; and Lowy, Paul, to International Business Machines Corporation. Drop charge sensing apparatus for an ink jet printing system. 3,836,912, Cl. 346-75.000.
- Gibbons, Burton C.; and Westacott, Harry L., to Eastman Kodak Company. Photographic chemical waste handling apparatus and method. 3,836,987, Cl. 354-300.000.
- Gibson, Richard D.; and Whelan, Robert D., to General Instrument Corporation. Coding arrangemet for fiber optic digital display device. 3,836,911, Cl. 340-380.000.
- Giesemann, Rolf: *See—*
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  - Sokol, Phillip Edward; and Tsai, Hu-Chu, 3,836,326.
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  - Moss, Norman Sidney, 3,835,960.
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- Glenn, Edwin E., Jr.: *See—*
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- GLN, Inc.: *See—*
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- Godbier, Thomas A. Non-leak safety valve in filling line for vehicle gasoline tank. 3,835,900, Cl. 141-348.000.
- Goddard, Norman H., to JCN Wire Industries Ltd. Rigid structure for shelving unit. 3,835,793, Cl. 108-109.000.
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- Goff, McKinley; and Crum, Donald, to Middletown Manufacturing Co., Inc., mesne. Recliner with vertically movable headrest. 3,836,197, Cl. 297-391.000.
- Goffe, William L., to Xerox Corporation. Imaging method. 3,836,362, Cl. 96-1.100.
- Golbeck, Bernard J., to Oak Industries Inc. Operator plate common to multiple pushbutton switch operators allowing simultaneous actuation of plural switch assemblies during momentary or. 3,836,736, Cl. 200-5.00b.
- Golborn, Peter, to Hooker Chemical Corporation. Process for acylating dialkylacyl phosphonates. 3,836,609, Cl. 260-971.000.
- Goldberg, Edward M.; and Bazell, Seymour, to MPC/KurgiSil. T tube. 3,835,863, Cl. 128-350.00r.
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- Golomb, David L., to Everlast World Boxing Headquarters Corporation. Baseball base ground fastening device. 3,836,146, Cl. 273-25.000.
- Golota, John H., to I-T-E Imperial Corporation. Adjustable contact nozzle and retractable arcing chamber for gas blast circuit breakers. 3,836,741, Cl. 200-148.00r.
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  - Kolycheck, Edmond G., 3,836,555.
- Goodrich, Joseph A., to Garrett Corporation, The. Ram fluid turbine. 3,835,641, Cl. 60-716.000.
- Goodson, Raymond E.: *See—*
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- Goodyear Tire & Rubber Company, The: *See—*
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  - Hewitt, John H.; and Richardson, Deane W., 3,835,977.
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- Gorenschek, Matthias. Saddle construction, seat member for use therein, and method. 3,835,621, Cl. 54-44.000.
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- Gottschalk, Lawrence A., to Union Carbide Corporation. Combination label for packaged product and printed-on removable decal. 3,835,564, Cl. 40-306.000.
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- Granitzki, Karl Ernst; Schiefer, Paul; and Hess, Heinrich, to VFG Vertriebsgesellschaft fur feuerfeste und giesstechnische Erzeugnisse mbH. Method of making liner in an induction melting furnace. 3,836,613, Cl. 264-30.000.
- Granson, Peter R. Combination knife & shear. 3,835,533, Cl. 30-146.000.
- Gray, Robert F., to A-T-O Inc. Toe board bracket. 3,836,106, Cl. 248-229.000.
- Grayson, Martin; and Keough, Patricia Tarpey, to American Cyanamid Company. Organo phosphonium salts. 3,836,587, Cl. 260-606.50f.
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- Gregory, Ted, to Arens Controls, Inc. Lawn mower control. 3,835,726, Cl. 74-501.00p.
- Greiter, Franz Johann. Items of apparel, especially sport clothing. 3,835,470, Cl. 2-79.000.
- Grelat, Maurice; and Archambault, Jean, to Ciba-Geigy AG. Process for the manufacture of anthraquinone derivatives. 3,836,548, Cl. 260-376.000.
- Gressitt, Tillman Johnson; Koliss, Peter Paul; and Ramsey, Raymond Bolton, to Bell Telephone Laboratories, Incorporated. Cable terminal. 3,836,696, Cl. 174-41.000.
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- Grider, Lyle D.; and Cleereman, Robert J., to Bucyrus-Erie Company. Removable outrigger assembly with rotatable jack. 3,836,012, Cl. 212-145.000.
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- Grigg, Donald A., to Silverbow Industries, Inc. Bee feeder for hives. 3,835,487, Cl. 6-5.000.
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- Grivna, Gerald J., 1/2 to Clark, J. Wickham. Swim fin. 3,835,493, Cl. 9-307.000.
- Grosch, Ernst; Gawlick, Heinz; Bendler, Hellmut; and Flach, Karl-Egon, to Dynamit Nobel Aktiengesellschaft. Device for the inflation of safety cushions in vehicles. 3,836,170, Cl. 280-150.0ab.
- Grosholz, James R.; Crowley, Charles L.; and Hutter, Charles G., to Air-Shields, Inc. Wound drainage equipment. 3,836,287, Cl. 417-306.000.
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- Gross, Marvin C.; Stana, Regis R.; Klem, Franklin D.; and Shaffer, Raymond E., to Westinghouse Electric Corporation. System for concentrating solutions by low pressure recycling. 3,836,457, Cl. 210-23.000.
- Grosswiller, Leo J. Jr.; Deutsch, Fritz A.; and Leipelt, Paul A., to Diebold, Incorporated. Remote depository construction. 3,836,980, Cl. 346-22.000.
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- Grove, Marvin H., to M & J Valve Company and M & J Development Company. Meter proving apparatus and method. 3,835,695, Cl. 73-3.000.
- Growney, Lawrence J., to Federal Paper Board Company, Inc., mesne. Story book carton locking assembly. 3,835,987, Cl. 206-45.110.
- Gruett, Donald G., to Oil-Rite Corporation. Combined liquid level and temperature gauge. 3,835,708, Cl. 73-292.000.
- Grumman Aerospace Corporation: *See—*
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- GTE Sulvania Incorporated: *See—*
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- GTE Sylvania Incorporated: *See—*
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- Gullekson, Edwin H. Three dimensional X-ray opaque foreign body marker device. 3,836,776, Cl. 250-312.000.
- Gulrich, Leslie W., Jr.; and Morgan, Paul Winthrop, to Du Pont de Nemours, E. I., and Company. Polyamides and their anisotropic dopes. 3,836,498, Cl. 260-30.80r.
- Gunnerman, Robert J.: *See—*
  - Hartzell, George W.; and Gunnerman, Robert J., 3,835,978.
- Guntersdorfer, Max; and Thomann, Helmut, to Siemens Aktiengesellschaft. Piezoelectric filter. 3,836,877, Cl. 333-72.000.
- Gustavsson, Tommy Henning Bruno: *See—*
  - Schoeps, Knut Christian; and Gustavsson, Tommy Henning Bruno, 3,835,934.
- Gustavsson, Tommy Henning Bruno; Karden, Karl Gosta; and Westerberg, Sven Peter Jonas, to Atlas Copco Aktiebolag. Reading apparatus for a program control system. 3,836,752, Cl. 235-61.11j.
- Gutman, Anatoly Lvovich; Prefsman, Vladimir Alexandrovich; Abramov, Leonid Mikhailovich; and Shokurov, Jury Stepanovich. Detachable telescopic joint. 3,836,273, Cl. 403-377.000.
- Gutowski, Antoni P.: *See—*
  - De Jong, Maarten C.; and Gutowski, Antoni P., 3,835,549.

Guzman, Adolfo M.; Hu, Paul Y.; and Waller, Tracy N., to International Business Machines Corporation. Capstan/tachometer assembly. 3,836,774, Cl. 250-231.00r.

Gyongyos, Ivan, to Prolizenz AG. Continuous casting of non-ferrous metals. 3,835,917, Cl. 164-279.000.

Haas, Hans: *See—*

Hartlapp, Gerhard; Haas, Hans; and Stendenbach, Karl-Heinz, 3,836,675.

Haas, Werner E. L.: *See—*

Adams, James E.; Becker, James H.; and Haas, Werner E. L., 3,836,230.

Hach Chemical Company: *See—*

Stookey, Lawrence L., 3,836,331.

Hackenberg, Robert A., to Robertson Paper Box Co., Inc. Lock bottom box with medial divider. 3,836,065, Cl. 229-27.000.

Hackstein, Karl-Gerhard; Hrovat, Milan; and Wolff, Willi, to Nukem, G.m.b.H. Apparatus for the production of pressed block fuel elements of high power for gas cooled high temperature reactor. 3,836,311, Cl. 425-406.000.

Hadamovsky, Eugene: *See—*

Schreiber, Georg; Schroeder, Heinz; Hoppe, Wolfgang; Hadamovsky, Eugene; Ovenhausen, Hans-Walter; and Piotrowski, Bernhard, 3,836,573.

Hadjidjanian, Huguette Micheline Mary Nadot, to Societe Civile Le Brin. Flowmeter. 3,835,705, Cl. 73-194.00f.

Haede, Werner: *See—*

Stache, Ulrich; Haede, Werner; Fritsch, Werner; Radscheit, Kurt; and Lindner, Ernst, 3,836,520.

Hafner, Edwin A., to Hafner Industries, Inc. Vinyl chloride polymer recovery process. 3,836,486, Cl. 260-2.300.

Hafner Industries, Inc.: *See—*

Hafner, Edwin A., 3,836,486.

Hagedorn, Bassett: *See—*

Bobeck, Andrew Henry; Geusic, Joseph Edward; and Hagedorn, Bassett, 3,836,898.

Hagemann, Hermann; Wingler, Frank; and Pollheide, Dieter, to Bayer Aktiengesellschaft. Binders for the electrostatic powder-spraying process. 3,836,604, Cl. 260-836.000.

Hagen, Clarence A., to Weck, Edward & Company, Inc. Surgical air drill. 3,835,858, Cl. 128-305.000.

Hahn, Volker: *See—*

Leonhardt, Fritz; Hahn, Volker; and Fastenau, Werner, 3,835,690.

Hahnkamm, Volker; Rademachers, Jakob; Henkel, Hanno; Brandle, Karl; and Schafer, Kurt, to Bayer Aktiengesellschaft. Production of composite pigments of iron oxide and carbon black. 3,836,378, Cl. 106-288.00r.

Haines, Russell R., to PACO Packaging, Inc. Tamperproof package. 3,835,995, Cl. 206-42.000.

Haitz, Roland H.; Sedlewicz, Paul G.; Stirrup, Keith A.; Hilbiber, David F.; and Teichner, Robert W., to Hewlett-Packard Company. Photon isolator with improved photodetector transistor stage. 3,836,793, Cl. 307-303.000.

Hakanson, Nils L.: *See—*

Touchette, Albert Francis; and Hakanson, Nils L., 3,836,252.

Halasz, Stephen J.; and Winston, Charles D., to Aerojet-General Corporation. Parallel multiple channel display system. 3,836,795, Cl. 315-13.00c.

Hall, Charles M.: *See—*

Johnson, Herbert G.; Wright, John B.; Hall, Charles M.; and Warner, Donald T., 3,836,541.

Hall, Gaddis G. Conductor clamp. 3,836,102, Cl. 248-74.00r.

Hall, Joseph F., Jr., to United States of America, Navy. Multiple channel optical system. 3,836,232, Cl. 350-174.000.

Hall, Wayne Culver, Jr. Pipe cleaning apparatus and method. 3,835,587, Cl. 51-9.000.

Hall, William Bernard; and Koskulitz, Joseph Allen, to RCA Corporation. Heat dissipation for power integrated circuit devices. 3,836,825, Cl. 317-100.000.

Hall, William C.: *See—*

Boenke, Clyde O.; Miller, Murray H.; Levine, Michael R.; Rigotte, Victor H.; Vivian, Weston E.; and Hall, William C., 3,836,888.

Hallal, Alfred Jean. Connecting device for modular constructions. 3,836,218, Cl. 312-111.000.

Hallas, Robert; Martin, Jerry Roy; and Tadanier, John Soloman, to Abbott Laboratories. Sulfonyl derivatives of erythromycin. 3,836,519, Cl. 260-210.00e.

Halliburton Company: *See—*

Clement, Clarence C., Jr., 3,835,926.

Evans, Milton R., 3,835,680.

Hyde, Walter E., 3,835,889.

Halvorson, Kenneth M., Sr. Unitized electric heater assembly for a coffee percolator. 3,836,713, Cl. 219-441.000.

Ham, Rowland Herbert, to Ronway Engineering Company Limited. Demountable load carrying bodies. 3,836,178, Cl. 280-415.00b.

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Hamasaki, Masafumi: *See—*

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Hamberger, Lois Inez. Supports for ornamental designed articles. 3,836,419, Cl. 161-18.000.

Hammond, Clif: *See—*

Olson, Rich L.; Roland, Murray C.; and Hammond, Clif, 3,836,078.

Hampton, Richard J.; and Bonnell, Brian P., to Ogilvie Flour Mills Company, Limited, The. Starch-based adhesive compositions. 3,836,376, Cl. 106-213.000.

Hannaford, Colin Donald: *See—*

Duncan, James Ritchie; and Hannaford, Colin Donald, 3,836,875.

Hannum, Kenneth O.: *See—*

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Hansco, Inc.: *See—*

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Hansen Manufacturing Company, The: *See—*

Norton, James F.; and Creadon, William F., 3,836,114.

Hansford, Rowland C. Conversion process and catalysts. 3,836,454, Cl. 208-111.000.

Hanstad, Robert D. License plate retainer. 3,835,563, Cl. 40-209.000.

Harada, Ikuo: *See—*

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Haraikawa, Tetsuo, to Tokico Ltd. Brake cylinder assembly. 3,835,970, Cl. 188-345.000.

Hard Metals Limited: *See—*

Bingham, Henry, 3,835,944.

Hardie, George S.: *See—*

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Harding, George W., to Poly-San Corporation. Chemical toilet cabana. 3,835,480, Cl. 4-116.000.

Hardman, Carl C., to Westinghouse Electric Corporation. Iron electrode for alkaline cells. 3,836,397, Cl. 136-25.000.

Harkness, Richard Ernest, to Combustion Engineering, Inc. Noise reducing apparatus for a vibrating screen sifting machine. 3,835,955, Cl. 181-33.00k.

Harper, Ronald Ernest; and Mole, Michael James, to Arkana Limited. Joint for joining structural members. 3,835,610, Cl. 52-755.000.

Harrer, Paul H.: *See—*

Rosendahl, John R.; Lay, Willard W.; and Harrer, Paul H., 3,835,629.

Harris, John P.; Mantey, John P.; and Wood, David R., to International Business Machines Corporation. Adaptive motor acceleration. 3,836,833, Cl. 318-270.000.

Harris, Richard T.: *See—*

Sismore, William W., 3,835,520.

Harris-Intertype Corporation: *See—*

Krygeris, Algirdas J., 3,835,777.

Wasil, Joseph J., 3,835,597.

Weidman, William H., 3,835,776.

Hart, Jon: *See—*

Ghougasian, John; Hart, Jon; Juliusburger, Hans Yohanan; and Lowy, Paul, 3,836,912.

Harth, Wolfgang, to Licentia Patent-Verwaltungs-G.m.b.H. Electrical companent. 3,836,990, Cl. 357-6.000.

Hartlapp, Gerhard; Haas, Hans; and Stendenbach, Karl-Heinz, to Knapsack Aktiengesellschaft. Purification of yellow phosphorus. 3,836,675, Cl. 423-322.000.

Hartmann, Heinrich; Stelter, Siegfried; and Trelewsky, Heinz-Guenter, to Braunschweigische Maschinenbauanstalt. Mobile device for reception, precleaning and piling of beets. 3,835,997, Cl. 209-73.000.

Hartmann, Job-Werner: *See—*

Roller, Hermann; Stritzinger, Heinz; Hartmann, Job-Werner; Falk, Roland; and Balz, Werner, 3,836,395.

Hartwig, Karl; and Vossnacke, Juergen, to AGFA-Gevaert Aktiengesellschaft. Electrophotographic drying and fixing device. 3,836,322, Cl. 432-59.000.

Hartzell, George W.; and Gunnerman, Robert J., to Hartzell Industries, Inc. Log transfer apparatus. 3,835,978, Cl. 198-22.00r.

Hartzell Industries, Inc.: *See—*

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Harwood, Ralph Russell. Fishhook extractor. 3,835,574, Cl. 43-53.500.

Hasegawa, Goro; Nakamoto, Soichi; Takishima, Yoshiyuki; Mashimo, Yukio; Taguchi, Tatsuya; Nakamura, Zenzo; and Taguchi, Tetsuya, to Canon Kabushiki Kaisha. Exposure setting device for flash photographing. 3,836,922, Cl. 354-51.000.

Hashimoto, Hideo: *See—*

Noguchi, Masaaki; Yanagioka, Hiroshi; Kanai, Toshio; Nishiguchi, Kazuo; Hashimoto, Hideo; Abe, Katuhiro; Masuko, Tomio; Mahino, Zenichi; and Kogawa, Yosio, 3,836,630.

Hashioka, Noriyasu, to Hope Kabushiki Kaisha. Heel supporting device for a ski safety binding. 3,836,163, Cl. 280-11.35t.

Hashizume, Nobuo: *See—*

Kataoka, Shoei; Hashizume, Nobuo; Tomizawa, Kazutaka; Morisue, Mititada; and Komamiya, Yasuo, 3,836,989.

Hastwell, Peter J.; Smith, Ian E.; and Scroggs, Dennis I., to Savin Business Machines Corporation. Copy machine having photoconductive belt. 3,836,245, Cl. 355-8.000.

Haupt, Heinrich: *See—*

Tacke, Peter; Haupt, Heinrich; Blank, Heinz Ulrich; Bockmann, August; and Rudolph, Hans, 3,836,501.

Hauptmann, Karl Heinz: *See—*

Weber, Karl Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Karl Heinz, 3,836,652.

Hauptmann, Karl Heinz, deceased: *See—*

Weber, Karl Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Karl Heinz, deceased, 3,836,653.

Hauptmann, Maria: *See—*

Weber, Karl Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Karl Heinz, 3,836,652.

Hauptmann, Marie, heir: *See—*

Weber, Karl Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Karl Heinz, deceased, 3,836,653.

Hautau, Charles F.: *See—*

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Hawthorne, Vaughn T., to Keystone Industries, Inc. Draft gear pocket adapter. 3,836,013, Cl. 213-54.000.

Hayashi, Yoshihiro; and Iwatsuki, Masahiro, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Safety belt locking device. 3,836,171, Cl. 280-150.0sb.

Hazeltine Corporation: *See—*

Wheeler, Harold A., 3,836,977.

Healey, Daniel J., III; and Driscoll, Michael M., to Westinghouse Electric Corporation. Low noise VHF crystal harmonic oscillator. 3,836,873, Cl. 331-116.00r.

Healy, Benedict Pascal: *See—*

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Hebert, Robert M.: *See—*

Meyer, Barthold F.; Dully, Floyd I.; Gergoe, Bela; Kazewych, Bohdan; and Hebert, Robert M., 3,835,678.

Heck, Copnelis Johannes Adrianus Gerardus, to U. S. Philips Corporation. Arrangement for igniting and supplying a gas-and/or vapour discharge lamp. 3,836,816, Cl. 315-94.000.

Heck, Walter. Method and apparatus for making hairpieces. 3,835,868, Cl. 132-5.000.

Hefele, Josef, Dr., to Kufner Textilwerke KG. Lightweight shoe, in particular indoor or leisure wear shoe. 3,835,555, Cl. 36-9.00r.

Hegele, Arnold C. Portable step and stand for use in hunting wildlife including the same. 3,835,958, Cl. 182-92.000.

Hegendorfer, Max, to Grundig E.M.C. Elektro-Mechanische Versuchsanstalt. Digital to analog converter. 3,836,908, Cl. 340-347.0da.

Hehl, Karl. Injection molding machine with lifting device. 3,836,301, Cl. 425-192.000.

Heidelberger Druckmaschinen Aktiengesellschaft: *See—*

Heidt, Heinrich, 3,835,774.

Heidt, Heinrich, to Heidelberger Druckmaschinen Aktiengesellschaft. Device in offset printing presses for controlling the supply of dampening liquid to dampening equipment of the presses. 3,835,774, Cl. 101-148.000.

Heidt, Peter C. Tricycle. 3,836,177, Cl. 280-269.000.

Heinemann, Albert; and Opferkuch, Wilhelm, to Kromer, Theodore KG. Time control safety lock for a safe or the like with indicating means outside the safe for indicating the time control of the lock. 3,835,679, Cl. 70-271.000.

Heinsohn, Howard H., Jr.: *See—*

Evers, William J.; Heinsohn, Howard H., Jr.; and Mayers, Bernard J., 3,836,563.

Heinz, Winfried: *See—*

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Heisler, William C.: *See—*

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Hekal, Ihab M.; and Chelton, Raymond G., to Continental Can Company, Inc. Metal coating compositions prepared from aqueous dispersions of ionomer and uron resins. 3,836,494, Cl. 260-29.4ua.

Helander, Elton L., to Helander Products, Inc. Adjusting collar for single revolution spring clutch. 3,835,972, Cl. 192-26.000.

Helander Products, Inc.: *See—*

Helander, Elton L., 3,835,972.

Heldreth, Robert L., to Westinghouse Electric Corporation. Pump with self-cleaning lint filter. 3,836,001, Cl. 210-167.000.

Helmcke, Conrad; Hermann, Walter; and Kraus, Peter, to Messerschmitt-Bolkow-Blohm GmbH. Apparatus for measuring the distance between two successive objects. 3,836,770, Cl. 246-167.00d.

Hemsath, Klaus H.; Vereecke, Frank J.; and Ferguson, Norman T., to Midland-Ross Corporation. Minimum scale reheating furnace and means relating thereto. 3,836,320, Cl. 432-11.000.

Henderson, David Alexander Whyte; and Crawford, Brian Thomas, to Pennant Display & Engineering Limited. Moire fringe optical display and projection equipment. 3,836,240, Cl. 352-87.000.

Henderson, Eulas W., to Phillips Petroleum Company. Removal of nitrogen oxides from carbon black pellet dryer purge gas. 3,835,622, Cl. 55-48.000.

Henkel & Cie GmbH: *See—*

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Henkel, Hanno: *See—*

Hahnkamm, Volker; Rademachers, Jakob; Henkel, Hanno; Brandle, Karl; and Schafer, Kurt, 3,836,378.

Hennart, Claude, to Ciba-Geigy AG. Pesticidal compositions containing phosphoric esters and divalent sulphur compounds. 3,836,643, Cl. 424-175.000.

Hepp, Wolfgang; Pimiskern, Klaus; and Herbert, Werner, to Dornier System GmbH. Suspension of supporting bodies for spiral groove bearings. 3,836,212, Cl. 308-15.000.

Herbert, Werner: *See—*

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Hercules Incorporated: *See—*

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Hermann, Paul: *See—*

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Hermann, Walter: *See—*

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Hertel, Heinz E.: *See—*

Bookless, George W.; Hertel, Heinz E.; and Kearney, Robert L., 3,836,250.

Hertel, Heinz E.; Kearney, Robert L.; and Weber, Paul E., to Bell & Howell Company. Illumination system for film recording apparatus. 3,836,251, Cl. 355-70.000.

Hertel, Heinz E.; and Konagamitsu, George K., to Bell & Howell Company. Light sealed film cartridge. 3,836,984, Cl. 354-275.000.

Herzog, Rollie R., to General Electric Company. Emergency instant-start lighting system for rapid start lighting devices. 3,836,815, Cl. 315-86.000.

Herzog, William S. Power transmission apparatus. 3,835,731, Cl. 74-682.000.

Hess, Heinrich: *See—*

Granitzki, Karl Ernst; Schiefer, Paul; and Hess, Heinrich, 3,836,613.

Hess, Howard V.: *See—*

Cole, Edward L.; Hess, Howard V.; and Franz, William F., 3,836,427.

Hesston Corporation: *See—*

Case, Cecil L.; Elder, Robert L.; and Fell, Ferol S., 3,835,628.

Hetzel, Max, to Societe Suisse pour l'Industrie Horlogere Managemant Services SA. Method of making low friction miniature gear drive. 3,835,519, Cl. 29-177.000.

Heuschen, Alexander; Schaefer, Hans; Budich, Wolfgang; Krah, Robert; and Obermeier, Karl, to Dynamit Nobel AG. Self-aligning, miter joint connecting means. 3,836,274, Cl. 403-401.000.

Hewgley, Robert E., Jr.: *See—*

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Hewitt, John H.; and Richardson, Deane W., to Goodyear Tire & Rubber Company, The. Handrail guard. 3,835,977, Cl. 198-16.00r.

Hewlett-Packard Company: *See—*

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Schneider, Richard F.; and Bloedorn, Arthur R., 3,836,758.

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Hickmann, Horst R.: *See—*

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Higashi, Kouzi: *See—*

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High Temperature Systems, Inc.: *See—*

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Hignite, Walter. Rubbish disposal method. 3,835,652, Cl. 61-35.000.

Higo, Akio; Itaya, Nobushige; Hirai, Hajime; and Yoshioka, Hirosuke, to Sumitomo Chemical Company, Ltd. Process for production of lower alkyl esters of cis-chrysanthemum mono-carboxylic acid. 3,836,568, Cl. 260-468.00h.

Hilbiber, David F.: *See—*

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Hildebrandt, Christian, to Volkswagenwerk Aktiengesellschaft. Safety belt fastening. 3,836,172, Cl. 280-150.0sb.

Hilderbrandt, Lynn H., to Ford Motor Company. Method of fabricating a precontoured unitized electrical wiring harness. 3,836,415, Cl. 156-296.000.

Hill, Edward S.: *See—*

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Hill, Jerry W.: *See—*

Fisher, David G.; and Hill, Jerry W., 3,835,720.

Hill, William Frank; and Cattermole, Roger Edward, to Lucas, Joseph, (Industries) Limited. Petrol injection systems for internal combustion engines. 3,835,821, Cl. 123-32.0eh.

Hillberry, Benny M.: *See—*

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Hillekens, Conrardus Ludovicus Anthonius, to U.S. Philips Corporation. Signal receiver for receiving signals of different frequency. 3,836,727, Cl. 179-84.0ve.

Himmelman, Gerald L.: *See—*

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Hodge, Allan M. Trash container lid system. 3,836,036, Cl. 220-32.000.
Hodge, Edward B., to Commercial Solvents Corporation. Composition containing hexetidine and z-methyl-nitro-1,3-dimorpholinopropane. 3,836,654, Cl. 424-248.000.
Hoffman, Jacob. Contact lens edge modifying machine. 3,835,590, Cl. 51-105.01g.
Hoffman, John J.; and White, Jay E., Jr., to Woodall Industries Inc. Vehicle lighting unit assembly. 3,836,763, Cl. 240-41.600.
Hoffman, John T. Versatile tool holder. 3,835,666, Cl. 64-6.000.
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Hoffman, Robert B. Vehicle frame straightening tool. 3,835,692, Cl. 72-442.000.
Hoffman, Robert E.; and Wright, Carl J., to General Motors Corporation. Dishwasher fill system. 3,835,880, Cl. 137-387.000.
Hoffman, William B. Auxiliary bicycle brake device. 3,835,724, Cl. 74-489.000.
Hoffmann, Dieter: *See*—
  Stach, Hans; Hoffmann, Dieter; and Brecht, Heinz, 3,836,552.
Hoffmann, George A., Jr., to Certain-Teed Products Corporation, mesne. Building insulation with decorative facing. 3,835,604, Cl. 52-105.000.
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Hokao, Zenjiro; Shibata, Teijiro; and Yasukabe, Siro, to Tobishima Kensetsu Kabushiki Kaisha. Drilling and cutting submarine rocks. 3,835,937, Cl. 175-6.000.
Hokkaido Sugar Company, Ltd.: *See*—
  Shimizu, Junichi; and Kaga, Toshio, 3,836,432.
Hokuriku Electric Industry Co., Ltd.: *See*—
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Holder, Charles A., Jr. Liquid dispensing nozzle. 3,835,899, Cl. 141-214.000.
Holler, Robert W.; and Rothrock, Richard E., to Owens-Corning Fiberglas Corporation. Electric glass furnace with zone temperature control. 3,836,689, Cl. 13-6.000.
Holley, Carl A. Pellet reclamation process. 3,836,353, Cl. 75-3.000.
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Hollingsworth, Ashley J., to Newell Industries, Inc. Tape record medium and roll. 3,836,094, Cl. 242-192.000.
Hollowell, John V.: *See*—
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Holman, John Michael Leigh: *See*—
  Bond, Donald Spencer; and Holman, John Michael Leigh, 3,836,969.
Holman, Robert E., Jr. Cargo beam. 3,836,174, Cl. 280-179.00r.
Holmen, Reynold E.; and Cook, Jack E., to Minnesota Mining and Manufacturing Company. Heat-bondable retroreflective sheeting. 3,836,227, Cl. 350-105.000.
Holstrom, Geoffrey B.: *See*—
  Egan, Dale W.; Holstrom, Geoffrey B.; Lord, Harry C.; Stevens, Robert W.; Port, Darrell P.; and Howard, Rollen D., 3,836,237.
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Holzgruber, Wolfgang W.; Machner, Peter J. V.; and Schwarz, Ludwig, to Gebr. Bohler & Co. AG. Arrangement for use in making slab ingots by electricslag-refining. 3,835,915, Cl. 164-252.000.
Homer, John C., III; and Stock, John R., to Stock Equipment Company. High voltage power supply. 3,836,838, Cl. 323-7.000.
Honda, Juichi: *See*—
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Hoos, Joseph W.; and Hreschak, Bohdan O., to Nabisco, Inc. Method of preparing shelf-stable pates. 3,836,683, Cl. 426-357.000.
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Horak, Martin S., to Gamco Industries, Inc. Electrical connector for coaxial cable. 3,836,943, Cl. 339-97.00p.
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Horii, Taro, to Maki Manufacturing Co., Ltd. Method and apparatus for conveyance of goods by vibrating plates. 3,835,983, Cl. 198-220.0ba.
Horley, Clifford William, to General Motors Corporation. Method of and apparatus for the manufacture of mouldings. 3,836,303, Cl. 425-214.000.
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  Mickle, John L.; and Horn, Norman E., 3,835,822.
Horneff, Hans, to Bosch, Robert, Fernsehanlagen GmbH. Measuring test signals of test lines which have passed through an amplifier, particularly a video amplifier. 3,836,860, Cl. 330-2.000.
Horowitz, Jack W.: *See*—
  Matschke, Arthur L.; and Horowitz, Jack W., 3,836,880.
Horowitz, Leonard; and Tam, John. Shelving system having wall-mounted fixtures. 3,836,009, Cl. 211-90.000.
Horst, Wilfried; Coldewey, Heiko; Ammazzalorso, Mario; and Schuppler, Emil, to Huppe, Justin, Firma. Electrically operable drive arrangement for venetian blinds. 3,835,911, Cl. 160-168.000.
Horton, Robert A., to Precision Metalsmith, Inc. Methods and materials for treating investment casting patterns. 3,836,372, Cl. 106-38.220.
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Houston, Robert K.; and Irving, Donald W., to FMC Corporation. Press for forming one-piece tablet containing seeds or the like. 3,836,299, Cl. 425-128.000.
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Hoyles, Ronald; and Mitchell, Stanley Alan, to Lever Brothers Company. Toothpastes. 3,836,641, Cl. 424-49.000.
Hoyt, Richard, to OMCO Inc. Locks. 3,835,674, Cl. 70-34.000.
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Huffman, Theron, to General Signal Corporation. Multiple speed hydraulic drive circuit. 3,835,647, Cl. 60-486.000.
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Hughes, Nathaniel, to Energy Sciences Incorporated. Pressure wave mixing. 3,835,810, Cl. 116-137.00a.

Hughes, Thomas L.; and Massey, Peter Graham, to Lucas, Joseph (Electrical) Limited. Spring contact for semi-conductor devices. 3,837,001, Cl. 357-65.000.
Hull, R. Dell. Closed face spinning reel. 3,836,092, Cl. 242-84.20a.
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Hundstad, Richard L., to Westinghouse Electric Corporation. Vacuum type circuit interrupter having improved contacts. 3,836,740, Cl. 200-144.00b.
Hundt, Eberhard, to Daimler-Benz Aktiengesellschaft. Semitrailer-like motor vehicle with air cushion trailer for transportation of loads. 3,835,951, Cl. 180-119.000.
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Hutchison, John Grear, to Grace, W. R., & Co. Process and apparatus for preparing printing plates using a photocured image. 3,836,709, Cl. 178-6.70r.
Huth, R. Carl; and Mc Coy, William, to Johnston, Robert A., Company, Inc. In-line crimping device for rigid foil containers. 3,835,799, Cl. 113-1.00e.
Hutson, Lawrence W. Spinning tool for untwisting phone service cords. 3,836,190, Cl. 294-118.000.
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Ichikawa, Kiyoshi, to Nippon Gakki Seizo Kabushiki Kaisha. Piano tone-synthesizing system for electronic musical instruments. 3,836,693, Cl. 84-1.190.
Ichikawa, Shigemasa, to Aiphone Kabushiki Kaisha. Intercommunication system with a time limited advance notice signal. 3,836,718, Cl. 179-1.00h.
Ichinose, Noboru; and Yokomizo, Yuji, to Tokyo Shibarua Electric Co., Ltd. Oxide varistor. 3,836,483, Cl. 252-519.000.
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Ikegami, Kazutoshi; Honda, Juichi; Miyanaka, Motosi; and Yamamoto, Mitsuoki, to Hitachi, Ltd. Flame detector. 3,836,857, Cl. 328-6.000.
Ikegaya, Masashi; and Shigeta, Fumio, to Riken Light Metal Industries, Co., Ltd. Method for forming a colored oxide coating on surfaces of aluminum or aluminum alloy. 3,836,439, Cl. 204-58.000.
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Ishikawa, Mitsuo, to Bell & Howell Company. Automatic cassette recorder reproducer. 3,836,154, Cl. 360-92.000.
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- Itek Corporation: *See—*
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  - Gracia, Robert F.; Laughrey, Richard A.; and Tuohey, Paul F., 3,835,780.
- Ito, Ryosuke; and Takahashi, Susumu, to Sansui Electric Co., Ltd. Decoder for use in 4-2-4 matrix playback system. 3,836,715, Cl. 179-1.0gq.
- Ito, Toshio: *See—*
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  - Fries, Hjalmar Elias, 3,836,456.
  - Seip, Hermann, 3,835,968.
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- Izraeli, Hyman, to Thomas & Betts Corporation. Electrical connector with resilient pressure pad. 3,836,941, Cl. 339-95.00r.
- Jablonski, Zygmunt: *See—*
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- Jaeger, Horst; and Schaefer, Paul. Perfluoroalkyl compounds, their manufacture, their polymerisation products and their use. 3,836,577, Cl. 260-486.00h.
- Jago, Edward John; and McCray, Walter A., to Foseco International Limited. Flat folded hot topping assemblies. 3,836,112, Cl. 249-197.000.
- Jakubek, Peter, to Fa. International Pollution Control Systems, Inc. Process and apparatus of handling water which is contaminated with an oil like liquid. 3,836,000, Cl. 210-104.000.
- James, Gerald E., to Oxford Laboratories. Determination of vanilmandelic acid in urine. 3,836,332, Cl. 23-230.00b.
- Jamison, Sauders E.; and Anthony, Gene H., to Celanese Corporation. Method of forming cylindrical foamed cellulose rods enclosed in a rigid skin. 3,836,615, Cl. 264-47.000.
- Jaquet, Andre Gustave, to Canron, Inc. Measuring device for checking and/or correcting the transverse slope of railway tracks. 3,835,546, Cl. 33-338.000.
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- Jewett-Ashley Holding Corporation, mesne: *See—*
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- Jezo, Maurice L., to International Telephone and Telegraph Corporation. Method and apparatus for determining tacan bearing. 3,836,864, Cl. 331-1.00r.
- Joannou, Constantinos J. Phonograph record player tone arm assembly. 3,836,155, Cl. 274-23.00r.
- Johanns, Johannes Hendricus Maria; De Boer, Thijs Johannes; De Haan, Edward Fokko; Van Gelder, Zeger; and Mattheij, Mathieu Martinus Maria Petrus, to U. S. Philips Corporation. Picture display device comprising a plurality of light producing elements. 3,83,810, Cl. 313-484.000.
- Johanson, Donald L.; and Stutz, Rolf, to Audivox, Inc. Hearing and having selectable directional characteristics. 3,836,732, Cl. 179-107.0fd.
- Johansson, Anders, to Johansson, Tor. Vehicle lifting device. 3,836,014, Cl. 214-1.00a.
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- John, Robert Sawyer, Jr., to Bell & Howell Company. Optical document sensor for reading machines. 3,836,248, Cl. 355-50.000.
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- Johnson, Bobby G. Fiberglass pour-in-place form. 3,835,608, Cl. 52-426.000.
- Johnson, Dwight N., to Singer Company, The. Axial flow valve. 3,836,113, Cl. 251-5.000.
- Johnson, Frederick W., to Collins Radio Company. Moisture seal for electrical connector. 3,836,935, Cl. 339-17.0lm.
- Johnson, Herbert G.; Wright, John B.; Hall, Charles M.; and Warner, Donald T., to Upjohn Company, The. 3-Cyano-2-pyrryl oxamic acids. 3,836,541, Cl. 260-326.200.
- Johnson, John K.: *See—*
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- Johnson, Joseph A., to Jomar Industries, Inc. Multiple injection blow molding machine. 3,836,304, Cl. 425-242.00b.
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- Johnson, Ralph Ketchum, to Wiebe Manufacturing, Inc. Vacuum assist can unscrambler. 3,835,985, Cl. 198-33.0aa.
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- Johnson, Robert N.; and Karol, Frederick J., to Union Carbide Corporation. Polymerization of ethylene with supported π allyl chromium complexes. 3,836,595, Cl. 260-683.15d.
- Johnson, Robert W.: *See—*
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- Johnson, Ronald F., to United States of America, Army. Method and apparatus for rapid subsurface exploration. 3,836,952, Cl. 340-15.5cp.
- Johnson Service Company: *See—*
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- Johnson, Will A.: *See—*
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- Johnston, Mack S. Liquid dispensing apparatus. 3,836,053, Cl. 222-400.700.
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- Jomar Industries, Inc.: *See—*
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- Joneaux, Pierre Andre. Weapon launching rockets and method to use the same. 3,835,749, Cl. 89-1.008.
- Jones, Cecil Roy, to Transfer Systems Incorporated. Motor-driven hoist with protective braking system. 3,836,121, Cl. 254-170.00r.
- Jones, Elwyn David, to Canadian Industries Limited. Bag tie dispenser. 3,835,755, Cl. 93-8.0wa.
- Jones, Frederick W. C., to Oxy Metal Finishing Corporation, mesne. Cold metal forming lubricant. 3,836,467, Cl. 252-18.000.
- Jones, John, Jr.: *See—*
  - Duhy, Kenneth W.; and Jones, John, Jr., 3,836,045.
- Jones, William Arthur; and Burge, Maurice Victor. Chenodeoxycholic acid. 3,836,550, Cl. 260-397.100.
- Jonsson, Karl-Erik A. Tree felling device. 3,835,901, Cl. 144-34.00r.
- Jordan, Michael, to Damon Corporation. Method and apparatus for removing liquid from containers. 3,836,329, Cl. 23-230.00r.
- Jorgensen, Bjarne. Method of manufacturing a fitting using a punch and die. 3,835,518, Cl. 29-150.000.
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- Joy Manufacturing Company: *See—*
  - Moody, David L.; and Loftis, James B., 3,835,938.
- Judd, Claude I.: *See—*
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- Juliusburger, Hans Yohanan: *See—*
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- Jun, Mong-Jon; Penzien, Klaus; and Wegner, Gerhard, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Photopolymerizable element comprising a conjugated diacetylene layer on the photopolymer layer. 3,836,368, Cl. 96-69.000.
- Junker, Arnold E., to Avco Corporation. Pressure balanced seal assembly. 3,836,216, Cl. 308-187.100.
- Junkunc Bros. American Lock Company: *See—*
  - Lippisch, Guillermo W., 3,835,675.
- Juno, Detlef: *See—*
  - Singewald, Arno; Fricke, Gunter; and Juno, Detlef, 3,835,996.
- Justice, James W. H., to Westinghouse Electric Corporation. Video tape recording of line-shared TV signals. 3,837,003, Cl. 358-4.000.
- Kabushiki Kaisha Ricoh: *See—*
  - Kusano, Haruo; and Takeuchi, Norisada, 3,836,981.
- Kabushiki Kaisha Suwa Seikosha: *See—*
  - Shimodaira, Tadayoshi; and Gomi, Yoshifumi, 3,835,770.
- Kabushiki Kaisha Tokai Rika Denki Seisakusho: *See—*
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- Kaga, Toshio: *See—*
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- Kahle, Rolf D.: *See—*
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- Kahn, William J.: *See—*
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- Kajimoto, Tsunesuke; and Wakamatsu, Shigeru, to Toray Industries, Inc. Catalyst composition of ethylene to ethylene oxide. 3,836,481, Cl. 252-462.000.
- Kali and Salz AG: *See—*
  - Singewald, Arno; Fricke, Gunter; and Juno, Detlef, 3,835,996.
- Kali Und Salz Aktiengesellschaft: *See—*
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- Kanai, Toshio: *See—*
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- Kaneko, Kazuko. Freeze-drying process for producing a dry plant. 3,835,550, Cl. 34-5.000.
- Kanetake, Thomas T.: *See—*
  - Pao, John; Wang, Raymond; Takashima, Ben Tsutomu; Pon, Chuck Y.; and Kanetake, Thomas T., 3,836,959.
- Kanjo, Wajih, to Cardwell Westinghouse Company. Cushioned bumper for scrapers. 3,836,180, Cl. 280-481.000.
- Kanner, Bernard: *See—*
  - Prokai, Bela; and Kanner, Bernard, 3,836,560.
- Kansai Paint Co., Ltd.: *See—*
  - Watanabe, Tadashi; Murata, Kouichiro; and Tsubouchi, Kenjiro, 3,836,492.
- Kanter, Yale C.; and Nemer, Bruce A. Compression opthalmodynamometer. 3,835,836, Cl. 128-2.00t.
- Kao Soap Co., Ltd.: *See—*
  - Matsuda, Kazuo; Tanaka, Yoshiaki; and Aritaki, Hirakazu, 3,836,493.
- Kapell, Henry K. Re-enterable splice enclosure. 3,836,694, Cl. 174-22.000.
- Kapilow, Marvin. Disposable mechanical pencil assembly. 3,836,265, Cl. 401-80.000.
- Karamian, Narbik A. Separatory funnel. 3,836,334, Cl. 23-259.000.
- Karden, Karl Gosta: *See—*
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- Karman, Harvey. Medical instruments. 3,835,843, Cl. 128-17.000.
- Karol, Frederick J.: *See—*
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- Kartridge Pak Co., The: *See—*
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- Kasano, Hiroyuki, to Hitachi, Ltd. Production of epitaxial films of semiconductor compound material. 3,836,408, Cl. 148-175.000.
- Kashiwara, Hideo: *See—*
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- Kataoka, Shoei; Hashizume, Nobuo; Tomizawa, Kazutaka; Morisue, Mititada; and Komamiya, Yasuo, to Agency of Industrial Science & Technology. Bulk semiconductor device. 3,836,989, Cl. 357-3.000.
- Kato, Kunihiro: *See—*
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- Kato, Mikio. Bathtub or the like drain control and overflow regulator. 3,835,484, Cl. 4-199.000.
- Katz, Louis N. Filtration and circulation system and apparatus therefore. 3,835,813, Cl. 119-5.000.
- Katzmark, Peter C.; and Lenea, George H. Granule dispensing regulator. 3,836,055, Cl. 222-427.000.
- Kaukeinen, Ralph M., to Corning Glass Works. Face plate ring assembly for an extrusion die. 3,836,302, Cl. 425-197.000.
- Kawasaki Jukogyo Kabushiki Kaisha: *See—*
  - Miyashita, Junichi, 3,836,098.
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- Kawasaki, Masahiro, to Asahi Kogaku Kogyo Kabushiki Kaisha. Flash control systems for cameras. 3,836,924, Cl. 354-33.000.
- Kawasaki Steel Corporation: *See—*
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- Kawashima, Kohei: *See—*
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- Kawazoe, Michio. Tripod for camera. 3,836,986, Cl. 354-293.000.
- Kay, Christopher John; and Horbury, Eric Anthony, to Rolls-Royce (1971) Limited. Etching solution. 3,836,473, Cl. 252-79.200.
- Kay-Brunner Steel Products, Inc.: *See—*
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  - Hertel, Heinz E.; Kearney, Robert L.; and Weber, Paul E., 3,836,251.
- Keces, Mervyn L. Tarrson Company Bottle sand toy. 3,835,580, Cl. 46-11.000.
- Keegan, Patrick J.; and Roberts, Carl J., to Cassette Sciences Corp. Flying spot scanning system. 3,836,706, Cl. 178-5.20d.
- Kees, George, Jr.; and Hickmann, Horst R., to Kees Surgical Specialty Company. Surgical head clamp. 3,835,861, Cl. 128-346.000.
- Kees Surgical Specialty Company: *See—*
  - Kees, George, Jr.; and Hickmann, Horst R., 3,835,861.
- Keimpema, Keimpe Klaas; Van der Veen, Marcus Fokke; Rietveld, Andreas Fredericus; and Schoo, Jan Andreas, to U.S. Philips Corporation. Hair drying hood. 3,835,551, Cl. 34-100.000.
- Kelbish, Edward D. Modular construction system. 3,835,601, Cl. 52-79.000.
- Kelch, Heinz; and Mueller, Helmut, to Kienzle Apparate GmbH. Damped transfer arrangement for a counter. 3,836,072, Cl. 235-133.00r.
- Keller, Robert C., to General Motors Corporation. Double wall exhaust pipe. 3,835,892, Cl. 138-178.000.
- Keller, Walter; and Zaehner, Hans, to Ciba-Geigy Corporation. Granaticin B and method of preparing same. 3,836,642, Cl. 424-121.000.
- Kelley, Arnetta B.; and Poe, Harvey C. Renewable bait and tackle container. 3,835,575, Cl. 43-56.000.
- Kelley, William E., to Aquarium Systems, Inc. Device for measuring specific gravity of liquids. 3,835,711, Cl. 73-444.000.
- Kellum, Jerome B.; and Smith, Bill, to Continental Oil Company. Internally mounting pipe beveling machine. 3,835,738, Cl. 82-4.00c.
- Kelly, Robert C., to Upjohn Company, The. Novel tetrahydropyranyl lactol derivatives. 3,836,530, Cl. 260-240.00r.
- Kelsey-Hayes Company: *See—*
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- Kelver, Donn E. Cleat for joining duct work. 3,836,181, Cl. 285-55.000.
- Kempermann, Theo: *See—*
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- Kendall Company, The: *See—*
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- Kennedy, Harvey J. Lock mechanism for freight car doors. 3,836,186, Cl. 292-189.000.
- Kennedy, Paul G., to Westinghouse Electric Corporation. Scan conversion with magnetic drum or disc. 3,837,004, Cl. 358-11.000.
- Kenney, Harold E.; Donahue, Edward T.; and Maerker, Gerhard, to United States of America, Agriculture. Greases thickened with keto fatty acid lithium soaps or keto cyanoethylated fatty acid lithium soaps. 3,836,468, Cl. 252-33.600.
- Kensler, Daniel L., Jr.; and Walgenbach, David D., to Chevron Research Company. Preservative composition for moist grain. 3,836,655, Cl. 424-286.000.
- Kent, Allan R.: *See—*
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- Kent, Francis J.; and Jaworski, George M., to Wean United, Inc. Container cooling system for presses. 3,835,685, Cl. 72-263.000.
- Keough, Patricia Tarpey: *See—*
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- Kerr Glass Manufacturing Corporation: *See—*
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- Kerr, Richard H., to Kelsey-Hayes Company. Torque limiter. 3,835,967, Cl. 188-134.000.
- Kerr-McGee Chemical Corporation: *See—*
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- Kerrigan, Charles M.: *See—*
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- Kersten, Gunter; Muller, Rudi; and Ray, Franz. Longitudinal automatic lathe. 3,835,515, Cl. 29-27.00c.
- Keur, Robert I.: *See—*
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- Keystone Industries, Inc.: *See—*
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- Kidson, Leonard, to Hunt Brothers (Oldbury) Limited. Can crushers. 3,835,768, Cl. 100-94.000.
- Kienzle Apparate GmbH: *See—*
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- Kilby, Jack S., to Texas Instruments, Incorporated. Method of making semiconductor devices. 3,835,530, Cl. 29-574.000.
- Kim, Dong H.: *See—*
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  - Santilli, Arthur A.; Scotese, Anthony C.; and Kim, Dong H., 3,836,532.
- Kim, Dong H.; and Santilli, Arthur A., to American Home Products Corporation. 10-Hydroxy-2-phenyl-5H-pyrido(1,2-alpha) pyrimido(4,5-d)-pyrimidin-5-one and processes thereto. 3,836,533, Cl. 260-256.40f.
- Kimura, Kazuyoshi: *See—*
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- King, John O., Jr. Method of fabricating a joint. 3,835,525, Cl. 29-412.000.
- King, John O., Jr. Fastener joint construction. 3,835,615, Cl. 52-758.00d.
- King, John O., Jr. Apparatus and method for sizing holes. 3,835,688, Cl. 72-370.000.
- King, Junior Keith. Hole drilling apparatus with dirt receiving and storing means. 3,835,941, Cl. 175-88.000.

- King, Kenneth K.; and White, Robert L., to General Motors Corporation. Double cardan universal joint with improved centering means. 3,835,667, Cl. 64-17.00r.
- King, Richard J.: *See—*
  - Anderson, Lloyd L.; and King, Richard J., 3,835,585.
- Kinoshita, Yoshio; and Akamatsu, Mitsuhiro, to Glory Kogyo Kabushiki Kaisha. Rental locker system. 3,836,945, Cl. 339-119.00r.
- Kiritani, Masataka; Matsukawa, Hiroharu; and Aoki, Masayuki, to Fuji Photo Film Co., Ltd. Pressure sensitive recording paper. 3,836,383, Cl. 117-36.200.
- Kirk, Russell F.; Moreno, Frederick E.; and Foster, Jack D., to GTE Sylvania Incorporated. Mirror mount for high power lasers. 3,836,236, Cl. 350-310.000.
- Kirner, Uwe, to Badische Anilin-& Soda-Fabrik Aktiengesellschaft. Aqueous chlorite bleach containing a hydroxylammonium activator. 3,836,475, Cl. 252-187.00r.
- Kirsch, Aloys; Fuchs, Otto; and Spietschka, Ernst, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Quinacridone pigment mixtures and process for preparing them. 3,836,379, Cl. 106-288.00q.
- Kirschner, Gerald D.; and Woessner, William H., to Goodyear Tire and Rubber Company, The. Switching apparatus for transportation system. 3,835,785, Cl. 104-130.000.
- Kirton, Joseph Mason; and Southwick, J. Wanless, to Research Enterprises, Inc. Apparatus for teaching. 3,835,553, Cl. 35-9.00c.
- Kishi, Masanori: *See—*
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- Kishida, Takashi; and Terano, Masateru, to Teijin Limited. Draw-texturing apparatus. 3,835,632, Cl. 57-34.0hs.
- Kishimoto, Fikutaro: *See—*
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- Kishira, Nozumu, to Yamaha Hatsudoki Kabushiki Kaisha. Intake silencer for an internal combustion engine. 3,835,956, Cl. 181-35.00a.
- Kitano, Akira, to Nippondenso Co., Ltd. Pulse width setting apparatus. 3,836,858, Cl. 328-58.000.
- Kitchel, George Behrman. Faceted gem with embedded means for producing variable pattern. 3,835,665, Cl. 63-32.000.
- Klee, John Michael: *See—*
  - Findlay, Peter Michael; Savage, Sidney Clifford; Klee, John Michael; and Gamble, Joseph Eric, 3,835,669.
- Klees, Gerard T., to General Motors Corporation. Vehicle bumper system. 3,836,188, Cl. 293-88.000.
- Klein, Konrad, to Zinser-Textilmaschinen GmbH. Gripper for yarn carriers and the like. 3,835,633, Cl. 57-52.000.
- Klein, Wilhelm, to USM Corporation. Method and machine for shaping the heel of a shoe upper. 3,835,496, Cl. 12-142.00r.
- Kleinman, Leonard; and Zelenko, Harry. Electric lamp with balloon dome. 3,836,761, Cl. 240-10.00c.
- Klem, Franklin D.: *See—*
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- Klemm, Martin, to Fritz Buser AG., Maschinenfabrik. Method for photo-mechanical composition of designs on stencils for film and screen printing, particularly rotary screen printing. 3,836,367, Cl. 96-36.400.
- Klep Corporation: *See—*
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- Klepper, Constant L.; and Koziel, Ronald, to Klep Corporation. Web folding machine. 3,836,138, Cl. 270-79.000.
- Klicki, Chester E., to Lear Siegler, Inc. Box spring assembly. 3,835,485, Cl. 5-247.000.
- Klimstra, Paul D., to Searle, G. D., & Co. Method of inhibiting the growth of larvae and nymphs with azasteroids. 3,836,629, Cl. 424-238.000.
- Kline, Richard L., to American Air Filter Company, Inc. Electrode support apparatus for electrical precipitators. 3,835,623, Cl. 55-148.000.
- Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
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- Kluver, Dennis A.; and Mehl, Donald N., to Northwest Microfilm, Inc. Micro fiche mounting carriage for film reader. 3,836,242, Cl. 353-27.000.
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- Knabenbauer, Wolfgang: *See—*
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- Knapp, Heinrich, to Bosch, Robert, GmbH. Fuel supply system. 3,835,828, Cl. 123-119.00r.
- Knapsack Aktiengesellschaft: *See—*
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- Knauer, Kuno: *See—*
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- Knavish, Leonard A., to PPG Industries, Inc. Method of making glass. 3,836,349, Cl. 65-134.000.
- Knickerbocker, Robert H. Separable electrical connector. 3,836,942, Cl. 339-97.00r.
- Knowles, Richard Norris, to Du Pont de Nemours, E. I., and Company. Salts of antimony (V) esters as flame retardants. 3,836,557, Cl. 260-446.000.
- Kobashi, Toshiyuki; and Abe, Noboru, to American Cynamid Company. Method of producing fibers having porous structures. 3,836,616, Cl. 264-50.000.
- Kobayakawa, Masaki; Yawata, Kazufumi; and Yamashita, Shigeru, to Nippon Electric Kagoshima, Limited. Luminescence display tube base plate comprising protrusions extended sideways beyond grid supports. 3,836,806, Cl. 313-108.00r.
- Kobayashi, Hiroshi; and Okada, Goro, to Babcock-Hitachi. Clinker cooling equipment and method. 3,836,321, Cl. 432-15.000.
- Kobayashi, Nobuo: *See—*
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- Koch, Fenton C., to High Temperature Systems, Inc. Molten metal pumps. 3,836,280, Cl. 415-175.000.
- Kochendorfer, Donald P.; and Whistler, Charles C., Jr., to General Motors Corporation. Automatic ice maker water line with meniscus control. 3,835,661, Cl. 62-340.000.
- Kochta, Zdenek: *See—*
  - Piller, Bohumil; Lacko, Vladimir; Kochta, Zdenek; and Koudelka, Bedrich, 3,835,512.
- Kocsis, Joseph; and Polata, Bohumil, to Signetics Corporation. High voltage bipolar semiconductor device and integrated circuit using the same and method. 3,836,998, Cl. 357-53.000.
- Kodama, Mikio, to Fuji Spinning Company Limited. Yarn winding apparatus and method. 3,836,086, Cl. 242-35.50r.
- Koehler, Helmut A.; Redhead, David L.; and Clough, George A., to United States of America, Atomic Energy Commission. Pyrotechnically excited laser system. 3,836,865, Cl. 331-94.50p.
- Koelling, Georg: *See—*
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- Kogawa, Yosio: *See—*
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  - Sumimoto, Toru; Matsushita, Shigeo; Fujiware, Tadafumi; Koizumi, Ken; and Yamazaki, Tetsuya, 3,836,348.
- Koizumi, Yasumi, to Alps Electric Co., Ltd. Double-tuned circuit device with adjustable coupling coefficient means. 3,836,881, Cl. 336-87.000.
- Kok, Pieter W., to North American Philips Corporation. Rotating anode X-ray tube. 3,836,805, Cl. 314-60.000.
- Kokoszka, John G., to Dow Corning Corporation. Polish ingredient. 3,836,371, Cl. 106-10.000.
- Koleff, Boris; and Nagel, Erich, to AGFA-Gevaert Aktiengesellschaft. Apparatus for braking and arresting indexible carriers for filters or the like. 3,836,928, Cl. 354-100.000.
- Koliss, Peter Paul: *See—*
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- Kolycheck, Edmond G., to Goodrich, B. F., Company, The. Diisocyanate-organometallic catalyst solutions. 3,836,555, Cl. 252-431.00n.
- Komakine, Chukei. Feedstuff for fowl, fish and domestic animals. 3,836,676, Cl. 426-74.000.
- Komamiya, Yasuo: *See—*
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- Kondrot, Leonard V.: *See—*
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- Koppe, Herbert; Kummer, Werner; Stahle, Helmut; Zeile, Karl; Engelhardt, Albrecht; and Traunecker, Werner, to Boehringer Ingelheim G.m.b.H. Pharmaceutical compositions containing certain 1-(cyanophenoxy)-2-hydroxy-3-(cycoalkyl-amino)-propanes and method o use. 3,836,666, Cl. 424-304.000.
- Koppers Company, Inc.: *See—*
  - Baum, Melvin E., 3,836,606.
- Kornreich, Philipp G.; and Kowel, Stephen T. Direct electronic fourier transforms of optical images. 3,836,712, Cl. 178-7.100.
- Korth, William P. Silencer. 3,836,097, Cl. 244-1.00n.
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- Koskulitz, Joseph Allen: *See—*
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- Koslowski, Manfred Gunter, to Du Pont de Nemours, E. I., and Company. Baffle for texturing jet. 3,835,510, Cl. 28-1.400.
- Kotok, Alan; Kent, Allan R.; and Gross, David A., to Digital Equipment Corporation. Priority interruption circuits for digital computer systems. 3,836,889, Cl. 340-172.500.
- Kotter, Gustav. Machine for ironing trousers. 3,835,559, Cl. 38-21.000.
- Kotter, James I.: *See—*

  - Mayer, Mayer, Jr.; Kotter, James I.; Salaun, Harold L., Jr.; and Brown, Roger S., 3,835,638.
- Koudelka, Bedrich: *See—*
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- Kovach, Stephen M.; Patrick, Ralph E.; and Kmecak, Ronald A., to Ashland Oil, Inc. Process for hydrogenation-hydrotreating of hydrocarbon mixtures. 3,836,453, Cl. 208-143.000.
- Kowel, Stephen T.: *See—*
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- Kramer, David W., to Smith, A. O., Corporation. Dual coating for protecting metal surface during heat treatment. 3,836,380, Cl. 117-6.000.
- Kraus, Charles E., to Excelermatic, Inc. Internal clutch. 3,835,974, Cl. 192-87.150.
- Kraus, Peter: *See—*
  - Helmcke, Conrad; Hermann, Walter; and Kraus, Peter, 3,836,770.
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  - Horii, Taro, 3,835,983.
- Maki, Takeshi: *See—*
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- Maki, Yamashita: *See—*
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- Manning, Raymond J. Wheeled toy. 3,835,583, Cl. 46-201.000.
- Manning, Virgil B. Rotatable dart board, magnetic darts and magnetic scoring switches. 3,836,148, Cl. 273-95.00r.
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- Mantino, Michael J. Lifting apparatus. 3,836,024, Cl. 214-75.00h.
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  - Rhudy, John S.; and Davis, John A., Jr., 3,836,465.
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  - David, Pierre Yvon; and Martin, Gilbert Marius, 3,835,801.
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  - Uchiyama, Takashi; Taguchi, Tetsuya; and Mashimo, Yukio, 3,836,920.
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- McInnes, Alexander G. P., to International Research and Development Corporation. Tapered drill bit. 3,836,278, Cl. 408-199.000.
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- Mintz, Michael D., to International Technidyne Corporation. System for timing the coagulation of blood. 3,836,333, Cl. 23-259.000.
- Mitchell, Donald R. Scarifier-pulverizer. 3,835,932, Cl. 172-197.000.
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- Mitsubishi Petrochemical Co., Ltd.: *See—*
  - Morisawa, Takao, 3,836,504.
- Mix, Robert C., to Minnesota Mining and Manufacturing Company. Long yardage tape core assembly and tape. 3,836,090, Cl. 242-68.500.
- Miyake, Yuji; Kashiwara, Hideo; and Mizukawa, Jun, to Sanyo Electric Co., Ltd. Vacuum cleaner. 3,835,626, Cl. 55-319.000.
- Miyanaka, Motosi: *See—*
  - Ikegami, Kazutoshi; Yamamoto, Mitsuoki; Toudo, Kenji; and Miyanaka, Motosi, 3,836,316.
  - Ikegami, Kazutoshi; Honda, Juichi; Miyanaka, Motosi; and Yamamoto, Mitsuoki, 3,836,857.
- Miyashita, Junichi, to Kawasaki Jukogyo Kabushiki Kaisha. Vibration absorbing device for rotorcraft. 3,836,098, Cl. 244-17.270.
- Mizelle, Ned W., to Hoover-Seng Company. Manually movable headrest for chairs. 3,836,198, Cl. 297-403.000.
- Mizikar, David M.: *See—*

Amberger, Ronald F.; and Mizikar, David M., 3,835,696.

Mizukawa, Jun: *See—*

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Mobil Oil Corporation: *See—*

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Strubhar, Malcolm K.; and Glenn, Edwin E., Jr., 3,835,928.

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Moen, Alfred M.: *See—*

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Moldcast Manufacturing Company: *See—*

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Mole, Michael James: *See—*

Harper, Ronald Ernest; and Mole, Michael James, 3,835,610.

Molinario, Rene, to Molinario S.A. Wigs. 3,835,867, Cl. 132-5.000.

Molinario S.A.: *See—*

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Moller, Hans Gunter. Toilet assembly. 3,835,477, Cl. 4-9.000.

Molls, Hans-Heinz: *See—*

Telle, Otto; Molls, Hans-Heinz; and Fetting, Karl-Ernst, 3,836,649.

Molnar, George Anthony: *See—*

Von Hardenberg, Paul Warren; and Molnar, George Anthony, 3,836,100.

Molus, Michael R., to Monogram Industries, Inc. Multiple recirculating toilet. 3,835,478, Cl. 4-11.000.

Mondt, James R., to General Motors Corporation. Compact fluid heat exchanger. 3,835,920, Cl. 165-81.000.

Monforts, A.: *See—*

van der Horst, Eberhard, 3,836,210.

Mongerson, Paul A.; and Moen, Alfred M., said Mongerson assor. to Stanadyne, Inc. Valve construction with water modulation. 3,835,887, Cl. 137-625.410.

Monogram Industries, Inc.: *See—*

Molus, Michael R., 3,835,478.

Monsanto Company: *See—*

Barnett, Thomas A., 3,836,426.

Boustany, Kamel; and Coran, Aubert Yaucher, 3,836,412.

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Overall, Wilson W.; and De Koning, Joseph G., 3,836,846.

Phillips, Wendell Gary, 3,836,352.

Phillips, Wendell Gary; and Ratts, Kenneth Wayne, 3,836,579.

Monser, George J.; Hardie, George S.; Ehrhardt, John R.; and Smith, Terry M., to Raytheon Company. Closely spaced orthogonal dipole array. 3,836,976, Cl. 343-795.000.

Montgomery, Merlin W. Folding structure. 3,836,418, Cl. 161-17.000.

Moody, David L.; and Loftis, James B., to Joy Manufacturing Company. Drilling apparatus. 3,835,938, Cl. 175-52.000.

Moore, William P., to Bauer Bros., Co., The. Screen units used for dewatering and classifying the contents of a liquid slurry. 3,835,999, Cl. 209-251.000.

Moores, Robert Gordon, Jr.: *See—*

Sides, Daniel Harrison; and Moores, Robert Gordon, Jr., 3,835,935.

Morelli, Franco: *See—*

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Mori, Chiharu, to Asahi Kogaku Kogyo Kabushiki Kaisha. Camera eyepiece light compensation arrangement. 3,836,921, Cl. 354-31.000.

Mori, Chuzo, to Carl Manufacturing Company. Indexing pointer for list finders. 3,835,560, Cl. 40-104.010.

Mori, Takahisa; and Matsubara, Izuru, to Ezaki Glico Kabushiki Kaisha, Osaka-fu, The and Dai Nippon Printing Company Limited. Carton with two covers. 3,835,989, Cl. 206-45.310.

Mori, Yoichi; Okazaki, Nobuo; Ohtsuka, Kunio; and Iijima, Tetsuya, to Nissan Motor Company, Limited. Gear train arrangements. 3,835,732, Cl. 74-688.000.

Morikawa, Yuji: *See—*

Kubota, Satoru; and Morikawa, Yuji, 3,835,687.

Morimoto, Yoshinobu: *See—*

Asano, Tetsumasa; Takamiya, Hiroshi; and Morimoto, Yoshinobu, 3,835,950.

Morisawa, Takao, to Mitsubishi Petrochemical Co., Ltd. Process for preparing shaped product made of inorganic-organic composite material. 3,836,504, Cl. 260-42.550.

Morisue, Mititada: *See—*

Kataoka, Shoei; Hashizume, Nobuo; Tomizawa, Kazutaka; Morisue, Mititada; and Komamiya, Yasuo, 3,836,989.

Mormino, Vittorio: *See—*

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Moroz, Ilya Alexandrovich: *See—*

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Morrish, William P.: *See—*

Engelhart, John M.; and Morrish, William P., 3,835,481.

Morrison, Glenn C.; and Cetenko, Wiaczeslaw A., to Warner-Lambert Company. 1,2,3,4-Tetrahydro-3-aminomethylisoquinolines. 3,836,536, Cl. 260-286.00r.

Morrison, H. Frank, to University of California, The Regents of the. Electromagnetic device for determining the conductance of a nearby body by a single supercooled inductor coil. 3,836,841, Cl. 324-5.000.

Morse, Lynn H., to OMCO Inc. Safety check valves for gas lines. 3,835,875, Cl. 137-75.000.

Morsell, Arthur Lee: *See—*

Lewis, John Henry; Morsell, Arthur Lee; and Welkowsky, Murray Samuel, 3,836,777.

Morsink, Lucas: *See—*

Van Kamp, Harmen; Westerhof, Pieter; and Morsink, Lucas, 3,836,526.

Moss, Norman Sidney, to Girling Limited. Improvements in or relating to disc brakes. 3,835,960, Cl. 188-71.900.

Motorola, Inc.: *See—*

Arkell, Frank J., 3,836,890.

Olah, Emery E., 3,835,713.

Motoyama, Yukitoshi: *See—*

Saito, Akio; Fukazawa, Kiyohiko; and Motoyama, Yukitoshi, 3,836,264.

Mott, James D., to Hydril Company. Surface controlled float valve and inside blowout preventer drilling tool. 3,835,925, Cl. 166-73.000.

Mounsey, Reginald George. Fishing lure. 3,835,572, Cl. 43-42.060.

Mount, Bruce E., to City of Hope. Impedance plethysmography method and apparatus. 3,835,840, Cl. 128-2.05v.

Mozina, Henry F.; and Blue, Frank L., to Acrometal Products, Inc. Barrel stave reel. 3,836,093, Cl. 242-118.600.

MPC/KurgiSil: *See—*

Goldberg, Edward M.; and Bazell, Seymour, 3,835,863.

Mraz, David M. Wine rack. 3,836,008, Cl. 211-49.00r.

Mrozek, James M., to Brady, W. H., Company. Insert template for a label making machine. 3,836,778, Cl. 250-327.000.

Mueller, Helmut: *See—*

Kelch, Heinz; and Mueller, Helmut, 3,836,072.

Mullenbach, Guy Towns: *See—*

Urry, Wilbert Herbert; and Mullenbach, Guy Towns, 3,836,544.

Muller, Henrik; and Weidner, Peter, to Siemens Aktiengesellschaft. Synchronizing method in time-division multiplex transmission systems. 3,836,722, Cl. 179-15.0bs.

Muller, Jakob: *See—*

Speich, Francisco, 3,835,894.

Muller, Richard, to Gebr. Hofman KG. Wheel balancing apparatus. 3,835,712, Cl. 73-462.000.

Muller, Rudi: *See—*

Kersten, Gunter; Muller, Rudi; and Ray, Franz, 3,835,515.

Munnerlyn, Charles R.; and Trow, William H., to Tropel, Inc. Viewable target system for eye examining instrument. 3,836,238, Cl. 351-36.000.

Murakami, Toshio; and Shibata, Akira, to Hitachi, Ltd. Video signal processing device for extracting the chrominance and luminance signals from a composite video signal in a color television receiver. 3,836,707, Cl. 178-5.40r.

Murata, Kouichiro: *See—*

Watanabe, Tadashi; Murata, Kouichiro; and Tsubouchi, Kenjiro, 3,836,492.

Murata, Masataka: *See—*

Osada, Chiaki; and Murata, Masataka, 3,836,437.

Murphy, John R. B.; and Plett, Edelbert G., to Canada Data Canada, Ltd., mesne. Method and apparatus for determining the thrust of a jet engine. 3,835,701, Cl. 73-117.400.

Murphy, Kevin P.: *See—*

Barton, Oliver A.; and Murphy, Kevin P., 3,836,474.

Murray, Jeremiah J.: *See—*

Ranft, Ernst L.; Paddock, Gordon R.; and Murray, Jeremiah J., 3,835,646.

Muto, Akio: *See—*

Abe, Wataru; Muto, Akio; and Terada, Yasuyuki, 3,836,466.

Myers, Homer S., to Fibrex Corporation. Basting thread with reducing shrinkability and high solvent reactivity and method of producing the same. 3,835,635, Cl. 57-140.00r.

Nabisco, Inc.: *See—*

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NAC Incorporated: *See—*

Takahashi, Masaaki, 3,836,710.

Nachtigal, Chester L.; Hillberry, Benny M.; Goodson, Raymond E.; and Leonard, Robert G., to GLN, Inc. Method and apparatus for the computation of dynamic properties. 3,836,757, Cl. 235-151.300.

Nackmayr, Dietrich: *See—*

Wilisch, Jurgen; Goetze, Rudolf; Jaeck, Frank; Nackmayr, Dietrich; Rehberg, Heinz; and Thuy, Hans-Joachim, 3,836,731.

Nagahiro, Michinori: *See—*

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Nagel, Erich: *See—*

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Steinberger, Siegfried; Pflugbell, Mathias; Nagel, Erich; Baasner, Wilhelm; Dreher, Karl; Englert, Werner; Ehrengruber, Paul; and Fleck, Adolf, 3,836,060.

Naito, Shun-Ichi. N-Methyl-N'-(2-amino ethyl sulfonyl)-piperazine. 3,836,535, Cl. 260-268.00s.

Nakajima, Takatsugu, to Matsushita Electric Industrial Co., Ltd. Signal-selecting system for a keyboard type electronic musical instrument. 3,836,692, Cl. 84-1.010.

Nakamoto, Soichi: *See—*

Hasegawa, Goro; Nakamoto, Soichi; Takishima, Yoshiyuki; Mashimo, Yukio; Taguchi, Tatsuya; Nakamura, Zenzo; and Taguchi, Tetsuya, 3,836,922.

Nakamura, Shoji; Matsufuji, Akira; Tokushige, Masahiro; and Kato, Kunihiro, to Nippon Steel Corporation and Mitsubishi Electric Corporation. Apparatus for charging materials into vertical heating furnace. 3,836,325, Cl. 432-241.000.

Nakamura, Zenzo: *See—*

Hasegawa, Goro; Nakamoto, Soichi; Takishima, Yoshiyuki; Mashimo, Yukio; Taguchi, Tatsuya; Nakamura, Zenzo; and Taguchi, Tetsuya, 3,836,922.

Nakanishi, Hajime; and Kawashima, Kohei, to Teijin Limited. Process for winding synthetic yarn. 3,835,636, Cl. 57-156.000.

Nakashima, Yoichi: *See—*

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Nakatake, Masamichi: *See—*

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Nalco Chemical Company: *See—*

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Nash, Alan Richard Brine. Actuators. 3,835,501, Cl. 16-51.000.

Naskar, Sasanka Sekhar; and Renckhoff, Gustav, to Dynamit Nobel Aktiengesellschaft. Process for the lightening and color stabilization of fatty-acid forerunnings. 3,836,554, Cl. 260-419.000.

Nast, Roland: *See—*

Roos, Ernst; Abele, Manfred; Nast, Roland; Kempermann, Theo; and Schubart, Rudiger, 3,836,562.

National Aerospace Laboratory of Science and Technology Agency, The Director of: *See—*

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National Research Development Corporation: *See—*

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National Research Institute for Metals, The Director of: *See—*

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National Semiconductor Corporation: *See—*

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National Starch and Chemical Corporation: *See—*

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Naugler, Albert Winston: *See—*

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Nederlof, Anton Marie, to U.S. Philips Corporation. Heater for hot-gas engine. 3,835,648, Cl. 60-524.000.

Neelen, Gregorius Theodorus Maria: *See—*

van der Aa, Herman Henricus Maria; van Giessel, Robby; and Neelen, Gregorius Theodorus Maria, 3,835,714.

Negishi, Hideo: *See—*

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Nehrich, Richard B., Jr.: *See—*

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Neisch, James C., to Rockwell International Corporation. Brake control system. 3,836,209, Cl. 303-21.00f.

Nemer, Bruce A.: *See—*

Kanter, Yale C.; and Nemer, Bruce A., 3,835,836.

Nercessian, Sarkis, to Forbro Design Corp. Digital to analog converter. 3,836,907, Cl. 340-347.0da.

Nesbit, Alice F. Ring with magnetically secured shim held by adhesively secured member. 3,835,664, Cl. 63-15.600.

Neugroschl, Ernst J., to Goodyear Tire & Rubber Company, The. Tire curing monitoring and control method. 3,836,614, Cl. 264-40.000.

Neumann, Guenter: *See—*

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Neville, Dee J.: *See—*

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Newell Industries, Inc.: *See—*

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Newman, Martin; and Frankel, Alvin L. Air guide and hair brush support device. 3,835,869, Cl. 132-9.000.

NGK Insulators, Ltd.: *See—*

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Nicolet Instrument Corporation: *See—*

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Niemeyer, Robert W., to Alco Standard Corporation. Conduit coupling. 3,836,700, Cl. 174-89.000.

Niilola, Armas Kalervo. Cylinder lock. 3,835,677, Cl. 70-216.000.

Niklas, Hans; Knabenbauer, Wolfgang; and Rabenstein, Heinrich, to Varta Aktiengesellschaft. Lead accumulator construction. 3,836,401, Cl. 136-134.00r.

Nintendo Co., Ltd.: *See—*

Sugino, Akira; and Ota, Takao, 3,836,164.

Nippon Electric Kagoshima, Limited: *See—*

Kobayakawa, Masaki; Yawata, Kazufumi; and Yamashita, Shigeru, 3,836,806.

Nippon Gakki Seizo Kabushiki Kaisha: *See—*

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Nippon Piston Ring Co., Ltd.: *See—*

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Nippon Selfoc Company, Limited: *See—*

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Nippon Selfoc Kabushiki Kaisha: *See—*

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Nippon Steel Corporation: *See—*

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Nippondenso Co. Ltd.: *See—*

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Nischk, Gunther: *See—*

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Nishiguchi, Kazuo: *See—*

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Nishimura, Hiroshi: *See—*

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Nishimura, Takemi: *See—*

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Nishizawa, Jun-Ichi, to Semiconductor Research Foundation. Semiconductor with grown layer relieved in lattice strain. 3,836,999, Cl. 357-63.000.

Niskin, Shale J. Power driven block and tackle. 3,836,120, Cl. 254-138.000.

Nissan Motor Company, Limited: *See—*

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Mori, Yoichi; Okazaki, Nobuo; Ohtsuka, Kunio; and Iijima, Tetsuya, 3,835,732.

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Noack, Rudolf: *See—*

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Noguchi, Masaaki; Yanagioka, Hiroshi; Kanai, Toshio; Nishiguchi, Kazuo; Hashimoto, Hideo; Abe, Katuhiro; Masuko, Tomio; Mahino, Zenichi; and Kogawa, Yosio, to Chiyoda Chemical Engineering & Construction Co., Ltd. Method for treatment of gas containing sulfr dioxide. 3,836,630, Cl. 423-242.000.

Noiles, Douglas G., to United States Surgical Corporation. Self-energizing valve. 3,836,116, Cl. 251-174.000.

Noll, Walter: *See—*

de Montigny, Armand; Schnurrbusch, Karl; Seyfried, Klaus; and Noll, Walter, 3,836,558.

Nonaka, Kohei; Tanaka, Masaho; Maki, Takeshi; Harada, Ikuo; and Hamasaki, Masafumi, to Asahi Kasei Kogyo Kabushiki Kaisha. Personal safety device for use in vehicles. 3,836,168, Cl. 280-150.0ab.

Norco Sales and Manufacturing Company: *See—*

Frye, David, 3,836,879.

Norman, George, & Co. Pty. Ltd.: *See—*

Bini, Rodney James, 3,835,508.

North American Philips Corporation: *See—*

Kok, Pieter W., 3,836,805.

Northcutt, Michael E. Orthodontic onlay and method for exerting corrective traction on an impacted tooth. 3,835,538, Cl. 32-14.00e.

Northwest Microfilm, Inc.: *See—*

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Norton Company: *See—*

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Weaver, Gerald Q.; and Olson, Bradford A., 3,836,673.

Norton, James F.; and Creadon, William F., to Hansen Manufacturing Company, The. Coupling assembly. 3,836,114, Cl. 251-149.600.

Notari, Bruno: *See—*

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Nouvertne, Werner: *See—*

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Novy, Anton R., to Great Lakes Carbon Corporation. Process for decoking a delayed coker. 3,836,434, Cl. 201-2.000.

Nowak, Herbert: *See—*

Irmscher, Klaus; Freisberg, Karl-Otto; Orth, Dieter; Nowak, Herbert; and Simane, Zdenek, 3,836,527.

Nowak, Robert M.: *See—*

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Nukem, G.m.b.H.: *See—*

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N.V. Nederlandse Metallindustrie Polynorm: *See—*

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Oak Industries Inc.: *See—*

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Obermeier, Karl: *See—*

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Oda, Taizi: *See—*

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O'Farrell, Charles P.; and Serniuk, George E., to Esso Research and Engineering Company. Process for sulfonating unsaturated elastomers. 3,836,511, Cl. 260-79.30r.
Ogilvie Flour Mills Company, Limited, The: *See—*
Hampton, Richard J.; and Bonnell, Brian P., 3,836,376.
Ohara, Sigeo; Toshimura, Fumio; and Sugai, Kazuhiko, to Meisei Electric Co., Ltd. Answering system for PBXs. 3,836,723, Cl. 179-18.0ad.
Ohdan, Kyoji: *See—*
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Ohtani, Kiyoshi, to Bridgestone Cycle Industry Co. Ltd. Friction piece for bicycle rim brakes. 3,835,963, Cl. 188-73.100.
Ohtsuka, Kunio: *See—*
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Mori, Yoichi; Okazaki, Nobuo; Ohtsuka, Kunio; and Iijima, Tetsuya, 3,835,732.
Okuda, Nobuo; and Kunikyo, Tomoo, to Tokyo Shibaura Electric Company, Ltd. Graphic display having recirculating video memory. 3,836,902, Cl. 340-324.0ad.
Olah, Emery E., to Motorola, Inc. Key slide mechanism for a pushbutton radio receiver. 3,835,713, Cl. 74-10.330.
Oldfather, Charles L.: *See—*
Willis, Roderick M.; and Oldfather, Charles L., 3,836,460.
Oliver, George Albert, to Exec (Proprietary) Limited and AE & CI Limited. Sequential activation of electrical apparatus. 3,836,884, Cl. 337-163.000.
Oliver, John P., to Cameron Iron Works, Inc. Method and apparatus for connecting subsea flow lines. 3,835,655, Cl. 61-72.300.
Olsen, Tinius, Testing Machine Co., Inc.: *See—*
Strimel, Robert S., 3,835,699.
Olson, Bradford A.: *See—*
Weaver, Gerald Q.; and Olson, Bradford A., 3,836,673.
Olson, Eugene D.; and Aiello, Salvatore F., to Loed Corporation, mesne. Material-handling machine. 3,836,025, Cl. 214-77.00r.
Olson, Rich L.; Roland, Murray C.; and Hammond, Clif, to Lockwood Corporation. Monitoring system for mobile irrigation apparatus. 3,836,078, Cl. 239-70.000.
Olson, Robert Dale, to Chicago Musical Instrument Co. Musical instrument. 3,835,748, Cl. 84-388.000.
Olson, Warren E.: *See—*
Ross, William A.; Bach, John W.; and Olson, Warren E., 3,835,779.
Olympia Werke A.G.: *See—*
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Olympus Optical Co., Ltd.: *See—*
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OMCO Inc.: *See—*
Hoyt, Richard, 3,835,674.
Morse, Lynn H., 3,835,875.
O'Neill, Edward T.; Brennan, William M.; and Kriechbaum, Gerhard K., to United States of America, Navy. Airfoil camber change system. 3,836,099, Cl. 244-44.000.
Onikov, Eduard Arshakovich: *See—*
Galperin, Alexandr Lvovich; Serebryannikov, Albert Semenovich; Zabotin, Alexandr Alexandrovich; Onikov, Eduard Arshakovich; Lukoshkov, Vladimir Iosifovich; Lileev, Valeryan Petrovich; Loschilin, Evgeny Dmitrievich; Rutkevich, Zinovy Yakovlevich; Sakharov, oris Alexandrovich; and German, Zinovy Antolievich, 3,835,893.
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Ono, Seiichi; Koizumi, Ken; and Yoshiyagawa, Mitsugi, to Nippon Selfoc Kabushiki Kaisha. Continuous production of light-conducting glass filaments with refractive index gradient. 3,836,347, Cl. 65-2.000.
Opferkuch, Wilhelm: *See—*
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Orbanic, Robert S.: *See—*
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Orchowski, Richard. Water sled. 3,835,492, Cl. 9-6.000.
Orth, Dieter: *See—*
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Osada, Chiaki; and Murata, Masataka, to Fuji Photo Film Co., Ltd. Surface treatment for aluminum plates. 3,836,437, Cl. 204-17.000.
Oscar, Joseph. Tile and manufacturing process therefor. 3,835,609, Cl. 52-478.000.
Oshima, Susumu; and Takahashi, Hidetoshi, to Toyoda Koki Kabushiki Kaisha. Apparatus for adjusting the position of a front cover for a grinding wheel guard. 3,835,595, Cl. 51-268.000.
Osinsky, Ulrich; and Althausen, Ferdinand, to Maschinenfabrik Hennecke GmbH. Moulding tool for the manufacture of components of synthetic plastic material. 3,836,110, Cl. 249-79.000.
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Oude Alink, Bernardus A.; Annand, Robert R.; and Redmore, Derek, to Petrolite Corporation. Process of removing sulfur from fluids. 3,835,927, Cl. 166-304.000.
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Overall, Wilson W.; and De Koning, Joseph G., to Monsanto Company. Ice detection apparatus employing microwave reflectance. 3,836,846, Cl. 324-58.50b.
Overbury, Francis Giles, to International Standard Electric Corporation. Commutated antenna array with grating lobe reduction means in a doppler radio navigation beacon system. 3,836,978, Cl. 343-854.000.
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Panaretos, Alexander Michael. Base for footwear contributing to comfortable and graceful walking. 3,835,556, Cl. 36-33.000.
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Pao, John; Wang, Raymond; Takashima, Ben Tsutomu; Pon, Chuck Y.; and Kanetake, Thomas T., to Pantex Corporation. Apparatus for activating remotely located devices in response to acoustical signals. 3,836,959, Cl. 340-148.000.
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Parker, Rollin James, to General Electric Company. Permanent magnet motor. 3,836,802, Cl. 310-154.000.
Partridge, Frank Bernard Roy, to Australia, Commonwealth of; c/o the Department of Civil Aviation. Apparatus for tracking a luminous object. 3,836,259, Cl. 356-152.000.
Pasch, Lambert; and Wagemann, Heinz, to Uniroyal A.G. Transfer molding apparatus. 3,836,306, Cl. 425-251.000.
Pass, Raymond Vincent, to AMP Incorporated. Magnetic card reader. 3,836,753, Cl. 235-61.lld.
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Paul, John M.; Heisler, William C.; and Else, George W., to Budd Company, The. Electrically insulated railway car truck. 3,835,788, Cl. 105-182.00e.
Payne, Charles C.; and Vossos, Peter H., to Nalco Chemical Company. Process for improving the antislip properties of a cellulosic surface. 3,836,391, Cl. 117-152.000.
Payne, Michael Ian; and Mazgy, James Dimitri, to RCA Corporation. Apparatus for testing the linearity of a circuit by using a staircase waveform and ratio determining means. 3,836,845, Cl. 324-57.0ps.
Peek, Sandford C. Human pulse rate measuring apparatus. 3,835,837, Cl. 128-2.05p.
Pehr, Harold T. Pivoted closure condiment dispenser. 3,836,056, Cl. 222-480.000.
Peilstocker, Gunter: *See—*
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Penzien, Klaus: *See—*
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Perdue, Richard Russell, to Grace, W. R., & Co. Apparatus for producing vacuum skin packages in multiples. 3,835,618, Cl. 53-112.00a.
Perelmutr, Alexandr Semenovich; Berlin, Alexandr Zinovievich; Gorlin, Igor Konstantinovich; and Traxler, Alexandr Gustavovich. Evaporator for liquid anesthetics. 3,836,129, Cl. 261-47.000.
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Peterson, Per-Erik Arnold, to Rederiaktiebolaget Nordstjernan. Method of transporting ship cargo. 3,836,026, Cl. 214-152.000.
Peterson, Robert A. Refuse compactor. 3,835,767, Cl. 100-53.000.
Peterson, Robert A. Refuse compactor. 3,835,769, Cl. 100-227.000.
Peterson, William H.; and Bochenek, Valerian S., Jr., to Pullman Incorporated. Closure mechanism for bottom dump hopper car doors. 3,836,023, Cl. 214-63.000.
Petitto, Albert C., to Foster Grant Co., Inc. Nestable container. 3,836,042, Cl. 206-519.000.
Petrillo, Richard J., to Gillette Company, The. Package for razor blade unit. 3,835,532, Cl. 30-40.200.
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Pfenning, Gerald E.: *See—*
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Pfister, Ernst, to Schneeberger, W., AG. Revolving roller bearing arrangement. 3,836,211, Cl. 308-6.000.
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Philip, Charles R. Motorized fishing device. 3,835,570, Cl. 43-19.200.
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Phillips, Wendell Gary, to Monsanto Company. Herbicidal method utilizing N substituted heterocyclic compounds. 3,836,352, Cl. 71-94.000.
Phillips, Wendell Gary; and Ratts, Kenneth Wayne, to Monsanto Company. Certain substituted carbamoyl thioformyl chlorides. 3,836,579, Cl. 260-543.00r.
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Pigeaud, Jean-Marie: *See—*
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Pilarczyk, Karol, to Carrier Corporation. Compressor base and intercoolers. 3,835,918, Cl. 165-47.000.
Piller, Bohumil; Lacko, Vladimir; Kochta, Zdenek; and Koudelka, Bedrich, to Vyzkumny Ustav Pletarsky. Method of producing relief patterned nonwoven textiles. 3,835,512, Cl. 28-72.0ft.
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Platzoeder, Karl; Martin, Heinz; and Emeis, Reimer, to Siemens Aktiengesellschaft. Semiconductor device having a silver layer in pressure contact with the device surface. 3,837,000, Cl. 357-65.000.
Platzoeder, Karl; Martin, Heinz; and Emeis, Reimer, to Siemens Aktiengesellschaft. Semiconductor device having a silver layer in pressure contact with the device surface. 38,367,000, Cl. 357-65.000.
Plempel, Manfred: *See—*
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Plummer, Walter A. Means for sealing and protecting a cable splice. 3,836,702, Cl. 174-93.000.
Plummer, William T., to Polaroid Corporation. Eye lens in a single lens reflex camera viewfinder providing field tilt compensation. 3,836,931, Cl. 354-155.000.
Plutchak, Thomas Miles, to Eastman Kodak Company. Color electrophotography using a photoconductive layer on both sides of a multicolor screen. 3,836,363, Cl. 96-1.200.

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Portnoy, William M.; Waters, Warren P.; and Wisman, Emery C., to Texas Instruments, Incorporated. Semiconductor device having epitaxial region of predetermined thickness. 3,836,991, Cl. 357-15.000.
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Preti, Jean-Claude, to Societe De Fabrication D'Instruments De Mesure (S.F.I.M.). Method and apparatus for the detection of a presence. 3,836,965, Cl. 343-8.000.
Prince, Arthur E., Jr., to Celanese Corporation. Process for the hot drawing of polybenzimidazole fibrous materials wherein a heated draw surface is employed. 3,836,621, Cl. 264-210.00f.
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Pruett, George R., to Texas Instruments Incorporated. Photovoltaic diode with first impurity of Cu and second of Cd, Zn, or Hg. 3,836,399, Cl. 136-89.000.
Prugh, Richard W. Safety tester for electrical appliances and receptacles. 3,836,844, Cl. 324-51.000.
Pruitt, Ronnie, M.; and Potter, James L., to Dow Chemical Company, The. Tris (2-dimethylamino)ethyl/ amine as catalyst for the preparations of polyurethanes. 3,836,488, Cl. 260-2.5ac.
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Purtle, Homer, Jr. Navigation data computation apparatus. 3,836,690, Cl. 35-10.200.
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Radloff, Harry John, to GTE Sylvania Incorporated. Voltage regulator with saturation protection. 3,836,840, Cl. 323-22.00t.
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Rafael, Werner, to Gewerkschaft Eisenhutte Westfalia. Frame assemblies for use with scraper-chain conveyors. 3,835,981, Cl. 198-204.000.
Rambaud, Michel, to Etablissements Gatineau S.A. Device for the sterilization of food products in flexible packages. 3,835,762, Cl. 99-483.000.
Rameil, Jean, to International Contacts Inventors Anstalt. Apparatus for detecting cardiovascular diseases. 3,835,838, Cl. 128-2.05p.
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Regel, Erik K.; Buchel, Karl-Heinz; and Plempel, Manfred, to Bayer Aktiengesellschaft. N-tritylimidazoles as antifungal agents. 3,836,664, Cl. 424-273.000.
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Reisman, Howard. Apparatus for assembling tubular cartons. 3,835,619, Cl. 53-138.00r.
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Rickert, Glenn E. Reflex sight having a frequency selective collinating beam combining mirror. 3,836,263, Cl. 356-251.000.
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Rosenblatt, Gordon, to Canadian Porcelain Company Limited. Electrical insulator and conducting tar therefor. 3,836,705, Cl. 174-140.00c.
Rosendahl, John R.; Lay, Willard W.; and Harrer, Paul H., to Allis-Chalmers Corporation. Crop conditioners. 3,835,629, Cl. 56-14.400.
Rosenstein, William; and Booth, Thomas Allan, to Addressorgraph-Multigraph Corporation. Optical image rotating device. 3,836,918, Cl. 354-5.000.
Rosenwein, David. Eyeglass display holder. 3,836,007, Cl. 211-13.000.
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Ross, Hugh C. Solid-state high input impedance meter system. 3,836,852, Cl. 324-123.00r.
Ross, William A.; Bach, John W.; and Olson, Warren E., to Pitney-Bowes, Inc. Apparatus for automatically cleaning the blanket cylinder of an offset printer. 3,835,779, Cl. 101-425.000.
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Salza, Silvio. Protein free alimentary pastes and a process for their production. 3,836,680, Cl. 426-158.000.
Sampson, Roy John; and Lake, Ivan James Samuel. Hydrocarbon conversion process and silica and/or alumina-containing catalyst therefor. 3,836,594, Cl. 260-668.00a.
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Santilli, Arthur A.; Scotese, Anthony C.; and Kim, Dong H., to American Home Products Corporation. 3-(Substituted) amino)-5,6-diphenyl-4-pyridazinecarboxylic acids. 3,836,532, Cl. 260-250.00a.
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Satake, Toshihiko. Device for husking grains. 3,835,766, Cl. 99-618.000.
Sato, Hideo: *See*—
Shimizu, Masao; Sakurai, Yasunoeu; Sato, Hideo; and Inoue, Keiji, 3,836,794.
Sato, Masataro. Wheel lift device in pallet transporting fork-lift cart. 3,836,165, Cl. 280-43.120.
Sato, Naotake: *See*—
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Saucier, Edwin C., Jr.: *See*—
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Saucier, Jeannie A.: *See*—
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Sauer, J. P., & Sohn, GmbH: *See*—
Bielfeldt, Heinz, 3,835,566.
Saufhaus, Egon, to Schneck, Carl, Maschinenfabrik GmbH. Apparatus for the transport and intermediate storage of panel supports. 3,836,016, Cl. 214-1.00b.
Saurer, Eric, to Ebauches S.A. Electro-optical display device. 3,836,229, Cl. 350-160.000.
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Savin Business Machines Corporation: *See*—
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Rekesius, John F., 3,835,760.
Sawyer, Bruce A. Multi axes linear movement positioning system. 3,836,835, Cl. 318-685.000.
Sayigh, Adnan A. R.: *See*—
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Schafer, Lothar; and Wojtech, Bernhard, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Reprocessing of spent nuclear fuel. 3,836,625, Cl. 423-10.000.
Schara, Robert E.; Shoaf, Myron D.; and Berry, Charles P., to General Foods Corporation. Process for inhibiting fat-caps in meat-in-gravy products. 3,836,685, Cl. 426-371.000.
Schatz, Gerold. Fitting for releasably connecting two parts, especially furniture parts. 3,836,267, Cl. 403-17.000.
Schelkunov, Filipp Savelievich: *See*—
Skornyakov, Jury Pavlovich; Tjutjunnikov, Jury Borisovich; Petrukhno, Anatoly Semenovich; and Schelkunov, Filipp Savelievich, 3,836,435.
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Schiebel, Alfred; Kuhn, Falk; Beuter, Hermann; and Planck, Alfred, Jr., to Fouquet-Werk Frauz & Planck. Combined knitting feed and transfer feed circular knitting machine. 3,835,668, Cl. 66-19.000.
Schiefer, Paul: *See*—
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Schiesterl, Gerhard, to Daimler-Benz Aktiengesellschaft. Protective device, especially for the passengers of motor vehicles. 3,836,169, Cl. 280-150.0ab.
Schillreff, George H., to General Dynamics Corporation. Counter measures system. 3,836,968, Cl. 343-18.00e.
Schilp, William Henry: *See*—
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Schilp, William Henry; and Todd, Albert Alexander, to RCA Corporation. Semiconductor darlington circuit. 3,836,996, Cl. 357-46.000.
Schippers, Heinz, to Barmag-Barmer Maschinenfabrik Aktiengesellschaft. Apparatus and method for treating thermoplastic yarns. 3,835,631, Cl. 57-34.0hs.
Schirmar, Hermann; and Peilstocker, Gunter, to Bayer Aktiengesellschaft. Thermoplastic moulding composition and mouldings of polycarbonate, having improved ease of mould release when injection moulding. 3,836,499, Cl. 260-31.20r.
Schleicher, Joseph Bernard; and Roderick, William Rodney, to Abbott Laboratories. Method for combating Marek's disease in poultry. 3,836,650, Cl. 424-212.000.
Schlink, Wilhelm: *See*—
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Schmidt, Franz: *See*—
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Schmolka, Irving R., to Basf Wyandotte Corporation. Stable hair lacquer gel compositions. 3,836,637, Cl. 424-70.000.
Schnebel, Fritz. Means for covering the roof-like areas of supporting structures. 3,835,603, Cl. 52-83.000.
Schneck, Carl, Maschinenfabrik GmbH: *See*—
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Schneider, Richard F.; and Bloedorn, Arthur R., to Hewlett-Packard Company. Wide frequency range counter system utilizing automatic range searching and loop compensation. 3,836,758, Cl. 235-151.310.
Schneider, Wilhelm, to Schneider & Kern. Impact-protected gear unit for measuring tools. 3,835,544, Cl. 33-147.00j.
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Schoeps, Knut Christian; and Gustavsson, Tommy Henning Bruno, to Atlas Copco Aktiebolag. Impact wrench with automatic shut-off. 3,835,934, Cl. 173-12.000.
Schon, Klaus Peter. Toner dispensing apparatus. 3,836,054, Cl. 222-414.000.
Schonfeld, Peter; Borgmann, Heinz; and Plohn, Gerhard, to Kraftwerk Union Aktiengesellschaft. Control apparatus for temporarily reducing turbine torque. 3,836,822, Cl. 317-21.000.
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Schrader, Victor H.; Polney, Richard J.; and Vermilyea, Peter W., to Enterprise Machine and Development Corporation. Programmer for air jet texturing apparatus. 3,835,511, Cl. 28-1.400.
Schreiber, Georg; Schroeder, Heinz; Hoppe, Wolfgang; Hadamovsky, Eugene; Ovenhausen, Hans-Walter; and Piotrowski, Bernhard, to Dynamit Nobel Aktiengesellschaft. Process for the purification of benezenecarboxylic acid esters by crystallization. 3,836,573, C. 260-475.00b.
Schreiner, Horst; Geldner, Ernst; and Dietz, Helmut, to Siemens Aktiengessellschaft. Rotary anode for X-ray tubes. 3,836,807, Cl. 313-330.000.
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Schroeder, Guenter; Gaenzler, Wolfgang; Uddrich, Peter; and Babuliak, Josef, to Rohm Gesellschaft mit beschrankter Haftung. Method for making salts of N-acylamino carboxylic acids. 3,836,551, Cl. 260-404.000.
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  Schreiber, Georg; Schroeder, Heinz; Hoppe, Wolfgang; Hadamovsky, Eugene; Ovenhausen, Hans-Walter; and Piotrowski, Bernhard, 3,836,573.
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Schultz, Robert F.; and Cook, Edward H., Jr., to Hooker Chemical Corporation. Bipolar electrode. 3,836,450, Cl. 204-290.00f.
Schultz, Warren J., to General Electric Company. High current interconnection assembly in a microcircuit package. 3,836,697, Cl. 174-68.500.
Schulz, Gerhard: *See—*
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Schulz, Jay R., to Dow Corning Corporation. Paintable silicone elastomer. 3,836,502, Cl. 260-37.0sb.
Schulz, Jay R., to Dow Corning Corporation. Silicone elastomers which are paintable. 3,836,503, Cl. 260-37.0sb.
Schuman, Mark. Spectrometric substance analyzer employing temperature modulation. 3,836,255, Cl. 356-85.000.
Schumann, Robert W., to Nicolet Instrument Corporation. Digital oscilloscope control apparatus. 3,836,851, Cl. 324-112.000.
Schuppler, Emil: *See—*
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Schwarz, Walter. Method and an apparatus for making tubes. 3,835,684, Cl. 72-50.000.
Schwarz, Wilhelm; Tromp, Henricus; and Heinz, Winfried, to Fried, Krupp Gesellschaft mit beschrankter Haftung. End abutments for sliding doors. 3,835,790, Cl. 105-285.000.
Schwarzkopf, August, to Windmoller & Holscher. Handle-type carrying bag made of plastics material sheeting. 3,836,068, Cl. 229-54.00r.
Schwerin, Gunther, to Bosch, Robert, GmbH. Braking arrangement. 3,835,966, Cl. 188-106.00f.
Schwerin, Gunther, to Bosch, Robert, GmbH. Hydraulic brake system for trailers connected with mechanically braked towing vehicles. 3,836,205, Cl. 303-7.000.
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Scotese, Anthony C.: *See—*
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Scudder, John A., to Chemetron Corporation. Carbon dioxide extruded pellets. 3,835,657, Cl. 62-35.000.
SDF Industrial Trading and Development Company B.V.: *See—*
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Seely, John Leland; and Wanlass, Frank M., to General Instrument Corporation. Field effect transistor linear amplifier with clocked biasing means. 3,836,862, Cl. 330-25.000.
Sehlbach, Herbert, KG: *See—*
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Seidel, Harold, to Bell Telephone Laboratories, Incorporated. Broadband impedance desensitizing network. 3,836,863, Cl. 330-53.000.
Seidel, Joseph: *See—*
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Seiferth, Oscar E.; Austin, Glenn M.; and Grace, Daniel C., to Meyer, Oscar, & Co., Inc. Easy-opening means for plastic packages. 3,836,039, Cl. 220-54.000.
Seiferth, Oscar E.; Goller, Robert L.; Grindrod, Paul E.; and Radloff, Harry L., to Meyer, Oscar, & Co., Inc. Package and method of making same. 3,836,679, Cl. 426-126.000.
Seip, Hermann, to ITT Industries, Inc. Adjusting device for drum brakes. 3,835,968, Cl. 188-196.00p.
Seiple, Richard T.: *See—*
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Semiconductor Research Foundation: *See—*
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Shalit, Harold: *See—*
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Shang, Jer-Yu; Bisson, Barry A.; and Wynkoop, Raymond, to Sun Research and Development Co. Gasoline containing a methyl phenol and an ether. 3,836,342, Cl. 44-56.000.
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Shapiro, Stan Lee. Auto place kicker. 3,836,147, Cl. 273-55.00b.
Sharp, John C., to Upjohn Company, The. Antifungal methods employing certain carbostyrils. 3,836,657, Cl. 424-258.000.
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Shepherd, Robert, to Plessey Handel und Investments A.G. Spark ignition system. 3,835,830, Cl. 123-148.00e.
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Shih, Pong Su., to Dow Chemical Company, The. Solid epoxy resins from glycidyl ethers of hydrogenated bisphenols or hydrogenated novolacs and aromatic or cycloaliphatic dicarboxylic acids. 3,836,485, Cl. 260-2.0ep.
Shiina, Seiichi. Box shaped furniture unit. 3,836,217, Cl. 312-107.000.
Shimazu, Munenari. Synthetic form resin propagation bed for plants cutting. 3,835,584, Cl. 47-37.000.
Shimizu, Junichi; and Kaga, Toshio, to Hokkaido Sugar Company, Ltd. Continuous process for the hydrolysis of raffinose. 3,836,432, Cl. 195-11.000.
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Shimizu, Masao; Sakurai, Yasunoeu; Sato, Hideo; and Inoue, Keiji, to Denki Onkyo Company Limited. Piezoelectric transformers. 3,836,794, Cl. 310-9.700.
Shimizu, Shigeru, to Hamada Printing Press Mfg. Co., Ltd. Paper feeding apparatus for use in printing machine. 3,836,139, Cl. 271-95.000.
Shimodaira, Tadayoshi; and Gomi, Yoshifumi, to Kabushiki Kaisha Suwa Seikosha and Shinshu Seiki Kabushiki Kaisha. Compact flying printer. 3,835,770, Cl. 101-93.00c.
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Shumaker, Charles Storer, to Wean United, Inc. Continuous rolling mill. 3,835,681, Cl. 72-10.000.
Sick, Willmar K. Hair treating instrument and method. 3,835,870, Cl. 132-160.000.
Sides, Daniel Harrison; and Moores, Robert Gordon, Jr., to Black and Decker Manufacturing Company, The. Idling system for power hammer. 3,835,935, Cl. 173-14.000.
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  Platzoeder, Karl; Martin, Heinz; and Emeis, Reimer, 3,837,000.
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Silverman, Emanuel. Centerless grinding fixture for synthetic crystal rods and the like. 3,835,589, Cl. 51-103.0wh.
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Singewald, Arno; Fricke, Gunter; and Juno, Detlef, to Kali and Salz AG. Process for the electrostatic separation of clay containing crude potassium salts. 3,835,996, Cl. 209-9.000.
Sinn, Harry, Jr. Damage indicator. 3,835,809, Cl. 116-114.0ah.
Sismore, William W., 1/2 to Harris, Richard T. Tube pulling apparatus. 3,835,520, Cl. 29-202.00d.
Sitgreaves, Norman E.: *See—*
  Wagner, George M.; and Sitgreaves, Norman E., 3,836,423.
Skierski, Edwin J. Dies for making a self tapping fastener. 3,835,694, Cl. 72-469.000.
Skildum, John D. Apparatus protector. 3,836,077, Cl. 239-60.000.
Skornyakov, Jury Pavlovich; Tjutjunnikov, Jury Borisovich; Petrukhno, Anatoly Semenovich; and Schelkunov, Filipp Savelievich. Method of heat treatment of coal. 3,836,435, Cl. 201-27.000.
Skoultchi, Martin; and Meier, Eric A., to National Starch and Chemical Corporation. Ethylenically unsaturated derivatives of 4-aminobenzoic acid. 3,836,571, Cl. 260-471.00r.
Skulsky, Jury Valentinovich: *See—*
  Sakharnov, Vasily Alexeevich; Popov Alfred Nikolaevich; Tishura, Vladimir Ivanovich; Galyan, Boris Afanasievich; and Skulsky, Jury Valentinovich, 3,836,746.
Slade, Owen George, to White, J. Sameul, & Company Limited. Thruster unit. 3,835,805, Cl. 114-151.000.
Smidth, F. L., & Co.: *See—*
  Engel, Erland Christoffer, 3,836,323.
Smith, A. O., Corporation: *See—*
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  Le Beau, Donald J., 3,835,986.
Smith, Bill: *See—*
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Smith, David C.; and Solomon, Peter R., to United Aircraft Corporation. Gas breakdown laser pulse selector. 3,836,867, Cl. 331-94.50r.
Smith, Fenter Willie. Portable intermittent orthopedic traction device. 3,835,847, Cl. 128-75.000.
Smith, Ian E.: *See—*
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Smith International, Inc.: *See—*
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Smith, Lynwood Vincent, to Gulf & Western Manufacturing Company. Clasp. 3,836,049, Cl. 24-201.00r.
Smith, Raymond L., Jr.: *See—*
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Smith, Ronald S.; Kuderna, Jerome G., Jr.; and Potter, Richard C., to Shell Oil Company. Hydroxylated polymers useful in forming pecticidal phosphate gels. 3,836,638, Cl. 424-78.000.
Smith, Terry M.: *See—*
  Monser, George J.; Hardie, George S.; Ehrhardt, John R.; and Smith, Terry M., 3,836,976.
Smith, Vernon O., to Overhead Door Corporation. Dockboard safety stop. 3,835,497, Cl. 14-71.000.
Smrt, Thomas J. Method of filling aerosol spray cans. 3,835,896, Cl. 141-3.000.
Snam Progetti S.p.A.: *See—*

Rivola, Luigi; Mormino, Vittorio; and Notari, Bruno, 3,836,436.
Snaper, Alvin A. Arc deposition apparatus. 3,836,451, Cl. 204-298.000.
Snelling, Richard A.: *See—*
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Societe Anonyme l'Eclairage Technique: *See—*
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Societe Civile Le Brin: *See—*
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Soejima, Shigeo; and Irokawa, Hideo, to NGK Insulators, Ltd. Method for producing manganese-zinc ferrite. 3,836,472, Cl. 252-62.570.
Sokol, Phillip Edward; and Tsai, Hu-Chu, to Gillette Company, The. Dyeing hair with nitro-substituted phenylene compounds. 3,836,326, Cl. 8-10.100.
Solomon, James E.; and Zias, Arthur R., to National Semiconductor Corporation. Semiconductor pressure transducer employing novel temperature compensation means. 3,836,796, Cl. 307-310.000.
Solomon, Marwich, H.: *See—*
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Solymos, Frederick, to Westinghouse Electric Corporation. Elevator system. 3,835,959, Cl. 187-22.000.
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Sommer, Siegfried: *See—*
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Soos, Steven W., to Lake Shore Electric Corporation. Switch with peripheral cam actuator. 3,836,742, Cl. 200-153.0lb.
Soulos, George D., to Gem Insect Control, Inc. Electrical discharge insect control system. 3,835,577, Cl. 43-112.000.
Southwick, J. Wanless: *See—*
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Spanke, Edwin A.; Carrieri, Louis F.; and Francey, Melvin H., to Gulf & Western Manufacturing Company. Fluid operated clutch and brake. 3,835,971, Cl. 192-18.00a.
Specht, Thomas F.; and Babecki, Robert J., to Union Special Corporation. Sliding ejector pad attachment for use with sliding bolster plate for presses. 3,835,691, Cl. 72-427.000.
Speck, Hans-Reimer: *See—*
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Spooner, Robert J., to Cashin Systems Corporation. Apparatus for stacking and weighing sliced food products. 3,835,742, Cl. 83-77.000.
Sporre, Sten Ragnar, to Forsheda Ideutveckling AB. Method of forming pipes. 3,836,622, Cl. 264-249.000.
Springer, Edward M., to Heyer Inc. Compensating impression roller mount for stencil duplicator. 3,835,772, Cl. 101-116.000.
Spruyt, Harry; and Hoffman, Louis S., to Colorcraft Corporation. Camera case for a pocket camera. 3,835,905, Cl. 150-52.00j.
Squire, Christopher John: *See—*
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Staar, Marcel Jules Helene, to Staar Development Company. Audiovisual device. 3,836,241, Cl. 353-19.000.
Staas, Frans Adrianus; and Severijns, Adrianus Petrus, to U.S. Philips Corporation. Device for transporting heat from a lower to a higher temperature level. 3,835,662, Cl. 62-467.000.
Staats, Henry N., to General Binding Corporation. Method for eliminating bubbles in laminates. 3,836,414, Cl. 156-87.000.
Stach, Hans; Hoffmann, Dieter; and Brecht, Heinz, to Farbwerke Hoechst Aktiengesellschaft. Derivatives of perfluorated carboxylic acids. 3,836,552, Cl. 260-404.500.
Stache, Ulrich; Haede, Werner; Fritsch, Werner; Radscheit, Kurt; and Lindner, Ernst, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Digitoxigenin-3-α,L-rhamnosido-4'-acylates. 3,836,520, Cl. 260-210.500.
Stafford, Larry O., to Beloit Corporation. Flat film extrusion die. 3,836,313, Cl. 425-463.000.
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Staley, James T.; Hunsicker, Harold Y.; and Brown, Robert H., to Aluminum Company of America. Aluminum alloy product and method of making. 3,836,405, Cl. 148-12.700.
Stana, Regis R.: *See—*
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  Mongerson, Paul A.; and Moen, Alfred M. (said Mongerson assor. to), 3,835,887.
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Stanley Works, The: *See—*
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Stansfield, Fred, to P & O Research & Development Company. Self-straining bolts. 3,835,523, Cl. 29-252.000.
Start, John Francis: *See—*
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Stauffer Chemical Company: *See—*
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Steinberger, Siegfried; Pflugbell, Mathias; Nagel, Erich; Baasner, Wilhelm; Dreher, Karl; Englert, Werner; Ehrengruber, Paul; and Fleck, Adolf, to AGFA-Gevaert Aktiengesellschaft. Apparatus for transporting webs in photographic copying machines or the like 3,836,060, Cl. 226-115.000.
Steiner, Henry William, to Colonial Mirror and Glass Corporation. Humane trap. 3,835,576, Cl. 43-86.000.
Steinetz, Bernard George, Jr., to Ciba-Geigy Corporation. Glutarimides for reducing the number of fetuses in mated or impregnated female mammals. 3,836,659, Cl. 424-268.000.
Steinwart, Johannes; and Rup, Max, to Audi NSU Auto Union Aktiengesellschaft and Wankel GmbH. Piston for rotary piston machines and means for its manufacture. 3,836,294, Cl. 418-91.000.
Stelter, Siegfried: *See—*
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Stempel, Arthur; and Westley, John, to Hoffmann-La Roche Inc. Diazo derivatives of antibiotic X-537A. 3,836,516, Cl. 260-141.000.
Stendenbach, Karl-Heinz: *See—*
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Steponaitis, Vincas P. Holder for processed photographs. 3,836,925, Cl. 354-75.000.

Stevens, Peter, 20% to Lee, Raymond, Organization, Inc., The. Low pressure warning system for a tire. 3,835,808, Cl. 116-34.00r.
Stevens, Robert T., to American Home Products Corporation. Process for the uniform distribution of a drug on a granulated base. 3,836,618, Cl. 264-101.000.
Stevens, Robert W.: *See—*
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Stillwagon, James E., to Aluminum Company of America. Metal foil for heating and cooling foods. 3,836,064, Cl. 229-3.5mf.
Stimson, Ian Leonard; Dowell, Frederick Sidney; and Healy, Benedict Pascal, to Dunlop Limited. Wheel assemblies. 3,836,201, Cl. 301-6.00a.
Stirrup, Keith A.: *See—*
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Stock, Arthur J.; Christofer, Donald E.; and Brinza, Joseph E., to Stock Equipment Company. Method and apparatus for filling and closing containers. 3,835,617, Cl. 53-21.000.
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  Stock, Arthur J.; Christofer, Donald E.; and Brinza, Joseph E., 3,835,617.
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Stookey, Lawrence L., to Hach Chemical Company. Colorimetric determination of iron. 3,836,331, Cl. 23-230.00r.
Strauss, Bruce P., to United States of America, Atomic Energy Commission. Method of fabricating composite superconductive electrical conductors. 3,836,404, Cl. 148-11.50r.
Strauss, Howard J.; and Hill, Edward S., to Gould Inc. Dry battery seal and terminal connection. 3,836,400, Cl. 136-133.000.
Streck, Roland; and Weber, Heinrich, to Chemische Werke Huls Aktiengesellschaft. Polyalkenamers and process for the preparation thereof. 3,836,593, Cl. 260-677.00r.
Strecker, Larry A.; and Wood, James E., to Inmont Corporation. Cable sealant composition and method of sealing cable. 3,836,695, Cl. 174-23.00c.
Strehlow, Wolfgang H.; Lee, Pui Kum; and Packard, James R., to Minnesota Mining & Manufacturing Company. Hologram memory readout system. 3,836,224, Cl. 350-3.500.
Strimel, Robert S., to Olsen, Tinius, Testing Machine Co., Inc. Long stroke testing machine. 3,835,699, Cl. 73-95.000.
Stritzinger, Heinz: *See—*
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Strubhar, Malcolm K.; and Glenn, Edwin E., Jr., to Mobil Oil Corporation. Method of creating a plurality of fractures from a deviated well. 3,835,928, Cl. 166-308.000.
Struk, James R.; and Werner, Robert G., to International Business Machines Corporation. Transistor-transistor logic circuitry and bias circuit. 3,836,789, Cl. 307-203.000.
Stubbmann, Albert, to Kohner Bros., Inc. Marionette assembly with manipulating glove. 3,835,582, Cl. 46-126.000.
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Sugino, Akira; and Ota, Takao, to Nintendo Co., Ltd. Collapsible carrier. 3,836,164, Cl. 280-41.00a.
Sugioka, Ryoichi, to Fujitou Limited. Time multiplex communication system for use with a space satellite. 3,836,721, Cl. 179-15.0bs.
Suman, George O., Jr., to Shell Oil Company. Method and apparatus for protecting electrical cable for downhole electrical pump service. 3,835,929, Cl. 166-315.000.
Sumida, Kunio A., to Shapiro, Leonard U. Mechanism for driving reciprocating tool. 3,835,592, Cl. 51-170.0tl.
Sumimoto, Toru; Matsushita, Shigeo; Fujiware, Tadafumi; Koizumi, Ken; and Yamazaki, Tetsuya, to Nippon Selfoc Company, Limited. Method for manufacturing optical integrated circuits utilizing an external electric field. 3,836,348, Cl. 65-30.000.
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  Yamada, Eiji, 3,836,549.
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Sumner, John S. Apparatus for laminating wooden strips. 3,835,904, Cl. 144-313.000.
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  Turner, John O., 3,836,523.
Sundermann, Henry L. Stepped toggle mechanism. 3,835,727, Cl. 74-520.000.
Surette, Sylvain A. Book holder and book stand. 3,836,108, Cl. 248-452.000.
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Sutch, Brian Leo Chudleigh, to Airfix Industries Limited. Production of containers. 3,836,063, Cl. 229-1.50b.
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Sygnator, Henry Anton, to Illinois Tool Works Inc. Method and apparatus for swaging screw blank extremities. 3,835,495, Cl. 10-10.00r.
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Szabo, Karoly, to Stauffer Chemical Company. m-Amidophenylcarbamates. 3,836,570, Cl. 260-471.00c.
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Szer, Leon. Fluorescent lamp casings. 3,836,764, Cl. 240-51.11r.
Szeverenyi, Nikolaus A.; and Thompson, David F., to GTE Sylvania Incorporated. . 3,836,882, Cl. 337-102.000.
Szulman, Eigard. Toolmaker's vise. 3,835,594, Cl. 51-220.000.
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Tacke, Peter; Haupt, Heinrich; Blank, Heinz Ulrich; Bockmann, August; and Rudolph, Hans, to Bayer Aktiengesellschaft. Self extinguishing polyamide moulding compositions. 3,836,501, Cl. 260-37.00n.
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Taft, David D.; and Schmidt, Roger A., to Ashland Oil Inc. Novel compositions comprising polyisocyanates and hydroxybenzoic acid capped polymers curable with tertiary amines and process of curing same. 3,836,491, Cl. 260-22.0tn.
Tagawa, Hiroaki; and Fujii, Kimio, to Eiji Munekata. Method of making uranium sesquicarbide. 3,836,631, Cl. 423-256.000.
Taguchi, Naoyoshi. Gas detecting device and method of making same. 3,835,529, Cl. 29-570.000.
Taguchi, Tatsuya: *See—*
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- Takayasu, Tatsunori; and Higashi, Kouzi, to Hokuriku Electric Industry Co., Ltd. Fuse and resistor device. 3,836,883, Cl. 337-163.000.
- Taketo, Kiyoshi; Ito, Toshio; and Kishimoto, Fikutaro, to Mitsubishi Denki Kabushiki Kaisha. Induction heating apparatus having a cover plate for minimizing thermal expansion effects. 3,836,744, Cl. 219-10.490.
- Takeuchi, Norisada: *See—*
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- Tanaka, Masaho: *See—*
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- Tanaka, Yoshiaki: *See—*
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- Tantraporn, Wirojana: *See—*
  - Yu, Se Puan; and Tantraporn, Wirojana, 3,836,872.
- Tarutani, Satoshi. Means for preventing driving chain from coming off multi-speed transmission front gear for bicycle. 3,835,729, Cl. 74-611.000.
- Tashjian, Albert: *See—*
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- Taylor, Don A. Molding apparatus. 3,836,307, Cl. 425-251.000.
- Taylor, Victor E.; Choate, Wallace R.; Banachowski, Stanley; Johnson, Robert W.; and Faison, Robert C., to Warner & Swasey Company, The. Punch press workholder. 3,835,743, Cl. 83-146.000.
- Taylor, Wilson G. Device for pre-locating the thumb and finger hole placements in a bowling ball. 3,835,545, Cl. 33-174.00f.
- Tchang, Liang-Ing; and Dolezon, Jean, to Campagnie des Lampes. Two-Pole electronic starter for fluorescent lamps. 3,836,817, Cl. 315-100.000.
- Teach, Eugene G.: *See—*
  - Baker, Don R.; and Teach, Eugene G., 3,836,564.
- Teague, Roger W.; and Snyder, Richard Paul Largo, to General Signal Corporation. System and apparatus for cleaning bar grid. 3,836,463, Cl. 210-162.000.
- Technilec: *See—*
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- Ted. Bildplatten Aktiengesellschaft: *See—*
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- Teeri, Niilo Heikki. Belleville disk spring pillar assembly. 3,836,195, Cl. 297-162.000.
- Teichner, Robert W.: *See—*
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- Tele Speed Communications, Inc.: *See—*
  - Matschke, Arthur L.; and Horowitz, Jack W., 3,836,880.
- Telle, Otto; Molls, Hans-Heinz; and Fetting, Karl-Ernst, to Bayer Aktiengesellschaft. Ectoparasiticidal compositions and process for their preparation. 3,836,649, Cl. 424-203.000.
- Teller, Daniel M.; Guinosso, Charles J.; Bell, Stanley C.; and Fenichel, Richard L., to American Home Products Corporation. Aromatic glyoxals, their hydrates and bisulfite addition salts in reducing blood platelet aggregation. 3,836,639, Cl. 424-101.000.
- Terada, Masaaki, to Olympus Optical Co., Ltd. Oblique view type endoscope. 3,835,841, Cl. 128-5.000.
- Terada, Yasuyuki: *See—*
  - Abe, Wataru; Muto, Akio; and Terada, Yasuyuki, 3,836,466.
- Terai, Kiyoshi; and Masumoto, Isao, to Kawasaki Jukogyo Kabushiki Kasha. Process of welding a high tension steel. 3,836,748, Cl. 219-137.000.
- Terano, Masateru: *See—*
  - Kishida, Takashi; and Terano, Masateru, 3,835,632.
- Terry, Roy P., Jr.; Teed, Richard K.; and Shirer, S. Ross; deceased (by Shirer, Pauline H.; executrix), to Riegel Textile Corporation. Weather strip. 3,836,421, Cl. 161-63.000.
- Tersch, James R. Suntanning tub. 3,835,482, Cl. 4-177.000.
- Texaco Inc.: *See—*
  - Cole, Edward L.; Hess, Howard V.; and Franz, William F., 3,836,427.
- Texas Instruments, Incorporated: *See—*
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  - McBride, Lyle E., Jr., 3,835,659.
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  - Downing, Kenneth G., 3,836,699.
- Thiel, Alfons Wilhelm. Thermal forming apparatus. 3,836,309, Cl. 425-383.000.
- Thistlethwaite, Alan; and Weissman, Arthur. Adjustable structures that frame or support pictures or panels of various dimensions. 3,835,562, Cl. 40-155.000.
- Thoman, Charles J., to Seco Manufacturing, Inc. Hose rack assembly. 3,835,879, Cl. 137-355.180.
- Thomann, Helmut: *See—*
  - Guntersdorfer, Max; and Thomann, Helmut, 3,836,877.
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  - Izraeli, Hyman, 3,836,941.
- Thomas, Jerry D.; and Griffith, Cecil B., to Republic Steel Corporation. Method of producing leaded steel. 3,836,359, Cl. 75-129.000.
- Thomason, Ivor L. Diver's light apparatus. 3,836,762, Cl. 240-26.000.
- Thompson, David F.: *See—*
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- Thompson, Eugene D.: *See—*
  - Howe, Milton A., Jr.; Dexter, Everett H.; and Thompson, Eugene D., 3,835,993.
- Thompson, Phil W.; Thompson, Ralph F.; and Gottreu, Harold G. Hide pulling machine. 3,835,502, Cl. 71-21.000.
- Thompson, Ralph F.: *See—*
  - Thompson, Phil W.; Thompson, Ralph F.; and Gottreu, Harold G., 3,835,502.
- Thompson, Ronald J.; and MacKenzie, Robert D., to Richardson-Merrell Inc. Two compartment locking sampling syringe. 3,835,835, Cl. 128-2.00f.
- Thoreson, Gene A.; Ley, Richard A,; Miller, Cardell E.; and Emery, Lewis A., to Strong-Scott Mfg. Co., The. Tumbling apparatus for blending finely divided dry materials. 3,836,125, Cl. 259-3.000.
- Thuy, Hans-Joachim: *See—*
  - Wilisch, Jurgen; Goetze, Rudolf; Jaeck, Frank; Nackmayr, Dietrich; Rehberg, Heinz; and Thuy, Hans-Joachim, 3,836,731.
- Tiefert, Karl H., to Raytheon Company. Semiconductor devices manufacture. 3,836,446, Cl. 204-192.000.
- Tilp, Robert F.; Fitzpatrick, William E.; and Cubitt, Robert B., to Rapid-American Corporation, mesne. Bulk package incorporating movable dispenser insert for individual dispensing of substantially wet sheets from stack. 3,836,044, Cl. 221-55.000.
- Timmer, Floris: *See—*
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- Timmons, Albert S. Camper loading and unloading device. 3,836,030, Cl. 214-515.000.
- Tinlin, Frank: *See—*
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- Tintorri, Terence A. Controlled use chess game apparatus. 3,836,152, Cl. 273-136.00f.
- Tishura, Vladimir Ivanovich: *See—*
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- Tobey, Alton E. Abrasion tool. 3,835,598, Cl. 51-396.000.
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- Tomelleri, Giordano, to FMC Corporation. Apparatus for destoning and halving fruit. 3,835,765, Cl. 99-553.000.
- Tomizawa, Kazutaka: *See—*
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- Toray Industries, Inc.: *See—*
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- Torplund, Lorna A. Method for forming wax ornaments on a wire screen. 3,836,411, Cl. 156-59.000.
- Toshimura, Fumio: *See—*
  - Ohara, Sigeo; Toshimura, Fumio; and Sugai, Kazuhiko, 3,836,723.

- Toth, Istvan: *See—*
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- Toth, Istvan, to Sandoz Ltd. Nitration of anthraquinone. 3,836,547, Cl. 260-369.000.
- Touchette, Albert Francis; and Hakanson, Nils L., to Scott Paper Company. Microfiche duplicator. 3,836,252, Cl. 355-100.000.
- Touchstone, Roy H. Quick slack adjuster for locomotive brakes. 3,835,969, Cl. 188-197.000.
- Touchstone, Roy H. Repair device for locomotive hood door latches. 3,836,185, Cl. 292-1.000.
- Toudo, Kenji: *See—*
  - Ikegami, Kazutoshi; Yamamoto, Mitsuoki; Toudo, Kenji; and Miyanaka, Motosi, 3,836,316.
- Toumaala, Jorma Aarne Kullervo, to A. Ahlstrom Osakeyhtio. Apparatus for outside cleaning of boiler tubes. 3,835,817, Cl. 122-379.000.
- Townsend Engineering Company: *See—*
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- Townsens, Ray T.; and Beasley, Donald L., to Townsend Engineering Company. Apparatus for encasing a product. 3,835,503, Cl. 17-35.000.
- Toye, Frederick D.; and Toye, Frederick N. Coded card employing differential translucencies. 3,836,754, Cl. 235-61.12n.
- Toye, Frederick N.: *See—*
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- Toyoda Koki Kabushiki Kaisha: *See—*
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- Toyoda, Taro. Waist-size adjustable trousers. 3,835,473, Cl. 2-237.000.
- Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
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- Transfer Systems Incorporated: *See—*
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- Travis, Bobby J. Tube bundle extractor. 3,836,015, Cl. 214-1.00p.
- Trawinski, Helmut Franz. Method and apparatus for discharing the waste as well as enhancing the flocculation of the suspension and moving the waste in solid jacket centrifuges. 3,836,070, Cl. 233-7.000.
- Traxler, Alexandr Gustavovich: *See—*
  - Perelmutr, Alexandr Semenovich; Berlin, Alexandr Zinovievich; Gorlin, Igor Konstantinovich; and Traxler, Alexandr Gustavovich, 3,836,129.
- Trebillon, Emile; and Wetroff, Georges, to Rhone-Progil. Process for preparimg solid telomers and cotelomers. 3,836,515, Cl. 260-87.50r.
- Trecker, David John: *See—*
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- Trees, James C., to La Salle Machine Tool, Inc. Machining apparatus. 3,835,739, Cl. 82-20.000.
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  - Purtell, Rufus J., 3,836,285.
- Trigg, Harry E. Air-operated traffic counter. 3,836,071, Cl. 235-99.00a.
- Tringali, Dominick; and Dillard, John W., to Universal Business Machines, Incorporated. Time recorder. 3,836,915, Cl. 346-104.000.
- Tripodi, Theodore. Electric fish scaler. 3,835,504, Cl. 17-66.000.
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- Tristram, Edward W.; and ten Broeke, Jan, to Merck & Co., Inc. Dehalogenation of dihalo-5H-dibenzocycloheptenones using chromoun chloride. 3,836,585, Cl. 260-590.000.
- Troester, Thomas F.; and Rike, Russell E., to Dayton-Walther Corporation. Disk type brake. 3,835,961, Cl. 188-71.900.
- Tromp, Henricus: *See—*
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- Tschentscher, Alfred. Guide for winding tread on transverse spools. 3,836,087, Cl. 242-43.000.
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- Tsunoda, Norimasa; and Saito, Tsutomu. Ultrasonic apparatus for making a ball point pen. 3,836,062, Cl. 228-1.000.
- TUC Industries, Inc.: *See—*
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- Tuohey, Paul F.: *See—*
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- Turck, Ulrich, to Chemische Werke Huels, A.G. Process for the production of high surface tension speck-free, heat-polymerized synthetic resin dispersions. 3,836,497, Cl. 260-29.7sq.
- Turner, Edgar P. Breath warming devices. 3,835,853, Cl. 128-212.000.
- Turner, John O., to Sun Research and Development Company. One-step synthesis of caprolactam. 3,836,523, Cl. 260-239.30a.
- Turner, Paul C.: *See—*
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  - Yamada, Keisho; Umemura, Sumio; Ohdan, Kyoji; and Fukuda, Kazuo, 3,836,586.
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- Ueda, Atsushi; and Ishii, Mitsuaki, to Mitsubishi Denki Kabushiki Kaisha. Control system for electric installations on vehcile. 3,836,887, Cl. 340-163.000.
- Ueno, Chozaburo, to Kawasaki Steel Corporation. Prefabricated water tank. 3,835,605, Cl. 52-169.000.
- Ujiie, Akira, to Mitsubishi Jukogyo Kabushiki Kaisha. Process for producing metallic articles by electroslag remelting. 3,835,914, Cl. 164-52.000.
- Ujiie, Akira, to Mitsubishi Jukogyo Kabushiki Kaisha. Apparatus for electroslag remelting to produce tubular bodies. 3,835,916, Cl. 164-252.000.
- Ultra Electronics Limited: *See—*
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- Ulyanov, Lev Petrovich; and Karelin, Alexei Kuzmich. Quick response angle transducer. 3,836,260, Cl. 356-152.000.
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- Union Carbide Corporation: *See—*
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- United Aircraft Corporation: *See—*
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  - Kenney, Harold E.; Donahue, Edward T.; and Maerker, Gerhard, 3,836,468.
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  - Kelly, Robert C., 3,836,530.
  - Sharp, John C., 3,836,657.
- Upright, Robert. Snowball forming device. 3,836,308, Cl. 425-318.000.
- Urry, Wilbert Herbert; and Mullenbach, Guy Towns, to Commercial Solvents Corporation. Syntehsis of zearalanes II and related compounds and intermediates useful in the syntheses thereof. 3,836,544, Cl. 260-343.20r.
- U.S. Philips Corporation: *See—*
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  - De Jonge, Frederik Ate, 3,836,895.
  - Hillekens, Conrardus Ludovicus Anthonius, 3,836,727.
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- van der Aa, Herman Henricus Maria; van Giessel, Robby; and Neelen, Gregorius Theodorus Maria, to U.S. Philips Corporation. Device comprising a liquid-supported rolling diaphragm seal. 3,835,714, Cl. 74-18.200.
- van der Horst, Eberhard, to Monforts, A. Shaft bearing assembly of a machine tool. 3,836,210, Cl. 308-4.00r.
- Van Der Stelt, Cornflis, to N.V. Koninklijke Pharmaceutische Fabrieken v/h Brocades-Stheeman & Pharmacia. 1-(Dimesitylmethyl) imidazole. 3,836,540, Cl. 260-309.000.
- Van der Veen, Marcus Fokke: *See—*
  - Keimpema, Keimpe Klaas; Van der Veen, Marcus Fokke; Rietveld, Andreas Fredericus; and Schoo, Jan Andreas, 3,835,551.
- Van Dolah, Harry J.: *See—*
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- Van Gelder, Zeger: *See—*
  - Johanns, Johannes Hendricus Maria; De Boer, Thijs Johannes; De Haan, Edward Fokko; Van Gelder, Zeger; and Mattheij, Mathieu Martinus Maria Petrus, 3,836,810.
- van Giessel, Robby: *See—*
  - van der Aa, Herman Henricus Maria; van Giessel, Robby; and Neelen, Gregorius Theodorus Maria, 3,835,714.
- van Heelsbergen, Teunis Robert, to U.S. Philips Corporation. Plural motor tension controlled tape drive. 3,836,831, Cl. 318-7.000.
- Van Kamp, Harmen; Westerhof, Pieter; and Morsink, Lucas, to U.S. Philips Corporation. Novel 1,2-methylene-9β-10Δ-steroid compounds, pharmaceutical preparations which contain the novel substances as active ingredients, and methods of producing the said compounds and preparations. 3,836,526, Cl. 260-239.55r.
- van Patten, Robert E., to United States of America, Air Force. Multiaxis bio-mechanical force measuring device. 3,835,702, Cl. 73-133.00r.
- Van Suchtelen, Jaap: *See—*
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- Van Wicklin, Warren A., Jr., to Ford Motor Company. Brake system proportioning valve. 3,836,204, Cl. 303-6.00c.
- Van Wieringen, Gijsbertus L., to N.V. Nederlandse Metallindustrie Polynorm. Seal joint between two identical profiled sections and the associated mitre-joint construction. 3,835,616, Cl. 52-758.00h.
- Vandemark, William Jacob; and Wood, Michael Stuart, to Foseco International Limited. Investment casting. 3,835,913, Cl. 164-35.000.
- Vapor Corporation: *See—*
  - Zell, Felician A., 3,836,115.
- Varga, Andrew. Fluid meter. 3,835,706, Cl. 73-254.000.
- Varta Aktiengesellschaft: *See—*
  - Niklas, Hans; Knabenbauer, Wolfgang; and Rabenstein, Heinrich, 3,836,401.
- Vasilantone, Michael. Printing apparatus. 3,835,773, Cl. 101-122.000.
- Vepa AG: *See—*
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  - Fleissner, Heinz; and Wilhelm, Ernst, 3,835,671.
- Verdol S.A.: *See—*
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- Vermilyea, Peter W.: *See—*
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- Vernede, Louis Antoine; Nitzki, Leopold; Liedke, Heinrich; and Schror, Friedrich, to Aktien-Gesellschaft "Weser". Marine cargo vessel. 3,835,802, Cl. 114-43.500.
- VFG Vertriebsgesellschaft fur feuerfeste und giesstechnische Erzeugnisse mbH: *See—*
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- Viele, Verne R.: *See—*
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- Vilen, Erik O., to Blakeslee, G. S., & Co. Rotating feed table for dishware and the like. 3,836,003, Cl. 210-241.000.
- Villari, Frank K. Fenestrated drape with retaining means. 3,835,851, Cl. 128-132.00d.
- Villari, Frank K., to Kendall Company, The. Sterile caps for a liquid drainage system and method. 3,835,862, Cl. 128-349.00r.
- Villeger, Jean G. Solid heat insulation panel for building. 3,835,611, Cl. 52-621.000.
- Violette, John A.: *See—*
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- Volent, Stanley C., to Decor Manufacturing Co., Inc. Method of forming artificial stone. 3,836,619, Cl. 264-131.000.
- Volkswagenwerk Aktiengesellschaft: *See—*
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  - Hildebrandt, Christian, 3,836,172.
- Von Der Au, Roland George Victor. Orbital planetary multibladed revolving cutter blades. 3,835,630, Cl. 56-295.000.
- Von Hardenberg, Paul Warren; and Molnar, George Anthony, to United Aircraft Corporation. Engine mounting arrangement. 3,836,100, Cl. 244-54.000.
- Von Koch, Arwed, to Daimler-Benz Aktiengesellschaft. Rapid-stopping system for transmissions. 3,836,832, Cl. 318-265.000.
- Vossnacke, Juergen: *See—*
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- Wagner, George M.; and Sitgreaves, Norman E., to Hooker Chemical Corporation. Method of introducing air permeability into a nonporous continuous film and resultant film. 3,836,423, Cl. 161-159.000.
- Wahlgren, Wallace W.; and Douglas, Ellwood S., to Rucker Company, The. Ground fault protective system. 3,836,821, Cl. 317-18.00d.
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- Wallshein, Melvin. Orthodontic appliance. 3,835,539, Cl. 32-14.00a.
- Walser, Armin: *See—*
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- Wassberg, Yngve Adolf Eugen; and Wassberg, Sven-Ake Gustaf-Adolf, to Wa-Konsult Wassberg & Wassberg AB. Arrangement for detachably interconnecting elements. 3,835,794, Cl. 108-153.000.
- Watanabe, Tadashi; Murata, Kouichiro; and Tsubouchi, Kenjiro, to Kansai Paint Co., Ltd. Polymerizable unsaturated reaction product of a diisocyanate and an unsaturated product of a dicarboxylic acid anhydride and an unsaturated monoglycidyl monomer. 3,836,92, Cl. 260-23.0tn.
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- Watrous, Donald L., to General Electric Company. Mounting arrangement for flexible circuit. 3,836,824, Cl. 317-101.00f.
- Watson, Kenneth, to Westland Aircraft Limited. Liquid level indicators. 3,835,709, Cl. 73-311.000.
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- Weaver, Gerald Q.; and Olson, Bradford A., to Norton Company. Sintered silicon carbide. 3,836,673, Cl. 423-345.000.
- Weaver, John B., to Armstrong Cork Company. Marbleizing apparatus. 3,836,297, Cl. 425-104.000.
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- Weber, Karl Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Karl Heinz; deceased (by Hauptmann, Maria; heir), to Boehringer Ingelheim G.m.b.H. Pharmaceutical compositions containing a 5-phenyl-7-irifluoromethyl-1h-1,5-benzodiazepine-24-dione. 3,836,652, Cl. 424-244.000.
- Weber, Karl Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Karl Heinz, deceased (by Hauptmann, Marie, heir), to Boehringer Ingelheim G.m.b.H. Pharmaceutical compositions containing a 5-phenyl-7-bromo-1h-1,5-benzodiazepine-2,4-(3H,5H)dione. 3,836,653, Cl. 424-244.000.
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- Weisker, Alexander; and Smith, Raymond L., Jr., to C & M Manufacturing Company, Inc. Material handling truck apparatus. 3,836,031, Cl. 214-730.000.
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- Wells, Joel D.; Sabin, Albert S.; Kahn, William J.; and Wigner, William K., to Martin Marietta Corporation. Data transmission method and apparatus. 3,836,726, Cl. 179-41.00a.
- Wells, Joel Douglas, to Martin Marietta Corporation. Transmitter sequencing method and apparatus. 3,836,974, Cl. 343-208.000.
- Weltmer, Wilton W., to Allis-Chalmers Corporation. Mixer pump. 3,836,126, Cl. 259-95.000.
- Wendt, William H., III, to Chicago Metal Mfg. Co. Machine for forming holes in angle rings for the like. 3,835,744, Cl. 83-267.000.
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  - Frisch, Erling; and Andrews, Harry N., 3,836,430.
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Wheeler, Marshall L., Jr., to Union Carbide Corporation. Olefinic silicone-organic graft copolymers. 3,836,598, Cl. 260-827.000.
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Williams, Cecil E. Pollution-reducing floating exhaust. 3,835,625, Cl. 55-259.000.
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Wolford, Earl W.; and Frazee, Orville P. Magnetic pump. 3,836,289, Cl. 417-415.000.
Wolgemuth, James H., to Ford Motor Company. Exhaust and gas recirculating system. 3,835,827, Cl. 123-119.00a.
Wollar, Burnell J.: *See—*
Polydoris, Nicholas G.; and Wollar, Burnell J., 3,835,543.
Wommack, Joel B., Jr. Alkyl 4-[O-(substituted methyleneamino) phenyl]-3-thioallophanates. 3,836,569, Cl. 260-470.000.
Wood, David R.: *See—*
Harris, John P.; Mantey, John P.; and Wood, David R., 3,836,833.
Wood, James E.: *See—*
Strecker, Larry A.; and Wood, James E., 3,836,695.
Wood, Lawrence M., to Eastman Kodak Company. Exposure control apparatus. 3,836,983, Cl. 354-258.000.
Wood, Michael Stuart: *See—*
Vandemark, William Jacob; and Wood, Michael Stuart, 3,835,913.
Woodall Industries Inc.: *See—*
Hoffman, John J.; and White, Jay E., Jr., 3,836,763.
Woods, Daniel J.: *See—*
Funk, John W.; Merlino, Eugene L., Jr.; and Woods, Daniel J., 3,835,771.
Worden, Owen Winram. Apparatus for splicing cables. 3,836,701, Cl. 174-93.000.
Wright, Barry, Corporation: *See—*
Lowe, Russell T.; Pepi, Jerome S.; and Schubert, Dale W., 3,836,134.

Wright, Carl J.: *See—*
Hoffman, Robert E.; and Wright, Carl J., 3,835,880.
Wright, Donald L.; and Frankenfeld, John W. Topical antifungal 1,3-diols. 3,836,672, Cl. 424-343.000.
Wright, John B.: *See—*
Johnson, Herbert G.; Wright, John B.; Hall, Charles M.; and Warner, Donald T., 3,836,541.
Wright, Ronald S.: *See—*
Adams, Kevin L.; and Wright, Ronald S., 3,836,149.
Wright, Rufus W. Broadband microwave energy absorptive structure. 3,836,967, Cl. 343-18.00a.
Wrue, Richard J., to Bausch & Lomb Incorporated. Apparatus for and method of removing material from a flexible contact lens. 3,835,596, Cl. 51-284.000.
Wunder, Friedrich: *See—*
Krekeler, Hans; Fernholtz, Hans; Freudenberger, Dieter; Schmidt, Hans-Joachim; and Wunder, Friedrich, 3,836,567.
Wurst, Bert, to Bosch, Robert, GmbH. Internal combustion engine torque measuring apparatus providing an electrical control signal. 3,835,733, Cl. 74-866.000.
Wuskell, Joseph P.: *See—*
Briendell, Gordon D.; and Wuskell, Joseph P., 3,836,590.
Wynkoop, Raymond: *See—*
Shang, Jer-Yu; Bisson, Barry A.; and Wynkoop, Raymond, 3,836,342.
Wysocki, Stanislaw; and Chalecki, Janusz. System of pulsators for an electro-ophthalm. 3,835,476, Cl. 3-1.000.
Xaloy Incorporated: *See—*
Saltzman, Gilbert A.; Otani, Tony U.; and Lomax, Donald P., 3,836,341.
Xerox Corporation: *See—*
Adams, James E.; Becker, James H.; and Haas, Werner E. L., 3,836,230.
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Yadlowsky, Slawko, to General Foods Corporation. Method for enhancing soluble foodstuffs. 3,836,682, Cl. 426-312.000.
Yaeger, Luther LeMasters, to Presciencia, Limited. Laminate for human habitation. 3,836,417, Cl. 161-5.000.
Yamada, Eiji, to Sumitomo Chemical Company, Ltd. Anthraquinone compounds. 3,836,549, Cl. 260-380.000.
Yamada, Keisho; Umemura, Sumio; Ohdan, Kyoji; and Fukuda, Kazuo, to UBE Industries, Ltd. Process for producing acrolein or methacrolein. 3,836,586, Cl. 260-604.00r.
Yamaha Hatsudoki Kabushiki Kaisha: *See—*
Kishira, Nozumu, 3,835,956.
Yamamoto, Kazuo: *See—*
Yasui, Koichi; Yamamoto, Kazuo; Itami, Kazuo; Fujisawa, Kiyoshi; and Sasaki, Toshio, 3,836,336.
Yamamoto, Koichi: *See—*
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Yamamoto, Makoto; Fukuda, Tomio; and Nakatake, Masamichi, to Shiba Electric Co., Ltd., and Nippon Hoso Kyokai. Digital Control system. 3,836,756, Cl. 235-150.100.
Yamamoto, Mitsuoki: *See—*
Ikegami, Kazutoshi; Yamamoto, Mitsuoki; Toudo, Kenji; and Miyanaka, Motosi, 3,836,316.
Ikegami, Kazutoshi; Honda, Juichi; Miyanaka, Motosi; and Yamamoto, Mitsuoki, 3,836,857.
Yamanaka, Masami; and Masuda, Yasutoshi, to Yamato Scale Company, Limited. Device for weighing running vehicle. 3,835,945, Cl. 177-134.000.
Yamanaka, Takeharu. Skewering machine. 3,835,761, Cl. 99-421.00h.
Yamashita, Junnosuke; and Negishi, Hideo, to Mitsubishi Kinzoku Kogyo Kabushiki Kaisha. Apparatus for displacing grinding surface of throw-away tip. 3,835,593, Cl. 51-216.0nd.
Yamashita, Seizi; and Onishi, Kazuo, to Hitachi, Ltd. Stator for DC machines. 3,836,801, Cl. 310-154.000.
Yamashita, Shigeru: *See—*
Kobayakawa, Masaki; Yawata, Kazufumi; and Yamashita, Shigeru, 3,836,806.
Yamato Scale Company, Limited: *See—*
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Yamazaki, Haruji, to Chuo Denshi Kogyo Co., Ltd. Four channel headphone. 3,836,724, Cl. 179-18.01r.
Yamazaki, Tetsuya: *See—*
Sumimoto, Toru; Matsushita, Shigeo; Fujiware, Tadafumi; Koizumi, Ken; and Yamazaki, Tetsuya, 3,836,348.
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Yano, Nubumitsu; Fukushima, Masao; Fukinbara, Itaru; Kishi, Masanori; and Kimura, Kazuyoshi, to Asahi Kasei Kogyo Kabushiki Kaisha. Synthetic nacreous pigments and method for production thereof. 3,836,531, Cl. 260-248.00a.
Yarborough, Joe Michael: *See—*
Ammann, Eugene O.; and Yarborough, Joe Michael, 3,836,866.
Yarborough, William: *See—*
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Yasuda, Naohiko; Ariyoshi, Yasuo; and Sato, Naotake, to Ajinomoto Co., Inc. Aspartic anhydride having a masked amino group. 3,836,545, Cl. 260-346.80r.
Yasui, Koichi; Yamamoto, Kazuo; Itami, Kazuo; Fujisawa, Kiyoshi; and Sasaki, Toshio, to Asahi Kasei Kogyo Kabushiki Kaisha. Apparatus for continuous xanthation and solution of alkali cellulose. 3,836,336, Cl. 23-260.000.
Yasukabe, Siro: *See—*
Hokao, Zenjiro; Shibata, Teijiro; and Yasukabe, Siro, 3,835,937.
Yata, Kotaro; and Matsuda, Motonobo, to Minolta Camera Kabushiki Kaisha. Indicator circuit. 3,836,262, Cl. 356-226.000.
Yawata, Kazufumi: *See—*
Kobayakawa, Masaki; Yawata, Kazufumi; and Yamashita, Shigeru, 3,836,806.
Yeager, Marvin Leo, to AMP Incorporated. Electrical contact receptacle with helper spring. 3,836,947, Cl. 339-259.00r.
Yerkins, Stephen J., to Goss Gas, Inc. Torch tip and method of fabricating the same. 3,836,081, Cl. 239-424.500.
Ylvisaker, Carl J. Bicycle sail. 3,836,176, Cl. 280-213.000.
Yoda, Renpei, to National Research Institute for Metals, The Director of. Permanent magnetic Fe-Mn-Cr alloy containing nitrogen. 3,836,406, Cl. 148-31.570.
Yokomizo, Yuji: *See—*
Ichinose, Noboru; and Yokomizo, Yuji, 3,836,483.
Yonce, Everett R. Electric circuit tester connector for highway vehicles. 3,836,843, Cl. 324-51.000.
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Yoshizawa, Masao; Mikami, Takeo; Kobayashi, Nobuo; and Iida, Akira, to Dainippon Ink & Chemicals, Inc. Flame resistant finish of combustible materials prepared from phosphorous compounds, aldehydes and ketones. 3,836,507, Cl. 260-64.000.
Young, Christopher John: *See—*
Desty, Denis Henry; and Young, Christopher John, 3,836,318.
Young, Dean Arthur, to Union Oil Company of California. Method of treating alumina containing oxides. 3,836,561, Cl. 252-450.000.
Young, Edward John: *See—*
Baxendale, Albert Edward; and Young, Edward John, 3,835,825.
Young Engineering Inc.: *See—*
Young, William O., Jr.; Surka, Ebun A.; and Quattlebaum, Walter J., 3,835,746.
Young, Walter L.: *See—*
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Young, William O., Jr.; Surka, Ebun A.; and Quattlebaum, Walter J., to Young Engineering Inc. Die assembly and rule mounting means therefor. 3,835,746, Cl. 83-346.000.
Young, William Robert: *See—*
Green, Dennis Clinton; and Young, William Robert, 3,836,478.
Yu, Se Puan; and Tantraporn, Wirojana, to General Electric Company. Avalanche diode oscillator. 3,836,872, Cl. 331-107.00r.
Zabotin, Alexandr Alexandrovich: *See—*
Galperin, Alexandr Lvovich; Serebryannikov, Albert Semenovich; Zabotin, Alexandr Alexandrovich; Onikov, Eduard Arshakovich; Lukoshkov, Vladimir Iosifovich; Lileev, Valeryan Petrovich; Loschilin, Evgeny Dmitrievich; Rutkevich, Zinovy Yakovlevich; Sakharov, oris Alexandrovich; and German, Zinovy Antolievich, 3,835,893.
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Zaehner, Hans: *See—*
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Zajac, Lawrence J., to Rockwell International Corporation. Porous tube injector. 3,835,886, Cl. 137-604.000.
Zaleski, John F., to Singer Company, The, mesne. Modulating system. 3,836,855, Cl. 325-113.000.
Zaleski, John F., to Singer Company, The. Passive microwave receiver-transmitter. 3,836,962, Cl. 343-6.80r.
Zamboni, Frank J., to Zamboni, Frank J., & Co. Water removal machine for artificial turf. 3,835,500, Cl. 15-319.000.
Zamboni, Frank J., & Co.: *See—*
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Zappia, Anthony T. Tester head. 3,835,698, Cl. 73-94.000.
Zappia, Anthony T. Modular conveyor stand. 3,835,982, Cl. 198-204.000.
Zeile, Karl: *See—*
Koppe, Herbert; Kummer, Werner; Stahle, Helmut; Zeile, Karl; Engelhardt, Albrecht; and Traunecker, Werner, 3,836,666.
Weber, Karl Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Karl Heinz, 3,836,652.
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Zell, Felician A., to Vapor Corporation. Variable length valve. 3,836,115, Cl. 251-150.000.

Zenith Carburetter Company Limited, The: *See—*
Ross, Gray Ernest Donald, 3,835,831.

Zias, Arthur R.: *See—*
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Zimmerman, Vincent H.: *See—*
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Zimmermann, Detlef; and Lougheed, James Hugh, to Bell Canada-Northern Electric Research Limited. Encapsulated electrically resonant circuit and interrogating apparatus and method for finding same in various locations. 3,836,842, Cl. 324-34.00r.

Zinser-Textilmaschinen GmbH: *See—*
Klein, Konrad, 3,835,633.

Zoleta, Jose C. Method and system for reducing pollutants from engine exhaust. 3,835,645, Cl. 60-274.000.

Zuantor Corporation: *See—*
Seitz, Paul N.; Cox, Gerald C.; and Kahle, Rolf D., 3,836,926.

Zugel, Martin J., to Cyclo Index Corporation. Intermittent motion device. 3,835,723, Cl. 74-436.000.

Zysk, Edward D.; Robertson, Allen R.; Cisz, Michael; and Sheridan, Robert W., to Engelhard Minerals & Chemicals Corporation. Molybdenum-ruthenium thermocouple for temperature measurements under nuclear reaction conditions. 3,836,402, Cl. 136-202.000.

09/17/74; and Chopieska, Frank S. Marker line means for spreader. 3,836,052, Cl. 222-177.000.

LIST OF REISSUE PATENTEES

PATENTS WERE ISSUED ON THE 17TH DAY OF SEPTEMBER, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Allied Chemical Corp.: *See—*
Stephenson, Robert L. Re. 28,164.

Anderson, Robert H., to Tektronix, Inc. Optical apparatus including a pair of mosaics of optical imaging elements. Re. 28,162, 9–17–74, Cl. 95—18.

Bolton, Hugh R., T. G. Fellows, E. R. Laithwaite, J. F. Eastham, and E. F. Needham, to Tracked Hovercraft Ltd. Linear induction motor. Re. 28,161, 9–17–74, Cl. 310—13.

Bonvicini, Alberto, and G. Cantatore, to Montecatini Edison S.p.A. Blends of polyolefins and polyamides. Re. 28,167, 9–17–74, Cl. 260—857.

Cantatore, Giuseppe: *See—*
Bonvicini, Alberto, and Cantatore. Re. 28,167.

Eagland, Harold W., deceased by P. Eagland, executor, to Palletower Ltd. Frames for stacking pallets. Re. 28,163, 9–17–74, Cl. 108—53.

Eagland, Phyllis: *See—*
Eagland, Harold W., and P. Re. 28,163.

Eastham, John F.: *See—*
Bolton, Hugh R., Fellows, Laithwaite, Eastham, and Needham. Re. 28,161.

Fellows, Thomas G.: *See—*
Bolton, Hugh R., Fellows, Laithwaite, Eastham, and Needham. Re. 28,161.

Laithwaite, Eric: *See—*
Bolton, Hugh R., Fellows, Laithwaite, Eastham, and Needham. Re. 28,161.

Lingl, John. Apparatus for producing bricks. Re. 28,160, 9–17–74, Cl. 425—316.

Litz, Jack. Nail placing implement. Re. 28,159, 9–17–74, Cl. 145—46.

McCormick, James B., to Miles Laboratories, Inc. Biological specimen processing and embedding apparatus. Re. 28,165, 9–17–74, Cl. 425—117.

Meckler, Gershon, to Westinghouse Electric Corp. Comfort conditioning system. Re. 28,166, 9–17–74, Cl. 165—27.

Miles Laboratories, Inc.: *See—*
McCormick, James B. Re. 28,165.

Montecatini Edison S.p.A.: *See—*
Bonvicini, Alberto, and Cantatore. Re. 28,167.

Needham, Ernest F.: *See—*
Bolton, Hugh R., Fellows, Laithwaite, Eastham, and Needham. Re. 28,161.

Owens-Illinois, Inc.: *See—*
Uhlig, Albert R. Re. 28,158.

Palletower Ltd.: *See—*
Eagland, Harold W., and P. Re. 28,163.

Stephenson, Robert L., to Allied Chemical Corp. Method and apparatus for filling vehicle gas bags. Re. 28,164, 9–17–74, Cl. 141—4.

Tektronix, Inc.: *See—*
Anderson, Robert H. Re. 28,162.

Tracked Hovercraft Ltd.: *See—*
Bolton, Hugh R., Fellows, Laithwaite, Eastham, and Needham. Re. 28.161.

Uhlig, Albert R., to Owens-Illinois, Inc. Displacement molding plastic articles. Re. 28,158, 9–17–74, Cl. 425—245.

Westinghouse Electric Corp.: *See—*
Meckler, Gershon. Re. 28,166.

LIST OF PLANT PATENTEES

Anderson, Frederic W., to Reedley Nursery, Inc. Plum tree. 3,617, 9–17–74, Cl. 38.

Anderson, Frederic W., to Reedley Nursery, Inc. Plum tree. 3,618, 9–17–74, Cl. 38.

Anderson, Frederic W., to Reedley Nursery, Inc. Nectarine tree. 3,619, 9–17–74, Cl. 41.

Anderson, Frederic W., to L. E. Cooke, Co. Dwarf peach tree. 3,620, 9–17–74, Cl. 43.

Cooke, L. E., Co.: *See—*
Anderson, Frederic W. 3,620.

Reedley Nursery, Inc.: *See—*
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Anderson, Frederic W. 3,618.
Anderson, Frederic W. 3,619.

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Asai, Hikaru: *See—*
Takashima, Teruo, and Asai. 232,862.

Barich, Frank M.: *See—*
Barton, John T., and Barich. 232,848.

Barton, John T., and F. M. Barich. Horse feeder. 232,848, 9–17–74, Cl. D30—13.

Bennett, Leonard M. Floatable tray. 232,793, 9–17–74. Cl. D6—146.

Blankenship, Arthur C., to Uniroyal, Inc. Pneumatic tire tread and buttress. 232,820, 9–17–74. Cl. D12—149.

Bloyd, Betty L., 33⅓ to Harry Carr, and Cletus Caroland. Dog bed. 232,850, 9–17–74, Cl. D30—41.

Bluestein, Bernard B.: *See—*
Steinkamp, Norman A., and Bluestein. 232,802.

Boyd, J. Patrick, to Thuron Industries, Inc. Insect trap. 232,829, 9–17–74. Cl. D22—19.

Bruest Industries, Inc.: *See—*
Vidmar, George G., Jr. 232,831.

Bunk Trunk Distributors: *See—*
Mendlin, Michael A. 232,788.

Caldwell, John W. Side frame for a chair or similar article. 232.795, 9–17–74, Cl. D6—192.

Carlson, John A., and T. M. Tigard, to Conchemco, Inc. Caliper brake assembly. 232,823, 9–17–74, Cl. D12—179.

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Vennola, Jorma. 232,855.

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Culbertson, Richard, and R. E. Lee, to General Electric Co. Portable cassette tape recorder. 232,843, 9–17–74, Cl. D26—14.

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Doolittle, John J. Combined beverage can holder and lid. 232,797, 9–17–74, Cl. D7—70.

Edgeington, James N., R. G. Odell, and E. G. Lowrance, III, to IMS Corp. Carton. 232,811, 9–17–74, Cl. D9—224.

Eke, Alan B.: *See—*
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Family Products, Inc.: *See—*
Roche, David E. 232,798.

Federal Investment Corp.: *See—*
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Fry, James C., to Rubbermaid Inc. Message board and rack. 232,792, 9–17–74, Cl. D6—130.

Fry, James C., to Rubbermaid Inc. Car wastebasket support. 232,821, 9–17–74, Cl. D12—155.

Fry, James C., to Rubbermaid Inc. Combined car wastebasket and accessory holder. 232,870, 9–17–74, Cl. D87—1.

Fusco, Leonard J., and R. J. Perazzini. Salt block holder. 232,846, 9–17–74, Cl. D30—13.

Game Time, Inc.: *See—*
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General Electric Co.: *See*—
    Culbertson, Richard, and Lee. 232,843.
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George, Elton G., and W. T. McCollough. Article receptacle for vehicles. 232,871, 9–17–74, Cl. D87—1.
Gerber, William C., to Rubbermaid Inc. Front car mat. 232,824, 9–17–74, Cl. D12—203.
Gerber, William C., to Rubbermaid Inc. Twin front car mat. 232,825, 9–17–74, Cl. D12—203.
Gerber, William C., to Rubbermaid Inc. Twin rear car mat. 232,826, 9–17–74, Cl. D12—203.
Gilbert, Evalin S. Table. 232,794, 9–17–74, Cl. D6—177.
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Goodyear Tire & Rubber Co., The: *See*—
    Hinkel, Walter W., and Hammond. 232,819.
Hamada, Masanori, to Matsushita Electric Industrial Co., Ltd. Radio receiver. 232,864, 9–17–74, Cl. D56—4.
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    Hinkel, Walter W., and Hammond. 232,819.
Hinkel, Walter W., and P. S. Hammond, to The Goodyear Tire & Rubber Co. Tire. 232,819, 9–17–74, Cl. D12—142.
Husby, Donald E., to Westinghouse Electric Corp. Exterior lighting fixture. 232,858, 9–17–74, D48—31.
IMS Corp.: *See*—
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Imano, Keiji: *See*—
    Suganoya, Yoshio, and Imano. 232,800.
Jarvis, Brian C., to Moviecol Enterprises Ltd. Switch unit for use with a piano keyboard. 232,865, 9–17–74, Cl. D56—9.
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    Watanabe, Riki. 232,814.
Kalnins, Ziedonis. Towel and toothbrush rack. 232,790, 9–17–74, Cl. D6—91.
Kitai, Isao, and M. Yamagami, to Sharp Kabushiki Kaisha (Sharp Corp). Electronic calculating machine. 232,833, 9–17–74, Cl. D26—5.
Kitai, Isao, and S. Onishi, to Sharp Kabushiki Kaisha Sharp Corp.). Electronic calculating machine. 232,835. 9–17–74, Cl. D26—5.
Kitai, Isoa, to Sharp Kabushiki Kaisha (Sharp Corp.). Electronic calculating machine. 232,836, 9–17–74, Cl. D26—5.
Kitai, Isao, to Sharp Kabushiki Kaisha. Electronic clinical thermometer. 232,860, 9–17–74, Cl. D52—7.
Kitamori, Masakazu: *See*—
    Miya, Masami, and Kitamori. 232,816.
Kleiman, Charles, to Lake Chemical Co. Spatula. 232,803, 9–17–74, Cl. D8—45.
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Knoss, Robert A., and A. B. Eke, to Glasstite, Inc. Top for pickup truck. 232,822, 9–17–74, Cl. D12—156.
Knudson, Paul. Breadbox with breadboard. 232,799, 9–17–74, Cl. D7—82.
Koblick, Jeffrey M. Broiler sheet. 232,801, 9–17–74, Cl. D7—129.
Koblick, Jeffrey M. Hair trimmer. 232,874, 9–17–74, Cl. D95—3.
Kumiai Chemical Industry Co., Ltd.: *See*—
    Okubo, Tadashi. 232,847.
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Lake Chemical Co.: *See*—
    Kleiman, Charles. 232,803.
Lang, James W. Combined hand carried lighting unit and magnetic base therefor. 232,857, 9–17–74, Cl. D48—24.
Lary, Richard, to Hilda Erlich. Lampshade. 232,856, 9–17–74, Cl. D48—1.
Lecube, Kathy. Handbag. 232,873, 9–17–74, Cl. D87—3.
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    Culbertson, Richard, and Lee. 232,843.
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    Yoshimura, Masao. 232,869.
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Marer, Clarence D., to Swank, Inc. Button topper, or similar article. 232,786, 9–17–74, Cl. D2—451.
Mariner, Charlie D.: *See*—
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Miya, Masami, and M. Kitamori, to Nepon Kabushiki Kaisha. Boat. 232,816, 9–17–74, Cl. D12—62.
Moos, Albert H., and N. S. Curtis, to Ransburg Corp. Atomizing head for an electrostatic sprayer. 232,830, 9–17–74, Cl. D23—34.
Moviecol Enterprises Ltd.: *See*—
    Jarvis, Brian C. 232,865.
Mueller, Thomas R. Glass marble dog. 232,851, 9–17–74, Cl. D34—2.
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Niwell, Arnold W. Combined chess game play timer and scorer. 232,815, 9–17–74, Cl. D10—40.
Nobbs, Mulford J., to Con-Stan Industries, Inc. Brassiere. 232,785, 9–17–74, Cl. D2—24.
O-T-D Corp.: *See*—
    Ogle, Paul E., and Coleman. 232,812.
Odell, Richard G.: *See*—
    Edgeington, James N., Odell, and Lowrance. 232,811.
Ogle, Paul E., and K. L. Coleman, to O-T-D Corp. Shipping container. 232,812, 9–17–74, Cl. D9—246.
O'Hare, Harry M., to Federal Investment Corp. Dispensing container for liquids. 232,810, 9–17–74, Cl. D9—71.
Okubo, Tadashi, to Kumiai Chemical Industry Co., Ltd. Feeding container for animals. 232,847, 9–17–74, Cl. D30—13.
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Roche, David E., to Family Products, Inc. Insulated chest. 232,798, 9–17–74, Cl. D7—77.
Rockvam, Thomas C. Dock supporting bracket. 232,808, 9–17–74, Cl. D8—233.
Roth, Edward. Three wheeled vehicle body. 232,818, 9–17–74, Cl. D12—85.
Rubbermaid Inc.: *See*—
    Fry, James C. 232,792.
    Fry, James C. 232,821.
    Fry, James C. 232,870.
    Gerber, William C. 232,824.
    Gerber, William C. 232,825.
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Scholfield, Richard P., to Wheeldex Mfg. Co., Inc. Card file. 232,868, 9–17–74, Cl. D74—2.
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Se Kit, Yuen. Combined telephone stand and index. 232,867, 9–17–74, Cl. D74—1.
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    Kitai, Isao, and Yamagami. 232,833.
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Shlesinger, Bernard E., Jr., and C. D. Mariner. Reed for a reed switch assembly. 232,838, 9–17–74, Cl. D26—13.
Shlesinger, Bernard E., Jr., and C. D. Mariner. Reed for a reed switch assembly. 232,839, 9–17–74. Cl. D26—13.
Shlesinger, Bernard E., Jr., and C. D. Mariner. Reed for a reed switch assembly. 232,840, 9–17–74, Cl. D26—13.
Shlesinger, Bernard E., Jr., and C. D. Mariner. Reed for a reed switch assembly. 232,841, 9–17–74, Cl. D26—13.
Shlesinger, Bernard E., Jr., and C. D. Mariner. Reed for a reed switch assembly. 232,842, 9–17–74, Cl. D26—13.
Siroonian, John, and D. D. Scott. Wheel center. 232,827, 9–17–74, Cl. D12—205.
Smith, Clement J. Plate tray. 232,796, 9–17–74, Cl. D7—37.
Steinkamp, Norman A., and B. B. Bluestein, to Sunbeam Corp. Housing for a steam generating appliance. 232,802, 9–17–74, Cl. D7—164.
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Takei, Taka Y. Portable radio. 232,861, 9–17–74, Cl. D56—4.
Tegner, Raymond U. H., to Amerock Corp. Supporting bracket. 232,789, 9–17–74, Cl. D6—86.
Tegner, Raymond U. H. Chain guard. 232,805, 9–17–74, Cl. D8—131.
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    Boyd, J. Patrick. 232,829.
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Tong, Vong H. Radio receiver. 232,863, 9–17–74. Cl. D56—4.
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Vennola, Jorma, to Columbia Broadcasting System, Inc. Crib toy mobile. 232,853, 9–17–74, Cl. D34—15.
Vennola, Jorma, to Columbia Broadcasting System, Inc. Crib toy mobile. 232,854, 9–17–74, Cl. D34—15.
Vennola, Jorma, to Columbia Broadcasting System, Inc. Toy scoop. 232,855, 9–17–74, Cl. D34—15.
Ventimiglia, Anthony J. Box for bingo accessories. 232,872, 9–17–74, Cl. D87—1.

Vidmar, George G., Jr., to Bruest Industries, Inc. Catalytic heater head attachment. 232,831, 9–17–74, Cl. D23—137.
Watanabe, Riki, to Kabushiki Kaisha Koparu. Digital alarm Clock. 232,814, 9–17–74, Cl. D10—15.
Watson, S. V., Co., The: *See*—
    Watson, Samuel V. 232,817.
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    Husby, Donald E. 232,858.
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White, Marvin. Ketchup transfer rack. 232,787, 9–17–74, Cl. D6—20.
Wilkes, Kenneth R., to General Electric Co. Loudspeaker. 232,845, 9–17–74, Cl. D26—14.
Wilson, Mary E. Pet chair. 232,849, 9–17–74, Cl. D30—41.
Wormser, Robert S., to Game Time, Inc. Playground climber representing a caterpillar. 232,852, 9–17–74, Cl. D34—5.
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Yamagami, Masafumi: *See*—
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Yoshimura, Masao, to The Mailbox, Inc. Signalized back pack. 232,869, 9–17–74, Cl. D87—1.

CLASSIFICATION OF PATENTS

ISSUED SEPTEMBER 17, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

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84	3,835,471
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79	3,835,479
116	3,835,480
172.21	3,835,481
177	3,835,482
185S	3,835,483
199	3,835,484
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5	3,835,487
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10.1	3,836,326
149.1	3,835,490
173	3,836,327
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1T	3,835,491
6	3,835,492
307	3,835,493
310D	3,835,494
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10R	3,835,495
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6	3,836,689
CLASS 14	
71	3,835,497
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21E	3,835,498
250.04	3,835,499
319	3,835,500
CLASS 16	
51	3,835,501
CLASS 17	
21	3,835,502
35	3,835,503
66	3,835,504
CLASS 21	
56	3,836,328
CLASS 23	
230B	3,836,332
230R	3,836,329
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259	3,836,333
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260	3,836,336
270R	3,836,337
277C	3,836,338
277R	3,836,339
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16R	3,835,505
68D	3,835,506
134R	3,835,507
201R	3,836,049
204	3,835,508
CLASS 27	
19	3,835,509
CLASS 28	
1.4	3,835,510
	3,835,511
72FT	3,835,512
72.14	3,835,513
CLASS 29	
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27C	3,835,515
47	3,835,516
90	3,835,517
150	3,835,518
177	3,835,519
182.5	3,836,340
191.6	3,836,341
202D	3,835,520
203B	3,835,521
239	3,835,522
252	3,835,523
401	3,835,524
412	3,835,525
470.9	3,835,526
560	3,835,527
	3,835,528
570	3,835,529
574	3,835,530
625	3,835,531
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40.2	3,835,532
146	3,835,533
169	3,835,534
249	3,835,535
294	3,835,536
346.53	3,835,537
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14A	3,835,539
14E	3,835,538
	3,835,540
CLASS 33	
21C	3,835,541
109	3,835,542
141E	3,835,543
147J	3,835,544
174F	3,835,545
338	3,835,546
347	3,835,547
367	3,835,548
379	3,835,549
CLASS 34	
5	3,835,550
100	3,835,551
151	3,835,552
CLASS 35	
9C	3,835,553
10.2	3,836,690
45	3,835,554
CLASS 36	
9R	3,835,555
33	3,835,556
34A	3,835,557
44	3,835,558
CLASS 38	
21	3,835,559
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104.01	3,835,560
106.32	3,835,561
155	3,835,562
209	3,835,563
306	3,835,564
CLASS 42	
1S	3,835,565
16	3,835,566
CLASS 43	
6.5	3,835,567
17	3,835,568
18GF	3,835,569
19.2	3,835,570
21	3,835,571
42.06	3,835,572
43.12	3,835,573
53.5	3,835,574
56	3,835,575
86	3,835,576
112	3,835,577
132	3,835,578
CLASS 44	
25	3,836,343
56	3,836,342
CLASS 46	
11	3,835,580
92	3,835,581
126	3,835,582
201	3,835,583
CLASS 47	
37	3,835,584
CLASS 48	
211	3,836,344
CLASS 49	
398	3,835,585
463	3,835,586
CLASS 51	
9	3,835,587
58	3,835,588
103WH	3,835,589
105LG	3,835,590
106R	3,835,591
170TL	3,835,592
216ND	3,835,593
220	3,835,594
268	3,835,595
284	3,835,596
289	3,835,597
297	3,836,345
396	3,835,598
CLASS 52	
2	3,835,599
67	3,835,600
79	3,835,601
82	3,835,602
83	3,835,603
105	3,835,604
169	3,835,605
220	3,835,606
223	3,835,607
426	3,835,608
478	3,835,609
621	3,835,611
638	3,835,612
656	3,835,613
666	3,835,614
755	3,835,610
758D	3,835,615
758H	3,835,616
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21	3,835,617
112A	3,835,618
138R	3,835,619
157	3,835,620
CLASS 54	
44	3,835,621
CLASS 55	
48	3,835,622
148	3,835,623
220	3,835,624
259	3,835,625
319	3,835,626
387	3,835,627
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14.4	3,835,628
	3,835,629
295	3,835,630
CLASS 57	
34HS	3,835,631
	3,835,632
52	3,835,633
130	3,835,634
140BY	3,835,637
140R	3,835,635
144	3,835,638
156	3,835,636
	3,835,639
CLASS 58	
.14	3,835,640
CLASS 60	
39.16R	3,835,642
230	3,835,643
267	3,835,644
274	3,835,645
290	3,835,646
486	3,835,647
524	3,835,648
560	3,835,649
690	3,835,650
716	3,835,641
CLASS 61	
4	3,835,651
35	3,835,652
46.5	3,835,653
	3,835,654
72.3	3,835,655
	3,835,656
CLASS 62	
35	3,835,657
58	3,835,658
202	3,835,659
277	3,835,660
340	3,835,661
467	3,835,662
505	3,835,663
CLASS 63	
15.6	3,835,664
32	3,835,665
CLASS 64	
6	3,835,666
17R	3,835,667
CLASS 65	
1	3,836,346
2	3,836,347
30	3,836,348
134	3,836,349
CLASS 66	
19	3,835,668
50R	3,835,669
69	3,835,670
CLASS 68	
5D	3,835,671
206	3,835,672
CLASS 70	
14	3,835,673
34	3,835,674
38A	3,835,675
52	3,835,676
216	3,835,677
241	3,835,678
271	3,835,679
278	3,835,680
CLASS 71	
92	3,836,350
	3,836,351
94	3,836,352
CLASS 72	
10	3,835,681
14	3,835,682
36	3,835,683
50	3,835,684
263	3,835,685
354	3,835,686
369	3,835,687
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385	3,835,689
415	3,835,690
427	3,835,691
442	3,835,692
457	3,835,693
469	3,835,694
CLASS 73	
3	3,835,695
7	3,835,697
70	3,835,696
94	3,835,698
95	3,835,699
113	3,835,700
117.4	3,835,701
133R	3,835,702
147	3,835,703
194A	3,835,704
194F	3,835,705
254	3,835,706
291	3,835,707
292	3,835,708
311	3,835,709
421.5R	3,835,710
444	3,835,711
462	3,835,712
CLASS 74	
10.33	3,835,713
18.2	3,835,714
22R	3,835,715
40	3,835,716
70	3,835,717
86	3,835,718
208	3,835,719
231C	3,835,720
245R	3,835,721
405	3,835,722
436	3,835,723
489	3,835,724
492	3,835,725
501P	3,835,726
520	3,835,727
603	3,835,728
611	3,835,729
650	3,835,730
682	3,835,731
688	3,835,732
866	3,835,733
CLASS 75	
.5BA	3,836,355
3	3,836,353
	3,836,354
33	3,836,356
68A	3,836,357
122	3,836,358
129	3,836,359
135	3,836,360
CLASS 76	
101A	3,835,734
CLASS 81	
177UJ	3,835,735
180R	3,835,736
	3,835,737
CLASS 82	
4C	3,835,738
20	3,835,739
47	3,835,740
CLASS 83	
71	3,835,741
77	3,835,742
146	3,835,743
267	3,835,744
285	3,835,745
346	3,835,746
422	3,835,747
CLASS 84	
1.01	3,836,692
1.19	3,836,693
388	3,835,748
CLASS 89	
1.8	3,835,749
CLASS 91	
35	3,835,750
420	3,835,751
492	3,835,752
CLASS 92	
85	3,835,753
CLASS 93	
1TS	3,835,754
8WA	3,835,755
	3,835,756
CLASS 95	
18R	Re.28,162
CLASS 96	
1LY	3,836,361
1.1	3,836,362
1.2	3,836,363
1.4	3,836,364
3	3,836,365
33	3,836,366
36.4	3,836,367
69	3,836,368
91R	3,836,369
127	3,836,370
CLASS 98	
2	3,835,757
33	3,835,758
40A	3,835,759
CLASS 99	
331	3,835,760
421H	3,835,761
483	3,835,762
495	3,835,763
517	3,835,764
553	3,835,765
618	3,835,766
CLASS 100	
53	3,835,767
94	3,835,768
227	3,835,769
CLASS 101	
93C	3,835,770
111	3,835,771
116	3,835,772
122	3,835,773
148	3,835,774
151	3,835,775
183	3,835,776
350	3,835,777
415.1	3,835,778
425	3,835,779
454	3,835,780
464	3,835,781
CLASS 102	
27R	3,835,782
42C	3,835,783
70.2R	3,835,784
CLASS 104	
130	3,835,785
172S	3,835,786
CLASS 105	
176	3,835,787
182E	3,835,788
224R	3,835,789
285	3,835,790
CLASS 106	
10	3,836,371
38.22	3,836,372
47Q	3,836,375
48	3,836,373
55	3,836,374
213	3,836,376
287	3,836,377
288Q	3,836,379
288R	3,836,378
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51	3,835,791
	3,835,792
53	Re.28,163
109	3,835,793
153	3,835,794
157	3,835,795
CLASS 110	
119	3,835,796
CLASS 112	
79A	3,835,797
150	3,835,798
CLASS 113	
1E	3,835,799
CLASS 114	
.5R	3,835,800
16R	3,835,801
43.5	3,835,802
73	3,835,803
107	3,835,804
151	3,835,805
CLASS 115	
12R	3,835,806
41R	3,835,807
CLASS 116	
34R	3,835,808
114AH	3,835,809
137A	3,835,810
CLASS 117	
6	3,836,380
17.5	3,836,381
36.2	3,836,382
	3,836,383
37LE	3,836,384
47R	3,836,385
72	3,836,386
102A	3,836,387
120	3,836,388
129	3,836,389
138.8A	3,836,390
152	3,836,391
169R	3,836,392
217	3,836,393
	3,836,394
238	3,836,395
CLASS 118	
637	3,835,811
CLASS 119	
1	3,835,812
5	3,835,813

14.04 3,835,814
158 3,835,815

CLASS 122

156 3,835,816
379 3,835,817

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8.33 3,835,818
32EA 3,835,819
3,835,821
32 3,835,820
41.31 3,835,822
42 3,835,823
46R 3,835,824
97B 3,835,825
103E 3,835,826
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119R 3,835,828
139E 3,835,829
148E 3,835,830
179G 3,835,831

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30 3,836,396

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1C 3,835,833
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2T 3,835,836
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3,835,838
2.05V 3,835,840
5 3,835,841
7 3,835,842
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92EB 3,835,849
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132D 3,835,851
146.5 3,835,852
212 3,835,853
214.4 3,835,854
218M 3,835,855
263 3,835,856
295 3,835,857
305 3,835,858
3,835,859
310 3,835,860
346 3,835,861
349R 3,835,862
350R 3,835,863
419P 3,835,864
3,835,865
547 3,835,866

CLASS 132

5 3,835,867
3,835,868
9 3,835,869
39 3,835,871
92R 3,835,872
160 3,835,870

CLASS 136

25 3,836,397
83R 3,836,403
86A 3,836,398
89 3,836,399
133 3,836,400
134R 3,836,401
202 3,836,402

CLASS 137

3 3,835,873
15 3,835,874
75 3,835,875
82 3,835,876
246.13 3,835,878
355.18 3,835,879
387 3,835,880
389 3,835,881
445 3,835,882
512.1 3,835,883
550 3,835,884
551 3,835,885
604 3,835,886
625.41 3,835,887
625.61 3,835,888

CLASS 138

93 3,835,889
103 3,835,890
125 3,835,891
178 3,835,892

CLASS 139

12 3,835,893
55 3,835,894
65 3,835,895
207 3,835,877

CLASS 141

3 3,835,896
4 Re.28,164

98 3,835,897
152 3,835,898
214 3,835,899
348 3,835,900

CLASS 144

34R 3,835,901
310B 3,835,902
313 3,835,904

CLASS 145

46 Re.28,159

CLASS 148

11.5R 3,836,404
12.7 3,836,405
31.57 3,836,406
142 3,836,407
175 3,836,408
187 3,836,409

CLASS 150

52J 3,835,905

CLASS 151

21B 3,835,906

CLASS 152

153 3,835,907
243 3,835,908

CLASS 156

3 3,836,410
59 3,836,411
62.2 3,836,412
73 3,836,413
87 3,836,414
296 3,836,415

CLASS 159

16A 3,835,909
23 3,835,910

CLASS 160

168 3,835,911

CLASS 161

2 3,836,416
5 3,836,417
17 3,836,418
18 3,836,419
19 3,836,420
63 3,836,421
154 3,836,422
159 3,836,423
3,836,424
165 3,836,425
170 3,836,426

CLASS 162

31 3,836,427
274 3,836,428

CLASS 163

5 3,835,912

CLASS 164

35 3,835,913
52 3,835,914
252 3,835,915
3,835,916
279 3,835,917

CLASS 165

23 3,835,903
27 Re.28,166
47 3,835,918
3,835,919
81 3,835,920
86 3,835,921
94 3,835,922
179 3,835,923

CLASS 166

.5 3,835,924
73 3,835,925
292 3,835,926
304 3,835,927
308 3,835,928
315 3,835,929

CLASS 169

66 3,835,930
70 3,835,931

CLASS 172

197 3,835,932
518 3,835,933

CLASS 173

12 3,835,934
14 3,835,935
162 3,835,936

CLASS 174

22 3,836,694
23C 3,836,695
41 3,836,696
68.5 3,836,697
83 3,836,698
87 3,836,699
89 3,836,700
92 3,836,702
93 3,836,701
138D 3,836,703
3,836,704
140C 3,836,705

CLASS 175

6 3,835,937

52 3,835,938
65 3,835,939
85 3,835,940
88 3,835,941
96 3,835,942
173 3,835,943
364 3,835,944

CLASS 176

29 3,836,429
33 3,836,430
79 3,836,431

CLASS 177

134 3,835,945
256 3,835,946

CLASS 178

5.2D 3,836,706
5.4AC 3,836,708
5.4R 3,836,707
6.7R 3,836,709
6.8 3,836,710
7.1 3,836,711
3,836,712

CLASS 179

1DD 3,836,716
1GQ 3,836,715
1SA 3,836,717
1SC 3,836,714
1H 3,836,718
15AS 3,836,719
15BS 3,836,721
3,836,722
15FD 3,836,720
18AD 3,836,723
18FG 3,836,725
41A 3,836,726
84VF 3,836,727
84R 3,836,728
90B 3,836,729
99 3,836,730
100.4R 3,836,731
107FD 3,836,732
119A 3,836,733
170.2 3,836,734
175.3R 3,836,735
182R 3,836,724

CLASS 180

5R 3,835,947
3,835,948
41 3,835,949
98 3,835,950
118 3,835,952
119 3,835,951

CLASS 181

33K 3,835,955
35A 3,835,956
116 3,835,954

CLASS 182

19 3,835,957
92 3,835,958

CLASS 187

22 3,835,959

CLASS 188

71.9 3,835,960
3,835,961
73.1 3,835,962
3,835,963
79.5GT 3,835,964
3,835,965
106F 3,835,966
134 3,835,967
196P 3,835,968
197 3,835,969
345 3,835,970

CLASS 192

18A 3,835,971
26 3,835,972
56R 3,835,973
87.15 3,835,974

CLASS 195

11 3,836,432
68 3,836,433

CLASS 197

1R 3,835,975
82 3,835,976

CLASS 198

16R 3,835,977
22R 3,835,978
30 3,835,979
139 3,835,980
204 3,835,981
3,835,982
220BA 3,835,983
3,835,984
271 3,835,985

CLASS 200

5B 3,836,736
48A 3,836,737
61.45R 3,836,738
61.47 3,836,739
144B 3,836,740
148R 3,836,741
153LB 3,836,742

CLASS 201

2 3,836,434
27 3,836,435

CLASS 204

10 3,836,436
17 3,836,437
58 3,836,439
74 3,836,440
78 3,836,441
99 3,836,442
105M 3,836,443
159.24 3,836,444
163R 3,836,445
192 3,836,446
195R 3,836,447
270 3,836,448
277 3,836,449
279 3,836,438
290F 3,836,450
298 3,836,451

CLASS 206

42 3,835,995
45.11 3,835,987
45.31 3,835,988
3,835,989
306 3,835,990
320 3,835,986
343 3,835,991
390 3,835,992
451 3,835,993
499 3,835,994
504 3,836,043
519 3,836,042

CLASS 208

108 3,836,452
111 3,836,454
143 3,836,453
310 3,836,455

CLASS 209

9 3,835,996
73 3,835,997
111.7 3,835,998
251 3,835,999

CLASS 210

16 3,836,456
23 3,836,457
3,836,458
28 3,836,459
44 3,836,460
56 3,836,461
58 3,836,462
104 3,836,000
162 3,836,463
167 3,836,001
232 3,836,002
241 3,836,003
242 3,836,004
266 3,836,005
387 3,836,006
413 3,836,464

CLASS 211

13 3,836,007
49R 3,836,008
90 3,836,009

CLASS 212

49 3,836,010
144 3,836,011
145 3,836,012

CLASS 213

54 3,836,013

CLASS 214

1A 3,836,014
1B 3,836,016
1P 3,836,015
6FS 3,836,017
3,836,018
14 3,836,019
16.4C 3,836,020
41 3,836,021
3,836,022
63 3,836,023
75H 3,836,024
77R 3,836,025
152 3,836,026
331 3,836,027
338 3,836,028
450 3,836,029
515 3,836,030
730 3,836,031
764 3,836,032

CLASS 215

7 3,836,033
9 3,836,034

CLASS 219

10.43 3,836,743
10.49 3,836,744
85 3,836,745
101 3,836,746
130 3,836,747
137 3,836,748
370 3,836,749
3,836,750
411 3,836,751

441 3,836,713

CLASS 220

24.5 3,836,035
32 3,836,036
35 3,836,037
48 3,836,038
54 3,836,039
60R 3,836,040
85R 3,836,041

CLASS 221

55 3,836,044
63 3,836,045
67 3,836,046
93 3,836,047
172 3,836,048

CLASS 222

66 3,836,050
175 3,836,051
177 3,836,052
400.7 3,836,053
414 3,836,054
427 3,836,055
480 3,836,056
529 3,836,057

CLASS 224

42.1F 3,836,058

CLASS 225

64 3,836,059

CLASS 226

115 3,836,060

CLASS 227

155 3,836,061

CLASS 228

1 3,836,062

CLASS 229

1.5B 3,836,063
3.5MF 3,836,064
27 3,836,065
40 3,836,066
44R 3,836,067
54R 3,836,068

CLASS 232

1R 3,836,069

CLASS 233

7 3,836,070

CLASS 235

61.11D 3,836,753
61.11J 3,836,752
61.12N 3,836,754
61.7R 3,836,755
99A 3,836,071
133R 3,836,072
150.1 3,836,756
151.3 3,836,757
151.31 3,836,758

CLASS 236

49 3,836,073
93 3,836,074

CLASS 238

14 3,836,075

CLASS 239

8 3,836,076
60 3,836,077
70 3,836,078
74 3,836,079
96 3,836,080
424.5 3,836,081
526 3,836,082
572 3,836,083
587 3,836,084

CLASS 240

6.4W 3,836,759
10C 3,836,761
10R 3,836,760
25 3,836,767
3,836,954
26 3,836,762
41.6 3,836,763
51.11R 3,836,764
3,836,765
73DA 3,836,766

CLASS 241

19 3,836,085

CLASS 242

35.5R 3,836,086
43 3,836,087
55 3,836,088
58.1 3,836,089
68.5 3,836,090
71.2 3,836,091
84.2A 3,836,092
118.6 3,836,093
192 3,836,094
195 3,836,095
197 3,836,096

CLASS 244

1N 3,836,097
17.27 3,836,098
44 3,836,099
54 3,836,100

137R 3,836,101

CLASS 246

3 3,836,768
167D 3,836,770
448 3,836,771

CLASS 248

74R 3,836,102
130 3,836,103
150 3,836,104
223 3,836,105
229 3,836,106
251 3,836,107
452 3,836,108

CLASS 249

14 3,836,109
79 3,836,110
121 3,836,111
197 3,836,112

CLASS 250

204 3,836,772
211J 3,836,773
231R 3,836,774
305 3,836,775
312 3,836,776
315 3,836,777
327 3,836,778
352 3,836,779
385 3,836,780
432 3,836,781
461 3,836,782
481 3,836,783
483 3,836,784
501 3,836,785
540 3,836,786
572 3,836,787

CLASS 251

5 3,836,113
149.6 3,836,114
150 3,836,115
174 3,836,116
351 3,836,117

CLASS 252

8.5C 3,836,465
12 3,836,466
18 3,836,467
33.6 3,836,468
40.5 3,836,469
51.5A 3,836,470
3,836,471
62.57 3,836,472
79.2 3,836,473
171 3,836,474
187R 3,836,475
301.1R 3,836,476
301.4F 3,836,477
408 3,836,478
431N 3,836,555
433 3,836,479
439 3,836,480
450 3,836,561
462 3,836,481
511 3,836,482
519 3,836,483
550 3,836,484

CLASS 254

104 3,836,118
131 3,836,119
138 3,836,120
170R 3,836,121
172 3,836,122
186R 3,836,123

CLASS 259

1R 3,836,124
3 3,836,125
95 3,836,126
191 3,836,127

CLASS 260

2EP 3,836,485
2.3 3,836,486
2.5AC 3,836,488
2.5AK 3,836,487
18TN 3,836,490
18S 3,836,489
22TN 3,836,491
23TN 3,836,492
29.2TN 3,836,493
29.4UA 3,836,495
29.44A 3,836,494
29.6HN 3,836,537
29.6H 3,836,496
29.7SQ 3,836,497
30.8R 3,836,498
31.2R 3,836,499
32.6N 3,836,500
37SB 3,836,502
3,836,503
37N 3,836,501
42.55 3,836,504
45.8N 3,836,505
47CP 3,836,506
64 3,836,507
75S 3,836,508
77.5BB 3,836,509

78.5R 3,836,510
79.3R 3,836,511
80.73 3,836,512
82.1 3,836,513
86.1E 3,836,514
87.5R 3,836,515
141 3,836,516
152 3,836,517
3,836,518
210E 3,836,519
210.5 3,836,520
239BD 3,836,521
239BF 3,836,524
239.3A 3,836,523
3,836,525
239.55A 3,836,527
239.55R 3,836,526
239.9 3,836,522
240A 3,836,528
240G 3,836,529
240R 3,836,530
248A 3,836,531
250A 3,836,532
256.4F 3,836,533
268BC 3,836,534
268S 3,836,535
286R 3,836,536
302F 3,836,538
307A 3,836,539
309 3,836,540
326.2 3,836,541
330.5 3,836,542
340.3 3,836,543
343.2R 3,836,544
346.8R 3,836,545
369 3,836,546
3,836,547
3,836,601
376 3,836,548
380 3,836,549
397.1 3,836,550
404 3,836,551
404.5 3,836,552
409 3,836,553
419 3,836,554
439R 3,836,556
446 3,836,557
448.2E 3,836,558
448.2N 3,836,559
448.8R 3,836,560
453R 3,836,562
455R 3,836,563
456A 3,836,564
464 3,836,565
465.5R 3,836,566
465.9 3,836,567
468H 3,836,568
470 3,836,569
471C 3,836,570
471R 3,836,571
472 3,836,572
475B 3,836,573
475P 3,836,574
486D 3,836,575
486H 3,836,577
486R 3,836,576
514D 3,836,578
543R 3,836,579
558H 3,836,580
566AC 3,836,582
566AE 3,836,581
585.5 3,836,583
586M 3,836,584
590 3,836,585
604R 3,836,586
606.5F 3,836,587
610B 3,836,588
3,836,589
619A 3,836,590
621G 3,836,591
654R 3,836,592
668A 3,836,594
669R 3,836,602
673.5 3,836,603
677R 3,836,593
683.15B 3,836,596
683.15D 3,836,595
683.65 3,836,597
827 3,836,598
836 3,836,600
3,836,604
849 3,836,605
857L Re.28,167
861 3,836,606
897A 3,836,607
926 3,836,608
927N 3,836,599
971 3,836,609
986 3,836,610

CLASS 261

39A 3,836,128
47 3,836,129
142 3,836,130

CLASS 264

14 3,836,611
30 3,836,612

3,836,613
40 3,836,614
47 3,836,615
50 3,836,616
51 3,836,617
101 3,836,618
131 3,836,619
171 3,836,620
210F 3,836,621
249 3,836,622
267 3,836,623
321 3,836,624

CLASS 266

20 3,836,131

CLASS 267

64R 3,836,132
69 3,836,133
152 3,836,134
162 3,836,195

CLASS 269

43 3,836,135
150 3,836,136
167 3,836,137

CLASS 270

79 3,836,138

CLASS 271

95 3,836,139

CLASS 272

54 3,836,140
79C 3,836,141

CLASS 273

1M 3,836,142
1R 3,836,143
1.5A 3,836,144
23 3,836,145
25 3,836,146
55B 3,836,147
95R 3,836,148
131AB 3,836,149
135D 3,836,150
136E 3,836,151
136F 3,836,152
173 3,836,153

CLASS 274

23R 3,836,155

CLASS 277

53 3,836,156
62 3,836,157
146 3,836,158
180 3,836,159

CLASS 280

5.32 3,836,160
6H 3,836,161
6R 3,836,162
11.35T 3,836,163
41A 3,836,164
43.12 3,836,165
124F 3,836,166
150AB 3,836,167
3,836,168
3,836,169
3,836,170
150SB 3,836,171
3,836,172
150.5 3,836,173
179R 3,836,174
209 3,836,175
213 3,836,176
269 3,836,177
415B 3,836,178
476 3,836,179
481 3,836,180

CLASS 285

55 3,836,181
114 3,836,182
363 3,836,183
417 3,836,184

CLASS 290

50 3,836,788

CLASS 292

1 3,836,185
189 3,836,186
262 3,836,187

CLASS 293

88 3,836,188

CLASS 294

1A 3,836,189
118 3,836,190

CLASS 296

1S 3,836,191
10 3,836,769
28R 3,836,192
84R 3,836,193

CLASS 297

55 3,836,194
219 3,836,196
391 3,836,197
403 3,836,198

CLASS 300

21 3,836,199

CLASS 301

6A 3,836,201
39R 3,836,202

CLASS 302

53 3,836,203
66 3,836,200

CLASS 303

6C 3,836,204
7 3,836,205
10 3,836,206
21F 3,836,207
3,836,208
3,836,209

CLASS 307

203 3,836,789
235R 3,836,790
293 3,836,791
300 3,836,792
303 3,836,793
310 3,836,796
311 3,836,797

CLASS 308

4R 3,836,210
6R 3,836,211
15 3,836,212
159 3,836,213
3,836,214
184 3,836,215
187.1 3,836,216

CLASS 310

3B 3,836,798
9.7 3,836,794
13 Re.28,161
3,836,799
70A 3,836,800
154 3,836,801
3,836,802

CLASS 312

107 3,836,217
111 3,836,218
183 3,836,219
236 3,836,220
237 3,836,221
319 3,836,222
350 3,836,223

CLASS 313

60 3,836,803
3,836,804
3,836,805
108R 3,836,806
330 3,836,807
3,836,808
465 3,836,809
484 3,836,810

CLASS 315

12 3,836,811
13C 3,836,795
18 3,836,812
3,836,813
51 3,836,814
86 3,836,815
94 3,836,816
100 3,836,817
240 3,836,818

CLASS 317

11C 3,836,819
13B 3,836,820
18D 3,836,821
21 3,836,822
100 3,836,823
3,836,825
101F 3,836,824
122 3,836,826
133 3,836,827
146 3,836,828
258 3,836,829
261 3,836,830

CLASS 318

7 3,836,831
265 3,836,832
270 3,836,833
563 3,836,834
685 3,836,835

CLASS 321

44 3,836,836
55 3,836,837

CLASS 323

7 3,836,838
20 3,836,839
22T 3,836,840

CLASS 324

5 3,836,841
34R 3,836,842
51 3,836,843
3,836,844
57PS 3,836,845
58.5B 3,836,846
62 3,836,847
67 3,836,848
71CP 3,836,849
3,836,850
112 3,836,851

123R 3,836,852
133 3,836,854
166 3,836,853

CLASS 325

113 3,836,855
187 3,836,856

CLASS 328

6 3,836,857
58 3,836,858
75 3,836,859

CLASS 330

2 3,836,860
15 3,836,861
25 3,836,862
53 3,836,863

CLASS 331

1R 3,836,864
94.5P 3,836,865
94.5Q 3,836,866
94.5R 3,836,867
94.5 3,836,868
3,836,869
3,836,870
3,836,871
107R 3,836,872
116R 3,836,873

CLASS 333

1.1 3,836,874
17 3,836,875
30 3,836,876
72 3,836,877

CLASS 335

128 3,836,878
136 3,836,879
274 3,836,880

CLASS 336

87 3,836,881

CLASS 337

102 3,836,882
163 3,836,883
3,836,884

CLASS 339

17LM 3,836,935
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343	3,836,672	197	3,836,302	383	3,836,309	126	3,836,679	496	3,836,687	**CLASS 432**	
346	3,836,674	214	3,836,303	384	3,836,310	158	3,836,680	518	3,836,688	11	3,836,320
CLASS 425		242B	3,836,304	406	3,836,311	272	3,836,681	**CLASS 431**		15	3,836,321
104	3,836,297		3,836,305	441	3,836,312	312	3,836,682	9	3,836,315	59	3,836,322
115	3,836,298	245	Re.28,158	451.9	3,836,314	350	3,836,678	79	3,836,316	106	3,836,323
117	Re.28,165	251	3,836,306	463	3,836,313	357	3,836,683	93	3,836,317	112	3,836,324
128	3,836,299		3,836,307	**CLASS 426**		361	3,836,684	202	3,836,318	241	3,836,325
165	3,836,300	316	Re.28,160	74	3,836,676	371	3,836,685	276	3,836,319		

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D2—	24	232,785		128	232,800		40	232,815	D23—	34	232,830		G	232,845		7	232,860
	451	232,786		129	232,801	D12—	7	232,817		137	232,831	D30—	13	232,846	D56—	4B	232,861
D6—	20	232,787		164	232,802		62	232,816		146	232,832			232,847			232,863
	80	232,788	D8—	45	232,803		85	232,818	D26—	5C	232,833			232,848			232,864
	86	232,789		50	232,804		142	232,819			232,834		41	232,849		D	232,862
	91	232,790		131	232,805		149	232,820			232,835			232,850		9	232,865
	105	232,791		136	232,806		155	232,821			232,836	D34—	2R	232,851	D64—	11B	232,866
	130	232,792		228	232,807		156	232,822		13R	232,837		5H	232,852	D74—	1C	232,867
	146	232,793		233	232,808		179	232,823			232,838		15J	232,853		2A	232,868
	177	232,794	D9—	45	232,809		203	232,824			232,839			232,854	D87—	1R	232,869
	192	232,795		71	232,810			232,825			232,840		V	232,855			232,870
D7—	37	232,796		224	232,811			232,826			232,841	D48—	16E	232,856			232,871
	70	232,797		246	232,812		205	232,827			232,842		24R	232,857			232,872
	77	232,798		247	232,813	D22—	8	232,828		14B	232,843		31	232,858		3F	232,873
	82	232,799	D10—	15	232,814		19	232,829		F	232,844	D52—	6R	232,859	D95—	A	232,874

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U. S. GOVERNMENT PRINTING OFFICE : O - 1974

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, *Secretary*

PATENT OFFICE
C. Marshall Dann, *Commissioner*

A UNITED STATES
DEPARTMENT OF
COMMERCE
PUBLICATION

U. S.
DEPARTMENT
OF COMMERCE

Patent
Office

Vol. 926 Number 4

OFFICIAL GAZETTE

of the UNITED STATES PATENT OFFICE

PATENTS

September 24, 1974

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

September 24, 1974 Volume 926 Number 4

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PATENT OFFICE NOTICES

Interference Practice

[37 CFR Part 1]

Proposed Clarification of Testimony Requirements

Notice is hereby given that, pursuant to authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; (35 U.S.C. 6)) as amended October 5, 1971 (Pub. L. 92–132, 85 Stat. 364), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.125, 1.231(c), 1.247(c), 1.251(a)(b)(c), 1.253, and 1.277(b).

Interested persons are invited to present their views, objections, recommendations or suggestions in connection with the proposed amendment in writing to the Commissioner of Patents, Washington, D.C. 20231, on or before November 15, 1974. No oral hearings will be held. Written comments or suggestions will be available for examination by interested persons at Crystal Plaza Building 3, Room 11C17a, 2021 Jefferson Davis Highway, Arlington, Virginia.

The proposed rule change is intended to clarify interference practice relating to taking and filing of testimony.

The sections, if amended as proposed, would read as follows:

§ 1.225 *Failure of junior party to file statements or to overcome filing date of senior party.*

If a junior party to an interference fails to file a preliminary statement, or if his statement fails to overcome the effective filing date of the application of another party, judgment on the record will be entered against such junior party unless he has filed a proper motion under § 1.231, within the time set for such motions, seeking some action in the interference. If such motion has been timely filed but does not result in action in the interference which removes the basis for a judgment on the record, such judgment will be entered unless the motion related to a matter which may be reviewed at final hearing under § 1.258, and within 30 days of the decision denying his motion, or a later time set by the patent interference examiner, the junior party concerned requests that final hearing be set to review such matter. Also, such a junior party may within such 30 day period, or time set, request a final hearing to review such a matter raised by his opposition to a motion under § 1.231(a)(2), (3), (4), or (5) which was granted over his opposition. Such a junior party will not be permitted to take testimony except on granting of a motion accompanied by a showing of good cause, which shuld normally include names of proposed witnesses and affidavits or declarations by them giving their expected testimony.

§ 1.231 *Motions before the primary examiner.*

* * * * *

(c) A motion to amend under subparagraph (a)(2), or to substitute another application or declare an additional interference under subparagraph (a)(3) must be accompanied by an amendment adding the proposed counts to the application concerned if such claims are not already in that application. The motion must also request the benefit of a prior application as provided for under subparagraph (a)(4) if the party concerned expects to be accorded such benefit.

* * * * *

§ 1.247 *Service of papers.*

* * * * *

(c) Certified transcripts of testimony under § 1.276 (but copies of the testimony must be served (§ 1,253(a)).

* * * * *

§ 1.251 *Assignment of times for discovery and taking testimony.*

(*a*) Subject to the exception provided in paragraph (c) of this section, a period for preparation for testimony will be set in which all parties should complete discovery and other preparatory activities, except for service by the senior party required by § 1.287(a)(1) which is governed by § 1.287(a)(2)(iii).

(*b*) Subject to the exception provided in paragraph (c) of this section, times will be assigned in which the junior party shall complete his testimony in chief, and in which the other party shall complete the testimony on his side, and a further time in which the junior party may take rebutting testimony, but he shall take no other testimony. If there be more than two parties to the interference, the times for taking testimony will be so arranged that each shall have an opportunity to prove his case against prior parties and to rebut their evidence, and also to meet the evidence of junior parties. If a senior party fails to file a preliminary statement, or expressly elects to rely solely on his effective filing date, he will be assigned only a time for taking rebuttal testimony, and no junior party will be assigned a time for taking rebuttal testimony unless another junior party senior to him is assigned a time for taking testimony in chief.

(*c*) Times for preparation of testimony for compliance with § 1.287(a) and for taking of testimony will ordinarily be assigned in notices sent to the parties after motions under § 1.231 have been disposed of or, if no such motions have been filed, after the close of the motion period (§ 1.231). Such times will not normally be assigned for a junior party who fails to file a preliminary statement or whose preliminary statement fails to overcome the prima facie case made by the effective filing date of the senior party. (See § 1.325.)

* * * * *

§ 1.253 *Copies of the testimony.*

(*a*) In addition to the certified transcript of the testimony (§§ 1.275 to 1.278) or executed copies of affidavits of stipulated testimony or facts (§ 1.272), and the exhibits, three true copies of the testimony of each party must be filed for the use of the Patent Office (a total of four copies), and one true copy must be served upon each of the opposing parties. Only one set of exhibits need be filed in the Patent Office.

(*b*) These copies of the testimony may be submitted either in printed or in typewritten form.

(*c*) These copies, whether printed or typewritten, must include the testimony presented by the party filing the same, a copy of the counts of the interference, the preliminary statement required by §§ 1.215 to 1.227, an index of the names of the witnesses, giving the pages where their examination and cross-examination begin, and an index of the exhibits, briefly describing their nature and giving the pages at which they are introduced and offered in evidence. The pages must be serially numbered throughout the entire record and the names of the witnesses must appear at the top of the pages over their testimony.

(*d*) The copies of the testimony for all parties must be filed and served on the opposing parties by the date specified in the order setting times for taking testimony or such extensions as may be granted.

(*e*) When the copies of the testimony are submitted in printed form, they shall be printed in 11-point type and adequately leaded; the paper must be opaque and unglazed; the size of the page shall be 7⅝ by 10¼ inches (19.4 by 26 cm.); the size of the printed matter shall be 4⅙ by 7⅙ inches (10.6 by 18.2 cm.); and they shall be bound to lie flat when opened. Twenty-five additional copies for the United States Court of Customs and Patent Appeals, should appeal be taken, may also be filed; if no such appeal be taken, the twenty-five copies will be returned to the party filing them.

(*f*) When the copies of the testimony are submitted in typewritten form, they must be clearly legible on opaque, unglazed, durable paper approximately 8½ by 11 inches (21.6 by 27.9 cm.) in size (letter size) and one of the three copies must be a ribbon copy, but need not be executed by the certifying officer. (The certified transcript may be a properly executed carbon copy. See § 1.277.) The typing shall be on one side of the paper, in not smaller than pica-type; and double-spaced with a margin of 1½ inches (3.8 cm.) on the left-hand side of the page. The sheets shall be bound at their left edges, in such manner to lie flat when opened, in a volume or volumes of convenient size (approximately 100 pages per volume is suggested) provided with covers. Documentary exhibits should not be included in bound volumes of testimony. Multigraphed or otherwise reproduced copies conforming to the standards specified will be accepted.

(*g*) The testimony of any party failing to supply copies thereof as specified may be refused consideration.

§ 1.277 *Form of deposition.*

* * * * *

(*b*) In order to have a ribbon copy of the testimony available as required by § 1.253(f), a carbon copy of the deposition may be executed by the witnesses and the officer and filed as required by § 1.276.

* * * * *

Dated: July 26, 1974.

C. MARSHAL DANN,
Commissioner of Patents.

Approved:
Betsy Ancker-Johnson,
Assistant Secretary for Science and Technology.

[FR Doc. 74–19385; Filed 8–21–74; 8:45 am]

Adverse Decisions in Interferences

In the designated interferences involving the indicated claims of the following patents final decisions have been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,392,165, J. A. Edwards and L. H. Knox, deceased, by A. A. Knox, ESTRA-1,3,5(10)-TRIENES SUBSTITUTED AT THE 17*a* POSITION WITH A PROPADIENYL OR SUBSTITUTED PROPADIENYL RADICAL, Interference No. 97,277, decided May 10, 1974, claim 15.

Patent No. 3,392,166, J. A. Edwards and L. H. Knox, deceased, by A. A. Knox, ANDROST-4-ENES and ESTR-4-ENES HAVING A 17*a*-DIETHYLENICALLY UNSATURATED SIDE CHAIN, Interference No. 97,278, decided May 10, 1974, claims 1 and 20.

Patent No. 3,346,448, E. E. Gilbert and B. Veldhuis, HEXAFLUOROISOPROPYL ETHERS AS ANESTHETICS, Interference No. 98,016, decided Apr. 17, 1974, claims 1 and 3.

Patent No. 3,520,585, J. Yarnell, IMAGE OR CHARACTER RECOGNITION BY HALOGRAPHIC TECHNIQUES, Interference No. 98,250, decided May 1, 1974, claims 1, 2, 3 and 4.

Patent No. 3,535,937, B. B. Wiggins, J. P. Bailey and W. M. Hart, PIPE PRESSURE MEASURING APPARATUS, Interference No. 97,742, decided Mar. 20, 1974, claims 1, 2, 3, 5, 6, 7, 8, 21 and 23.

Patent No. 3,550,213, P. A. Ormsby and E. C. Thompson, HIGH STRENGTH HOT-PRESS DIE, Interference No. 98,256, decided May 16, 1974, claims 1, 2 and 6.

Patent No. 3,564,803, A. J. Breeze, A. D. Patrick, C. Wheelock and W. D. Orwin, EXTENSIBLE SCAFFOLD AND OTHER LOAD SUPPORTING ELEMENTS, Interference No. 98,339, decided May 29, 1974, claims 1, 2, 3, 4, 5 and 7.

Patent No. 3,623,145, D. W. Gregg and R. K. Pearson, HIGH-ENERGY CHEMICAL LASER SYSTEM, Interference No. 98,304, decided May 6, 1974, claims 1, 2, 4 and 5.

Patent No. 3,679,381, H. Chessin, NOVEL COMPOSITE, Interference No. 98,440, decided May 1, 1974, claims 1, 2, 3, 8, 9, 10 and 11.

Patent No. 3,713,701, J. Penner, DETACHABLE AUXILIARY TRACTOR TIRE AND WHEEL ATTACHMENT MEANS, Interference No. 97,135, decided June 13, 1974, claim 15.

Disclaimers

3,645,972.—*Jack L. Herz*, Scarsdale, and *Edward D. Weil*, Hastings-on-Hudson, N.Y. NITRILOTRIACETIC ANHYDRIDE AS AN EPOXY RESIN CURING AGENT. Patent dated Feb. 29, 1972. Disclaimer filed Aug. 13, 1974, by the assignee, *Stauffer Chemical Company*.

Hereby enters this disclaimer to claims 1, 2 and 4 of said patent.

3.716,089.—*James R. Bateman*, West Chicago, Ill. FEEDING ARRANGEMENT FOR SHEDDING AND BAGGING DEVICE. Patent dated Oct. 31, 1972. Disclaimer filed May 16, 1974, by the assignee, *Roper Corporation*.

Hereby enters this disclaimer to claim 1 of said patent.

Certificates of Correction for the Week of Sept. 24, 1974

P.P. 3,417
P.P. 3,522
Re. 28,051
D. 230,456
D. 230,527
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PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF AUGUST 31, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	10-9-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—R. F. BURNETT, Acting Director Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	7-25-73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	11-16-73
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	11-1-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	11-1-73
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—W. L. CARSON, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	1-23-74
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	3-1-73
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-5-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—N. ANSHER, Director Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	9-17-73
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—L. FORMAN, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-13-73
DESIGNS, GROUP 290—C. D. QUARFORTH, Director Industrial Arts; Household, Personal and Fine Arts.	3-26-73
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	10-11-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	11-13-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. PULFREY, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-2-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—B R. GAY, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	11-9-73
GENERAL CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—M. M. NEWMAN, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	12-27-73

Expiration of patents: The patents within the range of numbers indicated below expire during September 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents........ Numbers 2,804,620 to 2,807,803, inclusive
Plant Patents........ Numbers 1,638 to 1,645, inclusive

REISSUES

SEPTEMBER 24, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

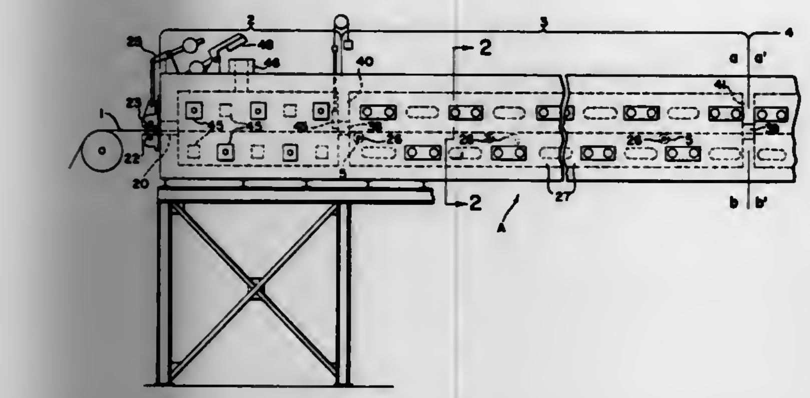
28,168
EMERGENCY ATMOSPHERE ANNEALING FURNACE AND METHOD

F. Troy Cope, Salem, and Ralph J. Perrine, Columbiana, Ohio, by The Electric Furnace Co., Salem, Ohio, assignee

Original No. 3,396,951, dated Aug. 13, 1968, Ser. No. 482,381, Aug. 25, 1965. Application for reissue Aug. 1, 1973, Ser. No. 384,460

Int. Cl. F27b *9/28*

U.S. Cl. 432—8 **10 Claims**



Method and apparatus for protecting a strip of metal moving continuously through a heating zone, against excessive oxidative degradation during longer than normal residence in the heating zone, including a control system responsive to a reduction in strip speed which purges the oxidizing ingredients in the heating zone atmosphere with a protective gas.

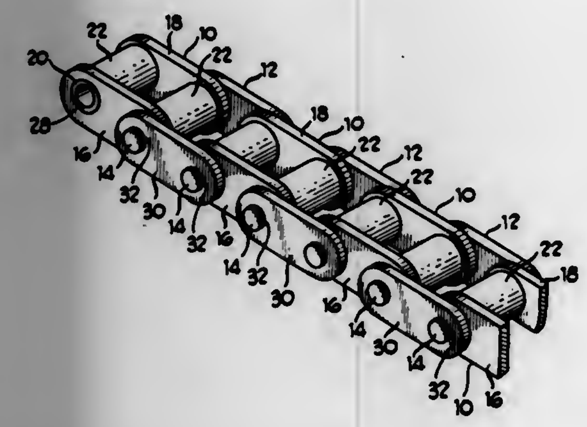
28,169
MANUFACTURE OF ROLLER CHAIN

George A. Zimmer, Ithaca, N.Y., assignor to Borg-Warner Corporation, Chicago, Ill.

Original No. 3,706,199, dated Dec. 19, 1972, Ser. No. 158,199, June 30, 1971. Application for reissue June 4, 1973, Ser. No. 366,948

Int. Cl. B21l *9/02*

U.S. Cl. 59—8 **2 Claims**



To improve retention of the cylindrical bushings in the side plates of a roller chain, the bushing surfaces are roughened, as by shot-peening, fine knurling or fine scoring, prior to hardening. Thereafter, a side plate is press fitted on each end of the bushing, and the chain is assembled.

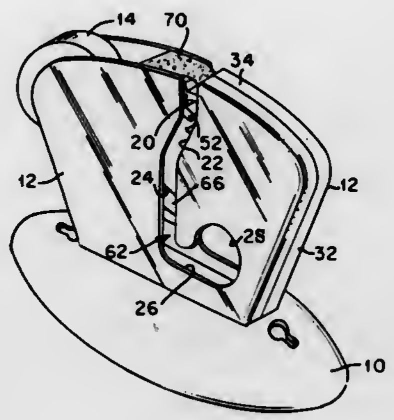
28,170
DEVICE FOR TYING THE ENDS OF BAGS

Aribert J. Lehmann, 473 West End Ave., New York, N.Y. 10024

Original No. 3,729,896, dated May 1, 1973, Ser. No. 163,574, July 19, 1971. Application for reissue July 9, 1973, Ser. No. 377,785

Int. Cl. B65b *51/06*

U.S. Cl. 53—198 A **7 Claims**



A device for tying the end of a bag with an adhesive tape strip severed from a tape roll, in which a slot is provided for the movement of the compressed end of a bag. A star wheel is mounted adjacent the inlet end of the slot with its poke ends overlapping the slot and serving to support the tape with its adhesive side outwardly facing. A curved spring is held by one end in close proximity of the spoke ends disposed over the slot, with its free end terminating at a midpoint of the slot width, on the inner side of the star wheel. A tape severing means, movable into severing position by the passage of a bag neck through the slot is arranged to sever the tape around the bag neck from the roll at a point spaced inwardly from the free end of the spring.

28,171
LOW INSERTION FORCE CONNECTOR ASSEMBLY

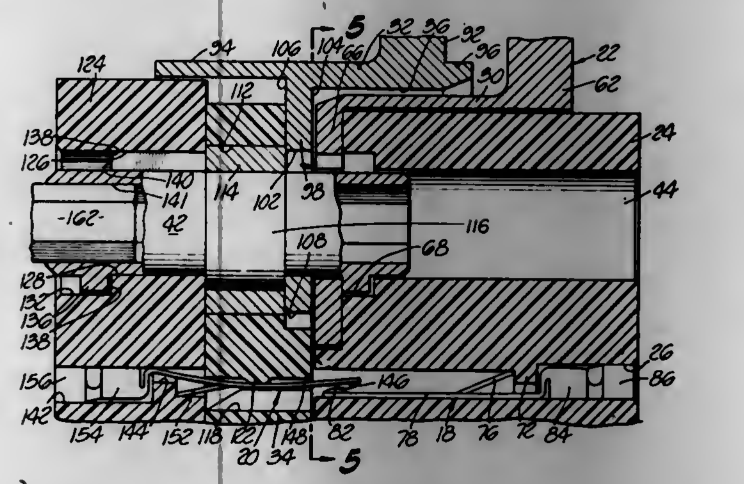
John W. Anhalt, Orange, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Original No. 3,587,037, dated June 22, 1971, Ser. No. 770,513, Oct. 25, 1968. Application for reissue Jan. 17, 1973, Ser. No. 324,522

Int. Cl. H01r *13/54*

U.S. Cl. 339—75 M **7 Claims**

The invention comprises a connector assembly having a plug connector and a receptacle connector. Each of the connectors contains a plurality of contacts housed in openings within the connectors. The contacting surfaces of the receptacle connector contacts extend outside of the receptacle connector opening. Upon mating of the receptacle connector and the plug connector the contact surface portions of the receptacle connector contacts enter openings containing the plug connector contacts, but do not engage the plug connector contacts. Means are provided in one of the connectors to move one of the group of contacts in tandem so that the plug connector contacting surface engages the receptacle connector contacting surface. This moving means may be of the form of a plastic insert which houses the contacts and a camshaft housed therein, rotation of the camshaft causing a portion of the plastic insert to move the contacts contained in the plastic insert so that its contacting surfaces abut the contacting surfaces of the other connector.



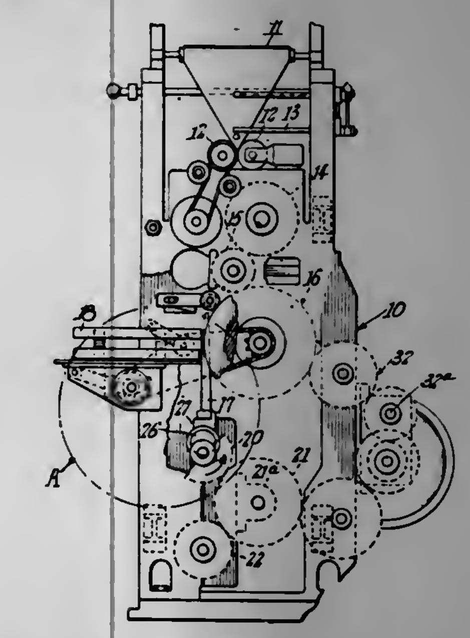
28,172
ORBITAL PACKING DEVICE

John J. Bradley and Ernst D. Nystrand, Green Bay, Wis., assignors to Paper Converting Machine Co., Inc., Green Bay, Wis.

Original No. 3,256,012, dated June 14, 1966, Ser. No. 352,101, Mar. 16, 1964, which is a continuation-in-part of application Ser. No. 244,815, Dec. 14, 1962, now Patent No. 3,254,889. Application for reissue Dec. 1, 1971, Ser. No. 203,921

Int. Cl. B65h *29/56*

U.S. Cl. 271—196 **2 Claims**



An orbital packing device having a vacuum roll for sequential handling of discrete pieces of flexible web material, and a plurality of fingers mounted adjacent the roll for removing the pieces.

28,173
RADIATION TREATMENT OF HALOGEN CONTAINING OLEFINICALLY UNSATURATED ESTERS

Matthias Marx, Bad Durkheim, Albrecht Zosel, Ludwigshafen (Rhine), Herbert Spoor and Heinz Pohlemann, Limburgerhof, and Dieter Heinze, Neckaregemund, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Original No. 3,627,659, dated Dec. 14, 1971, Ser. No. 743,033, July 8, 1968. Application for reissue June 22, 1973, Ser. No. 372,472

Claims priority, application Germany, July 11, 1967, P 17 20 283.4

Int. Cl. B01j *1/00;* **C08d** *1/00*

U.S. Cl. 204—159.22 **3 Claims**

A process for the production of coatings, impregnations or bonds by polymerization and cross-linking of mixtures containing olefinically unsaturated esters containing halogen by means of ionizing radiation.

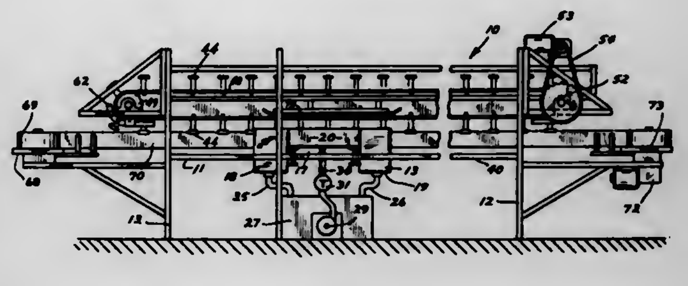
28,174
APPARATUS FOR LIQUID TREATMENT OF FLAT MATERIALS

Winston E. Sabatka, Lakeville, Wilburn M. Bloomquist, Minneapolis, and Raymond W. Reinke, Rosemount, Minn., assignors to Finishing Equipment Inc.

Original No. 3,643,670, dated Feb. 22, 1972, Ser. No. 65,467, Aug. 20, 1970. Application for reissue Sept. 10, 1973, Ser. No. 395,832

Int. Cl. B05c *3/10, 11/14;* **B08b** *3/04*

U.S. Cl. 134—117 **10 Claims**



Plating or etching or other immersion treatment of lower portions only of horizontally fed, vertical positioned thin strips and arrays of workpieces is accomplished by recirculating electrolyte or the like through a bathtub provided with vertical slots to receive and discharge such workpieces. The rate of recirculation is such that an effective plating height well above the bottom of the vertical bathtub slots is maintained. A plurality of horizontally moving clamps support the workpieces and are electrically connected thereto as the workpieces move into, through, and out of the bathtub. These clamps are also electrically slidably connected to bus bars to form part of a complete electroplating circuit.

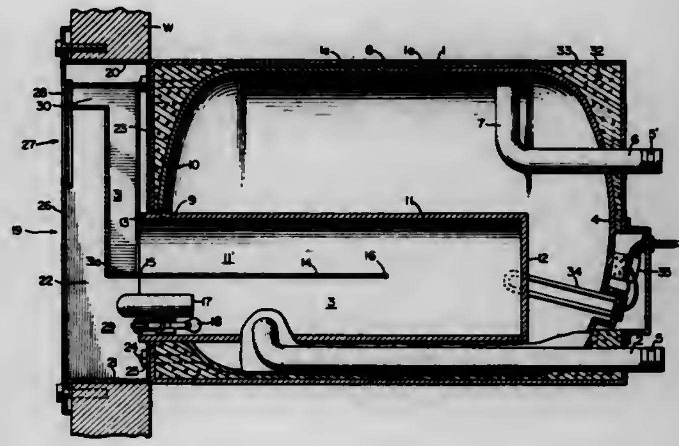
28,175
HOT WATER HEATER

Merle J. Kimmel, Mishawaka, Ind., assignor to La Salle-Deitch Company, Inc., Elkhart, Ind.

Original No. 3,527,260, dated Sept. 8, 1970, Ser. No. 753,657, Aug. 19, 1968. Application for reissue Oct. 12, 1971, Ser. No. 188,522

Int. Cl. F22b *7/00*

U.S. Cl. 122—136 R **13 Claims**



A water heater having an elongated water tank provided with a longitudinal heat exchanger tube extending the substantial length of the tank and including a combustion chamber therein defined by a baffle. A sealed vent assembly provides separate flue and combustion air chambers communicating with the heat exchanger tube and combustion chamber, respectively. Electrical elements provide independent water heating means.

PLANT PATENTS

GRANTED SEPTEMBER 24, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,621
ROSE PLANT

Marie-Louise Meilland, Antibes, France, assignor to Michigan Bulb Company, Grand Rapids, Mich.
Filed July 2, 1973, Ser. No. 375,442
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—20 **1 Claim**

A rose plant of the Hybrid Tea class produced by crossing an unnamed seedling produced by crossing Royal Velvet (U.S. Plant Pat. No. 1,911) with Chrysler Imperial (U.S. Plant Pat. No. 1,167), which unnamed seedling was crossed with Pharoah (U.S. Plant Pat. No. 2,859).

3,622
PEAR TREE

Frederic W. Anderson, 826 W. 22nd St., Merced, Calif. 95340
Filed Aug. 23, 1973, Ser. No. 391,157
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—36 **1 Claim**

A pear tree which is of medium size, vigorous, spreading, tall, rapid growing, foliated with medium size, obovate leaves having a finely serrate margin, and a regular and very productive bearer of large, uniform, round-to-oblate, symmetrical fruit having yellow-green skin lightly blushed with red on the sunny side, and substantially white, semi-translucent flesh.

3,623
ROSE PLANT

Harry Wheatcroft, Edwalton, Nottingham, England
Filed July 19, 1973, Ser. No. 380,829
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—13 **1 Claim**

A new and distinct variety of rose plant of the Hybrid Tea Class, a sport of the unpatented rose variety known as Piccadilly.

3,624
CHRYSANTHEMUM PLANT ENTITLED DARK PINNACLE

Grace Y. Nakano, 1166 Bryant Ave., Mountain View, Calif. 94040
Filed Aug. 30, 1973, Ser. No. 392,953
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—81 **1 Claim**

1. A new and distinct variety of chrysanthemum having the characteristics of a darker flower, three to five days earlier flower response; three to five inches shorter mature growth; and numerous stamens present, which characteristics show a distinct difference over Escapade and Promenade.

3,625
GRAPEVINE

Harold P. Olmo, Davis, Calif., assignor to The Regents of the University of California, Berkeley, Calif.
Filed May 14, 1973, Ser. No. 360,269
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—47 **1 Claim**

1. The new and distinct variety of grapevine herein described and illustrated, and identified by the characteristics enumerated above.

3,626
APRICOT TREE

Frederic W. Anderson, Merced, Calif., assignor to The Burchell Nursery, Inc., Modesto, Calif.
Filed Aug. 23, 1973, Ser. No. 391,011
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—39 **1 Claim**

An apricot tree which is large, vigorous, spreading, foliated with large, cordate leaves having a crenate margin, and a regular and very productive bearer of uniform, large, globose-to-oblong, freestone fruit having yellow skin and yellow flesh.

3,627
MINIATURE ROSE PLANT

Ralph S. Moore, 2519 E. Noble Ave., Visalia, Calif. 93277
Filed Sept. 24, 1973, Ser. No. 400,420
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—8 **1 Claim**

1. A new and distinct variety of miniature rose plant of hardy, dwarf, rounded, much branched, bush type, as illustrated and described, characterized by slender, very yellow buds (sometimes tinted or splashed lightly with red when grown outdoors) with long green sepals which tend to remain against the buds as they open, instead of reflexing downward as is common with most hybrid tea roses, and flowers resembling the Yellow Doll (Pat. 2,450) miniature rose in color and general effect but less double, the petals of which are generally more broad and the color being a darker yellow; the bush being more spreading when young; and further characterized by a plant which is vigorous in growth, yet compact, easy to propagate from cuttings, with small to medium size, medium to dark green foliage, an abundance of bloom, with flowers borne singly and several to the stem (on mature plants) in well arranged clusters.

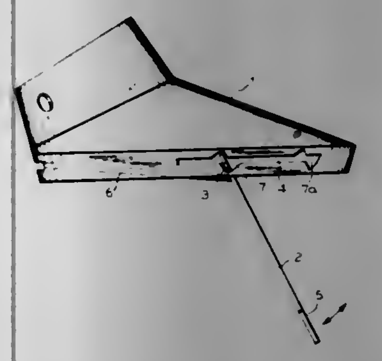
PATENTS

GRANTED SEPTEMBER 24, 1974

GENERAL AND MECHANICAL

3,837,005
DEVICE FOR THE PROTECTION OF THE EYES AND FACE

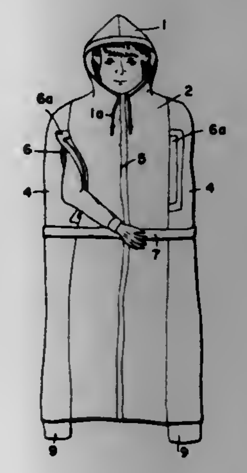
Anders Persson, Lievagen 16, 752 48, Uppsala, Sweden
Filed Jan. 12, 1973, Ser. No. 322,989
Claims priority, application Sweden, Jan. 14, 1972, 415/72
Int. Cl. A61f *9/04*
U.S. Cl. 2—10 **3 Claims**



A device for the protection of the eyes and face when driving a vehicle or welding or the like having a shield member integral with or attached to a protective helmet and an adjustable sight plate connected to the shield member so as to be placed in an extended operative position or a retracted folded position.

3,837,006
SPORTSMAN'S TENT

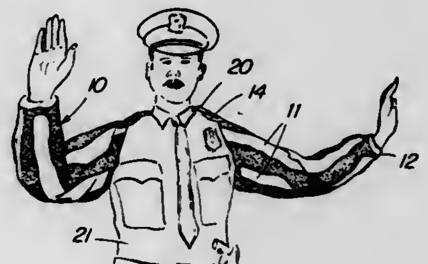
Blanche E. Laseman, 1309 41st St., Lubbock, Tex. 79602
Filed Sept. 4, 1973, Ser. No. 394,097
Int. Cl. A41d *3/08, 15/04*
U.S. Cl. 2—89 **6 Claims**



The sportsman's tent comprises a tent-like garment having a hood for enveloping the entire head of the sportsman except his face. A draw-string is provided to confine the hood closely around his face. The tent walls are formed integrally with the hood and consist of a tailored front wall, a tailored rear wall, and tailored side walls adapted to hang loosely from the sportsman's shoulders. A belt extends around the tent adapted when drawn taut to shorten the overall length of the tent above the sportsman's feet to facilitate walking. And a removable floor is secured to the bottoms of the tent walls to serve as a tent floor or as a part of a carrying case when the tent is folded for carrying purposes.

3,837,007
REFLECTORIZED SLEEVES

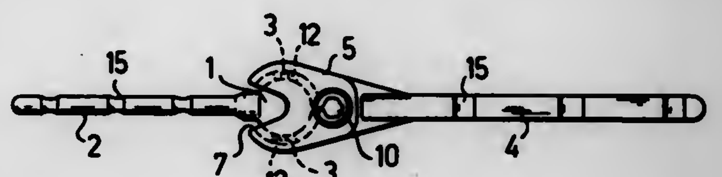
George G. Girest, P.O. Box 460, Belmar, N.J. 08736
Filed Apr. 10, 1973, Ser. No. 349,830
Int. Cl. A41d *27/10, 29/00;* **G02b** *5/12*
U.S. Cl. 2—93 **2 Claims**



A shirt or jacket having sleeves with spaced wide stripes of reflectorized material running from the wrist to the shoulder and/or a pair of light weight similar auxiliary sleeves adapted to be worn over a traffic officer's uniform after dark or during inclement weather. The high degree of visibility of the long reflectorized stripes illuminated by vehicular headlights not only facilitates the clear discernment of an officer's traffic directions regardless of the position in which he is standing, thus eliminating possible uncertainty and confusion on the part of drivers and pedestrians, but also protects him from accidents.

3,837,008
ENDO-PROSTHESIS FOR A WRIST JOINT

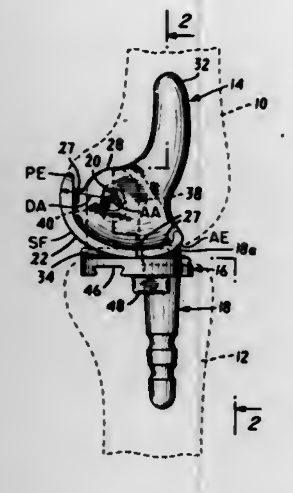
Andre Bahler; Norber Gschwend, and Heinrich Scheler, all of Zurich, Switzerland, assignors to Sulzer Brothers Ltd., Winterthur, Switzerland
Filed Aug. 31, 1972, Ser. No. 285,133
Claims priority, application Switzerland, Sept. 6, 1971, 13014/71
Int. Cl. A61f *1/24*
U.S. Cl. 3—1 **11 Claims**



The wrist joint prosthesis is formed of a spherical head and a two-part socket. The socket allows the head and attached shaft to move via at least one appendage within a guideway parallel to the mating plane of the socket parts while also allowing the head and shaft to move transversely of the socket within mouthlike openings in the socket parts.

3,837,009
KNEE PROSTHESIS

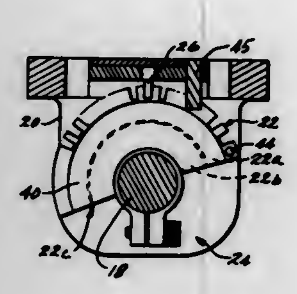
Peter S. Walker, New York, N.Y., assignor to New York Society for the Relief of the Ruptured and Crippled, New York, N.Y.
Filed Dec. 7, 1972, Ser. No. 312,850
Int. Cl. A61f ***1/24***
U.S. Cl. 3—1 **19 Claims**



A knee joint prosthesis comprises a femoral component having a pair of laterally spaced-apart condylar portions received on the femoral condyles and having surfaces shaped substantially to match the shapes of the condylar surfaces of the femur and an intercondylar portion connecting the femoral components together. The intercondylar portion has a medial slot that opens toward the tibial plateau. A tibial component in the form of a generally plate-like platform is placed on the tibial plateau and has laterally spaced-apart tibial surfaces disposed opposite from and supporting the condylar surfaces of the femoral component. A post extends upwardly from the tibial component into the slot in the femoral component, and an axle extends transversely through openings in the post and the intercondylar portion of the femoral component to connect the tibial and femoral components together in hinged relation for relative pivotal movement of the components about a transverse pivot axis to afford flexion of the leg.

3,837,010
PROSTHETIC ELBOW WITH RESILIENT LOCKING ASSEMBLY

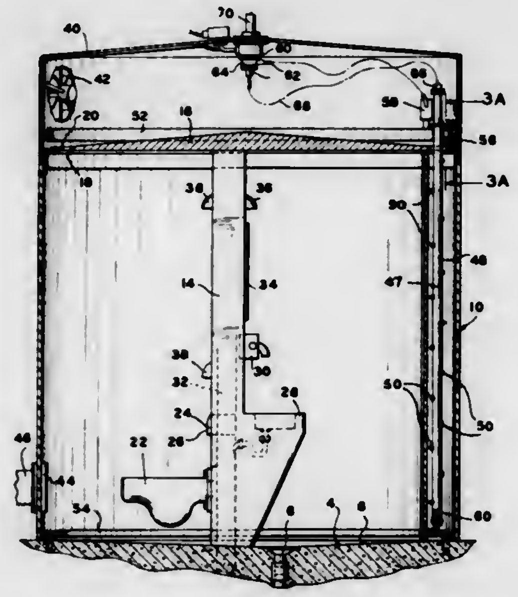
Wesley C. Prout, Kankakee, Ill., assignor to Parke, Davis & Company, Detroit, Mich.
Continuation-in-part of Ser. No. 235,054, March 16, 1972, abandoned. This application Mar. 5, 1973, Ser. No. 338,281
Int. Cl. A61f ***1/06***
U.S. Cl. 3—12.3 **16 Claims**



A prosthetic elbow for an amputee. First and second connector parts are adapted to be connected to an artificial upper arm and an artificial lower arm, respectively, for the amputee. The second connector part is rotatably mounted on the first connector part. A lock is used for selectively stopping the rotation between the first and second connector parts and comprises: a gear assembly having an outer gear part with gear teeth therein; a hub separate from and for the gear part; means rigidly connecting the hub to one of the connector parts; a resilient member connected to the gear part and hub and providing therebetween a resilient mounting; a locking member; means for movably mounting the locking member on the other of the connector parts so as to enable selective engagement between the locking member and gear teeth to thereby stop relative rotation, through the resilient means, of the first and second connector parts. The locking member is selectively moved into and out of engagement with the gear teeth.

3,837,011
SELF-CLEANING RESTROOM, AND METHOD FOR CLEANING A RESTROOM

Gilbert T. McTighe, 804 N. Windsor, Apt. 10, Mitchell, S. Dak. 57301, and Sture A. Johansson, Barrett Gardens, Apt. 14 M, Kendall Park, N.J. 00824
Filed May 4, 1971, Ser. No. 140,227
Int. Cl. A47k ***17/00;*** **E03d** ***11/12***
U.S. Cl. 4—1 **13 Claims**

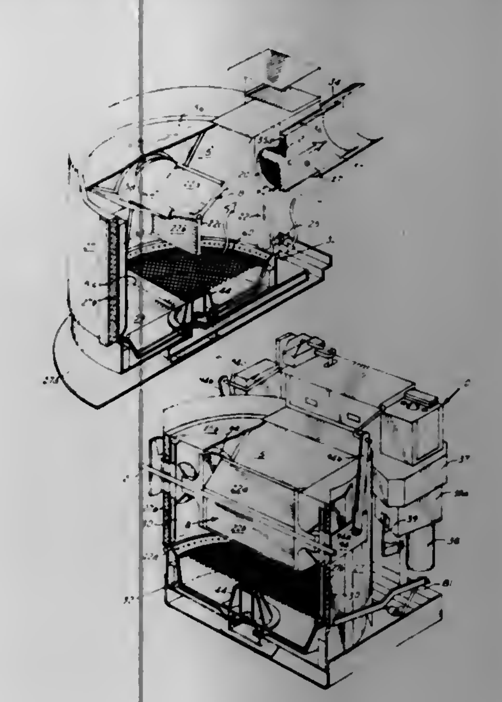


A restroom including an enclosure, and bathroom fixtures mounted centrally within said enclosure on a pedestal. The restroom is automatically cleaned by moving a vertical spray boom around the inner periphery of the enclosure to spray both the sidewall of the enclosure and the fixtures mounted therewithin with cleansing fluid, the fluid then being drained from the enclosure, after which any accumulated vapors are exhausted. Heated drying air is then passed through the enclosure to complete the cleaning cycle.

3,837,012
INCINERATING TOILET

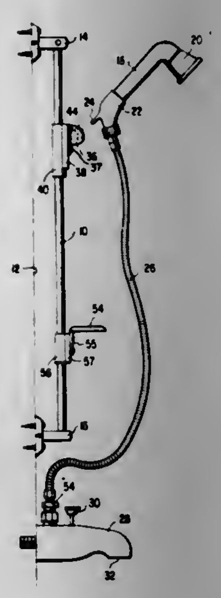
Volker Rassbach, Denver, and Clyde W. La Grone, Littleton, both of Colo., assignors to Eliminex Technology Inc., Wheatridge, Calif.
Filed Jan. 2, 1973, Ser. No. 320,166
Int. Cl. A47k ***11/02***
U.S. Cl. 4—131 **20 Claims**

A container having a conventional toilet seat and cover, includes an inner rotating pan to catch waste, separate liquid, and after use to rotate to dump solid from the pan onto an incinerating hearth. The separated liquid flows into a jacket defining the firebox side wall for evaporating liquid during the incineration of the solids. The rotary pan is movable from a sealed position, which seals the fire chamber from the seat, to a rotating position spaced therefrom. Air is forced into the unit maintaining it under positive pressure and provide a positive circulation of air throughout the fire chamber. Solids are initially dried and incinerated on a solid hearth following one use cycle, and then are scraped onto a grill for open flame incineration following the next use cycle. Lifting and lowering the toilet seat activates the device.



3,837,013
MOVABLE SHOWER HEAD AND SOAP TRAY ASSEMBLY

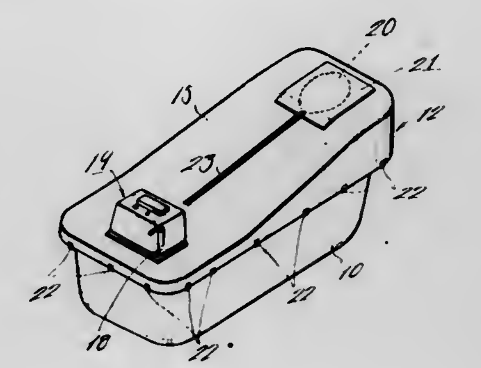
Oliver Thurston Davis, and Norman R. Jones, Rt. 1, P.O. Box 33, both of Dunlap, Tenn. 37327
Filed Apr. 26, 1973, Ser. No. 354,744
Int. Cl. A47k ***3/22***
U.S. Cl. 4—145 **7 Claims**



A movable shower head and soap tray assembly having an elongated rod adapted to be mounted on the wall of a shower. A holder for a shower head is slidably mounted on and frictionally held at any desired position on the rod. The shower head holder has a plurality of recesses for maintaining a removable shower head at a plurality of angles with respect to the vertical. A soap dish is also slidably mounted on and frictionally held at any desired position on the rod.

3,837,014
DEVICE ADAPTING AN EXISTING DOMESTIC BATHTUB FOR STEAM OR DRY HOT-AIR BATH

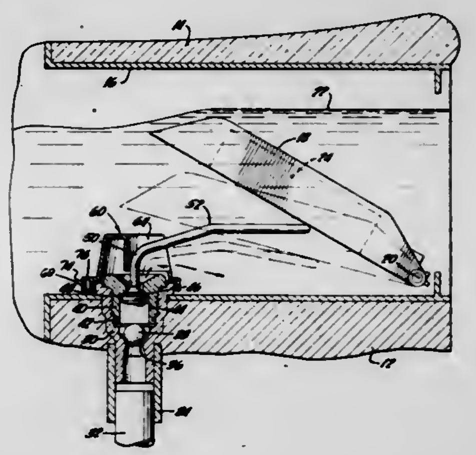
Kenichi Sugiyama, 1236-7-506 Edamachi, Yokohama, Japan
Filed Jan. 12, 1973, Ser. No. 323,258
Claims priority, application Japan, Jan. 14, 1972, 47-6321
Int. Cl. A61h ***33/12***
U.S. Cl. 4—162 **6 Claims**



A device adapting an existing domestic bathtub for steam or dry hot-air bath comprising a base framework, an end plate hinged to said framework, a detachable cover member positioned over said framework and end plate having openings adjacent the opposite ends one of which openings is for receiving a user's head and the other of which openings is for detachably mounting a heater and cut means extending between said openings for opening or closing by a slide fastener.

3,837,015
WATER LEVEL CONTROL FOR SWIMMING POOL

Brackston T. Whitaker, Tucson, Ariz., assignor to Baker Hydro, Inc., Santa Ana, Calif.
Filed Aug. 14, 1972, Ser. No. 280,218
Int. Cl. G05d ***9/00;*** **F16k** ***33/00;*** **E04h** ***3/16***
U.S. Cl. 4—172.17 **16 Claims**



A valve through which water from a water supply source may be admitted to a swimming pool is located in the throat of the skimmer of the pool beneath a weir pivotally supported at the entrance of the throat and biased in yielding opposition to the flow of water into the skimmer as the water circulating system of the swimming pool is operated to draw water through the skimmer and return it to the pool. The water admitting orifice of the valve is fitted with a shroud which directs the water generally toward the inner side of the weir, and an operating lever arm for the valve is disposed beneath the weir so that the weir, upon being pivotally moved downwardly beyond a predetermined position, will engage the valve control lever and depress it, thus opening the valve to admit water into the pool.

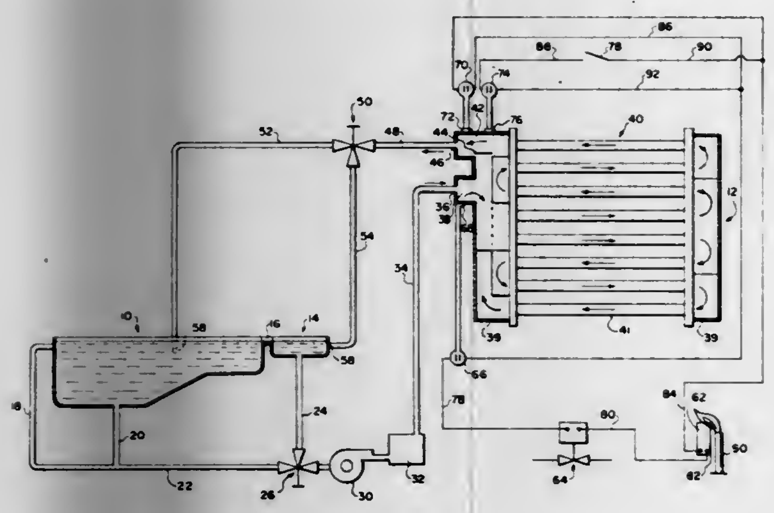
3,837,016
PLURAL TEMPERATURE LEVEL FLUID HEATING SYSTEM

Herbert Schindler, North Hollywood, and Willard O. Ware, Stockton, both of Calif., assignors to M.M.S. Limited, Alameda, Calif.

Filed Apr. 11, 1973, Ser. No. 350,098

Int. Cl. E04h *3/16, 3/18*

U.S. Cl. 4—172.17 **10 Claims**



Plural temperature level fluid heating system characterized by an improved temperature control system capable of controlling fluid temperature at two different levels, said fluid being heated in a single heater, temperature of the fluid being controlled by a thermostatically operated electrical circuit which responds to a rise in temperature beyond specific set points selectively breaking a series circuit with the heater energizing means to interrupt the fuel supply to the heater.

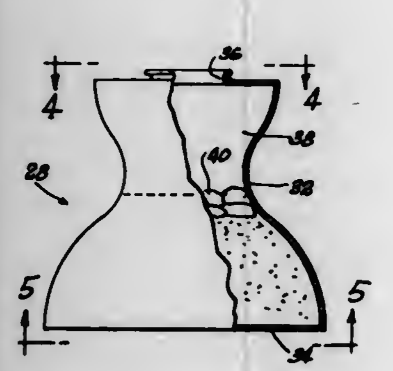
3,837,017
SYSTEM FOR TOILET BOWL CLEANING

Richard L. McDuffee, R.R. 1, Box 732 L, Aurora, Ill. 60007

Filed Oct. 7, 1971, Ser. No. 187,354

Int. Cl. E03d *9/03;* **C02c** *1/00*

U.S. Cl. 4—228 **5 Claims**



A system for cleaning toilet bowls wherein a container is located within a water tank associated with the bowl with a cleaning compound such as calcium hypochlorite being included within the container. A small diameter opening is provided within the container, and this provides exposure to water in the tank so that the compound will be dissolved in the water and thereby delivered to the bowl when the toilet is flushed. An amount of inert particles such as stone may be included in the container to cooperate with the small diameter opening for purposes of limiting the rate of removal of the compound from within the container. The container preferably consists of an ellipsoidal body having a reduced diameter mid-section with this design providing a further means for limiting the rate of removal of the compound.

3,837,018
APPARATUS FOR AUTOMATICALLY CLEANING TOILET SEATS

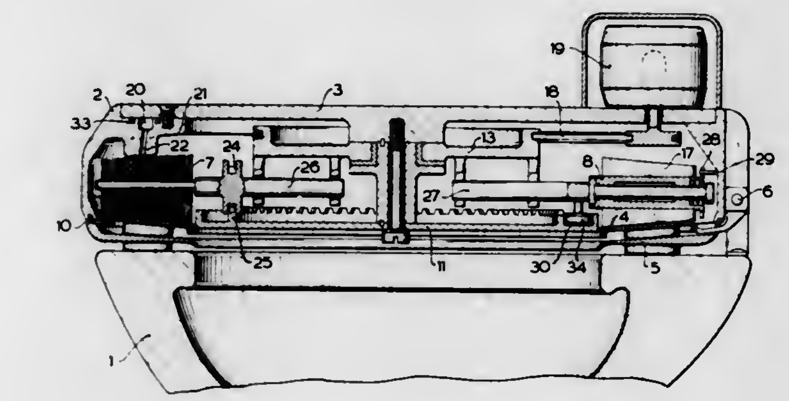
Walter Haberle, 6368 Bad Vilbel, Germany

Filed Oct. 2, 1972, Ser. No. 294,442

Claims priority, application Germany, Oct. 1, 1971, 2149097

Int. Cl. A47k *13/00*

U.S. Cl. 4—233 **16 Claims**



An apparatus for automatically cleaning a toilet seat, which includes a cleaning unit equipped with brushes and wiping means and adapted to be folded toward and away from the toilet bowl, the cleaning unit being adapted to spray cleaning fluid and disinfectant upon the toilet seat and by means of the cleaning unit to clean the toilet seat and wiping the same dry.

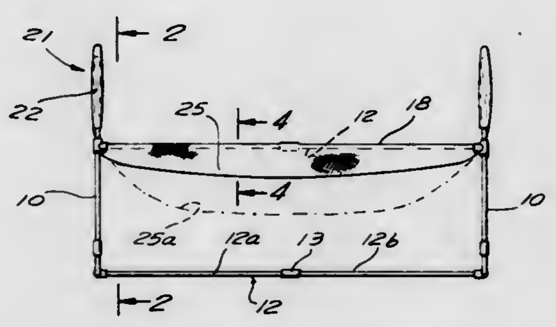
3,837,019
MODULAR CRADLE-LIKE STRUCTURE

Jeffrey Alan Hoff, 234 W. 10th St., New York, N.Y. 10014

Filed Mar. 12, 1973, Ser. No. 340,477

Int. Cl. A47c *27/08;* **A47d** *9/00, 7/00*

U.S. Cl. 5—93 R **11 Claims**



A modular cradle-like structure in which a frame, detachably built up from tubular members and socketed couplings, and having bowed triangular ends joined in spaced parallel alignment by spacers connecting aligned sides of said triangles at approximately their mid-points, provides suspending means for a unitary body support, said body support being formed of flexible sheet material having generally traingular end pockets for engagement with upwardly oriented apexes of said triangular ends, and means along opposed edges intermediate said pockets for detachably securing the same to the two upwardly oriented spacers.

Whether produced as a small, infant cradle device, or a large adult camping or emergency slecping unit the modular construction of the frame and flexible body support permits stowing of the disassembled parts in a minimum of space.

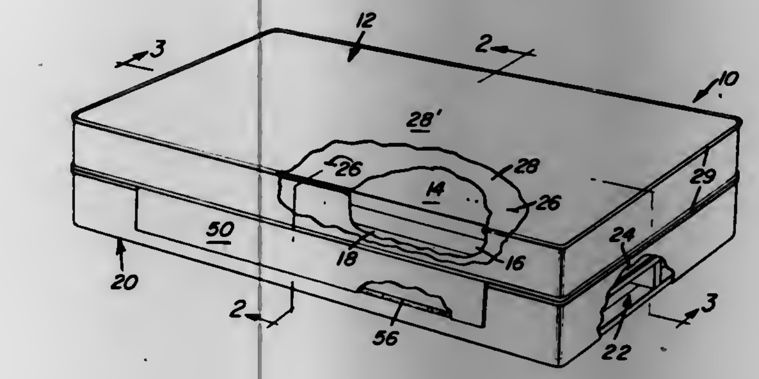
3,837,020
MATTRESS AND MATTRESS FOUNDATION

Samuel Bosch, 360 Stanley Dr., Kingston, Pa. 18704

Filed May 23, 1973, Ser. No. 363,110

Int. Cl. A47c *21/00, 27/00*

U.S. Cl. 5—317 R **6 Claims**



A mattress assembly having a mattress foundation and a mattress selectively attachable to the foundation in position shifting prohibiting relationship. The mattress has a plurality of tufted-together layers of differing density foamed material. The layer arranged adjacent the foundation is the most firm, while the layer spaced farthest from the foundation is the softest. A frame provided with a covering layer of foamed material arranged for contacting the mattress forms the foundation.

3,837,021
SLEEPING QUILT

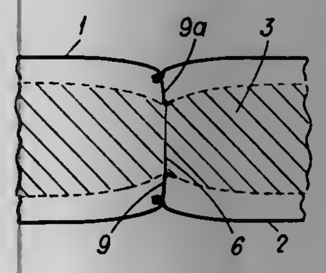
Brian Sellers, West Lothian; Harry Graham Usher, Edinburgh, and Thomas William Lawrie Kay, Midlothian, all of Scotland, assignors to R. Mackness & Company Limited, Edinburgh, Scotland

Filed May 23, 1972, Ser. No. 255,971

Claims priority, application Great Britain, June 3, 1971, 18833/71

Int. Cl. A47c *23/00, 27/18*

U.S. Cl. 5—334 R **1 Claim**



There is disclosed a thermal insulating material especially suitable for a bed quilt in which there is a filling in the form of a coherent sheet or strip enclosed between two layers of sheet material, lines of stitching are formed between the layers of sheet material and pass through the filling, the stiches being such that whilst it prevents any substantial movement of the filling relative to the material in use, the layers of material along the lines of stitching will be held apart by the pressure of the filling. The layers of sheet material may be spaced strips of material extending along each side of the filling, the stitching passing through the strips, an outer cover which may be secured to the strips may be provided.

3,837,022
FIBERS FOR PILLOW STUFFING

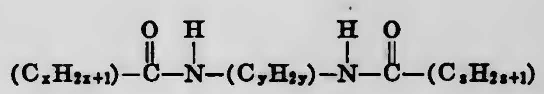
Paul W. Moore, Greenville, S.C., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 30, 1973, Ser. No. 346,334

Int. Cl. A47c *27/22*

U.S. Cl. 5—355 **12 Claims**

Synthetic staple fibers having improved resilience, softness and non-scroopiness and which are suitable for use as bed pillow stuffing, are produced by melt spinning filaments from a blend of fiber-forming polymer of propylene and at least one wax compound having the formula



$$(C_xH_{2x+1})-\overset{\overset{\displaystyle O}{\|}}{C}-\overset{\overset{\displaystyle H}{|}}{N}-(C_yH_{2y})-\overset{\overset{\displaystyle H}{|}}{N}-\overset{\overset{\displaystyle O}{\|}}{C}-(C_zH_{2z+1})$$

wherein *x* and *z* are integers in the range of 10 to 25 and *y* is an integer in the range of 2 to 10, drawing, heating and crimping the resulting filaments and cutting the crimped filaments into staple fibers, the filaments being coated with an ethoxylated polysiloxane.

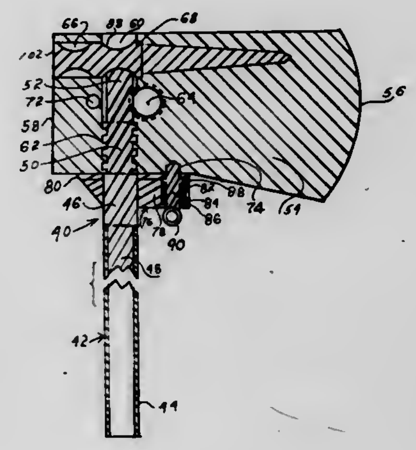
3,837,023
MULTIPURPOSE IMPLEMENT FOR PERFORMING DESTRUCTIVE OPERATIONS

Ronald Spencer-Foote, 2672 Hubbard St., Brooklyn, N.Y. 11235

Filed Oct. 7, 1971, Ser. No. 187,345

Int. Cl. B25f *1/02*

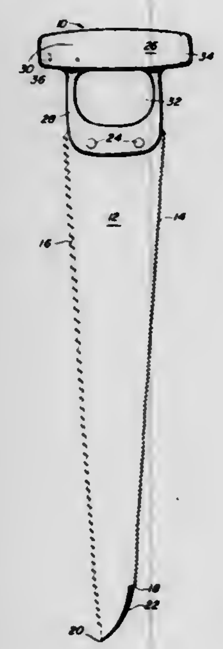
U.S. Cl. 7—8.1 R **7 Claims**



A multipurpose implement for carrying out destructive operations such as cutting, tearing, breaking, and the like. The implement includes an elongated handle assembly for transmitting forces such as impact forces, wedging forces, pushing forces, pulling forces, twisting forces, and the like. A plurality of tools are available for selective connection with the handle assembly to receive the above forces therefrom, these tools being capable of carrying out operations such as wood-cutting and wood-breaking operations, metal-cutting and metal-tearing operations and lock-pulling as well as lock-breaking operations. A connecting structure is carried on the one hand by the handle assembly and on the other hand by each of the tools for selectively connecting the tools to the handle assembly, at least some of the tools being capable of connection with the handle assembly in a number of different positions, and at least some of the tools being capable of being connected simultaneously to the handle assembly. Also, at least some of the tools are capable of connection simultaneously to the handle assembly in a selected one of a number of different positions with respect to each other. The tools which can be selectively connected either separately or simultaneously to the handle assembly include an axe-head, capable also of functioning as an adze, a pike, a sheet-metal cutter capable also of functioning as a plaster and lath breaker, and a lock puller, with the axe-head in certain positions also having a chisel function.

3,837,024
SPORTSMAN'S SAW

Martin R. Saunders, Box 1105, Elko, Nev. 89801
Filed Mar. 13, 1973, Ser. No. 340,754
Int. Cl. B25f *1/00*
U.S. Cl. 7—8.1 R **9 Claims**

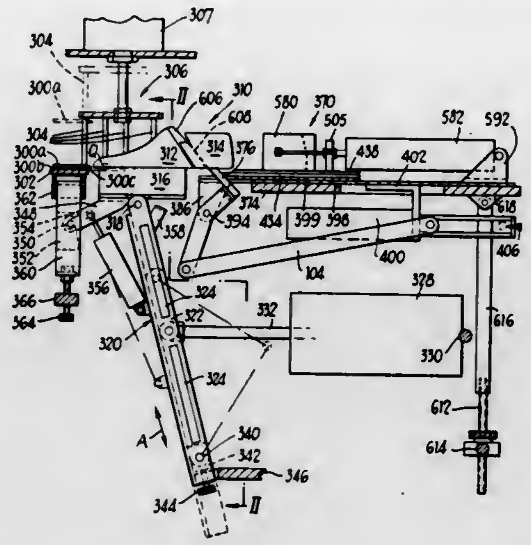


A unique sportsman's saw includes a blade having one edge carrying coarse saw teeth and a second edge carrying fine saw teeth. The sawblade is attached to a handle which is adapted to be held in the hand when the sportsman's saw is used as a saw. The handle is further fashioned to serve as a hammer head when the blade of the saw, preferably housed in a scabbard, is held in the hand.

3,837,025
SHOE MAKING

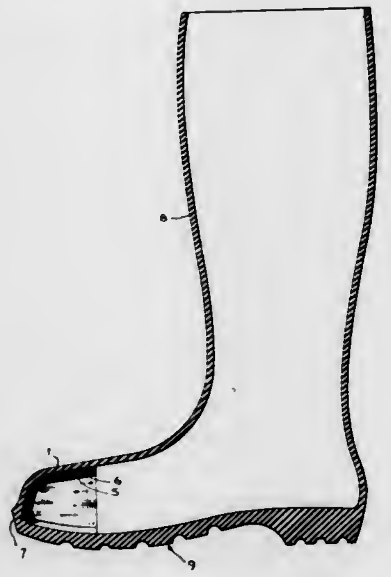
Charles Alfred Lockwood, Kettering; Frederick William Frank Goffe, Broughton, and Ronald Julian, Kettering, all of England, assignors to The Shoe and Allied Trades Research Association, Kettering, England
Filed Apr. 6, 1973, Ser. No. 348,710
Claims priority, application Great Britain, Apr. 11, 1972, 16727/72
Int. Cl. A43d *11/00, 3/00*
U.S. Cl. 12—54.1 **46 Claims**

A shoe upper preforming apparatus includes a clamp for gripping the forepart of a fully closed upper to be preformed, a backpart mould, and a forepart mould. Actuators are provided for first moving the backpart mould along an arcuate path into a moulding position within the upper and thereafter moving the forepart mould into the moulding position. The movement of the forepart mould comprises bodily movement having components both upwards and forwards relative to the shoe upper and rotary movement, the bodily movement being effected initially with the toe end of the forepart mould raised, and the rotary movement causing the toe end to move downwardly as the forepart mould is brought to its final moulding position. When the moulds are in the moulding position they interfit to define a moulding surface corresponding to the whole of the upper, which surface may be in the shape of the last or a development of the shape of the last. The backpart mould may be cooled and the forepart mould may be heated or cooled according to the type of material to be formed. A gauge is provided for determining the height of the heel of the upper relative to the backpart mould when the backpart mould is moved to its moulding position, and a female back former is provided for assisting in the forming of the backpart of the upper. A wiper mechanism is included for wiping the lasting margin of the backpart of the upper beneath the backpart mould. The clamp can be formed in two halves which can be pivoted apart for accommodating different sizes of mould, which may therefore be removable from the machine, and power means may be provided for effecting the pivoting of the two clamp halves so that the upper can be loaded into the clamp in a relatively flat condition and then the clamp halves pivoted towards each other in preparation for the moulding operation.



3,837,026
SAFETY FOOTWEAR AND MANUFACTURE THEREOF

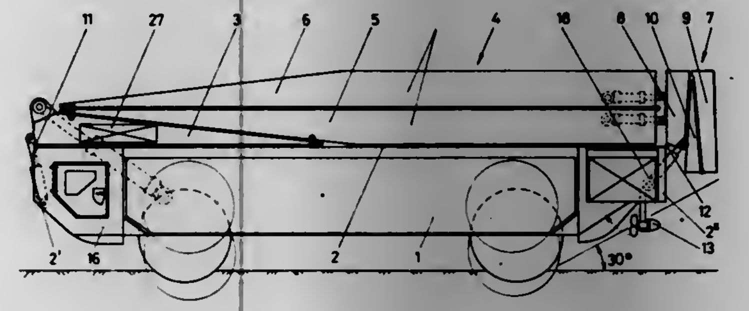
John R. White, Woodbridge, Conn., assignor to Uniroyal, Inc., New York, N.Y.
Division of Ser. No. 360,210, May 14, 1973. This application Oct. 9, 1973, Ser. No. 404,473
Int. Cl. A43d
U.S. Cl. 12—146 D **9 Claims**



Disclosed are an article of safety footwear, a method of making the same, and a safety toe cap assembly adapted to be used in making such footwear. The article of safety footwear has a rigid, crush-resistant toe cap located in its toe region and having its outer surface bonded to the interior of the upper of the footwear article, a cushioning layer of resilient, compressible cellular (open-celled or closed cell or having both open and closed cells) cured elastomeric polymeric material, typically formed of open-celled cured cellular polyurethane, covering and being bonded to the inner surface of the toe cap, and a lining of stretchable fabric having a low coefficient of friction covering and being bonded to the inner surface of the cushioning layer. The method of the invention is particularly characterized by the fact that it enables safety footwear to be manufactured at high production rates in marked contrast to conventional methods of making safety type footwear in which many hand fitting operations are normally involved.

3,837,027
VEHICLE WITH DEPOSITABLE RAMP FOR THE FORMING OF BRIDGES, PARTICULARLY FLOATING BRIDGES AND FERRIES

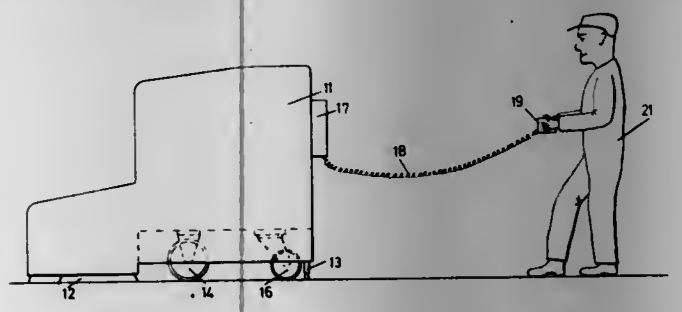
Hermann Walter Gehlen, Pirmasenser Strasse 60, 675 Kaiserslautern/Pflaz, Germany
Filed Mar. 7, 1973, Ser. No. 339,027
Claims priority, application Germany, Mar. 11, 1972, 2211912
Int. Cl. E01d *1/00*
U.S. Cl. 14—27 **5 Claims**



Vehicle with depositable ramp for forming floating bridges or ferries having short drive-on ramps at both ends, one of which is coordinated with the end over which the depositable ramp is swung and is the depositable member for the depositable ramp connected in the swing position with the depositable ramp. Furthermore the drive-on ramp that is in the form of a depositable member has a shape that is adapted to the obliqueness of the depositable ramp, and the vehicle body has a deck which extends evenly throughout its entire length, where the drive-on ramp that is not a depositable element is foldable and in the unfolded condition corresponds to the form and size of the drive-on ramp that is the supporting member.

3,837,028
FLOOR TREATING MACHINES

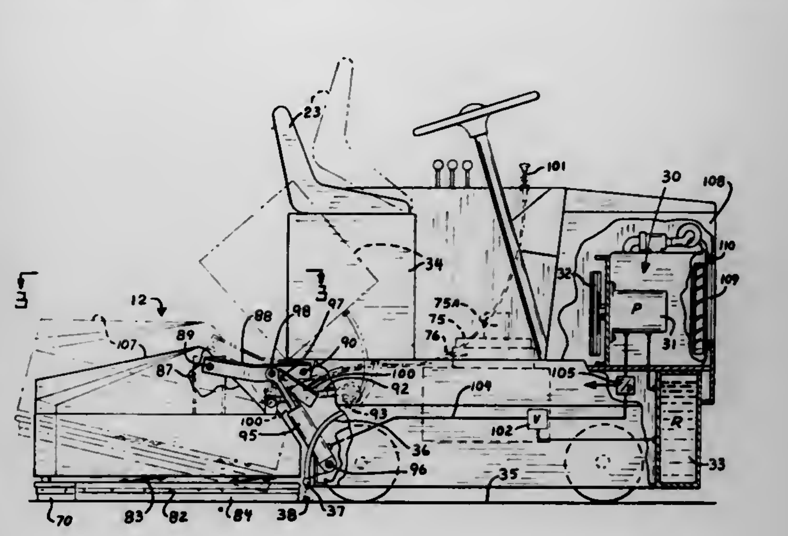
Samuel Douglas Bridge, Wiltshire, England, assignor to R. G. Dixon & Company, Limited, Wembley, Middlesex, England
Filed Sept. 22, 1972, Ser. No. 291,427
Claims priority, application Great Britain, Sept. 23, 1971, 44486/71
Int. Cl. A47l *11/16*; B62d *11/04*
U.S. Cl. 15—50 R **1 Claim**



An electrically powered floor-treating machine having at least one drivable floor-engaging wheel and a remote control panel connected to the machine and adapted to be operated by an operator walking along with the machine and having facilities for controlling the steering and application of power to the drivable wheel or wheels.

3,837,029
SCRUBBING MACHINE

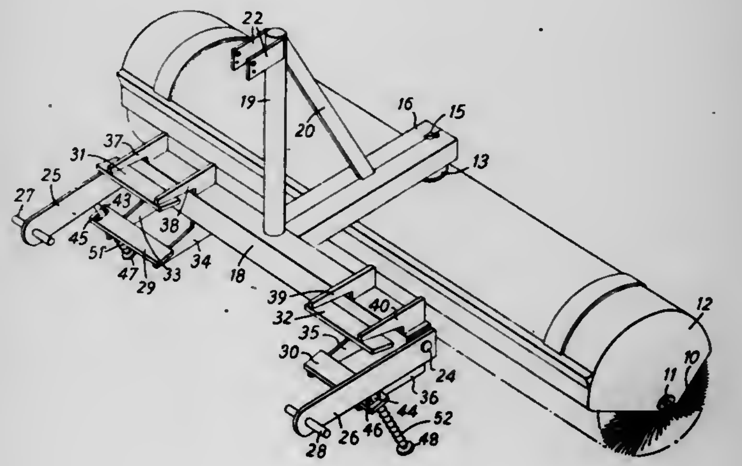
Joseph G. Kasper, Minneapolis, Minn., assignor to Tennant Company, Minneapolis, Minn.
Division of Ser. No. 72,275, Sept. 15, 1970, Pat. No. 3,702,488. This application Oct. 24, 1972, Ser. No. 299,846
Int. Cl. A47l *11/18*
U.S. Cl. 15—50 C **8 Claims**



A scrubbing machine having a drive unit on which an operator can sit, and a separate scrubbing unit mounted for movement independently of the frame of the drive unit. The scrubber uses double brushes driven under power which will pick up debris from and scrub surfaces on which the unit is operating. The drive unit as shown operates on a dry surface because the scrubbing unit is trailing.

3,837,030
GROUND TREATING APPARATUS

Heinrich Fritz Liebrecht, Norfolk, England, assignor to Leeford (London) Limited, London, England
Filed Mar. 19, 1973, Ser. No. 342,527
Int. Cl. E01h *1/05*
U.S. Cl. 15—82 **2 Claims**

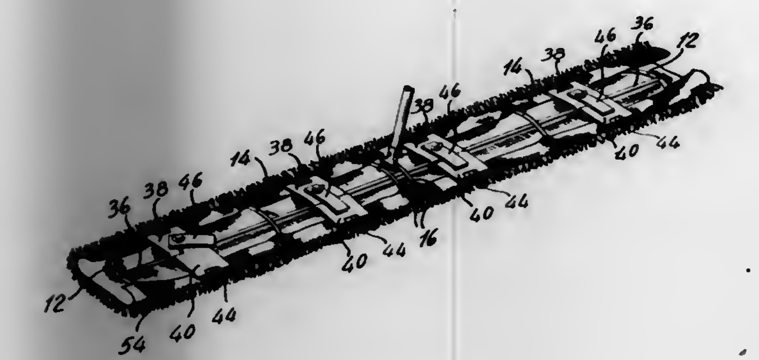


The invention relates to a rotary brush or like ground treating apparatus in which the brush or the like is mounted on a frame which is carried by means such as pivotal arms for attachment to the ball jointed links of a tractor so that either end of the frame can move vertically independently of the other end.

3,837,031
MOP FRAME

Eugene Joseph Allaire, 5525 Trent Ave., Apt. 207, and Eugene Paradis, 4933 Coolbrook, both of Montreal, Quebec, Canada

Filed Feb. 8, 1973, Ser. No. 330,739
Int. Cl. A47l *13/252*
U.S. Cl. 15—150 **7 Claims**

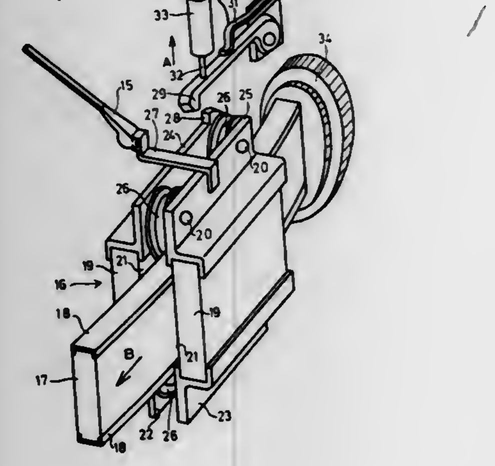


A mop frame with a universally connected handle, the frame being adaptable to mop material in sheet form which is folded over the edges of the frame and clamped down by opposed hinged clamps held down by lock strips which straddle the hinge points of the clamps.

3,837,032
APPARATUS FOR CLEANING WINDSHIELDS OR THE LIKE

Gerhard Ulbrich, Buhl, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Oct. 13, 1972, Ser. No. 297,374
Claims priority, application Germany, Oct. 23, 1971, 2152978
Int. Cl. B60s *1/16, 1/34*
U.S. Cl. 15—250.17 **7 Claims**

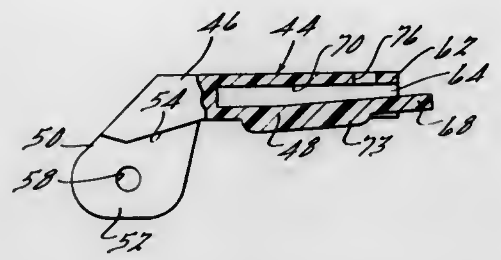


A windshield wiping apparatus wherein the arm for the wiper blade is mounted directly on the armature of a linear electric motor. The inductor of the motor serves as a guide for the armature, and its curvature conforms to that of the lower edge portion of the windshield. The armature can be held in the parking position of the wiper blade by a locking lever which is disengaged from the armature by an electromagnet in response to closing of a master switch which is operated by the driver to start the motor. The armature automatically returns the wiper blade to parking position when the master switch is opened.

3,837,033
WINDSHIELD WIPER CONSTRUCTION

Johan H. van den Berg, Hasselt; Albert J. G. Hoebrechts, Mechelen, and Alex Herman A. M. Van Eekelen, Hasselt, all of Belgium, assignors to Monroe Belgium N.V., Sint-Truiden, Belgium

Filed May 4, 1972, Ser. No. 250,340
Int. Cl. B60s *1/40*
U.S. Cl. 15—250.32 **9 Claims**

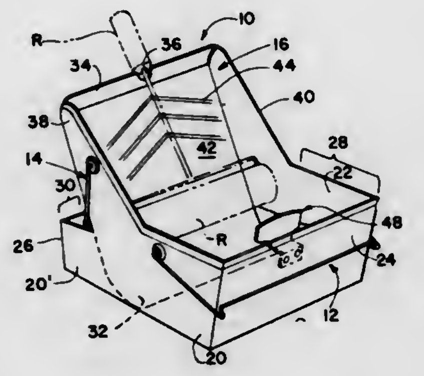


A windshield wiper assembly including a wiper arm, a flexible wiping blade and a blade superstructure for operatively supporting the blade, and a connecting element adapted to detachably secure the subassembly consisting of the blade and the blade superstructure upon one end of the wiper arm, the connecting element comprising first and second integral attachment sections operatively connected to the arm and the superstructure and being of a molded, one-piece construction fabricated of a corrosion resistant polymeric material.

3,837,034
PAINTER'S CADDY

Willis M. Leffert, and S. Douglas Leffert, both of Monroe Manor, Apt. No. 10, 25 Monroe St., Westiminster, Md. 21157

Filed Sept. 22, 1972, Ser. No. 291,338
Int. Cl. B44d *3/12*
U.S. Cl. 15—257.06 **3 Claims**

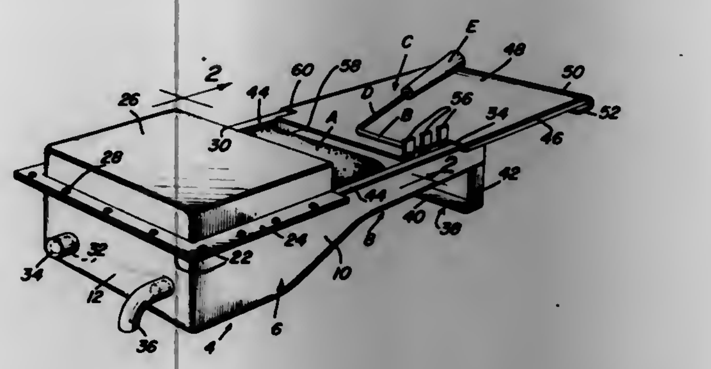


A painter's utensil combining a paint reservoir, a side flanged upslanting roller-ramp having a roller-retaining notch, an upper edge canted as a roller stop and a lower edge faired into the reservoir bottom; a dual brush-position clip for brushes forward in the reservoir, a ready-tray for putty and a tool storage compartment behind the ramp; and co-acting pivotal bails having interlocking looped ends for stability, with ladder hangers adapted to engage the loops.

3,837,035
PAINT ROLLER TRAY WITH SELF-CONTAINED ROLLER CLEANING MEANS

Arne Habostad, 6000 24th Ave. N.W., Seattle, Wash. 98107
Continuation-in-part of Ser. No. 142,593, May 12, 1971, Pat. No. 3,732,593. This application Apr. 5, 1973, Ser. No. 348,057
Int. Cl. B44d *3/12*
U.S. Cl. 15—257.06 **8 Claims**

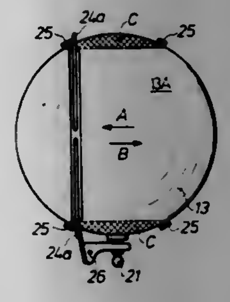
An elongated paint containing roller brush accommodating tray which, broadly stated, is structurally and functionally similar to commonly used trays and pans but is unique in that it has a relatively deep fixedly covered sump at its forward end and a companion tapering relatively shallow trough-like roller guide at its rearward end provided with a slidably shiftable lid. The longitudinal side walls of the roller guide are provided with flange means on channel-type tracks on said lid which are slidingly keyed. The extreme rearward end is provided with a tray stabilizing and supporting prop. Emptying and draining necks are provided on the forward end. The adjacent coacting ends of the fixed sump cover and shiftably slidable lid provide a space for passage of a stream of water from a manually held properly aimed garden hose. When the brush is used and held in the covered sump the force-fed stream of water serves to spin and cleanse the brush and also the interior surfaces of the walls of the overall tray.



3,837,036
APPARATUS FOR WIPING EXPOSED CONVEX SURFACES OF LENSES ON HEAD LIGHTS OF AUTOMOTIVE VEHICLES OR THE LIKE

Karl-Heinz Burger; Manfred Hoffmann-Clewe, and Willi Schaper, all of Buhl, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Apr. 27, 1972, Ser. No. 248,125
Claims priority, application Germany, May 3, 1971, 2121730
Int. Cl. B60s *1/32, 1/38*
U.S. Cl. 15—250.23 **8 Claims**

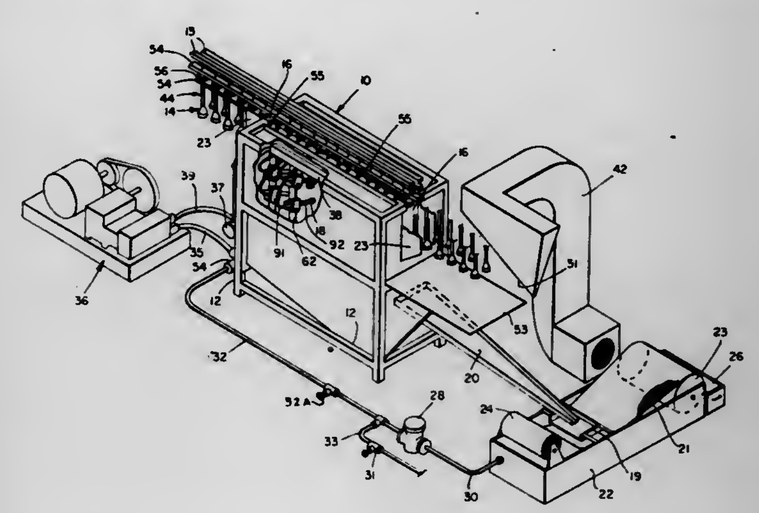


Apparatus for wiping the exposed convex surface on the lens of a head light in an automobile has a lever which is oscillatable about an axis passing through the center of curvature of the convex surface. The lever is pivoted to an arm which is connected to the central portion of an elongated deformable wiper blade. When the lever is oscillated by a motor, the arm moves in parallelism with itself and moves the blade sideways so that the latter sweeps the major part of the convex surface. The end portions of the blade bear against stops provided on the head light when the blade leaves a central position and approaches either of its two end positions whereby the arm flexes the blade and maintains an elastic lip of the blade in full contact with the convex surface. The axis of the lever is coplanar with the blade when the latter assumes its central position. A torsion spring reacts against the lever and biases the arm in a direction to urge the median portion of the blade against the convex surface.

3,837,037
HIGH PRESSURE WATER IMPACT SPRAYING SYSTEM FOR MAGNETIC CAN HANGERS

George Wright, Willingboro, N.J., assignor to Crown Cork & Seal Company, Inc., Philadelphia, Pa.

Filed July 25, 1972, Ser. No. 275,083
Int. Cl. A47l *5/38*
U.S. Cl. 15—302 **4 Claims**

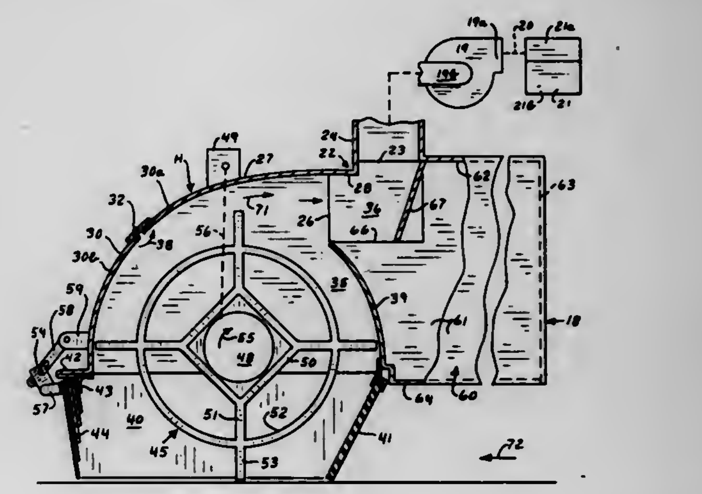


A means for automatically cleaning magnetic can hangers after they have been used to convey cans through a spray painting station. High pressure water without solvents is sprayed on the hangers from nozzles critically positioned with respect to the path of travel of the hangers through the cleaning station. The impact of the water spray as well as a follow-up application of high velocity air remove the paint deposits. A special covering for the hangers facilitates the paint removal and does not interfere with production runs as the hangers are conveyed through the cleaning station in essentially the same manner as through the painting station. The spray cleaning system utilizes a recirculation system and filtering system which aid the cleaning system in effectively reducing pollution in comparison with prior cleaning methods.

3,837,038
APPARATUS FOR CLEANING SURFACES

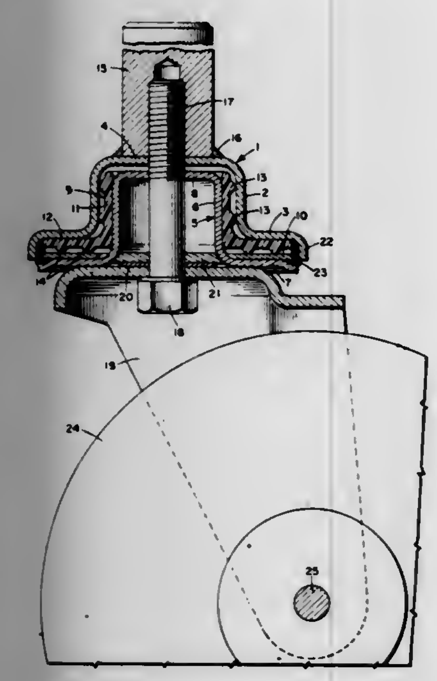
Paul W. Kimzey, St. Louis Park; Donald L. Olson, Minnetonka; Daniel A. Delmore, Hopkins, and Keith N. Krier, Minneapolis, all of Minn., assignors to Tennant Company, Minneapolis, Minn.

Filed Dec. 19, 1972, Ser. No. 316,476
Int. Cl. A47l *5/30*
U.S. Cl. 15—349 **12 Claims**



A cleaning machine that includes a mobile vehicle with a pick up assembly on the vehicle frame, said pick up assembly having a power driven paddle wheel mounted in a housing to extend closely adjacent the surface to be cleaned, the housing including dependingly mounted leaf flap mechanism, a duct having an inlet for receiving raised material from the housing, an airstream outlet, and at a lower elevation than the airstream outlet, a heavy debris outlet opening to a heavy trash receptacle on the frame, a combination filter and light debris container, and a suction blower having an inlet fluidly connected to the duct airstream outlet and an outlet fluidly connected to the light debris container. In one embodiment the heavy trash receptacle is mounted rearwardly of the paddle wheel relative the normal forward direction of movement of the vehicle and in the other embodiment the heavy trash receptacle is located forwardly of the paddle wheel.

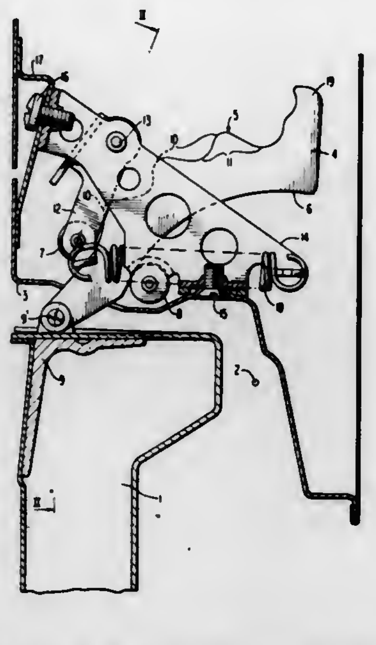
3,837,039
COMBINATION THRUST AND RADIAL BEARING
Houston Rehrig, 100 Los Altos Dr., Pasadena, Calif. 91105
Filed Jan. 26, 1973, Ser. No. 326,895
Int. Cl. B60b *33/00;* **F16c** *17/10*
U.S. Cl. 16—20 **10 Claims**



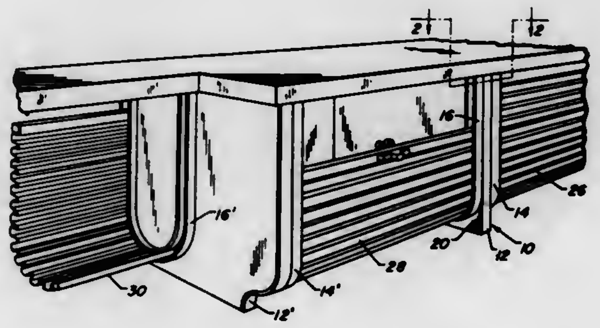
A combination thrust and radial bearing including inner and outer housing members. Each housing member includes a longitudinally extending portion and a radially outwardly extending portion. A bearing insert made from synthetic resin is positioned between the housing members and includes a longitudinally extending portion having radially extending ribs thereon, and a radially outwardly extending portion having longitudinally extending ribs thereon. The ribs reduce the contact area, and therefore, the friction between the insert and the adjacent components of the bearing.

3,837,040
MECHANISM FOR LIMITING DEFLECTION OF A DOOR
Manfred Keller, and Jochen Hoffmann, both of Sindelfingen, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Jan. 26, 1972, Ser. No. 220,777
Claims priority, application Germany, Jan. 30, 1971, 2104456
Int. Cl. E05f *5/06*
U.S. Cl. 16—85 **24 Claims**

A mechanism for limiting the outward swinging movement of a door, especially of the door of a passenger motor vehicle, which is secured by hinges at a fixed part of the vehicle; a spring held roller is arranged on the inside of the door to which is coordinated a curved plate-like cam member secured at the fixed part and including a running surface provided with one or several detents for the roller to hold the door in one or several open positions.

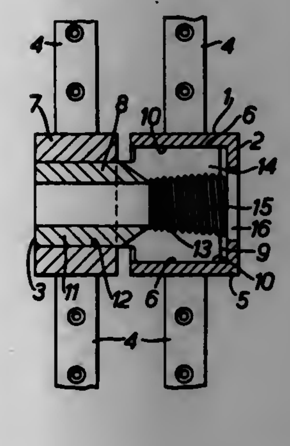


3,837,041
COMBINATION CABINET EDGE TRIM STRIP AND CURVED GUIDE TRACK FOR TAMBOUR DOOR AND METHOD OF FORMING SAME
E. Lamar Modert, Greendale, and Paul G. Stier, Muskego, both of Wis., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed Nov. 24, 1972, Ser. No. 309,536
Int. Cl. A47f *3/00*
U.S. Cl. 16—94 R **5 Claims**



One piece extruded plastic trim and track member includes a pair of elongated back to back U-shaped channels which are spaced apart from each other by a trim portion which is in a plane common to the forward side wall of each channel. The member includes a pair of elongated V-grooves which separate the front surface of the member into three parallel strip portions. The member is adapted to be mounted on the front edge of a cabinet wall with the trim portion following the front edge of the wall to its lower extremity. The channel portions are adapted to be separated from the trim portion along a portion of their length by being slit along said V-grooves. The separated channel portions may be heated after they are slit and bent into a curved shape so that when the trim portion is applied to a vertical cabinet wall edge the curved channel portions will engage the side surfaces of the cabinet wall and form guide tracks for tambour doors located on each side of the cabinet wall. Where a guide track is only to be provided on one side of a cabinet wall, the unused channel portion may be cut away completely from the trim portion and used as a guide channel per se where no trim function is desired.

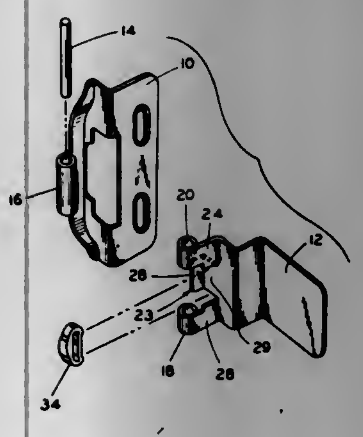
3,837,042
PIVOTS
William Paul White, Ellesboro Port, England, assignor to United Kingdom Atomic Authority, London, England
Continuation of Ser. No. 124,263, Mar. 15, 1971, abandoned. This application Mar. 16, 1973, Ser. No. 342,790
Claims priority, application Great Britain, Mar. 26, 1970, 14941/70
Int. Cl. E05d *11/08*
U.S. Cl. 16—140 **10 Claims**



A window or door pivot in which a first bearing member has a bearing surface which is in frictional engagement with a bearing surface of a second bearing member, the bearing surfaces being of materials between which the static friction is low and is similar to the dynamic friction, means being provided for generating and maintaining a high interfacial pressure between the bearing members.

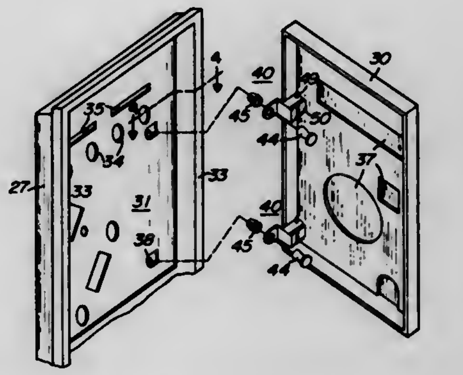
Suitable materials for the bearing surfaces are for example chromium plating, brass or stainless steel for one of the bearing surfaces and an acetal polymer for the other of the bearing surface.

3,837,043
INTEGRAL SPRING AND CAM UNIT
William H. Coe, Rockford, Ill., assignor to Keystone Consolidated Industries, Inc., Peoria, Ill.
Apr. 17, 1973, Ser. No. 352,069
Int. Cl. E05f *1/12*
U.S. Cl. 16—180 **15 Claims**



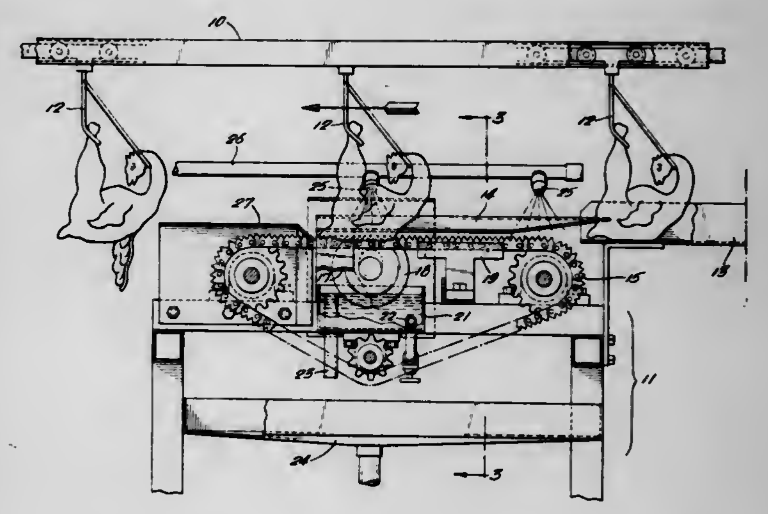
An improved spring construction for a self-closing hinge is comprised of a unitary elastic member positioned intermediate a cam surface associated with one leaf of the hinge and a pocket for holding the spring mechanism in the opposite leaf.

3,837,044
DOOR HINGE
Frederick J. Goetz, Jr., Arlington Heights, and Edward R. Kalenda, Franklin Park, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Oct. 14, 1971, Ser. No. 189,274
Int. Cl. E05f *1/12;* **F05d** *7/12*
U.S. Cl. 16—184 **4 Claims**



An elongated door hinge is removably connected to either one of a door member and a door frame of a support member and one end portion of the hinge includes a depending spring-like blade member which works against a protuberant member on one of the door member and the door frame to provide a bias to said door hinge whereby the door hinge imparts a snap-action movement to said door member to either its open end or closed position with respect to said door frame and thereafter is effective to retain the door member in such position.

3,837,045
PROCESS AND APPARATUS FOR EVISCERATING POULTRY
Harold F. Blacker, Fremont, assignor to Campbell Soup Company, Camden, N.J.
Filed Jan. 17, 1973, Ser. No. 324,330
Int. Cl. A22b *3/08*
U.S. Cl. 17—11 **7 Claims**



Evisceration of poultry is accomplished by making two closely spaced parallel cuts through the back of the poultry carcass extending from the vent opening at the tail end of the carcass to a point adjacent the neck. The cuts are made at opposite sides of the backbone completely through the ribs and the viscera is grasped at the vent opening and pulled through the back cut toward the neck. The apparatus for accomplishing this includes a toothed conveyor which engages the carcass along its backbone and draws the carcass in a lengthwise direction across a pair of closely spaced continuously rotating cutters. A hold down bar is provided to force the carcass against the toothed conveyor and guide movement of the carcass during the cutting operation.

3,837,046

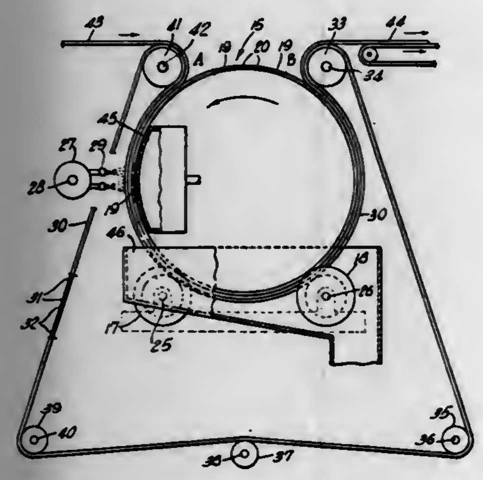
METHOD (CLOSED SANDWICH WITH LARGE APERTURE FORMING MEANS AND PERFORATED BACKING MEANS)

Frank Kalwaites, Gladstone, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.

Continuation-in-part of Ser. No. 22,321, March 24, 1970, abandoned. This application Feb. 10, 1972, Ser. No. 225,332

Int. Cl. D04h *11/00*

U.S. Cl. 19—161 P **2 Claims**



A method and apparatus utilizing fluid rearranging forces to produce, from a layer of fibrous material such as a fibrous web, nonwoven fabrics that contain apertures or holes, or other areas of low fiber density, and have a plurality of patterns of groups of fiber segments that alternate and extend throughout the fabric. One form of the method includes the steps of positioning the starting web between an apertured forming means and a backing means that has continuous imperforate portions that lie between and interconnect discontinuous permeable portions, then directing fluid rearranging forces through the apertures of the forming means against the fibers of the starting web, causing some of the fluid streams to strike the continuous imperforate portions of the backing means and all of the fluid streams ultimately to pass through the permeable portions of the backing means. Each of the discontinuous permeable portions of the backing means has an area less than about one-half, preferably less than one-quarter the area of one of the apertures of the forming means. The resulting fabric consists of fibers that have been rearranged to provide a first pattern of nubs of tightly packed, randomly oriented fiber segments corresponding to the discontinuous permeable portions of the backing means, a second pattern of yarn-like bundles of fiber segments arranged in a pattern complementary to the apertures of the apertured forming means, and a third pattern of flat, ribbon-like groups of substantially aligned fiber segments interconnecting the portions of the fabric in the first pattern with each other, as well as interconnecting some of them with the yarn-like bundles in the second pattern.

3,837,047

MOLDED PLASTIC BUNDLE TIE

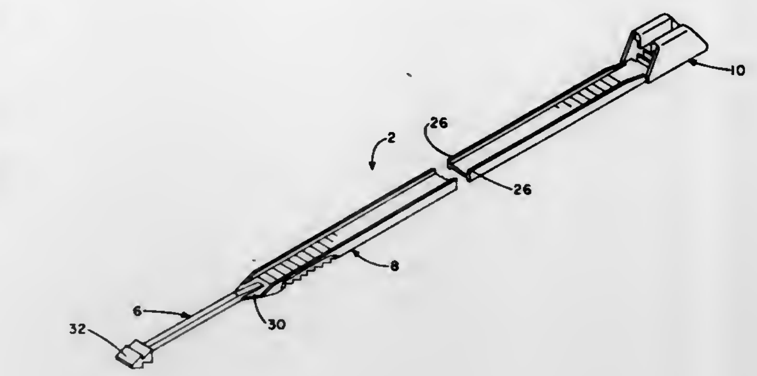
Edward Dennman Bunnell, Palm Harbor, Fla., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 26, 1973, Ser. No. 419,174

Int. Cl. B65d *63/00*

U.S. Cl. 24—16 PB **5 Claims**

Molded plastic bundle tie device which can be produced in a straight action mold comprises a strap section and a U-shaped buckle on one end of a strap section. The sidewalls of the buckle have inwardly directed free ends which extend over the web and flanges extend from the free ends towards the web. The flanges have spaced apart opposed sides and teeth are molded on the portion of the web which lies beneath the gap formed by the depending flanges. These teeth and other features permit the tie to be produced in a straight action mold.



3,837,048

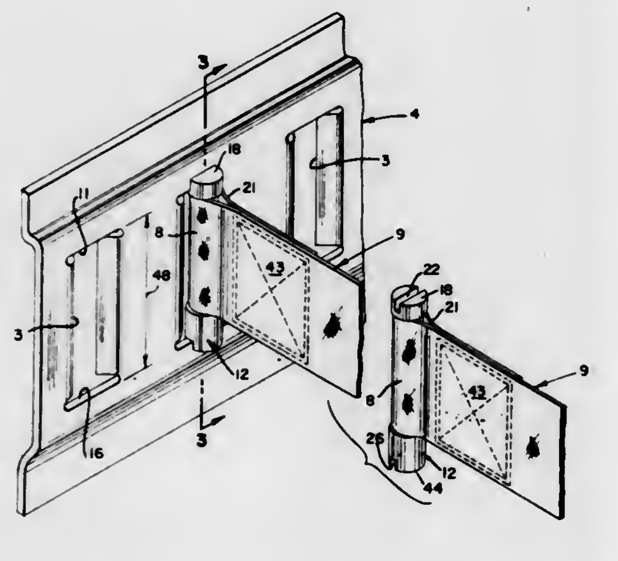
POST STRAP FITTING

Dean F. Lewis, 888 Las Trampas Rd., Lafayette, Calif. 94549, and Vearne D. Pinney, 763 Blossom Way, (Apt. 18), Hayward, Calif. 94541

Filed Mar. 26, 1973, Ser. No. 345,188

Int. Cl. A44b *17/00*; A44c *5/18*

U.S. Cl. 24—201 A **3 Claims**



An end fitting for an adjustable strap having a post for receiving a loop of the strap, an end cap slidably mounted on the post and a spring biasing the post and cap longitudinally away from one another. The ends of the post and cap having a slot therein for engagement with a load rail.

3,837,049

BRASSIERE FASTENER

Alfred G. Corrado, c/o Leading Lady Foundation, Inc., 3748 E. 91st St., Cleveland, Ohio 44105

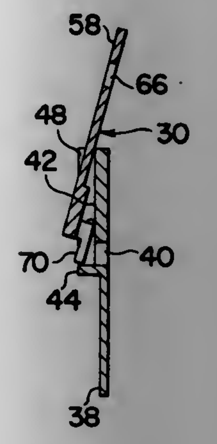
Continuation of Ser. No. 192,613, Oct. 26, 1971, abandoned. This application Aug. 6, 1973, Ser. No. 385,852

Int. Cl. A44b *17/00*

U.S. Cl. 24—201 CF **7 Claims**

A two-piece, plastic separable fastener assembly is disclosed having particular utility as a fastener assembly for use with a nursing brassiere. The fastener assembly is comprised of a first plastic member having a slot and a second plastic fastener member having projection means thereon adapted to be introduced through the slot in a manner whereby the two members are releasably interengagable. The two members are provided with guide and positioning means cooperable to position

the projection relative to the slot to facilitate introducing the projection through the slot, whereby manipulation of the fastener assembly during interengagement of the two members is facilitated. One of the fastener members is attachable to a strap associated with the shoulder strap of a brassiere and the other fastener member is attachable to a strap associated with a movable cover portion of the brassiere cup.



3,837,050

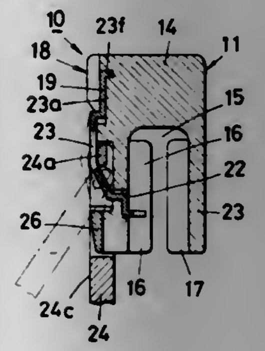
AUTOMATIC LOCKING SLIDERS

Ikuo Takamatsu, Toyama, Japan, assignor to Yoshida Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 26, 1973, Ser. No. 427,478

Int. Cl. A44b *19/30*

U.S. Cl. 24—205.14 R **1 Claim**



An automatic locking slider is disclosed for use with a slide fastener, which slider comprises a slider body, a pull tab and a locking spring. The locking spring is secured at one end in such a manner that it does not project outwardly beyond the outer surface of the slider body so as to avoid deformation of the spring when a slider-attached garment is laundered or pressed. The slider is constructed such that external forces are received collectively at the neck portion which is most rigid throughout the slider parts.

3,837,051

APPARATUS FOR SINGEING TEXTILE FABRICS

Walter Osthoff, Ohligserstrasse 22, 56 Wuppertal 11; Rainer Ebbinghaus, Westtrasse 31, 405 Monchengladbach, and Otmar Hohenester, Neckarstrasse 10, 56 Wuppertal 1, all of Germany

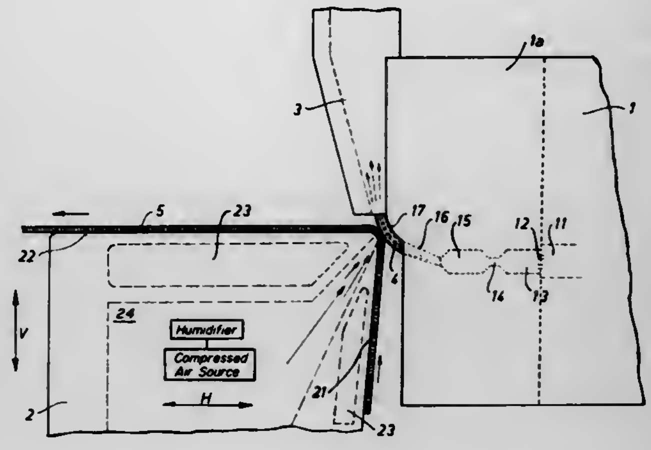
Filed Mar. 12, 1973, Ser. No. 340,066

Claims priority, application Germany, Mar. 21, 1972, 2213631

Int. Cl. D06c *9/02*

U.S. Cl. 26—3 **3 Claims**

Apparatus for singeing projecting threads from a web of flat fabric including a convex flame guiding body which is used in conjuction with a stream of compressed air, adapted to be enriched with moisture to limit the depth of penetration of the flame, the compressed air being directed on the side of the flat textile facing away from the flame, the guiding arrangement having guiding surfaces lying one behind the other in the direction of the web, and being inclined 90° in relation to each other.



3,837,052

METHOD OF DRAWING MOVING THREADS OR YARNS INTO NARROW CHANNELS AND APPARATUS THEREFOR

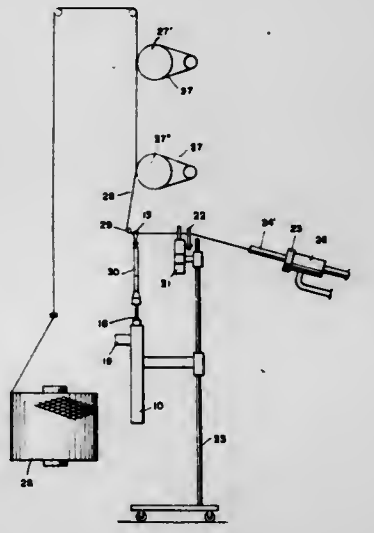
Wolfgang Martin, Ludwigshafen; Ulrich Schwoerer, Muehlacker; Wolfgang Bauer, Heidelberg, and Dieter Staufer, Ludwigshafen, all of Germany, assignors to Badische Anilin- & Soda Fabrik Aktiengesellschaft, Ludwigshofen/Rhine, Germany

Filed Dec. 20, 1972, Ser. No. 316,864

Claims priority, application Germany, Dec. 27, 1971, 2164802

Int. Cl. D02g *1/16*

U.S. Cl. 28—1 R **6 Claims**



A method of drawing moving threads or yarns, preferably carpet yarns, into narrow channels and particularly threading channels of texturizing apparatus, in which method the yarn is drawn into said channel at a velocity of from 200 to 3,500 m/min by means of a wire loop passing through said channel, and at the same time or shortly thereafter the said yarn is severed at a point between said wire loop and a suction pistol adapted to take up the moving thread before it is drawn into said channel. The invention also relates to apparatus for carrying out said method.

3,837,053

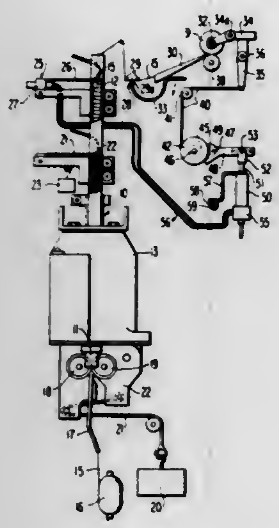
YARN WINDING MECHANISM IN A STUFFER CRIMPER

Alexander L. Trifunovic, Wilmington, Del., and William H. Hills, Melbourne Village, Fla., assignors to Joseph Bancroft & Sons Company, Wilmington, Del.

Continuation-in-part of Ser. No. 222,553, Feb. 1, 1972, abandoned. This application Mar. 5, 1973, Ser. No. 338,048

Int. Cl. D02g ***1/12***

U.S. Cl. 28—1.7 **21 Claims**



A yarn winding mechanism for removing the treated yarn from yarn treating apparatus such as stuffer crimpers and the like. The treated yarn is wound upon a spool into a yarn winding by means of a rotating driving roll engaging the peripheral surface of the winding. The winding is normally in engagement with the driving roll but is movable out of engagement to halt the winding operation. The yarn winding is mounted upon pivoted lever means, and movement to the disengaged position is accomplished by means of a cable attached at one end to the pivoted lever means and at the other end to a rotatable drum. A drum drive means operated by a fluid pressure motor selectively engagable withthe drum to rotate the drum through a predetermined arc, thus pulling the cable and disengaging the winding from the driving roll. The motor operates in response to means sensing the quantity of yarn in the exit portion of the treating chamber. A means for sensing a break in the yarn is also provided, which can disengage the winding from the driving roll and can stop the feeding of yarn into the yarn treating chamber.

3,837,054

NEEDLE PUNCHING MACHINE

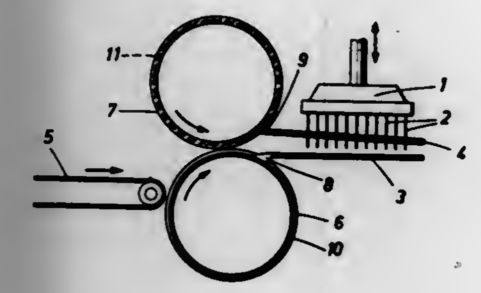
Ernst Fehrer, Linz, Austria

Filed Feb. 8, 1973, Ser. No. 330,504

Claims priority, application Austria, Mar. 6, 1972, 1833/72

Int. Cl. D04h ***18/00***

U.S. Cl. 28—4 R **4 Claims**



A pair of feed rolls are provided, which comprise a lower feed roll and an upper feed roll defining a nip with said lower feed roll. A lower perforated plate has one end adjacent to the upper portion of the periphery of said lower feed roll and is formed with a multiplicity of perforations. An upper perforated plate is disposed over said lower plate to define a space therewith and has one end adjacent to the lower portion of the periphery of said upper feed roll and is formed with perforations which are aligned with those in said lower plate. Said feed rolls are operable to feed a non-woven fiber web through said nip into said space. A plurality of blades are carried by and protrude like teeth of a comb from said one end of one of said plates toward the adjacent portion of the periphery of the adjacent one of said feed rolls. Said adjacent feed roll is formed in its periphery with annular grooves receiving said blades.

3,837,055

DEVICE FOR LEASING TWO ROWS OF YARN INTO A SINGLE HANK

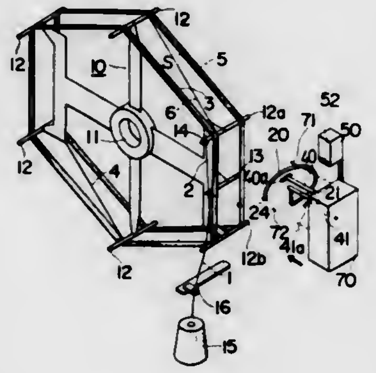
Eiji Yasumori, Chiba, and Naoichiro Tanno, Kyoto, both of Japan, assignors to Shimadzu Seisakusho Ltd., Kyoto-shi, Kyoto-fu, Japan

Continuation-in-part of Ser. No. 828,979, May 29, 1969, abandoned. This application Nov. 17, 1971, Ser. No. 199,645

Claims priority, application Japan, May 31, 1968, 43-37267; May 31, 1968, 43-45528

Int. Cl. B65h ***54/56, 54/62***

U.S. Cl. 28—21 **6 Claims**



A device for leasing two rows of a yarn into a single hank having a circular hook adapted to circulate around the two rows of hank to form a "Figure 8" configuration of lacing thread around the hank. The device also simultaneously attaches a label to the hank with the aid of a label delivering means adapted to feed a label having a hole in such a manner as to locate the hole on the path of circulation of the circular hook to permit the latter to pass therethrough.

3,837,056

COTTON TREATING PROCESS

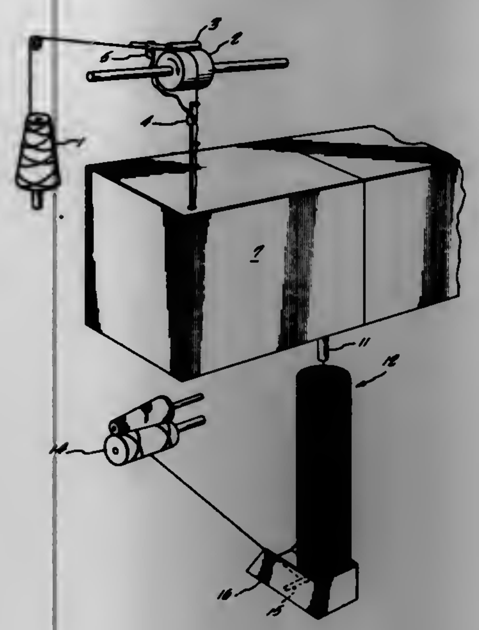
John L. Rendall; William Q. Rhyne, and Arthur Williams, all of Greenville, S.C., assignors to The Richen Co., Inc., Greenville, S.C.

Filed Feb. 9, 1972, Ser. No. 224,765

Int. Cl. D02j ***1/22***

U.S. Cl. 28—72 HR **9 Claims**

A process is disclosed for the heat treatment of cotton yarn to improve its tensile strength and elongation. The yarn is heated in the absence of substantial tension on the yarn to a temperature above its shrinkage temperature and permitted to shrink without substantial yarn tension. The yarn is thereafter cooled to set the same.



3,837,057

METHOD FOR SECURING A PROJECTILE IN A SABOT

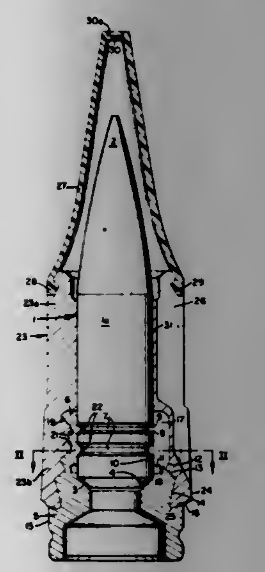
Walter Engel, Dubendorf, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Buhrle AG, Zurich, Switzerland

Filed Mar. 6, 1972, Ser. No. 231,867

Claims priority, application Switzerland, Mar. 29, 1971, 4557/71

Int. Cl. B21k ***21/06***

U.S. Cl. 29—1.2 **3 Claims**



A sabot projectile comprising a projectile body having at least one peripheral groove and a sabot incorporating a sabot rear part having a substantially sleeve-shaped extension arranged at its front end. The extension is sub-divided into segments by means of substantially axially extending slots, and such segments possess radially inwardly directed projections or tabs which are pressed into such peripheral groove.

The method for attaching the projectile body to the sabot contemplates deforming the sleeve-shaped extension, and through such deformation pressing material from the sleeve-shaped extension into the peripheral groove of the projectile body, the displaced material of the sleeve-shaped extension forming tabs or projections which engage with the peripheral groove of the projectile body, to thereby attach the projectile body to the rear end of the sabot.

3,837,058

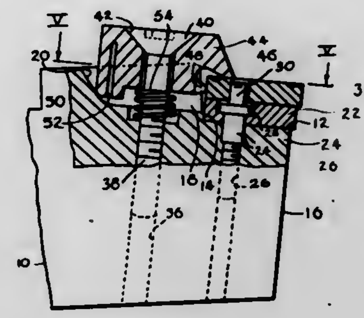
TOOL HOLDER

George G. Barkley, New Alexandria; Edward L. Sorice, Crabtree, and Kenneth L. Niebauer, Greensburg, all of Pa., assignors to Kennametal Inc., Latrobe, Pa.

Filed Nov. 15, 1973, Ser. No. 415,985

Int. Cl. B26d ***1/00***

U.S. Cl. 29—96 **10 Claims**



A tool holder having a pocket for receiving an insert with a pin stationary in the holder and extending into the pocket while a clamp is adjustably mounted on the holder and engages the insert from the rear and the top and forces the insert against the pin while simultaneously clamping the insert firmly against the bottom of the pocket.

3,837,059

PROFILE MILLING CUTTER

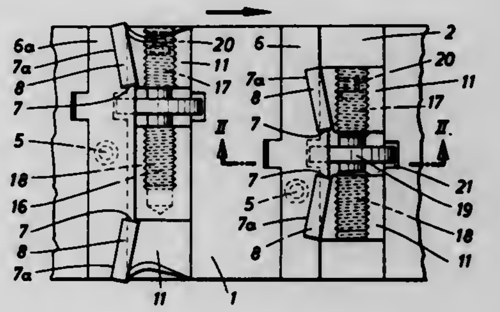
Rudolf Pristavnik, Steyr, Austria, assignor to GFM Gesellschaft fur Fertigungstecknik und Maschinenbau Aktiengesellschaft, Steyr, Austria

Filed Dec. 28, 1973, Ser. No. 429,688

Claims priority, application Austria, Jan. 5, 1973, 113/73

Int. Cl. B26d ***1/12***

U.S. Cl. 29—105 R **1 Claim**



This invention relates to a profile milling cutter for cylindrical milling of crankpins or the like, consisting of a cutter body and a plurality of cermet cutter plates, which are arranged in pairs in respective peripherally open recesses formed in the cutter body and extending from one end thereof to the other and which are mounted on common support blocks, which determine the radial depth to which the cutter plates are inserted and bear on holders which form two bearing surfaces each, each pair of cutter plates being held in position by a pair of clamping wedges, each recess in the cutter body being prismatic and serving additionally as a guide for the clamping wedges associated with the pair of cutter plates, and a tightening screw, which is parallel to the axis of the cutter body and operate to tighten the clamping wedges.

3,837,060

ARMOR JOINT JACK

Norman P. Stehling, Box 18-A, Mason Rt., Fredericksburg, Tex. 78624

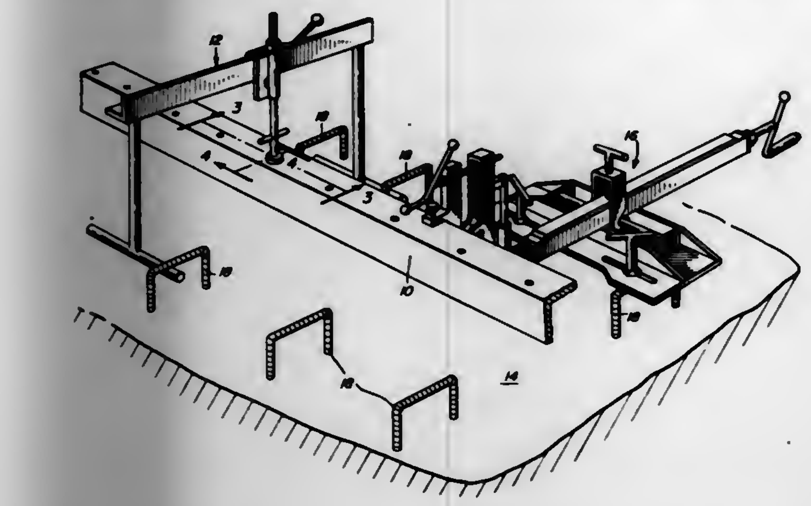
Filed Oct. 31, 1972, Ser. No. 302,497

Int. Cl. B23q ***3/18;*** **E01d** ***19/02***

U.S. Cl. 29—200 P **13 Claims**

Apparatus for positioning armor joints in highway bridge construction has a plurality of stands for suspending an armor joint at a proper grade, or height, above a bridge deck or floor.

A clamp device engages an armor joint suspended from the stands and locates the joint on the line of the bridge. The locating clamp device includes a line-up bar having a frame member provided with an opening in a one end, a tube slidingly engaging and encircling the frame member and provided with a further opening, and a bar engaged in the further opening for varying the relative positions of the frame member and tube. A hollow sleeve is mounted to an end of the frame member spaced from the one end. The line-up bar moves a clamp head pivotally connected to a yoke which is in turn connected to an end of a bar slidably arranged in the sleeve.



3,837,061
APPARATUS FOR POSITIONING A FLANGE

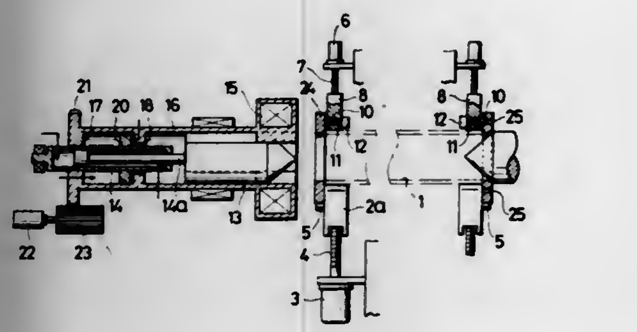
Kiyoshi Hirose; Kaoru Shiozawa, both of Chibaken, and Yuzi Saito, Kanagawaken, all of Japan, assignors to Mitsui Shipbuilding and Engineering Co., Ltd., Tokyo, Japan

Filed May 24, 1973, Ser. No. 363,528

Claims priority, application Japan, May 31, 1972, 47/54722

Int. Cl. B23p *19/00*

U.S. Cl. 29—200 P **1 Claim**



Apparatus for positioning a bolt hole of a flange to be welded to one end of a pipe relatively to another flange at the other end of the pipe comprising means for supporting and rotating the flange, a pin adapted to be inserted into one of the bolt holes of the flange, means for detecting the inserted pin in rotation of the flange, and means for stopping the rotation of the flange in response to said detecting of pin insertion, and the flange being further rotated an angle if necessary

3,837,062
MACHINE FOR DISMANTLING TUBE BUNDLES

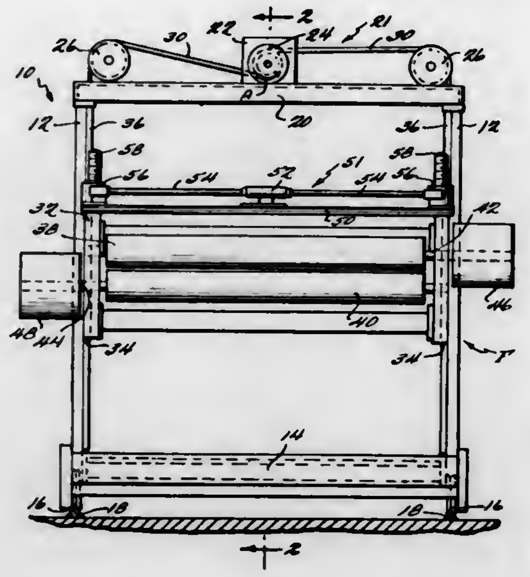
Gene E. Ohmstede, Beaumont, Tex., assignor to Ohmstede Machine Works, Inc., Beaumont, Tex.

Division of Ser. No. 260,443, June 7, 1972, Pat. No. 3,785,026. This application May 31, 1973, Ser. No. 365,560

Int. Cl. B23p *19/00*

U.S. Cl. 29—200 D **5 Claims**

This invention is related to an improved machine for dismantling tube bundles in a manner more efficient than has heretofore been known in the prior art. The tube dismantling machine is capable of effectively removing a plurality of tubes at a single time. The improvement is directed towards locating a tube bundle end that has been cut-off to remove a tube sheet, adjacent and in operative relation to a pair of cooperating parallel rollers. An operator is used to feed successive tubes toward the rollers until they are frictionally engaged thereby. The rollers are rotated in a direction to continue the movement of the tubes from the bundle. After a particular row of tubes has been removed, the rollers are remotely controlled so as to move in a plane perpendicular to the axes of the tubes, and thereby position the rollers in operative relation with another row of tubes to be removed.



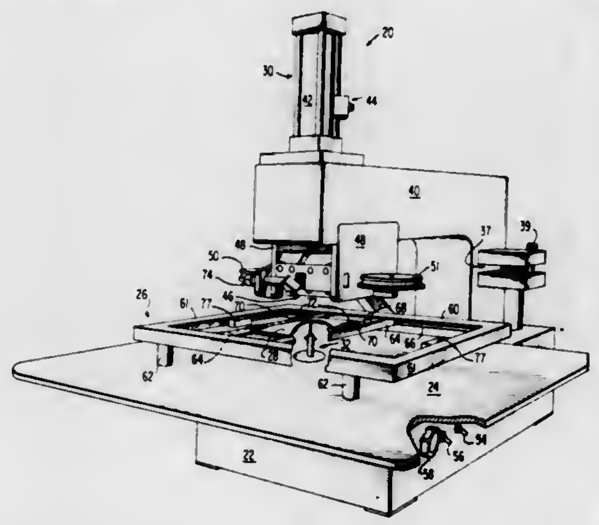
3,837,063
POST TERMINAL INSERTION APPARATUS

Robert Charles Wright, 02, Huntingdon Valley, Pa., assignor to Elco Corporation, Willow Grove, Pa.

Filed June 8, 1973, Ser. No. 368,448

Int. Cl. H05k *13/04*

U.S. Cl. 29—203 P **20 Claims**



Apparatus for direct insertion into a substrate of terminals from a flexible carrier strip releasably supporting the terminals. The strip path of travel toward a terminal removal zone and from that zone is constrained to accomodate strip flexibility and travel without binding while preventing significant strip twisting and transverse and lateral excursion. A guide block assembly establishes that path of travel in first and second channel guide sections where the terminals and deflected strip portions are respectively guided by flanges. During terminal removal, resilient jaws aid in providing uniform deflection of these strip portions. Continuous tension tends to advance the strip, and escapement fingers control strip indexing. A ram assembly, operable after indexing to directly insert the terminal, includes selected gripping inserts cooperable with differently sized terminals. An anvil assembly cooperates with a sensor and an indicator to insure correct substrate orientation relative to the ram assembly.

3,837,064
METHOD AND A DEVICE FOR INTRODUCING INNER TUBES INTO PNEUMATIC TYRES

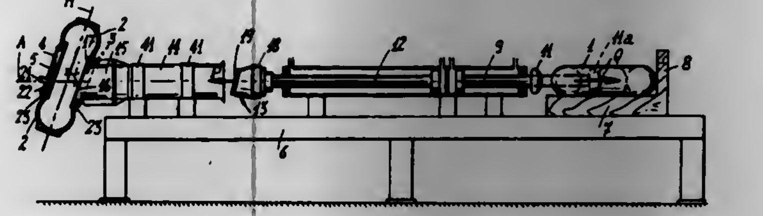
Bernard Alfred Georges Membre, Maubeuge, and Daniel Eugene Joseph Modeste Clairet, Rousies, both of France, assignors to Boussois S.A., Paris, France

Filed May 7, 1973, Ser. No. 357,720

Claims priority, application France, May 25, 1972, 72.18648; Mar. 22, 1973, 73.10274

Int. Cl. B23p *19/02, 11/02*

U.S. Cl. 29—235 **15 Claims**



A method and device for introducing inner tubes which are inflated to a predetermined pressure into tyres, and especially inner tubes of the so-called "puncture-proof" type.

The inner tube is deformed so that the two opposite faces of its inner wall are substantially in contact and is then introduced into an ovalized guide tube terminating in a funnel having an obliquely oriented circular orifice. The orifice is introduced into the opening of the tyre and the inner tube is thrust into the tyre by the ram of a jack. The inner tube is prevented from escaping by virtue of a deflector which is placed in the opposite opening of the tyre.

3,837,065
METHOD OF SEMI-AUTOMATIC ENCAPSULATION AND A SEMI-AUTOMATIC ENCAPSULATING APPARATUS

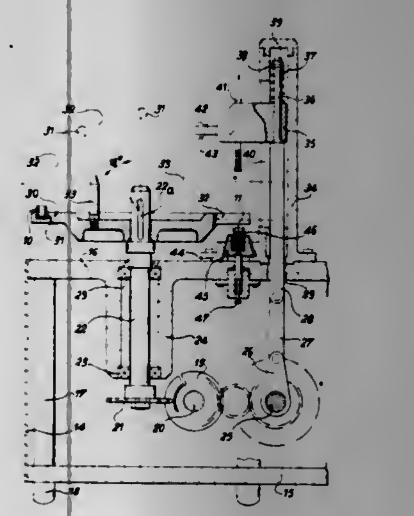
Lucien Abbe, Issy Les Moultneaux; Jean Michel Eschbach, Enghten Les Bains; Roland Letang, Chennevieres sur Marne, and Charles Sachs, Paris, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Oct. 31, 1972, Ser. No. 302,491

Claims priority, application France, Nov. 18, 1971, 71.41286

Int. Cl. B23p *11/00, 19/00*

U.S. Cl. 29—429 **10 Claims**



A first circular turntable is provided with recesses for accommodating ten vessels to be encapsulated and with peripheral slots, the slots and recesses being uniformly spaced in alternate sequence. A slide containing a pellet-loading magazine is placed beneath the edge of the turntable in vertical alignment with a sucking tube carried by a supporting-arm which is driven in reciprocating motion.

The sucking tube is moved downwards to its bottom position and draws a pellet upwards from the magazine through a slot. At the same time, the turntable is caused to rotate through an angular interval of 18°, the tube returns downwards the suction is cut-off and the pellet drops into the corresponding vessel.

After one complete revolution, a second turntable provided with holes in which are placed ten deflecting spacer screens is placed on the first turntable and locked in position. By rotating an annular diaphragm having corresponding holes, the ten screens are released and fall into the ten vessels of the first turntable, said vessels being finally sealed by end-caps.

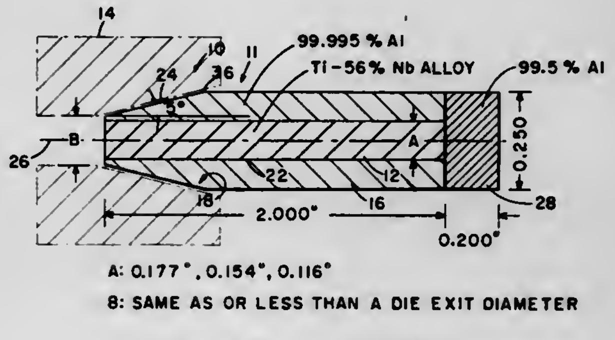
3,837,066
METHOD OF EXTRUDING ALUMINUM COATED NB-TI

Masahiro Mori, Allentown; Walter C. Hahn, Pleasant Valley, and Betzalel Avitzur, Allentown, all of Pa., assignors to The United States of America as represented by the Atomic Energy Commission, Washington, D.C.

Filed Feb. 14, 1973, Ser. No. 332,441

Int. Cl. H01v *11/00;* **B21c** *23/22*

U.S. Cl. 29—599 **4 Claims**



ASSEMBLED BILLET CONFIGURATION

This invention provides a billet and a method for shaping the same for the production of composite superconductor wire composed of at least one high yield strength superconductor core surrounded by a low yield strength matrix material that is uniformly clad on and around and bonded to the core for use in magnets and the like. In one actual billet, which has a core to sleeve yield strength ratio of about 7–1, the billet has a core-to-sleeve diameter ratio of between about 0.4 and 0.9 and a nose cone semi-angle of 5° for extrusion through a die semi-angle of 5° for area reductions of 39 to 65 percent. This billet comprises an aluminum clad niobium-titanium core with ratios of core area to sleeve area ranging from 27.5 to 100.2 percent. The billet according to the method of this invention, is extruded without fabrication damage and/or annealing to produce a uniform bond between the superconductor core and the matrix.

3,837,067
METHOD OF MAKING INTEGRATED CIRCUIT PACKAGE

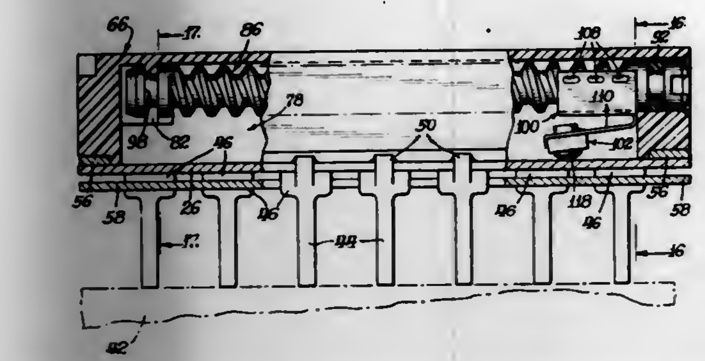
Samuel A. Johnston, Fontana; John G. Lyons, Jamesville, and Henry J. Riedmayer, Fort Atkinson, all of Wis., assignors to The Bunker-Ramo Corporation, Oak Brook, Ill.

Division of Ser. No. 211,655, Dec. 23, 1971, Pat. No. 3,784,948. This application Feb. 20, 1973, Ser. No. 333,562

Int. Cl. H01c *1/02, 11/00*

U.S. Cl. 29—613 **7 Claims**

An integrated circuit-type package including a ceramic substrate having conductive and resistive paths, including both variable and fixed resistances, a pair of terminal strips each having a plurality of terminal elements being secured to the substrate on opposite sides thereof by clinching and soldering in electrical engagement with respective ones of the paths and forming a unitary, rigid and mechanically strong assembly with in-line pin elements. Flat bonding elements are applied to opposite surfaces of the substrate enclosing the clinching elements. A case having a hollow interior containing a lead screw



and a contact carrier is adhered to the substrate by the application of heat and pressure, which also cause the bonding members to flow around and embed the clinching elements.

3,837,068

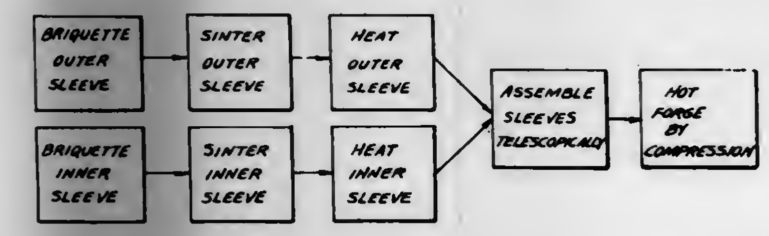
METHOD OF MAKING A COMPOSITE HIGH-STRENGTH SLEEVE

William M. Dunn, Farmington, Mich., assignor to Federal-Mogul Corporation, Southfield, Mich.

Division of Ser. No. 152,862, June 14, 1971, Pat. No. 3,762,881. This application Aug. 3, 1972, Ser. No. 277,820The portion of the term of this patent subsequent to May 30, 1989, has been disclaimed.

Int. Cl. B22f *3/24*

U.S. Cl. 29—420.5 **2 Claims**



A composite high-strength machine element such as a sleeve (FIG. 6) consists of a heavy load bearing or working portion composed of sintered powdered high-performance alloy and a supporting portion which undergoes less concentrated or intense loads is made of a base metal such as sintered powdered iron. Where the outer portion of the sleeve is the heavy load bearing portion (FIG. 1) and the inner sleeve is the lower-stressed portion (FIG. 2) the outer portion is provided with an internal taper while the inner portion is provided with a matching external taper. The two portions are separately formed from powdered metal by suitable dies in standard briquetting presses and are then sintered at temperatures from 2,100° to 2,150° F. (FIG. 5). After sintering, the two portions are maintained at or brought up to forging temperatures from 1,500° to 2,100° F. and forged by forcing them together in a hot-forging press (FIG. 3), thereby producing the composite high-strength machine element shown in FIG. 4, with the outer and inner portions firmly and inseparably forged into union with one another. The densities of the two powdered metal components are converted, from approximately 75 percent after briquetting, to 98 percent or more after being united by the hot-forging operation. Photomicrographs of sections of such composite machine elements (FIG. 7), after subsequent carburizing and hardening heat treatment, show an excellent interlock resulting from a migration of the metals into one another at the tapered joint. Torsion tests (FIGS. 8 and 9) performed on test specimens cut longitudinally from these composite machine elements at the tapered joint between the two forged components show adequate strengths without failure along the junction surfaces. These strengths compare favorable with the strengths of similar single solid metal specimens.

A modification (FIG. 6) differs from the foregoing form of the invention by employing slightly different converging tapers in the outer and inner components otherwise follows the same procedure set forth above, resulting in a similarly excellent interlock by migration of the metals at the interface, as also shown by photomicrographs (FIG. 10).

3,837,069

METHOD OF SECURING FITTINGS OR PLATES ONTO CONTAINERS OR CONTAINER PORTIONS AND A MACHINE FOR CARRYING OUT THE METHOD

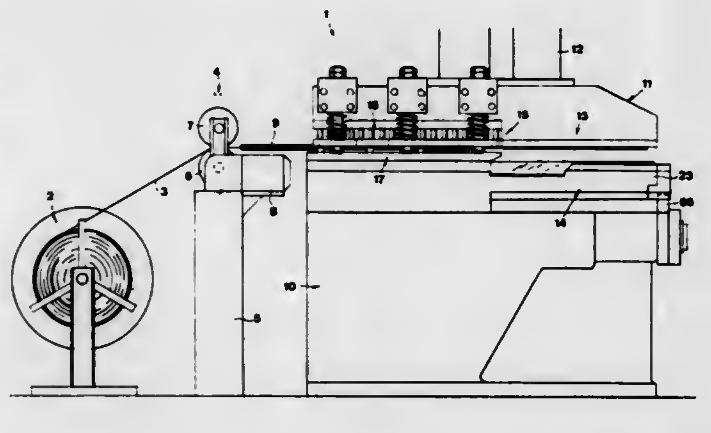
Hans Elov Nordgren, Pl 4322, S-828 00, Edsbyn, Sweden

Filed Nov. 1, 1972, Ser. No. 302,778

Claims priority, application Sweden, Nov. 12, 1971, 14493/71

Int. Cl. B23p *11/00, 19/04*

U.S. Cl. 29—432.1 **30 Claims**



A method and machine for applying securing fittings or plates onto container and container components wherein the plates are formed from a continuous strip of stock by first stamping the strip with the necessary securing tabs, severing the completed fittings or plates from the strip and immediately thereafter directly applying the fittings or plates to the container or container components.

3,837,070

AUTOMATIC TOOL CHANGE APPARATUS

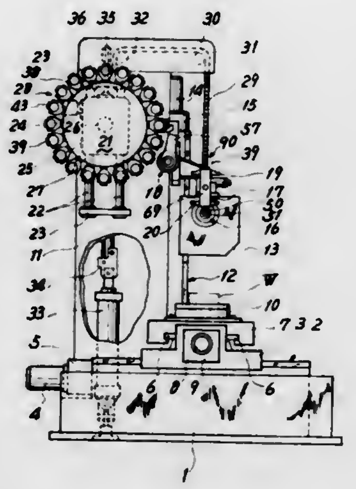
Yoshiki Ochiai, Okazaki, and Kazuhiro Sakane, Kariya, both of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Aichi-ken, Japan

Filed Oct. 6, 1972, Ser. No. 295,738

Claims priority, application Japan, Oct. 6, 1971, 46-78582

Int. Cl. B23q *3/157*

U.S. Cl. 29—568 **7 Claims**



An automatic tool change apparatus is provided for a numerically controlled machine tool including a tool holder stored in a tool magazine and being transferable together with a tool sleeve which prevents dust in the atmosphere from becoming attached to the shank portion thereof, so as to assure a snug engagement between the tool holder and a tool spindle, and therefore to obtain a high degree of machining accuracy. The tool sleeve is loaded onto the tool magazine by a sub-transfer arm by moving the same radially of the tool magazine, and then axially of the tool sleeve.

3,837,071

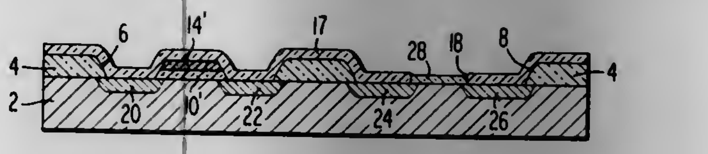
METHOD OF SIMULTANEOUSLY MAKING A SIGFET AND A MOSFET

Ram Shaul Ronen, Kendall Park, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 16, 1973, Ser. No. 324,180

Int. Cl. B01j *17/00*

U.S. Cl. 29—571 **8 Claims**



A method comprising providing a gate electrode layer of polycrystalline silicon for a SIGFET, depositing a layer of silicon dioxide doped with an impurity of opposite conductivity type on the gate electrode layer and on the surface of the single crystal layer except where the channel of a MOSFET is to be located, diffusing dopant from the doped oxide layer into the gate electrode layer, and into the single crystal layer to form source and drain regions of the transistors, depositing a layer of gate insulating material on the channel region of the MOSFET, and depositing metal on the source and drain regions and on the gates of both transistors.

3,837,072

METHOD OF MANUFACTURING A COHERENT ROEBEL BAR COIL

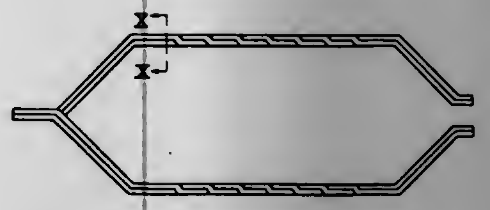
Lennart Moberg, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Nov. 21, 1973, Ser. No. 417,973

Claims priority, application Sweden, Dec. 8, 1972, 16005/72

Int. Cl. H02k *15/00*

U.S. Cl. 29—596 **1 Claim**



A one-turn stator coil for arrangement in winding slots of a rotary a.c. machine, in which the coil sides are made in the form of roebel bars, is produced by forming two hair-pin shaped bundles of strand loops, with the strand loop ends in each bundle having different radii of curvature, displacing the strand loop ends of each bundle longitudinally, with the loop end of smallest radius of curvature in one bundle facing the other strand loop ends in that bundle with its convex surface, and with the smallest strand loop end in the other bundle facing in the direction of the loop ends of the bundle with its concave surface, bending both bundles at the same distance from the nearest strand loop end to form sidewise-bent portions in all the strand loops, pushing together the curved strand loop ends of both bundles in the longitudinal direction to their original position, transposing the strands in each of the bundles successively to form a roebel bar strand disc, interfitting the two roebel bar strand discs and spreading the shanks of the resulting hairpin-shaped body to form a coil.

3,837,073

METHODS OF MANUFACTURING MAGNETIC TRANSDUCING HEADS

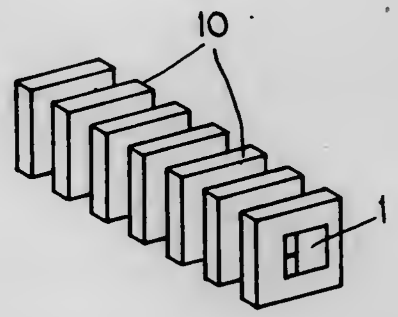
Derek Frank Case, Sunbury-on-Thames, England, assignor to International Computers Limited, London, England

Filed June 5, 1973, Ser. No. 367,303

Claims priority, application Great Britain, June 6, 1972, 26230/72

Int. Cl. G11b *5/42*

U.S. Cl. 29—603 **8 Claims**



A method of manufacturing a component of a magnetic transducing head is disclosed in which ferrite strips are spaced apart by a non-magnetic gap and are then surrounded by a non-magnetic material. The resulting structure is divided into slices each of which contains a pair of ferrite portions with a predetermined gap between them. The slice may be profiled on one face for co-operation with a record disc and a yoke secured to the other face to complete the magnetic circuit.

3,837,074

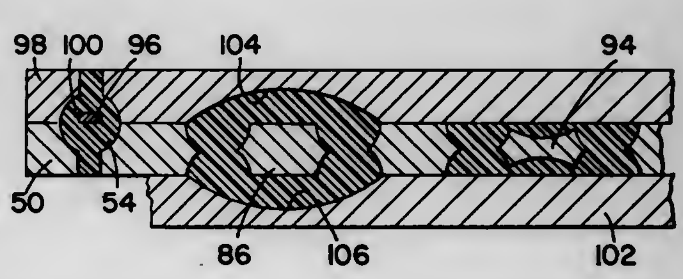
COAXIAL INTERCONNECTIONS

William Griff, Tarzana, Calif., assignor to The Bunker-Ramo Corporation, Oak Brook, Ill.

Continuation of Ser. No. 753,263, Aug. 16, 1968, abandoned. This application July 8, 1970, Ser. No. 56,159

Int. Cl. H01b *13/00;* **H05k** *3/00*

U.S. Cl. 29—624 **3 Claims**



A structure and fabrication method therefor for supporting and interconnecting electrical circuit components. The structure defines electrically conductive paths between and electrically isolated from conductive planar members by embedment in an elastomeric dielectric comprising a preblended mixture of a thermosetting resin such as an epoxy and not more than 20 percent by weight of a thermoplastic resin such as a polyamide. The structure is fabricated by removing material from a conductive planar member to form a recess extending into said planar member, placing a sheet of said dielectric adjacent the recessed surface and filling said recess with said dielectric by applying heat and pressure to said sheet.

3,837,075

MOTOR OPERATED CAN OPENER

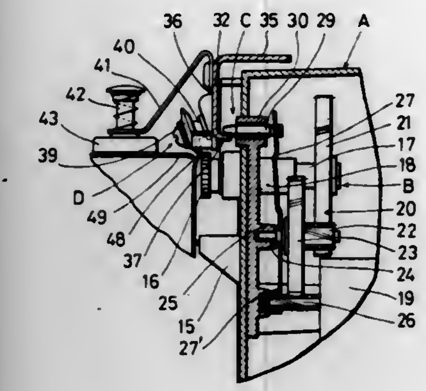
Osamu Yamamoto, Nagoya, Japan, assignor to Kabushikikaisha Aichidenkikasakusho, Kasugia-shi, Aichi-ken, Japan

Filed May 21, 1973, Ser. No. 362,224

Int. Cl. B67b *7/38*

U.S. Cl. 30—4 R **6 Claims**

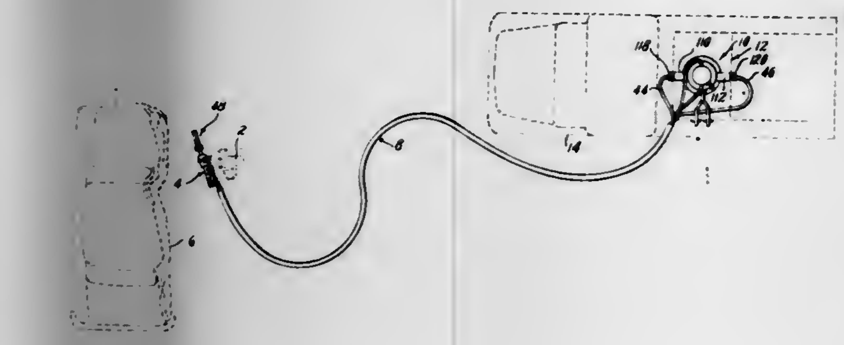
A reduction gearing relating an electric motor for driving a feed wheel and a driving shaft carrying the feed wheel includes helical gears at least one of which is adapted to be displaced axially by the thrusting force resulting from the reaction force of the can opening operation. This thrusting helical gear is either mounted tightly on a thrusting shaft for movement of the gear with the shaft or alternatively, the helical gear may be mounted loosely for thrusting movement on a shaft adapted not to thrust. A resilient interconnecting member is actuated by the thrusting movement of the helical gear and makes a latching piece engage a pivoted hand lever carrying a rotary cutter, thereby maintaining the hand lever in the lowered or can severing position. The disappearance of the reaction force results in the disengagement between the hand lever and the latching piece and the displaced helical gear is returned by the restoring force of the resilient interconnecting member.



3,837,076
POWER OPERATED PORTABLE SHEAR DEVICE

Lewis B. Good, Jr., 145 Johnson, East Peoria, Ill. 61611

Filed Sept. 14, 1972, Ser. No. 289,115
Int. Cl. B26b *15/00, 17/00;* **B25f** *3/00*
U.S. Cl. 30—180 **15 Claims**

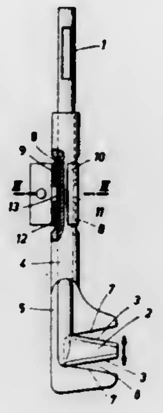


A portable cutter unit is operated by fluid pressure from a pump, such as the water pump on a fire engine. An intensifier unit is connected between the pump and the cutter unit, and functions to generate relatively high operating fluid pressure from the relatively low fluid pressure produced by the pump to operate the cutter unit, the intensifier unit including a pilot valve operable from the portable cutter unit. The cutter unit includes interchangeable scissors-type and anvil and blade-type heads, for use in cutting light and heavier materials, respectively.

3,837,077
SHEARS FOR CUTTING A FILLING THREAD IN A WEAVING MACHINE

Claus Filter, Rethem, Aller, Germany, assignor to Vereinigte Osterreichische Eisenund Stahlwerke-Alpine Montan Aktiengesellschaft, Vienna, Austria and Establissement Wanderfield, Schaan, Liechtenstein

Filed Sept. 7, 1973, Ser. No. 395,299
Claims priority, application Austria, Sept. 18, 1972, 7969/72
Int. Cl. B26d *1/02*
U.S. Cl. 30—231 **2 Claims**

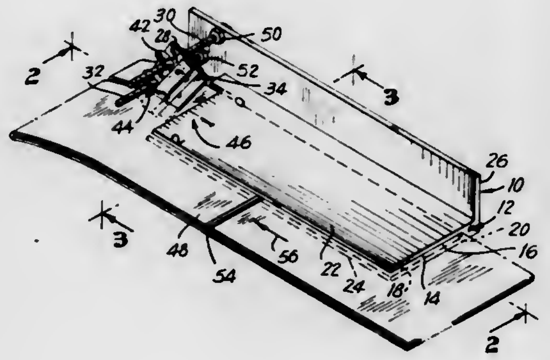


A stationary carrier is formed with a mouth defined by two spaced apart stationary cutting edges. The carrier has a sleevelike portion. A circular cylindrical rod has an angled end portion which constitutes a shear blade extending between said stationary cutting edges and having two cutting edges which are disposed on opposite sides of said blade and face respective ones of said stationary cutting edges. The rod is formed with a flat and extends in and is guided by said sleevelike portion and is reciprocable to cause said cutting edges of said blade to cooperate with said stationary cutting edges. A stationary leaf spring bears on said flat and tends to hold said rod in such an angular position that said blade crosses said stationary cutting edges.

3,837,078
WALLPAPER TRIMMER

Adolf Weppner, 5 Arcadia Dr., New City, N.Y. 10956

Filed Mar. 9, 1973, Ser. No. 339,731
Int. Cl. B26b *3/08*
U.S. Cl. 30—293 **1 Claim**

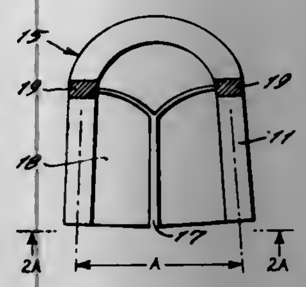


A wallpaper trimmer is disclosed as including a wallpaper slot and a blade holder disposed relative to the slot such that an inserted blade will trim the edge of untrimmed wallpaper thus replacing the presently used hand trimming and straight edge operation.

3,837,079
EXPANDABLE DENTURES

Vincent J. Cecero, 481 Richmond Ave., Staten Island, N.Y. 10302

Filed Nov. 6, 1973, Ser. No. 413,343
Int. Cl. A61c *13/00*
U.S. Cl. 32—2 **1 Claim**

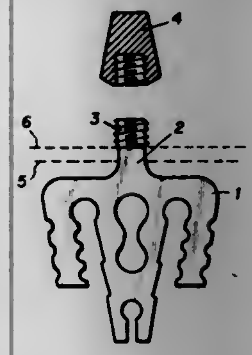


An improved set of upper and lower dentures which are expandable, so that upon a slight pressure, when the dentures are compressed in the mouth, there is a greater holding power for retaining the dentures properly in place.

3,837,080
ARTIFICIAL ALLOPLASTIC ROOTS, FOR SUPPORTING AND RETAINING DENTURES

Ugo Pasqualini, Via Borgonuova 26, Milan, Italy

Filed June 13, 1973, Ser. No. 369,764
Int. Cl. A61c *13/00*
U.S. Cl. 32—10 **3 Claims**



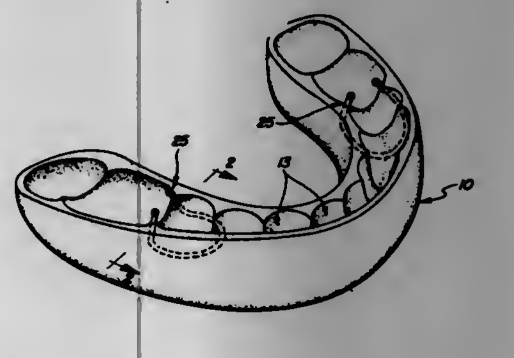
An improved alloplastic root comprising an endo-osteal portion and a very short tail having a threaded free end and comprising too a stump formed with a threaded blind hole which can be screwed onto said threaded end.

The stump, extending into the mouth cavity, is screwed onto said threaded end only after having implanted the endo-osteal portion of alloplastic root and after a complete ossification thereof.

3,837,081
PREFORMED TOOTH POSITIONING AND RETAINING APPLIANCE

Peter C. Kesling, Geen Acres, La Porte, Ind. 46350

Filed July 2, 1973, Ser. No. 375,343
Int. Cl. A61c *7/00*
U.S. Cl. 32—14 B **5 Claims**

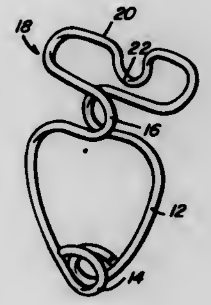


A tooth positioning and retaining appliance which is preformed and includes a molded arch-shaped body of resilient material having upper and lower archways to receive upper and lower arches of a person. Each archway includes a plurality of tooth sockets arranged in ideal arch relationship and preselected positions to urge the teeth received thereby into the preselected positions. Retention means in the form of relatively rigid projections are anchored in at least one of the arches for engagement in the embrasure or interproximal areas of the teeth to assist in orienting and retaining the appliance in position.

3,837,082
DE IMPACTOR DEVICE

Horace E. Pool, 406 W. 26th St., North Little Rock, Ark. 72114

Filed Aug. 13, 1973, Ser. No. 387,652
Int. Cl. A61c *7/00*
U.S. Cl. 32—64 **9 Claims**

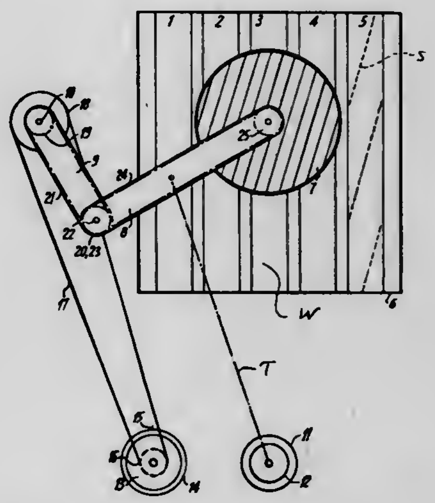


Spring wire devices inserted between maxillary and mandibular molars for separating impacted molars by crimping an activating loop portion of the device projecting at an angle to separating arms inserted between the teeth. The separating arms are interconnected with the activating loop by deflector formations adapted to bridge the space between the teeth and retain the device in place until removed.

3,837,083
CHRONOCOMPARATOR DIAGRAM READER

Jean-Pierre Bonny, La Chaux de Fonds, Switzerland, assignor to Portescap, La Chaux de Fonds, Switzerland

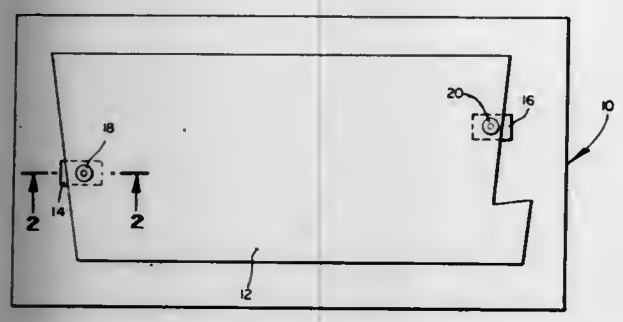
Filed June 14, 1972, Ser. No. 262,610
Claims priority, application Switzerland, June 16, 1971, 8767/71
Int. Cl. G06g *9/00, 11/00*
U.S. Cl. 33—1 C **7 Claims**



A device for reading chromocomparator diagrams recorded on a base web in a plurality of parallel strips has first and second pivotally interconnected arms, with the first arm pivotally mounted for rotation about a fixed pivot point, and a reticulated transparent reading disk rotatably mounted on the second arm. A transmission system of cables and pulleys operatively interconnect a control knob with the reticulated disk to permit angular adjustment of the disk with respect to a diagram positioned adjacent the disk, independently of the position of the first and second mounting arms.

3,837,084
PATTERN ADJUSTMENT

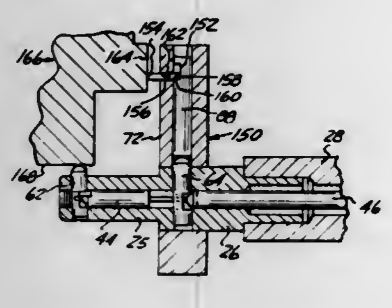
Betty Johnson, 1928 Annin St., Philadelphia, Pa. 19145
Filed Mar. 2, 1973, Ser. No. 337,529
Int. Cl. A41h *43/00*
U.S. Cl. 33—17 R **1 Claim**



A ferrous metal weight and a magnetic plate are placed on opposite sides of a thin sheet of paper, forming a pattern. They are juxtaposed so that they are attracted to one another and grip the pattern. When laid out upon a cloth, the weight and plate position the pattern with respect to the cloth to be cut. A plurality of such weights and plates are used to hold the pattern in position.

3,837,085
RANGE-EXTENSION DEVICE FOR DOUBLE-PROBE HOLE-LOCATION AND CONCENTRICITY GAUGE

Garf L. Dunn, Farmington, Mich., assignor to Zero Gage Company, Detroit, Mich.
Filed Dec. 13, 1971, Ser. No. 207,330
Int. Cl. G01b *5/00, 5/24*
U.S. Cl. 33—174 Q **1 Claim**

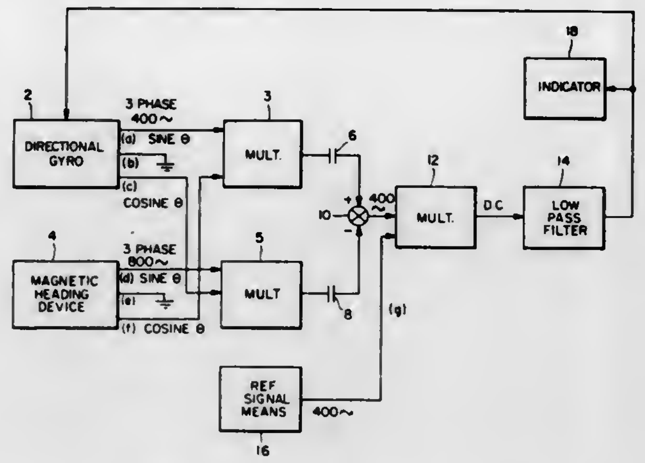


This device extends the range of measurement to bores or surfaces incapable of being reached or measured by the gauge disclosed and claimed in U.S. Pat. No. 3,732,624, issued May 15, 1973 on the co-pending application of Andrew Eisele, Ser. No. 191,041, filed Oct. 20, 1971 for Double-Probe Hole-Location and Concentricity-Measuring Spindle for Dial Indicator Gauge. The latter, briefly described, consists of a hollow shaft or barrel with an external pilot surface adapted to be fitted into the reference bore of a gauge-holding fixture, and with two axially-spaced parallel transverse bores containing transversely slidable probes alternately connectible to a longitudinal motion-transmitting rod, the rearward end of which operatively engages the plunger of a dial indicator carried by a rotatable holder mounted on the hollow shaft.

3,837,086
COMPASS COUPLER

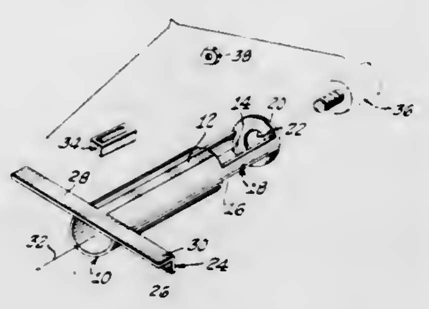
Robert L. James, Bloomfield, N.J., assignor to The Bendix Corporation, Teterboro, N.J.
Filed Aug. 31, 1972, Ser. No. 285,266
Int. Cl. G01c *17/38*
U.S. Cl. 33—317 D **8 Claims**

Apparatus for comparing heading angle information provided by a directional gyro with that provided by a magnetic heading device (compass), and providing a bipolar d.c. error signal corresponding to the long time average difference therebetween. The error signal may be used to drive an indicating device or to torque the gyro until the heading error is washed out.



3,837,087
WHEEL ALIGNMENT TOOL

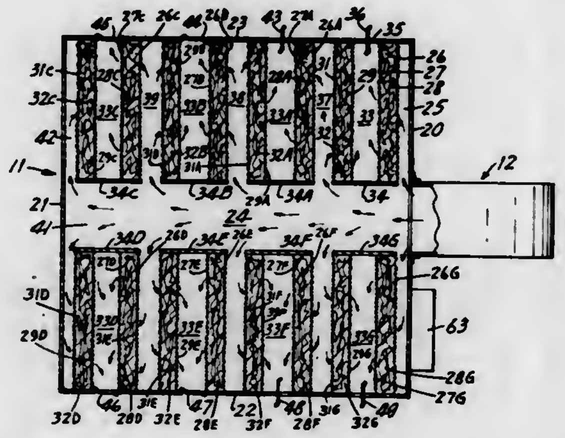
Albert E. Dennis, Box 220 A, McGee Circle, Denmark, S.C. 29042
Filed Dec. 10, 1969, Ser. No. 883,823
Int. Cl. G01b *19/295*
U.S. Cl. 33—337 **1 Claim**



A tubular member having a collar at one end for attachment to the spindle of a vehicle wheel and having a cross angle at the end opposite the collar. The tubular member and angle have a flat upper surface for receiving a conventional spirit level to determine camber and caster, respectively.

3,837,088
SEQUENCE BATCH DRYER

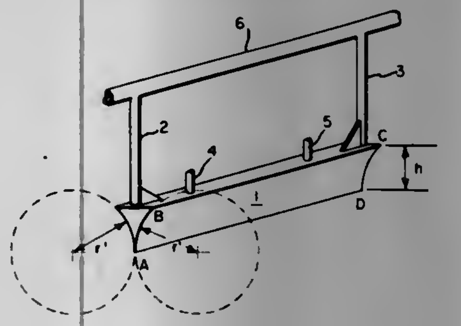
Lowell J. Lenz, c/o John Lenz & Sons, Inc., New Highway 29 N., Alexandria, Minn. 56308
Filed Jan. 15, 1973, Ser. No. 323,915
Int. Cl. F26b *3/04, 21/00*
U.S. Cl. 34—54 **29 Claims**



A method and apparatus operable to dry particulate material, as corn, small grains, beans, rice, nuts and seeds, having a housing enclosing a plurality of separate columns of particulate material. Hot air directed to the columns sequentially flows through the particulate material in each column. Exhaust passages associated with separate columns have dampers to selectively permit the flow of air through a passage and block the flow of air through the passage to allow sequential flow of air through the columns. Located above the columns is a wet grain holding section for discharging particulate material into the columns. A dry grain holding section is located below the columns for receiving dried particulate material from the columns. Movable doors control the flow of particulate material into and out of the columns.

3,837,089
FILLER PIECE FOR DOUBLE DRUM DRIER

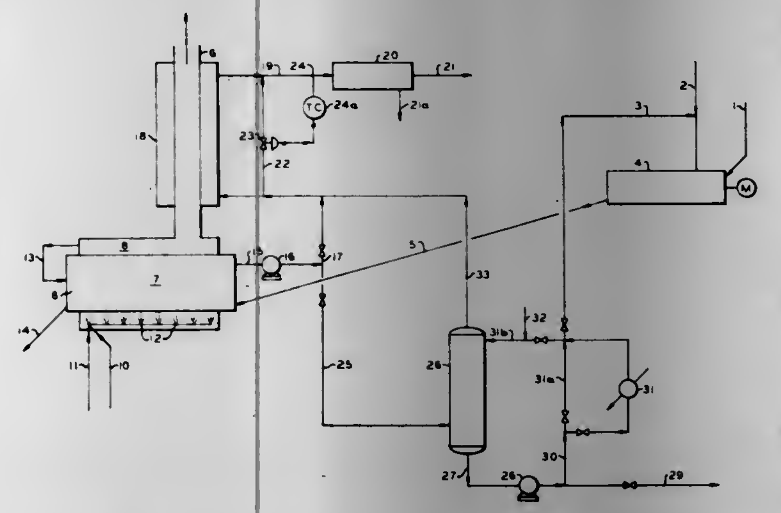
Henry Embry Peterson, Beaumont, Tex., assignor to E.I. du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 19, 1973, Ser. No. 426,030
Int. Cl. F26b *7/00*
U.S. Cl. 34—17 **7 Claims**



A substantially prismatic filler piece having two concave arcuate side surfaces and located in the nip of a double-drum drier increases the rate of recovery of dry chlorosulfonated polyethylene from its solutions by about 10–40 percent. The filler piece should preferably occupy 40–60 volume percent of the nip. The radii of curvature of the side surfaces are the same as or larger than the radii of the drums.

3,837,090
PROCESSING HEATED, MOISTURE LADEN GAS CONTAINING PARTICULATE MATTER

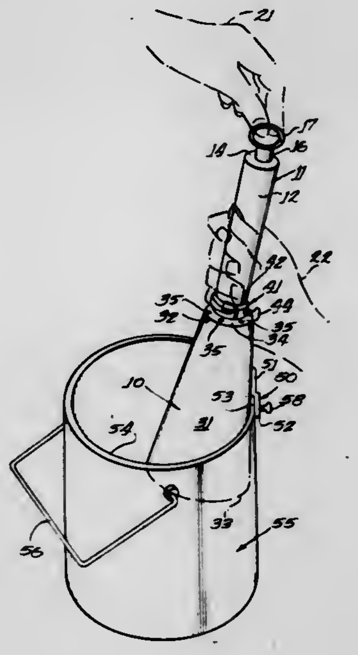
Eulas W. Henderson, Toledo, Ohio, assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Nov. 20, 1972, Ser. No. 307,775
Int. Cl. F26b *3/32*
U.S. Cl. 34—40 **5 Claims**



A method and apparatus are provided for reducing the temperature of a heated, moisture laden gas containing particulate matter to condense at least a part of the moisture content from the stream and thereafter sufficiently increasing the temperature of the stream so that particulate matter can be filtered from the stream without further condensation of moisture. In one embodiment off-gas from a carbon black pellet dryer is treated to condense and remove moisture and thereafter subjected to indirect heat exchange with pellet dryer stack gases to raise the temperature of the off-gas sufficiently to permit filtering of particulate matter from the off-gas without further condensation of moisture.

3,837,091
PAINT SPINNER SPRAY GUARD

Warns E. Meyer, 12 E. Crystal Lake Ave., Crystal Lake, Ill. 60014
Filed Aug. 24, 1973, Ser. No. 391,140
Int. Cl. B08b *11/02*
U.S. Cl. 34—58 **9 Claims**

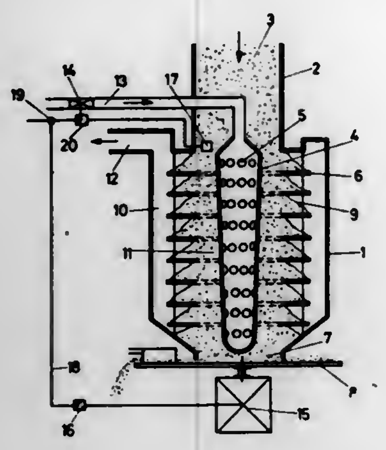


A spray guard device intended for utilization with a conventional paint roller and paint brush spinning and cleaning device consisting of an elongated frusto-conical open ended shell having the smaller end adapted to be positioned about the front end portion of the spinner body with the major portion of the shell extending axially forwardly of the spinner body in a manner to overlap and completely surround the item to be spun cleaned thereby, and further provided with a bracket on the exterior of the sheel for detachably attaching the shell in a manner projecting within a container for receiving the spray collected on the interior of the shell in the container. A modification thereof provides that the shell is formed of a skeleton frame structure adapted to support thereover disposable covers for receiving the spray spun off the item being spun cleaned by the spinning cleaning device.

3,837,092
APPARATUS FOR COOLING OR DRYING POURABLE MATERIAL

Otto Fritz Mayer, Schaffhausen, Switzerland, assignor to Georg Fischer Aktiengesellschaft, Schaffhausen, Switzerland
Filed Apr. 30, 1973, Ser. No. 355,664
Claims priority, application Switzerland, May 1, 1972, 6474/72
Int. Cl. F26b *17/12*
U.S. Cl. 34—168 **16 Claims**

Pourable material is introduced into the upper end of a tank and moves downwardly about a centrally arranged feed pipe perforated along its length for introducing a gaseous medium into the material, and the material is removed from the bottom of the tank. Horizontally arranged, vertically spaced ring discs are located outwardly from the feed pipe and inwardly from the tank so that the downwardly moving pourable material enters between adjacent ring discs and forms a frusto-conically shaped layer of material. By varying the cross sectional size of the openings in the feed pipe and/or varying the size and/or spacing of the ring discs the treatment of the pourable material by the gaseous medium can be varied.



3,837,093
APPARATUS FOR THE DETERMINATION OF THE QUALITY OF A PUPIL'S RESPONSE

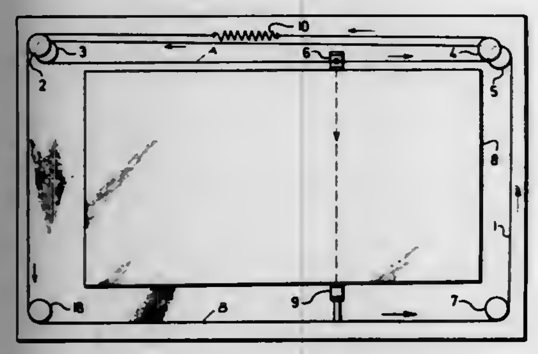
Richard Sykora, Prague, Czechoslovakia, assignor to Ceske vysoke uceni technicke v Praze, Praha, Czechoslovakia

Filed May 25, 1973, Ser. No. 364,139

Claims priority, application Czechoslovakia, May 25, 1972, 3959-72

Int. Cl. G09b *7/04*

U.S. Cl. 35—9 A **5 Claims**



Apparatus for the determination of the quality of a pupil's response in an automatic teaching machine with a slide projector. The apparatus comprises a horizontal scanning coordinate system and a vertical coordinate scanning system on each of which there is a movable lamp and a corresponding movable phototransistor and a focussing screen provided with contacts which control the drive of both said systems.

3,837,094
WAVE GENERATING APPARATUS FOR STUDY OF WAVE PHENOMENA

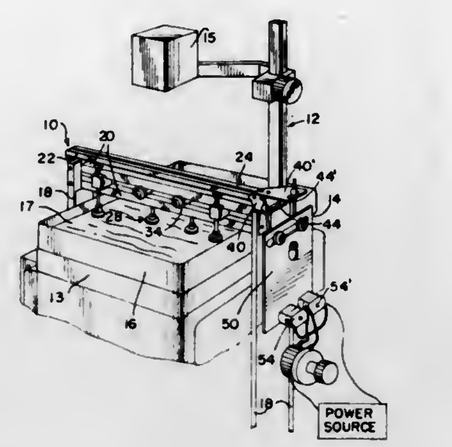
Henry E. Mazurek, Glen Ellyn, Ill., assignor to Cenco Incorporated, Chicago, Ill.

Filed Jan. 15, 1973, Ser. No. 323,646

Int. Cl. G09b *23/12*

U.S. Cl. 35—19 R **12 Claims**

A wave generating apparatus particularly adapted for use in studying wave phenomena having a plurality of wave source means mounted above a ripple tank and reciprocated vertically by a pair of pivotally mounted parallel rocker arm means to produce waves in the surface of the fluid in the ripple tank. The means driving the rocker arms are adjustable with respect to the rocker arms to vary the amplitude of the waves produced and may be regulated by control means in electrical communication with them to vary the frequency and phase of the waves produced. The bottom of the ripple tank is sloped upwardly from its center to effectively damp the waves in at least one direction. The wave generator and ripple tank may be used in combination with an overhead projector or an overhead light source so that images of the waves produced are projected upon an easily visible plane surface.



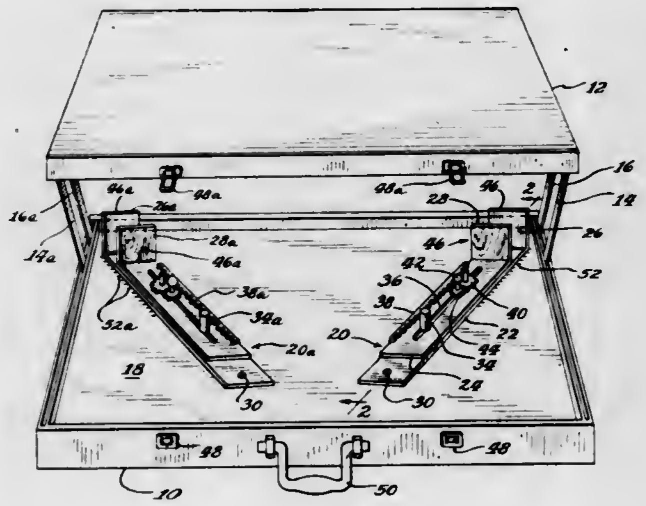
3,837,095
PERCEPTUAL MEASURING APPARATUS AND METHOD

Eugene F. O'Hara, Chicago, Ill., assignor to Management Programs, Inc., Glen Ellyn, Ill.

Filed July 20, 1973, Ser. No. 381,143

Int. Cl. G09b *19/00*

U.S. Cl. 35—22 R **6 Claims**



Apparatus for measuring a subject's sensory perception wherein a test board which is screenable from the subject's view is provided with two pairs of selectively spaceable sensor plates to be grasped by the subject's respective hands and procedure for manipulating such plates to ascertain the subject's sensory ability to match spacings between the respective pairs of sensor plates.

3,837,096
MATH BOARD

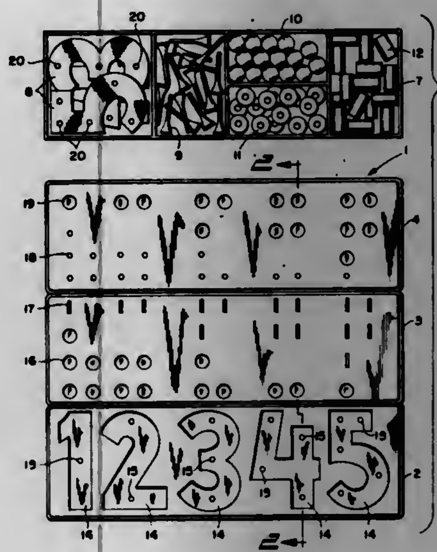
Alice W. Sterling, P.O. Box 546-B, Rt. 2, Huntersville, N.C. 28078

Filed Feb. 12, 1973, Ser. No. 331,833

Int. Cl. G09b *19/02*

U.S. Cl. 35—31 D **7 Claims**

A math board for children of ages 2-7 having indentations of different colors to receive correspondingly colored Arabic numerals and having groups of indentations to receive correspondingly colored sets of marbles, golf tees, washers, and dowels, the numeral indentations further having golf tee indentations corresponding in number to the respective numerals, and the numerals having perforations therethrough registering with the golf tee indentations in the numerals. The math board herein is further characterized in that it comprises hinged together panels for folding to a size corresponding to the size of the compartmentalized tray in which the respective numerals, marbles, golf tees, washers and dowels are stored.



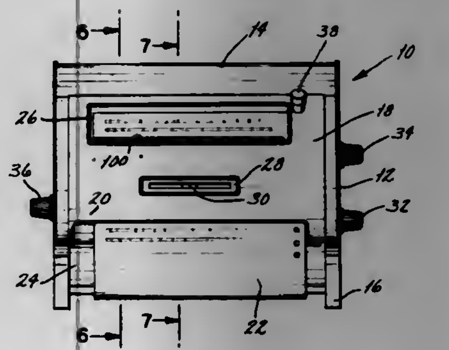
3,837,097
READING TRAINER

Russell H. Dymond, St. Louis, Mo., assignor to Reading and Training Systems, Inc., St. Louis, Mo.

Filed Mar. 23, 1973, Ser. No. 344,365

Int. Cl. G09b *17/04*; **B41j** *13/03*

U.S. Cl. 35—35 B **5 Claims**



An automated reading trainer having provisions for manual or automatic feed. The trainer is in the form of a housing having a front opening for receiving a printed sheet of material with chute means for returning the paper after being fed to the machine through the front thereof. The trainer has a specially designed on and off switch mechanism which causes the engagement of sheet feed means with motor driven means to automatically feed the paper through the machine. The switch in the off position disengages the feed mechanism and permits manual movement of feed rollers to advance the printed sheet at desired speed or to rest the sheet within a viewing aperture. The machine has an aperture or viewing shutter in the form of a plate having a simple handle flange whereby the shutter can be manually moved to expose or narrow the viewing opening to view selected portions of the sheet within the viewing aperture.

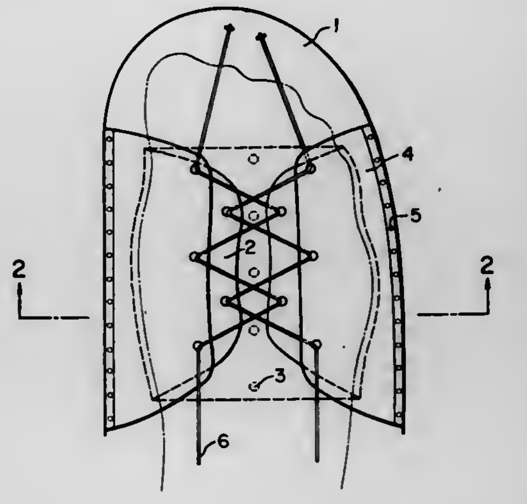
3,837,098
CROSSED DOUBLE LAYER SHOE UPPER

Richard K. Rathmell, Ramsey, N.J.

Filed Dec. 21, 1972, Ser. No. 317,285

Int. Cl. A43b *00/00*

U.S. Cl. 36—2.5 AL **8 Claims**



A shoe with double uppers crossed in tension across the foot, with the inside upper attached to the sole under the foot and the outside upper attached to the wide part of the sole not under the foot.

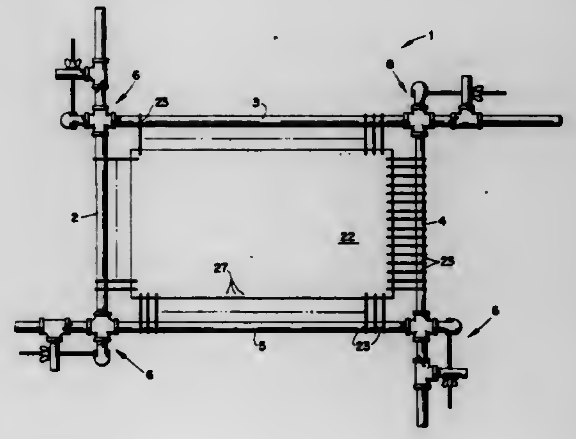
3,837,099
PRECISION NEEDLE-POINT BLOCKER

Charles Rayburn Moffitt, 914 Jefferson St., and Ralph Warren Dalton, 320 Minerva Pl., both of Paducah, Ky. 42001

Filed Jan. 17, 1974, Ser. No. 434,203

Int. Cl. D06c *3/08*

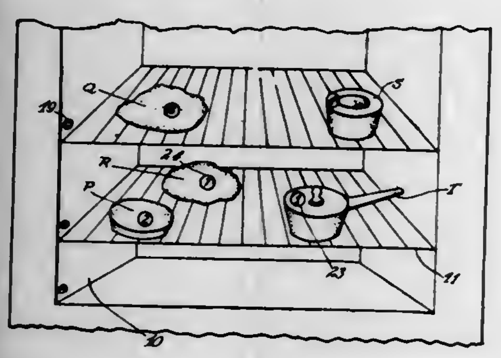
U.S. Cl. 38—102.5 **7 Claims**



A precisionally adjustable device for blocking needle-point which is adjustable to the size of the needle-point, which device comprises a quadrilateral frame, preferably of tubular construction, wherein adjacent sides of the frame are joined at a common corner, each of the corners being of identical construction and comprising a four-port junction or cross-fitting wherein one of the adjacent sides rigidly engages one of the ports and the other of said sides slidably engages another of said ports and extends through and beyond the opposite port to provide an extended portion, a cross-tee slidably connected to the extended portion but provided with a set screw in the cross-tee so as to prevent movement by engaging the extended portion, the cross-tee being provided with a side extension having an opening therein, which extension slidably engages a jack screw, said jack screw lying in generally parallel relation with said extended portion, support means rigidly connected to the remaining port of the cross junction and provided with a portion extending in generally perpendicular relationship from said jack screw and a portion generally at right angles to said sides, the end of the jack screw being fixedly connected to the support means and tightening nut means disposed on said jack screw; whereby tightening said set screw on the extended portion and turning said nut means forces the slidable cross-tee through the cross junction and thus forces the slidable side to extend its length and tighten the needle-point, this manipulation being carried out at all four corners. Also provided is a method for stretching or blocking needle-point using the device of this invention which comprises placing the needle-point within the quadrilateral formed by the four sides, connecting the needle-point to the four sides by pin means and then stretching the needle-point by extending each of the sides of the needle-point with the stretching device described.

3,837,100
FOOD-HANDLING GUIDES FOR REFRIGERATORS AND FREEZERS

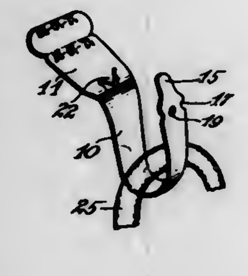
Michael F. Guida, 5100 N. Leonard Dr., Norridge, Ill. 60656
Filed Feb. 9, 1973, Ser. No. 330,982
Int. Cl. A44c *3/00*
U.S. Cl. 40—2 **3 Claims**



A chart for identifying enclosed food items deposited in a refrigerator or freezer. The chart is attachable on the front or side of the refrigerator, and has a row of numbers denoting corresponding food items. Pressure-adhesive tabs bearing the numbers are applied to the food containers when the food items are deposited. The tabs are of a pale color for foods which may remain, but of a warning color — such as red — for foods which are perishable and should be removed soon. The chart has index legends — such as letters of the alphabet — to indicate the refrigerator shelves on which the numbered food items have been placed; and lettered self-adhesive tabs are applied in the regrigerator entrance in upward alphabetical order identifying the shelves. The chart also has a column for entering related index legends of the number of servings obtainable from the food items, and a column for the dates on which they are deposited. All entries on the chart are made with a pen containing a water-soluble ink which is non-toxic, and may be erased with a moist swab; and a receptacle is mounted on the chart for keeping tabs and ink pens handy.

3,837,101
BAGGAGE TAGS

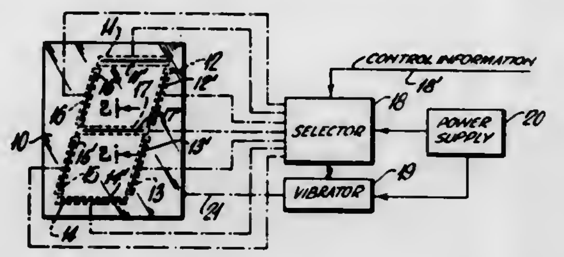
Irvin L. Young, Rt. 1, Palmyra, Wis. 53156
Filed July 18, 1973, Ser. No. 380,491
Int. Cl. G09f *3/14*
U.S. Cl. 40—21 **2 Claims**



A baggage tag of elongated form designed to be wrapped around the handle of a baggage item to lock in looped form. The tag is formed with a detachable coupon at one end and a tip portion at the other. The tag body has an opening presenting a tongue underneath which the tip — rolled back — is insertible. The tip portion has formations interlocking with side tabs in the opening on the partial retraction of the tip portion, and a stop opposite the tongue to check the re-advance of the tip portion.

3,837,102
INDICIA DISPLAY DEVICE

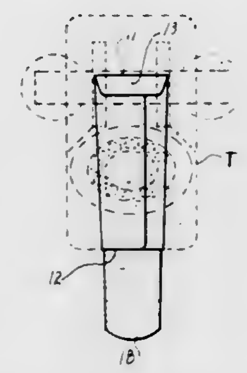
Marcel J. E. Golay, 1095 Lutry/Vd, Switzerland
Filed Apr. 17, 1972, Ser. No. 244,779
Int. Cl. G09f *11/00*
U.S. Cl. 40—28 C **5 Claims**



An indicia display device utilizing at least one pair of grids with each grid having a plurality of lines and piezoelectric means for moving said grids one relative to the other to effect the display and disappearance of indicia.

3,837,103
LIST FINDER

Sumner M. Fineberg, 3657 Havenview Cir., Birmingham, Ala. 35216
Filed Jan. 2, 1974, Ser. No. 429,538
Int. Cl. G09f *3/20*
U.S. Cl. 40—336 **3 Claims**

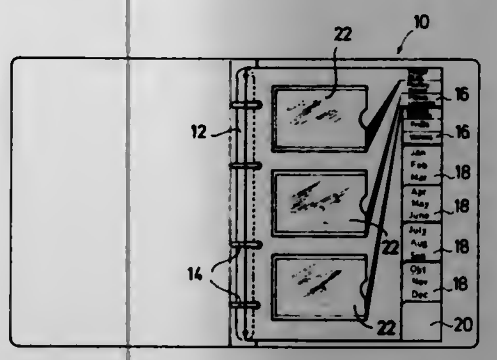


A simple, economical list finder adapted for attachment to the underside or surface of the usual telephone. The list finder comprises an envelope which is trapezoidal in shape and a trapezoidal slide in the envelope on which indicia may be written. The parts are so dimensioned that the slide is held captive, that is, cannot be pulled completely out of the envelope, but can be pulled out far enough to read indicia placed on the major portion of its surface.

3,837,104
METHOD AND SYSTEM FOR KEEPING RECORD OF THE CONTENTS OF A CONTAINER

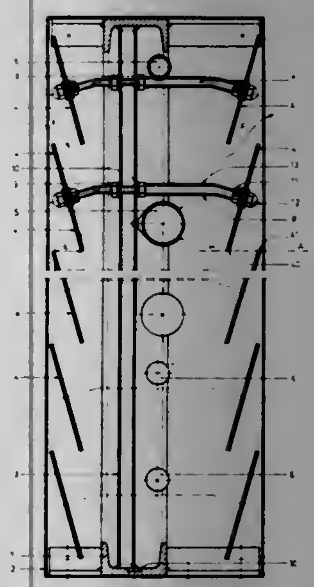
Rolf Peter Brotschi, Hirschweg 9, 7067 Grunbach, Germany
Filed May 4, 1973, Ser. No. 357,340
Claims priority, application Germany, May 8, 1972, 7217361
Int. Cl. B42d *15/00*
U.S. Cl. 40—104.18 **10 Claims**

In a system for keeping record of the contents of a storage means, two groups of pages are provided with pockets and indications of the contents of various pockets, and a pad of three forms is marked with two kinds of information. One form of the three is inserted into a pocket of the one group in accordance with a first type of information, another form is inserted into a pocket of the other group in accordance with a second type of information, the remaining form being attached to the item to be stored.



3,837,105
LUMINOUS OUTDOOR SIGN BOARD RESISTANT TO INCLEMENT WEATHER

Rene Verazin Tchakgarian, 19, Ave. Charles de Gaulle, Autun, France
Filed Feb. 9, 1973, Ser. No. 331,334
Int. Cl. G09f *13/04*
U.S. Cl. 40—130 R **6 Claims**

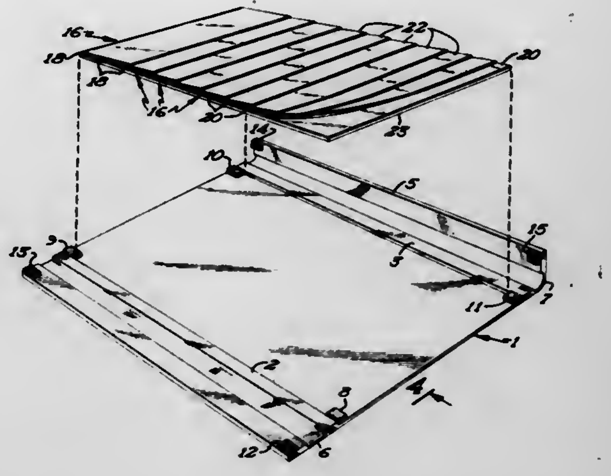


Luminous board designed specially to resist inclement weather and in particular strong gusts of wind, this board being constituted by an open-work framework in the form of a case of which at least one longitudinal wall is formed by slats illuminated from inside the case, said framework being of the open-work type and the support slats being contiguous in a vertical plane to form a continuous wall preventing the diffusion of luminous rays toward the exterior, the slats in addition being spaced out laterally with respect to one another to form between them communication interstices allowing the wind and rain water to pass through the board, both horizontally and vertically.

3,837,106
DATA CARD HOLDER

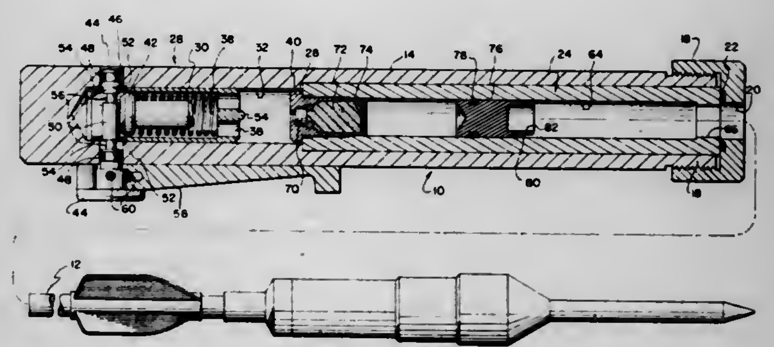
Dennis E. Lofstrom, R. R. 1, Fort Ripley, Minn. 56449; William A. Churchill, and Richard L. Thul, both of St. Paul, Minn., assignors to said Lofstrom, by said Thul and Churchill
Filed Mar. 14, 1973, Ser. No. 341,034
Int. Cl. G09f *1/10*
U.S. Cl. 40—104.03 **10 Claims**

A card holding board provided with a plurality of staggered, card receiving pockets along its length is utilized to hold a plurality of data cards in shingled, overlapping relation to each other with a predetermined, data recording margin on each card exposed for the insertion of laboratory test data thereon. A pair of hinged hold down panels attached to the opposite, longitudinal edges of the board are pivoted over the ends of the cards and locked in place to hold the cards firmly against the baseboard during handling of the board and recording of test data in a laboratory.



3,837,107
SILENT LAUNCH GUN FOR PROJECTILES

Frank H. Swaim, Silver Spring, and Raymond S. Widmayer, Laurel, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Sept. 25, 1972, Ser. No. 291,878
Int. Cl. F41c *19/04;* **F41f** *17/12*
U.S. Cl. 42—1 F **3 Claims**

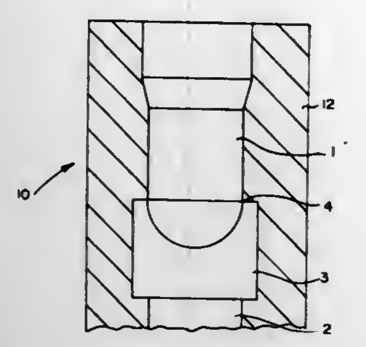


A silent launching system for projectiles having a launch tube with a breech to receive a special cartridge and a constricted muzzle and containing a sabot. The projectile, such as an arrow, is loaded tail-first into the muzzle to contact the sabot. When the cartridge is fired, the sabot and projectile accelerate toward the muzzle, where the sabot is arrested in the constriction and the projectile continues out the muzzle to the target. The arrested sabot traps the expanding gases within the launch tube, providing a flashless, smokeless, and noiseless launch.

3,837,108
DEVICE FOR THE REDUCTION OF KINETIC ENERGY OF BULLETS FROM CARTRIDGE AMMUNITION

Georg Seitz, Am Bruchkamp 2, 3301 Watenbuttel, Germany
Filed June 5, 1973, Ser. No. 367,126
Int. Cl. F41c *21/00, 21/10*
U.S. Cl. 42—76 R **6 Claims**

A device, which may be either incorporated into the original barrel of a gun or into a subcaliber barrel for installation in a prefabricated gun, comprises an expansion chamber located immediately downstream of the cartridge opening.



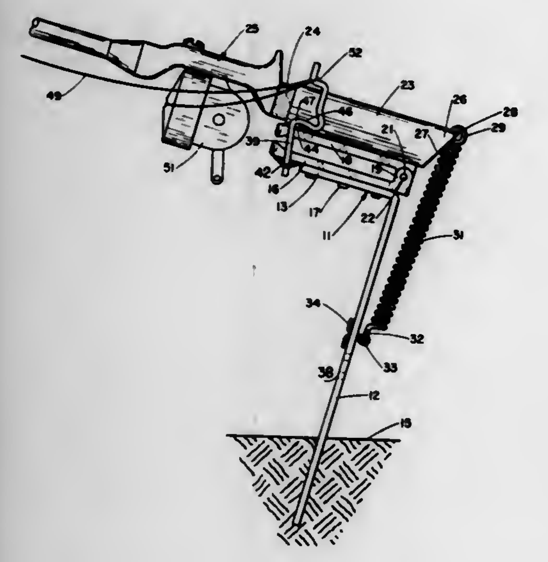
Upon firing of the gun, the expansion chamber is available to receive a portion of the combustion gases thereby reducing the momentum of the bullet leaving the cartridge.

3,837,109

FISHING ROD HOLDER

Robert DeJulio, 4444 Clay St., Denver, Colo. 80211
Filed May 29, 1973, Ser. No. 364,458
Int. Cl. A01k *97/00*

U.S. Cl. 43—15 **4 Claims**



A fishing rod holder providing a tube for the reception of a fish rod handle on a pivot mount whereby the tube and rod may be moved rotationally from an "at rest" position to an elevated line retrieving position. The holder has a support stand inclusive of an angled section disposed for foot contact to facilitate engagement of the holder in a ground surface. A fish line engages and can move a release latch which has a plurality of tension adjusting engaged positions whereby the latch can be set for the heavier and lighter release forces that might be exerted on the line by various sized fish.

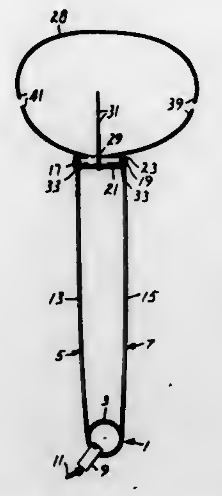
3,837,110

ANIMAL TRAP

Camiel J. Coquyt, Box 45, Ghent, Minn. 56239
Filed Dec. 6, 1973, Ser. No. 422,175
Int. Cl. A01m *23/34*

U.S. Cl. 43—87 **9 Claims**

An animal trap having a central coil with arms extending therefrom, and a snare wire extending between the terminal portions of the arms, the snare wire having a centrally located knot therein, the knot being adapted to assume (1) an enlarged trapable configuration when the arms are urged towards each other to a loaded position and (2) a trapping configuration when the arms are permitted to relax to a sprung position, a telescoping locking mechanism for releasably holding the arms in the loaded position, and a trigger actuated by the animal to be trapped for releasing the locking mechanism.

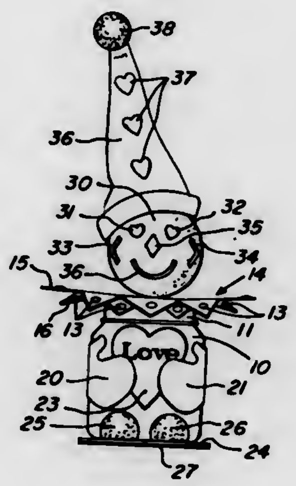


3,837,111

ANIMAL TOY CONTAINER

R. Ira Godfrey, and Janelle R. Godfrey, both of 4501 Elmdale Rd., Golden Valley, Minn. 55422
Filed Feb. 7, 1973, Ser. No. 330,223
Int. Cl. A63h *3/00*

U.S. Cl. 46—11 **1 Claim**



The disclosure is directed to a small container formed in the likeness of a clown, Easter bunny or other animated toy. The head is formed from a polystyrene ball secured to felt pieces forming a collar cemented to the lid or cover of a small jar forming the container. The remainder of the jar is covered by a felt strip in the form of arms and hands holding an appropriate object at the front of the jar. The bottom of the jar is secured to the material conforming to the general outline of the jar and protruding in front to form feet of the character or animal portrayed. The animated toy container is first assembled in kit form before assembly in combination.

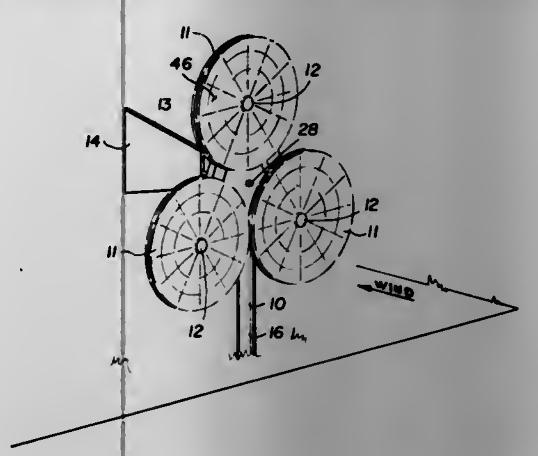
3,837,112

MULTIPLE WINDMILL

John R. Peterson, Withee, Wis., assignor to The Raymond Lee Organization Inc., New York, N.Y., a part interest
Filed Mar. 26, 1973, Ser. No. 344,779
Int. Cl. A63h *33/40*

U.S. Cl. 46—58 **3 Claims**

A multiple windmill in which three fan wheels are mounted on a common rotatable frame and are each rotatably linked to a common fixed wheel or gear. The fan wheels are each rotated by the force of the wind and in turn rotate the common frame in which they are mounted. The device may be in the form of a display device such as an ornamental lawn device, with the exterior of each fan blade marked so as to create ornamental patterns when the blades and the frame are rotated by the wind. The common stationary drive wheel serves to rotate all three blades at a common velocity.

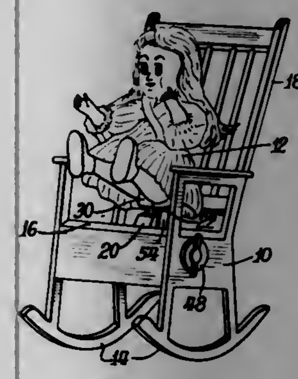


3,837,113

SELF-ROCKING DOLL

Ralph Triska, 3804 S. Harvey Ave., Berwyn, Ill. 60402
Filed Jan. 31, 1973, Ser. No. 328,457
Int. Cl. A63h *13/00*

U.S. Cl. 46—116 **6 Claims**



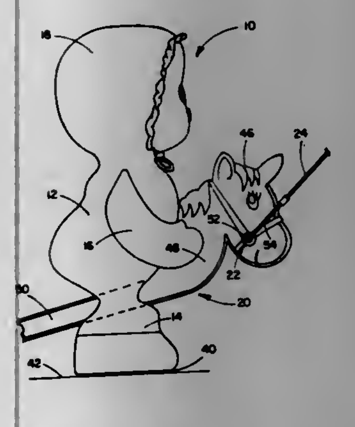
A self-rocking doll in a rocking chair including a flexible attachment means between the doll and rocking chair, a motor mechanism, an operating lever interconnecting the motor mechanism and doll, said operating lever being actuable by the motor mechanism to thereby effect back and forth movement of the doll and consequent rocking of rocking chair.

3,837,114

WALKING TWO-LEGGED FIGURE TOY WITH RIGID FORWARD EXTENSION

Adolph E. Goldfarb, Tarzana; George C. Strader, and Judy D. Strader, both of Paso Robles, all of Calif., assignors to Adolph E. Goldfarb
Filed Dec. 7, 1972, Ser. No. 313,171
Int. Cl. A63h *3/22*

U.S. Cl. 46—149 **16 Claims**



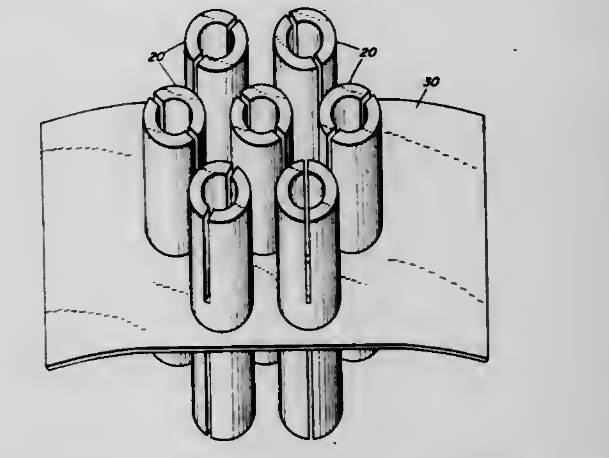
A two-legged walking figure toy having a pair of resiliently mounted legs. The legs may be weighted and provided with relatively high friction means for engagement with the floor or other surface on which the figure can walk. The figure may be propelled forwardly and caused to walk by means of a forwardly extending rigid extension mounted on the toy figure, providing a point of attachment for a cord or other pull means. The point of attachment is preferably centered from side-to-side, disposed substantially forwardly of the figure, and positioned between the crotch and neck of the figure. By pulling forwardly and upwardly on the pull means, the figure is caused to walk, i.e., alternate legs shift forward to effect walking action, while the figure is maintained upright and prevented from falling over. Thus, there is good stability for the figure without requiring precise positioning or manipulation of the angle and force on the pull means, so that the toy may be played with and caused to walk by even a small child.

3,837,115

NOISEMAKING AMUSEMENT DEVICE

Jorma Vennola, Princeton, N.J., assignor to Columbia Broadcasting System, Inc., New York, N.Y.
Filed Feb. 22, 1972, Ser. No. 227,803
Int. Cl. A63h *5/00*

U.S. Cl. 46—174 **10 Claims**



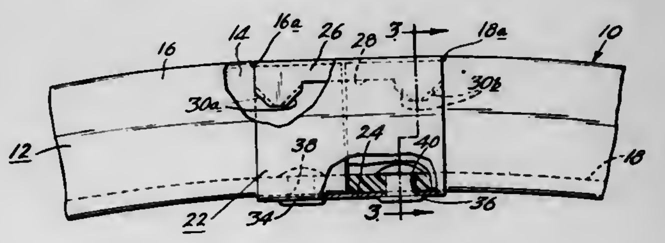
A noisemaking toy or amusement device that includes a plurality of elongated wooden cylindrical members that have circumferential grooves centrally located therein. A flexible supporting sheet having a plurality of circular apertures is provided, the apertures conforming in shape to the grooves, whereby the sheet is adapted to receive and hold the central portions of the members. During typical play, a hand grips the sheet by its corner or end and shakes it vigorously, whereupon the ends of the members strike each other alternately on opposite sides of the sheet and cause a clicking commotion. In a preferred embodiment of the invention each of the members has an axial borehole forming a cavity therein.

3,837,116

HOOP TOY

George C. Sun, 801 Cooper Landing Rd., Cherry Hill, N.J. 08034
Continuation of Ser. No. 79,434, Oct. 9, 1970, abandoned. This application July 31, 1972, Ser. No. 276,370
Int. Cl. A63h *11/00*

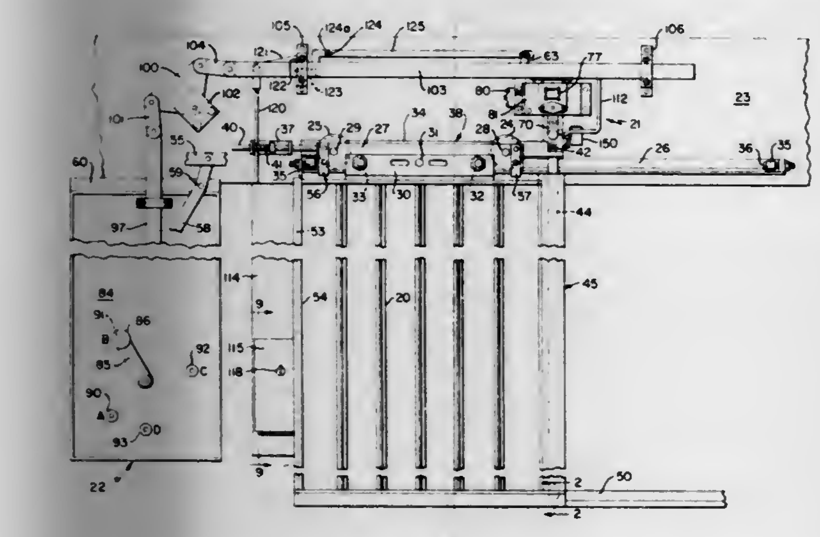
U.S. Cl. 46—220 **1 Claim**



A hoop toy comprising an annular member of circular shape made of a flexible resilient material, said annular member having generally parallel side walls and a wall connecting wall spanning the side walls at their inner edge defining a radially outwardly facing channel, a clip connecting the terminal ends of the body in end-to-end relation, said clip conforming generally to the contour of the outer faces of the side walls and connecting wall of said annular member and means for securing said clip to said annular member to lock the ends thereof in end-to-end relation.

3,837,117
LOCKING AND UNLOCKING MECHANISM

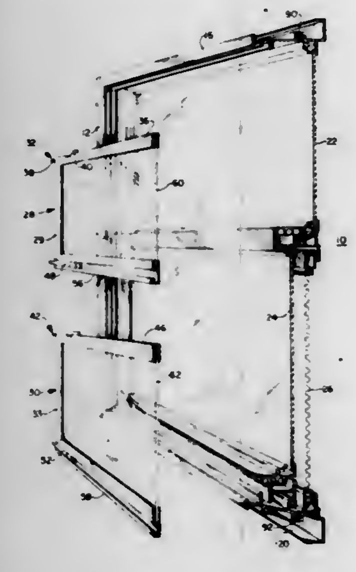
Gerald L. Butt, Independence, Ky., assignor to Stewart-Decatur Security Systems, Incorporated, Covington, Ky.
Filed Nov. 2, 1972, Ser. No. 303,240
Int. Cl. E05b *47/00*
U.S. Cl. 49—18 **20 Claims**



A locking and unlocking mechanism to secure a door has four control positions of the controlling mechanism. Two positions of the control mechanism place the securing mechanism in a deadlock condition. Direct operational links connect the control mechanism with the securing mechanism.

3,837,118
STORM WINDOW

Lorane C. Goss, Jr.; James T. Cribben, both of Mechanicsburg, and Joseph J. Miller, Plain Field, all of Pa., assignors to Capitol Products Corporation, Mechanicsburg, Pa.
Filed May 2, 1973, Ser. No. 356,465
Int. Cl. E05c *7/02*
U.S. Cl. 49—61 **12 Claims**

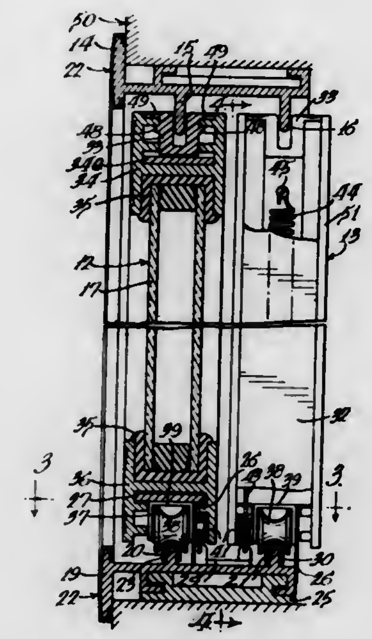


A storm window for single or double hung windows including flush storm sash track in window jambs, movable plunger assembly at the top of each sash and interchangeable upper and lower storm sashes.

The window construction is especially adapted for an interior or hung storm sash system, but may also be constructed as an exterior hung storm sash system.

3,837,119
REFRIGERATOR DOOR CLOSURE SYSTEM

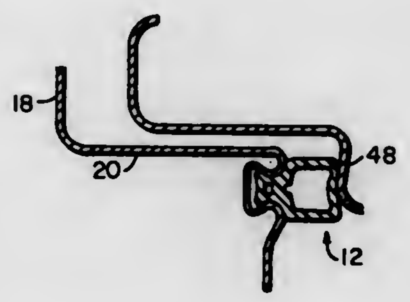
Martin L. Conneally, Lombard, and George Hajduk, Dolton, both of Ill., assignors to Ardco, Inc., Chicago, Ill.
Filed May 14, 1973, Ser. No. 360,310
Int. Cl. E05d *15/06*
U.S. Cl. 49—404 **2 Claims**



A horizontal sliding glass panel is secured to the door frame by flexible insulating mounting gaskets, a self-contained elastically energized door closing system is concealed in the door frame recess by snap-in cover plates, the door frame is supported by a trolley system riding on a track and powered by the elastic closing system; each door engages a tracking system to form a single labyrinth seal between the track and U-shaped seal gaskets with further cold air barriers provided by wipers at the vertical interface and bottom of the doors, the door assembly being mounted with a bottom leveling pad in a refrigeration unit.

3,837,120
DISHWASHER INNER DOOR PANEL AND GASKET ARRANGEMENT

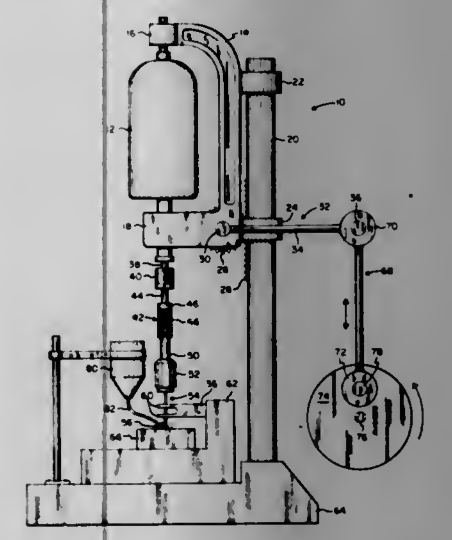
Jack G. Hanks, Bethel Park, Pa., and Olan L. Long, Columbus, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed May 15, 1972, Ser. No. 253,487
Int. Cl. E06b *7/23*
U.S. Cl. 49—489 **6 Claims**



The inner panel is formed of a single sheet of steel with a bulbous gasket retaining groove being formed as an integral part of the panel, as distinguished from a gasket retaining channel attached to a panel as a separate piece. The preferred gasket has a base portion which is generally complementary in shape to the cross-sectional shape of the groove, with both the base and sealing sections of the gasket being hollow. To facilitate the assembly of the gasket to the groove, the web between the base and sealing sections is provided with a tracking groove which aids in forcing the gasket into place by rolling a wheel along the length of the gasket.

3,837,121
DRILLING MACHINE

Kenneth L. Schirmer, Redondo Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed Aug. 9, 1973, Ser. No. 387,057
Int. Cl. B28d *5/02*
U.S. Cl. 51—56 **12 Claims**

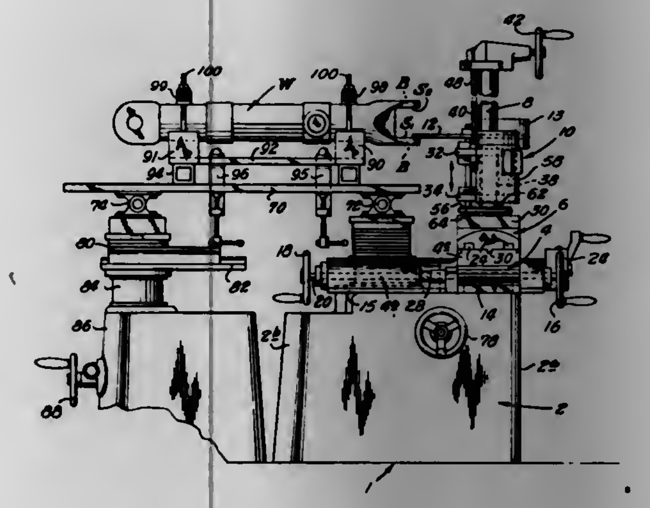


Disclosed is a machine for drilling into hard materials.

The machine comprises a conventional miniature drill press, improved by the addition of a camming device to cause the drill to reciprocate while rotating, and a shock absorber interposed between the drill motor and bit to absorb a portion of the impact of the bit tip against the work piece. In certain embodiments means are provided to introduce quantities of an abrasive suspension to the bit tip.

3,837,122
GRINDING APPARATUS

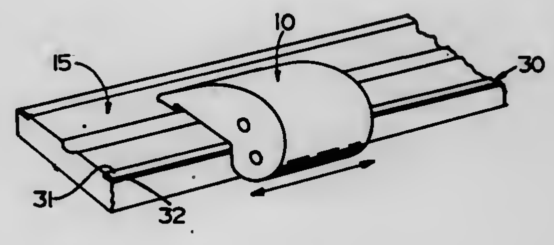
Charles N. Ferguson, 1623 X St., Dallas, Tex. 75229
Filed Jan. 10, 1973, Ser. No. 322,426
Int. Cl. B24b *7/00, 9/00*
U.S. Cl. 51—56 **10 Claims**



Grinding apparatus for internal surfaces of clevises comprising a support frame having a table secured thereto for movement in a first horizontal direction, said table carrying a saddle mounted for horizontal movement in a second horizontal direction perpendicular to the first horizontal direction of movement. The saddle has a carriage mounted thereon adapted for vertical movement, said carriage having a rotatable spindle secured thereto upon which a grinding wheel is mounted. A work piece support table is pivotally mounted relative to the support frame such that the grinding wheel can be moved in directions parallel to three mutually perpendicular axes to grind surfaces on a stationary work piece.

3,837,123
EDGE SHARPENER

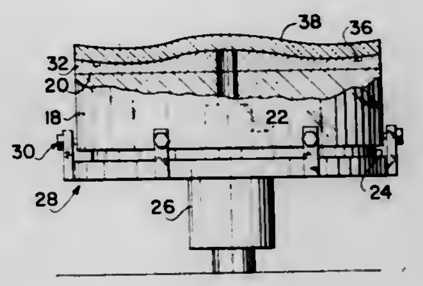
Wilburn F. Bradbury, 1234 Ridgewood, Northbrook, Ill. 60062
Filed Feb. 9, 1973, Ser. No. 331,069
Int. Cl. B24d *5/00, 7/00*
U.S. Cl. 51—208 **5 Claims**



A tool for sharpening metal edges, particularly running edges on snow skis, in which a hand held housing supports pairs of abrading wheels rotatably mounted on parallel axes spaced in such a manner that the wheel peripheries overlappingly intersect at substantially right angles and thereby tangently engage right angularly related surfaces forming the ski's running edge when the tool is operatively positioned for guided movement longitudinally over the ski bottom.

3,837,124
METHOD FOR MAKING REPLICA CONTOUR BLOCK MASTERS FOR PRODUCING SCHMIDT CORRECTOR PLATES

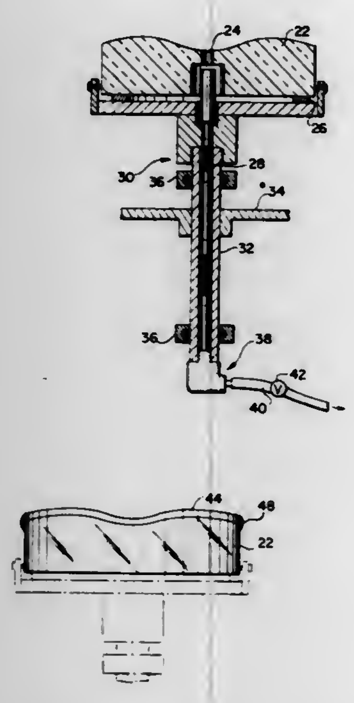
Thomas J. Johnson, Palos Verdes Estates, and John F. O'Rourke, Torrance, both of Calif., assignors to Celestron Pacific, Torrance, Calif.
Filed Sept. 26, 1973, Ser. No. 400,994
Int. Cl. B24b *13/00, 1/00*
U.S. Cl. 51—283 **7 Claims**



A method for making replica contour block masters for use in producing Schmidt correctors wherein a finished Schmidt corrector plate to be duplicated, which is flat on one side and figured on the other, is placed with its flat side on a flat surfaced spindle master, a thin piece of glass to constitute a replica piece is placed on the corrector plate and a vacuum drawn therebetween to conform their surfaces, the replica piece is ground and polished flat on the free surface, the corrector plate and replica piece removed from the spindle master and the replica piece placed flat side to flat surface on the spindle master in a semi-permanent bond therewith and constituting together a contour block master.

3,837,125
METHOD AND SYSTEM FOR MAKING SCHMIDT CORRECTOR LENSES

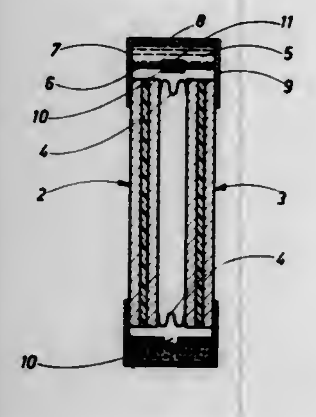
Thomas J. Johnson, Palos Verdes Estates, Calif., assignor to Celestron Pacific, Torrance, Calif.
Filed Sept. 4, 1973, Ser. No. 393,846
Int. Cl. B24b *1/00, 13/00*
U.S. Cl. 51—284 **11 Claims**



A method and system for making Schmidt correctors wherein the surface of a master glass template is ground and polished to an accurate inverse curve of a corrector plate, a thin glass workpiece is placed under vacuum on the master glass template in intimate curve conformed glass-to-glass contact over the entire mating surfaces, the template and workpiece being conjointly rotated while grinding and polishing the upper free surface of the workpiece to a uniform accurate flatness whereafter the vacuum is released and the workpiece is removed from the template in final form.

3,837,126
FIRE SCREEN FOR A STRUCTURAL PANEL

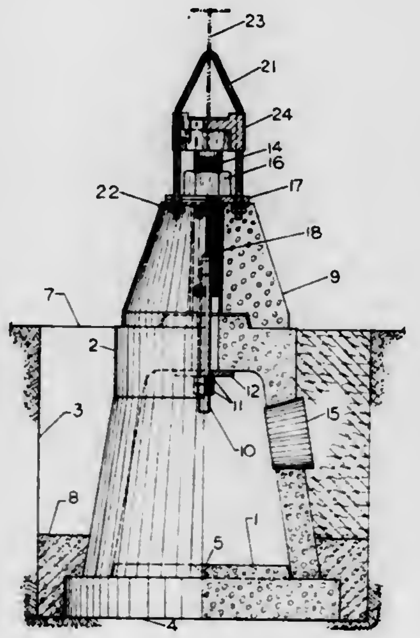
Jean-Pierre Voiturier, Gerpinnes, and Francis Jacquemin, Monceau-sur-Sambre, both of Belgium, assignors to Glaverbel-Mecaniver, Watermael-Boitsfort, Belgium
Filed June 19, 1972, Ser. No. 263,762
Claims priority, application
Int. Cl. E04b *1/92*
U.S. Cl. 52—1 **13 Claims**



A structural panel comprising one or a plurality of spaced sheet numbers has a frame around its edge. At least one body of material capable of screening the structural panel against fire is provided either in the form of a mechanical member or a chemically activated substance. The member or substance are retained in an inoperative position in the vicinity of the structural panel and are released to an operative position in response to a predetermined rise of temperature wherein a body of material covers substantially one or more faces of the panel.

3,837,127
MOBILE HOME LEVELING AND HOLD-DOWN SUPPORT

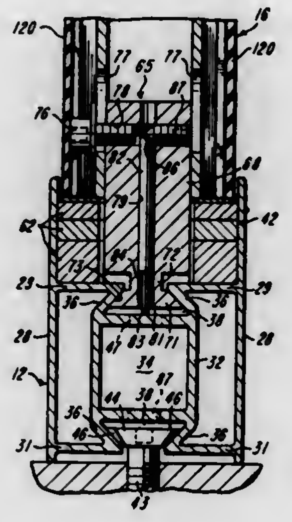
B. Frank McMichael, R.D. No. 4, Box 280, and Edward J. Baranski, 1503 Herrick St., both of New Castle, Pa. 16101
Filed Oct. 10, 1972, Ser. No. 296,105
Int. Cl. A45f *3/44;* **E04g** *25/06*
U.S. Cl. 52—126 **3 Claims**



This invention consists of a multi-sectioned, pre-cast support for mobile homes and similar structures, incorporating leveling and hold-down devices to facilitate and improve the finished installation.

3,837,128
PARTITIONING SYSTEM

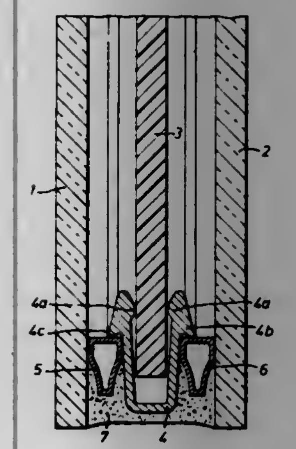
William R. O'Brien, Xenia, Ohio, assignor to Thomas J. Fleury, West Caldwell, N.J. and Conrad P. Sheehan, New York, N.Y., part interest to each
Filed Oct. 24, 1972, Ser. No. 299,707
Int. Cl. E04b *2/60*
U.S. Cl. 52—241 **5 Claims**



A series of rectangular wall panels are confined between vertical and horizontal frame members connected by clamping devices which attach individually to the frame members. Each clamping device includes a member which extends into a square center opening within one frame member and has a truncated head portion projecting into a dovetail groove within the adjacent frame member. In one embodiment, the head portion of the clamping member is locked to the frame member by an extendable pin which projects outwardly from the center of the head portion and presses the head portion against the sides of the groove. In another embodiment, the head portion is locked by a wedge element which is inserted into the groove to force the head portion against the sides of the groove.

3,837,129
MULTIPLE GLAZING UNIT

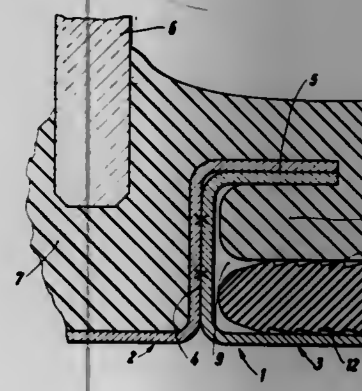
Ernst Ingvar Losell, Malmo, Sweden, assignor to AB Emmaboda Glasverk, Emmaboda, Sweden
Filed Oct. 20, 1972, Ser. No. 299,486
Claims priority, application Sweden, Oct. 29, 1971, 13762/71
Int. Cl. B32b *17/10*
U.S. Cl. 52—309 **3 Claims**



A multiple glazing unit comprising two glass sheets and at least one impact resistant middle sheet of plastic material which to compensate for the elongation of the plastic and for temperature changes is so mounted that there is an additional space for the middle sheet in which to expand in its own plane. The means for mounting the middle sheet is a U-shaped strip which engages the middle sheet only by means of the extremities of the U-limbs and which clamps the middle sheet solely by its inherent resilience.

3,837,130
WINDOW MOUNTING ARRANGEMENT

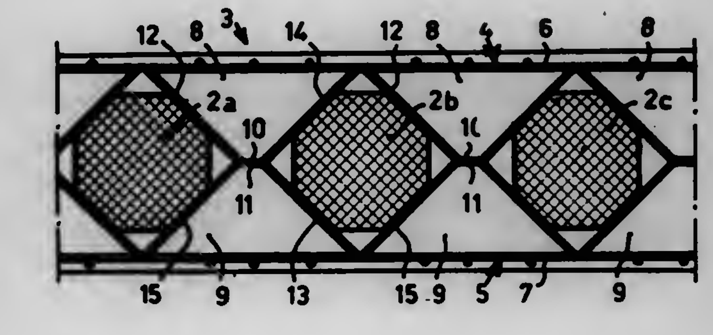
Christian Hildebrandt, Wilsche, and Karl Erck, Wolfsburg, both of Germany, assignors to Volkswagenwerk Aktiengesellschaft, Walfsburg, Germany
Filed June 13, 1973, Ser. No. 369,491
Claims priority, application Germany, June 14, 1972, 2228870
Int. Cl. E06b *3/62*
U.S. Cl. 52—400 **10 Claims**



An arrangement for mounting a pane of glass, such as windshield, in an automobile window frame comprises a grooved channel associated with the window frame, an elastic sealing molding, and a wedge. The sealing molding includes a pane-engaging part, located exteriorly on the automobile relative to the channel, and a retaining lip part. At least a portion of the retaining lip part of the sealing molding protrudes into the groove of the channel and lies against the inner surface of one wall of the channel. The portion of the retaining lip part that protrudes into the groove is narrower than the groove. The wedge is inserted into the groove between the retaining lip and the second, opposite wall of the channel to hold the retaining lip in place in the groove.

3,837,131
CAST CONCRETE CONSTRUCTION

Adrianus Theodorus Maria Bisschops, Santhorst 161,, Leiderdorp, and Onno Jan Theodoor Blok, Kievietslaah 25,, Wassenaar, both of Netherlands
Filed Aug. 14, 1972, Ser. No. 280,700
Int. Cl. E04c *5/20, 3/29*
U.S. Cl. 52—577 **2 Claims**



The present invention relates to a concrete construction having a number of cast-in bar-shaped displacement bodies of plastic, e.g., polystyrene, which are held in place by a number of anchor-elements.

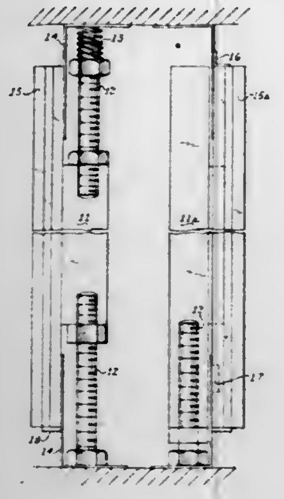
A concrete construction of this type is known from the Dutch Patent Application 70 18413. The displacement body has a quadrangular cross-section and is clamped by means of a channel shaped clip, which exclusively engages the bottom-section of the bar and itself is clamped between parts of the casing. Since will small dimensions of the displacement bodies, the buoyancy forces, acting during casting and hardening of the concrete, play a relatively minor role, such a unilateral engagement can be admissable. However, for larger dimensions of the displacement bodies having large buoyancy forces such as a construction is not adequate and the danger arises that the displacement bodies will float.

An object of the present invention aims at eliminating this disadvantage and to supply a concrete construction, in which the floating of the displacement bodies which may have large dimensions and correspondingly large buoyancy is prevented.

3,837,132
WALL CONSTRUCTION

Konrad Weller, Munich, Germany, assignor to Wilhelm Bofinger, Illsfeld, Germany
Continuation of Ser. No. 878,683, Nov. 21, 1969, abandoned. This application Aug. 9, 1972, Ser. No. 279,168
Claims priority, application Germany, Nov. 25, 1968, 1659051
Int. Cl. E04b *2/30*
U.S. Cl. 52—479 **6 Claims**

A wall construction has a pair of upright first wall panels located in a first plane and having facing edge portions which defined between themselves an upright first gap. A pair of upright second wall panels correspond to the first wall panels and are located in a second plane substantially paralleling the first plane, with their facing edge portions defining an upright second gap. First and second supports are located in the respective first and second gaps and support the first and second wall panels in such a manner that the supports do not transmit sounds to one another.



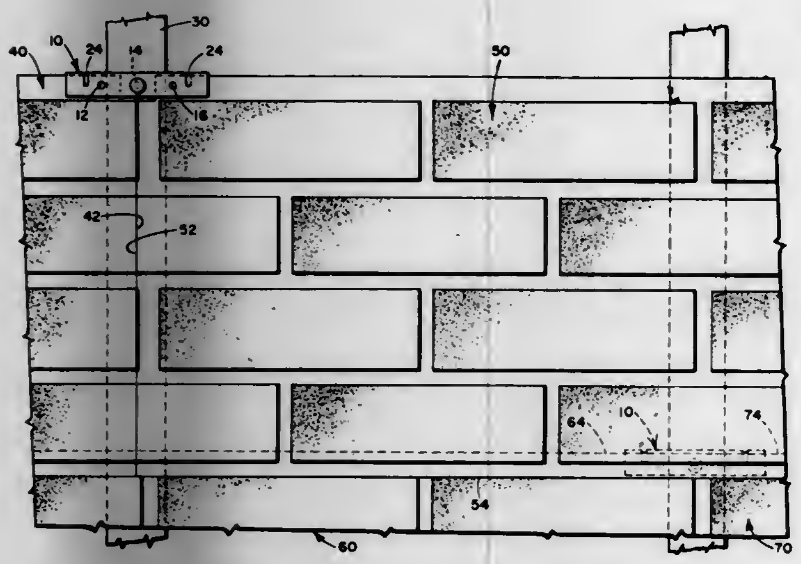
3,837,133
PANEL CLIP

Robert E. Mollman, Moreland Hills, Ohio, assignor to Alside, Inc., Akron, Ohio

Filed July 21, 1972, Ser. No. 273,731

Int. Cl. E06b *3/54;* **A44b** *21/00*

U.S. Cl. 52—483 **6 Claims**



A panel clip for mating lateral edges of adjacent panels and securing them to each other. The clip is U-shaped with foldedover edges which have serrated sections at each end. A plurality of holes allow the mated panels to be secured by nailing to a structural element like a stud which may not occur at the seam of the mated edges.

3,837,134
SHEET METAL FACED SLAB DOOR

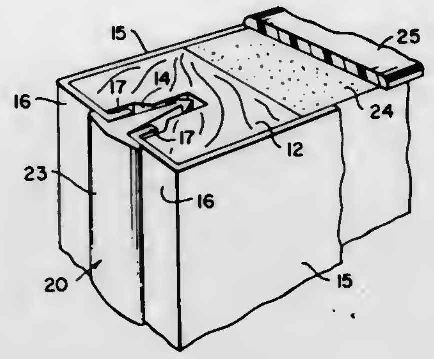
Joseph DiFazio, Warren, Mich., assignor to Acorn Building Components, Inc., Detroit, Mich.

Filed July 11, 1973, Ser. No. 378,320

Int. Cl. E04b *1/68, 2/28*

U.S. Cl. 52—619 **2 Claims**

A slab door formed of a wood frame having a wide, deep, vertically extending groove formed in the exposed edges of each of the opposite vertical frame stiles, and each face of the frame being covered by a thin sheet of metal whose opposite vertical edges are bent into edge portions, covering the stile edges, and terminating in bent edge flanges which loosely extend into their adjacent groove. The adjacent pair of edge flanges within each groove are spaced apart from each other and from the bottom of the groove. A T-shaped spacer is arranged with its head portion overlapping the adjacent edge portions and its leg inserted between adjacent flanges and terminating in a free barbed end engaged with the groove wall inwardly of the flanges for locking the metal edge portions against springing away from the frame stiles and for forming a thermal insulating between the flanges.



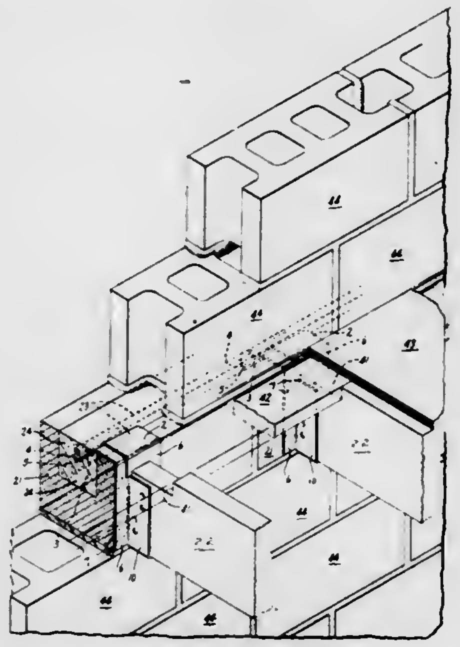
3,837,135
COMBINED JOIST AND REINFORCING BAR HOLDER AND STRUCTURE FORMED THEREWITH

Anthony J. Zachman, 767 Loma Verde Ave., Palo Alto, Calif. 94303

Filed May 25, 1972, Ser. No. 256,680

Int. Cl. E04c *5/16;* **E04b** *1/38*

U.S. Cl. 52—702 **8 Claims**



A novel structural device is constructed to hold a building joist in position while at the same time serving to tie the joist into a reinforced concrete wall structure by combining with a steel reinforcing bar therein. The device further provides for positive joining to a masonry or brick wall and especially a hollow concrete block construction to greatly enhance the strength and rigidity of the entire structure. Fabrication from a single piece of sheet metal utilizing spot welding greatly adds to the ease of manufacture, strength, and rigidity of the device as well as the resulting structure.

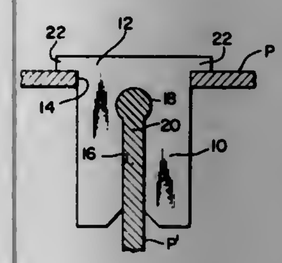
3,837,136
DEVICES FOR CONNECTING TWO PLATES

Francis David Graham, Cedar Grove, and Maurice Cyril Bryceland, Denville, both of N.J., assignors to Swisslok Company, Parsippany, N.J.

Filed July 19, 1972, Ser. No. 272,867

Int. Cl. F16b *19/00*

U.S. Cl. 52—760 **7 Claims**



A device for connecting two plates in substantially perpendicular relationship comprises a shank and a head. The shank is intended to be inserted into an opening in a first plate and the head acts to limit the insertion of the device into the opening. The shank is provided with a slot which is adapted to receive a marginal portion of a second plate. The slot is widened in the vicinity of its base and the base is spaced from the head so that upon the maximum insertion of the shank in the opening to correspond to an abutment position of the head and the first plate and an abutment position of two plates, the portion of the second plate received in the slot will be locally deformed in the area of the base to increase its lateral dimension and thereby connect the two plates.

The devices are stamped or blanked from flat strip stock. In one enbodiment, the device is a flat piece which is accommodated by a rectangular opening. In another embodiment, a pair of parallel shanks are connected to one another to double the holding strength of the device. In addition, round or circular openings may be provided in the plate through which the shanks of the devices are inserted.

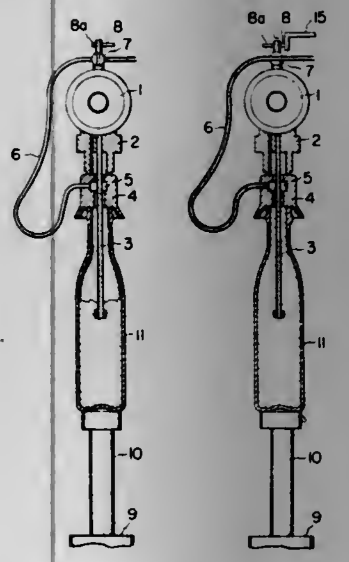
3,837,137
METHOD AND MEANS FOR FILLING BEER OR THE LIKE INTO CONTAINERS WITHOUT INTRODUCTION OF AIR

Toyohiko Yatsushiro; Tsuyoshi Takashima; Takashi Iwasaki, all of Tokyo, and Susumu Okamura, Yokohama, all of Japan, assignors to Kirin Beer Kabushiki Kaisha, Tokyo-to, Japan

Filed Dec. 29, 1972, Ser. No. 319,646

Int. Cl. B65b *31/06*

U.S. Cl. 53—22 R **6 Claims**



A centering bell adapted to hold a container in register with a filling valve during filling operation is bored to receive with clearance a tube extending from the filling valve to be inserted into the container. A flexible tube extends between the centering bell and a gas valve mounted on or within the filling valve to provide communication between the latter and the interior of the container through the bore of the centering bell. The gas valve is opened upon completion of a filling operation so that while the filling tube is being gradually removed out of the container after the same has been filled to capacity with the liquid delivered through the filling tube, an inert gas such as carbon dioxide or nitrogen gas is introduced through the bore of the centering bell into an empty space created within the container by the gradual removal of the filling tube.

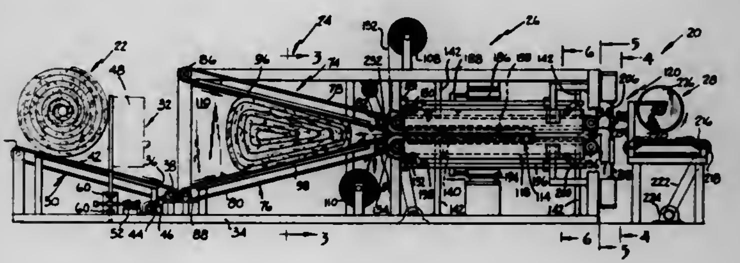
3,837,138
METHOD AND APPARATUS FOR COMPRESSING MATERIAL AND ENCLOSING THE SAME IN A PLASTIC FILM

Rupert Douglas Terry, Toledo, Ohio, assignor to Johns-Manville Corporation, Greenwood Village, Colo.

Filed Feb. 23, 1973, Ser. No. 335,412

Int. Cl. B65b *63/02*

U.S. Cl. 53—24 **19 Claims**



A method and apparatus, for individually packaging units of a compressible material, compress the material and then enclose the material within a plastic film. The unit of the compressible material, e.g., a batt of insulation, is introduced between a pair of converging conveyors whereby opposing surfaces of the conveyors apply compressive forces to major faces of the compressible material to compress the material to the desired degree. After the material is compressed to the desired degree, it is introduced between a pair of continuous sheets of plastic film. The material is located between the sheets so that lateral edge portions and transverse portions of the sheets extend beyond the peripheral edges of the compressed material. The lateral edge portions and transverse portions are then heat sealed together to enclose the units of compressed material. This operation successively packages a number of individual units with the heat sealing operation for the transverse portions of the sheets simultaneously sealing the trailing transverse portions of the sheets for one unit, sealing the leading transverse portions of the sheets for another unit and reducing the integrity of the sheets at the juncture between these transverse portions to such an extent that the sheets enclosing the units of material can be separated.

3,837,139
APPARATUS FOR HANDLING AND COUNTING PILLS AND THE LIKE

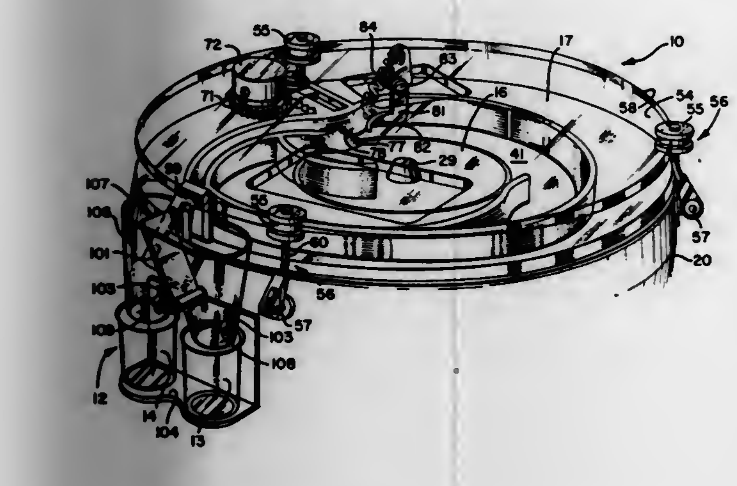
Harry G. Roseberg, 2011 S. Bedford St., Los Angeles, Calif. 90034

Filed July 5, 1973, Ser. No. 376,708

Int. Cl. B65b *57/20*

U.S. Cl. 53—59 R **13 Claims**

To improve the reliability and speed of handling and counting pills, such as for filling prescriptions, an apparatus is provided in which a rotatable turn-table member and coaxial rotatable inner member centrally located of the turn-table and having an upper surface coplanar therewith serve to rotate and agitate the pills into a single file formation whereupon the pills are passed outwardly through a discharge passage equipped with a photo-electric sensor for developing an exact count of the number of pills discharged. Overlying the horizontal surface of the inner member and the coplanar surface of the turn-table member is a barrier which circumscribes an interior pill receiving region or area of the rotating surfaces into which unprocessed or uncounted pills are dumped. The outer rotating surface of the turn-table member causes the pills to be rotated toward an inlet of a discharge passage which interrupts the circumferential barrier substantially tangent to the perimeter of the inner member surface. Adjacent the entry point to the discharge passage the pills assume a single file formation by virtue of the rotating coplanar surface of the inner member, which rotates at a higher speed than the turn-table member, so as to automatically remove excess pills at the discharge entry and return them to the outer and slower rotating surface. The discharge passage itself extends in a continuous uniform curvilinear path tending in the direction of rotation of the turn-table to the outer perimeter thereof where the pills are discharged into a container. The photo-electric sensor for counting is mounted adjacent the outlet point of the discharge passage. To provide reliable and high speed counting, the curvilinear discharge passage causes a continuously increasing separation of adjacent pills as they progress outwardly from the center of the table toward the outer perimeter where the greatest separation is achieved as the pills pass by the photoelectric sensor. One of the walls forming the inlet to the discharge passage is provided with an upper surface which slopes downwardly away from the inlet opening to define a prow-like projection which causes bunched pills or capsules to ride up such surface and fall to one side thereof so as to either enter the discharge passage or return to the rotating surface of the inner member, thereby breaking up any log jamming which may occur at the inlet. An adjustable pill "decapper" and guide finger member is provided adjacent the entry point of the discharge passage to knock-off or dislodge occasionally stacked pills, especially in the case of tablets, and to guide or force a portion of an on-rushing jam of tablets outwardly away from the discharge inlet and onto the inner rotating member so as to again eliminate congestion at the inlet.



3,837,140
STACKING MACHINE

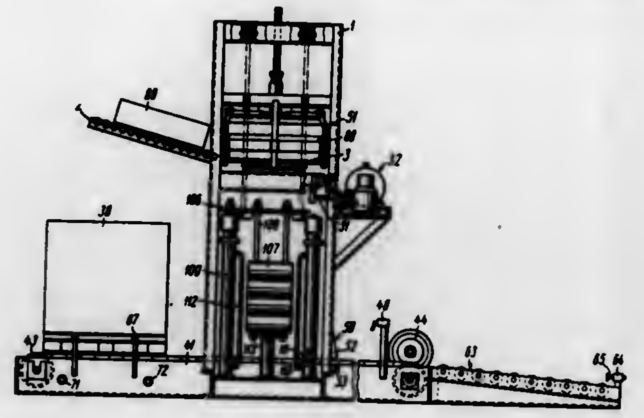
Oleg Alexandrovich Golantsev, Leninsky prospekt, 10, kv. 44; Vasily Vasilievich Zhdaneev, Olkhovy pereulok, 5, kv. 35; Vladislav Ivanovich Bocharov, pereulok Parashjutistov, 6, kv. 75, all of Voronezh, and Evgeny Dmitrievich Bodrov, ulitsa Scherbakovskaya, 9, kv. 55, Moscow, all of U.S.S.R.

Filed June 29, 1973, Ser. No. 374,951

Int. Cl. B65b *35/30*

U.S. Cl. 53—159 **6 Claims**

A stacking machine wherein a lever grab for loads is mounted above an accumulating table. The grab performs vertical motions under the effect of a counterweight whose mass is greater than that of the empty grab but smaller than that of the grab with the load.



3,837,141
DEVICE FOR TRANSFER AND POSITIONING SEALING CAPSULES FOR FEEDING A BOTTLE CAPPING MACHINE

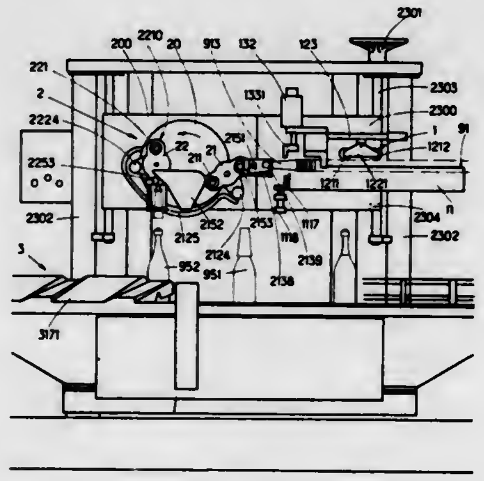
Rene Lorieux, Cachan, France, assignor to La Societe dite CLISALU, Marevil-Sur-AY, France

Filed Oct. 18, 1973, Ser. No. 407,495

Claims priority, application France, Oct. 18, 1972, 72.36820

Int. Cl. B65b *7/28;* **B67b** *3/062, 5/00*

U.S. Cl. 53—307 **15 Claims**



The invention concerns a device for the transfer of sealing capsules as well as equipment for positioning these capsules and feeding a bottle capping machine to operate this device.

The device consists of a hand on which is mounted a nozzle, an arm clamped onto an axle and articulated on the hand, a revolving plate holding the axle loosely mounted; a kinematic linking chain controls the arm but it is disengaged while the capsule is being positioned, the control being then assumed by a cam; a kinematic loose chain (a chain with no connection) maintains the position of the hand, a differential level permitting the introduction of a rotation through 90° by a cam during the positioning of the capsule.

The invention applies to the transfer and placing of sealing capsules.

3,837,142
HORSE BIT ASSEMBLY

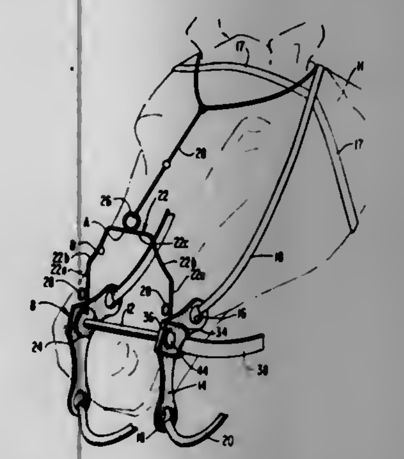
Richard S. Hill, 302 W. Steadman, Sherman, Tex. 75090

Filed Aug. 23, 1973, Ser. No. 390,821

Int. Cl. B68b *1/04*

U.S. Cl. 54—6 **17 Claims**

For controlling and teaching a horse, a bit assembly is provided including a mouth bar adapted to be received in the horse's mouth; and a pair of L-shaped flanges fixed to opposite ends of the mouth bar to be positioned externally of the horse's mouth on opposite sides of the horse's head to limit movement of the mouth bar while in the horse's mouth. The upper ends of the flanges have apertures for attaching straps to fix the position of the bit assembly on the horse's head, while the lower ends of the flanges have apertures for attaching stopping reins or other lines used to control the horse. Riding reins are attached to the bit assembly by means of rings pivotally connected to each of the flanges adjacent opposite ends of the mouth bar. For applying pressure to nerves in the horse's nose or under the horse's jaw, a generally U-shaped swing bar is rotatably mounted to opposite ends of the mouth bar. Rings are fixed to opposite legs of the swing bar as well as the cross piece for attaching control cords or lines to the swing bar to secure it either across the nose of the horse or under the jaw of the horse depending on the type of control or training wished to be imposed on the horse. Liquid or other medicine may be introduced into the horse's mouth through the mouth bar which is formed with a tubular construction for receiving the liquid; the opposite ends of the mouth bar being provided with screw plugs for closing the mouth bar. When it is desired to introduce liquid into the horse's mouth, either one of the screw plugs is removed, and a liquid supply conduit such as a hose is inserted in the end of the mouth bar. From the interior of the mouth bar, the liquid enters into the horse's mouth by means of an aperture formed in the center of the mouth bar.



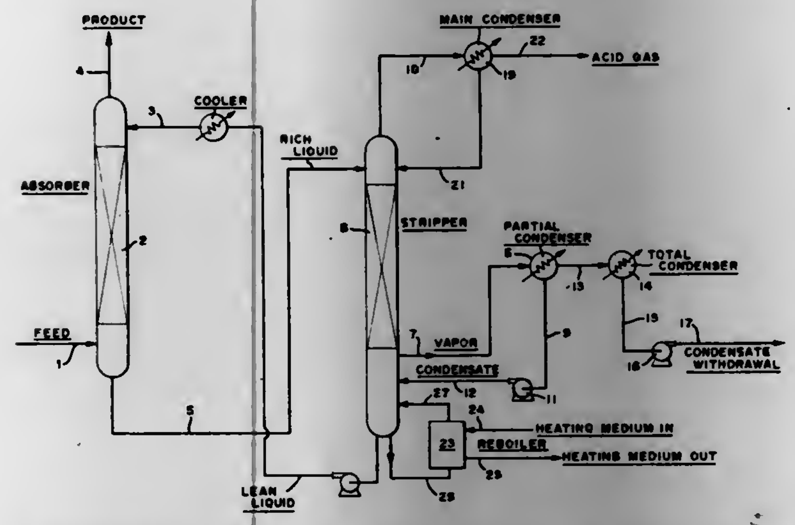
3,837,143
SIMULTANEOUS DRYING AND SWEETENING OF WELLHEAD NATURAL GAS

John A. Sutherland, Houston, Tex., and John W. Sweny, River Vale, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Aug. 6, 1973, Ser. No. 386,119

Int. Cl. B01d *53/14*

U.S. Cl. 55—32 **10 Claims**



Simultaneous dehydration and sweetening of natural gas to produce therefrom a purified natural gas having a low dew point and a low sulfur content suitable for passage in gas transmission lines with concomitant production of hydrogen sulfide gas removed from the natural gas and production of water substantially free of impurities removed from the natural gas involving passing a solvent medium comprising a normally liquid dialkyl ether of a polyalkylene glycol ether containing 2 to 15 percent water by weight in direct contact with the natural gas to reduce its H_2S content to less than 10 parts per million and its water content to less than 12 pounds per million standard cubic feet; stripping the hydrogen sulfide from the solvent medium by means of internally generated steam which is generated by externally heating stripped solvent medium; withdrawing a portion of internally generated steam containing a minor amount of solvent; condensing a portion of it together with contained solvent and returning the steam condensate and contained solvent to the stripping zone; condensing and discharging the remaining portion of withdrawn steam and returning lean solvent medium for stripping of natural gas.

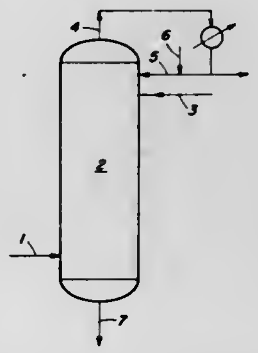
3,837,144
SEPARATION OF ACETYLENE FROM ETHYLENE-BEARING GASES

John D. Lewis, 35 Pky., Montclair, N.J. 07042

Filed Nov. 21, 1972, Ser. No. 308,394

Int. Cl. B01d *53/14*

U.S. Cl. 55—64 **7 Claims**



An improved process for the separation of acetylene from an ethylene stream derived from cracking. The absorption of acetylene with a solvent is effected under truly isothermal conditions with an excess of recycle ethylene. The enriched solvent is subsequently stripped to recover acetylene.

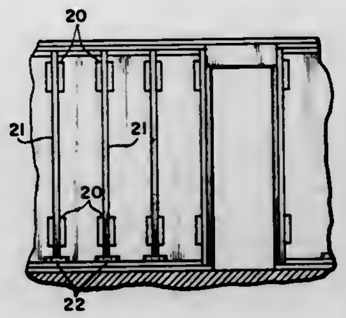
3,837,145
ELECTROSTATIC PRECIPITATOR WALL PANEL

Theodor T. Festner, 16 Ridge Rd., Upper Saddle River, N.J. 07458

Filed July 27, 1972, Ser. No. 275,648

Int. Cl. B03c *3/47*

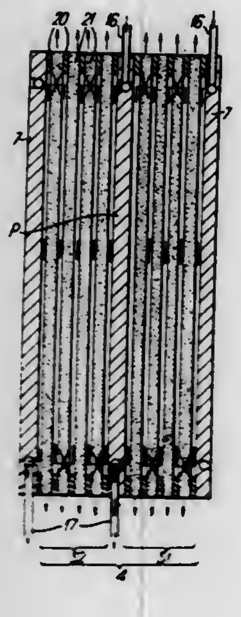
U.S. Cl. 55—146 **3 Claims**



An electrostatic environmental precipitator wall panel comprising an electrically conductive metallic sheet disposed between a pair of electrically non-conductive insulation sheets which are bonded together. A decorative outer sheet of material is affixed to one side of the composite wall panel formed by the bonded insulation and metal sheets. The wall panel may be of rigid planar form, or may be constructed as an accordian fold curtain.

3,837,146
SEPARATING APPARATUS PARTICULARLY SUITABLE FOR GAS PERMEATION AND IN PERVAPORATION

Alphonse Faure, and Bruno Jamet, both of Rhone, France, assignors to Rhone Poulenc S.A., Paris, France
Filed Sept. 7, 1972, Ser. No. 286,703
Claims priority, application France, Sept. 9, 1971, 71.32585
Int. Cl. B01d *53/22*
U.S. Cl. 55—158 **5 Claims**

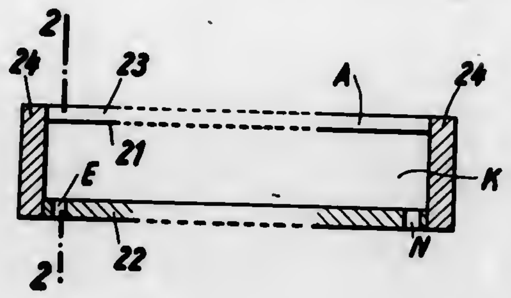


Separating apparatus, particularly suitable for gas permeation and pervaporaton, such apparatus comprising a plurality of parallelopipedonal frame members having a central cell forming aperture stacked alternately with a plurality of parallelopipedonal membrane members of substantially the same outside dimensions, the membrane members each including two permeable membranes having a porous support interposed therebetween, at least one opening formed in the porous support near one side and extending across between 40 and 90% of the width of the support, with the two membranes secured to one another in a fluid tight manner over a zone within the opening or openings, at least one orifice being formed in the membranes in said zone or zones, the openings of alternate membrane members being on opposite sides of the stack; means for supplying fluid to one end of the stack; means for withdrawing fluid from the other end of the stack; a fluid tight chamber enclosing the stack and means for removing permeate from said chamber.

3,837,147
DEVICE FOR SEPARATING MIXTURES OF GASEOUS AND/OR VAPOROUS SUBSTANCES ESPECIALLY FOR SEPARATION OF CARRIER GAS IN DEVICES FOR GASCHROMATOGRAPHY

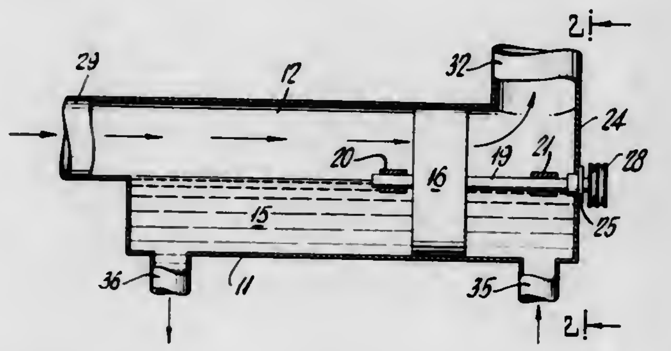
Curt Brunnee, 2820 Platjenwerbe, 24 Birkenweg, Germany
Continuation of Ser. No. 185,834, Oct. 1, 1971, abandoned.
This application Aug. 9, 1973, Ser. No. 386,938
Int. Cl. B01d *15/08*
U.S. Cl. 55—197 **11 Claims**

The invention relates to a device for separating mixtures of gaseous and/or vaporous substances which comprises a separating chamber for said mixture provided with an inlet for viscous flow, a first exit for molecular flow having the form of an elongated slit wherein the slit width preferably is adjustable, and a second exit for viscous flow, especially for separation of a carrier gas in devices for gaschromatography. (Compare U.S. Pat. application Ser. No. 25,919).



3,837,148
APPARATUS FOR FILTERING FLUE GAS

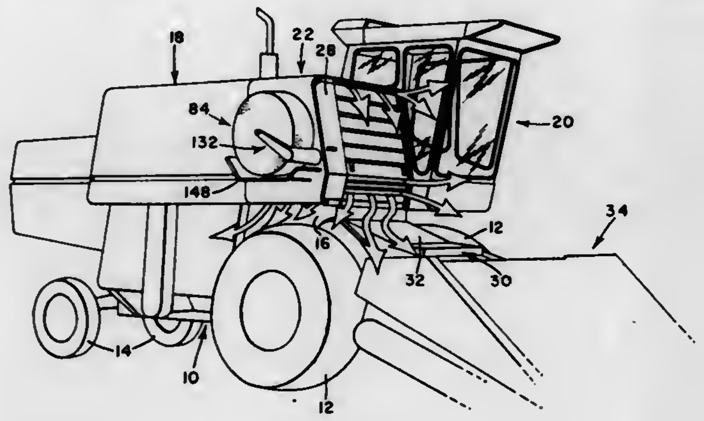
Tauno O. H. Mattson, Denver, Colo., assignor to Texaco Inc., New York, N.Y.
Filed Feb. 23, 1972, Ser. No. 228,583
Int. Cl. B01d *33/02*
U.S. Cl. 55—234 **2 Claims**



Flue gas filtering apparatus. It provides structure for having a continuous backwash of the filter by liquid flowing through an immersed portion to remove filtered material without changing the filter. The filter is arranged to rotate into a liquid bath with the flue gas flowing above the surface thereof.

3,837,149
ENGINE ENCLOSURE AND COOLING SYSTEM WITH ROTARY FILTER

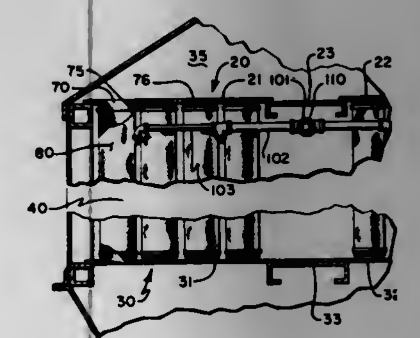
Neil L. West, Bettendorf, Iowa, and James Roger Nelson, Geneseo, Ill., assignors to Deere & Company, Moline, Ill.
Filed June 27, 1973, Ser. No. 374,156
Int. Cl. B01d *46/04*
U.S. Cl. 55—269 **22 Claims**



A self-propelled combine has an elevated transversely oriented engine at the right front of the machine mounted in an engine enclosure having an air inlet on the right sidewall of the enclosure. a rotating, drum-type screen is mounted over the air inlet for filtering the cooling air moving through the inlet, and a radiator is disposed adjacent to the air inlet in the enclosure. An engine driven fan pulls air through the filtered air inlet, through the radiator, and discharges a substantial portion of the air downwardly along the right sidewall of the combine, another substantial portion of the air through outlets in the lower front wall of the enclosure, directing the air along the top of the feeder house, and a smaller portion of the air through an outlet at the top of the engine enclosure front wall. A partial vacuum chamber is disposed adjacent a section of the peripheral wall of the air filter and adjacent a section of the radial end wall of the air filter, the partial vacuum being created in the chamber by suction from the fan through a conduit connecting the chamber to the fan shroud. The normal inward flow of air through the air filter is reversed in those areas of the filter opposite the vacuum chamber, so that the material filtered out of the cooling air by the filter is sucked off of the exterior of the filter into the vacuum chamber, from where it is pulled through the conduit by the fan and discharged through the air outlets, bypassing the radiator. The right sidewall of the engine enclosure is swingable to an open position wherein it provides access to the radiator and other components in the enclosure, a latch being provided to lock the sidewall in its closed position. An interlock is provided in association with the latch for automatically disengaging the drive to the rotating screen when the sidewall is swung to its open position.

3,837,150
FILTERING APPARATUS WITH PNEUMATIC INTERMITTENT CLEANING

John W. Kubiak, Minnetonka, Minn., assignor to The Torit Corporation, St. Paul, Minn.
Filed Dec. 8, 1972, Ser. No. 313,582
Int. Cl. B01d *46/04*
U.S. Cl. 55—272 **5 Claims**

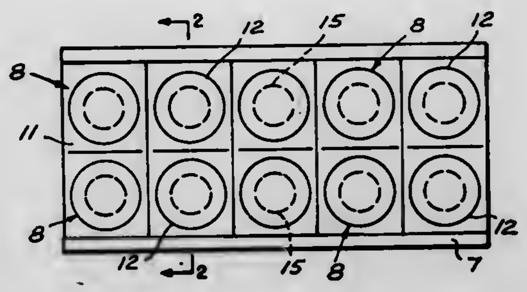


A filtering apparatus employing pneumatic intermittent cleaning in which tubular filter elements are positioned within a tubular enclosure to filter contaminated airflow therethrough. A plurality of nozzles connected to a common manifold are positioned in the tube house adjacent the upper ends of the downstream sides of the filter elements with one nozzle providing a cleaning and agitating action for a plurality of filtering elements. The nozzles are asymmetrically located with respect to the individual filtering elements to provide an efficient shaking of the same to dislodge agglomerated particulate caked on the interior of the filtering elements. The improved apparatus provides for a limited air supply with a predetermined pressure and volume for effective cleaning of the filtering elements to provide for efficient operation of the filtering apparatus and low cost of maintenance of the same.

3,837,151
BAGHOUSE DUST COLLECTOR

Robert M. Jensen, 1457 Wisteria Dr., Ann Arbor, Mich. 48104
Filed Nov. 17, 1972, Ser. No. 307,472
Int. Cl. B01d *46/02*
U.S. Cl. 55—341 **10 Claims**

This invention is directed to a baghouse dust collector of the top inlet type in which the bags are arranged in a plurality of modules, each of which contains a plurality of pairs of bags. Each bag is mounted within a concentric vertical sleeve or shell and the lower end of each bag is operably connected to the lower end of its associated sleeve through a floating type of gastight joint that adapts to variations in bag lengths. Covered access openings are provided adjacent the top and bottom of each sleeve for bag installation and removal. Cleaned gas or air is discharged from an intermediate port in each sleeve, which port also is used for the admission of reverse flow cleaning air or gas.

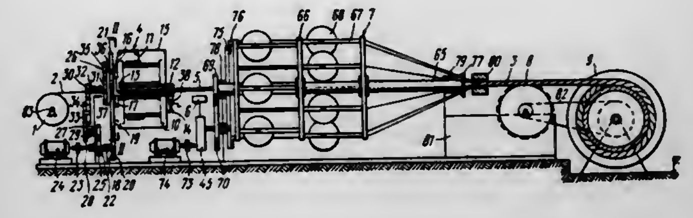


ERRATA

For Classes 56—14, 56—202 and 56—341 see:
Patent Nos. 3,837,157, 3,837,158 and 3,837,159

3,837,152
ROPE-TWISTING MACHINE

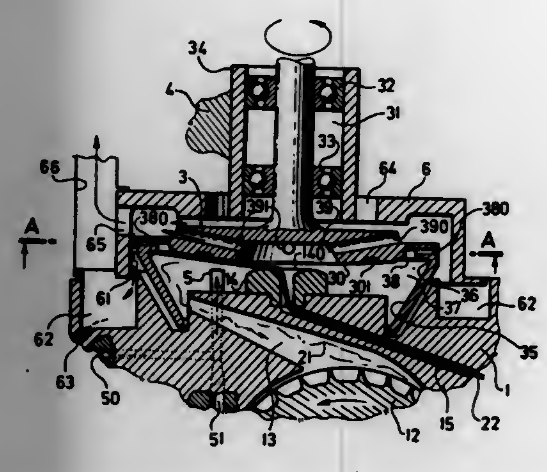
Mark Illarionovich Dakhov, 604 mikroraion, dom 7, kv. 3; Pavel Petrovich Nesterov, ulitsa Sumskaya, 128, kv. 28, both of Kharkov; Alexei Trofimovich Semkin, ulitsa Gastello, 26, Khartsyzsky Donetskoi oblasti; Ljudmila Andreevna Alexeeva, ulitsa Kosmicheskaya, 16, kv. 22; Arkady Zinovievich Sakhnovsky, ulitsa Kitaenko, 4, kv. 62, both of Kharkov; Ivan Timofeevich Skrypnik, ulitsa Tikhomirova, 9/3, kv. 190, Moscow; Lev Lvovich Klimovsky, ulitsa Kitaenko, 3b, kv. 11, Kharkov, and Viktor Alexandrovich Miroshnichenko, ulitsa Dnepropetrovskaya, 18, kv. 12, Dnepropetrovsk, all of U.S.S.R.
Filed Nov. 26, 1973, Ser. No. 418,846
Int. Cl. D07b *3/04, 3/06*
U.S. Cl. 57—9 **2 Claims**



A rope forming machine in which consecutively installed between a reel holding a core of fibrous material and a rotor circumferencially mounting a plurality of wire reels for holding the outer strands of the rope is a spring forming mechanism for forming wire into a cylindrical spring which is used to surround the core brought off the core-holding reel and a device for determining the extent of tensioning of the cylindrical spring with the core enclosed therein after emerging from the spring forming mechanism. The rotational speed of the rotor and a drawing-off drum for drawing off the finished rope formed by twisting the strand around the formed cylindrical spring are controlled, to correlate the rate or rope twisting and that of cylindrical spring forming.

3,837,153
METHOD OF AND APPARATUS FOR PRODUCING FINISHED OPEN END YARN IN A SPINNING CHAMBER

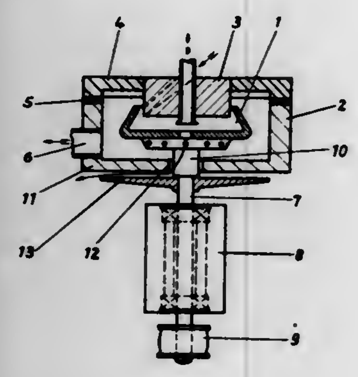
Stanislav Didek, and Jaroslav Storek, both of Usti Nad Orlici, Czechoslovakia, assignors to Vyzkumny Ustav Bavlnarsky, Ustinad Orlici, Czechoslovakia
Filed Nov. 5, 1973, Ser. No. 412,559
Claims priority, application Czechoslovakia, Nov. 6, 1972, 7444-72
Int. Cl. D01h *1/12, 13/30*
U.S. Cl. 57—35 **14 Claims**



Method of and apparatus for producing finished open-end yarn in a spinning chamber. A finishing material, for instance dyestuff, is fed into the spinning chamber, which is provided with a collecting surface for depositing fiber and with a take-off opening for taking-off yarn. The finishing material, for instance dyestuff, is applied to the yarn between the collecting surface and the take-off opening by friction of the yarn against a rotating application surface, the dyeing-through of the yarn being accomplished by penetration of twists of the yarn in the direction towards the collecting surface.

3,837,154
SPINNING TURBINE

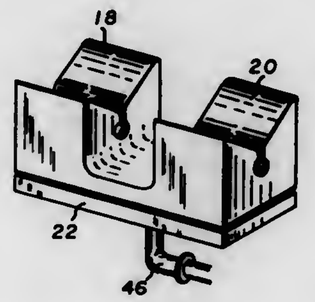
Fritz Stahlecker, Bad Uberkingen, Germany, assignor to Wilhelm Stahlecker GmbH, near Geislingen, Steige, Germany
Filed Jan. 27, 1972, Ser. No. 221,203
Claims priority, application Germany, Jan. 27, 1971, 2103717
Int. Cl. D01h *1/12*
U.S. Cl. 57—58.89 **46 Claims**



A spinning turbine arrangement of the type having a spinning turbine indirectly supported in a casing under subatmospheric pressure. Air conveying means are provided for preventing leakage air from passing into the casing alongside the necessarily large bore for the turbine shaft. These air conveying means can also operate to evacuate or assist in evacuating the casing. The air conveying means may include rotating fan-like or thread-like parts attached to the turbine or turbine shaft. Also rotating air conveyors can be attached to the turbine or turbine shaft. Also rotating air conveyors can be attached to the axles of back-up rolls or the back-up rolls themselves may be constructed as fans. These rotating parts can be either inside or outside of the casing rear wall through which the turbine shaft extends. Air outlet apertures are provided in this rear wall to accommodate the various rotation of the fan and like parts. Also provisions for quick and easy disassembly of the spinning turbine are built into the arrangement with such devices as clip-in inserts and the like.

3,837,155
PNEUMATIC FALSE TWIST INTERLACED YARN

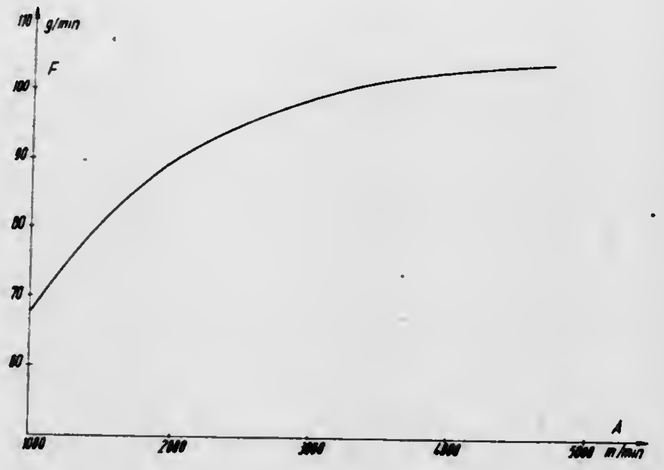
Neil E. Lloyd, and Walter B. Mather, III, both of Rock Hill, S.C., assignors to Celanese Corporation, New York, N.Y.
Division of Ser. No. 42,404, June 1, 1970, Pat. No. 3,775,958. This application Nov. 2, 1971, Ser. No. 194,850
Int. Cl. D02g *3/24*
U.S. Cl. 57—140 R **6 Claims**



Apparatus for interlacing a filament yarn to give it compactness and other characteristics of a twisted yarn comprising a pair of spaced oppositely functioning pneumatic false twisters with the downstream twister having a smaller yarn passage than the upstream twister.

3,837,156
PROCESS FOR PRODUCING MOLECULARLY ORIENTED, TEXTURED CONTINUOUS FILAMENTS

Helmut Langanke, Offenbach; Peter Landenberger, Hanau, and Georg Treutel, Kelsterbach, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft
Filed Feb. 15, 1973, Ser. No. 332,826
Claims priority, application Germany, Feb. 17, 1972, 2207849
Int. Cl. D02g *1/02*
U.S. Cl. 57—157 TS **2 Claims**



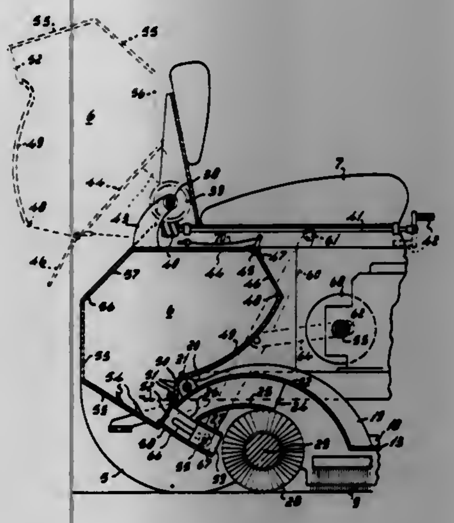
Molecularly oriented, textured continuous filaments are made from thermoplastic materials by

a. spinning continuous filaments from a multi-orifice spinneret and drawing the filaments therefrom without deforming same at a speed of at least 2,500 meters per minute to a residual elongation at break of not greater than 200%; thereafter

b. crimping the prestretched filaments from (a) and further stretching same to a residual elongation by a false-twisting step carried out in the first heating passage of a texturing device.

3,837,157
DEVICES FOR PICKING UP MATERIAL LYING ON THE GROUND

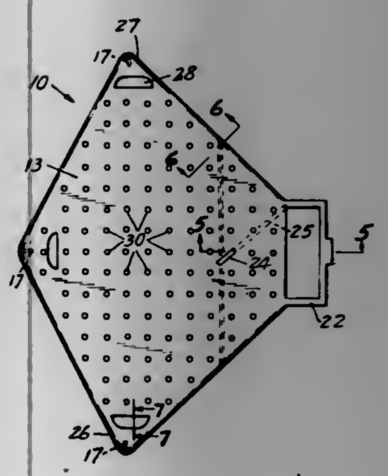
Corneiis Van Der Lely, 7 Bruschenrain, Zug, Switzerland
Filed Dec. 26, 1972, Ser. No. 318,245
Claims priority, application Netherlands, Dec. 27, 1971, 7117853
Int. Cl. A01d *35/26*
U.S. Cl. 56—14.5 **40 Claims**



A device for picking up material lying on the ground includes a wheeled frame with brushes and/or mowing elements rotatably mounted below the frame to urge material rearwardly. A collecting trough is pivoted at its upper aspect to the device and movable from an operating collecting position to a discharge position. A channel communicates between a pick-up brush and the trough to extend the length of the brush, across the width of the frame to pass material back to the trough. An eccentric is connected to reciprocate a piston that forces the material into the trough through at least one movable flap. The eccentric is driven by a motor which also propels the device.

3,837,158
GRASS CATCHER FOR ROTARY MOWER

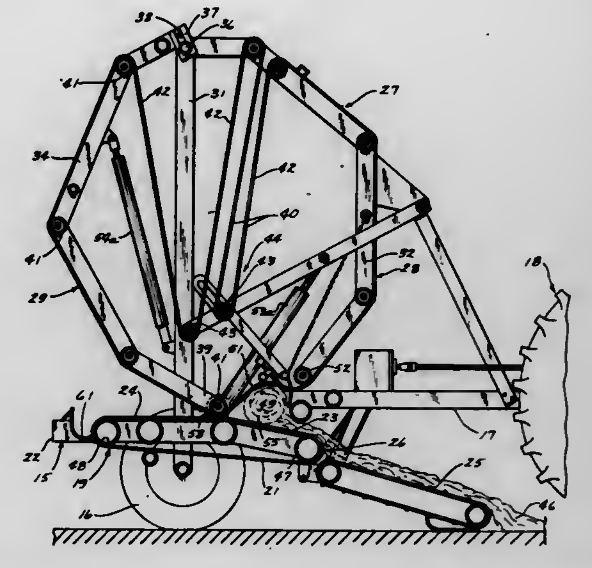
Joe Leader, 915 West 34th St., Minneapolis, Minn. 55426
Filed July 9, 1973, Ser. No. 377,787
Int. Cl. A01d *35/22*
U.S. Cl. 56—202 **11 Claims**



Shown herein is a generally diamond-shaped container having a divider member pivotally mounted within its inlet and cooperating with an upwardly extending deflector at the bottom to direct the grass clippings from the discharge of a rotary mower to the more remote portions of the container. A handle member adjacent the inlet also serves to attach the container to the rotary mower in receiving relation.

3,837,159
MACHINE FOR FORMING A ROUND BALE OF A WINDROWED MATERIAL

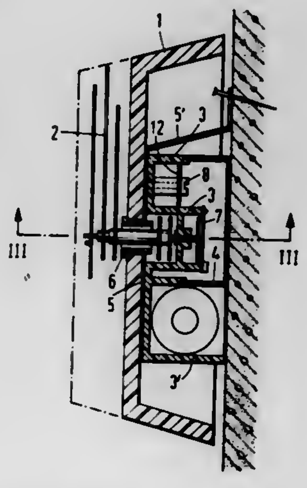
Gary J. Vermeer, Box 200, Pella, Iowa 50219
Filed Nov. 23, 1973, Ser. No. 418,554
Int. Cl. A01d *39/00*
U.S. Cl. 56—341 **4 Claims**



The invention provides a machine for making large round bales wherein hay is delivered to one end of a horizontal conveyor and rolled thereon in a bale forming zone by a series of roller-supported continuous belts. A lower roller for the series of belts is movable to progressively expand the bale forming zone in response to the progressive enlargement of a bale being formed. This movement of the lower roller takes place in a path longitudinally of and adjacent the upper surface of the horizontal conveyor to a completed bale forming position wherein the roller is located outwardly from but adjacent to the other end of the conveyor with the lower side portion thereof located below the upper surface of the conveyor. The series of belts at the lower roller are thus in a continuous adjacent working clearance with the conveyor whereby hay dropping onto the conveyor is continuously fed into the bale forming zone and prevented from being carried below such roller for discharge to the ground.

3,837,160
BATTERY DRIVEN CLOCK WITH A SELF-REGULATING ESCAPEMENT SYSTEM AND A PLASTICS MATERIAL HOUSING

Hugo Hettich, 7762 Ludwigshafen, Bodensee, Germany
Continuation of Ser. No. 172,397, Aug. 17, 1971, abandoned. This application July 2, 1973, Ser. No. 375,717
Int. Cl. G04c *21/16;* **G04b** *13/02*
U.S. Cl. 58—19 R **12 Claims**



A battery-powered clock with a self-regulating escapement system and a plastic housing comprises a plastic capsule, directly connected with the clock housing, and accommodating the clockwork parts directly.

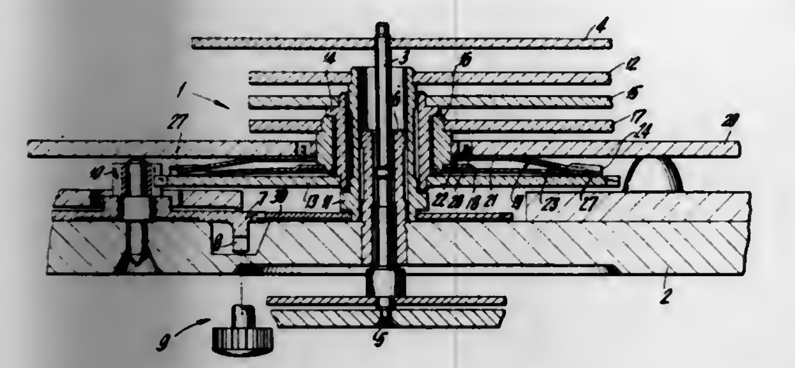
3,837,161
UNIVERSAL TIME WATCH

Paul Wuthrich, Watertown, Conn., assignor to Timex Corporation, Waterbury, Conn.

Filed Dec. 26, 1973, Ser. No. 428,149

Int. Cl. G04b *19/22;* G04d *27/00*

U.S. Cl. 58—42.5 **5 Claims**



A horological device with a regular hour hand and including an auxiliary hour hand for indicating a different time zone than the local time. The auxiliary hour hand is connected to the regular hour hand through a coupling member permitting relative rotation between the regular hour hand and the auxiliary hour hand when the crown is rotated in one direction and permitting normal setting of the hour hand and minute hand, with the auxiliary hour hand moving in unison, when the crown is rotated in the opposite direction. The coupling member is normally driven by the hour wheel through a peripheral friction coupling, and is held in place during setting of the auxiliary hour hand by a one-way ratchet utilizing weak radial spring arms.

3,837,162
DEVICE FOR ADJUSTING THE DIAL TRAIN OF WATCHES

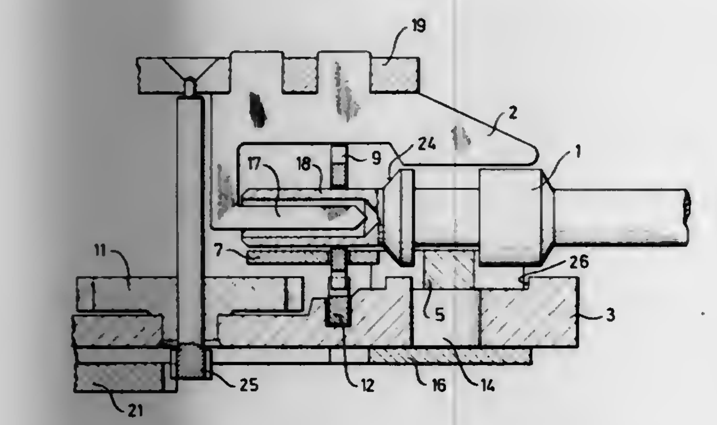
Heinz Meitinger, Theodor-Heuss-Str. 16 D-7075, Mutlangen, Germany

Division of Ser. No. 272,693, July 7, 1972, abandoned. This application Mar. 26, 1973, Ser. No. 334,625

Claims priority, application Germany, Aug. 6, 1971, 2139429

Int. Cl. G04b *27/02*

U.S. Cl. 58—67 **2 Claims**



A setting mechanism for wrist-watches which serves for adjusting the dial train carrying the minute and hour indicating hands. The function is achieved by a setting stem which is provided with a bearing recess and carried on a projecting portion which is rigidly mounted on the movement frame. The setting wheel for setting the dial train is carried on the setting stem and movable in axial direction relative to the setting stem. The setting wheel is positioned by the setting lever which serves, in connection with the set stem lever, as a clutch-like arrangement.

3,837,163
HARD METAL WATCH BAND

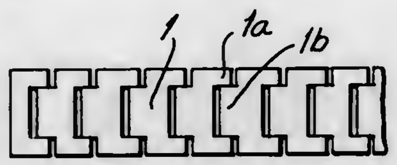
Yoshiaki Fujimori, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Dec. 13, 1972, Ser. No. 314,627

Claims priority, application Japan, Dec. 14, 1971, 46-100669

Int. Cl. F16g *13/00*

U.S. Cl. 59—80 **9 Claims**



A mar-proof watch-band is made of materials having a hardness greater than Hv 1,000. Suitable materials are hard nitrides, oxides and carbides, in combination with metallic binders. Such materials may be ground to a mirror-finish.

3,837,164
INDUSTRIAL GAS TURBINE POWER PLANT MOUNTING APPARATUS

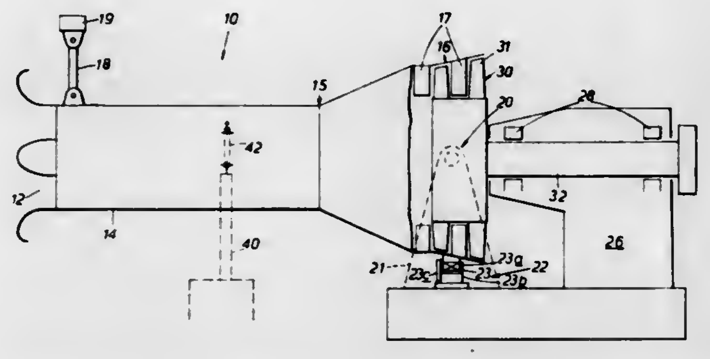
William Reginald Carr, Rugby, England, assignor to Rolls-Royce (1971) Limited, London, England

Filed May 21, 1973, Ser. No. 362,058

Claims priority, application Great Britain, May 24, 1972, 24328/72

Int. Cl. F02c *3/10*

U.S. Cl. 60—39.16 R **3 Claims**



An industrial gas tubine power plant consists of a gas generator having a compressor, combustion equipment and a compressor driving turbine, and a power turbine. The stator casing of the power turbine is attached to the gas generator and the rotor portion of the power turbine is mounted independently in an overhung manner in a pedestal. The gas generator is mounted at the rear on a pair of trunnions on the stator casing and at the front either by a link attached to an overhead frame or a pair of links from a column on each side of the gas generator. The gas generator also has a central locating device mounted under the stator casing to centralise radial expansion of the stator casing.

3,837,165
AUTOMATIC DEVICE FOR CONTROLLING CATALYTIC MUFFLERS

Virgilio Arrigoni, San Donato Milanese; Bruno Gaetani, Milano; Gianfranco Marchesi, and Gianfranco Zanoni, both of San Donato Milanese, all of Italy, assignors to Snam Progetti S.p.A., Milan, Italy

Filed Sept. 7, 1972, Ser. No. 287,009

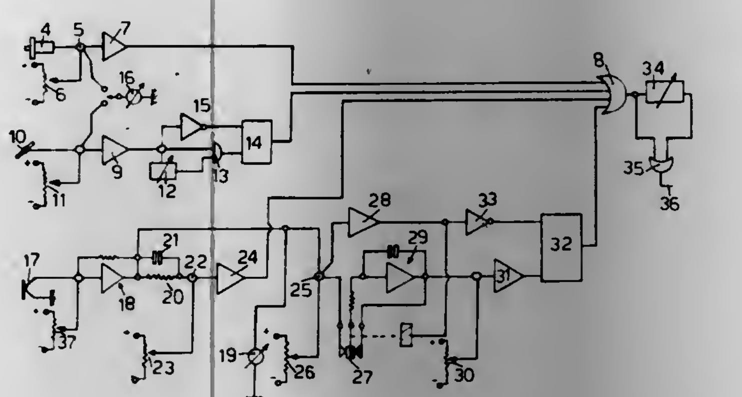
Claims priority, application Italy, Sept. 10, 1971, 28446/71

Int. Cl. F02b *75/10*

U.S. Cl. 60—277 **6 Claims**

A device for automatically controlling a by-pass electrovalve of a catalytic muffler comprising three inlet stages, the

first inlet stage is responsive to the speed or number of engine revolutions, the second inlet stage is responsive to the throttle position and includes a retarding circuit and store, and the third inlet stage is responsive to the temperature of the catalyst and includes means for comparing the temperature of



the catalyst with a maximum allowable temperature ($T_{MAX.}$) and a predetermined running temperature (T_S). The three inlet stages are electrically coupled to an outlet stage which includes a timer for producing a pulse of predetermined duration.

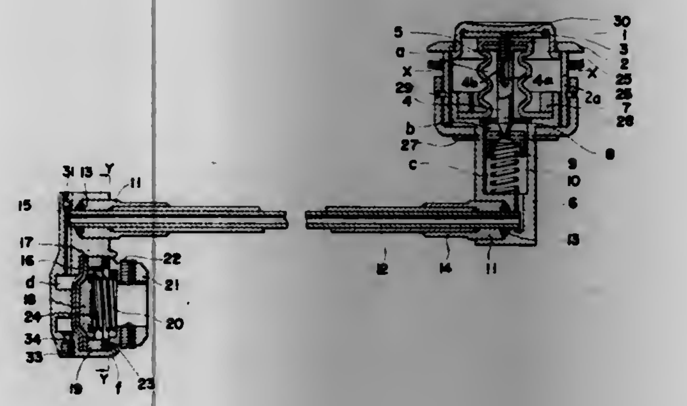
3,837,166
APPARATUS FOR TRANSMITTING FORCE BY HYDRAULIC PRESSURE

Kingo Hiraoka, Tokyo, Japan, assignor to Koito Industries, Ltd., Kanagawa-ken, Japan

Continuation of Ser. No. 169,771, Aug. 6, 1971, abandoned. This application July 19, 1973, Ser. No. 380,617

Int. Cl. F15b *7/00*

U.S. Cl. 60—533 **9 Claims**



A hydraulic pressure transmitter is connected by a flexible tube to a hydraulic actuator. The transmitter has a flexible bellows, with a closed outer end, whose interior defines a first chamber, has a cylinder, and has a piston reciprocable in the cylinder and defining therewith a second chamber, communicating with the bellows, and a third chamber communicating with the tube. The closed outer end of the bellows has a pressure plate thereon which is engaged by an operating button which can be depressed to collapse the bellows. A piston rod is secured to the closed bellows end and extends through a perforated rigid diaphragm into the second chamber, the inner end of the piston being shaped to sealingly engage in an aperture in an end wall of the piston. The piston is biased toward the piston rod by a spring, and has a small clearance with the cylinder walls for flow of hydraulic fluid therepast between the second and third chamber parts.

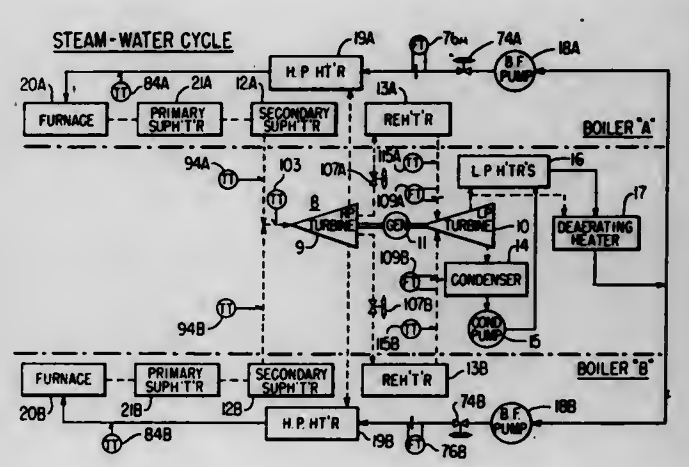
3,837,167
CONTROL SYSTEM FOR A TWO BOILER, SINGLE TURBINE GENERATOR POWER PRODUCING UNIT

Oliver W. Durrant, Akron, and John William Smith, Massillon, both of Ohio, assignors to The Babcock & Wilcox Company, New York, N.Y.

Filed June 7, 1973, Ser. No. 367,775

Int. Cl. F22b *35/00;* F01b *27/00*

U.S. Cl. 60—664 **14 Claims**



A coordinated control system for a power producing unit consisting of two, single reheat steam generators supplying steam to a single turbine-generator.

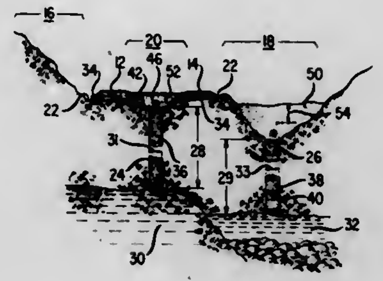
3,837,168
DRAINAGE SYSTEM

Dietrich Anselm Alsberg, and Glenna Rose Alsberg, both of 60 Princeton Ave., Berkeley Heights, N.J. 07922

Filed June 18, 1973, Ser. No. 371,287

Int. Cl. E02b *11/00*

U.S. Cl. 61—10 **15 Claims**



A drainage system for reducing flooding simultaneously with recharging underground water supplies includes structures such as dry wells which connect to underground water sources, water conveying means for conveying water to the structures and storage basins for providing temporary storage of excess water until it can be handled by the structures.

3,837,169
REINFORCED MATTRESS FOR PROTECTING SHORELINES AND THE LIKE

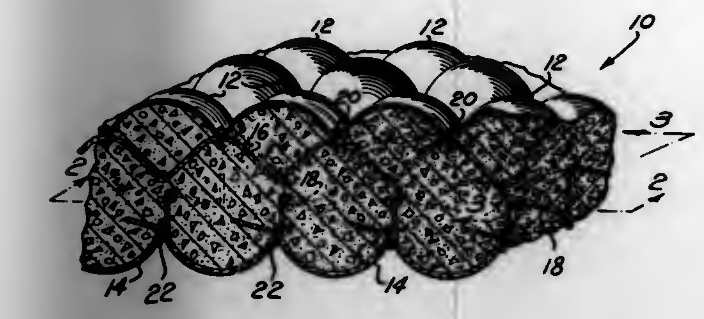
Bruce A. Lamberton, 310 Rowan Dr., Berea, Ohio 44017

Filed Oct. 10, 1972, Ser. No. 296,348

Int. Cl. E02b *3/12*

U.S. Cl. 61—38 **16 Claims**

A pair of sheets of flexible material are interconnected at a plurality of spaced points by a cord system comprising elongated flexible intersecting cord means with the cord means extending between the two sheets and with means interconnecting at least some of the intersecting portions of the cord means whereby a form constructed in this manner may be injected with a cementitious slurry which will inflate the form with the cord means permitting separation of the two sheets for a substantial but controlled amount.



3,837,170

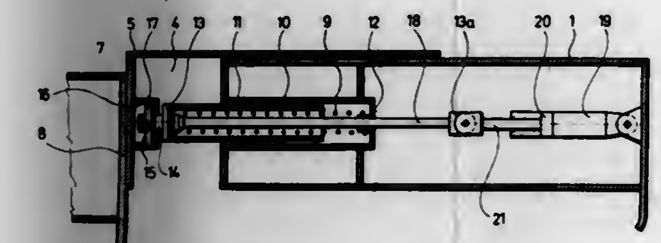
SEALING AND POSITION RECTIFYING MECHANISM FOR SHIELD SUPPORTS

Matyas Martinko, Varpalota; Ferenc Martos, and Titusz Jutas, both of Budapest, all of Hungary, assignors to Banyaszati Kutato Intezet, Budapest; Varpalotai Szenbanyak, Varpalota and Orszagos Banyagepgyarto Vallalat, Budapest, all of, Hungary, part interest to each

Filed Mar. 6, 1972, Ser. No. 232,101

Int. Cl. E21d ***15/44***

U.S. Cl. 61—45 D **1 Claim**



A shielding and breaking unit for long wall working in coal mines, comprises a plurality of endwise aligned units having interconnected base plates and shielding and breaking units that are articulately interconnected to the base plates and to each other. The shielding and breaking units are vertically swung by means of hydraulic jacks. The various shielding and breaking units are spring-urged into engagement with each other and have working surfaces that slidably overlie each other.

3,837,171

INFLATABLE UNDERWATER STRUCTURE

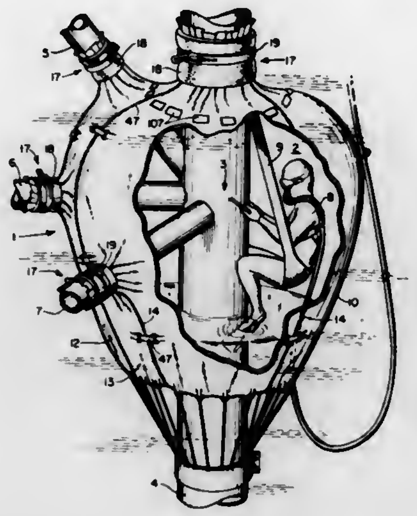
John T. Scurlock, 6209 Schovest, Metairie, La. 70003

Continuation of Ser. No. 112,861, Feb. 5, 1971, abandoned, which is a continuation-in-part of Ser. No. 843,543, July 22, 1969, abandoned. This application Apr. 10, 1973, Ser. No. 349,709

Int. Cl. B63c ***11/36;*** **E04b** ***1/343***

U.S. Cl. 61—69 R **18 Claims**

An inflatable underwater structure for providing an artificial environment around a work area, for example, at the subsea base of an off-shore oil platform, permitting such work as welding and the like; the structure is made up of one integral sheet of material for a custom job or a series of selected sheets fastened together about the structural support members; the material includes zippered sections so that the material can be placed about and around the structural members; in order to insure a substantially air-tight system, neck sealing means are included about the structural members at their intersection with the sheet material as well as air-tight means within the zippered sections; although the system could be used on land, it is particularly applicable to sub-sea situations.



3,837,172

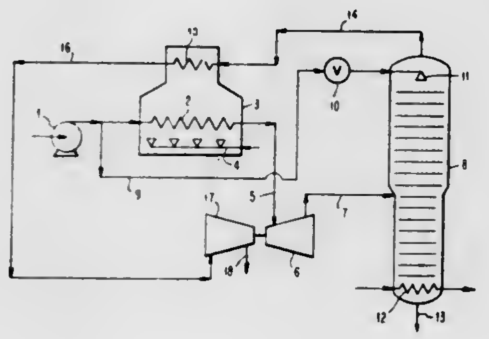
PROCESSING LIQUEFIED NATURAL GAS TO DELIVER METHANE-ENRICHED GAS AT HIGH PRESSURE

Stephen J. Markbreiter, Edison, and Irving Weiss, Brooklyn, both of N.Y., assignors to Synergistic Services Inc., New York, N.Y.

Filed June 19, 1972, Ser. No. 263,983

Int. Cl. F25j ***3/02***

U.S. Cl. 62—24 **10 Claims**



Liquefied natural gas is pumped to high pressure and divided into a major portion which is heated and introduced into a rectifying column and a minor portion which enters the column as subcooled reflux. Methane-enriched gas leaves the top of the column at high pressure while liquid ethane and heavier hydrocarbons are withdrawn from the bottom thereof. When the methane-enriched gas is to be delivered at a pressure above the critical pressure of the gas in the column, the heated major portion is expanded with the performance of work before being introduced into the column; the work thus performed is utilized to compress the methane-enriched gas to a pressure above that in the column.

3,837,173

ACCUMULATOR WITH REFRIGERANT LEVEL INDICATING MEANS

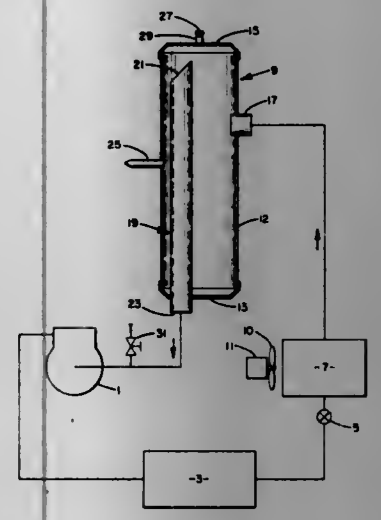
Gary W. Kuttruff, North Syracuse, and Raymond F. Durham, Liverpool, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Mar. 29, 1973, Ser. No. 346,217

Int. Cl. F25b ***43/00***

U.S. Cl. 62—128 **1 Claim**

A dead-end tube extending from the side wall of the accumulator in a flooded evaporator refrigeration system having a fixed expansion device, for indicating the level of liquid refrigerant in the accumulator to facilitate the charging of the system. The tube is located at a position coincident with the liquid refrigerant level in the accumulator existing when the system has an optimum charge of refrigerant at predetermined operating conditions. To charge the system, it is run at the predetermined operating conditions while adding refrigerant, until the tube sweats or frosts over to indicate that the liquid level has reached the tube.



3,837,174

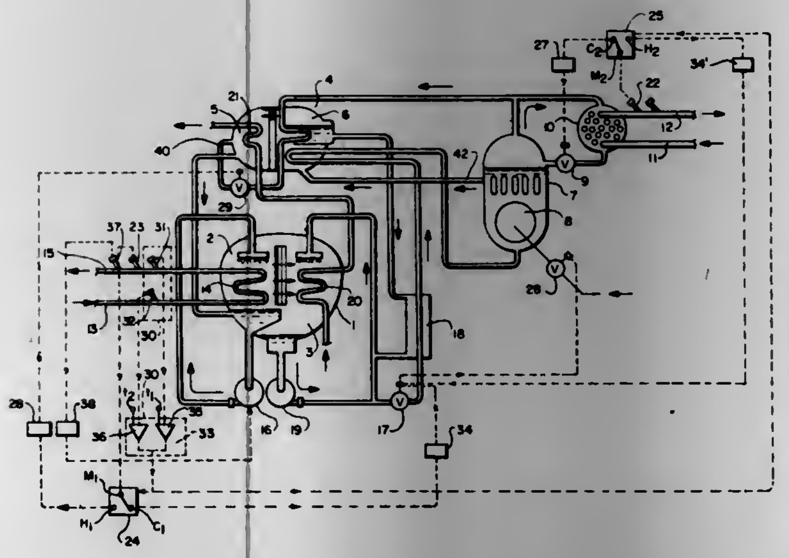
CONTROL DEVICE FOR AN ABSORPTION SYSTEM HOT AND COLD WATER SUPPLY APPARATUS

Tatsuo Miyagi, and Shigeru Sakata, both of Oizumicho, Japan, assignors to Sanyo Electric Co., Ltd., Osaka and Tokyo Sanyo Electric Co., Ltd., Gunma, both of, Japan

Filed Mar. 16, 1973, Ser. No. 341,900

Int. Cl. F25b ***15/06***

U.S. Cl. 62—141 **5 Claims**



A control device for an absorption system hot and cold water supply apparatus for regulating its refrigerating and heating capacity in order for it to supply hot water and cold water simultaneously corresponding to the loads of hot and cold water, including main and auxiliary proportional controllers, a load detector, changeover switches and devices and apparatus having thermo-control capacity. The complete refrigerant circuit of the apparatus being controlled by the main proportional controller selected by changeover switches owing to the load detector, and at a given time either the hot water circuit or the cold water circuit being controlled by the auxiliary proportional controller connected to one of the circuits independently from the control of the complete refrigerant circuit owing to the main proportional controller.

3,837,175

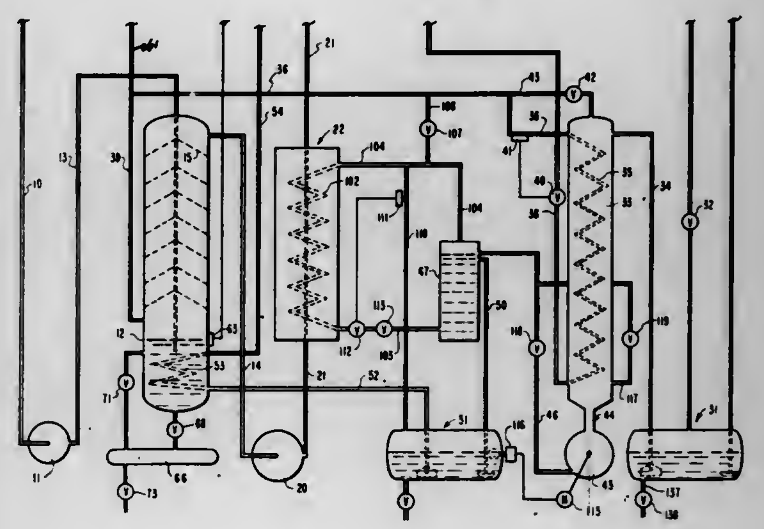
REFRIGERATION SYSTEM HAVING IMPROVED HEAT TRANSFER AND REDUCED POWER REQUIREMENTS

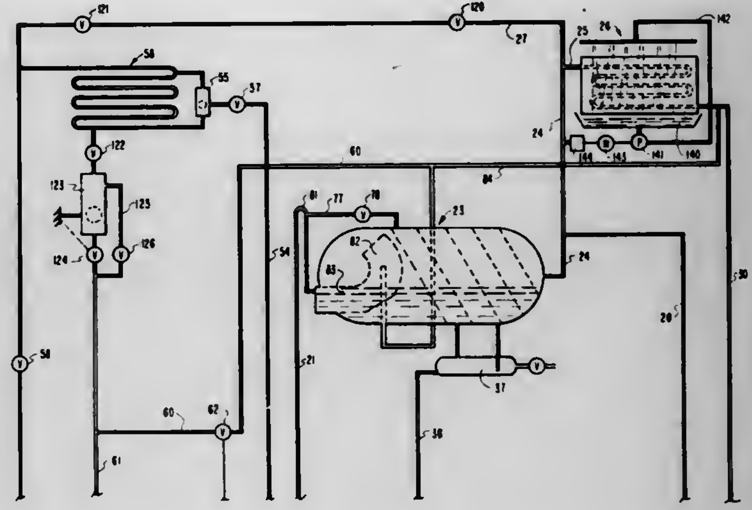
Bruce D. Miller, Louisville, Ky., assignor to Refco, Inc., Jeffersontown, Ky.

Filed Oct. 9, 1973, Ser. No. 404,224

Int. Cl. F25b ***31/00***

U.S. Cl. 62—192 **23 Claims**





A refrigeration system employing oil-lubricated compressors has an improved arrangement for removing oil from the refrigerant, and by use of a liquid pump and with utilization of by-product heat from the compressed gas, is enabled to operate with reduced power consumption.

In addition, oil-removing apparatus adapted for installation in conventional refrigeration systems, and an improved defrosting arrangement utilizing oil-free gas, are disclosed.

3,837,176

REFRIGERATED HOPPER EQUIPMENT FOR AUTOMATIC RIVETING MACHINES

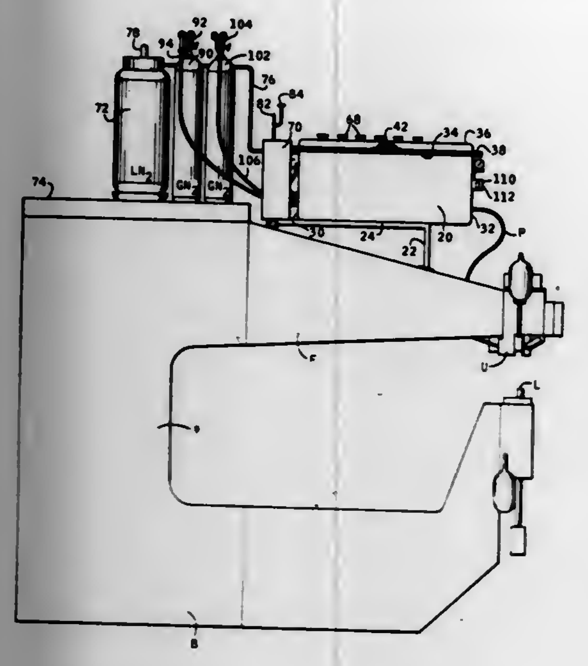
George I. Baxter; Clarence P. Rolla, both of San Diego, and Charles L. Holland, Escondido, all of Calif., assignors to General Dynamics Corporation, San Diego, Calif.

Filed Aug. 2, 1972, Ser. No. 277,438

Int. Cl. F25b ***41/04***

U.S. Cl. 62—225 **8 Claims**

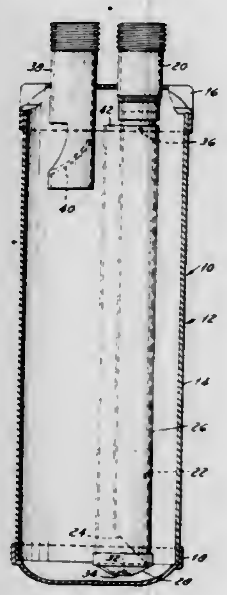
A refrigerating apparatus enclosing the rivet hoppers of an automatic riveting machine. A refrigerant such as liquid nitrogen is conducted into the refrigerant coils of an insulated enclosure to maintain the temperature of the rivets in the hoppers at sub-zero temperature in order to retard the age hardening process. Frost formation on the rivets is effectively prevented by purging the enclosure with gaseous nitrogen. Upon passing through the coolant coils, the nitrogen absorbs sufficient heat to convert it from the liquid state to a gaseous state. The gas then discharges from the open end of the coils into the enclosure and through a vent in the side wall of the enclosure to atmosphere. To augment frost prevention, dry nitrogen gas is utilized to propel the rivets from the hoppers into the fingers of the riveting machine. Down time for servicing, changing rivets, etc. is reduced to a minimum by a temperature controlled space heater mounted inside the enclosure.



3,837,177
SUCTION ACCUMULATOR

Frank H. Rockwell, and Edward W. Bottum, both of Brighton, Mich., assignors to Refrigeration Research, Inc., Brighton, Mich.

Filed Nov. 1, 1973, Ser. No. 411,913
Int. Cl. F25b *43/00*
U.S. Cl. 62—503 **4 Claims**



The suction accumulator of the invention is designed for use with the suction or compression side of a refrigeration system. The accumulator comprises a casing having an inlet and an outlet. An outlet tube structure is provided within the casing connected to an outlet from the casing. The outlet tube structure includes an outer tube and an inner tube of smaller diameter positioned therewithin. This structure extends from a point adjacent the bottom of the casing to the casing outlet and acts as a suction device to draw liquid from the casing and expel it into the casing outlet at a metered rate.

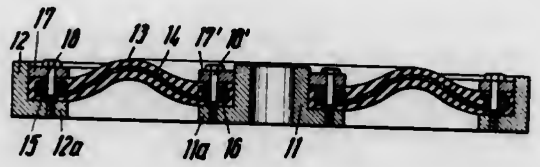
3,837,178
FLEXIBLE SHAFT COUPLING

Bernhard Hackforth, and Josef Hackforth, both of Wanne-Eickel, Germany, assignors to Vulkan Kupplungs-und Getriebau Bernhard Hackforth, Wanne-Eickel, Germany

Filed Mar. 19, 1973, Ser. No. 342,613

Claims priority, application Germany, Mar. 23, 1972, 2214093; Nov. 14, 1972, 2255680

Int. Cl. F16d *3/78*
U.S. Cl. 64—13 **10 Claims**



A flexible shaft coupling of the kind comprising a hub part and a co-axial surrounding ring part connected together by a flexible annular disc which is reinforced by one or more reinforcing inserts of textile or synthetic yarn or of wire the inner and outer edges of which are wrapped around stiffening rings near the inner and outer peripheries of the disc has the outer stiffening ring, and preferably the inner stiffening ring also, formed of strip-like material, the stiffening ring or rings thus being of flattened cross-section with the greater lateral dimension lying in the plane of the disc, so that the ring has a greater bending stiffness in a direction radially of the disc than in a direction axially of the disc. Preferably the stiffening rings are provided with axial holes and the inner and outer peripheral portions of the disc are clamped to the hub part and the surrounding ring part by means of clamping rings and clamping bolts which pass through holes in the clamping rings and through the axial holes in the flattened stiffening rings.

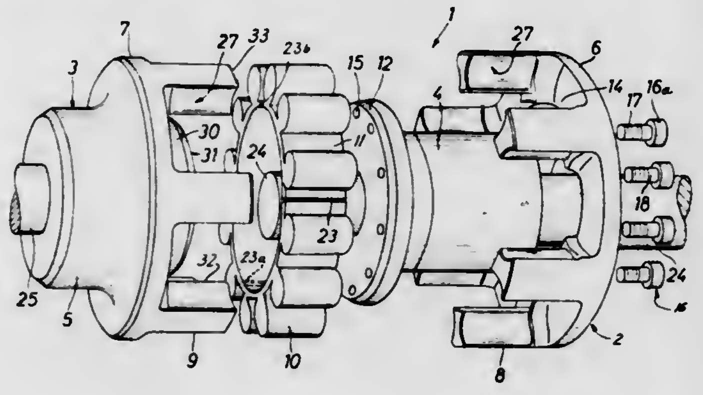
3,837,179
FLEXIBLE COUPLING

Harald Barth, Hermannstrasse 103, Neunkirchen, Saar, Germany

Filed Mar. 7, 1973, Ser. No. 338,901

Claims priority, application Germany, Mar. 10, 1972, 2211512

Int. Cl. F16d *3/64*
U.S. Cl. 64—14 **39 Claims**

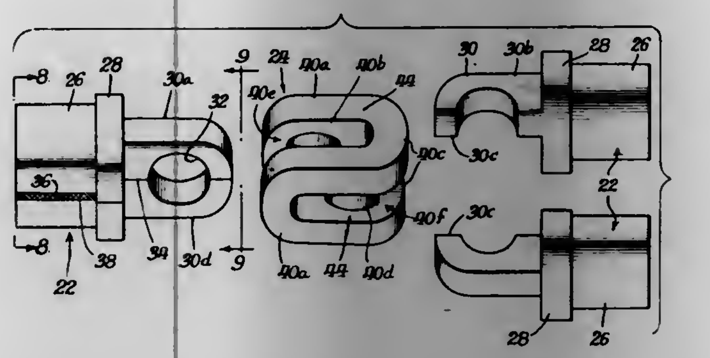


A flexible coupling wherein the jaws of one flange are normally interdigitated with the jaws of the other flange to form substantially cylindrical chambers for reception of elastically deformable cylindrical inserts which transmit torque between the flanges when one flange rotates to drive the other flange. At least one of the flanges has a hub and a rim which is separably connected to the hub by screws and can be moved, upon removal of screws, with the respective jaws in a direction away from the jaws of the other flange to thus permit convenient withdrawal of the inserts. The inserts are connected to a split ring which can pass over the hub when the latter is separated from the rim.

3,837,180
ANGULAR COUPLING

Roger H. Mitchell, 5809 36th Ave., Kenosha, Wis. 53140

Filed July 20, 1972, Ser. No. 273,433
Int. Cl. F16d *3/26*
U.S. Cl. 64—17 R **11 Claims**



An angular coupling made up of three main parts — a pair of end pieces having loops interlocked in mutually transverse positions, and a double reverse-turn continuous center piece forming linear elements respectively positioned in the concave corners formed by the interlocked loops, whereby the loops and linear pieces together form a circumferentially continuous series of interengaging elements through which the torque is transmitted.

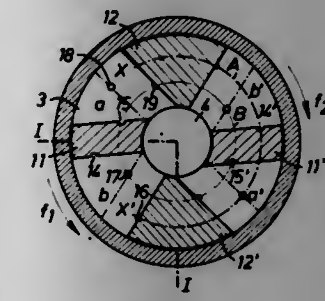
3,837,181
ROTARY COUPLING DEVICE IN WHICH THE TRANSMITTED SPEED OF ROTATION IS INCREASED PROGRESSIVELY

Arthur-Andre Leuenberger, Geneve, Switzerland, assignor to Relma S. A., Geneva, Switzerland

Filed Dec. 12, 1972, Ser. No. 314,378

Claims priority, application Switzerland, Dec. 23, 1971, 18866/71

Int. Cl. F16d *3/80, 7/00, 43/20*
U.S. Cl. 64—26 **10 Claims**

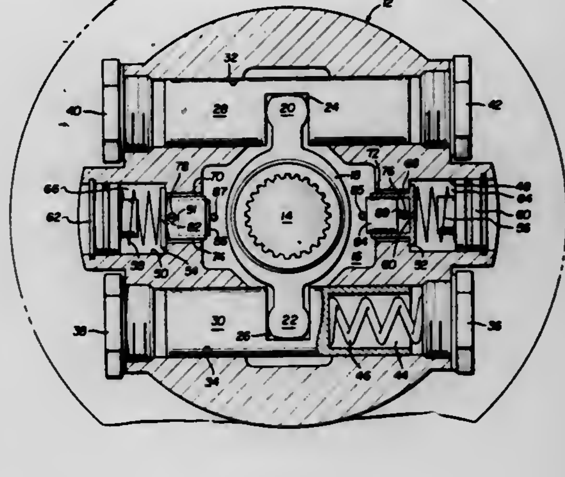


A rotary coupling device in which the transmitted speed is increased progressively, of the type having a case and a shaft axially extending therein defining an annular chamber filled with fluid, at least one driving vane connected to rotate with a driving shaft and extending radially between the inner lateral wall of said chamber and the lateral wall of the axial shaft and axially between the two end walls of the case to form an inner partition wall in the annular chamber, and at least one corresponding driven vane connected to the driven shaft and forming an inner partition wall in said annular chamber. The two corresponding vanes divide the annular chamber into two complementary spaces, and the driven shaft is normally driven positively by the driving shaft by contact between the vanes.

3,837,182
DRIVE LINE DAMPER

Joseph T. Kulhavy, Davenport, Iowa, assignor to J. I. Case Company, Racine, Wis.

Filed Aug. 20, 1973, Ser. No. 389,822
Int. Cl. F16d *3/80*
U.S. Cl. 64—26 **16 Claims**



A damper system which connects a flywheel and drive shaft combines a continuous, closed hydraulic system with a mechanical spring arrangement to absorb and eliminate vibrational forces generated at low engine speeds. A force transmitting member in the form of a hub is connected to the drive shaft for rotation therewith and is biased by the combination hydraulic-spring damper to permit relative rotational movement. A centrifugally operated valve blocks the continuous, closed hydraulic system at full engine operation to lock the damper and thereby eliminate any relative movement between the flywheel and drive shaft.

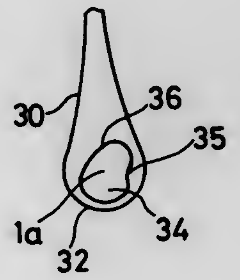
3,837,183
THREAD GUIDES HAVING RESTRICTED APERTURES FOR USE IN WARP KNITTING MACHINES

Karl Kohl, 10 Chlorodont Strasse, Obertshausen, Germany (6053)

Filed May 29, 1973, Ser. No. 364,598

Claims priority, application Germany, May 29, 1972, 2226000

Int. Cl. D04b
U.S. Cl. 66—86 R **4 Claims**



There are provided thread guides of novel structure having a protuberance in the plane of the head portion of the thread guide extending into the aperture of the eyelet portion whereby the radius of curvature of a thread passing through the eyelet during the working of the warp knitting machine is substantially increased.

3,837,184

KNITTING MECHANISM FOR PRODUCING PILE FABRIC

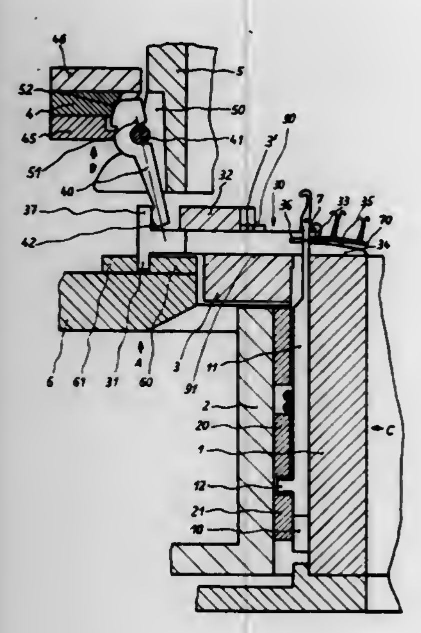
Wittich Meyerhuber; Werner Koblitz, and Hans Joachim Suppe, all of Ingolstadt, Germany, assignors to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Ingolstadt, Germany

Filed Aug. 28, 1972, Ser. No. 284,067

Claims priority, application Germany, Aug. 28, 1971, 2143257

Int. Cl. D04b *15/06, 27/04, 35/100*

U.S. Cl. 66—93 **8 Claims**



Pile material is interlaced into a basic mesh backing, particularly on a circular knitting machine having means for controlling the retraction and extension of linearly reciprocable sinkers including a pair of cam following ears on each cooperating sinker. One sinker ear can control retraction of the sinker, and the other ear controls sinker extension. The sinker includes a pile loop-engaging hook above and outward from the sinker throat, the degree of sinker retraction determining the depth of the pile loop. The sinker-retracting cam ring is segmented to permit repositioning to change the pile depth by turning a pile depth-setting knob, and such cam ring operates a pivotable cam lever extending between the cam ring and the sinker retraction ear. The lever opposite ends comprise a follower and a camming surface respectively.

3,837,185

METHOD AND APPARATUS FOR FORMING LOOPS IN CIRCULAR KNITTING MACHINES

Milan Havranek, No. 12 Sramkova, and Ivan Musil, No. 24 Brozikova, both of Brno, Czechoslovakia

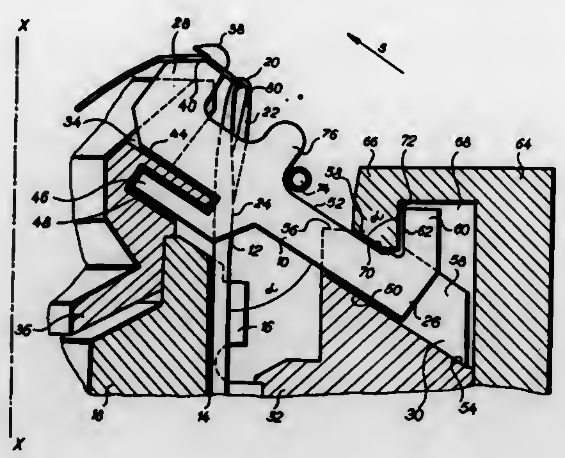
Continuation-in-part of Ser. No. 105,851, Jan. 12, 1971, abandoned. This application May 31, 1973, Ser. No. 365,573

Claims priority, application Czechoslovakia, Jan. 16, 1970, 330-70

Int. Cl. D04b *15/06, 15/24*

U.S. Cl. 66—107 **5 Claims**

A circular knitting machine having a needle cylinder in which a plurality of needles are operable in a predefined direction. Sinkers are located between the needles and means for operating the cylinder, needles and sinkers in combination to form loops is provided. The sinkers are each formed with a head and a heel end and are mounted respectively in slots formed in a circle located on the exterior of the cylinder and a cam ring mounted on the interior of the cylinder. The slots mounting the sinkers are obliquely directed in the path of movement of the needles and the sinkers are guided by the cams to move in this oblique path with the head end in constant position with respect to the needles. The needles and the sinkers are synchronously reciprocated so that part of the loop is formed by the needles and part is formed by the movement of the sinkers.



3,837,186

APPARATUS FOR THE CONTINUOUS TREATMENT OF THREADS

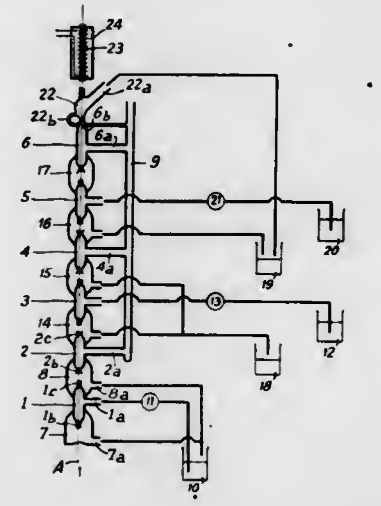
Michel S. M. Lefebvre, Saint-Quentin, and Jean-Claude M. L. Hennion, Arly, both of France, assignors to Omnium De Prospective Industrielle, Saint-Quentin, France

Division of Ser. No. 107,166, Jan. 18, 1971, Pat. No. 3,724,088. This application Nov. 20, 1972, Ser. No. 307,763

Claims priority, application France, Jan. 21, 1970, 70.02183

Int. Cl. B05c *9/08*

U.S. Cl. 68—3 SS **12 Claims**



This invention relates to a process for squeezing and/or drying a humid thread, particularly a textile thread, in the course of a treatment, such as dyeing, effected continuously on said thread during the rectilinear displacement thereof, wherein the humid thread is passed into a zone traversed by a current of air at a pressure much lower than the pressure prevailing about the thread during the operation having provoked its humidification. The invention also relates to an apparatus for continuously treating a thread, for example a textile thread, applying the process as described hereinabove.

3,837,187

APPARATUS FOR THE WET TREATMENT OF CLOTHS

Isidro Folch Trullas, Tarrasa, Spain, assignor to Argelich, Termes y Cª. Sociedad Anonima, Barcelona, Spain

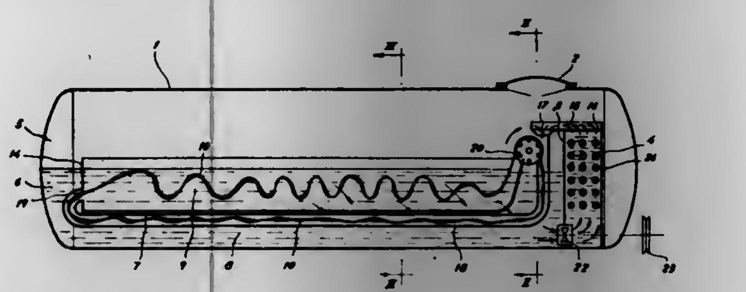
Filed Aug. 3, 1973, Ser. No. 339,467

Claims priority, application Spain, Mar. 29, 1972, 402434

Int. Cl. B05c *3/172*

U.S. Cl. 68—15 **7 Claims**

An apparatus for the wet treatment of cloths in rope form comprising a hermetically sealed vessel having a liquid pumping compartment and a treatment compartment through which the cloth circulates drawn along by the treatment liquid, the treatment compartment being divided into two subcompartments, the cloth circulating through the lower subcompartment on the outward run inside a longitudinal duct connected at its ends respectively with the header portion of the pumping compartment and the upper subcompartment through which the cloth passes on the return run; at the end of the return run a winch draws the cloth from the bath and returns it to the longitudinal transport duct where it is drawn along by the difference of liquid level between the header section of the pumping compartment and the upper level in the treatment compartment, said level difference being caused in use by pumping means housed in said pumping compartment.



3,837,188

APPARATUS FOR WET TREATMENT AND SUBSEQUENT DRYING OF A TEXTILE WEB

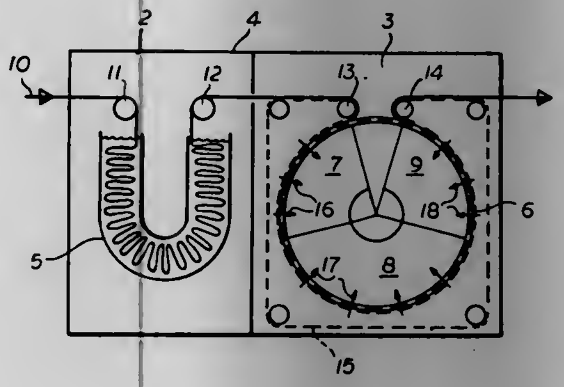
Manfred Schulerer, Erbach/Odenwald, Germany, assignor to Bruckner-Apparatebau Michelstadt GmbH, Erbach/Odenwald, Germany

Division of Ser. No. 125,177, March 17, 1971, Pat. No. 3,730,679. This application Feb. 16, 1973, Ser. No. 333,183

Claims priority, application Germany, Apr. 2, 1970, 2015759; Feb. 25, 1971, 7107117[U]

Int. Cl. B05c *9/14*

U.S. Cl. 68—20 **4 Claims**



A process for wet treatment of fabric web including steps of washing and shrinking, liquid removal, drying, and airing, in which shrinking takes place during the washing before the web is laid evenly on transport means for drying. Apparatus for carrying out the process provides essential treatment stations and drum transport means for conveying the web to be treated through each of the successive stages of treatment.

3,837,189

PADLOCK CONSTRUCTION

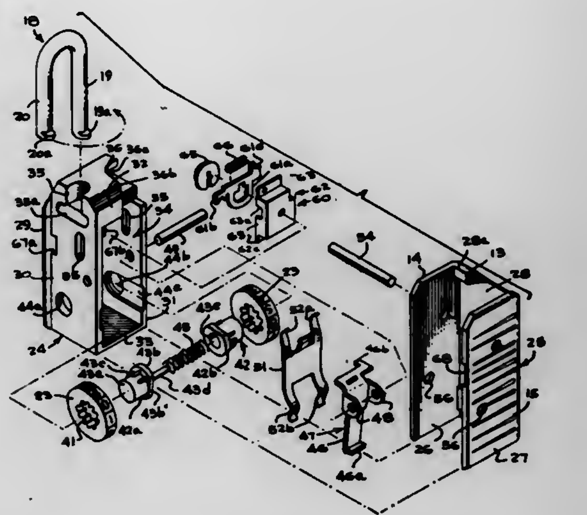
Wallace E. Atkinson, Petersburg, Va., assignor to Long Manufacturing Co., Inc., Petersburg, Va.

Filed July 13, 1973, Ser. No. 379,098

Int. Cl. E05b *37/02, 67/00*

U.S. Cl. 70—21 **10 Claims**

An unexposed shackle combination padlock having a padlock body and a U-shaped laterally swingable shackle wherein the padlock body includes relatively reciprocatively movable outer shell and core portions with one of the shackle legs journaled in the core portion and the other leg swingable to open position only when said shell and core positions are shifted from a relatively alined to a relatively displaced position. Two separate locking systems are provided, including a combination dial system having wheel assemblies and a fence member for selectively locking the shell and core portions against relative movement, and a key locking system is provided which is disabled from key operation whenever the dial wheels are not set on the proper combination. Either one of the combination locking system or the key locking system may be used separately, or they may be used in combination providing effectively a third locking system.



3,837,190

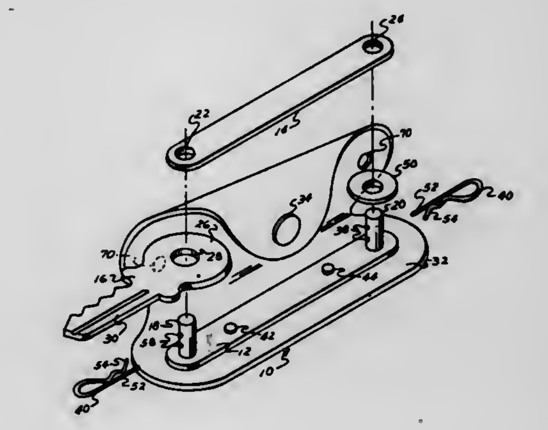
KEY RETAINING DEVICE

Carl E. Monk, 428 Southland Blvd., Louisville, Ky. 40214

Filed June 22, 1973, Ser. No. 372,653

Int. Cl. A47g *29/10*

U.S. Cl. 70—456 R **8 Claims**



A combination key retainer and leverage tool device is provided to facilitate manual control and force required to manipulate any one of a plurality of keys whereby a relatively small person such as a child or woman is more able to open a typical locking mechanism such as a pin-tumbler type lock. Separate means are provided with the device to enable rapid key identification, positive key retention and to implement changing of keys retained in the device.

3,837,191

SAFETY LOCK DEVICE FOR WINDOWS

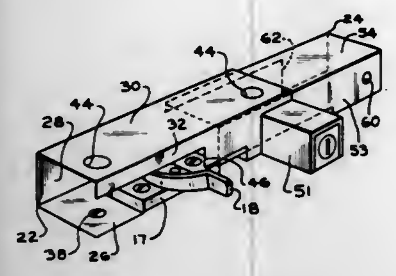
Louis Soiderer, 2241 Delaware Dr., Ann Arbor, Mich. 48103

Filed June 13, 1973, Ser. No. 369,441

Int. Cl. E05b *65/08*

U.S. Cl. 70—90 **5 Claims**

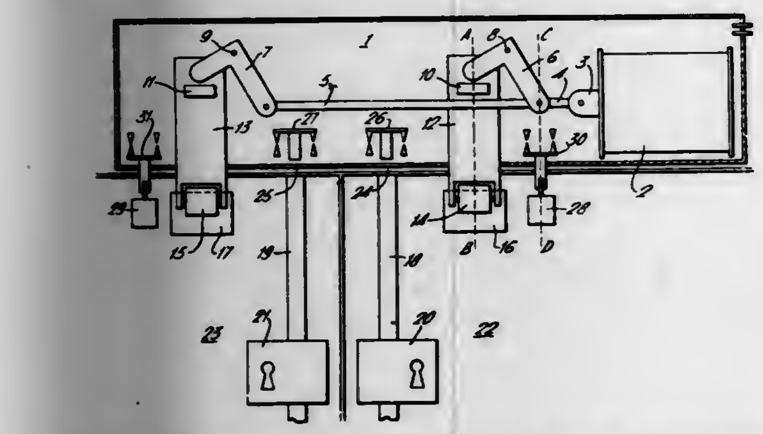
A safety lock device that can be assembled with existing household windows that have sliding upper and lower sashes and a latch mounted on the sashes. The device consists of a hollow member secured to one sash so as to overlie the latch and permit access to the latch only through a side opening in



the hollow member and a cover or slide member telescopically mounted on the hollow member for movement to a position blocking the latch access opening. Provision is made for locking the slide in this position.

3,837,192
ELECTRIC LOCK FOR EMERGENCY EXIT DOOR

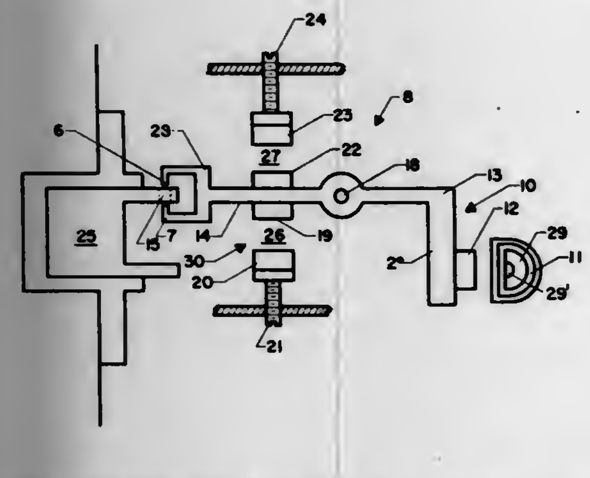
Jean Arouete, 67, Boulevard Lannes, Paris, France
Filed Dec. 19, 1972, Ser. No. 316,440
Claims priority, application France, Sept. 27, 1972, 72.34175; France, Dec. 29, 1971, 71.47207
Int. Cl. E05b *65/10*
U.S. Cl. 70—92 **13 Claims**



A lock for an emergency exit door has an electromagnet with a movable core for actuating a bolt which cooperates with a striker box. When the electromagnet is energized the bolt is held in firm engagement with the striker box and the bolt remains in this position after an interruption of the current to keep the door closed, but the force urging the bolt against the striker box is cancelled so that the door may be opened by exerting a small pressure against the door.

3,837,193
MAGNETIC COMBINATION DOOR LOCK

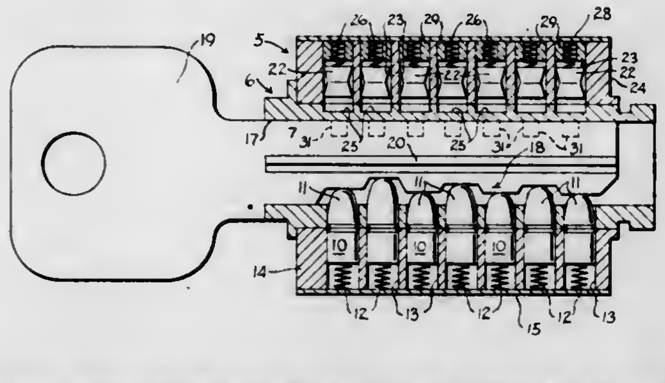
Gregory N. Csurgay, 3320 N.E. 18th Ter., Fort Lauderdale, Fla. 33305
Filed Dec. 22, 1972, Ser. No. 317,755
Int. Cl. E05b *47/00*
U.S. Cl. 70—276 **3 Claims**



A biased tumbler-lever lock and magnetic key combination wherein the magnetic fields on the key cause the rotation of biased tumbler-levers about a pivot point in the lock to a particular position so as to free a bolt in the lock. The number of degrees of angular rotation of each tumbler-lever arm is determined by the magnetic field strength and the biasing strength. The tumbler-lever arms include an engagement mechanism having a normal engagement finger and an override engagement finger. The biasing force keeps the engagement mechanism of the tumbler-lever in the normal (locked) position when the magnetic means in the key is absent. Excessive rotation of the tumbler-lever, caused by excessive magnetic field strength re-engages the engagement mechanism to prevent release of th bolt. Insufficient rotation of the tumbler-lever prevents disengagement of the engagement mechanism and the bolt.

3,837,194
PIN TUMBLER LOCK

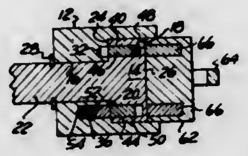
Aaron M. Fish, Montreal, Quebec, Canada, assignor to Unican Security Systems, Ltd., Montreal, Canada
Filed Jan. 4, 1973, Ser. No. 320,869
Int. Cl. E05b *47/00*
U.S. Cl. 70—276 **3 Claims**



A lock mechanism having a cylinder normally held against rotation to an unlocking position by two sets of pin tumblers disposed at opposite sides of the cylinder axis. One set is of the conventional type comprising a number of pin tumblers and drivers therefor actuatable to cylinder releasing positions by the bitting on one edge of a key inserted into a keyway in the cylinder. The other set of tumblers is comprised of a number of magnets arranged in a row lengthwise along the other edge of a key in the keyway, and repelled to cylinder releasing positions by magnet members on the key.

3,837,195
MAGNETIC PIN LOCK

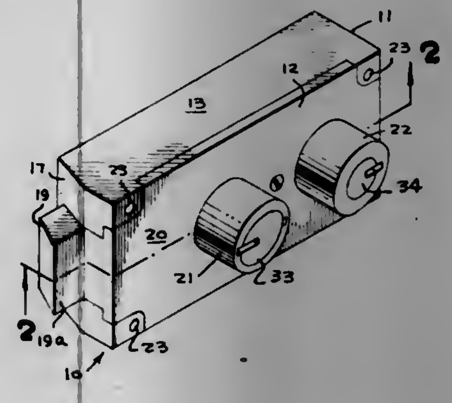
Eino W. Pelto, Box 158, Rt. 1, Calumet, Mich. 49913
Filed Feb. 8, 1973, Ser. No. 330,553
Int. Cl. E05b *47/00*
U.S. Cl. 70—276 **6 Claims**



A lock for a door or the like having a barrel rotatably supported within a housing for motion between locked and unlocked positions. The barrel includes a cylindrical section having forward and rear faces extending normally to its axis of rotation and containing a plurality of cylindrical cavities formed parallel to the axis of rotation, opening on the rear face of the section and extending almost through to the forward face which projects from the housing. The housing has a surface abutting the rear surface of the barrel section and formed with a number of cylindrical cavities which are axially aligned with the cavities in the barrel when the barrel is in its locked position. Magnetized pins are disposed in these cavities and are biased by springs, some contained in the barrel and the others contained in the housing so that when the barrel is in the locked position the pins straddle the cavities and prevent rotation of the barrel. A key for the lock has a surface that may be brought into abutment with the forward face of the barrel and contains a number of magnets which act through the thin wall of the cylindrical section to attract certain of the magnetic pins and repel others, moving them all against their spring biases so that none of the pins straddle the cavities in the housing and the barrel. The key contains a recess which captures a stud extending from the barrel surface so that the key may then rotate the barrel to an unlocked position.

3,837,196
KEY CHANGING LOCK FOR SAFE DEPOSIT BOXES

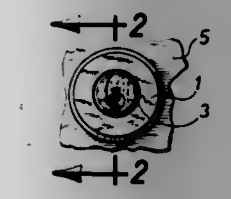
Klaus W. Gartner; Randall Edward Van Ryne, both of Rochester, N.Y., and Eldon C. Higgins, Cedar Rapids, Iowa, assignors to Sargent & Greenleaf, Inc., Rochester, N.Y.
Filed Apr. 9, 1973, Ser. No. 349,102
Int. Cl. E05b *35/12*
U.S. Cl. 70—339 **11 Claims**



A changeable combination key lock for safe deposit boxes and the like, wherein a guard key is insertable into a rotatable guard key plug to set guard key tumblers to permit retracting movement of a bolt, and a renter's key is insertable into a rotatable renter's key plug for engagement with normally coupled segmented tumblers to aline them to permit retraction of the bolt. A cam member is provided to be actuated by a change key which is inserted into the guard key plug when the guard key has been removed and the bolt is retracted, to disengage gating portions of the segmented tumblers from the remaining portions of such tumblers, whereupon a new renter's key may be inserted and the segmented tumblers set for the key configuration of the new renter's key.

3,837,197
KEY-OPERATED LOCKS

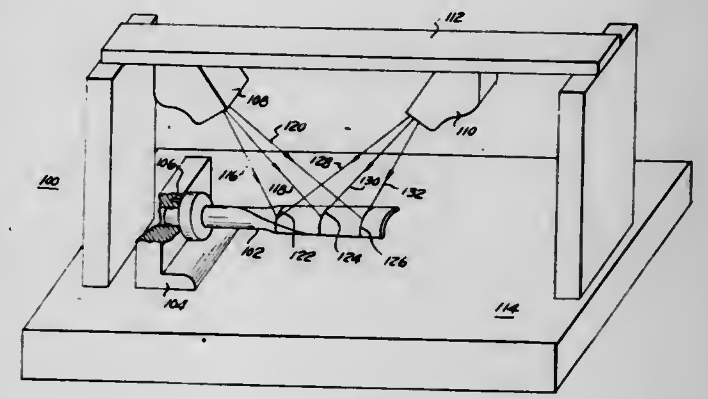
Pedro Lopez, 2295 de Londres St., St. Laurent, Quebec, Canada
Filed Mar. 19, 1973, Ser. No. 342,856
Claims priority, application Canada, Apr. 27, 1972, 140775
Int. Cl. E05b *15/14, 27/02*
U.S. Cl. 70—364 A **6 Claims**



A lock adapted to be operated by a bitted key and including dual locking features which must be both operated to cause the unlocking. A key-operated lock including a cylinder, a plug rotatable into the cylinder, tumblers carried by the plug and arranged to be displaced radially of the plug to lock and unlock the latter to the cylinder, at least one indentation into each tumbler, a locking side bar extending longitudinally of the plug and arranged to releasably lock the latter to the cylinder, and movable releasing members adapted to respond to predetermined positioning of the tumblers to release the locking side bar.

3,837,198
STEREOSCOPIC GAGE AND GAGING SYSTEM

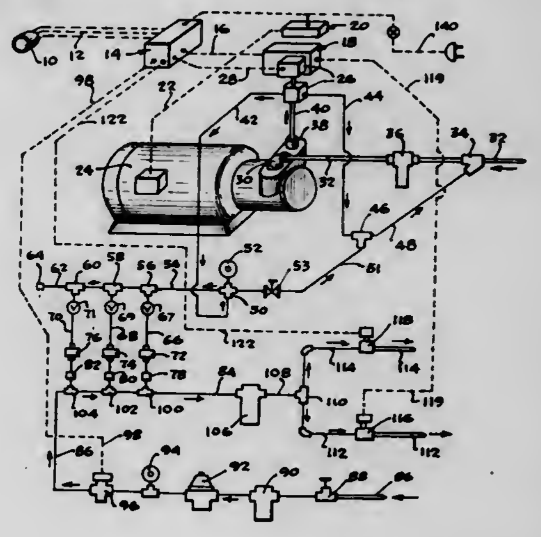
Paul T. Higgins, Orchard Lake, Mich., assignor to The Bendix Corporation, Southfield, Mich.
Filed Apr. 16, 1973, Ser. No. 351,728
Int. Cl. B21c *51/00*; **B23q** *17/00*
U.S. Cl. 72—9 **20 Claims**



A stereoscopic optical system for gaging the surface of articles having complex contours or shapes is described. The system projects complementary sets of stereoscopic patterns on the article being gaged to determine the conformity of the article's surface to the desired contour or configuration. Nonconforming surfaces perturb the relationship between the complementary patterns imaged on the surface, of the article being gaged, giving a visual indication of a nonconformity. The perturbed relationship between the complementary patterns imaged on the surface of the article may also be detected electro-optically providing an electrical signal indicative of the nonconformity which can be used to initiate a number of automatic or semiautomatic machine operations including in-situ correction of the nonconforming surface.

3,837,199
HOT ROLLING MILL LUBRICATION APPARATUS AND PROCESS

Louis C. Larsonneur, Palos Heights, Ill., assignor to Nalco Chemical Company, Chicago, Ill.
Filed Nov. 6, 1972, Ser. No. 304,103The portion of the term of this patent subsequent to Jan. 9, 1990, has been disclaimed.
Int. Cl. B21b *27/10, 37/00, 45/02*
U.S. Cl. 72—21 **2 Claims**



A method and apparatus for applying hot rolling mill lubricants composed of water and difficultly dispersible oil to the rolls of rolling stands used to reduce hot steel whereby the lubricant is applied only during the period when the workpiece contacts the rolls of the rolling stands. The oil is continuously circulated in a loop system to maintain it at a desired temperature range, and then admixed with water when a rolling stand calls for lubrication. Water is preferably continuously fed to the rolls for cooling.

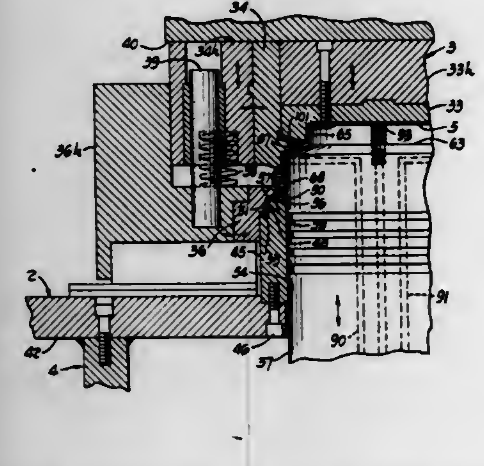
3,837,200
APPARATUS FOR MAKING SHEET METAL PULLEYS

Fred A. Wolbert, Northfield, Ohio, assignor to Arrowhead Engineering Corporation, Knox, Ind.

Filed Feb. 9, 1972, Ser. No. 224,778

Int. Cl. B21d *39/08*

U.S. Cl. 72—57 27 Claims



A method for forming the grooves in single and multigroove sheet metal pulleys, including shaping and/or crimping of the groove walls, wherein the grooves are formed by a sequential, single step, continuous process from a punched or drawn blank without intermediate handling and/or displacement of the blank using both axial and radial pressures, wherein the applied radial pressures or forces are substantially less than and applied axial pressures or forces. The pulley may have grooves of the same or different pitch and of the same or different diameter.

Apparatus for forming a sheet metal pulley from a hat- or cup-shaped blank having an outwardly extending flange. The apparatus includes a die having a seat upon which the blank rests, and a seal between the seat and flange. A fluid conduit conducting fluid to the interior of the blank. Pumps and valves providing a predetermined and adjustable pressure and volume of fluid within the blank during formation of a pulley. Segmented forming dies, reciprocable laterally of and relative to the blank, engaging the flange of the blank on the side remote from the seal to effect the seal and defining the pulley groove remote from the hub. An axial ram moving continuously during formation of the pulley, exerting an axial pressure and force on the blank, and crimping the wall of the pulley groove nearest the hub into a double wall. In apparatus for forming multigroove pulleys, the segmented forming dies carry and provide guiding means for vertical movement of intermediate forming dies, which are displaced vertically toward the flange by engagement by and with the ram.

3,837,201
ROLLING MILLS

Jack Maltby, Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield Yorkshire, England

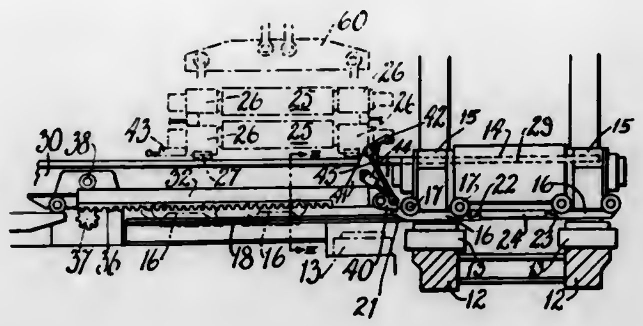
Filed Mar. 5, 1973, Ser. No. 337,878

Claims priority, application Great Britain, Mar. 6, 1972, 10285/72

Int. Cl. B21b *31/08*

U.S. Cl. 72—239 10 Claims

A roll change rig for a four-high plate mill stand consists of a beam which can be driven towards and away from the stand and which has two separate couplings, one for connection to a work roll and the other for connection to the lower back-up roll. There are separate rolls for the lower work roll and lower back-up roll, on which the respective roll may be moved through the stand and into a roll change area, by operation of the beam. If the stand has hydraulic roll gap adjustment, the rig includes a trolley which can run on the back-up roll rails, which is driven by the roll change beam, and which carries lifting means for lifting a piston and cylinder assembly from the mill.



3,837,202
ROTARY ULTRASONIC TESTING APPARATUS

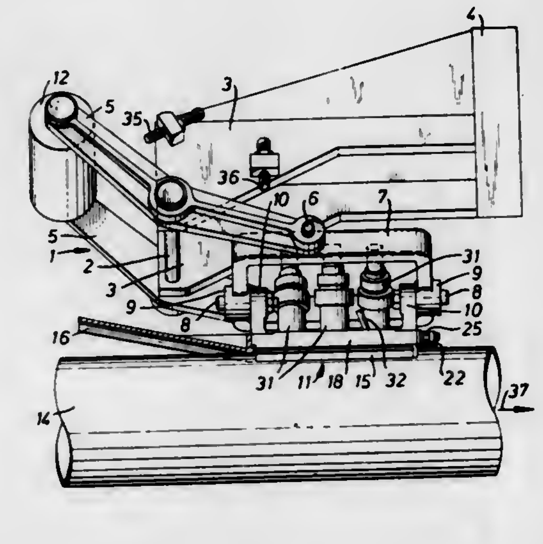
Matthew James Hetherington, Carlton Park near Market Harborough, and Peter Atkinson, Stanion, near Kettering, both of England, assignors to British Steel Corporation, London, England

Filed Mar. 6, 1973, Ser. No. 338,635

Claims priority, application Great Britain, Mar. 9, 1972, 11085/72

Int. Cl. G01n *29/04*

U.S. Cl. 73—71.5 U 10 Claims



A probe unit for use in rotary ultrasonic testing apparatus which includes a tube engaging probe pad carrying at least one ultrasonic testing transducer probe, in which the probe pad is mounted at one end of an arm provided with a counterweighting mass at the other end thereof. The unit also includes a member rotatable about an axis substantially coincident in use with that of the tube to be tested, and the arm, which is inclined relative to the axis of rotation, is pivotally connected intermediate its ends to the rotatable member for pivotal movement of the pad towards and away from the axis of rotation, whereby upon rotation of the unit with the rotatable member, the pad is urged inwards towards the axis of rotation by means of centrifugal force generated by the counterweighting mass.

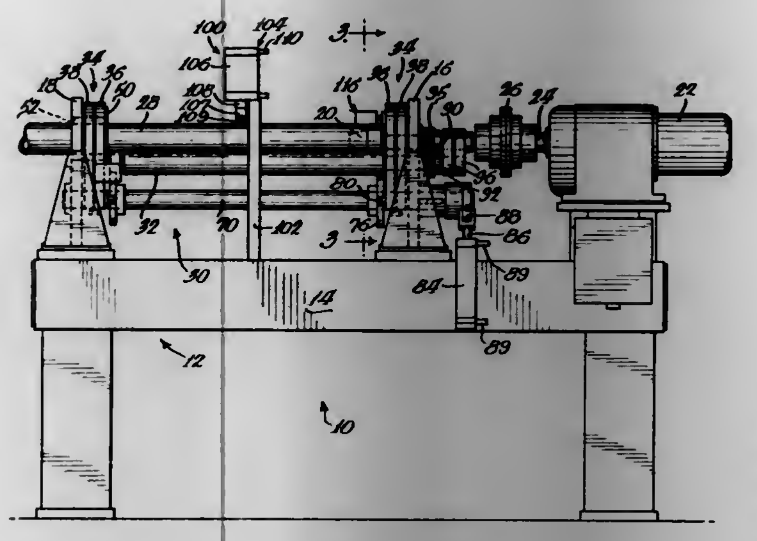
3,837,203
CORE STRAIGHTENER ASSEMBLY

Elmer L. Ruth, Winneconne, Wis., assignor to Appleton Machine Company, Appleton, Wis.

Filed Oct. 30, 1972, Ser. No. 301,839

Int. Cl. B21d *15/00*

U.S. Cl. 72—110 12 Claims



This application discloses apparatus for returning bent or deformed ends of hollow cores to a circular condition. The apparatus or assembly consists of a mandrel that is rotated about a fixed axis on a support with a pair of rollers mounted on the support adjacent the mandrel to clamp a hollow core between the mandrel and the rollers. The rollers are driven at the same speed as the mandrel and are capable of being rotated about the axis of the mandrel to change the point of engagement between the peripheral surface of the rollers and the surface of the core to be straightened.

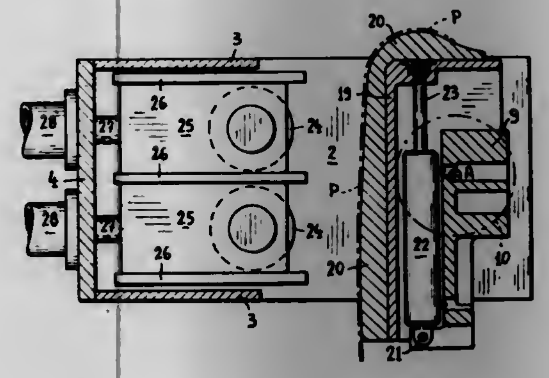
3,837,204
MACHINE FOR BENDING PLATE SECTIONS

Gian Carlo Zaramella, Torino, Italy, assignor to O.M.P. Officine Meccaniche Ponti & C.s.n.c., Torino, Italy

Filed Mar. 13, 1973, Ser. No. 340,753

Int. Cl. B21d *7/04*

U.S. Cl. 72—153 6 Claims



A machine for bending plate sections such as bumpers for vehicles, by means of rollers pushed against the piece of section being worked, mounted on a mandrel, wherein the mandrel is mounted movable in translation upon a support member pivotally connected to the structure of the machine, and the rollers are pushed by respective cylinders according to a fixed direction approximately directed towards the rotation axis of the support member carrying the mandrel.

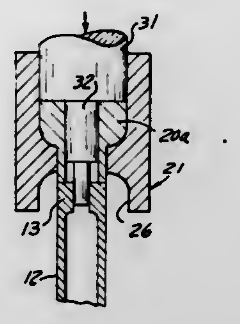
3,837,205
PROCESS FOR COLD FORMING A METAL TUBE WITH AN INWARDLY THICKENED END

Joseph A. Simon, 237 Lothrop, Grosse Point Farms, Mich. 48236

Filed Aug. 1, 1973, Ser. No. 384,441

Int. Cl. B21c *25/08*

U.S. Cl. 72—260 3 Claims



Placing a short tubular metal blank into an open die, having an inner, annular extrusion shoulder, and partially pressing the blank through the shoulder to extrude an elongated, uniform wall thickness tube portion. Then placing a second blank into the die in end to end contact with the remaining portion of the first blank, and pressing the second blank similarly part way through the die extrusion shoulder to simultaneously extrude the remaining portion of the first blank through the shoulder to form it with the same OD as its first extruded portion, but with a smaller ID, to form an inwardly thickened end portion on the extruded part, while also extruding the uniform wall thickness portion on the second blank, and then repeating the cycle.

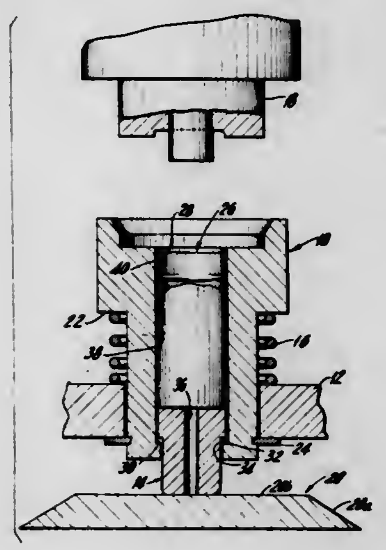
3,837,206
METHOD AND APPARATUS FOR CRIMPING BATTERY CASINGS

Ignatius Michalko, Ossining, N.Y., assignor to Power Conversion, Inc., Mt. Vernon, N.Y.

Filed June 7, 1973, Ser. No. 367,752

Int. Cl. B21d *19/12*

U.S. Cl. 72—348 3 Claims



Battery casings are crimped by an apparatus including a holder having a cylindrical bore in which the casings are received, a spring which biases the holder toward a predetermined position, a blocking member which projects into one end of the holder and a plunger which engages the opposite end of the holder to move it against the force of the spring. The battery casing to be crimped is inserted within the holder and completely contained within the bore. When the plunger engages the holder, it crimps the upper rim of the casing inwardly while the casing is held against outward deformation of its sidewalls by the holder.

3,837,207
PROCESS OF CONTINUOUSLY HOT-FORMING CONTINUOUS CAST STEEL STOCK

Bruno A. Tarmann, Kapfenberg, Austria, assignor to Gebr. Bohler & Co., AG, Kapfenberg, Austria

Filed Apr. 20, 1972, Ser. No. 245,809

Claims priority, application Germany, Apr. 21, 1971, 2119347

Int. Cl. B21b *1/44*

U.S. Cl. 72—366 **12 Claims**

The continuous steel stock to be hot-formed has been continuously cast in a rectangular as-cast cross-section which has corner zones and has a shortest side length in excess of 100 millimeters and a side length ratio between 1:1.5 and 1.5:1. The stock is subjected with utilization of its casting heat to a deformation of at least 20 percent by a pair of grooved rolls to form deformed continuous steel stock having side faces which are less curved in cross-section than said corner zones and which include the material of all said corner zones of said as-cast cross-section.

3,837,208
METHOD AND APPARATUS FOR BLIND RIVETING

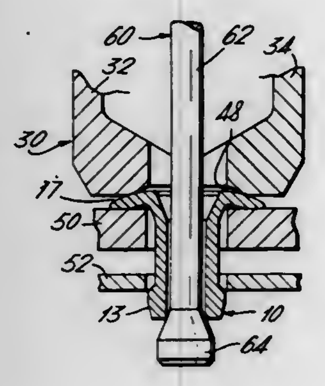
Alan Russell Davis, Welwyn Garden City; Raymond Dennis Lacey, Essendon, and John Meredith Gray, Harpenden, all of England, assignors to Avdel Limited, Hertfordshire, England

Filed Feb. 13, 1973, Ser. No. 332,126

Claims priority, application Great Britain, Feb. 14, 1972, 6823/72

Int. Cl. B21d *9/05*

U.S. Cl. 72—391 **10 Claims**



A tubular rivet having a preformed head and a shank which extends through aligned apertures of workpiece members is set by expanding the end of the shank remote from the head to form a blind head by pulling the head of a mandrel into the bore of the shank. Then the shank together with the blind head and a central portion of the preformed head is moved in a direction towards the preformed head while restraining movement of the periphery of the preformed head, thereby deforming the preformed head and decreasing the distance between the preformed head and the blind head.

An anvil for a rivet setting tool has an annular abutment for engaging the periphery of the preformed head of the rivet and a recess into which the central portion of the preformed head can enter when it is deformed.

3,837,209
FORGING MACHINE

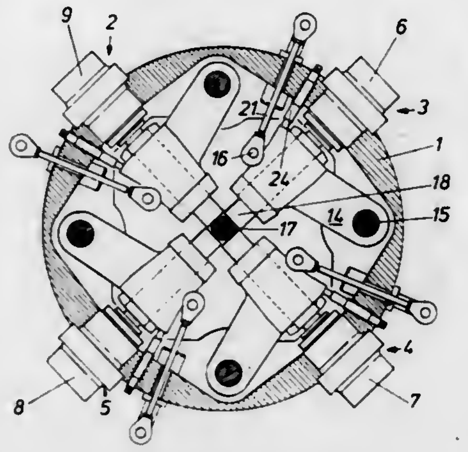
Rudolf Siegfried Guse, 4 am Gatherhof, 4 Dusseldorf-Rath, Germany

Filed Dec. 4, 1972, Ser. No. 312,032

Int. Cl. B21d *41/00*

U.S. Cl. 72—402 **6 Claims**

A so-called quick forging machine for forging elongated half-finished products by means of four peripherally distributed forging units incorporates cyclically driven forging arms which are selectively: either retained fixedly against a stationary stop for operation in one mode or are freely pivotal about an axis for operation in a second mode. The stroke of the main operating piston is transmitted to the workpiece through hydraulic thrust-transmitting means which yield during linear operation in the first mode and transmit the thrust in the second mode. Elongated forged products of circular cross section as well as square or rectangular members having rounded or sharp edges can thereby be produced on the same machine.



3,837,210
PROCESS AND MACHINE FOR SWAGING RECTANGULAR-SECTION WORKPIECES

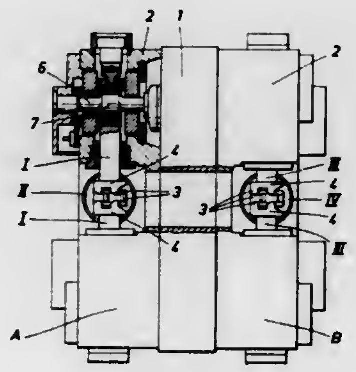
Bruno Kralowetz, St. Ulrich 142, Steyr, Austria

Filed Apr. 13, 1973, Ser. No. 350,737

Claims priority, application Austria, May 3, 1972, 3823/72

Int. Cl. B21j *7/18*

U.S. Cl. 72—403 **6 Claims**



The workpiece is swaged by first and second pairs of dies, which are angularly spaced 90° apart and caused to blow in alternation on the workpiece. The dies of the first pair are caused to blow on the workpiece. The dies of the second pair are subsequently caused to blow on the workpiece. The dies of the first pair are caused to remain in contact with the workpiece until the dies of the second pair are in contact with the workpiece.

3,837,211
MULTI-STROKE HAND TOOL

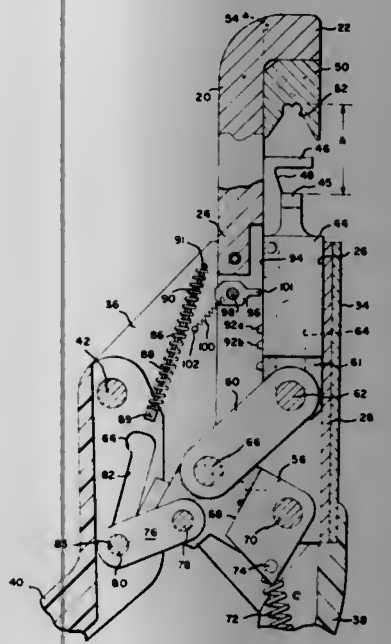
Paul William Gress, Newmanstown, and William Roderick Over, Harrisburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed July 6, 1973, Ser. No. 376,979

Int. Cl. B21d *7/06*

U.S. Cl. 72—410 **5 Claims**

Two stroke hand tool has a reciprocable ram, a toggle mechanism for moving the ram, and a movable handle for straightening the toggle mechanism. A connecting link extends from the handle to one of the links of the toggle mechanism. This connecting link is connected to the handle at one location during the first stroke of the handle to bring about substantial ram travel. During second stroke of the handle, the connecting link is pivoted to the handle at a second location to develop high thrust in the ram during the final portion of the ram stroke.



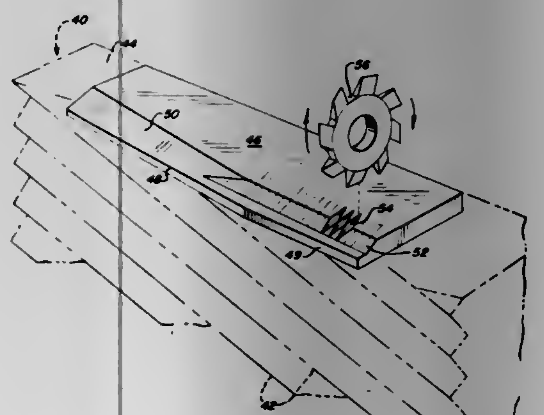
3,837,212
METHOD AND APPARATUS FOR MAKING A THREADED FASTENER WITH CAPTIVE CLAMPING MEANS

Charles E. Gutshall, Schaumburg, Ill., assignor to Elco Industries, Inc., Rockford, Ill.

Division of Ser. No. 222,532, Feb. 1, 1972, abandoned. This application July 2, 1973, Ser. No. 375,707

Int. Cl. B21d *17/04;* **B23p** *19/08*

U.S. Cl. 72—469 **5 Claims**



A fastener having an apertured clamping means on its shank and an annular retaining means therefor is fabricated by assembling the apertured clamping means on the shank adjacent the head and thereafter forming an annular collar by an improved technique whereby the surface of the collar adjacent the clamping means is disposed substantially perpendicular to the axis of the shank. The improved technique includes the steps of subjecting a peripheral segment of the shank, while the shank is rotating and having threads rolled on other portions thereof, to metal-forming radial pressure and progressively expanding the segment axially towards the assembled clamping means so as to form a progressively widening annular groove in the shank while rotationally swaging the metal transferred from the groove into the desired annular collar.

For such purposes a roll thread die is provided having thread-forming surfaces and a slot for a die insert containing a groove-forming face and related surfaces which spin the metal transferred from the groove into the annular collar on the shank.

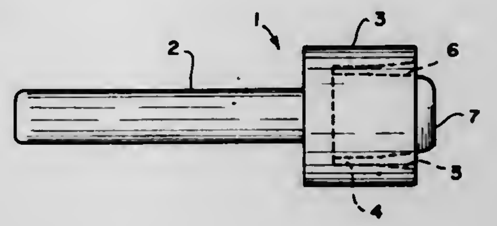
3,837,213
SIZING AND FORMING TOOL

Ralph F. Guzzo, R.D. No. 1, Amity, Pa. 15311

Filed Mar. 13, 1973, Ser. No. 340,758

Int. Cl. B21d *3/14*

U.S. Cl. 72—479 **1 Claim**



A sizing and forming tool for reshaping the end of a pipe or tube that has been cut. The tool has an internal expanding cam and an external contracting cam for reshaping such pipe or tube to perfectly cylindrical form.

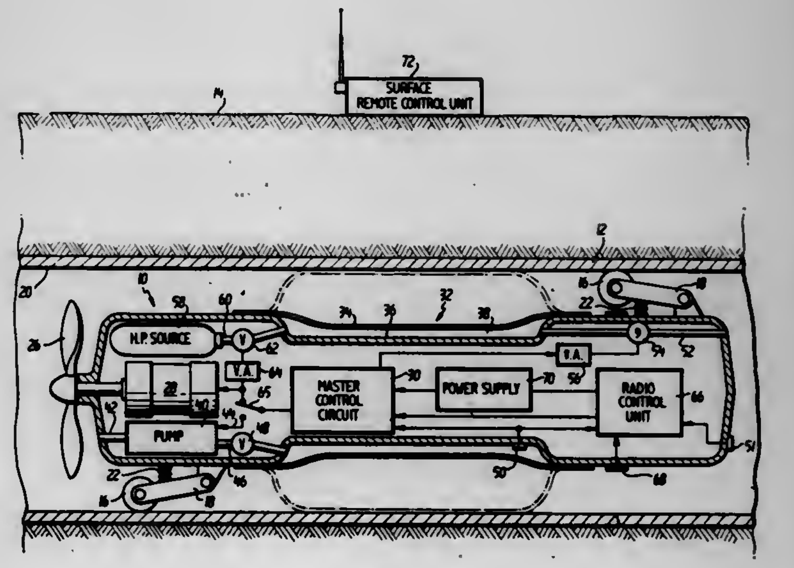
3,837,214
SELF-PROPELLED PIPELINE PLUG

Robert J. Guest, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Jan. 30, 1973, Ser. No. 328,022

Int. Cl. G01m *3/28*

U.S. Cl. 73—40.5 R **20 Claims**



A self-propelled pig carrying plugging means for sealing a pipeline at selected points along the length thereof in which the pig may be stopped and the plugging means selectively actuated for sealing the pipeline. A leak may then be detected and evaluated by pressurizing the pipeline from a point on one side of the pig, and thereafter monitoring pipeline pressure. Alternatively, a leak condition may be separately sensed, the pig positioned to one side of the leak, the plugging means actuated, and the pipeline pressurized from the point on the other side of the leak, for evaluating leak size by monitoring the rate of pipeline depressurization.

3,837,215

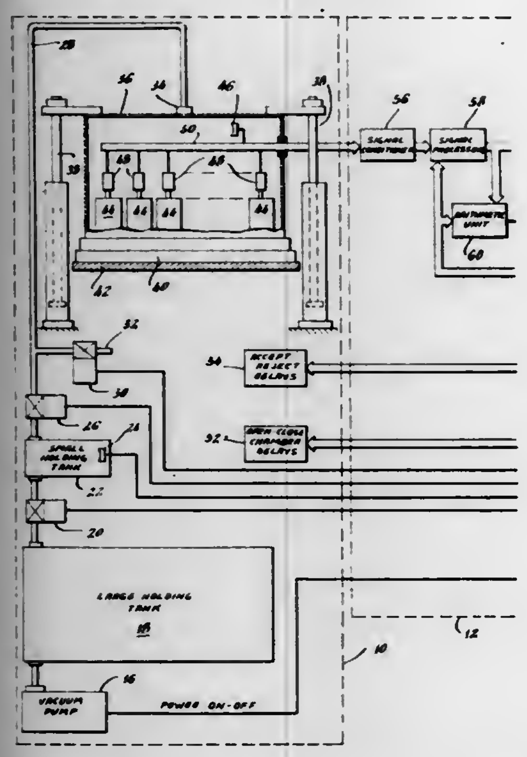
METHOD AND APPARATUS FOR TESTING SEALED CONTAINERS

Thomas J. Massage, One Curran Ln., Huntington, Conn. 06484

Filed May 21, 1973, Ser. No. 362,487

Int. Cl. G01m *3/36*

U.S. Cl. 73—45.4 **10 Claims**



Method and apparatus for automatically non-destructively testing and classifying sealed containers. The containers are passed through a sealed vacuum or pressure chamber and expand or contract because of differential pressure acting on the container walls. The magnitude of the leak rate is computed by a central programming unit through a series of measurements, error corrections, and computations of container wall travel and velocity of wall travel. Each container is classified by the magnitude of its leak rate in comparison with operator programmed accept/reject limits. Multiple sensors are used simultaneously in the chamber during each test cycle to achieve efficient economic use of the high speed data processing electronics.

3,837,216

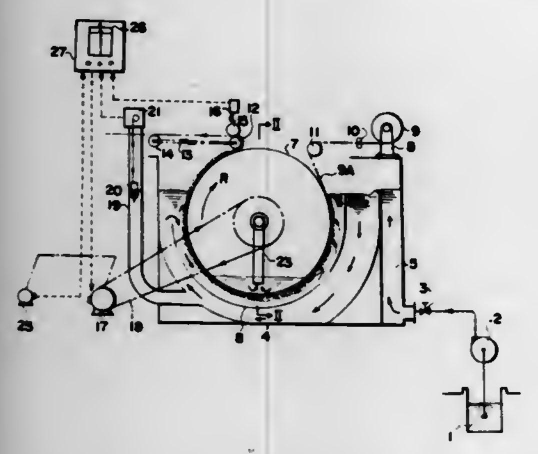
METHOD AND APPARATUS FOR MEASURING THE CONCENTRATION OF SOLID CONTAMINANTS CONTAINED IN LIQUIDS

Yoshimi Shinohara, Fuji, Japan, assignor to Shinohara Seiki Kabushiki Kaisha

Filed Apr. 30, 1973, Ser. No. 355,478

Int. Cl. G01n *15/00*

U.S. Cl. 73—61 R **13 Claims**



Liquid containing a solid contaminant is filtered by a filtering cylinder rotated in a container. The number of rotations of the filtering cylinder is controlled in accordance with the liquid level in the container. As the number of revolutions of the filtering cylinder is proportional to the concentration of the contaminant the speed of the filtering cylinder is detected to determine the concentration.

3,837,217

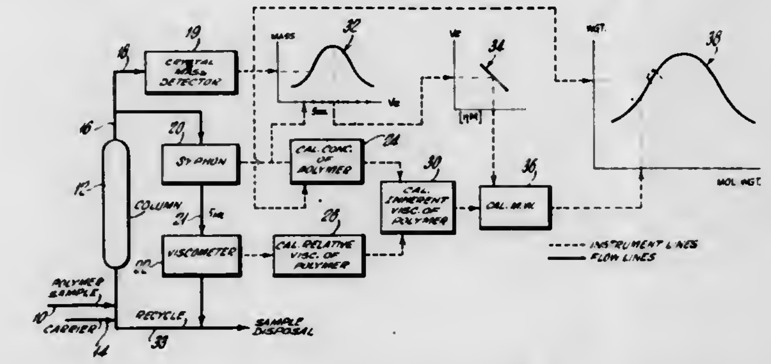
MEASUREMENT OF POLYMER MOLECULAR WEIGHT DISTRIBUTION

Wolfgang W. Schulz, Warren, N.J., assignor to Esso Research and Engineering Company, Linden, N.J.

Filed Oct. 19, 1972, Ser. No. 298,956

Int. Cl. G01n *31/08*

U.S. Cl. 73—61.1 C **6 Claims**



For use with a gel permeation chromatograph measuring molecular weight distribution of polymeric materials, the combination of a piezoelectric crystal detector for measuring mass with an automatic viscometer for inferential measurement of molecular weight provides improved measurement of absolute molecular weight distribution of polymeric materials. Recycling of polymer fractions through the gel permeation chromatograph provides improved resolution of the individual fractions.

ERRATUM

For Class 73—71 see:
Patent No. 3,837,202

3,837,218

PROCESS FOR NON-DESTRUCTIVE MEASUREMENT OF THE EXTENT TO WHICH A SURFACE LAYER OF A MATERIAL HAS BEEN AFFECTED BY A SUPERFICIAL TREATMENT

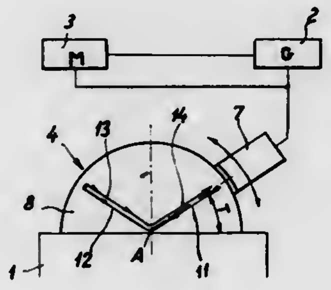
Christian Flambard, Gagny, and Alain Lambert, Creil, both of France, assignors to Centre Technique des Industries Mecaniques, Senlis, France

Filed Sept. 21, 1972, Ser. No. 290,873

Claims priority, application France, Sept. 24, 1971, 71.34370

Int. Cl. G01n *29/00*

U.S. Cl. 73—67.8 R **12 Claims**



The invention relates to a process and device for non-destructive measurement of the extent to which a surface layer of a material has been affected by a superficial treatment. The device includes a single transducer emitter-receiver of ultrasonic waves movable over a cylindrical surface of a coupling block, the latter having a curved reflective surface such that a beam of ultrasonic waves, when reflected by the surface of the material being treated, is then reflected by the curved surface back to the surface of the material and from there reflected back to the transducer.

3,837,219

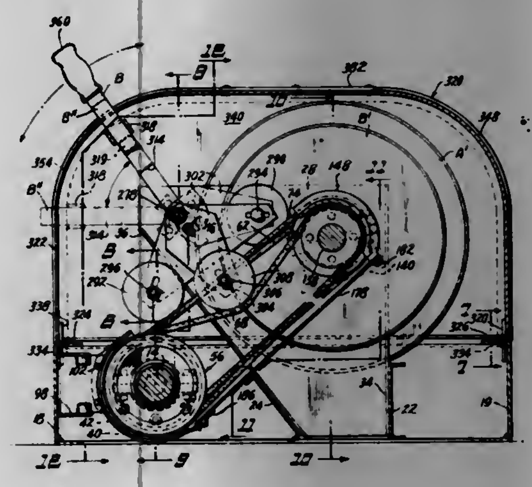
VARIABLE INERTIA FLYWHEEL APPARATUS

William Clayton, El Monte, Calif., assignor to Clayton Manufacturing Company, Los Angeles, Calif.

Filed Dec. 30, 1969, Ser. No. 889,180

Int. Cl. G01l *5/13*

U.S. Cl. 73—117 **7 Claims**



Variable inertia flywheel apparatus for use with a chassis dynamometer, during vehicle engine exhaust gas emission measurements. The apparatus simulates the effect of vehicle roadway-inertia loads on the engine during acceleration and deceleration, while the vehicle is being operated on the dynamometer. A wide range of inertia loads are simulated by three flywheels, each having a different mass; two of the flywheels are each driven from a main shaft, connected with a dynamometer roll, at two different speed ratios, and the third flywheel is driven from the same main shaft at three different speed ratios. More specifically, the flywheels are driven by sheaves and separate sets of belts that can be independently and selectively tensioned to drive one or more of the flywheels at a speed ratio relative to the speed of the dynamometer rolls so as to simulate the corresponding inertia loads. The third flywheel, which normally is in use at all times during a test, is designed to compensate for the inertia load of the particular power absorption unit, dynamometer rolls, drive belts, etc., with which the apparatus is used. Inertia load increments of 250 pounds can be simulated for testing vehicles weighing between about 1,500 pounds through 3,000 pounds, and 500 pound inertia load increments can be simulated for vehicles weighing between about 3,000 and 5,500 pounds. The flywheels are driven by sets of belts tensioned by idlers carried by shift plates operated by control levers that can be individually and selectively shifted to provide the 1,500 to 5,500 pound vehicle weight range of inertia loads, as well as a no-inertia load condition.

3,837,220

DETERMINATION OF GROSS THRUST-RELATED PARAMETERS

George B. McDonald, and George B. Mackintosh, both of Bells Corners, Ontario, Canada, assignors to Control Data Canada, Ltd., Willowdale, Ontario, Canada

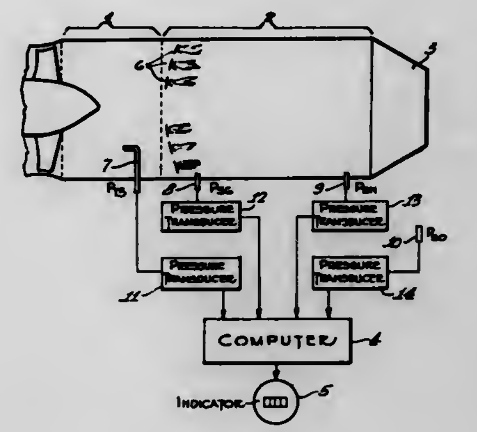
Filed Oct. 27, 1972, Ser. No. 301,335

Claims priority, application Canada, Aug. 31, 1972, 150685

Int. Cl. G01m *15/00*

U.S. Cl. 73—117.4 **12 Claims**

It is known to obtain a correction factor by determining theoretical gross thrust by measuring engine pressures and by measuring actual gross thrust and using a comparison between theoretical and measured gross thrust to develop a correction factor. However the correction factor is variable in accordance with certain engine pressures and requires the use of elaborate altitude test cell facilities to define it for a practical working range. This invention measures engine pressures in a static sea level facility, derives a correction factor to be applied to one of the measured pressures for use in a determination of gross thrust useful under all operating conditions.



3,837,221

LONGITUDINAL POSITIONING STOP FOR FIXED STATION AUTOMOBILE VEHICLE TEST BEDS

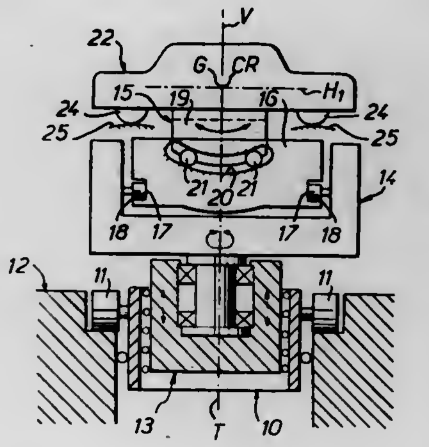
Jean Odier, Antony, France, assignor to Societe Anonyme Francaise du Ferodo, Paris, France

Filed Sept. 7, 1972, Ser. No. 286,910

Claims priority, application France, Nov. 3, 1972, 72.32377

Int. Cl. G01l *5/13*

U.S. Cl. 73—124 **25 Claims**



A longitudinal positioning stop for fixed station automobile vehicle test beds, of the type allowing the said vehicle five degrees of freedom of movement namely, lateral translation, vertical translation, and rotation about three axes, provided with a vehicle support platform, a carriage moveable horizontally in a direction called the transversal direction, a column mounted for movement in a vertical direction, a bracket mounted for rotation about a vertical axis, a first body permitting rotation about a first horizontal axis, a second body permitting rotation about a second horizontal axis, the said horizontal axis converging at a centre of rotation situated on the said second vertical axis.

3,837,222

LOAD CELL

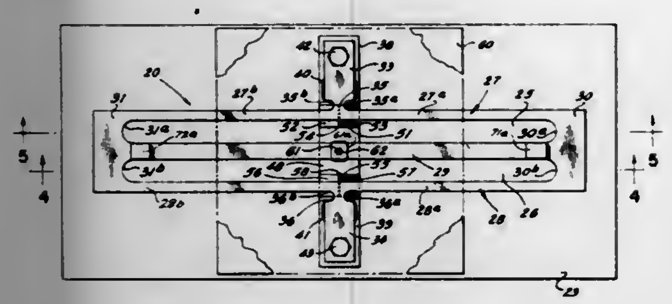
Seymour H. Raskin, Dallas, Tex., assignor to Sands Measurement Corporation, Dallas, Tex.

Filed Aug. 15, 1972, Ser. No. 280,772

Int. Cl. G01l *1/22*

U.S. Cl. 73—141 A **13 Claims**

A load cell of the beam type having a planar operator member having a pair of parallel longitudinal slots defining a central beam member and a pair of parallel bearing members spaced outwardly of the beam member, the outer ends of the bearing members and of the beam member being integral with one another, the operator member having a pair of laterally outwardly extending support members positionable on a horizontal laterally spaced surface of a support block, the load or force to be measured being applied to the central portion of the beam member which is provided with strain measuring means such as strain gages at locations of flexure of the beam member. The support block may have a pair of transversely extending narrow edges underlying the central portions of the bearing members for preventing torsional movement of the bearing members as the load is applied to the beam member.



A modified form of the load cell has an operator member whose support members extend parallel to and longitudinally of the bearing members and are secured thereto by transverse connector members, the support members being secured at opposite ends to horizontal support surfaces of a support block, the connector members and the bearing members engaging transverse narrow edges of the support block whereby the support members may be prestresssed upwardly at their midpoints.

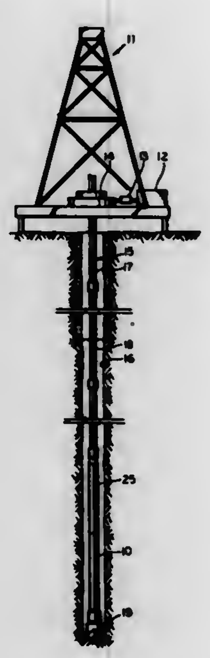
3,837,223
METHOD AND APPARATUSES FOR TRANSMITTING DATA UP A DRILL STRING

Albert P. Richter, Jr., Houston, and William R. McEvers, Jr., Bellaire, both of Tex., assignors to Texaco Inc., New York, N.Y.

Continuation-in-part of Ser. No. 290,676, Aug. 20, 1972. This application May 24, 1973, Ser. No. 363,784

Int. Cl. E21b *47/12*

U.S. Cl. 73—151 **17 Claims**



Methods and at least one mechanism for carrying out each of the methods are disclosed. A method of (1) generating time modulated torque pulses by engaging and disengaging a mud turbine driven rotating torque generator in the bottom of a wellbore, and (2) monitoring the top of the drill string for the torque pulses therein may be practiced by a mud driven turbine inertial wheel for being momentarily and precisely braked or declerated relative to a drill collar on the lower end of a drill string in a wellbore while drilling for generating the time modulated torque pulses in the drill string for being monitored at the surface. Mechanical, electrical and fluid operated brakes and a mud turbine driven generator are disclosed for providing power to a motor at the bottom of the drill string or for being intermittently braked rapidly for generating the torque pulses.

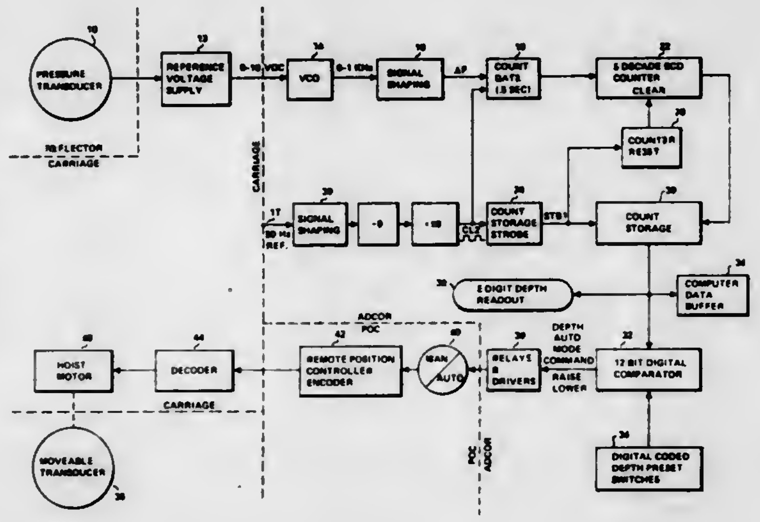
3,837,224
DIGITAL AUTOMATIC DEPTH CONTROL AND READOUT FOR A MOVABLE TRANSDUCER PACKAGE

Donald E. Ream, Jr., San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 9, 1973, Ser. No. 377,485

Int. Cl. G01b *7/26*

U.S. Cl. 73—170 A **1 Claim**



A system for remotely monitoring and maintaining a predetermined depth of an underwater instrumentation package. A signal proportional to depth is converted into pulses capable of being counted. The number of pulses counted within a given time period is a direct indication of the depth and is visually displayed on a digital readout device. An automatic control signal can also be generated by comparing the digital depth signal with a preset signal.

3,837,225
DEPTH GAUGES

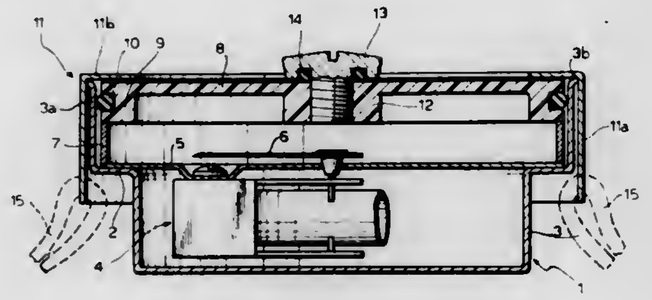
Carlo Alinari, Corso Vittorio Emanuele 200, Turin, Italy

Continuation of Ser. No. 120,225, March 2, 1971, abandoned. This application May 17, 1972, Ser. No. 254,270

Claims priority, application Italy, Mar. 14, 1970, 67877/70

Int. Cl. G01f *23/14*

U.S. Cl. 73—300 **14 Claims**



A depth gauge has a rigid casing and a transparent face, at least a portion of the transparent face being flexible to allow external pressure to be transmitted to the interior of the instrument.

3,837,226
SIGHT GLASS ASSEMBLY AND A METHOD OF PRODUCING THE SAME

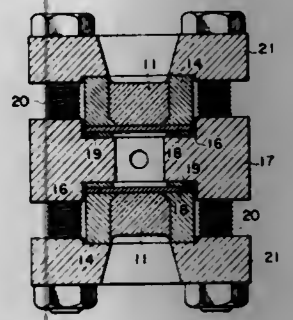
Eiji Kawawa, Tokyo, Japan, assignor to Nihon Klingage Co., Ltd., Tokyo, Japan

Filed Dec. 22, 1971, Ser. No. 210,721

Claims priority, application Japan, Dec. 29, 1970, 45-128168

Int. Cl. G01f *23/02*

U.S. Cl. 73—331 **5 Claims**



A sight glass assembly for use with a peep hole of a pressure vessel, comprising a glass plate and a reinforcing metal ring, said ring framing said plate in a manner of tightly enclosing said plate over a substantially cylindrical boundary surface between said plate and said ring and presenting an end face substantially flush with a surface of said plate, wherein said cylindrical boundary surface is tapered adjacent and toward said end face to present a base angle of substantially 45° so that the stress-concentration expected to occur in the glass plate due to the hoop tension applied thereto by said ring will be relieved in said tapered boundary surface of said glass plate and said ring.

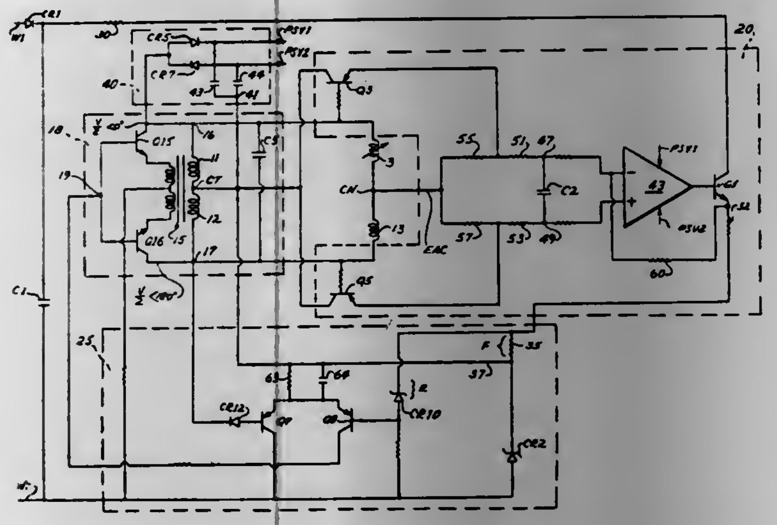
3,837,227
LINEAR TRANSDUCER SYSTEM

John R. Tavis, Mariposa, Calif., assignor to Tavis Corporation, Mariposa, Calif.

Continuation-in-part of Ser. No. 225,456, Feb. 11, 1972, abandoned. This application Nov. 9, 1973, Ser. No. 414,518

Int. Cl. G01i *9/10*

U.S. Cl. 73—398 R **10 Claims**



Transducing means senses a variable physical parameter and forms a variable impedance element having an impedance that varies as a function of variations in the physcial parameter. An impedance element is connected in series with the variable impedance to define a network having an input-to-output voltage-signal transmission characteristic that is a nonlinear function of variations in the physical parameter. A circuit arrangement responsive to a reference signal and the output signal of the network controls the input signal so that a voltage signal developed across one of the impedance elements has a predetermined magnitude that is substantially unaffected by either variations in the variable impedance or the output signal. The output signal of the network provides a linear indication of variations in the physical parameter. In a preferred arrangement, a coil in a variable-reluctance pressure transducer has an impedance, the magnitude of which is a reciprocal function of variations in ambient pressure acting against a diaphragm. A circuit applied across the coil a sinusoidal voltage that has a predetermined magnitude. A demodulator circuit coupled to the coil provides a direct current signal which indicates how much pressure is acting against the diaphragm.

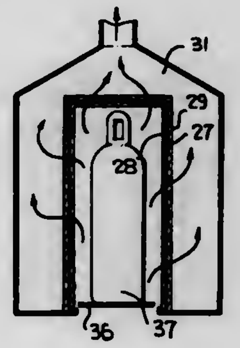
3,837,228
TRACER GAS-PERMEABLE PROBE FOR LEAK DETECTORS

Robert C. Nemeth, Huntington Station, N.Y., and Willaim D. Dugger, Kimberton, Pa., assignors to Vacuum Instrument Corporation, Huntington Station, N.Y.

Filed Apr. 9, 1973, Ser. No. 349,616

Int. Cl. G01m *3/20*

U.S. Cl. 73—40.7 **8 Claims**



In a leak detector system which employs a predetermined tracer gas, such as helium, the detector probe is provided with a plastic film which is selectively permeable to the tracer gas in preference to all other atmospheric gases. All detected gases must pass through the film in order to reach the detection element. Because of the selective permeability of the film the probe can assume substantially any size and configuration and can be employed without preparing a contaminant free environment. Moreover, the selectivity of the probe film permits the detection element to be a simple flow monitoring device rather than a mass spectrometer or other gas-distinguishing apparatus.

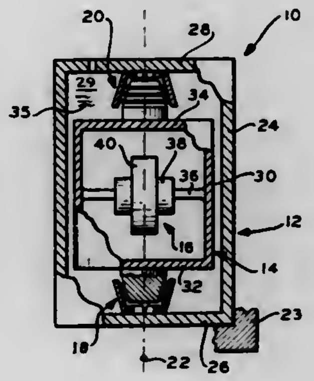
3,837,229
GIMBAL SLIP RING

John C. Stiles, Morris Plains, and William C. Albert, Boonton, both of N.J., assignors to The Singer Company, Little Falls, N.J.

Filed June 15, 1972, Ser. No. 262,994

Int. Cl. G01c *19/16*

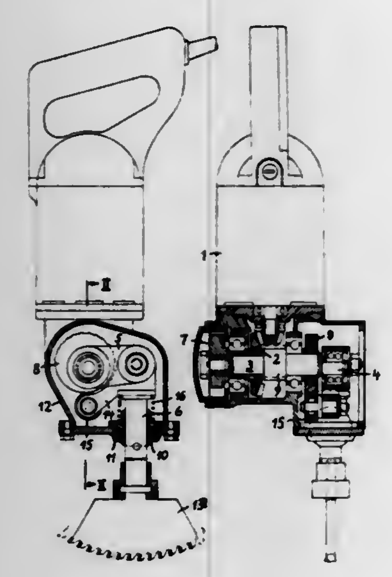
U.S. Cl. 74—5 R **8 Claims**



A gimbal assembly comprising, an outer gimbal having a longitudinal axis, an inner gimbal pivotally supported by the outer gimbal coaxially therewith, a motor mounted on the inner gimbal with the motor having motor leads, a pivot unit pivotally connecting the inner gimbal to the outer gimbal coaxially therewith at one end thereof, and a slip ring unit pivotally connecting the inner gimbal to the outer gimbal coaxially therewith at the other end thereof with the slip ring unit being connected to the motor leads.

3,837,230
MOTOR DRIVEN CHISELING DEVICE

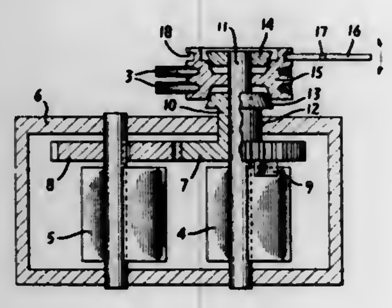
Henry Neuenberg, Ahornstrasse 22, 43 Essen, Germany
Filed Apr. 16, 1973, Ser. No. 351,786
Claims priority, application Germany, Apr. 14, 1972, 2218033
Int. Cl. F16h *21/18*
U.S. Cl. 74—47 **8 Claims**



A motor driven chiseling device for making cuts and grooves in rocks and other hard surfaces by means of a tool having milling teeth. The device has at least one working rod which by means of a joint is mounted for pendulum movement and is also movable in the direction of its longitudinal axis while extending from the interior of the transmission housing to the outside thereof. The passage of the working rod through the transmission housing is sealed by the joint. That portion of the working rod which is located outside the transmission housing is adapted to support a chiseling tool, whereas that portion of the working rod which is located within the transmission housing is operatively connected to a transmission system inside the transmission housing so that the transmission system causes the working rod to carry out a pendulum movement and if desired also an axial movement.

3,837,231
VIBRATOR FOR GENERATING DIRECTIONAL VIBRATIONS

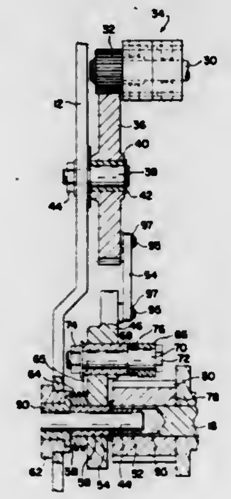
Henrik Holmlund, Jarfalla, Sweden, assignor to Aktiebolaget Vibro-Verken
Filed Jan. 22, 1973, Ser. No. 325,640
Claims priority, application Sweden, Jan. 27, 1972, 916/72
Int. Cl. F16h *33/00*
U.S. Cl. 74—61 **6 Claims**



A vibrator of the type having a pair of bodies rotatable eccentrically about respective mutually parallel axes in opposite directions and gears associated with the eccentrically rotatable bodies meshing to provide coordinated counter-rotation of the bodies is provided with an improved drive arrangement for selectively driving the bodies in rotation in either of two distinct and separate phase relationships. One of the rotatable bodies is rotatable relative to the gear associated with it, and matching abutments on that body and gear are mutually engageable to transmit driving force between them in two different angularly spaced-apart positions of the rotatable body, relative to the associated gear. A belt drive having a shifting mechanism is arranged to transmit rotational power either to the body or the gear of the relatively rotatable body and gear components.

3,837,232
MAGNETIC SLIP CLUTCH

Gary D. Fredell, and Gentiel M. DeGryse, both of East Moline, Ill., assignors to Gulf & Western Industries, Inc., New York, N.Y.
Filed Aug. 29, 1973, Ser. No. 392,685
Int. Cl. F16h *27/02;* **F16d** *7/02*
U.S. Cl. 74—142 **11 Claims**

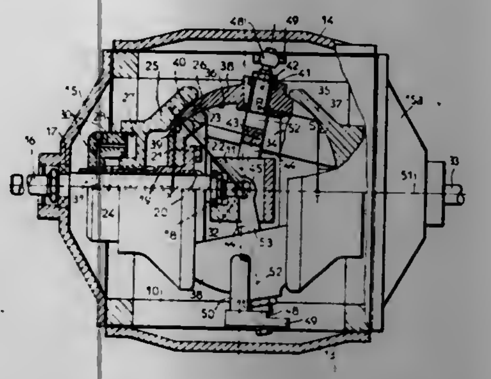


A permanent magnet slip clutch is disclosed for providing slippage at a predetermined torque transmission between driving and driven members. The clutch is comprised of abutting, axially aligned input and output components each comprised of concentric rings of magnetic material and a permanent magnet ring therebetween. The concentric rings are oppositely polarized by the permanent magnet, and the outer and inner rings of the input and output components are oppositely polarized, whereby the abutting end faces of the corresponding rings of the two components are attracted to one another. The magnetic attraction provides for relative rotational slippage between the input and output components when the torque transmitted therebetween overcomes the force of attraction.

3,837,233
CONTINUOUSLY VARIABLE FRICTION DRIVE HAVING INTERMEDIATE MEMBER ENGAGED ON BOTH SIDES FOR INCREASED TORQUE TRANSMISSION

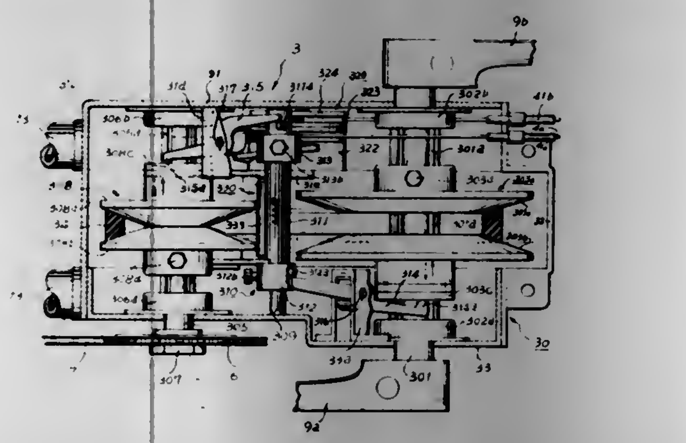
Michael Joseph French, 4 Haverbreaks Pl., Lancaster, England
Filed July 17, 1973, Ser. No. 379,984
Claims priority, application Great Britain, July 20, 1973, 34004/73
Int. Cl. F16h *15/26*
U.S. Cl. 74—200 **11 Claims**

The invention provides a continuously variable friction drive comprising first and second members rotatable about a first axis and having convex and concave driving surfaces respectively, a third member rotatable about a second axis intersecting the first axis and having concave and convex driving surfaces arranged respectively to engage the convex and concave driving surfaces on the first and second members respectively, a pivotal mounting for the third member arranged so that the third member may pivot about a third axis, clamping means for causing relative movement between the first and second members thus to force parts of the driving surfaces on the first and second members into close proximity with adjacent parts of the driving surfaces on the third member, said parts providing drive areas through which drive takes place between the first and second members on the one hand and the third member on the other hand and actuating means for pivoting the third member about the third axis thus to vary the distances of said drive areas from at least one of the first and second axes thus to vary the ratio of the drive, the drive areas being substantially symmetrically disposed about a line passing through the intersection of said first and second axes.



3,837,234
BICYCLE WITH STEPLESS TRANSMISSION

Yau-Shieng Chao, Taipei, Taiwan, assignor to Stanley T. T. Wu and Yau-Shieng Chao, both of Taipei, Taiwan
Filed May 21, 1973, Ser. No. 361,999
Int. Cl. F16h *55/22, 11/04*
U.S. Cl. 74—217 B **7 Claims**

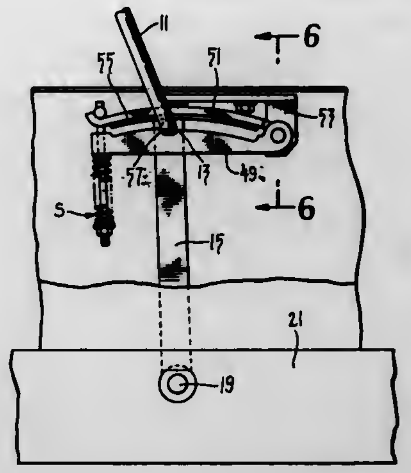


Bicycle with stepless transmission wherein the transmission mechanism forms a part of the bicycle frame, and a remote control mechanism with a shifting lever is installed right under the steering handle, the remote control mechanism comprising a rotatable plate with said shifting lever and a pair of discs, the remote control mechanism being connected to the transmission mechanism through a pair of cables and a pair of spring biased discs which store mechanical energy and release it later for changing the depth of grooves of a pair of V sheaves that in turn change the speed of the rear wheel of the bicycle.

3,837,235
HYDROSTATIC TRANSMISSION CONTROL

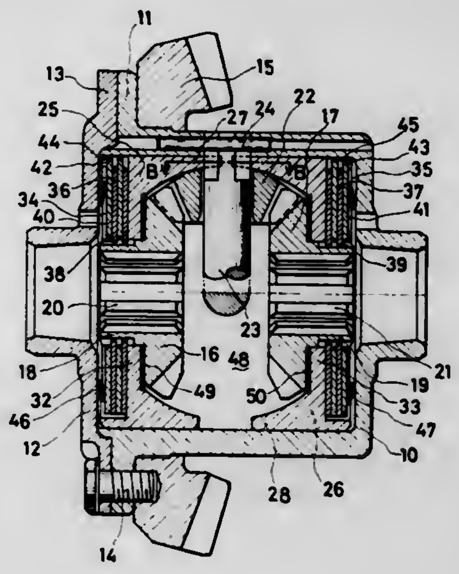
Merle H. Peterson, Livonia, Mich., assignor to Massey-Ferguson, Inc., Detroit, Mich.
Filed Feb. 12, 1973, Ser. No. 331,937
Int. Cl. G05g *5/06*
U.S. Cl. 74—531 **5 Claims**

A hydrostatic transmission control has a nut-cracker-like mechanism for engaging the control to hold it in a selected speed position. The control is arranged so that movement of the control away from neutral toward a maximum forward speed moves the member engaged by the nut-cracker-like mechanism toward the pivot point of the same and thereby causing an increasing holding force to act to hold the same against movement.



3,837,236
LOCKING DIFFERENTIAL

Tooru Kagata, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Aichi Pref, Japan
Filed July 20, 1972, Ser. No. 273,532
Claims priority, application Japan, July 20, 1971, 46-54349
Int. Cl. F16h *1/44*
U.S. Cl. 74—711 **6 Claims**



A locking differential applicable to a vehicle in which the relative rotation between a pair of side gears connected, respectively to the corresponding wheels of the vehicle is regulated by a pair of clutch means which are allowed to create their locking function by frictional resistance forces produced at the clutch means under the relative rotation, wherein the driving torque from an engine is transmitted to the side gears through a pinion shaft secured to a case rotatable thereby, and collar means disposed outside the side gears and the clutch means, the collar means being provided with cam surfaces thereon cooperating with the pinion shaft whereby the collar means are adapted for spreading toward the clutch means to further increase the frictional resistance forces.

3,837,237
MULTI-SPEED CHANGE-SPEED TRANSMISSIONS FOR MOTOR VEHICLES

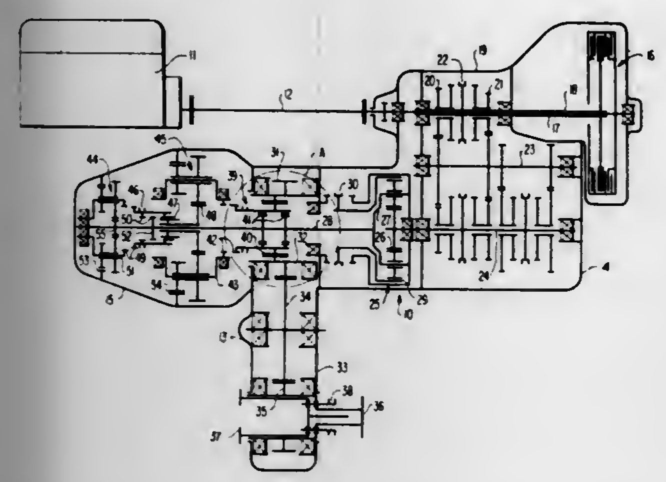
Heinrich Rossler, Baden-Baden; Wilhelm Korner, Gernsbach-Staufenberg; Rudolf Voshage, Gernsbach; Jurgen Wendeborn, Gaggenau, and Friedrich Fortenbacher, Obertsrot, all of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Oct. 12, 1972, Ser. No. 296,776

Claims priority, application Germany, Oct. 12, 1971, 2150674

Int. Cl. F16h *37/06, 37/10*

U.S. Cl. 74—740 **34 Claims**



A multi-speed transmission for motor vehicles, especially for tractors or similar commercial vehicles, which includes a main transmission and a distributor transmission driving the axles; the transmission is thereby so arranged that the distributor transmission is disposed at least approximately in the vehicle center and the main transmission is located on the side of the distributor transmission opposite the driving engine while an auxiliary transmission for crawling and snail speeds is adapted to be subsequently installed on the side of the distributor transmission facing the driving engine.

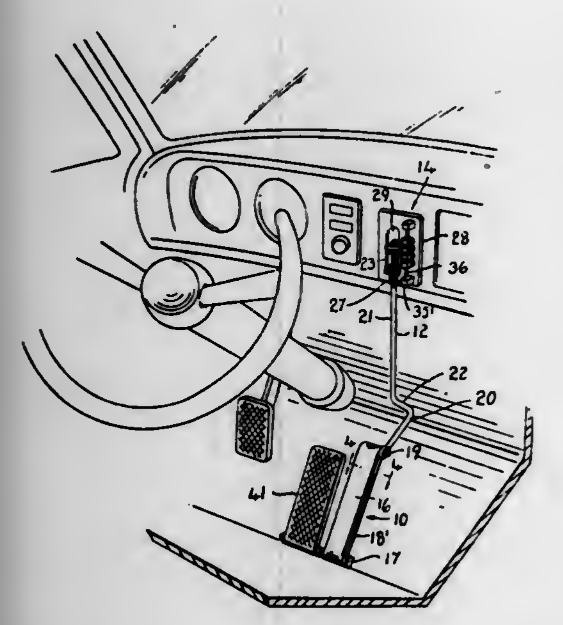
3,837,238
COMBINED FOOT-REST AND SPEED CONTROL UNIT FOR VEHICLES

George Errington Walsh, 30 Kew Beach Ave., Toronto, Ontario, Canada

Filed May 18, 1970, Ser. No. 38,198

Int. Cl. G05g *1/14*

U.S. Cl. 74—526 **7 Claims**



A combined foot-rest and speed control unit for vehicles comprises a pivotally mounted foot member locatable adjacent the vehicle's accelerator pedal. Linkage extending from engagement with the foot-rest connects with settable speed indicating means mounted remote from the foot-rest and in a location readily available to the driver. Restraining means are provided whereby the foot-rest position can be selectively adjusted relative to the vehicle such that by moving the accelerator pedal into planar relationship with the foot-rest the speed of the vehicle is adjusted to that speed indicated by the indicating means.

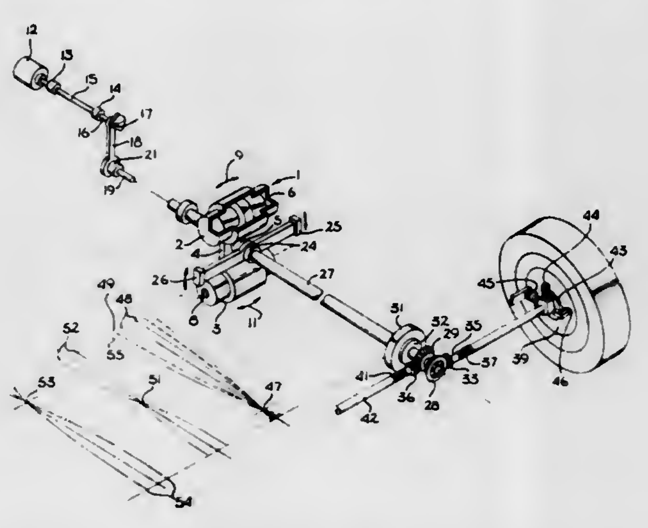
3,837,239
TORQUE CONVERTER TRANSMISSION SYSTEM

Albert G. Bodine, 13180 Mulholland Dr., Beverly Hills, Calif. 90210

Filed Sept. 18, 1972, Ser. No. 290,217

Int. Cl. B60k *35/00*

U.S. Cl. 74—843 **20 Claims**



A kinetic energy transmission system incorporating a novel torque converter for controllably coupling a torsional oscillatory power source to a rotary output shaft. The torque converter comprises an elastic torsion bar having one end connected to the power source and the other end connected to a unidirectional rotary clutch. The oscillatory power source generates a resonant sonic wave pattern in the torsion bar. The clutch converts the torsional vibration output into unidirectional rotary motion at the output shaft. The application of a torque load to the output shaft acts as a restraint which is reflected back through the clutch so as to present an increased sonic impedance at the output end of the torsion bar. This causes the resonant pattern (nodes and anti-nodes) of the bar to shift and to deliver increased torsional force, commensurate with decreased torsional motion at the output shaft.

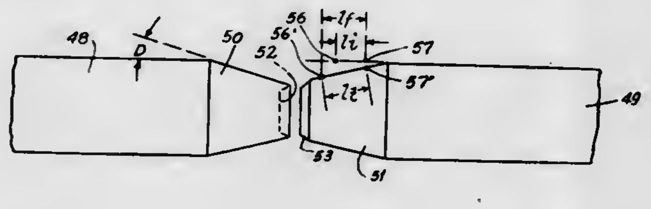
3,837,240
CUTTING TOOL FOR THE CONTINUOUS MACHINING OF METALS AND THE METHOD OF MAKING SAME

William L. Mundy, St. Louis, Mo., assignor to O'Fallon Investment Company, Maryland Heights, Md.

Continuation-in-part of Ser. No. 45,357, June 11, 1970,. This application Nov. 8, 1972, Ser. No. 304,771

Int. Cl. B21k *21/00;* **B26d** *1/00;* **B23b** *3/00*

U.S. Cl. 76—101 A **17 Claims**



A cutting tool made of a material having a high red hardness for the continuous machining of metals and having a geometry determined by the change in measurements of a sample of the metal being machined when the sample is externally loaded to failure. The sample is subjected to a tensile load to produce the failure. Elongation and neck down are caused in the failure area according to the ductility of the metal. The effective cutting or rake angle of the cutting tool is established as a function of the elongation and neck down of the sample. The relief angles of the cutting tool geometry are determined to maintain a self-sharpening cutting edge under the abrasive characteristics of the workpiece material and erosion characteristics of the cutting tool material for given machining conditions.

The effective rake angle of the cutting tool is also established as the minimum angle producing chips of maximum hardness during the machining operation.

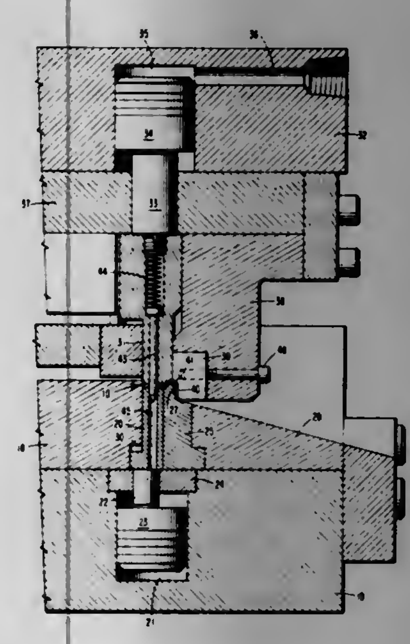
3,837,241
PROCESS FOR COLD FORMING A SAW CHAIN CUTTER LINK

Werner Weiss, Burlington, Ontario, Canada, assignor to Sabre Saw Chain (1963) Ltd., Burlington, Ontario, Canada

Filed Oct. 11, 1972, Ser. No. 299,610

Int. Cl. B23d *63/00*

U.S. Cl. 76—112 **29 Claims**



A process is disclosed for cold forming saw chain cutter links from steel strip in continuous operation in a single progressive die comprising punching and cutting the steel strip to form flat blanks corresponding to the desired cutters, clamping the body portion of each blank between first and second opposing clamping members adapted for reciprocable motion laterally with respect to the blank with the shank and toe portion of the blank extending outwardly from between the clamping members, deflecting the shank portion by striking it against a first anvil surface disposed laterally adjacent the shank portion, and wiping the metal of the toe portion of the blank along a second anvil surface substantially perpendicular to the body portion of the blank adjacent the first anvil surface with a carbide wiping block.

3,837,242
DEVICE FOR REMOVING RADIATOR CAPS

Lester E. Harper, 1111 E. 49th St., Odessa, Tex. 79762

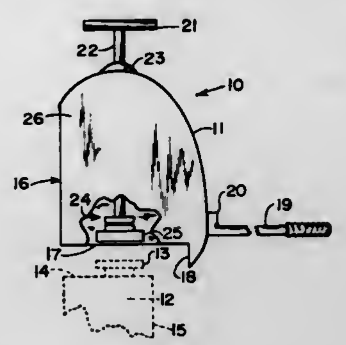
Filed Jan. 26, 1973, Ser. No. 326,846

Int. Cl. B67b *7/44;* **B25b** *29/00*

U.S. Cl. 81—3.1 R **4 Claims**

A device for safely removing radiator caps from hot radiators comprising a shield member which can be supported from the radiator and which includes a top and a side wall with a seal being disposed within the top.

A shaft having a handle end and a cap engaging end is slidably received through the seal so that it can be moved into engagement with a cap on a radiator to enable the cap to be remotely manipulated by the handle, thereby enabling its removal while the shield means prevents hot water flowing from the radiator from scalding the operator.



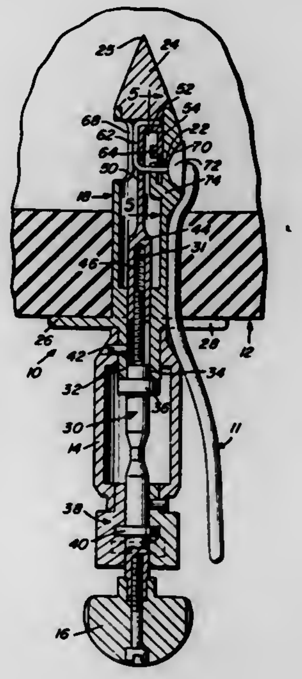
3,837,243
RUBBER-MATERIAL INSERTER

Wilburt W. Mays, 2020 N. 8th St., Philadelphia, Pa. 19122

Filed May 24, 1973, Ser. No. 363,409

Int. Cl. B60c *25/16*

U.S. Cl. 81—15.7 **15 Claims**

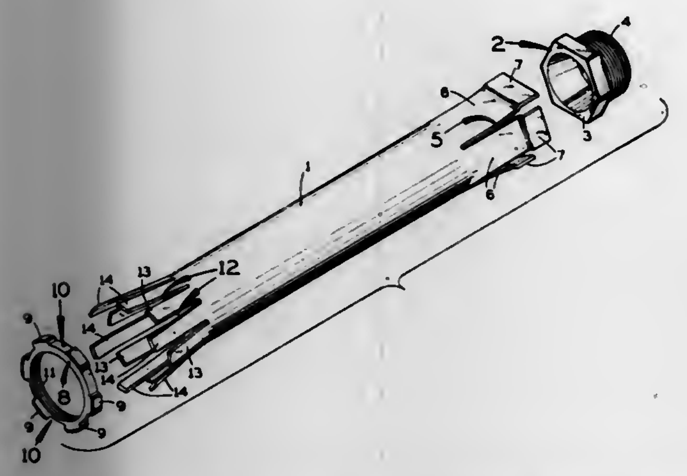


A tool for inserting a headed rubber plug, and the like, into an inflatable device has a body formed by an elongated hollow cylinder with spaced first and second end portions and an opening provided in a wall of the cylinder adjacent the first end portion. A conical head is attached to the cylinder at its first end portion, with an apex of this conical head arranged pointed away from the cylinder for facilitating insertion of the apparatus into an opening of an inflatable member to be repaired. A manually manipulatable clamp has a cutting edge and associated wedge arranged in the cylinder for selective engagement with the tail portion of an insert member inserted into the cylinder through the wall opening for selectively severing and holding the tail portion. The wall of the cylinder in which the opening is provided is thicker than the other portions of the cylinder wall to permit a recess to be defined therein and arranged about the wall opening to receive the head or enlarged portion of an insert member. When the tail portion has been severed from the remainder of the insert member adjacent its head, the tail portion will be retained by cooperation of the wedge with a V-shaped projection extending from an inner wall surface of the cylinder.

3,837,244

TUBULAR SOCKET WRENCH FOR ENGAGING AND ROTATING THREADED MEMBERS

Enos L. Schera, Jr., 8254 S.W. 37 St., Miami, Fla. 33155
Filed Sept. 17, 1973, Ser. No. 397,893
Int. Cl. B25b *13/52, 13/00*
U.S. Cl. 81—64 **2 Claims**

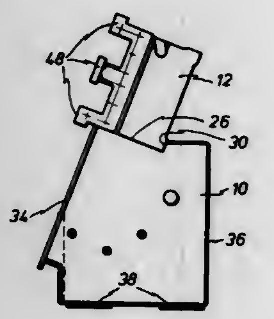


A tubular wrench of predetermined length having an integral formation at one or both ends thereof formed to spring hold a predetermined head of a threaded nut of predetermined size and manually positioning and rotating same off or on a mating threaded member.

3,837,245

BED OF A LATHE

Hermann Schuler, Rechberghausen, and Bruno Zeller, Weissenstein, both of Germany, assignors to Gebruder Boehringer Gesellschaft mit beschrankter Haftung, Goppingen, Germany
Filed Oct. 17, 1973, Ser. No. 407,149
Claims priority, application Germany, Nov. 15, 1972, 2256029
Int. Cl. B23b *17/00*
U.S. Cl. 82—32 **5 Claims**

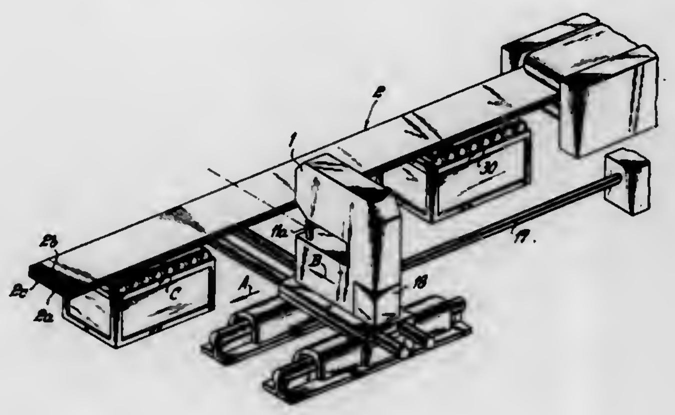


A bed of a lathe comprises a concrete base block and a metal body provided with guide ways for guiding movable lathe elements such as bed slides or the like. The guide-ways are formed by horizontal parallel grooves provided in the front face of the metal body, each groove having opposite side walls and a bottom wall. The metal body has a bottom face fixed on a conforming top surface of the concrete block by a plastic adhesive which constitutes the sole and exclusive means for transferring forces between the metal body and the concrete block.

3,837,246

METHOD OF AND MACHINE FOR SEVERING COMPOUND PLATES

Franz Juditzki, Kreuztal-Buschhutten, Germany, assignor to Hoesch Aktiengesellschaft, Dortmund, Germany
Filed June 19, 1972, Ser. No. 264,128
Claims priority, application Germany, June 18, 1971, 2130249
Int. Cl. B29c *17/10;* **B23d** *53/00*
U.S. Cl. 83—26 **7 Claims**

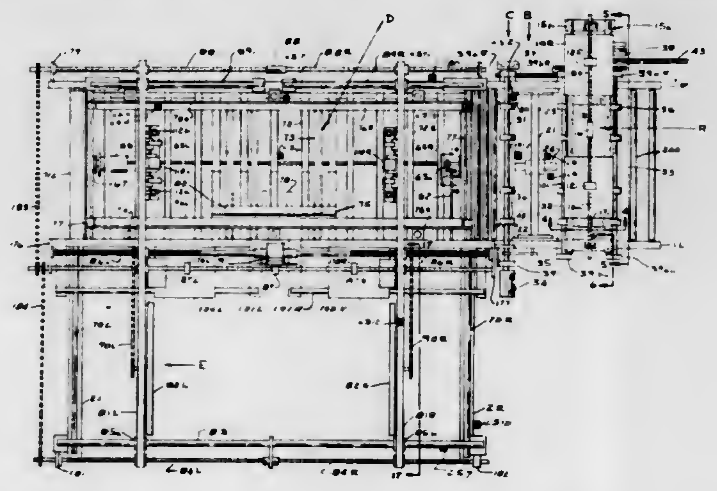


Elongated compound plates are severed at desired intervals in a bandsawing machine wherein the frame for a travelling saw band is movable in and counter to the direction of movement of the plates as well as in and counter to a second direction at right angles to the first direction. The frame further supports a tool which is located behind the band, as considered in the second direction, and is provided with two deburring surfaces serving to penetrate into the kerf which is formed while the frame moves simultaneously in the first and second directions. The freshly severed portions of plates are accelerated in the first direction to increase the width of kerfs so that the band can be readily retracted counter to the second direction prior to returning to a starting position by moving with the frame counter to the first direction. The widening of the kerf can be effected by the tool or by a conveyor which receives successively separated portions of moving plates and accelerates them in the first direction. The plates are free to catch up with and to push the freshly separated portions in the first direction as soon as the band is retracted counter to the second direction.

3,837,247

MACHINE FOR TRIMMING THE EDGES OF PANELS

Donald B. Morse, and Bernard A. Pribish, Joliet, both of Ill., assignors to Kemlite Corporation, Joliet, Ill.
Division of Ser. No. 99,135, Dec. 17, 1970, Pat. No. 3,769,864. This application June 14, 1973, Ser. No. 369,955
Int. Cl. B65h *35/02*
U.S. Cl. 83—156 **5 Claims**

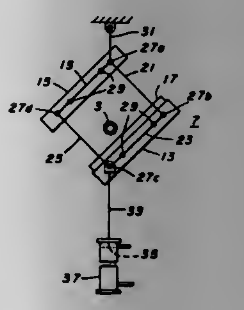


A machine for trimming the edges of panels wherein a conveyor mechanism passes the panels past a pair of saws for trimming the edges of the panels, and including a pair of rolls forward of the saws and between which the panels pass, the lower one of these rolls having a guideplate with an edge extending upwardly adjacent a sawed edge of the panel to guide the panel and maintain it in alignment.

3,837,248

PARISON CUTOFF AND SEALING APPARATUS

Nickolas N. Sokolow, Roscoe, Ill., assignor to Plasti-Mac, Inc., Longwood, Fla.
Filed Nov. 29, 1972, Ser. No. 310,248
Int. Cl. B26d *5/12*
U.S. Cl. 83—375 **9 Claims**

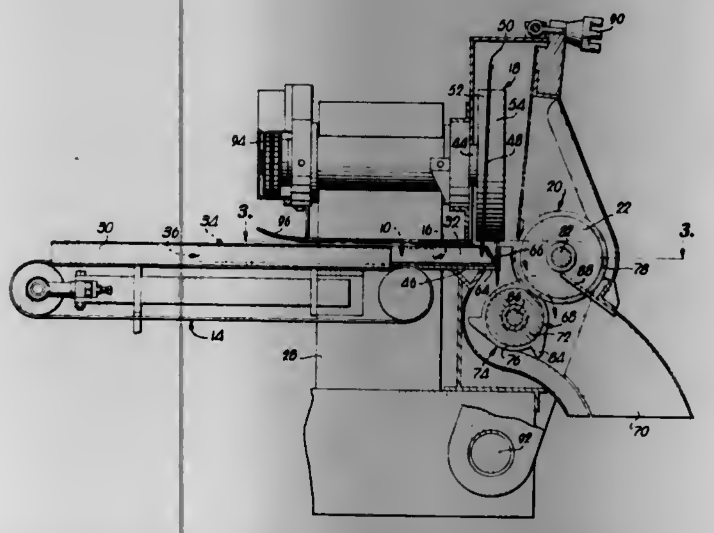


A parison cutoff and sealing device in which a pair of shearing members disposed on either side of a tubular thermoplastic extrusion are diagonally advanced toward each other in a plane substantially transverse to the tube axis thereby severing the parison through the application of shearing forces. The shearing members are maintained parallel to each other throughout their relative movement by a frame comprising four links pivotal connected to form a parallelogram. By squeezing the heated tubular extrusion between blunt shearing members, one of which carries a knife blade, the leading edge of the tube may be sealed as the parison is cut off.

3,837,249

MACHINE FOR SEVERING MEAT SLABS

Marshall Long, Leawood, Kans.; Lewis F. Alley, Kansas City, and William A. Reynolds, Galena, both of Mo., assignors to Marlen Research Corporation, Overland Park, Kans.
Division of Ser. No. 188,907, Oct. 13, 1971, Pat. No. 3,777,600. This application May 8, 1973, Ser. No. 358,401
Int. Cl. B26d *1/56;* **B23d** *25/04;* **B26d** *7/06*
U.S. Cl. 83—408 **10 Claims**

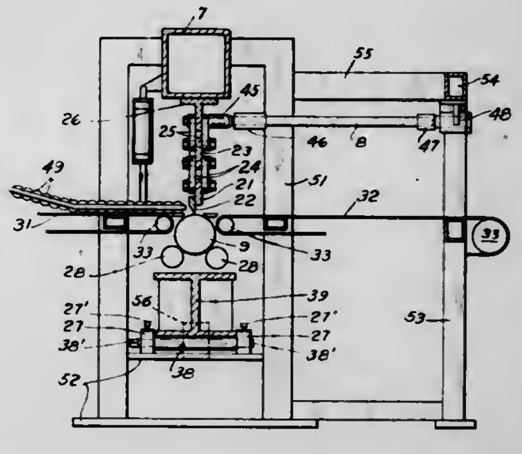


Frozen meat slabs or the like are subjected to the constantly rotating action of a blade provided with a single convolution having a helical cutting edge for severing the slab into elongated strips whose widths are essentially the same as the distance which the slab is advanced during each revolution of the blade, and to the action of a gang of constantly rotating, peripherally sharpened discs which slice the strips into polygonal pieces, e.g., cubical, for further processing, as in stew. Each transverse kerf produced by the blade is initially concave and is progressively increased in depth and in length toward both side edges of the slab while the latter is firmly supported therebeneath by an anvil along which the blade helix causes the slab to slide continuously. The final cutting action for producing each strip is in the form of a shear during which the cutting edge of the blade acts in point contact with a concave, terminal shear edge of the anvil, causing the severed strip to fall away from the slab. The descending strips are intercepted and successively forced forwardly into the bank of discs, without interruption, along an arcuate course, in the same general direction as the path of travel of the slab, by a lobed feeder interleaved with the discs and rotating continuously about an axis parallel with the axis of rotation of the discs but in a direction opposite to the direction of disc rotation.

3,837,250

SUPER SPEED VENEER CLIPPERS

George A. Lumn, Puyallup, Wash., assignor to Globe Machine Manufacturing Co., Ltd., Tacoma, Wash.
Filed Oct. 19, 1972, Ser. No. 299,040
Int. Cl. B27l *5/08;* **B26d** *5/12, 5/18*
U.S. Cl. 83—424 **3 Claims**



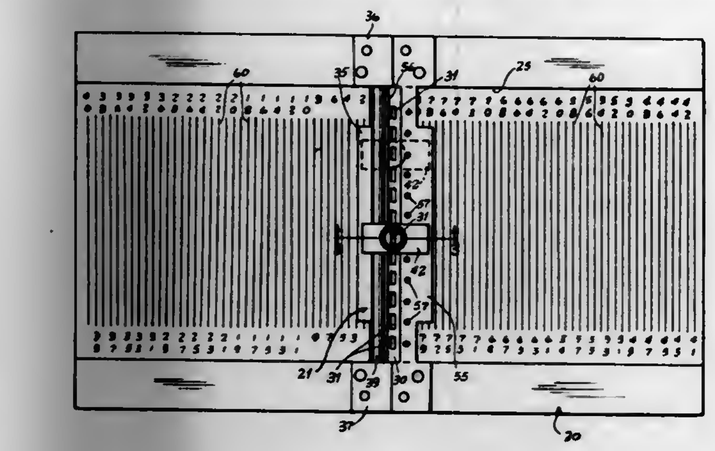
This veneer clipper comprises a frame, infeed and outfeed veneer conveyor means, a reciprocable clipper blade, an anvil positioned so the blade will cut the moving veneer against it, pneumatic means for imparting cutting strokes to the blade at super speed, blade actuating means connecting the pneumatic means with the blade and spring means cooperating with the blade actuating means in such a manner as to make possible super speed cutting strokes of the blade, while at the same time, minimizing shock and vibration by cushioning retractile strokes of the blade.

3,837,251

CARD PUNCH

Stanley T. Schneider, 7246 Pershing Ave., University City, Mo. 63130
Filed Dec. 7, 1972, Ser. No. 312,962
Int. Cl. B26f *1/14*
U.S. Cl. 83—449 **12 Claims**

A pocketable computer card punch, having a base plate grooved to the width of the card and having a row of die holes across the groove and spaced to correspond to the rows on the card, and a punch slidably mounted on the base to be displaced across the groove above the die holes, with a detent for positioning the punch, located to correspond to each die hole position, and graduations on the base corresponding to the columns on the card, all so that the card may be slid across the base, guided by the groove to bring a selected column over the row of dies as indicated by the appropriate graduations, and the punch then moved across above the card to the desired row, detained there accurately positioned, and operated to punch a hole in the card at the selected number.



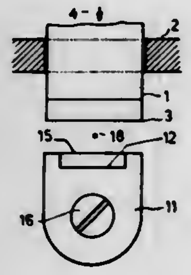
3,837,252
DEVICE FOR SEVERING YARNS IN YARN CLEANERS
Peter Brassel, Uster, Switzerland, assignor to Zellweger, Ltd., Uster, Switzerland

Filed Nov. 24, 1972, Ser. No. 309,481

Claims priority, application Switzerland, Nov. 26, 1971, 17221/71

Int. Cl. B26d *7/20*

U.S. Cl. 83—658 **4 Claims**



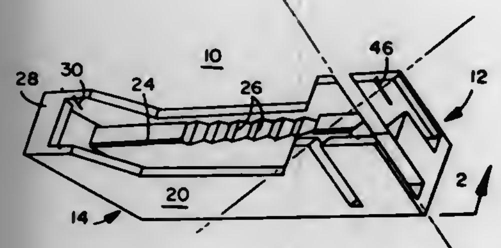
A device for severing yarns in yarn cleaners includes a movable knife and an anvil forming a striking support for the knife, the striking surface of the anvil facing the knife edge being harder in the peripheral zones thereof than in the central zone contacted by the knife during the cutting operation so that the knife will retain its sharp edge for a long period of use.

3,837,253
POSTER FRAME EXTRUSION CUTTING GUIDES
John Whit Slemmons, 900 N. Broadway, Suite 725, Santa Ana, Calif. 92701

Filed Mar. 8, 1973, Ser. No. 339,438

Int. Cl. B23b *51/10;* **B27g** *5/02*

U.S. Cl. 83—762 **9 Claims**



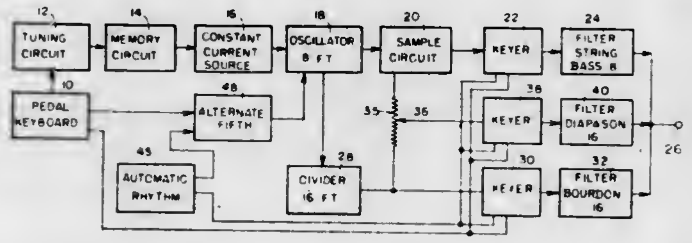
An E-shaped cross-section guide for cutting art frames and similar materials is presented. The guide comprises 3 parallel ridges coupled to a base and spaced so that the 2 parallel planar protions of a poster frame slidably but snugly fit over the center ridge. One end of the tool is cut off at a 90° angle for cutting straight-cut extrusions. The other end is cut off at a 45° angle for cutting extrusions at a 45° angle. Near the 90° end, slots are cut into the three ridges permitting the guide to be used for mitering poster frames. In operation, the poster frame is slide onto the guide and the end of the poster frame is aligned with the selected part of the guide. The guide then supports the extrusion and the blade cutting the poster frame.

3,837,254
ORGAN PEDAL TONE GENERATOR
James S. Southard, Elkhart, Ind., assignor to C. G. Conn, Ltd., Elkhart, Ind.

Filed Apr. 30, 1973, Ser. No. 355,780

Int. Cl. G10h *1/00, 5/00*

U.S. Cl. 84—1.01 **16 Claims**



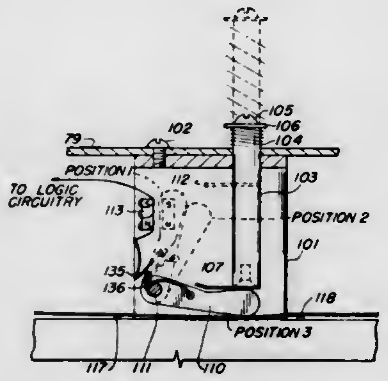
Tone generator system including an oscillator comprising a capacitor and unijunction transistor, with pedals applying potentials representing different notes to a constant current source for controlling the same to charge the oscillator capacitor at different rates for producing the frequencies of different notes. A second control of frequency is provided by changing the potential applied to the gate of the unijunction transistor. The gate potential can be reduced to change the oscillator from the frequency of the root note of a chord to that of the 5th note of the chord, for playing a bass rhythm. The oscillator frequency may be in the frequency range of 8 foot tones, and the sawtooth wave may be directly keyed for providing string bass sounds. A frequency divider triggered by the oscillator produces a square wave at one half the frequency, which is summed with the sawtooth wave to provide a sawtooth wave at one half the frequency, or in the 16 foot tone octave. This may be keyed and filtered for providing a 16 foot diapason tone. The square wave may also be keyed and filtered to provide a 16 foot bourdon tone.

3,837,255
PORTABLE GUITAR CHORDER
Robert M. Starns, 02 Mauroner Dr., Hammond, La., and William W. Witt, Richmond, Tex., assignors to said Starns by said Witt

Continuation-in-part of Ser. No. 300,442, Oct. 25, 1972, abandoned. This application June 28, 1973, Ser. No. 374,751

Int. Cl. G10d *3/00*

U.S. Cl. 84—317 **19 Claims**



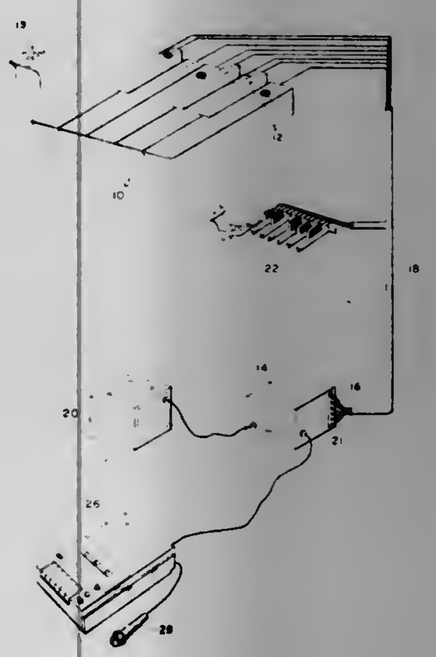
A portable guitar chording device using battery powered logic and selection circuitry is provided for producing desired chords on a conventional guitar or other stringed musical instruments. Two sets of switches, a key signature set and a chord type set operated by one hand activate the logic circuitry to cause selection of appropriate interposer selector bars by interaction of electromagnets with permanent magnets carried on the interposer. String depression plungers are mechanically moved from a position away from the strings to a position toward the strings by depression of a hinged plate member by this same hand. However only those string-fret locations in which the interposer selector means are activated by the logic circuitry cause actual depression of the strings. The second hand of the player strumming all six guitar strings then produces harmonious chords.

3,837,256
SIGHT AND SOUND MUSICAL INSTRUMENT INSTRUCTION
Cecil F. Gullickson, 2018 Fosgate Dr., Winter Park, Fla. 32789

Filed Sept. 21, 1971, Ser. No. 182,484

Int. Cl. G09b *15/08*

U.S. Cl. 84—478 **16 Claims**



A sight and sound instructional arrangement for use with certain musical instruments, including keyboard instruments and fretted instruments, involving the use of illumination means associated with certain keys or frets of such instruments, in conjunction with means sensitive to certain coded information and connected to turn on the illumination means upon such information being received by a binary sequential decoding system utilized herein. This arrangement is particularly suitable for use by a beginning musician inasmuch as by the use of this invention, he or she can see certain keys or frets illuminated at such time as the decoder means receives the preascertained information. One preferred embodiment of this invention involves the use of instructional tapes containing voice instruction for the beginning musician as well as coded information for causing keys or frets appropriate to the instruction to be illuminated at the proper time. Other facets of my invention include the tapes containing rhythm information such that the tones provided by the depressing of the keys is interrupted in a pre-ascertained manner, so as to provide desired rhythm patterns. Rhythm information can also be used to key percussion or drum sounds.

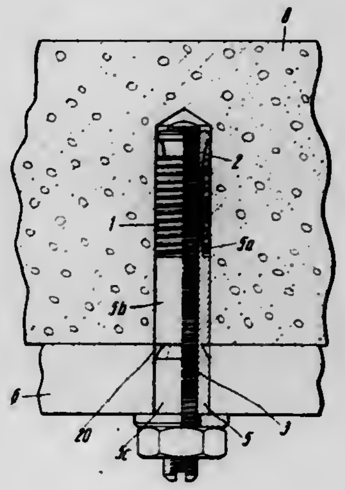
3,837,257
ANCHORING DEVICE
Artur Fischer, Altheimer Strasse 219, D-7241 Tumlingen, Germany

Filed Aug. 15, 1972, Ser. No. 280,885

Claims priority, application Germany, Aug. 17, 1971, 2141079; Sept. 14, 1971, 2145918; Dec. 15, 1971, 2162255; Dec. 14, 1971, 2164587

Int. Cl. F16b *13/06*

U.S. Cl. 85—64 **15 Claims**



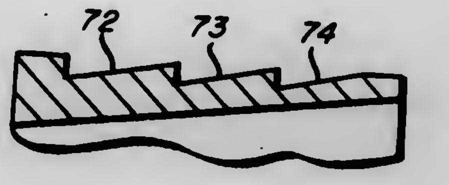
A helically convoluted spring sleeve of soft wire is insertable into a bore hole. An expander member has one part located forwardly of the leading end of the sleeve, and another part located in the leading end and tapering towards the trailing end of the sleeve. A cap sleeve has one section located outside and in abutment with the trailing end of the sleeve, and another part located within the trailing end. An expanding screw extends through a central passage of the expanding sleeve and through the spring sleeve into engagement with the expander member so that the latter can be drawn into the spring sleeve for radially expanding the same.

3,837,258
ROCK BOLTS
Chester I. Williams, 347 Greenbriar, S.E., Grand Rapids, Mich. 49506

Continuation-in-part of Ser. No. 8,345, Feb. 3, 1970. This application July 3, 1972, Ser. No. 268,839

Int. Cl. F16b *13/04*

U.S. Cl. 85—75 **1 Claim**



A method of reinforcing a rock formation with rock bolts establishing a locked-in pre-stress condition inhibiting the initiation of movement of the formation, and structural features of a rock bolt assembly capable of use in the practice of the method.

3,837,259

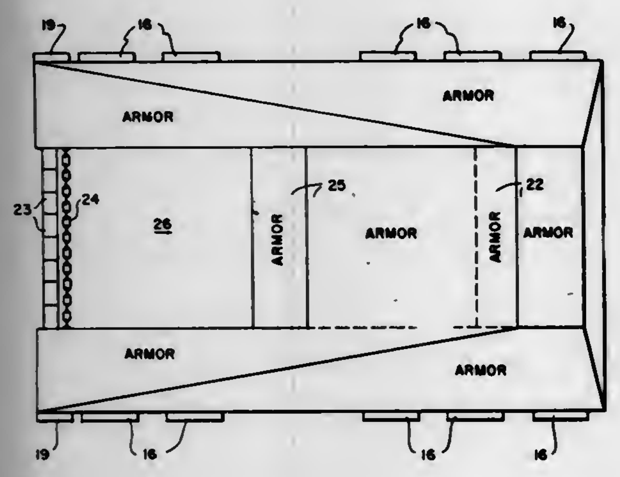
COMBAT TRACKED VEHICLE SIGNATURE DUPLICATOR

David A. Vaughn, Woodbridge, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 28, 1973, Ser. No. 374,605

Int. Cl. F41n *11/12*

U.S. Cl. 89—1 M **3 Claims**



A tracked vehicle for use in mine detonation comprising two endless tracks and two final drives on each side of the vehicle. The final drives are mounted mid-vehicle and a crew area is mounted aft of the final drives.

3,837,260

PIVOTABLE TURRET WITH A FIRING WEAPON ARRANGED ECCENTRICALLY

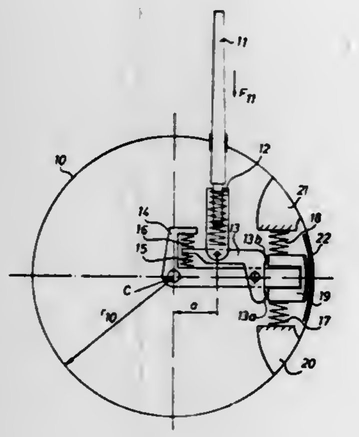
Sven Birger Agren, Ornskoldsvik, and Elof Hjalmar Rowa, Gullanget, both of Sweden, assignors to AB Hagglund & Soner, Ornskoldsvik, Sweden

Filed May 2, 1973, Ser. No. 356,487

Claims priority, application Sweden, May 5, 1972, 5938/72

Int. Cl. F41f *21/00*

U.S. Cl. 89—37 H **6 Claims**



A turret is mounted for rotation on a foundation and provided with an eccentrically mounted gun. In order to prevent the turret from traversing when the gun is fired or is being restored after recoil, the device is provided with a friction shoe which is engageable with a friction member fixed on the foundation. A lever arrangement is provided, which, during recoil and counterrecoil, presses the friction shoe against the friction member and prevents the turning of the turret. The arrangement includes a link structure which has bosses engageable with the friction shoe on turning in either direction and springs for positioning the friction shoe and the lever.

3,837,261

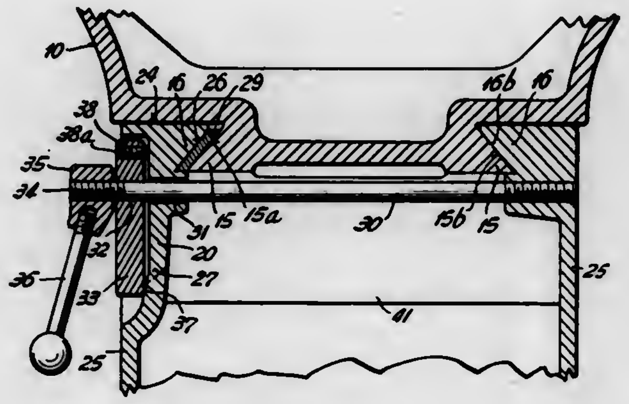
MILLING MACHINE KNEE CLAMP

William M. Hoddinott, Milford, Conn., assignor to Textron Inc., Providence, R.I.

Filed Mar. 29, 1973, Ser. No. 346,135

Int. Cl. B23c *9/00;* **B23q** *1/26*

U.S. Cl. 90—58 A **2 Claims**



There is disclosed clamps for taking up any clearance between the dovetail on the column of a milling machine and the companion ways in the knee and lock the knee to the column against all swaying movement. This is accomplished by having vertically spaced clamping portions on the side of the knee, each clamping portion containing a part of the ways, which ride in the dovetail on the column, separated from adjacent portions of the knee and providing a screw which, when operative, will spring said clamping portion inwardly to clamp portions of the ways on both sides of the knee against both sides of the column dovetail.

3,837,262

REDUNDANT ELECTROHYDRAULIC REGULATING UNIT

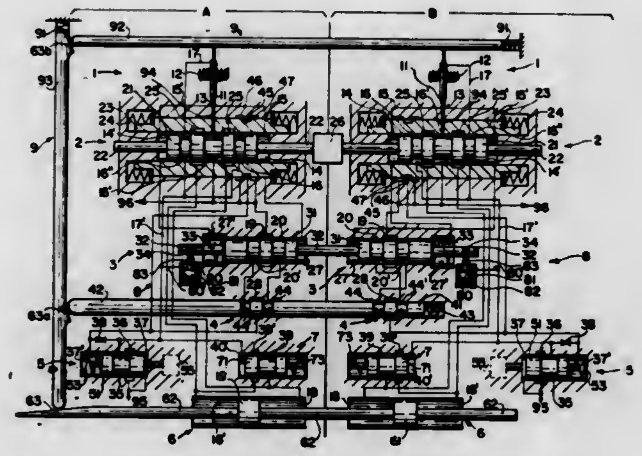
Dieter Hedermann, Immenstaad, Germany, assignor to Dornier A.G., Friedrichshafen/Bodensel, Germany

Continuation-in-part of Ser. No. 115,968, Feb. 17, 1971, abandoned. This application Nov. 10, 1972, Ser. No. 305,321

Claims priority, application Germany, Mar. 26, 1970, 2014661

Int. Cl. F15b *13/16*

U.S. Cl. 91—365 **5 Claims**



This invention relates to a redundant electrohydraulic regulating system for actuating control surfaces, rudders and the like of aircraft, the input signals of which are transmitted electrically by the pilot and by means of regulating and/or stabilizing devices, comprising, at least two servo chains or chains of regulating units, for purposes of detecting errors and/or malfunctions of one of the servo chains and preventing the inoperative servo chain from affecting the operation of the operative chain, each of the servo chains including, a servro or preliminary control valve; a main control valve, whose distributing slide valve is displaced or shifted in response to the operation of the servo or premilinary control valve; a fluid motor, which is displaced or moved by a pressure medium whose pressure is controlled by movements of the distributing slide valve of the main control valve; a position valve, whose distributing slide valve is mechanically coupled to the piston of the fluid motor and a differential pressure valve, which is actuated by the servo or preliminary control valve and, in conjunction with the position valve, interrupts the supply of pressure medium to the pressure chambers of the fluid motor of a faulty servo chain.

3,837,263

APPARATUS FOR PRODUCING PAPER CYLINDERS FOR NURSING SEEDLINGS

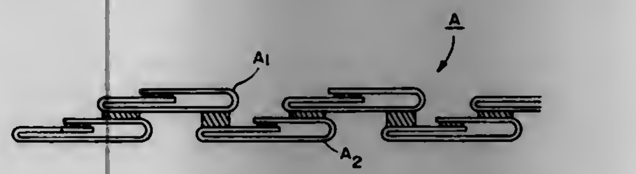
Katsumi Kobayashi; Reiji Takeda, and Kimiaki Sato, all of Hokkaido, Japan, assignors to Nippon Tensai Seito Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 23, 1973, Ser. No. 335,074

Claims priority, application Japan, Mar. 4, 1972, 47-22491

Int. Cl. B31b *17/74;* **B31d** *3/04*

U.S. Cl. 93—1 H **6 Claims**



An apparatus for continuously producing containers for the nursing of plant seedlings which are bottomless and square or hexagonal in horizontal cross-section. The apparatus comprises pasting means for continuously applying paste transverse to a tape assembly in the form of lines or dotted lines, means for forming substantially non-pasted units at certain fixed intervals, means for transferring the pasted tape assembly, means for cutting the tape assembly into unit lengths, and rotary laminating means adapted to receive the unit length pieces of tape one by one and laminate them together, all of these means being interlocked with one another to rotate responsive to each other.

3,837,264

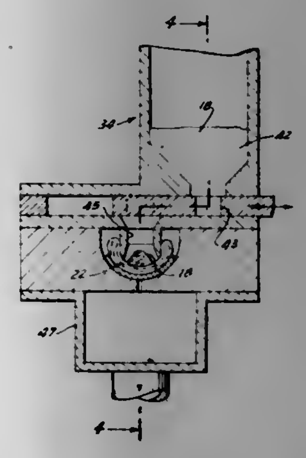
INTERMITTENT PROCESS FOR MANUFACTURE OF A MULTIPLE FILTER ROD HAVING SPACED POCKETS CONTAINING PARTICULATE MATERIAL

John H. Sexstone, Middletown, Ky., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Filed May 7, 1973, Ser. No. 358,127

Int. Cl. A24c *5/50*

U.S. Cl. 93—1 C **20 Claims**



A filter rod making machine is modified to include a dispensing device for granular or particulate material which is fed through spaced apertures to a substantially U-shaped web of selected filter material. The linear movement of the filter material is momentarily stopped to facilitate the reception of the granules. Towards this end, metered amounts of the gravity fed granules are delivered to the spaced apertures by a reciprocal dispensing plate actuated during the dwell period that the web is stationary. Thereafter the U-shaped filter material with spaced charges of granules are shifted longitudinally away from the granule application station in order that a corresponding length of the filter rod may receive spaced charges of the granules. This intermittent motion of the web through the granule application station is repeated. While the tow is moved with intermittent motion through the application station, it is continuously fed from a tow opening unit through a plasticizer applicator and over a feed drum.

3,837,265

DEVICE FOR SECURING SLITTER OR SCORER HEAD

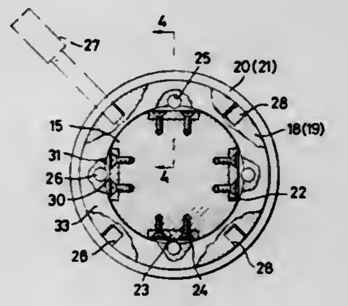
Masateru Tokuno, Nishinomiya, Japan, assignor to Rengo Kabushiki Kaisha (Rengo Co., Ltd.), Osaka-shi, Osaka-fu, Japan

Filed Mar. 5, 1973, Ser. No. 338,185

Claims priority, application Japan, Dec. 18, 1972, 48/2796

Int. Cl. B31b *1/20;* **B23d** *19/04;* **B26d** *1/24*

U.S. Cl. 93—58.2 **4 Claims**



A device for securing a slitter or scorer head to a rotary shaft. The head is slidably mounted on the rotary shaft and a constriction means is provided between the head and shaft. The constriction means comprises a constriction element provided on the inner periphery of the head, and a flat support face provided on the outer periphery of the shaft along the longitudinal axis thereof. The constriction element is projected from the inner periphery of the head into an aperture formed by the flat support face and the inner periphery of the head. The aperture has a section like a segment of a circle and is adapted to be higher than the projection. The slight rotation of the head in respect to the shaft causes the constriction element to pressure-contact with or separate from the flat face of the rotary shaft, the head thereby being fixed or released from fixing.

3,837,266

APPARATUS FOR FOLDING OF ENVELOPE BLANKS REQUIRING VARYING NUMBERS OF FOLDING OPERATIONS

Karl-Heinz Honsel, Heidelberger Weg 15, Bielefeld, Germany

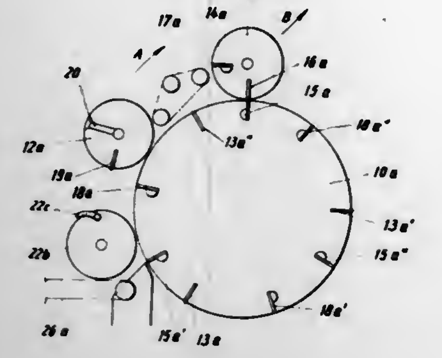
Continuation-in-part of Ser. No. 228,398, Feb. 22, 1972, Pat. No. 3,793,926. This application May 21, 1973, Ser. No. 360,163

Claims priority, application Germany, Feb. 23, 1971, 2108484; May 20, 1972, 2224810

Int. Cl. B31b *1/56*

U.S. Cl. 93—62 **4 Claims**

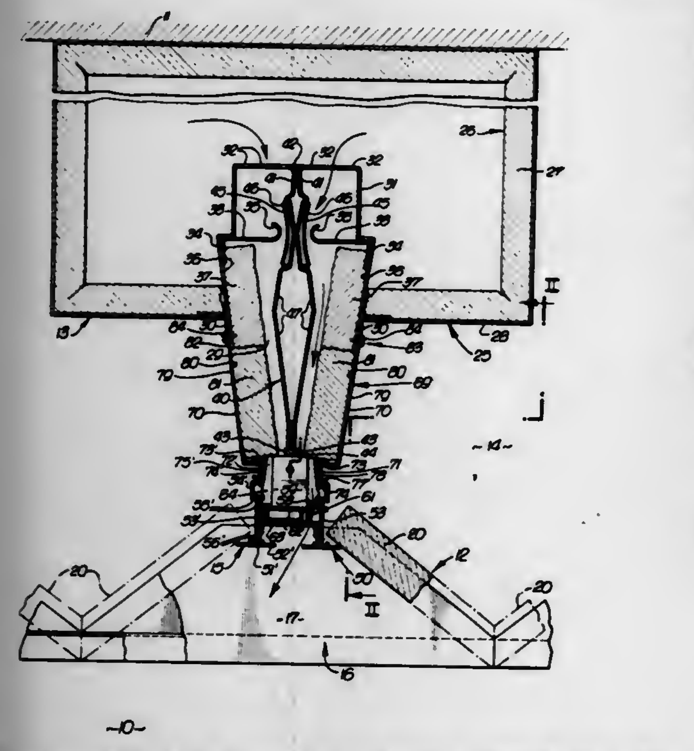
A first cylinder is provided on its periphery with circumferentially spaced alternately arranged folding grippers and blades. A second and a third cylinder each cooperate with the first cylinder and define therewith one and another folding station. The second and third cylinders are respectively provided with alternately arranged folding grippers and blades, and with blades above, on their respective circumference, and these second and third cylinders are of identical dimensions and are interchangeable. Drive means is provided for rotating the cylinders about respective parallel axes. A pressing belt presses an envelope blank against the periphery of the first cylinder, and a removing arrangement removes folded blanks from a terminal one of the folding stations.



3,837,267
ADAPTER MEANS FOR COUPLING A PREPOSITIONED AIR PLENUM CHAMBER TO A LATER POSITIONED AIR BAR

Robert R. Lambert, Glendora, Calif., assignor to Wehr Corporation, Milwaukee, Wis.

Filed Mar. 9, 1970, Ser. No. 17,516
Int. Cl. F24f *13/06*
U.S. Cl. 98—40 D **8 Claims**

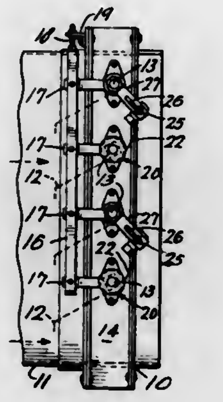


A soffit-mounted prepositioned air plenum chamber with an outlet over an air bar provided as part of a suspended ceiling installation, and an adapter means therefor which includes a plurality of panel members, each with a bottom flange which is snapingly secured into a lateral channel upper extension of an inverted T-bar member in the air bar, an upper flange which is secured to the associated outlet wall of the plenum chamber, and middle portion which provides one side of an air directing throat to direct flow of air from the chamber through the air bar and into the room below. The panel members may be located in opposed pairs in longitudinal array with spaces between selected adjacent panel member pairs with blank-off members and end-closing members therebetween to close the outlet of the air plenum chamber to the air bar while opening the air bar to the attic space between the soffit and the suspended ceiling to divide the air bar into supply sections and return sections. The panel members, biank-off members and end closing members are easily removed and replaced to permit the interchanging of supply sections and return sections to give the greatest possible flexibility to the ventilating system.

3,837,268
PROTECTIVE DAMPER FOR GAS EXHAUST DUCT

Raymond L. Alley, Toledo, Ohio, assignor to The American Warming & Ventilating, Inc., Toledo, Ohio

Filed Nov. 9, 1972, Ser. No. 305,086
Int. Cl. F24f *13/16*
U.S. Cl. 98—110 **3 Claims**

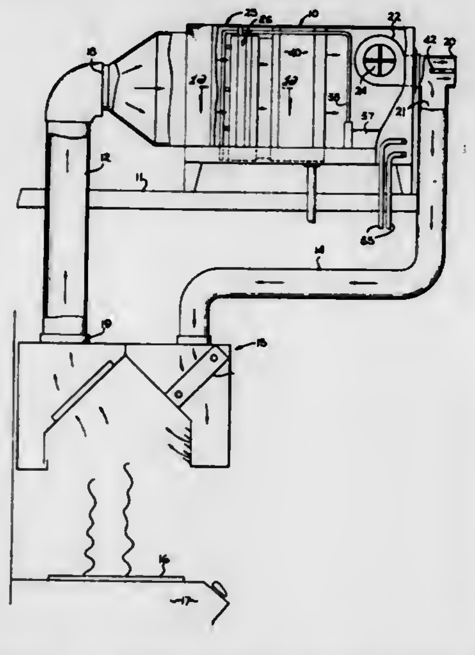


A damper that is normally biased toward open position against the pressure of air flowing through the damper and rapidly closed by the increase of such pressure resulting when pressure exteriorly of the damper abruptly drops to a predetermined level. The damper comprises a plurality of parallel blades mounted on parallel axes and coupled to each other for movement between a closed position with the blades lying generally in a vertical plane across the damper and normally open position with the blades lying in parallel spaced planes inclined into the air flow. Means are connected to the blades for biasing them inwardly toward open position against the pressure interiorly of the damper caused by the air flow which tends to swing the blades in an outward direction toward closed position. When the atmospheric pressure on the outside of the damper drops, as by the presence of the negative phase of a tornado, the damper closes immediately.

3,837,269
EFFLUENT VENTILATION AND CLEANING APPARATUS

Albert Sweet, Northridge, and Arnold S. Kaufman, Studio City, both of Calif., assignors to Elster's, Inc., Los Angeles, Calif.

Filed Nov. 22, 1972, Ser. No. 308,688
Int. Cl. F23j *11/00*
U.S. Cl. 98—115 K **3 Claims**



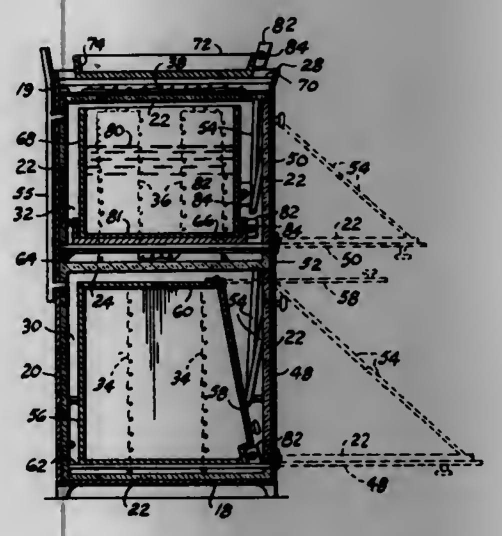
An apparatus for ventilating kitchen exhaust fumes and treating the effluent from kitchens to remove air polluting constituents from the effluent. The apparatus includes a housing through which the exhaust is pulled by a fan at the outlet side of the housing. The housing has an inertial impingement

degreaser section with means for collecting and disposing of grease and other aerosols extracted from the fumes. The exhaust then passes through an electrostatic precipitator section which removes remaining contaminants after which the treated exhaust is exhausted to the atmosphere or partially recirculated through the kitchen cooking area. If required, a device for odor removal by absorption, adsorption or ozone treatment is added in a plenum after the fan.

3,837,270
PORTABLE ELECTRICALLY HEATED COMBINATION OVEN BOILER AND OPEN GRATE COOKING UNIT

Thomas V. Cooper, 2100 St. Charles Ave., Apt. 8–J, New Orleans, La. 70140

Filed Mar. 26, 1974, Ser. No. 454,975
Int. Cl. A47j *37/06, 37/12*
U.S. Cl. 99—339 **6 Claims**

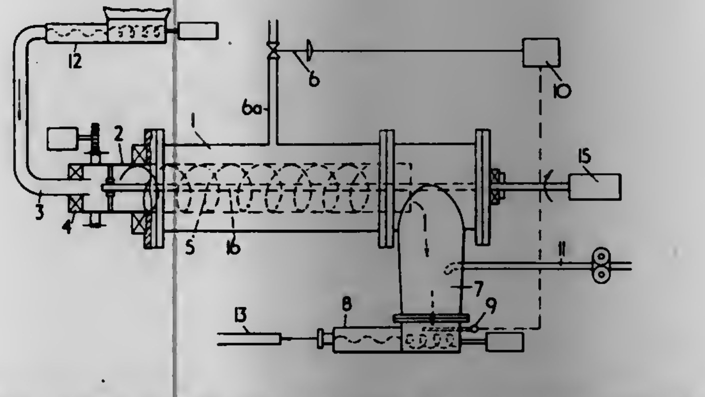


A portable electric cooking unit including an upright rectangular housing having a horizontal partition forming a lower door opened and closed oven compartment and an upper door opened and closed boiling compartment and having a griddle supported above its top wall. A closable baking and roasting container is freely received by the oven compartment and a plurality of upwardly open containers are removably received by the boiling compartment.

3,837,271
HEAT TREATMENT OF FLOWABLE SOLIDS

David Teignmouth Shore, Banstead, and Granville Lewis Starkie, Crawley, both of England, assignors to The A.P.V. Company Limited, Crawley, Sussex, England

Division of Ser. No. 40,806, May 27, 1970, Pat. No. 3,700,468. This application May 26, 1972, Ser. No. 257,459
Int. Cl. A23l *3/22*
U.S. Cl. 99—468 **6 Claims**

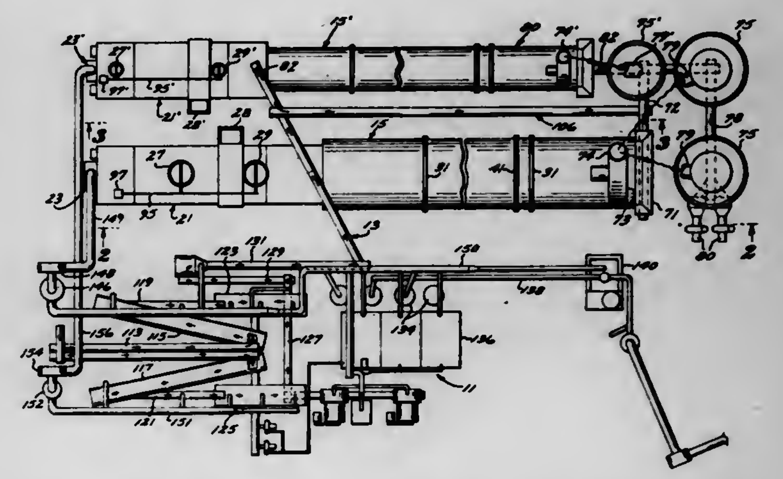


The specification discloses a method and apparatus for heat treatment, particularly sterilizing particulate solid material such as meat cubes or beans. The particles of solid material are positively fed by a conveyor, such as a screw conveyor, through a chamber with an atmosphere of steam or other heating gas, and the residence time determined by the positive feeding is such as to ensure that the required treatment in the chamber is completed.

3,837,272
MEAL DRYING POLLUTION CONTROL APPARATUS

Vincent J. Evich, San Pedro, Calif., assignor to Star-Kist Foods, Inc., Terminal Island, Calif.

Filed June 14, 1973, Ser. No. 369,791
Int. Cl. A23l *3/16*
U.S. Cl. 9—483 **14 Claims**

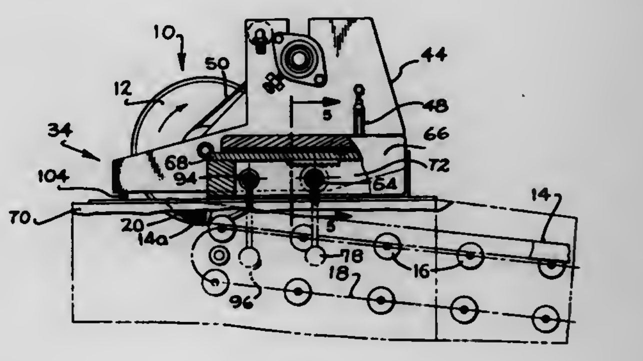


Meal drying pollution control apparatus including an incinerator formed with a retention chamber having a burner at the inlet thereof and joining on its downstream end with a rotary dryer. Connected with the downstream end of the rotary dryer is a recirculation conduit which bifurcates into a reheat conduit connected with the upstream end of the retention chamber adjacent the burner and a residual heat conduit connecting with the downstream end of such a chimney is connected with the retention chamber downstream of the reheat conduit for exhausting incinerated exhaust to the atmosphere. The burner is controlled to maintain the recirculated gases entering from the reheat conduit above a predetermined temperature for a selected length of time to thereby incinerate substantially all the impurities therein so the incinerated gases may be exhausted to the atmosphere without substantial pollution thereof. A temperature sensor is located at the outlet to the dryer and controls valves disposed in the residual and reheat conduits to balance flow between such conduits to maintain the desired temperature in such dryer to provide for the desired drying temperature for meal run through such dryer.

3,837,273
ADJUSTABLE CUTTING ARRANGEMENT FOR FRUIT PITTING APPARATUS

David W. Mattos, Rt. 2, Box 861 Crosley Ave., San Jose, Calif. 95131

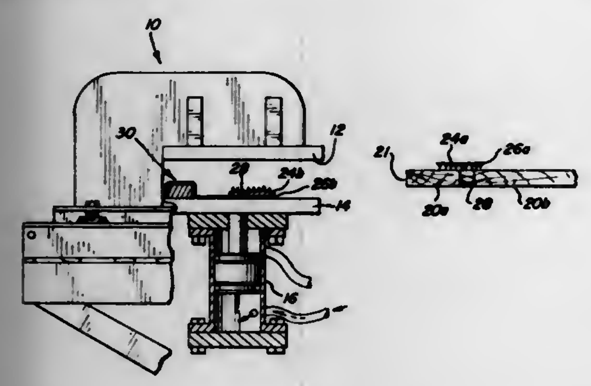
Filed Dec. 10, 1971, Ser. No. 206,625
Int. Cl. A23n *3/08*
U.S. Cl. 99—555 **1 Claim**



Arrangement for cutting and pitting apricots, peaches, plums, and other drupe fruits which are individually and sequentially moved along a number of V-troughs including a rotary power knife above each trough adjacent its terminal extremity which is relatively wide and formed by resilient surfaces to assure rolling movement of the fruits, each knife being supported for longitudinal and transverse adjustment to enable desired positioning for optimal cutting and pitting of the fruits during the operation.

3,837,274
MAGNETIC LOCATING DEVICE

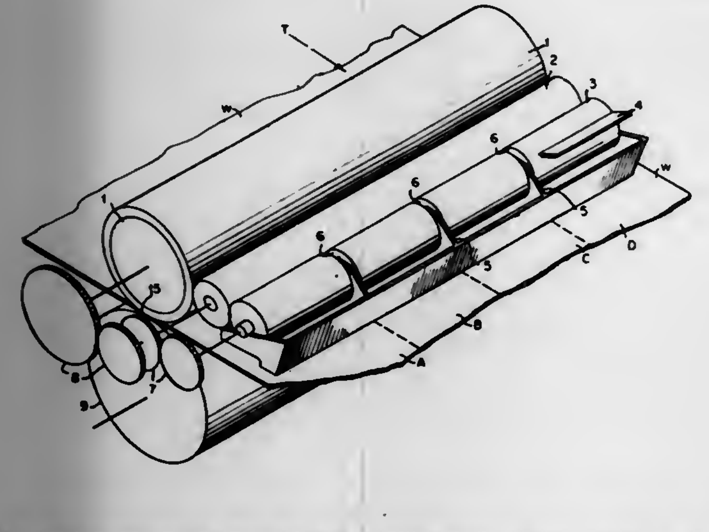
Edward F. Zaccard, Rt. 4, P.O. Box 68-A, Burlington, Wis. 53105
Filed Feb. 2, 1973, Ser. No. 328,904
Int. Cl. B30b *13/00, 1/08*
U.S. Cl. 100—35 **2 Claims**



Disclosed is a device for locating a nail plate or the like on the flat, magnetic platen of clamping apparatus. The clamping apparatus has a pair of movable platens which, when actuated, press the nail plate into lumber placed between the platens. The locating device includes a generally flat first leg portion and generally flat second leg portion joined together to define between inner edges of the leg portions an angle corresponding to the corner angle of the nail plate. Thus, during locating of the plate, the corner of the plate abuts both inner edges of the leg portions. This locating device is characterized by magnets attached near an outer edge of one of the leg portions. These magnets hold the locating device on one of the platens of the clamping apparatus. The thickness of the magnets is less than the thickness of the lumber into which the nail plate is being pressed. Consequently the magnets do not interfere with the operation of the clamping apparatus.

3,837,275
MULTIPLE COLOR EMBOSSING OF FLOORING MATERIAL

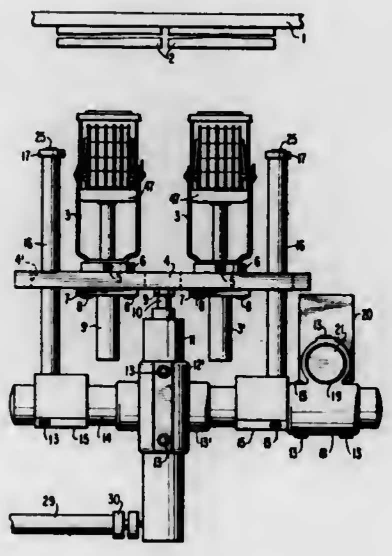
John S. Madsen, Belle Mead, N.J., assignor to GAF Corporation, New York, N.Y.
Filed Sept. 25, 1972, Ser. No. 291,994
Int. Cl. B41f *5/04, 31/06*
U.S. Cl. 101—23 **2 Claims**



An apparatus and method for embossing and printing on a web of flooring material making use of an embossing roller, transfer roller, and gravure roller. The gravure roller is a segmented roller, adapted to coact with a printing ink reservoir, provided with individual compartments matching in number the segments on the gravure roller. Multiple colors of ink are subsequently transferred to the flooring material in accordance with such predetermined segmented gravure roller to produce a material having a multi-color effect.

3,837,276
INDICIA STAMPING MECHANISM

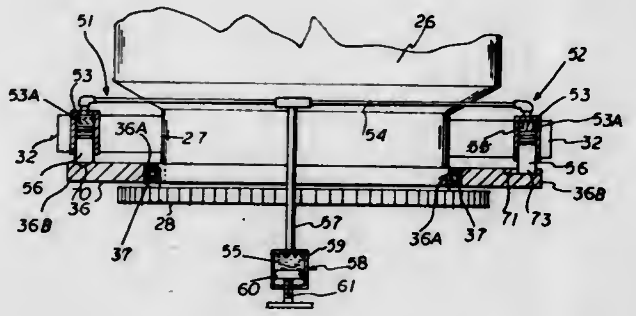
Anderson R. Reichert, Thomasville, Ga., assignor to Harvard Enterprises, Incorporated, Thomasville, Ga.
Filed May 11, 1973, Ser. No. 359,605
Int. Cl. B41f *17/00, 1/00*
U.S. Cl. 101—41 **8 Claims**



In synchronism with wrapper applying means on a packaging conveyor pneumatically operated ink stampers precisely apply price indicia in prescribed areas of wrapped finished products or packages. The indicia stamping mechanism is characterized by a full range of adjustments to achieve maximum flexibility of operation. The mechanism also possesses simplicity and durability in a self-contained unit with simplified controls.

3,837,277
FLUID SELF-BALANCING ROTARY SCREEN TENSIONING MOUNT

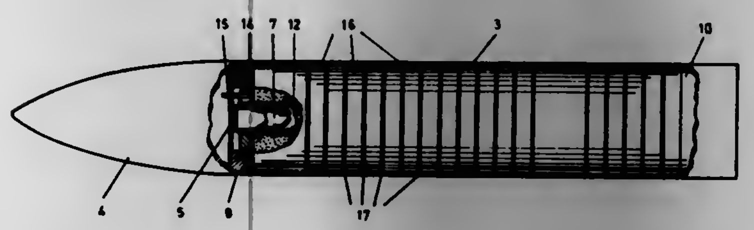
David Jaffa, Fairlawn, and Sandor Szarka, Hawthorne, both of N.J., assignors to Precision Screen Machines Inc., Hawthorne, N.J.
Filed Aug. 25, 1972, Ser. No. 283,816
Int. Cl. B41f *15/38;* **B41l** *13/04*
U.S. Cl. 101—127.1 **15 Claims**



This disclosure is directed to a rotary screen printing head for a rotary screen printing machine and more particularly to a fluid balancing system for maintaining proper tension on a rotary screen and/or to compensate for any eccentricity of the head end portion of the screen during rotation. Also this disclosure is directed to the utilization of a radial thrust bearing for rotatably supporting the screen relative to its end thrust supports.

3,837,278
ROCKET FOR FIRING AND SPREADING REFLECTING MATERIAL

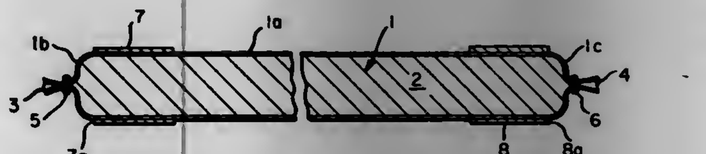
Melker Emanuel Gustafsson; Yngve Bertil Stradalen, and Erik Gustav Ake Zander, all of Karlskoga, Sweden, assignors to AB Bofors, Bofors, Sweden
Filed June 5, 1973, Ser. No. 367,313
Claims priority, application Sweden, June 16, 1972, 7596/72
Int. Cl. F42b *15/00;* **C06d** *1/04*
U.S. Cl. 102—34.4 **7 Claims**



A rocket for spreading reflecting material to achieve a radar echo comprises a rocket body having a rocket motor at one end thereof, and a rocket head containing the reflecting material at the other end thereof. The casing is locked to the rocket body by a locking mechanism which is adapted to be released by gas pressure generated by detonation of a separating charge. The locking mechanism includes an elongated tube adapted to support the reflecting material on its exterior, and operative to selectively form an interior gas channel between the separating charge and the front part of the casing under the control of a valve member.

3,837,279
BLASTING CARTRIDGE AND PRIMER

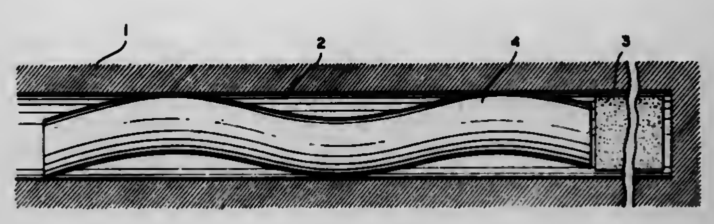
Harry G. Cooke, Jr., Pineville, W. Va., assignor to E. I. duPont de Nemours and Company, Wilmington, Del.
Filed Mar. 5, 1973, Ser. No. 337,934
Int. Cl. F42b *3/02*
U.S. Cl. 102—24 R **20 Claims**



A blasting cartridge comprising a tube of plastic film filled with water-bearing explosive and gathered and closed at both ends has a sleeve or capsule over one or both ends, or a full-length sheath, e.g., of water-resistant paper or plastic, which forms an end abutment surface at one or both of the package ends that impedes cartridge override and jamming during string-loading of boreholes. A primer comprising a blasting cap embedded in this cartridge has the added advantage of improved integrity when punctured for the reception of the blasting cap.

3,837,280
TAMPING CARTRIDGE MADE OF FILLED, ELONGATED POLYMERIC TUBING

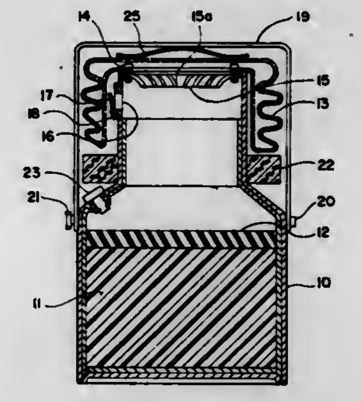
Hans Lewer, Witten-Annen, Germany, assignor to Chemische Fabrik Kalk GmbH
Filed Jan. 26, 1973, Ser. No. 327,181. The portion of the term of this patent subsequent to Aug. 14, 1990, has been disclaimed.
Claims priority, application Germany, Jan. 26, 1972, 2203488
Int. Cl. F42d *1/08*
U.S. Cl. 102—30 **5 Claims**



A tamping cartridge for tamping explosive charges in bore holes which consists of a sealed plastic tubing essentially filled with a finely divided solid and a wall thickness of 50 to 100 microns.

3,837,281
THERMAL RADIATION EMITTER

Donald Edward Shaffer, Newark, Del.; Herbert W. D. Cassidy, Elkton, Md., and Walter G. Andrews, Wilmington, Del., assignors to Thiokol Chemical Corporation, Bristol, Pa.
Filed Apr. 25, 1969, Ser. No. 823,234
Int. Cl. B64b *1/44, 1/62*
U.S. Cl. 102—35 **3 Claims**

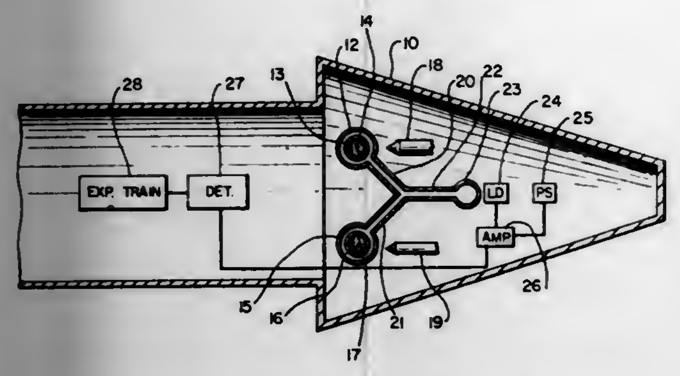


A device is presented which emits infra heat rays at specific predetermined wave lengths and defines a particular cross sectional pattern of such heat emission so that the emission source can be both detected and identified by an infra red detector. A hot gas generant is employed to inflate a balloon of known cross section having a surface which is known to emit infra red heat rays within a certain selected range of wave lengths.

3,837,282
ORDNANCE TIMER USING CHEMICAL LIGHT

Warren P. Morrow, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed July 6, 1973, Ser. No. 376,999
Int. Cl. F42c *19/00, 11/00*
U.S. Cl. 102—70.2 R **7 Claims**

Disclosed is a chemiluminescent ordnance timer. The device comprises essentially of a first ampule which contains a first reactive component, a second ampule containing a second reactive component, a mixing chamber for receiving both reactive components and for transmitting chemiluminescent light which is created by the mixture, a plurality of capillary tubes for imparting a predetermined time delay to the reactive components on their way to the mixing chamber, and finally, means for detecting the chemiluminescent light and for actuating an appropriate mechanism. Each of the ampules containing the reactive components are designed to break upon the application of a predetermined force such as a setback or a spin force which may be encountered in a projectile. Several safety features in the form of fluid sump means are provided along the capillary path to ensure that the detonator will activate only upon a predetermined sequence of events.



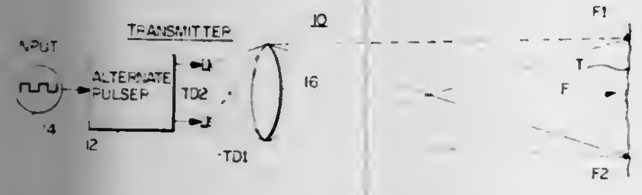
3,837,283
ACTIVE OPTICAL FUZE

Robert H. McCracken, Montgomery County, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 3, 1973, Ser. No. 385,381

Int. Cl. F42c *13/02*

U.S. Cl. 102—70.2 P **8 Claims**



An active optical fuze is provided for detecting the transit of a target through a given focal plane and energizing a firing circuit in response to such event. A pair of optical transmitters are alternately pulsed at a known pulse frequency to illuminate two related foci on an approaching target. When the target is not at the focal plane a pair of optical receivers receive light reflected from both foci in-phase. When, however, the target is at the focal plane, the two receivers are illuminated out of phase by only corresponding ones of said foci. In this latter mode of illumination the receivers drive, respectively, the SET and RESET terminals of a bistable multivibrator to thereby generate a firing signal of the same known pulse frequency as that driving the transmitter, which firing signal is then applied to a detecting and firing circuit to energize the latter as the target transits the focal plane.

3,837,284
DRY CHARGE HYPODERMIC PROJECTILE

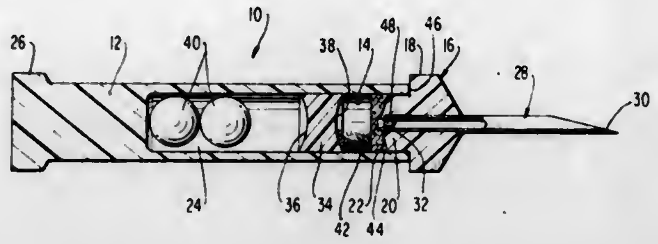
Robert B. Waldeisen, P.O. Hillsgrove, Barbours, Pa. 18619

Continuation-in-part of Ser. No. 334,546, Feb. 22, 1973, abandoned. This application Sept. 7, 1973, Ser. No. 395,095

Int. Cl. F42b *5/12*

U.S. Cl. 102—92 **13 Claims**

A projectile for injecting liquid drugs into animals carries within a hollow body a drug in dry powdered form behind a water soluble wad which overlies the inner end of the hollow steel needle, whose outer end projects axially from the forward end of the projectile. The drug is liquified and the wad dissolved by injecting sterile water from a hypodermic syringe by insertion of the syringe needle into the projectile needle and piercing the wad prior to compressing the syringe plunger.



In one form, an interior member impacts a paper cap explosive charge, which upon detonation drives the syringe plunger axially to eject the liquid drug from the projectile.

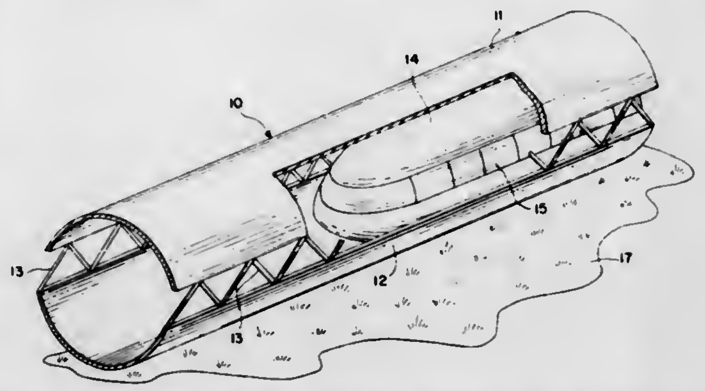
3,837,285
OPEN TUBE GUIDEWAY FOR HIGH-SPEED AIR-CUSHIONED VEHICLES

Rodney S. Goering, Columbus, Nebr., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jan. 26, 1972, Ser. No. 220,785

Int. Cl. B61b *13/08*

U.S. Cl. 104—23 FS **10 Claims**



This invention is a tubular shaped guideway for high-speed air-cushioned supported vehicles. The tubular guideway is split and separated such that the sides of the guideway are open. The upper portion of the tubular guideway is supported above the lower portion by truss-like structural members. The lower portion of the tubular guideway may be supported by the terrain over which the vehicle travels, on pedestals or some sililar structure.

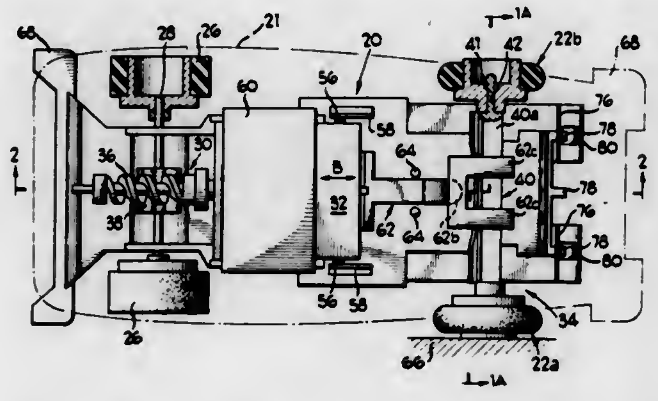
3,837,286
SYSTEM FOR OPERATING MINIATURE VEHICLES

Derek A. Brand, and Alexander Imatt, both of Camarillo, Calif., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Nov. 28, 1973, Ser. No. 419,521

Int. Cl. A63g *1/00*

U.S. Cl. 104—60 **4 Claims**



A system for operating electrically propelled miniature vehicles along a roadbed having side-by-side current conductive lanes with substantially flush tread surfaces and for remotely controlling the vehicles in a manner to turn out and pass one another at the will of the operator as the vehicles are transferred freely from one lane to another. The roadbed has lane bordering side walls along the outer edges of the outermost lanes. A propulsion motor is mounted on the vehicle body by means providing limited fore and aft movement thereof relative to the vehicle body to effectively operate front steering wheels of the vehicle automatically in response to forward movement of the motor in response to the momentum of the vehicle when the current to the motor is suddenly cut. The motor is forced forwardly through a gear train connecting the motor to driving wheels of the vehicle due to the momentum of the vehicle when the current thereto is cut. On forward movement, the motor engages a front wheel axle assembly and pivots the assembly toward the opposite lane depending on the lateral disposition of a fulcrum portion of the front axle assembly, which positioning is determined by engagement of one of the front wheels with the adjacent lane bordering side walls.

3,837,287
MAGNETIC SUSPENSION UTILIZING AN ELONGATED COIL

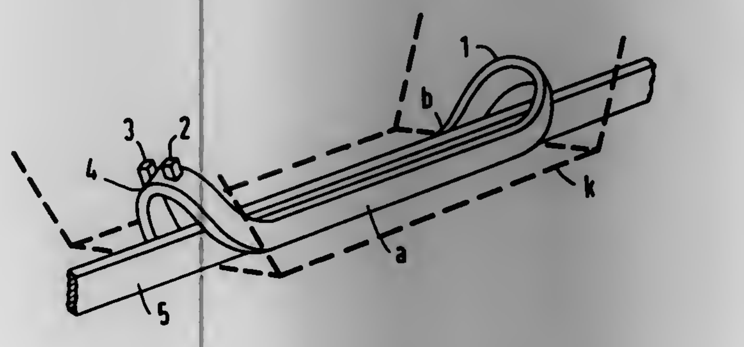
Alfred Lichtenberg, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munchen, Germany

Continuation-in-part of Ser. No. 296,813, Oct. 12, 1972, abandoned. This application Nov. 22, 1972, Ser. No. 308,714

Claims priority, application Germany, Oct. 14, 1971, 2151150

Int. Cl. B61b *13/08*

U.S. Cl. 104—148 SS **23 Claims**



An electromagnetic suspension arrangement for electromagnetically supporting a body movable along a roadway such as for an electromagnetically suspended railway or the like is disclosed. The arrangement includes at least one elongated conductor coil mounted on the body and having a mid portion and respective end portions integral with and bent away from the mid portion. The mid portion includes two mutually adjacent, longitudinally extending conductor segments. A ferromagnetic rail is mounted on the roadway and disposed between the segments for coacting with the conductor coil to develop electromagnetic forces for suspending the body relative to the rail. If required, the suspension arrangement can also include subsidiary structure to provide lateral stabilization and additional lifting force.

3,837,288
ACCUMULATIVE TROLLEY CONVEYOR

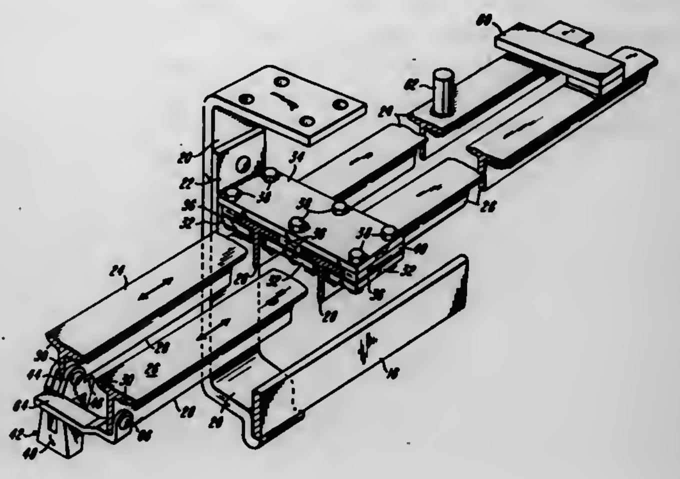
Frank M. Cook, San Mateo, Calif., assignor to The Cincinnati Butchers' Supply Company, Cincinnati, Ohio

Filed Oct. 24, 1973, Ser. No. 409,043

Int. Cl. B61b *13/12*

U.S. Cl. 104—162 **24 Claims**

The accumulative trolley conveyor operates to advance and space along a trolley rail a multiplicity of load-suspending trolleys, with emphasis on accuracy of spacing and maintaining complete control over all trolleys of a group, so that none may escape control and become a deterrent to the orderly and accurate disposition of trolleys along the accumulative rail.



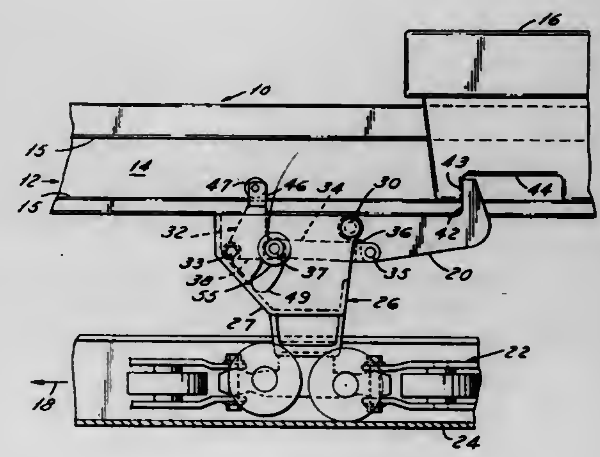
3,837,289
CONVEYOR

Edward F. Marshman, South Lyon, and Bruno D. Warmann, Livonia, both of Mich., assignors to Jervis B. Webb Company, Detroit, Mich.

Filed Jan. 23, 1973, Ser. No. 326,045

Int. Cl. B65g *17/42*

U.S. Cl. 104—172 B **23 Claims**



A conveyor for forwarding carriers along a support, the carriers being engaged by pusher members attached to an endless driven chain supported on a track adjacent to the carrier support. Each pusher member is pivotally mounted and is associated with a pivoted control member located forwardly of the pusher member and connected thereto by a link, the two members being normally urged to positions in which the pusher member is drivingly engageable with a carrier and the control member is engageable with an object such as a preceding carrier overtaken by the control member, such engagement resulting in movement of the pusher member to a nondriving position and enabling carriers to be stopped and accumulated. A cam follower secured to the control member is selectively engageable with movable cam tracks. One type of cam track is arranged to produce movement of the pusher member to non-driving position when engaged by the cam follower and is combined with an abutment for stopping the carrier being driven by the pusher member. A second type of cam track, when engaged by the cam follower, causes the control member to be converted into an auxiliary pusher by preventing pivotal movement of the control member in response to engagement with a carrier.

3,837,290

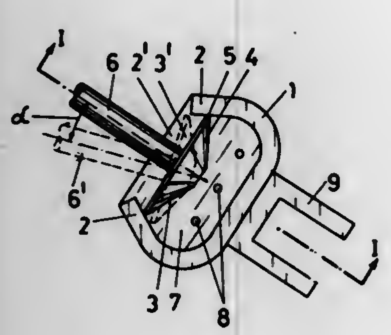
DEVICE FOR CONNECTING A SPORTING DEVICE, TRANSPORT DEVICE OR THE LIKE TO THE TOWROPE OF A TOW LIFT

Herbert Dur, Schwarzach, Austria, assignor to Firma Konrad Doppelmayr & Sohn, Wolfurt, Austria

Filed July 19, 1973, Ser. No. 380,731

Int. Cl. B61b *7/20*

U.S. Cl. 104—193 **18 Claims**



The invention relates to a device for connecting a sporting device, a transport device or the like to the towrope of a tow lift. The free end of the towrope is connected with a suspension piece and a receiving piece is arranged on the transport device, sporting device or the like. The receiving piece has a slot of a smaller breadth than the suspension piece, whereby the suspension piece, in the towing position, abuts the receiving piece behind said slot.

3,837,291

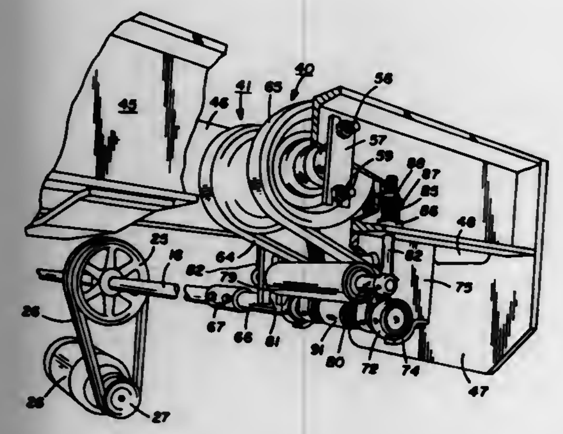
CRANE BRIDGE BELT DRIVE

Max Frederick Umlor, Muskegon, Mich., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed June 21, 1972, Ser. No. 265,031

Int. Cl. B61c *9/48;* **B61d** *15/02;* **B66c** *17/00*

U.S. Cl. 105—163 R **11 Claims**



Belt drive apparatus for the bridge of an overhead traveling crane. Multi-V belts are driven by a grooved drive sheave coupled to the main drive shaft. The plurality of apices formed by the multi-V-belt engages a grooveless sheave coaxially secured to a crane drive wheel effecting torque transmission by an axially floating drive relation therebetween. The wheels, in turn, ride on a runway beam defining a track over which bridge travel is to be effected.

3,837,292

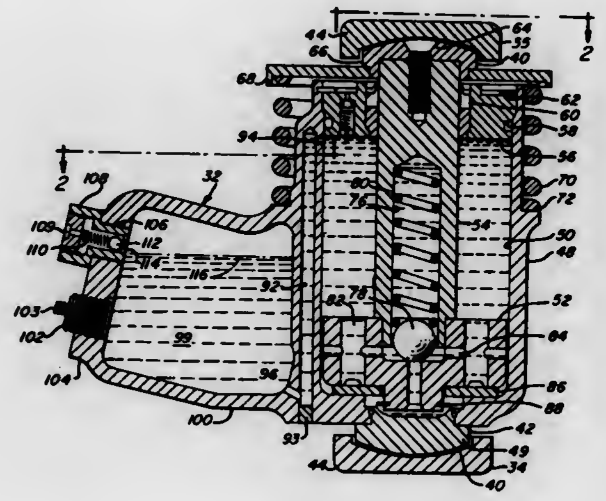
HYDRAULIC TRUCK SNUBBER

Donald Wiebe, R.D. No. 3, Sewickley, Pa. 15143

Continuation-in-part of Ser. No. 857,274, Aug. 22, 1969, Pat. No. 3,595,350, which is a continuation-in-part of Ser. No. 709,142, Feb. 28, 1968, abandoned. This application Apr. 15, 1971, Ser. No. 134,126

Int. Cl. B61f *5/12;* **F16f** *9/06, 9/32*

U.S. Cl. 105—197 DH **10 Claims**



A hydraulic snubber device for railroad car trucks to be interposed between a bolster end and side frame member. This device being of minimum height for a given useful stroke because ullage volume is provided in a reservoir outside the snubber cylinder.

3,837,293

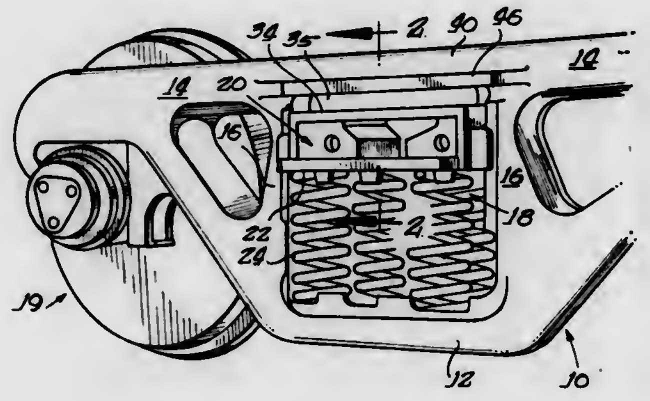
RAILWAY TRUCK BOLSTER AND SIDE FRAME

Otto Walter Neumann, Chicago, and Frank Joseph Korpics, Streamwood, both of Ill., assignors to Amsted Industries Incorporated, Chicago, Ill.

Filed Oct. 12, 1972, Ser. No. 296,876

Int. Cl. B61f *5/06, 5/12;* **F16f** *1/06*

U.S. Cl. 105—197 DB **4 Claims**



A railway truck wherein a bolster is supported in the windows by a pair of side frames and said bolster has a U-shaped stiffening member raised above the bolster top wall on each end thereof, said member extending from side to side intermediate friction shoe pockets defined by said bolster. The compresssion member of said side frame defines a downwardly opening U-shaped channel capable of receiving therein said U-shaped stiffening member of the bolster in a telescoping relationship. The arrangement provides for greater length of both the control spring columns and load spring columns.

3,837,294

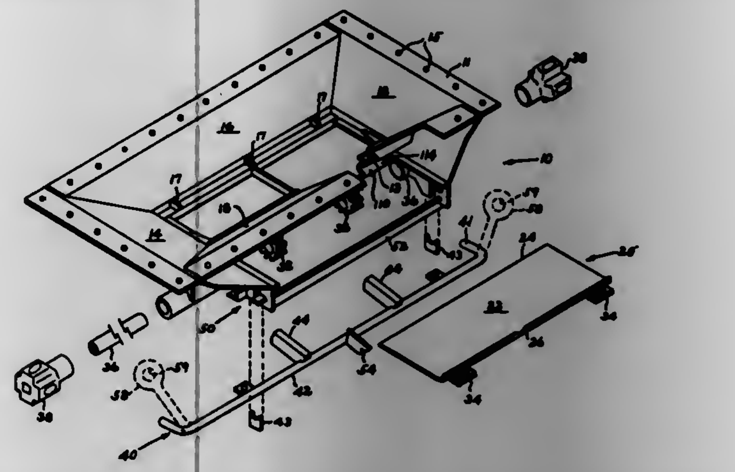
CAMMED RAILWAY HOPPER GATE LATCHING APPARATUS

Wallace L. Fossett, Weldon Spring Heights, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Dec. 4, 1972, Ser. No. 311,881

Int. Cl. B61d *7/20, 7/26, 49/00*

U.S. Cl. 105—253 **22 Claims**



A rotatable shaft is mounted along an end of a gravity outlet having locking means mounted thereon for engaging the end portion of the gate to hold the same in closed position. Also mounted on the shaft is at least one locking cam. Upon rotation of the shaft to move the locking means into engagement with the gate, a locking cam engages the surface of a rigid member, deflecting the shaft and then locking the cam in place to hold the locking means in engagement with the gate. When the shaft is rotated in the opposite direction the shaft is again deflected, the cam disengages from the rigid member and the locking means disengages from the gate so that the same can be opened.

3,837,295

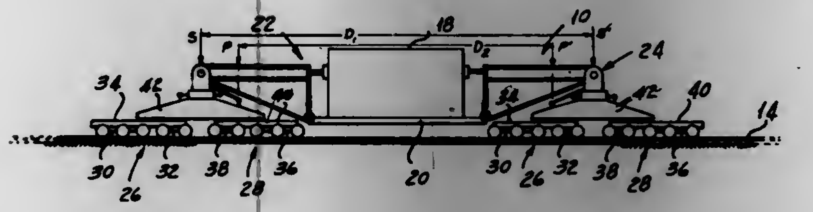
REDUCED PIVOT CENTER DISTANCE ASSEMBLY FOR A RAILWAY CAR

Franco Fedele, Florence, Italy, assignor to Norca Machinery Corporation, New York, N.Y.

Filed Dec. 29, 1971, Ser. No. 213,480

Int. Cl. B61d *3/16*

U.S. Cl. 105—367 **16 Claims**



A reduced pivot center distance system for a railway car in which each end of the load is supported on a bolster carried by the running gear by means of an arcuate sliding connection comprising an arcuate way and an arcuate slide disposed in the way and connected to the load so as to constrain the load to swing about a pivot point which is the center of the arc of movement of the sliding connection. Preferably the arcuate sliding connection is supported on the bolster for lateral sliding movement to permit lateral shifting of the entire load if necessary.

3,837,296

SAFETY LATCH PIN FOR BULKHEADS

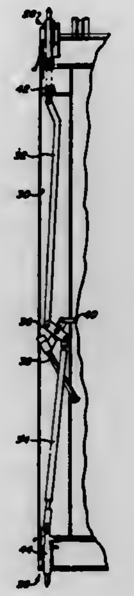
Russell M. Loomis, Palos Heights, Ill., assignor to Unarco Industries, Inc., Chicago, Ill.

Filed Apr. 5, 1972, Ser. No. 241,311

Int. Cl. B60p *7/14*

U.S. Cl. 105—376 **4 Claims**

A safety latching and anti-ratcheting system for releasably securing lading cushioning systems which include a movable bulkhead, against lading stacked in a railway car or the like, where one side of said bulkhead normally receives the forces of the lading shifting within the car as said lading is being shipped. The latching system includes a plurality of retractable members mounted at the corners of said bulkhead, which members have integral latch pins at the ends thereof which engage latch strips mounted within said car. The latch pins are provided with a safety anti-ratcheting shape where the side of the pin toward the force-receiving side of the bulkhead is tapered and the side of the pin away from the force-receiving side is straight. Moreover, the terminal portions of said pins are shaped and adapted to readily extend into the latch pin receiving apertures or recesses in said latch strips.



3,837,297

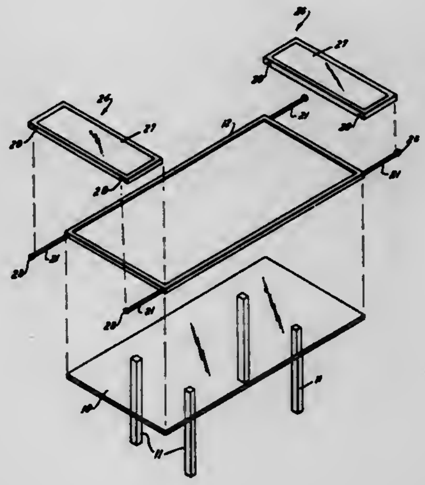
EXTENSION ARRANGEMENT FOR GLASS TOP TABLES

Herbert E. Kaplan, 6 Pickett Ct., Malverne, N.Y. 11535

Filed May 10, 1973, Ser. No. 359,172

Int. Cl. A47b *1/04*

U.S. Cl. 108—69 **10 Claims**

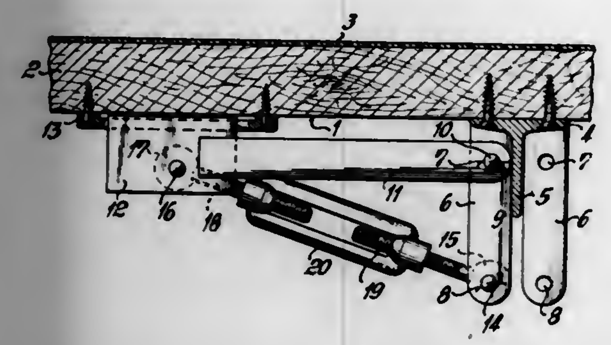


A frame independent of a table is adapted to be rested upon and surround the glass top of the table. An extension leaf is provided, as well as means for securing the leaf to an edge of the frame. The securing means may be rods carried by the frame and movable between extended and retracted positions. Alternatively, the securing means may be headed studs carried by one of the frame or extension leaf, and a cooperating hole formed in the other.

3,837,298

LEVELLING ASSEMBLY FOR WARPABLE PLAYING SURFACES

Xaver Leonhart, 8381 Harburg b., near Pilsting, Lower Bavaria, Germany
Filed July 23, 1973, Ser. No. 381,566
Claims priority, application Germany, July 24, 1972, 2236284
Int. Cl. A47b *25/00*
U.S. Cl. 108—161 **10 Claims**

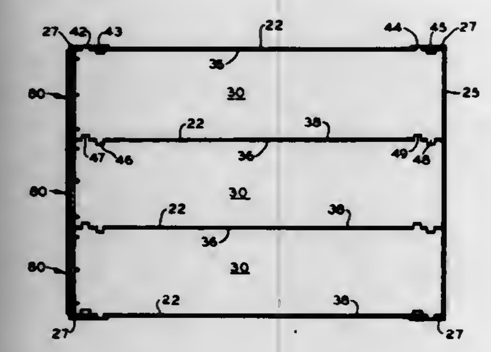


A rigid T-shaped rail connected along the longitudinal center axis on the bottom of a playing surface panel has pairs of depending lugs on opposite sides and at opposite ends thereof. Bracket members are connected to the under surface of the panel laterally outwardly from the lugs on the rail, which brackets provide a vertically narrow lost-motion slot adjacent the bottom surface of the panel. An adjustable triangle mechanism is connected between the depending lugs and a slide member in the vertically narrow lost-motion slot wherein the hypotenuse of the triangle mechanism is constructed of a tensioning device that can be lengthened or shortened, such as a turn buckle, causing upward and downward forces to be transferred between the areas of the playing surface panel to which the rail and brackets are connected to render the panel planar and at the same time not rigidly connect these panel areas to each other, allowing for normal expansion and contraction laterally in the playing surface area without causing further warpage thereof.

3,837,299

MODULAR SAFE DEPOSIT BOX ASSEMBLY

Ralph E. McClellan, Toledo, Ohio, assignor to Meilink Steel Safe Company, Toledo, Ohio
Filed Jan. 22, 1973, Ser. No. 325,315
Int. Cl. E05g *1/00*
U.S. Cl. 109—56 **9 Claims**

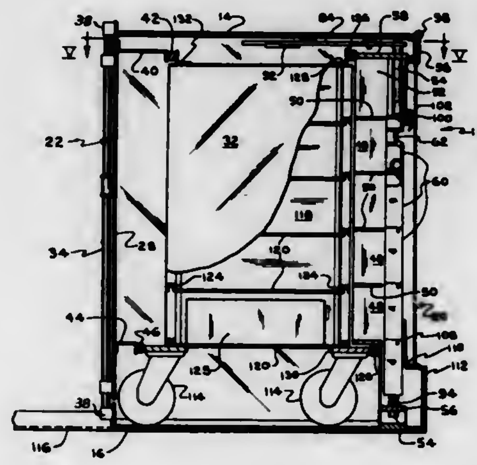


A modular metal cabinet structure having a plurality of individual compartments which are vertically stacked and horizontally sequenced. These compartments are defined by horizontal plate shelves and vertical partitions together with outer side and back wall plates and have frontal openings closed by hollow hinged doors carrying locks on their internal faces. The horizontal shelves are provided with a plurality of pairs of elongated slots which are aligned with alternate and complementary tongues and notches along the top and bottom edges of the adjacent vertical partitions, to form an easily erectable framework. Each door and hinge assembly cooperates with jambs or stops affixed to the inner surfaces of each vertical partition adjacent the frontal opening of its compartment to safeguard forcing-in or prying-out the door when it is in its closed and locked position. Furthermore the pivot pins of each door hinge are in blind holes, the open ends of which holes are at least partially concealed by adjacent structures.

3,837,300

COIN RECEPTACLE VAULT

Willis F. Karr, Utica, Mich., assignor to Sparton Corporation, Jackson, Mich.
Filed Apr. 23, 1973, Ser. No. 353,224
Int. Cl. E05g *1/00*
U.S. Cl. 109—57 **15 Claims**

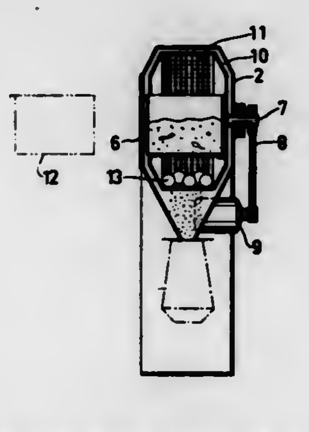


A vault particularly suitable for use in trucks employed to collect coins, such as from coin telephones and vending machines, the vault comprising a housing having a rear door wherein a wheeled cart may be readily placed within, and removed from the vault. The wheeled cart includes a plurality of coin box receptacle compartments arranged in rows, and the front side of the vault housing includes a plurality of rows of doors wherein the doors are sequentially linearly movable to align with and enclose a compartment, the displacement of a door providing access to an adjacent compartment, and the sequential door operation is repeated until all of the compartments in a row are filled and closed. Door latching means properly orient the doors with respect to their associated compartment, and door release means simultaneously releases the doors for resetting to the initial condition.

3,837,301

APPARATUS FOR PREPARING ASHES IN CREMATORIES

Kjell Falling, Alvsjo, Sweden, assignor to Tabo Industriugnar AB, Stockholm, Sweden
Filed July 10, 1973, Ser. No. 378,024
Int. Cl. F23g *1/00*
U.S. Cl. 110—3 **5 Claims**



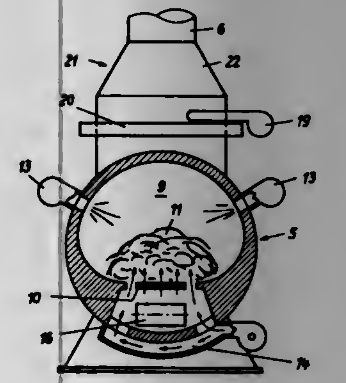
Apparatus for preparing ashes in a crematory includes a casing to the lower end of which can be fastened an urn for receiving the ashes after they are ground in a rotatable drum located within the casing.

An ashpan from the crematory oven containing the ashes is inserted into the interior of the drum by way of a door on the casing, and when the drum rotates, the ashpan is turned upside down thus spilling the ashes into a perforated shell located within the drum and containing rolling bodies for grinding. The ground ashs pass downwardly and outwardly through the perforated shell and thence into the attached urn. In another embodiment, the ashpan itself forms part of the rotatable drum structure to which is attached a perforated cover, the rolling bodies for grinding being placed inside the ashpan before being inserted into the enclosing casing.

3,837,302

INSTALLATION FOR THE INCINERATION OF HOUSEHOLD REFUSE AND INDUSTRIAL WASTE

Henri Bersier, Bulle, Switzerland, assignor to Societe Anonyme Surtec, Bulle, Switzerland
Filed July 5, 1973, Ser. No. 376,713
Claims priority, application Switzerland, July 11, 1972, 10388/72
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 C **1 Claim**

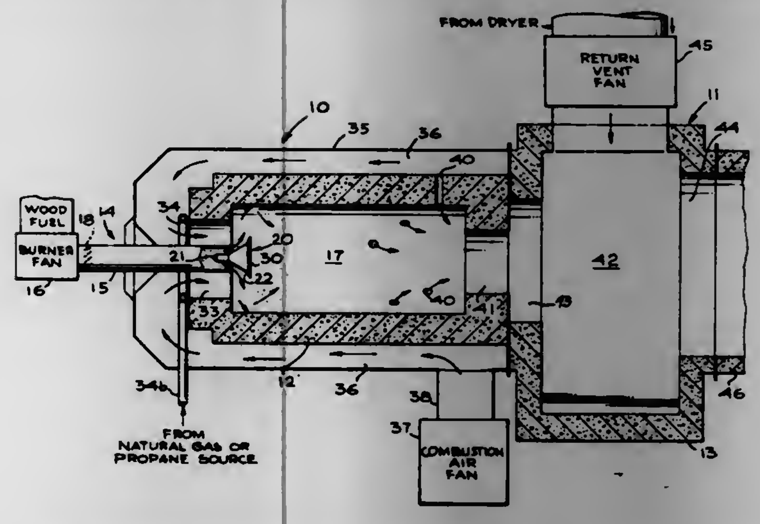


An installation for the incineration of household refuse and industrial waste includes a chamber for the combustion of refuse and waste, this combustion chamber communicating with a chimney for the evacuation of burnt gases via a post-combustion chamber. Both the combustion and post-combustion chambers have inlets for air and for a liquid or gaseous fuel, and a thermostat for maintaining the temperature of combustion in the respective chambers at 800° C.

3,837,303

WOOD AND GAS FUEL BURNER

Andrew B. Baardson, Beaverton, Oreg., assignor to Mill Conversion Contractors, Inc., Hillsboro, Oreg.
Filed Nov. 9, 1973, Ser. No. 414,508
Int. Cl. F23g *7/00*
U.S. Cl. 110—8 A **9 Claims**



The present invention provides a burner by means of which waste wood and the fumes emitted by drying wood can effectively be burned to not only provide additional heat energy but also to reduce atmospheric pollution. The burner basically comprises two chambers. The wood, fed in powdery form, is burned in the first chamber, the product of this combustion being passed to the second chamber where it is mixed with the fumes before being combusted a second time. A number of innovations makes this burner highly effective and useful in the lumber mill industry.

3,837,304

DEEP IMPLANTATION OF A VOLATILE FUNGICIDE

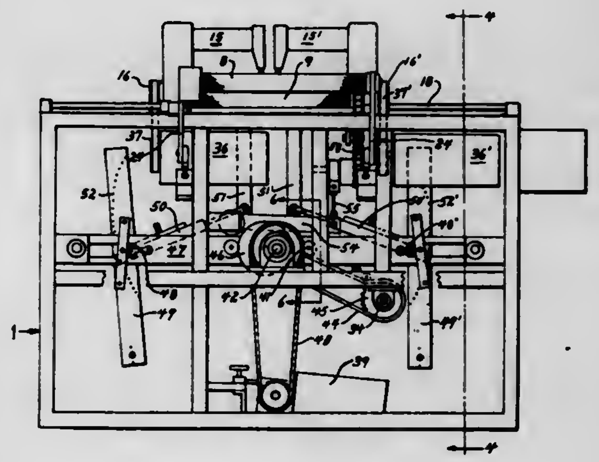
William J. Carroll, Costa Mesa, Calif., assignor to Great Lakes Chemical Corporation, West Lafayette, Ind.
Continuation-in-part of Ser. No. 33,867, May 1, 1970, abandoned. This application Oct. 20, 1971, Ser. No. 190,825
Int. Cl. A01c *23/02*
U.S. Cl. 111—6 **5 Claims**

Method of controlling soil fungi by the deep implantation of a volatile fungicide to a closed chamber at least 3 feet in depth.

3,837,305

DUAL HEAD BORDER PANEL MANUFACTURING MACHINE

David R. Cash, Louisville, Ky., assignor to James Cash Machine Co., Louisville, Ky.
Filed Aug. 17, 1973, Ser. No. 389,261
Int. Cl. D05b *11/00*
U.S. Cl. 112—3 **6 Claims**

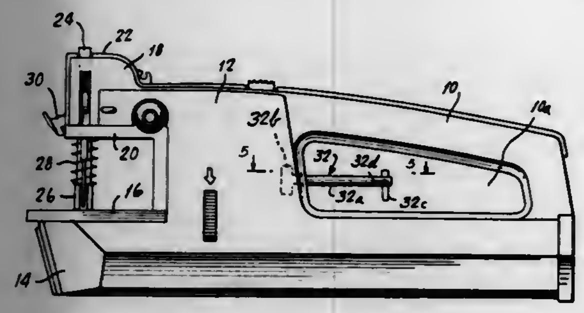


A border panel manufacturing machine having 1st and 2nd sewing heads mounted for contemporaneous transverse right and left movement over cross traverses, each of which is horizontally planar, straight and relatively adjustable in size. In one case, the 1st head sews along a conventional square cut zigzag path extending completely across a 1st strip-like border panel component assembly of full width while the 2nd head sews along a similar square cut path extending completely across a 2nd completely separate border component panel assembly, the full width of which is the same as or different from the full width of the 1st panel assembly. In another case, both heads sew along similar square cut zigzag paths respectively extending completely across the width of separate "left" and "right" halves of one border panel component assembly while both heads cooperate with each other to sew, to said separate left and right halves, the left and right borders or flanges of a zipper strip arranged between them. This procedure integrates said panel assemblies into one single border panel having a centrally disposed zipper. Naturally, either head of the machine can also be used to sew a single border panel assembly while the other head remains idle.

Provision is also made: to clamp the work or unclamp it contemporaneously on both front and rear sides of the sewing zone and to clamp it only on the front side when desired; and to adjust the size and the position of each sewing head reciprocation independently of the other.

3,837,306
PORTABLE LIGHTWEIGHT HAND-HELD SEWING MACHINE

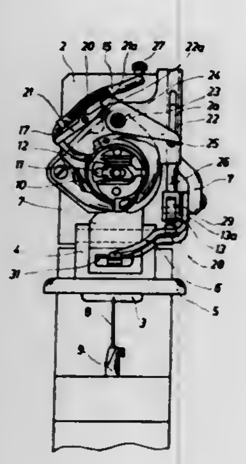
John S. Doyel, 404 W. 20th St., New York, N.Y. 10011
Continuation-in-part of Ser. No. 286,719, Sept. 6, 1972, abandoned. This application Mar. 26, 1973, Ser. No. 344,608
Int. Cl. D05b *1/00, 27/02*
U.S. Cl. 112—169 **8 Claims**



A portable, lightweight, hand-held, chainstitching sewing machine having: a reliable and inexpensive device for raising and locking the presser foot carrier rod; a pivoted spool spindle moveable between a storage position in which it is nearly flush with a side wall of the sewing machine housing and a working position in which it extends perpendicularly away from that wall; a uniquely shaped feed dog cooperating with the needle and with the hook to facilitate loop forming; a uniquely shaped hook providing reliable loop forming; and a needle support biased to a position facilitating loop forming.

3,837,307
LUBRICATING DEVICE FOR ROTARY HOOKS IN CYCLICALLY OPERABLE SEWING MACHINES

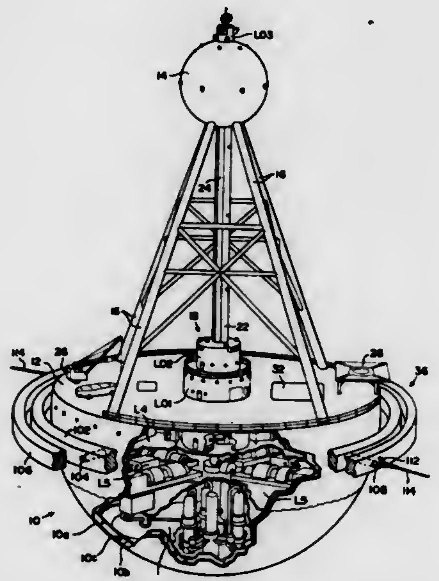
Gunter Tolle, Wendelinusstrasse 15, Bruchsal, Germany
Filed Oct. 3, 1973, Ser. No. 402,972
Claims priority, application Germany, Oct. 12, 1973, 2250015
Int. Cl. D05b *71/02*
U.S. Cl. 112—256 **8 Claims**



A lubricating device for lubricating the raceway of a double stitch rotary hook particularly in stitch group sewing machines comprising a rotating rotary hook which is mounted either in an arm which is pivoted above the work support in which there is a needle arranged below the support or where the rotary hook is mounted below the support and the needle is above the support. The arrangement includes a lubricating conduit leading out of a lubricating tank and containing a filler of capillary material for conducting the lubricant through the material to the other end of the conduit. The conduit is mounted on the sewing machine housing so as to be movable toward and away from the double stitch rotary hook. The sewing machine includes means for mounting the conduit so that it is moved into a position in which the filler of capillary material comes into contact with the raceway of the double stitch rotary hook when the machine is in a non operative or still position but it moves to a position spaced from the rotary hook raceway when the machine is operating and the shuttle is rotating.

3,837,308
FLOATING POWER PLANT

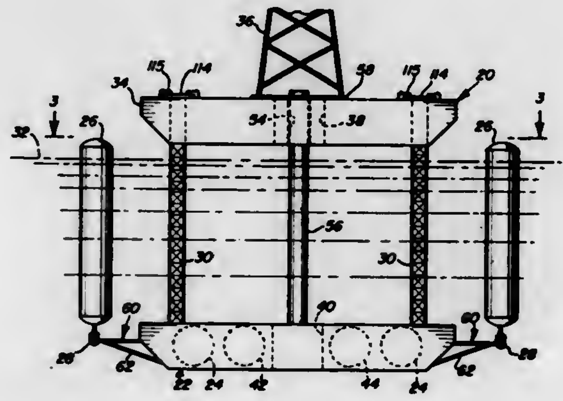
Douglas G. Harvey, Nashua, N.H., and John F. Holmes, Andover, Mass., assignors to Sanders Associates, Inc., Nashua, N.H.
Filed May 24, 1971, Ser. No. 146,393
Int. Cl. B63b *35/02*
U.S. Cl. 114—.5 R **13 Claims**



A floating power plant is housed in a generally spherical double-walled shell. The shell and its contents form part of a compound pendulum whose center of mass is located below the metacenter of the sphere and which has a natural frequency substantially below that of the prevailing wave frequency of the water. Consequently, the power plant is supported upright in the water and does not rock in response to the wave motion of the water.

3,837,309
STABLY BUOYED FLOATING OFFSHORE DEVICE

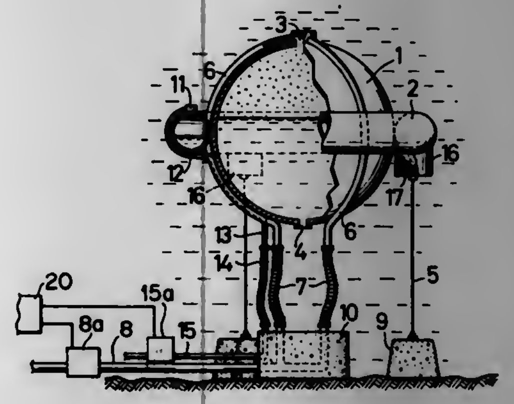
Frank N. Biewer, San Diego, Calif., assignor to Offshore Technology Corporation, Escondido, Calif.
Continuation-in-part of Ser. No. 153,959, June 17, 1971, abandoned, which is a continuation-in-part of Ser. No. 839,223, July 7, 1969, abandoned. This application Feb. 22, 1972, Ser. No. 228,278
Int. Cl. B63b *35/44*
U.S. Cl. 114—.5 D **5 Claims**



A floating offshore device including a closed vessel, such as a water tight hull, which is adapted to be ballasted to a submerged stage; and when submerged, it is retained in position by buoying means that can sway relative to the hull. The vessel is provided with a plurality of tanks and compartments, at least, one of the tanks receiving ballast and other compartments receiving some of the materials necessary for carrying out work to be performed. Upright means is fastened to the vessel and extends above the water. This upright means, in the form of structural columns, supports a floatable platform above the water when the device is in operable working position, the platform carrying some of the machinery for carrying out the work to be performed. The platform rests on the vessel when the device is being moved.

3,837,310
UNDERWATER OIL STORAGE

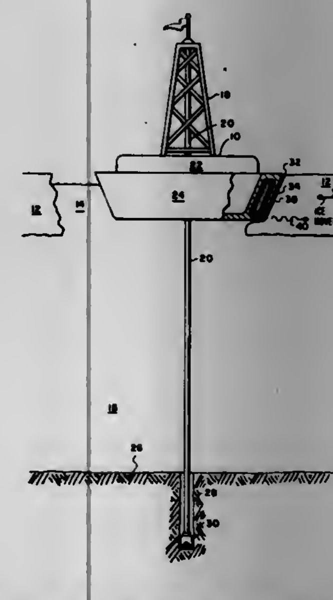
Yoshio Toyama, Kanagawa, Japan, assignor to Mitsui Shipbuidling and Engineering Co., Ltd., Tokyo, Japan
Filed Sept. 8, 1972, Ser. No. 287,222
Int. Cl. B63b *35/00*
U.S. Cl. 114—.5 T **1 Claim**



An underwater oil storage apparatus having an oil storage tank moored to the sea bottom and a buoyancy adjusting tank secured to the oil storage tank, characterized by producing a substantially constant small buoyancy for a whole oil storage equipment by introducing or draining water in the buoyancy adjusting tank according to the amount of stored oil.

3,837,311
APPARATUS FOR MELTING ICE

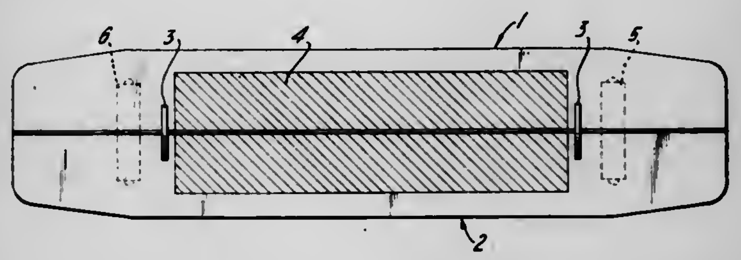
James F. Lea, Jr., Richardson, Tex., assignor to Sun Oil Company, Dallas, Tex.
Filed Oct. 5, 1972, Ser. No. 295,312
Int. Cl. B63b *35/00, 35/08*
U.S. Cl. 114—.5 D **11 Claims**



A surface effect drilling vehicle with ice melt apparatus has a hollow hull lined with a fibrous material and a low vapor pressure liquid therein. Heat is applied to the hull's interior wall which vaporizes the liquid causing the liquid to transfer by diffusion to the exterior wall of the hull where it loses its heat to the ice and condenses. By the capillary action of the fibrous material the condensed liquid returns to the heated hull interior wall where the process is repeated.

3,837,312
HYDRAULIC CONTROL MECHANISM FOR HOPPER BARGES

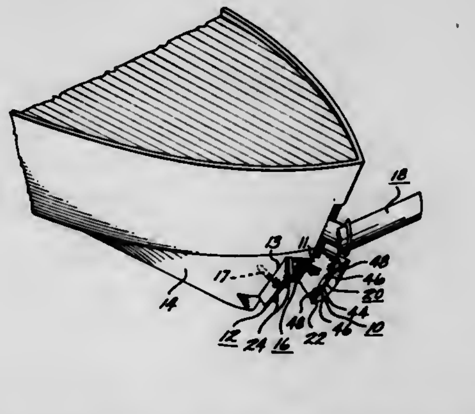
Georg Onderka, Metten, Germany, assignor to Deggendorfer Werft und Eisenbau G.m.b.H., Deggendorf/Donau, Germany
Filed Aug. 29, 1973, Ser. No. 392,448
Claims priority, application Germany, Aug. 31, 1972, 2242921
Int. Cl. B63b *35/30*
U.S. Cl. 114—29 **4 Claims**



A hopper barge consists of two barge halves articulated to each other along a longitudinal axis of the barge. First and second cylinder-piston actuators are mounted in respective opposite ends of the barge and connected between the two barge halves. Respective first and second pressure fluid tanks are located adjacent each actuator. A pressure fluid pump is connected by a suction line to the first tank and by a pressure line to a three-position switching valve, and the first tank is connected by a return line to the three-position switching valve. The valve is selectively operable to connect these lines alternately to respective opposite ends of the cylinder of the first actuator. The second pressure fluid tank is connected to the second actuator by a suction line, and an interconnection line extends between the first and second tanks. A common pressure line interconnects corresponding ends of the cylinders at the actuators. A flow line interconnects the opposite ends of the cylinder of the second actuator and has a check valve therein, and a check valve is also provided in the common pressure line. The three-position switching valve has a first position, for opening the hopper barge when the latter is loaded, a second position, for closing an empty hopper barge, and a third position for opening the hopper barge when the latter is empty.

3,837,313
HYDROFOIL BOW DOOR

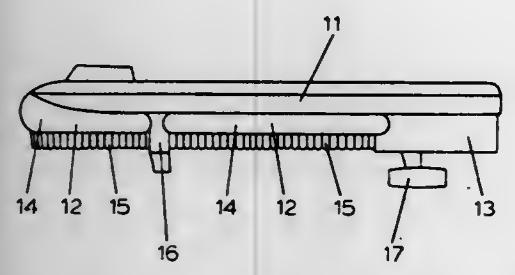
John W. Williams, Bellevue, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed June 25, 1973, Ser. No. 373,549
Int. Cl. B63b *1/06, 1/30*
U.S. Cl. 114—66.5 H **4 Claims**



The present invention discloses the method of providing greater structural strength and resistance to fluid leakage in the closure junction of bow or stern doors of a marine, air, or surface vessel by locating the closure junction away from the longitudinal axis of the vessel.

3,837,314
FLUID CUSHION SUPPORTED VEHICLES

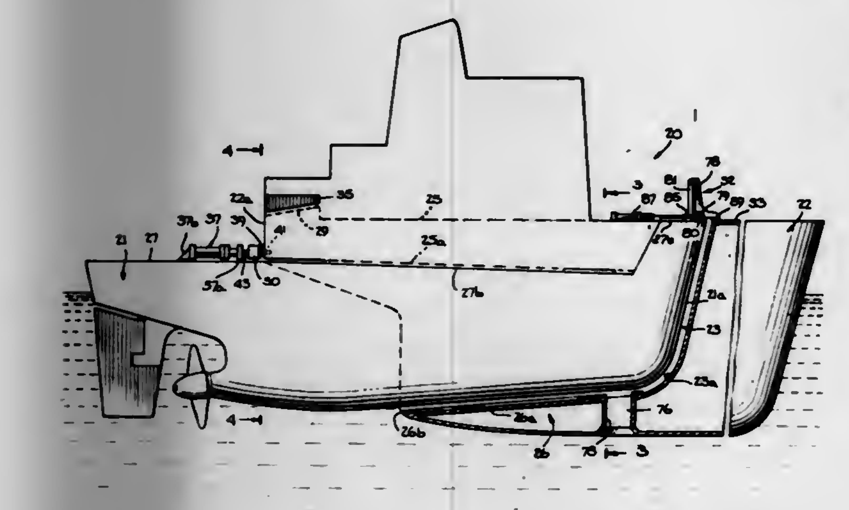
Peter Rowland Crewe, Newport, England, assignor to British Hovercraft Corporation, Yeovil, England
Filed Feb. 7, 1973, Ser. No. 330,415
Claims priority, application Great Britain, Feb. 14, 1972, 6688/72
Int. Cl. B63b *1/34*
U.S. Cl. 114—67 A **7 Claims**



A fluid cushion supported vehicle is provided with control surfaces for improving the directional stability and control of the vehicle. The control surfaces, which are provided on either side of the longitudinal center line of the vehicle and forward of the lateral center line of the vehicle, may also act as support structure for the flexible skirt assembly.

3,837,315
TUG-BARGE SYSTEM AND METHOD

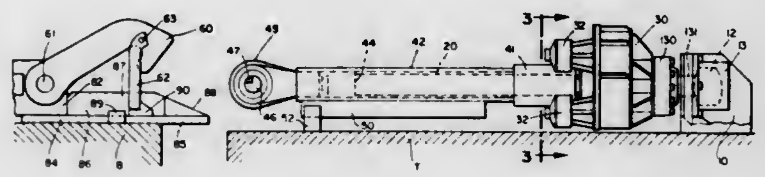
Robert P. Giblon, Shrewsbury, N.J., assignor to George G. Sharp, Inc., New York, N.Y.
Filed June 8, 1973, Ser. No. 368,299
Int. Cl. B63b *21/00*
U.S. Cl. 114—235 R **23 Claims**



Integrated tug barge system in which the tug is rigidly secured within a barge well at the stern end of the barge by holding and locking the tug deck at both sides against the undersides of respective longitudinally extending, overhanging portions of respective barge wings which define the sides of the barge well. Firm engagement is by a pair of wedge blocks at either side of the tug which engage wedges on the respective stern ends of the barge wings to thus hold tug up at its stern; a tug bow locking device which engages the barge deck and supports tug at forward end of barge well; and a pair of tensioning devices attached on tug deck respectively adjacent barge wing stern ends and which carry standard railroad car couplers connected to similar couplers on barge wing stern ends to hold tug in longitudinal direction within barge well. The tensioning devices are hydraulic rams which also serve to draw tug into barge well when connecting tug and barge, and to quickly push tug out of barge well during disengagement. See specification for further features of connection means and method.

3,837,316
TUG/BARGE LATCHING MECHANISM

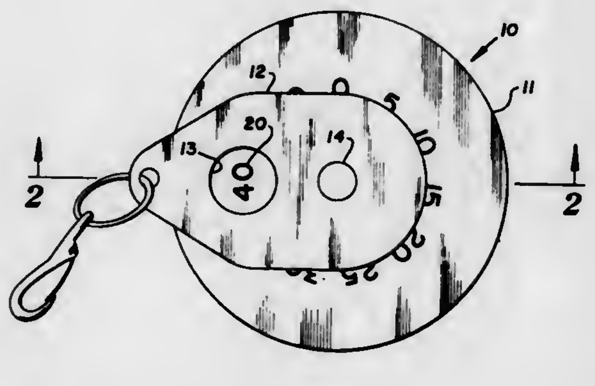
Andrew Stratienko, Wyndmoor; Robert J. Kornsey, Hatfield, and Joseph L. Paulhamus, Bridgeport, all of Pa., assignors to Philadelphia Gear Corporation, King of Prussia, Pa.
Filed Sept. 10, 1973, Ser. No. 395,744
Int. Cl. B63b *21/62*
U.S. Cl. 114—235 A **23 Claims**



A self-latching self-releasing mechanism for coupling and releasably locking a marine tug to a barge includes, in a preferred form, a non-powered latching mechanism of the hook type mounted at the aft end of the barge and a power-driven coupling mechanism mounted at the fore end of the tug. The power-driven coupling mechanism includes an eye mounted at the forward end of an elongated tubular nut adapted to be driven forwardly and rearwardly by a power drive screw shaft. The rearward end of the screw shaft is supported for rotation in the housing of the power drive. The power-drive housing is supported on a stub shaft mounted for universal movement in a support housing mounted on the tug. Translational thrust forces are transmitted through the screw shaft and its power-drive housing to the support housing. Self-latching and self-releasing of the latching mechanism is controlled by the direction of the axial movement of the tubular nut on the screw shaft.

3,837,317
YARD MARKER FOR FOOTBALL COMPETITION

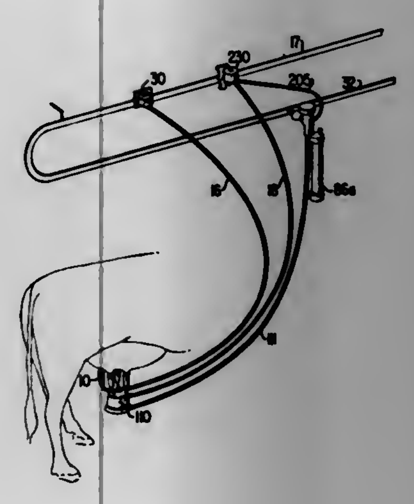
Burton C. Hanauer, Avon, Minn., assignor to Hanauer Machine Works Incorporated, Avon, Minn.
Filed Aug. 20, 1973, Ser. No. 390,093
Int. Cl. G09f *9/00*
U.S. Cl. 116—133 **3 Claims**



A marker for use with football sideline chains comprising a base plate having numerical yard line indicia printed thereon, the base plate having a viewing plate arranged in superimposed disposition over the base plate with a yard line indicia viewing bore formed in the viewing plate to conceal all but a pre-selected yard line indicia from view. A clip means is secured to the viewing plate for attachment of the marker means to the football sideline chain.

3,837,318
AUTOMATIC MILKER RELEASE

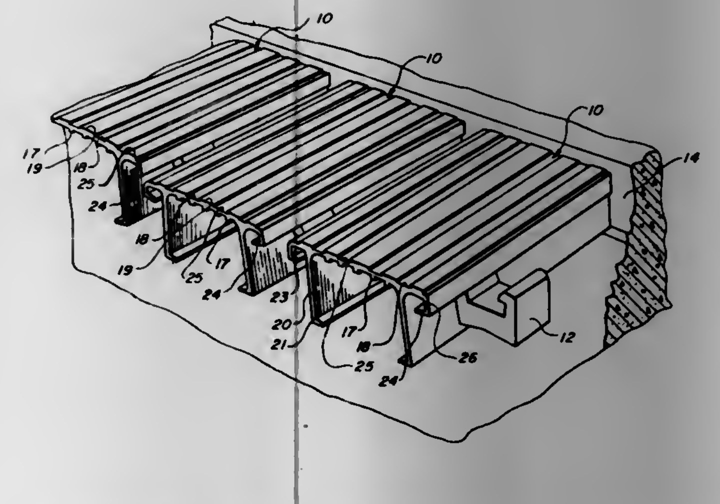
Lloyd P. Duncan, and J. Nathan Oberg, both of Washington, Mo., assignors to Zero Manufacturing Company, Washington, Mo.
Continuation-in-part of Ser. No. 80,028, Oct. 12, 1970, abandoned. This application Aug. 7, 1972, Ser. No. 278,356
Int. Cl. A01j *5/14*
U.S. Cl. 119—14.08 **12 Claims**



A milker with a claw, receiver and teat cups connected to a pulsator has a valve in a vacuum line leading from the receiver to a milk collector line. The valve is associated with the milker so that when milk stops flowing from the receiver, ambient pressure is admitted to the interior of the receiver. The teat cups are then released from the animal and at the same time, the collector line is valved shut to preserve its vacuum. In addition to a valve that admits atmospheric pressure in the receiver, an electric light can be used. With each device, an operator can see that the flow of milk to the collector line has stopped.

3,837,319
SLATTED FLOOR SYSTEM

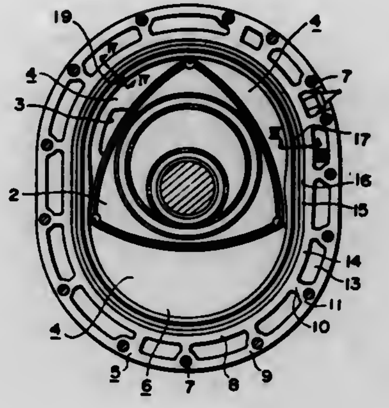
Russell B. Lehe, 400 Ascot Dr., Park Ridge, Ill. 60068
Filed Sept. 5, 1972, Ser. No. 286,013
Int. Cl. A01k *1/00*
U.S. Cl. 119—28 **1 Claim**



A lightweight, easily - assembled slatted flooring system for an animal enclosure comprises a plurality of U-shaped main channels interconnected in spaced-parallel relationship by U-shaped connectors, each connector having shaped ends extending from two legs which engage similarly shaped outer channels at the upper, outer corners of each main channel.

3,837,320
CASING FOR USE IN A ROTARY PISTON ENGINE

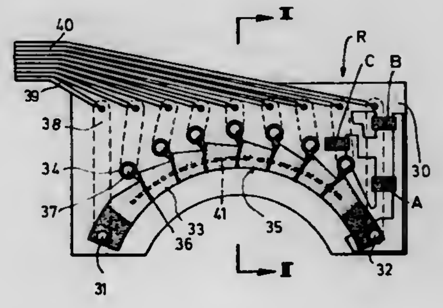
Kazuo Maekawa, Hiroshima, Japan, assignor to Toyo Kogyo Company Limited, Hiroshima, Japan
Filed Apr. 30, 1973, Ser. No. 355,377
Claims priority, application Japan, Apr. 29, 1972, 47-43082
Int. Cl. F02b *53/00*
U.S. Cl. 123—8.01 **10 Claims**



A casing for use in a rotary piston engine provided with a water cooling jacket therein, said casing consisting essentially of a pair of side housings and a rotor housing assembled therebetween, with a sealing member fitted in a first groove which extends in an annular or a circular form along and in parallel with the trochoidal inner peripheral wall of said rotor housing, said first groove being provided in the mating surface of said rotor housing, said casing reaturing a second groove disposed in either or both of said rotor housing and side housing at the mating surface between said first groove and said trochoidal inner peripheral wall and approximately parallel to said trochoidal inner peripheral wall and having a branched passage in communication with the suction space or suction working chamber of said engine on its intake stroke. With this arrangement, the ingress of a hot gas through a gap, if any, between said mating surfaces may be prevented, thus protecting said sealing member from the thermal attack due to said hot gas.

3,837,321
MEANS FOR INDICATING THE RATE OF AIR FLOW IN THE INTAKE MANIFOLD OF AN INTERNAL COMBUSTION ENGINE

Rudolf Sauer, Bernhausen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Oct. 3, 1973, Ser. No. 403,169
Claims priority, application Germany, Oct. 7, 1972, 2249279
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 EA **10 Claims**



A potentiometer wherein the sliding contact is pivotable by the flap of an air flow rate metering gauge in the intake manifold of an internal combustion engine with fuel injection into the manifold, and the stationary resistor track of the potentiometer is provided with spaced-apart metallic strips each of which is connected with at least one resistor. The strips are thin enough to be cut by the sliding contact and each thereof extends from a discrete fixed contact adjacent to a convex edge face of the track all the way to a concave edge face of the track. The potentiometer is connected with a control circuit which determines the duration of pulses serving to effect an opening of fuel injection valves.

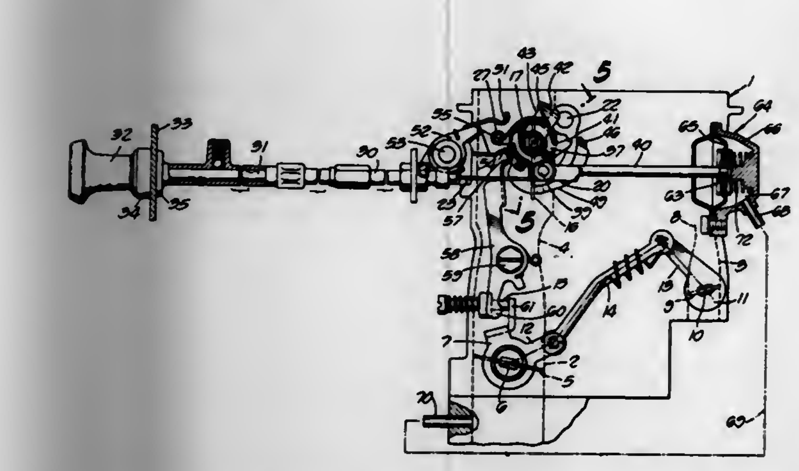
3,837,322
CARBURETOR CHOKE

Toshimasa Shishido, Tokyo, and Minoru Atsumi, Kawagoe, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed July 30, 1973, Ser. No. 383,785

Int. Cl. F02b *3/00;* **F02m** *13/04, 23/04*

U.S. Cl. 123—75 B **8 Claims**



A carburetor assembly has a primary passage to supply a lean mixture to main combustion chambers of an engine, and has an auxiliary passage to supply a rich mixture to auxiliary combustion chambers of the engine. A throttle valve in each passage is provided with a shaft, and linkage connects the two shafts for coordinated motion. A choke valve in the primary passage is connected to the primary throttle valve so that positioning of both the primary throttle valve and the auxiliary throttle valve are affected when the choke valve is in operation. Structure is provided to limit opening movement of the choke valve to different extents, depending on the ambient temperature at the time of starting the engine.

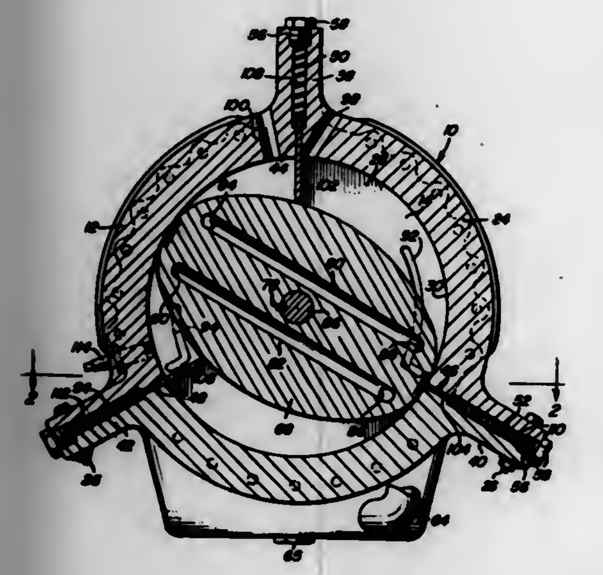
3,837,323
ROTARY ENGINE

Frank Delfino, and Robert E. Pool, both of 1101 Castro Ln., Bakersfield, Calif. 93304

Filed Mar. 2, 1973, Ser. No. 337,304

Int. Cl. F02b *53/00*

U.S. Cl. 123—8.33 **8 Claims**



A rotor casing is provided defining a generally cylindrical rotor chamber including opposite side walls and a generaly cylindrical peripheral wall extending therebetween. A rotor of elliptical cross-sectional shape is journaled in the chamber about an axis centrally disposed relative to the chamber and the rotor with the major diameter ends of the rotor sweeping the peripheral wall of the chamber. The casing includes three generally equally circumferentially spaced radial abutments supported for extension and retraction relative to the peripheral wall of the chamber into and out of the outer periphery of the chamber and the inner ends of the abutments are slidingly engaged with the outer periphery of the rotor. Between two adjacent abutments is defined an intake and compression chamber and a combined power and exhaust chamber is defined between the pair of adjacent abutments in advance of the intake and compression chamber. The rotor includes a pair of transversely spaced longitudinally extending opposite side transfer passages whose opposite ends open through end surface portions of the rotor opposing the side walls of the chamber and the chamber side walls include circumferentially extending transfer grooves with which the ends of the transfer passages are intermittently registrable. The transfer passages and grooves are arranged such that as one major diameter end portion of the rotor approaches the abutment defining the end of the intake and compression chamber the compressed fuel and air mixture ahead of the rotor end and behind that abutment is transferred through the rotor to the opposite end thereof and discharged into the area behind the opposite end of the rotor and ahead of the abutment defining the beginning of the power and exhaust chamber. Thereafter, combustion is initiated behind the rotor end in the power and exhaust chamber imparting rotation to the rotor, the exhaust gases ahead of the end of the rotor in the power and exhaust chamber being expressed from an exhaust port disposed closely behind the abutment defining the end of the power and exhaust chamber. The cycles of intake, compression, power and exhaust are repeated twice during each revolution of the rotor.

3,837,324
FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINES

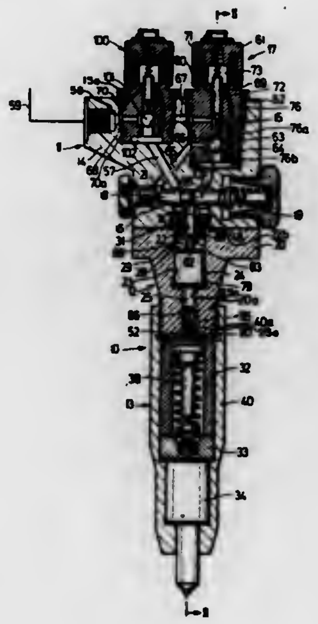
Heinz Links, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Mar. 13, 1973, Ser. No. 340,713

Claims priority, application Germany, Mar. 22, 1972, 2213776

Int. Cl. F02m *51/00*

U.S. Cl. 123—139 E **8 Claims**



An improvement in a fuel injection system for internal combustion engines and particularly for diesel engines is described wherein a pump-and-nozzle assembly comprising a top part, a pump part and an injection nozzle part is provided for each of the cylinders in the engine comprises a 3:2-path solenoid valve being disposed near a slide valve controlling the pump part of the assembly and establishing communication between a pressure source and the said valve slide, a pre-set nozzle member influencing the velocity of the intake stroke of a pump piston in the pump part of the assembly, and a 2:2-path solenoid valve interposed in a fuel return line and comprising adjusting means for comprising the opening periods thereof and thereby determining the duration and length of the intake stroke of the pump piston and together therewith the amount of fuel deliverable from the pump part to the nozzle part of the assembly in the interval between two fuel injections.

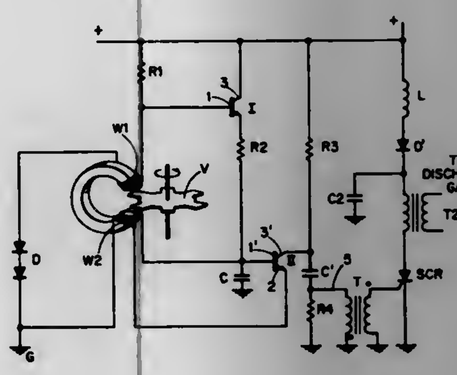
3,837,325
PULSE GENERATOR FOR ENERGY DISCHARGE SYSTEM

Floyd M. Minks, Rt. 1, Box 66, Kissimmee, Fla. 32741, and Floyd A. Minks, Box 252, Ridgetop, Tenn. 37152

Filed Sept. 17, 1971, Ser. No. 181,445

Int. Cl. F02p *3/02*

U.S. Cl. 123—148 E **9 Claims**



This disclosure relates to a pulse generator for triggering successive energy discharges, such as in automotive and other ignition systems and the like, which generator basically comprises a magnet core carrying coil windings on two portions immediately adjacent opposite sides of an air gap, the air gap being interrupted periodically by a conductive slotted vane to alter the coupling between these coil windings. The windings are interconnected with a network containing amplifying means, preferably a pair of transistors, to produce a single output pulse each time the conductive portion of the vane leaves the gap between the windings, the circuit being particularly adapted to work with physically small parts over a wide range of component values, supply voltages and temperatures, and giving accurate angular resolution which is insensitive to the values of the active electronic components.

3,837,326
CAPACITOR DISCHARGE IGNITION SYSTEM

Mamoru Kamiji, Kariya, Japan, assignor to Nippondenso Co., Ltd., Kariya-shi, Japan

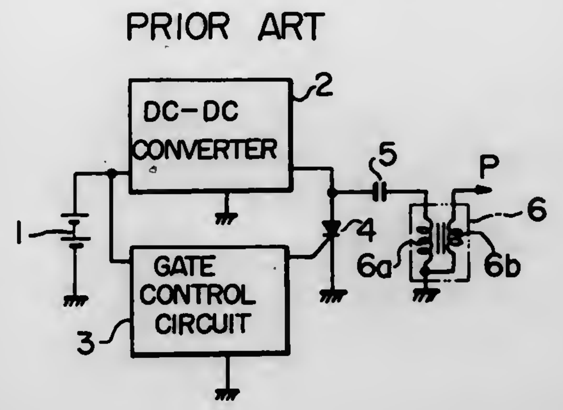
Filed Sept. 15, 1972, Ser. No. 289,612

Claims priority, application Japan, Sept. 17, 1971, 46-72578; Sept. 21, 1971, 46-73632; July 3, 1972, 47-66825

Int. Cl. F02p *3/02*

U.S. Cl. 123—148 E **1 Claim**

In a capacitor discharge ignition system of the type known in the art in which energy from a battery is charged in a capacitor through a DC-DC converter and the charge thus stored in the capacitor is discharged through the primary winding of an ignition coil upon the conduction of a rectifier having a control electrode under the control of a gate control circuit thereby causing a high voltage in the secondary winding of the ignition coil, the improvement comprising the use of an arc duration extending ignition coil having a higher number of turns than the regular ignition coil and connected in series or parallel therewith, whereby a rapidly rising high voltage generated by the regular ignition coil is combined with a gradually rising, long duration, high voltage generated by the arc duration extending ignition coil to thereby produce a rapidly rising, long duration, high voltage at the output terminal of the ignition system.



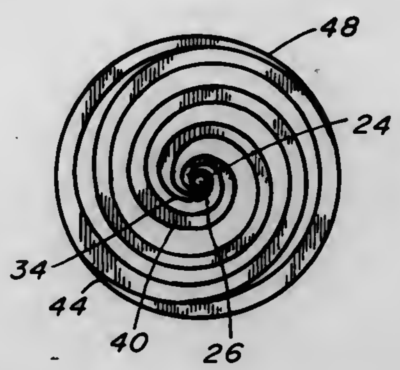
3,837,327
BOWSTRING SILENCER FOR ARCHERY BOW

Charles A. Saunders, and Francis Eugene Saunders, both of Columbus, Nebr., assignors to Saunders Archery Co., Columbus, Nebr.

Filed Nov. 19, 1973, Ser. No. 417,139

Int. Cl. F41b *5/00*

U.S. Cl. 124—30 A **11 Claims**



A bowstring silencing weight including a bowstring gripping tubular central shaft and a resilient band integral with the central shaft and convoluted therearound to define a spirally wound spring-like coiled ribbon encircling and carried by a bowstring to dampen noise producing vibrations between nodes normally established upon release of a drawn bowstring. The bowstring silencer may also have a plurality of convoluted resilient bands that are attached to the central shaft.

3,837,328
COLLAPSIBLE GRILL

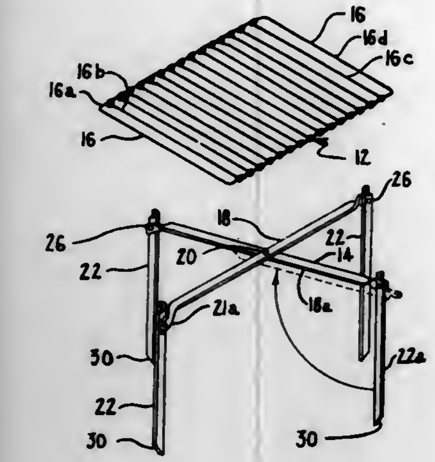
James L. Schaffer, Los Gatos, Calif., assignor to John A. Marlo, Aptos, Calif., a part interest

Filed Aug. 14, 1972, Ser. No. 280,742

Int. Cl. F24c *15/18;* **A47j** *37/04;* **F16m** *11/00*

U.S. Cl. 126—29 **4 Claims**

A collapsible grill for camping, the grill having a grate with a plurality of interlinked cross members which can be rolled up



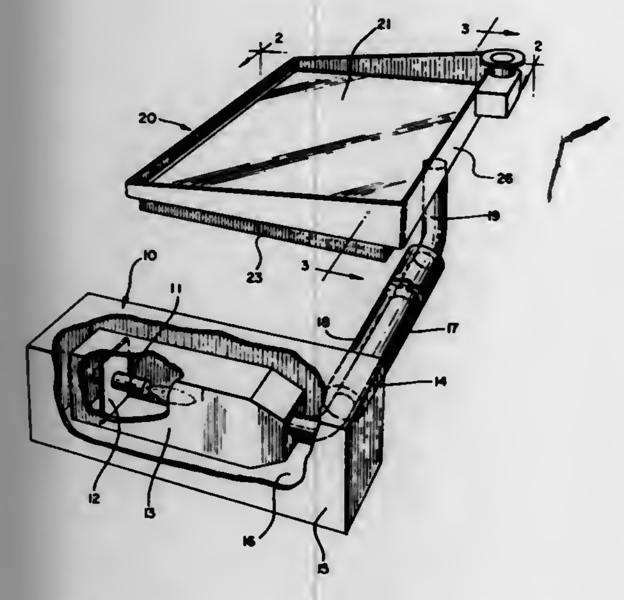
or opened to a rectangular grate, the grate is supported on a pair of crossed support members which are elevated above the ground by four support legs hinged thereto, the legs having a notched projection to which the corners of the grill can be attached.

3,837,329
LIQUID FUEL-FIRED GRILLE

Paul A. Mutchler, University City, Mo., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed July 5, 1973, Ser. No. 376,662
Int. Cl. F24c *3/06*

U.S. Cl. 126—44 **7 Claims**



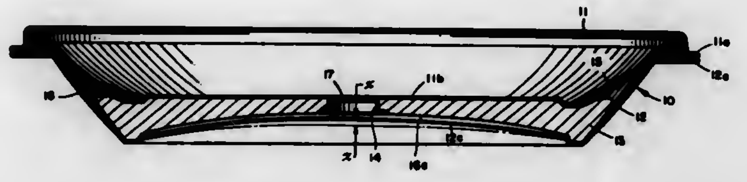
A cooking surface or grille heated uniformly by the products of combustion from a liquid fuel-fired burner, wherein the products of combustion are caused to flow beneath the cooking surface of the grille through inverted V-shaped channels which define gas-tight passageways that extend from the back to the front of the grille and in the opposite direction through adjacent V-shaped gas-tight channels alternating with the inverted V-shaped channels to provide an efficient and uniform transfer of heat energy from the combustion gases to the cooking surface of the grille.

3,837,330
HEAT-RETAINING SERVER

Richard W. Lanigan, Arlington Heights, and Oleg Szymber, Elk Grove, both of Ill., assignors to American Hospital Supply Corportion, Evanston, Ill.

Filed Mar. 28, 1973, Ser. No. 345,532
Int. Cl. A47g *23/04*

U.S. Cl. 126—246 **10 Claims**



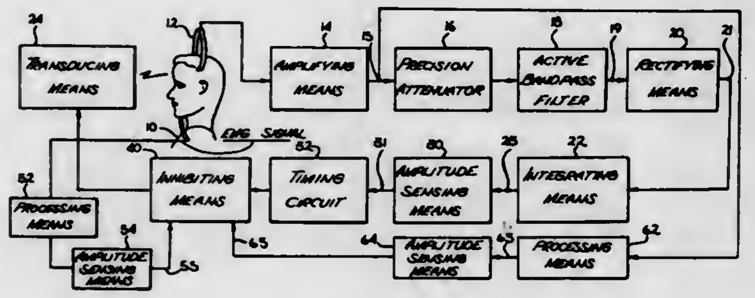
A hollow food serving dish having upper and lower metal shells with a rigid heat-retaining member disposed therebetween. the shells are imperforate and are hermetically sealed together along their peripheral edges. Limited expansion is permitted upon heating, but the danger of bursting is avoided because of the secure interconnection between the upper shell and the rigid member and because of the interfitting relationship between the rigid member and the bottom shell with its concave configuration and peripheral shoulder.

3,837,331
SYSTEM AND METHOD FOR CONTROLLING THE NERVOUS SYSTEM OF A LIVING ORGANISM

Sidney A. Ross, 10535 Cedros Ave., Mission Hills, Calif. 91340

Filed Oct. 24, 1972, Ser. No. 299,842
Int. Cl. A61b *5/05, 19/00*

U.S. Cl. 128—1 C **24 Claims**



A novel method for controlling the nervous system of a living organism for therapeutic and research purposes, among other applications, and an electronic system utilized in, and enabling the practice of the invented method. Bioelectrical signals generated in specific topological areas of the organism's nervous system, typically areas of the brain, are processed by the invented system so as to produce an output signal which is in some way an analog of selected characteristics detected in the bioelectrical signal. The output of the system, typically an audio or visual signal, is fed back to the organism as a stimulus. Responding to the stimulus, the organism can be trained to control the waveform pattern of the bioelectrical signal generated in its own nervous system.

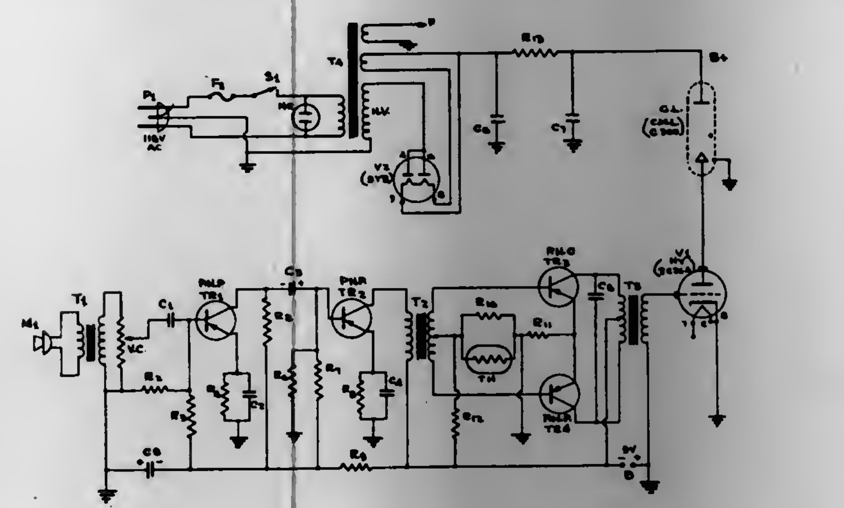
The invention system comprises means for frequency filtering, rectifying, integrating and amplifying. In addition, the system includes means for transducing the processed signal and displaying it as an output to the subject.

3,837,332
VOICE-OPERATED GAS LAMP STROBOSCOPES

Siegfried S. Meyers, Harrisonburg, Va., assignor to Madison College Foundation, Inc., Harrisonburg, Va., a part interest

Continuation of Ser. No. 191,240, Oct. 21, 1971, abandoned. This application Aug. 27, 1973, Ser. No. 391,848
Int. Cl. A61b *5/00*

U.S. Cl. 128—2 R **3 Claims**



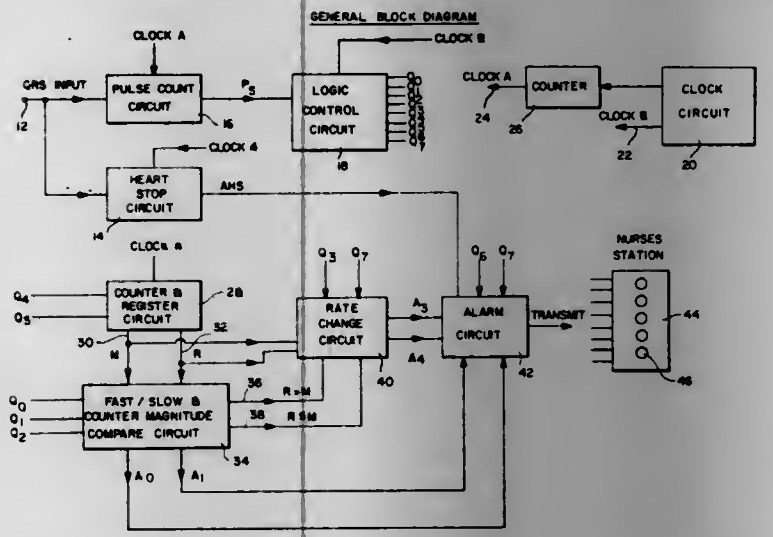
Apparatus for producing light flashes responsive to vocal sound vibrations having a flashing rate related to the vocal sound frequencies, for use by physicians as a light source for light to be reflected into a patient's throat for observation by the physician of the behavior and condition of the vocal chords. The apparatus is in the form of a voice-operated stroboscope comprising a normally nonconductive trigger vacuum tube which is controlled by an audio frequency amplifier coupled to an acoustic transducer activated responsive to vocal sounds produced by the patent. The trigger vacuum tube is connected to a stroboscopic lamp to produce light flashes approximately synchronized with the audible vibrations of the patient's vocal chords.

3,837,333
HEART SURVEILLANCE DEVICE

Arthur Jay Bruckheim, 6015 Landon Ln., Bethesda, Md. 20034

Filed Apr. 19, 1973, Ser. No. 352,659
Int. Cl. A61b *5/04*

U.S. Cl. 128—2.06 F **14 Claims**



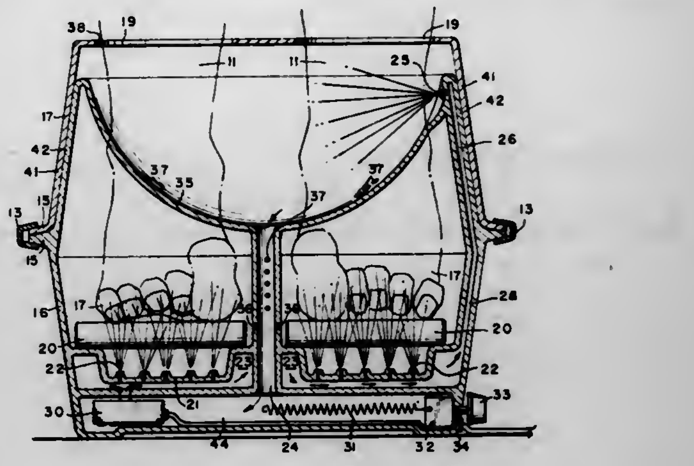
A device which monitors the interval between every other heartbeat to determine if the heart rate is too fast or too slow. The previously monitored interval is compared to the present interval to determine whether there has been an abrupt change of heart rate and if there has been a change of heart rhythm. Time intervals are measured digitally using a first pulse train and the determinations are made digitally between two pulses of said first pulse train under the control of a second pulse train. The occurrence of every heart beat is monitored to determine if the heart has stopped beating.

3,837,334
FOOTSPA CABINET

Hattie Johnson, Bronxville, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Jan. 26, 1973, Ser. No. 326,883
Int. Cl. A61h *29/00*

U.S. Cl. 128—24.3 **2 Claims**



A footspa cabinet for bathing and exercising the legs and feet of the user under a spray of hot water. Rollers are mounted in the cabinet under the location of the feet, to permit the foot muscles to be exercised. The apparatus includes a pump which forces a spray of water against each enclosed leg and foot, and a heater which maintains the recirculated water at a temperature regulated by a thermostat. The enclosure of the cabinet is formed of two shells which buckle together to form a waterproof sealed housing and to enclose both legs and feet of a user.

3,837,335
MASSAGING VIBRATOR

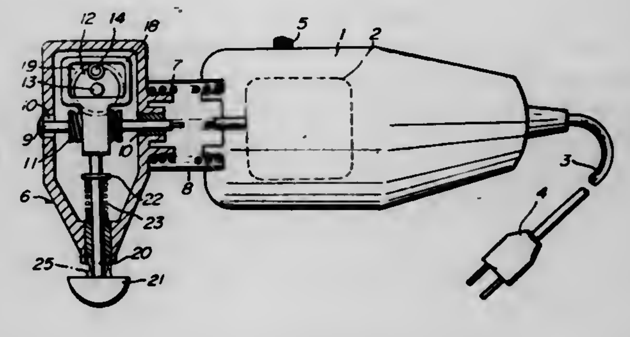
Akihiko Teranishi, Aichi-ken, Japan, assignor to Kabushiki Kaisha Teranishi Denki Seisakusho, Aichi-ken, Japan

Filed Apr. 13, 1973, Ser. No. 350,937

Claims priority, application Japan, Apr. 21, 1972, 47-46643; Apr. 21, 1972, 47-46644; Apr. 21, 1972, 47-46645; Apr. 21, 1972, 47-46646; Apr. 21, 1972, 47-46647; Apr. 21, 1972, 47-46648

Int. Cl. A61h *7/00*

U.S. Cl. 128—52 **5 Claims**



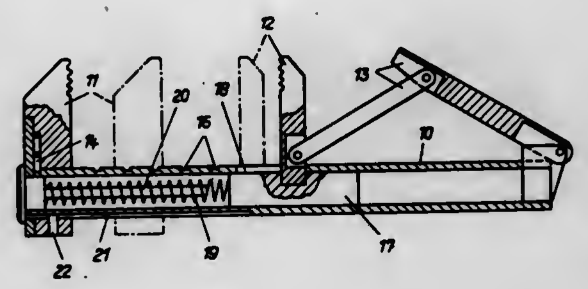
A massaging vibrator gives instantaneous shocks to desired body parts of a person, and at the same time, the vibrations of the mechanism are moderate and a good effect is produced.

3,837,336
MASSAGING APPARATUS

Bernard Taubert, 27 chemin Sous Caran, Vesenaz, Switzerland

Filed Mar. 16, 1973, Ser. No. 342,187
Int. Cl. A61h *7/00*

U.S. Cl. 128—59 **3 Claims**



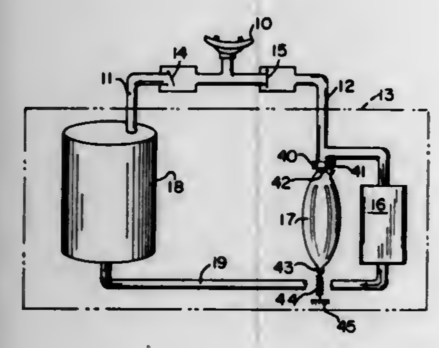
A massaging apparatus for the treatment of cellulitis includes a pair of jaws slidably mounted along a tube, and hand-actuated lever means for relatively moving the jaws together against the action of spring means. Means are provided for adjusting the mean separation of the jaws, which can be engaged about different parts of the body to be treated.

3,837,337

SELF-CONTAINED CLOSED CIRCUIT BREATHING APPARATUS

Paul Alex LaViolette, 1176 Hedgewood Ln., Schenectady, N.Y. 12309

Filed Jan. 29, 1973, Ser. No. 327,769
Int. Cl. A62b *7/04*
U.S. Cl. 128—142.2 8 Claims



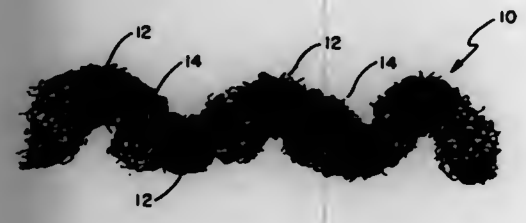
The breathing apparatus provides a chemical canister, an expansible reservoir for positive pressure on the upstream side thereof, a contractible reservoir for negative pressure on the downstream side thereof, and suitable connecting conduits and a mouthpiece to provide a closed breathing circuit. The negative pressure reservoir comprises rigid top and bottom walls, a spacer extending from one to the other, and a rubber sleeve extending from one to the other so that it will be bowed in when air is withdrawn by inhalation. By enclosing the parts in a watertight enclosure and adding an oxygen bottle and suitable regulating valves, the apparatus can be adapted for underwater use.

3,837,338

CONFORMABLE NONWOVEN BANDAGE

Sheldon R. Chesky, Algonquin; Donald Patience, Barrington, and Edward G. Hartigan, Schaumburg, all of Ill., assignors to The Kendall Company, Walpole, Mass.

Filed Nov. 24, 1972, Ser. No. 309,086
Int. Cl. A61l *15/00*
U.S. Cl. 128—156 3 Claims



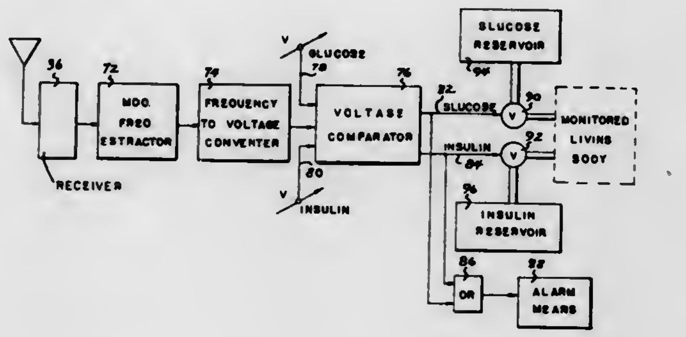
A felted cellulosic nonwoven fabric, in which the fibers have substantial freedom of movement relative to each other, is mechanically compacted into a series of undulations, to yield a bandage material that does not decrease in width when elongated by 10% or more.

3,837,339

BLOOD GLUCOSE LEVEL MONITORING-ALARM SYSTEM AND METHOD THEREFOR

Sol Aisenberg, Natick, and Kuo Wei Chang, Lexington, both of Mass., assignors to Whittaker Corporation, Los Angeles, Calif.

Filed Feb. 3, 1972, Ser. No. 223,077
Int. Cl. A61b *5/07*
U.S. Cl. 128—213 11 Claims



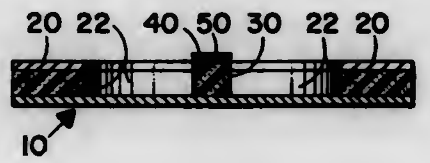
A method and apparatus for monitoring blood glucose levels. In the preferred embodiment a glucose diffusion-limited fuel cell is implanted in a living body. The output current of the fuel cell is proportional to the glucose concentration of the body fluid electrolyte and is therefore directly indicative of the blood glucose level. This information is telemetered to an external receiver which generates an alarm signal whenever the fuel cell output current exceeds or falls below a predetermined current magnitude which represents a normal blood glucose level. Valve means are actuated in response to the telemetered information to supply glucose or insulin to the monitored living body.

3,837,340

DEVICE FOR ADMINISTERING IMMUNICATION AGAINST VIRUS

Frederick T. Counter, Greenfield, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 190,869, Oct. 20, 1971, abandoned. This application June 4, 1973, Ser. No. 367,089
Int. Cl. A61m *13/00;* A61b *17/20*
U.S. Cl. 128—260 9 Claims



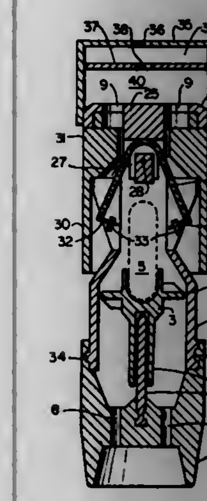
Live avirulent virus used to immunize against smallpox, measles, or mumps, or a combination of them, is applied as a dry deposit on a physiologically inert surface of a device adapted to be held against the unbroken skin of an animal to be immunized. Illustratively, cowpox virus as a dry surface deposit is applied at the midpoint of a plastic bandage; it is used by applying the bandage for a period of time to a body site at which the immunization is to be applied.

3,837,341

MEDICAMENT INHALATION DEVICE WITH AUDIBLE INDICATING MEANS

John Howard Bell, Loughborough, England, assignor to Fisons Limited, London, England

Filed Aug. 23, 1973, Ser. No. 390,739
Claims priority, application Great Britain, Aug. 23, 1972, 39173/72
Int. Cl. A61m *15/06*
U.S. Cl. 128—266 12 Claims



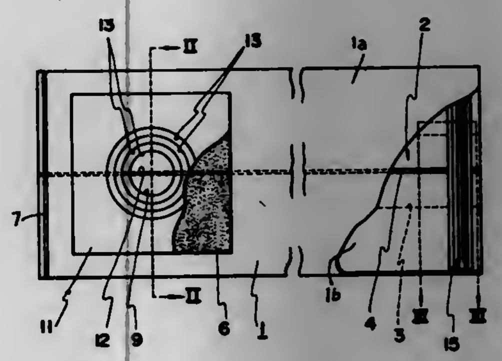
There is described an inhalation device, which is adapted to administer a medicament to the lungs and to be activated by the inspiration of the user, in combination with means adapted to indicate audibly when a desired air flow through the device is achieved.

3,837,342

EXCREMENT RECEIVING BAG FOR ARTIFICIAL ANUS

Koda Mitsuo, 16-18 Inage-dai, Shi-ken, Chiba, Japan

Filed Aug. 23, 1972, Ser. No. 283,228
Int. Cl. A61f *5/44*
U.S. Cl. 128—283 1 Claim



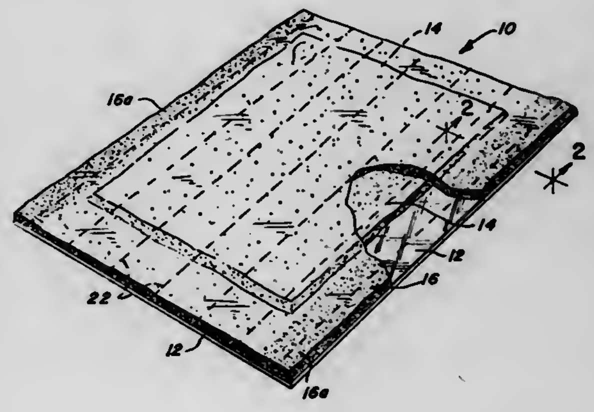
A flattened tube of flexible sheet material has first and second elongated walls united along their longer edges to form the tube. The second wall is wider than the first wall and has at least one pleating extending longitudinally substantially centrally thereof. When the pleating is folded, the effective width of the second wall is reduced to the width of the first wall so that the two walls are superposed to form an initially flat tube. The ends of the tube may be closed in a suitable manner, preferably by means of plastic zippers so that the bag may, if desired, be vented. A layer of pressure sensitive adhesive is applied to the outer surface of the first wall near one end thereof, and a peelable cover sheet of paper or the like is adhered to the adhesive and has a plurality of concentric circles delineated on its outer surface each having a diameter corresponding to that of a respective artificial anus. The cover sheet has a perforated fold line extending diametrically of the smallest circle so that the first wall and the cover sheet are foldable along this perforated fold line to form superposed congruent semicircles. The cover sheet and the first wall may be cut along a selected pair of congruent semicircles to form a circular opening corresponding to a respective artificial anus, and the cover sheet is then peeled from the adhesive to expose the adhesive for contact with the body of the user. During use of the bag, the second wall expands by opening of its pleating, to accommodate the excrement.

3,837,343

DISPOSABLE DIAPER, FABRIC USEFUL THEREIN, AND METHOD OF MANUFACTURE

Frederick K. Mesek, Downers Grove, Ill., assignor to Johnson & Johnson, New Brunswick, N.J.

Continuation-in-part of Ser. No. 187,249, Oct. 7, 1971, Pat. No. 3,730,184. This application Mar. 27, 1973, Ser. No. 345,398The portion of the term of this patent subsequent to May 1, 1990, has been disclaimed.
Int. Cl. A61f *13/16*
U.S. Cl. 128—287 17 Claims



A non-woven fabric is disclosed which comprises a highly water-absorbent web of mixed long and short fibers that is through-bonded throughout its dimensions with a binder (adhesive) to retain the fibers in their assembled relationship. In the final set stage of the binder it is hydrophobic in character and hence the resulting fabric is rendered more or less water repellent. In the invention the mid-portion of the bonded fabric is treated with a wetting agent (surfactant) to minimize the water-repellent effect of the binder and to make the mid-portion of the fabric readily wettable. Marginal portions of the bonded fabric are not treated with a wetting agent, so that these portions of the fabric throughout their dimensions are more or less water repellent. By this is meant that the marginal portions of the bonded fabric are difficultly wettable as compared to the mid-portion of the fabric. As indicated, the binder material at the side edges of the fabric is present throughout the thickness of the fabric, and hence it is effective to prevent liquid that is wetted into the central portion of the fabric from wicking readily outwardly. The fabric of the invention has particular utility as a facing layer in a disposable diaper that includes an absorbent pad and a water repellent backing member, since it minimizes liquid leakage from the side edges of the diaper.

In another embodiment, the portions of the fabric not treated with wetting agent include periodic bands across the continuous length of the fabric spaced apart so that when the continuous fabric is cut into facing fabric lengths, the end margins of the facing fabric will also be more or less water-repellent.

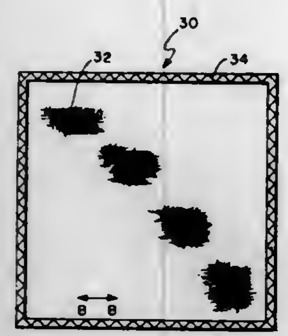
3,837,344

LAPAROTOMY SPONGES

Donald Patience, Barrington, Ill., assignor to The Kendall Company, Walpole, Mass.

Filed Oct. 20, 1972, Ser. No. 299,366
Int. Cl. A61f *13/00*
U.S. Cl. 128—296 3 Claims

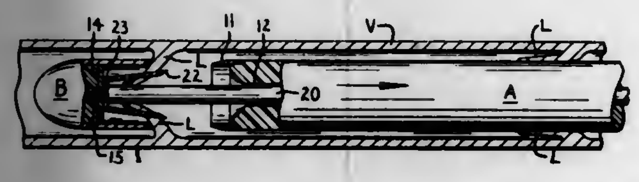
A laparotomy sponge is formed from a multiplicity of plies of open-meshed bleached absorbent gauze of a cover factor of not greater than 3.5, wherein the yarns of each ply are kinked, convoluted, and twisted into interengagement with the adjacent plies of gauze. The plies are thereby held together in relatively non-displaceable relationship, and the sponge has increased loft and elasticity.



3,837,345
VENOUS VALVE SNIPPER

Adel F. Matar, 4226 S.W. Downsview Ct., Portland, Oreg. 97205

Filed Aug. 31, 1973, Ser. No. 393,653
Int. Cl. A61b *17/32*
U.S. Cl. 128—305 **7 Claims**



A cylindrical catheter-type instrument has a tubular member slidable lengthwise relative to a distal head member. The instrument may be inserted in the distal end of a vein in closed position causing it to pass through the venous valves in the direction of normal blood flow. When the instrument is partially withdrawn in open position the venous valve leaflets protrude into a gap between the tubular and head members and become impaled on spikes in the head member. Then the tubular member is closed on the head member causing an annular cutting blade on the tubular member to snip off the valve leaflets. Opening and closing of the head and tubular members is accomplished by a scissors-type handle connected to the two parts.

3,837,346
FOLEY CATHETER CONTAINING CHOLESTEROL

Paul C. Adlaf, Park Ridge, Ill., assignor to The Kendall Company, Walpole, Mass.

Filed Feb. 12, 1973, Ser. No. 331,771
Int. Cl. A61m *25/00*
U.S. Cl. 128—349 R **2 Claims**

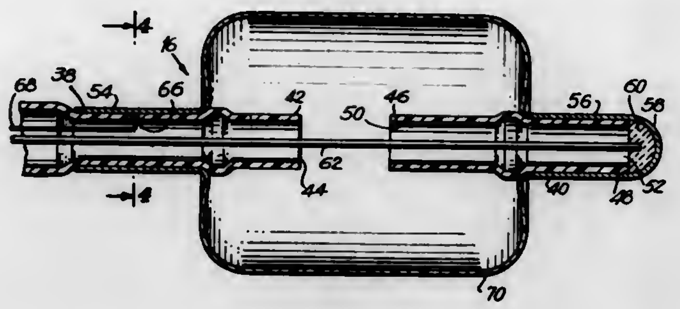
The incorporation of cholesterol in natural rubber Foley catheters results in an improved resistance to urinary salt calcification.

3,837,347
INFLATABLE BALLOON-TYPE PACING PROBE

Allen J. Tower, Old Bridge, N.J., assignor to Electro-Catheter Corporation, Rahway, N.J.

Filed Apr. 20, 1972, Ser. No. 245,938
Int. Cl. A61n *1/04*
U.S. Cl. 128—404 **8 Claims**

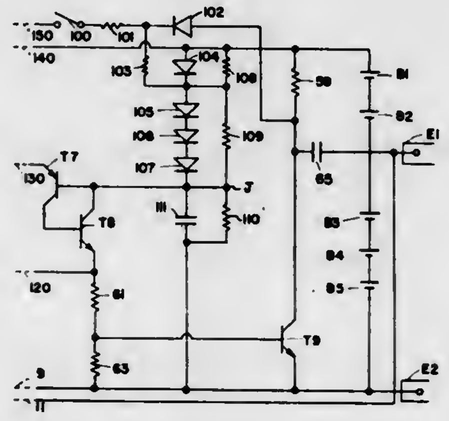
A catheter device having a tubular assembly with a forward probe portion including spaced proximal and distal members having electrodes secured thereto and being provided with inflatable means comprising a balloon member interconnecting said members; and fluid receiving means in communication with the probe portion for dilating said balloon member upon exposure to fluid introduced under pressure through the fluid-receiving means.



3,837,348
EXTERNALLY-CONTROLLED IMPLANTABLE CARDIAC-PACER CAPTURE MARGIN TESTING APPARATUS AND METHOD

Sherwood S. Thaler, Lexington, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Jan. 10, 1972, Ser. No. 216,601
Int. Cl. A61n *1/36*
U.S. Cl. 128—419 P **2 Claims**



Externally controlled implantable cardiac pacer and heart testing apparatus. Apparatus is disclosed for use with an implantable heart-stimulating device to initiate a test mode for investigating several electro-medical areas including the implanted power source. In one test mode, induced continuous heart stimulation is provided at a stimulation rate dependent upon the level of the power source thus providing an indication of remaining life of the power source. This test mode also provides test-stimuli each of which has its energy reduced by a pre-determined amount to indicate degree of capture-margin available. One of the external controls disclosed causes another test mode in which all heart stimulation ceases and provides a physician with an opportunity to check the patient's heart and heart rate under non-stimulative conditions.

3,837,349
HAIR WAVING PRODUCTS AND PROCESS

John E. Jedzinak, Suffern, and Ronald Zukoski, Spring Valley, both of N.Y., assignors to Avon Products, Inc., Suffern, N.Y.

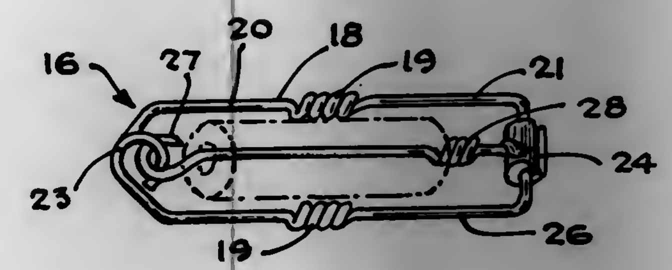
Filed Mar. 4, 1971, Ser. No. 121,154
Int. Cl. A61k *7/00*
U.S. Cl. 132—7 **8 Claims**

This invention relates to hair waving products comprising a film formed of a water-soluble film-former and containing a composition capable of waving hair and of being released from the film when water is applied thereto, and to the process of treating hair using such products.

3,837,350
TENSION (BOBBY) PIN

James L. Terrell, 704 Clinton St., and Jerome Curry, 715 Kennard St., both of Waukegan, Ill. 60085

Filed Mar. 21, 1972, Ser. No. 236,684
Int. Cl. A45d *8/24*
U.S. Cl. 132—48 R **6 Claims**

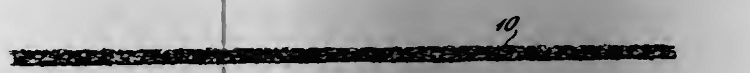


A spring type tension main body section in the form of a loop having one fastener arm or pin which carries a felted bobby roll with a hook at the very top and at the bottom is a hinge with a spring between the ends of the arm. The arm is hooked onto the main body section which is bent upon itself to form a depending torsion loop for receiving the hook on the end of the pin. The hook latches to the loop and locks the pin. The spring at the middle of the pin acts to tighten (pull) the hair as well as tension the springs on both sides of the pin and the springs of the body section can act to take strain off the middle spring arm or pin so it will not pull the scalp of the head.

3,837,351
INTERDENTAL TOOTH CLEANER AND METHOD FOR MAKING SAME

Thomas F. Thornton, 221 Mill Rd., New Canaan, Conn. 06840

Filed Feb. 15, 1973, Ser. No. 332,669
Int. Cl. A61c *15/00*
U.S. Cl. 132—89 **8 Claims**



A continuous length of interdental tooth cleaner consisting of textured yarn that is composed of deformed filaments that are covered with a hardened resin to stiffen them and in which the yarn is processed to increase its normal bulkiness.

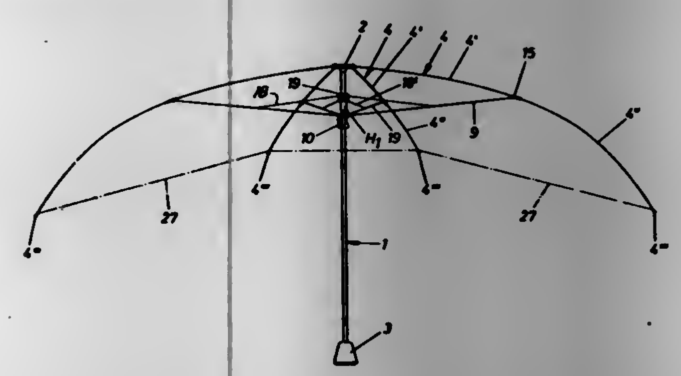
3,837,352
UMBRELLA

Heinz Weber, Hilden, Germany, assignor to Telesco Brophey Limited, Montreal, Quebec, Canada

Filed June 26, 1973, Ser. No. 373,868

Claims priority, application Germany, July 8, 1972, 2233645

Int. Cl. A45b *11/00, 19/06*
U.S. Cl. 135—25 R **4 Claims**

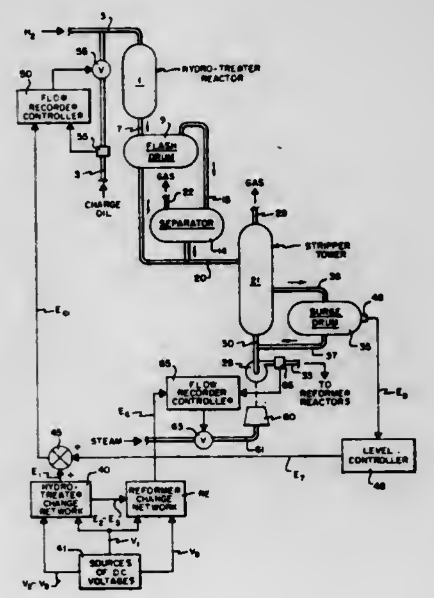


An umbrella having a frame and a canopy which is open to an approximate elliptical shape, such as to accommodate two people. The frame includes dome ribs hinged to a crown wherein the dome ribs have extended lengths along the major axis of the so-formed ellipse and shortened lengths along the minor axis of the so-formed ellipse. There are stretcher members hinged to a main sliding runner on the stick with lengths corresponding to the lengths of the dome ribs and there are two groups of strut members hinged to the stretcher members and to the respective hinge areas on the stick wherein at least one group of the strut members is hinged to a sliding runner for relative movement away from the other roup of struts hinged at an area of the stick and arranged such that when the umbrella is closed, the telescoped dome ribs are of substantially equal length.

3,837,353
APPARATUS AND METHOD FOR CONTROLLING THE LEVEL OF OIL IN A SURGE DRUM

Walker L. Hopkin, 119 Matisse, Houston, Tex. 77024; Leland A. Chvatal, 3949 Lansing Ave., Port Arthur, Tex. 77640, and William D. White, 812 S. 10th St., Nederland, Tex. 77627

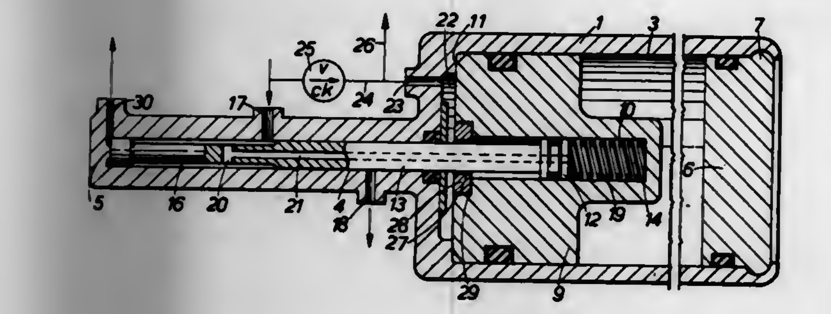
Division of Ser. No. 214,322, Dec. 30, 1971. This application Jan. 16, 1973, Ser. No. 324,007
Int. Cl. G05d *9/12*
U.S. Cl. 137—8 **8 Claims**



Apparatus controls the level of oil in a surge tank in a processing unit of a refining system, receiving a charge liquid and which in turn provides a charge liquid to a second processing unit of the refining system. A signal is provided corresponding to a desired change ΔF_R to be made in the flow rate of the second processing unit charge liquid. A first change network receiving the change signal determines the magnitude of the desired change to the second processing unit charge liquid flow rate and provides a flow rate signal for controlling the first processing unit charge liquid flow rate in accordance with the desired change signal. The change ΔF_H in the first processing unit charge liquid flow rate may be equal to or some portion of the change ΔF_R to be made in the second processing unit liquid flow rate depending on the magnitude of the change signal. The change ΔF_H differs in different proportions depending on the magnitude of the change ΔF_R. The network includes an absolute value circuit which provides a signal corresponding to the magnitude of the change signal. The change in the second processing unit charge liquid flow rate is delayed for a predetermined time interval and then implemented. The duration of the time interval is also determined as a function of the magnitude of the change ΔF_R.

3,837,354
HYDRAULIC BRAKING SYSTEMS FOR VEHICLES

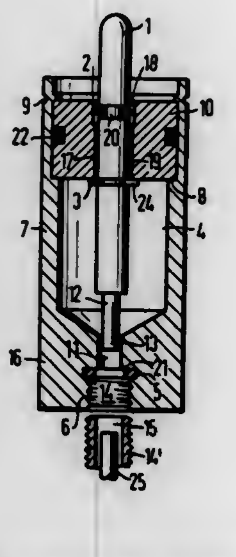
Glyn Philip Reginald Farr, Kenilworth, England, assignor to Girling Limited, Birmingham, England
Filed June 7, 1972, Ser. No. 260,382
Claims priority, application Great Britain, July 10, 1971, 32482/71; Sept. 24, 1971, 44618/71; Nov. 16, 1971, 53152/71; Feb. 28, 1972, 8459/72
Int. Cl. G05d *11/00*
U.S. Cl. 137—118 **11 Claims**



A priority valve assembly for a power braking system includes a housing having a stepped cylinder bore, valve means located between an inlet and an outlet leading into the smaller diameter bore portion, and an operating member for the valve means linked to a piston working in the larger diameter bore portion, one side of the piston being resiliently loaded and the other side forming an accumulator chamber for hydraulic braking fluid. Either the valve means or the operating member is arranged to be movable relative to the piston in response to the pressure drop which occurs when the valve means open so that the valve means opens and closes at two different positions of the accumulator piston corresponding to two different accumulator pressures.

3,837,355
APPARATUS FOR BLEEDING METERED INCREMENTS OF A COMPRESSED GAS FROM A CONTAINER

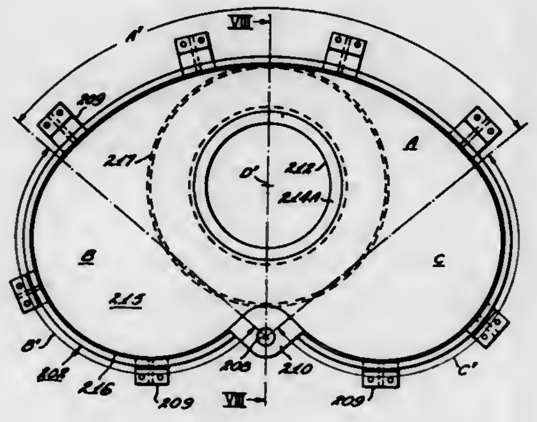
Winfried Wirges, Koblenz, Germany, assignor to Stabilus G.M.B.H., Koblenz, Germany
Filed Jan. 5, 1973, Ser. No. 321,382
Claims priority, application Germany, Jan. 8, 1972, 2200893
Int. Cl. F16k *15/20*
U.S. Cl. 137—322 **9 Claims**



Metered increments of a gas under superatmospheric pressure are bled from a container equipped with a nipple and a valve in the nipple normally closed by the gas pressure in the container into a vessel equipped with a receptacle matching the nipple and a rod which can be shifted manually into a bleeding position in which it enters the receptacle and the nipple therein to open the valve and to admit gas to the vessel cavity through the receptacle while another opening, leading from the cavity to the ambient atmosphere, is sealed by a valve ring on the rod. Gas pressure in the cavity tends to move the rod from its bleeding position outward of the receptacle into a venting position in which it permits the valve on the container to close, and the valve ring permits compressed gas to be vented to the atmosphere from the vessel cavity.

3,837,356
HIGH TEMPERATURE VALVE

Andrew Selep; Hales Corners, and Walter J. Hartwig, all of Hartland, Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Apr. 20, 1973, Ser. No. 353,207
Int. Cl. F16l *59/16;* **F16k** *3/06*
U.S. Cl. 137—375 **12 Claims**

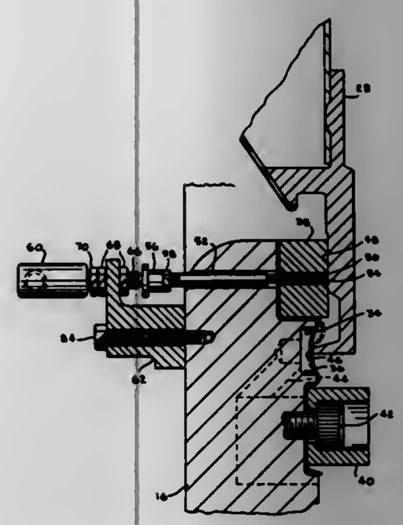


There is provided in accordance with one embodiment of the invention a valve for use under high temperature conditions including a linearly slidable valve member made of silicon carbide and having a valve aperture therein which is slidably movable into or out of registry, or into varying degrees of registry with a fluid passage through the stationary valve bonnet. The slidable silicon carbide valve member cooperates with stationary valve seats in the stationary bonnet structure, which valve seats are also made of silicon carbide. The slidable valve member is guided in its sliding movement by channel-shaped guide members in the stationary bonnet, the guide members also being made of silicon carbide. The stationary valve bonnet in which the slidable valve member is mounted for sliding movement is provided with an outer metal housing of carbon steel or the like and a wall of thermally insulating refractory is interposed between the silicon carbide members (including the slidable valve element) and the metal housing to maintain the metal housing at a sufficiently low temperature to prevent thermal damage to the metal housing.

3,837,357
CHECK VALVE

Lomis Slaughter, Jr., Houston, Tex., assignor to Anderson, Greenwood Co., Bellaire, Tex.
Filed June 13, 1973, Ser. No. 369,724
Int. Cl. F16k *37/00*
U.S. Cl. 137—554 **6 Claims**

A check valve having a body with a seat therein surrounding the flow passageway through the body, a valve member mounted within the body for movement to and from sealing engagement with the seat, the seat and valve member coacting to provide a pressure boosted soft seating seal and a metal to metal seal, a plurality of indicating pins supported in the seat and spaced inwardly from the outer of the seat sealing areas, the pins being positioned to be engaged by the valve member on seating, a sensor associated with each of the pins, closure indicating means connected to the sensors with the sensors in series so that actuation of all of the sensors by seating of the valve member actuates the indicating means to indicate closure of the valve member. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

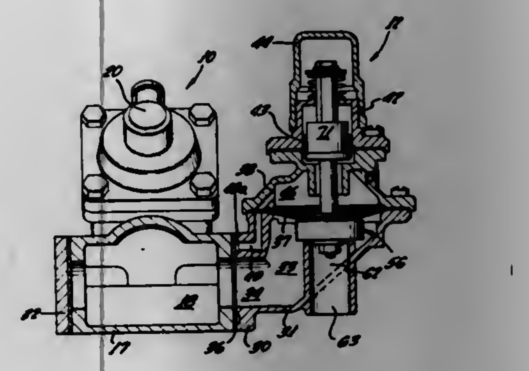


ERRATUM

For Class 137—610 see:
Patent No. 3,837,411

3,837,358
BACKFLOW PREVENTER VALVE ASSEMBLY

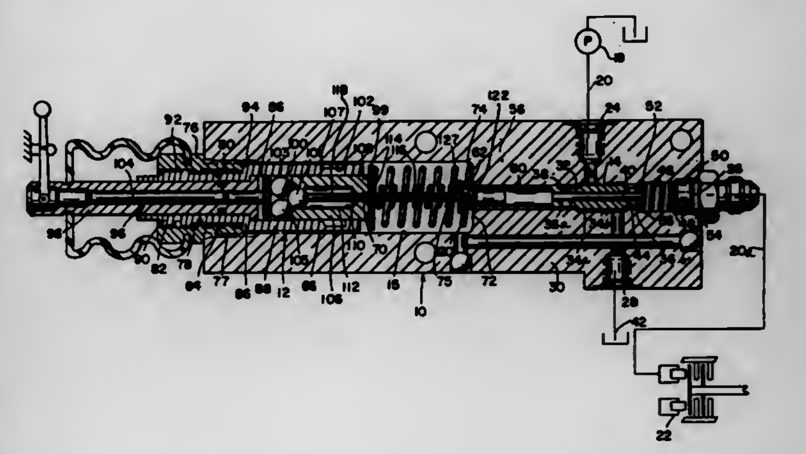
Clifford V. Zieg, and William Yelich, both of Costa Mesa, Calif., assignors to Cla-Val Co., Costa Mesa, Calif.
Filed Dec. 6, 1971, Ser. No. 205,022
Int. Cl. E03b *7/07*
U.S. Cl. 137—614.2 **23 Claims**



Two series-related check valves are separated by a chamber (the "zone") adapted to be drained by a relief valve in order to insure against backflow of water through the check valve which is nearest the water main. The relief valve incorporates a poppet which is operated by the combined actions of a single diaphragm assembly and a single bellofram assembly, together with a spring which biases the poppet toward open position. The valve seat for the poppet has an effective diameter slightly greater than that of the bellofram assembly, whereby to create a seating pressure which maintains the poppet fully closed at all times except when there is an actual or incipient backflow condition. The poppet seat is beveled in a manner which creates valve-opening forces in response to initial cracking of the poppet off its seat. Furthermore, the clamping disc for the poppet is shaped to cause additional valve-opening forces to be present upon such cracking of the poppet.

3,837,359
HYDRAULIC CONTROL VALVE WITH PRESSURE SENSITIVE LATCH

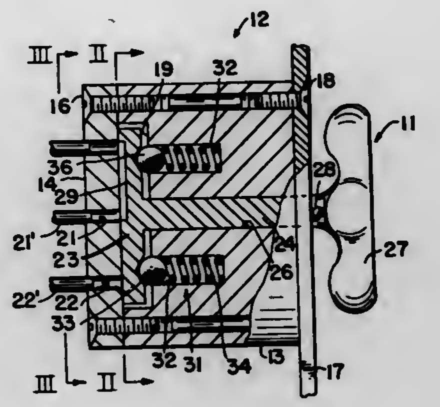
Vaughn A. Nelson, Downers Grove; Donald K. Fadden, Clarendon Hills, and Richard J. Lech, Chicago, all of Ill., assignors to International Harvester Company, Chicago, Ill.
Filed May 18, 1973, Ser. No. 361,661
Int. Cl. F15b *13/01*
U.S. Cl. 137—624.27 **2 Claims**



A valve having a fluid control spool and detent assembly for securing the spool in a predetermined position. The detent is secured by the interaction of a ball series and a groove, the holding force being delivered by hydraulic pressure. A detent release is actuated by a fall in hydraulic pressure thereby unlocking the balls. Springs return the detent and spool to a neutral position upon release.

3,837,360
FLUIDIC SELECTOR VALVE

Thomas J. Bubula, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Sept. 20, 1972, Ser. No. 290,552
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.46 **1 Claim**



A fluidic switch for connecting a first fluid signal line with any selected one of a plurality of additional signal lines has a housing forming a chamber with an end wall having a first port and a plurality of additional ports spaced equiangularly thereabout. A rotatable plate is disposed in the chamber and has a radial fluid passage which is permanently communicated with the first port and which may be selectively communicated with any of the additional ports by rotation of the plate through control means extending externally of the housing. Sealing of the contacting surfaces of the plate and end wall is accomplished by the same means which provides a detenting action at each of the several switch positions. Specifically a plurality of springs act between the housing and the plate to urge the plate against the end wall with the spring force being transmitted to plate through spherical elements which seat in indentations in the plate surface at each of the positions of the switch to yieldably resist rotation of the plate.

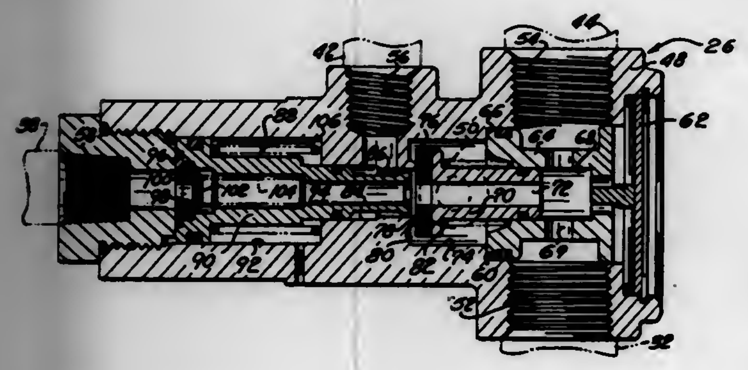
3,837,361
EMERGENCY CONTROL VALVE

John A. Urban, Livonia; Gary L. Hopkins, Southfield, and John Keith Armstrong, Livonia, all of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Division of Ser. No. 192,438, Oct. 26, 1971, abandoned. This application Feb. 12, 1973, Ser. No. 342,894

Int. Cl. B60t *15/60*

U.S. Cl. 137—627.5 **8 Claims**



A brake control system for a towed vehicle which includes an emergency control valve operative in combination with an anti-skid system to provide emergency brake control in the event service pressure is lost. The emergency control valve senses the pressure level in the emergency line and supplies brake apply pressure from a reservoir on the towed vehicle when the emergency line pressure falls below a predetermined level. The valve is also usable with spring brakes such that the spring brakes provide a back-up parking brake without overriding the anti-skid control during emergency operation.

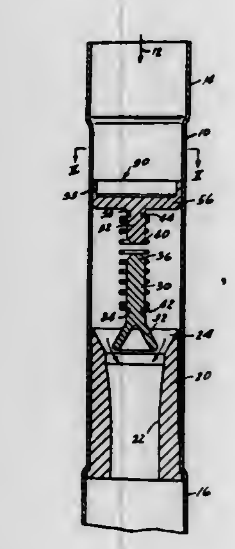
3,837,362
FLUID FLOW CONTROL

Gene A. Barnes, De Kalb, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed May 23, 1972, Ser. No. 256,149

Int. Cl. F15d *1/02*

U.S. Cl. 138—45 **1 Claim**



An economical, accurate and efficient constant rate flow control operable at low pressure, high flow rates and high temperature comprises a tubular conduit fitting having a flow restrictor therein with a metering pin means movably mounted adjacent to the restrictor by means such as a coil spring so that movement of the pin means relative to the restrictor will vary the flow through the restrictor. As fluid flows past the pin means a pressure drop is created thereacross in proportion to the flow and the pin means is moved in response to the pressure drop whereby as the flow tends to vary, the pressure drop tends to vary proportionately and thereby maintain a relatively constant flow through the control. The restrictor is removable and by merely replacing it with one of another size the flow capacity may be varied.

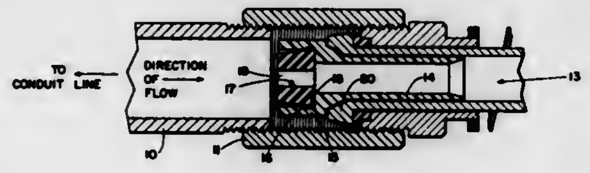
3,837,363
FLOW CONTROL DEVICE

Petro W. Meronek, R.R. No. 1, Osoyoos, British Columbia, Canada

Filed Dec. 20, 1972, Ser. No. 316,668

Int. Cl. F16d *1/00*

U.S. Cl. 138—45 **5 Claims**



An apparatus to maintain a substantially constant rate of fluid flow through a conduit in which the fluid is subject to variations in static head pressure. A regulating control element responsive to the pressure variations is mounted within a hollow insert casing to form a flow control device in a self-contained capsule form which is insertable within the conduit.

3,837,364
FLEXIBLE SHEATH FOR TACHOMETER SHAFTS OR THE LIKE

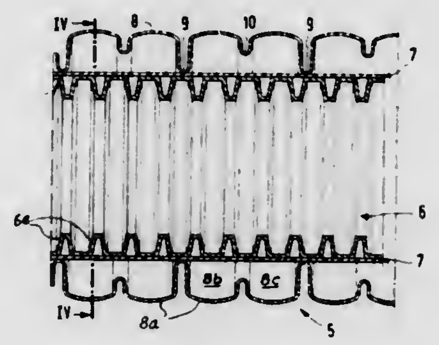
Heinrich Jenner, Hassfurt/Main, Germany, assignor to Frankische Isolierrohr-und Metallwaren-Werke Gebr. Kirchner, Konigsberg/Bayern, Germany

Filed Nov. 21, 1972, Ser. No. 308,330

Claims priority, application Germany, Nov. 25, 1971, 7144438

Int. Cl. F16l *11/12*

U.S. Cl. 138—122 **20 Claims**



A synthetic plastic soundproofing and heat-insulating sheath for a tachometer shaft has a thin-walled flexible cylindrical tube which surrounds a first set of hollow flexible ribs and is surrounded by a second set of hollow flexible ribs. The ribs of the first set may constitute circumferentially complete annuli or one or more helices, and the ribs of the second set may extend in parallelism with the axis of the tube or constitute circumferentially complete annuli or one or more helices. The profile of the ribs is rectangular or trapeziform, and the width of helical or annular ribs of the second set may exceed the width of ribs of the first set, as considered in the axial direction of the tube. The ribs of one or both sets may form part of a discrete corrugated tube which is surrounded by or surrounds the cylindrical tube, or portions of the ribs of at least one set may form part of a second tube which is spaced apart from and surrounds or is surrounded by the cylindrical tube.

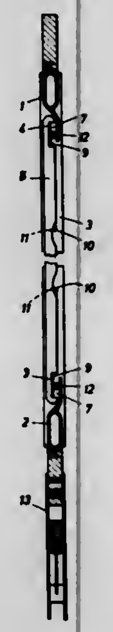
3,837,365
HEDDLE FRAME CENTER STRUT

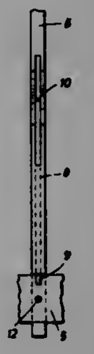
Walther Filter, Langenhagen, Germany, assignor to Vereinigte Osterreichische Eisen-Und Stahlwerke-Alpine Montan Aktiengesellschaft, Vienna, Austria and Etablissement Wanderfield & Co., Schaan, Liechtenstein

Filed July 30, 1973, Ser. No. 383,809

Int. Cl. D03c *9/06*

U.S. Cl. 139—92 **4 Claims**





A center strut assembly comprises a strut having at each end a recess and a longitudinal duct open into said recess, and two rod-shaped locking members, each of which is slidably mounted in one of said ducts and movable to a locking position, in which said locking member protrudes into the associated recess. Each of said locking members has opposite to the associated recess a resilient angled end portion. The strut is formed with two holes, each of which opens into one of said ducts, which is laterally open at said hole. Each of said angled end portions is arranged to resiliently engage one of said holes when said locking member is in said locking position.

3,837,366
ELECTRICALLY OPERABLE TRAVELLING-FIELD RACE

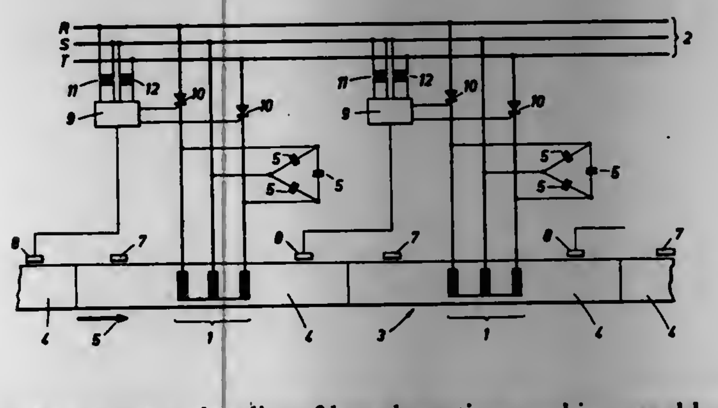
Claus Filter, Rethem, Aller, Germany, assignor to Vereinigte Osterreichische Eisen-Und Stahlwerke-Alpine Montan Aktiengesellschaft and Etablissement Wanderfield & Co., Vienna, Austria, and Schaan Liechtenstein

Filed Sept. 7, 1973, Ser. No. 395,297

Claims priority, application Austria, Sept. 15, 1972, 7915/72

Int. Cl. D03d *49/44*

U.S. Cl. 139—134 **2 Claims**



The race has a plurality of length sections and is operable to produce a travelling field adapted to move a movable body along said race so as to partly cover successive ones of said length sections in succession. The race also comprises a polyphase exciter winding having a plurality of polyphase winding sections, which are electrically disconnected from each other and arranged in respective ones of said length sections. Each of said polyphase winding sections consists of a plurality of phase windings. A plurality of capacitors are provided, each of which is connected in parallel to one of said phase windings and adapted to compensate a reactive current flowing in said phase winding. Non-contacting switching means are provided to apply an interlinked polyphase voltage to each of said polyphase winding sections when said body approaches the associated length section of said race and to remove said interlinked polyphase voltage from said winding section in response to the completion of the movement of said body along the associated length section. Said switching means comprise a plurality of thyristors which are connected to respective ones of at least all but one of said phase windings in each of said polyphase winding sections and adapted to be rendered conductive to apply said interlinked polyphase voltage to the associated polyphase winding section, and firing pulse generator means adapted to render each of said thyristors conducting only at a cross over of the interlinked polyphase voltage in the respective phase.

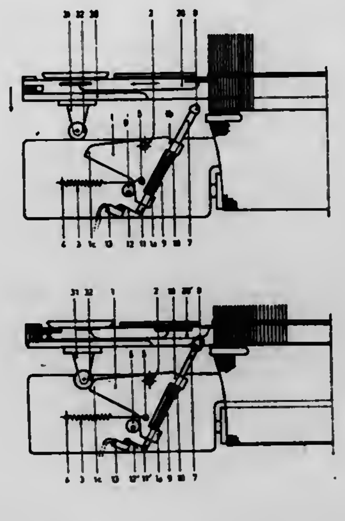
3,837,367
SHUTTLE POSITIONING DEVICE

Claude Laval, Castres, France, assignor to Lebocey Industrie, Aube, France

Filed Oct. 4, 1972, Ser. No. 294,802

Int. Cl. D03d *49/48*

U.S. Cl. 139—155 **5 Claims**



Device for loom for correcting the position of the weft-needle or of the shuttle at the moment of its arrival in its casing, and comprising a pivoting flange provided with a probe, this flange being positioned so that its pivoting movement can be controlled from the batten during the beating operation, the probe in addition being positioned on the flange so that during the beating operation it is applied to the rear end of the weft-needle or the shuttle when it arrives in its casing.

3,837,368
FABRIC TAKE-UP MECHANISM FOR LOOMS

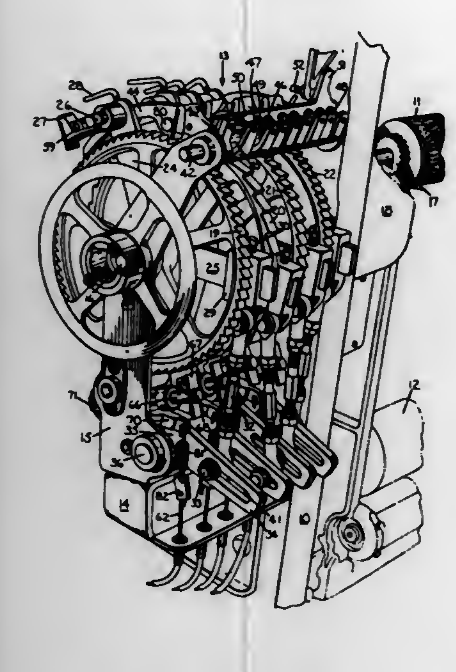
Joseph M. Budzyna, E. Douglas, and William E. Turner, Hopedale, both of Mass., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed Mar. 20, 1973, Ser. No. 343,127

Int. Cl. D03d *49/20*

U.S. Cl. 139—309 **3 Claims**

A take-up mechanism for a loom having a controlling apparatus to selectively rotate the fabric take-up roll through any one of a plurality of predetermined distances during its intended function for controlling and selectively varying the density of the weft yarn in the fabric.



3,837,369

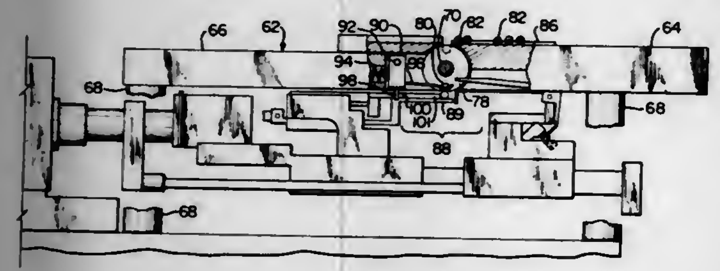
APPARATUS FOR PROCESSING ELECTRONIC COMPONENTS

William H. Bartell, Colorado Springs, Colo., assignor to The Vicon Instrument Company, Colorado Springs, Colo.

Filed Sept. 13, 1973, Ser. No. 396,856

Int. Cl. B21f *45/00*

U.S. Cl. 140—1 **22 Claims**



The principal sections of the apparatus include a stationary support, axially slidable head stock and tail stock on the support and movable in the bending zone to cooperate in bending electronic component leads, a transfer drum to move components from a load station to a discharge station, cutoff means to cut leads to desired length during the transfer operation, and a supply table surmounting the other sections. The components are fed from the supply table to the transfer drum at the load staion and lowered to the discharge station while relatively rotatable notched discs cut the leads to desired lengths. The components drop from the drum to a support finger on the head stock in the bending zone and are gripped in lateral attitude as the head stock moves toward the tail stock. With continued extension movement of head stock and tail stock, two bending arms on the head stock advance relatively and bend the leads to about 90°. The first bending arm may be held in retracted position to prevent bending contact, while the second bending arm always advances to form a bend so that one or both leads may be bent in the operation. Further, the second arm may be caused to swing laterally after the initial bend to swing its lead to 180° while the other lead remains straight.

3,837,370

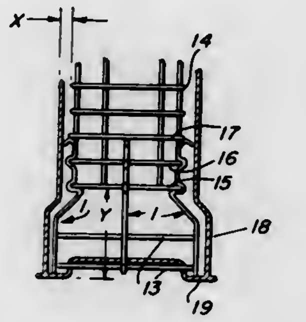
METHOD FOR MAKING A PIPE REINFORCING CAGE

Robert H. Gates, Columbus, and Harold G. Schneider, Westerville, both of Ohio, assignors to Concrete Pipe Machinery Company, Sioux City, Iowa

Continuation of Ser. No. 135,093, April 19, 1971, abandoned. This application Sept. 15, 1972, Ser. No. 289,740

Int. Cl. B21f *27/20*

U.S. Cl. 140—71 R **5 Claims**



A pipe reinforcing cage comprises a cage unit and a bell assembly adapted for snap-on connection thereto. The bell assembly has spaced apart coaxial circular rings supported by longitudinal members attached thereto, the longitudinal members comprising the elongated end section of wire forms having an intermediate section and an opposite end section adapted to provide snap-on connection to the circumferential members of the cage unit. Said opposite end section has a tapered portion that contacts the first circumferential member of the cage unit as the bell unit is pushed into contact with said cage unit, causing the wire form to be deflected outward so as to pass toward and around said cage unit until a first loop section of the wire form is opposite said first circumferential member of the cage unit, at which point the wire form springs inward so that the said first circumferential member is positioned within said loop section. This loop section has a tapered portion on its backside. Further pushing of the bell assembly toward the cage unit results in deflection of the wire form again so that said bell assembly moves toward the cage unit until the second circumferential member of the cage unit is positioned opposite said first loop section and the first circumferential member is positioned opposite a second loop section of the wire form. At this point, the wire form springs back to its original orientation, with the circumferential members of the cage unit thus snapped into position within the respective loop sections of the wire form. The second loop section of the wire forms has a flat portion on its backside. The second loop section of the wire forms said flat portion being positioned perpendicular to the directions of movement of said bell assembly relative to the cage unit, i.e. parallel to the orientation of said circumferential members, and adapted to preclude further movement of the wire form around and past the cage unit. The bell assembly is thus held in fixed position with respect to the cage unit. The wire form also serves to act as a spacer to locate the cage unit to which it is attached at a desired distance from the outer shell of the pipe form and at a fixed distance from the pallet of said pipe form.

3,837,371

METHOD OF SHAPING FILAMENT SUPPORTS OF A MINIATURE SIGNAL LAMP

Jean Rochet, Asnieres, France, assignor to Societe Anonyme dite: Jean Rochet SA France

Filed Feb. 27, 1973, Ser. No. 336,248

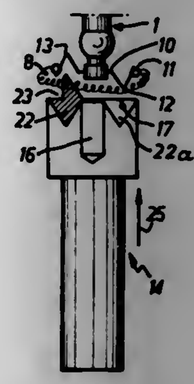
Claims priority, application France, Feb. 29, 1972, 72.06850

Int. Cl. B21f *45/00*

U.S. Cl. 140—71.5 **7 Claims**

A process and an apparatus for manufacturing a miniature signal lamp. The lamp has a base having a longitudinal axis

and radially projecting filament supports that project from the base and lie in substantially a common plane. The end portions of each filament support furthest from the base are connected to the filament. A portion of each filament support is formed into a V-shaped configuration lying in a plane substantially perpendicular to the common plane wherein alternate ones of said V-shaped portions point in one longitudinal direction and the remaining ones point in the opposite longitudinal direction.



3,837,372

MACHINE AND METHOD FOR PRODUCING AN EXPANSIBLE CYLINDRICAL LATTICE STRUCTURE, IN PARTICULAR FOR A REINFORCEMENT OF A PIPE HAVING A SOCKET

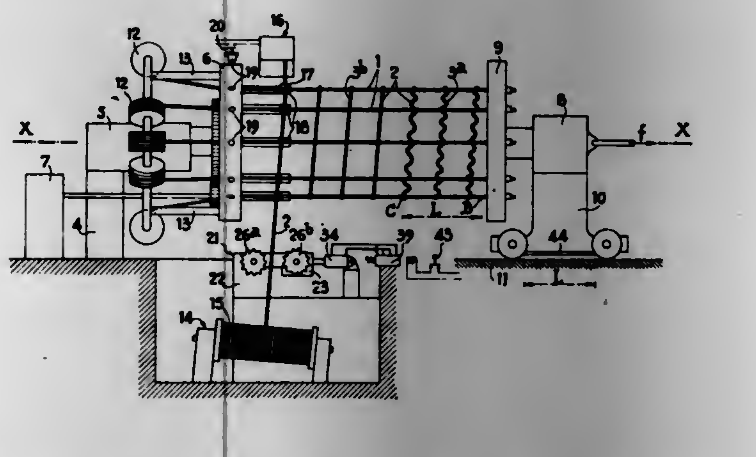
Jean Bernot, Saint-Dizier, France, assignor to Trefilunion, Paris, France

Filed Jan. 24, 1973, Ser. No. 326,357

Claims priority, application France, Feb. 3, 1972, 72.03594; Jan. 15, 1973, 73.01242

Int. Cl. B21f *27/20*

U.S. Cl. 140—92.2 **17 Claims**



Method and machine for producing an expansible lattice structure. A transverse filament is wound in the form of coils round a group of longitudinally extending filaments which are parallel to an axis. The winding of the transverse filament is accompanied, toward the end of the winding, by a corrugation of the transverse filament so as to produce at the end of the lattice structure an end portion which can be expanded radially of the axis. The lattice structure is of particular utility as a reinforcement for a concrete pipe having a socket at one end.

3,837,373

TOOL FOR TENSIONING A CIRCULAR BAND

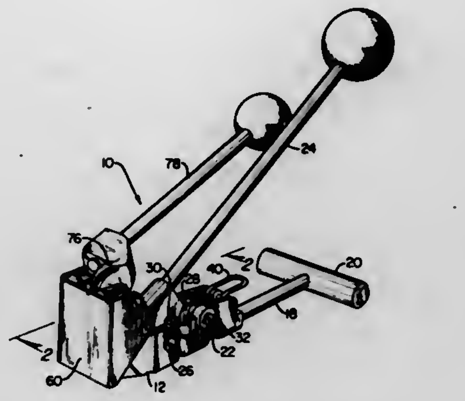
Harold H. Beardsley, Denver, Colo., assignor to Band-It Company, Denver, Colo.

Filed Dec. 4, 1972, Ser. No. 311,865

Int. Cl. B21f *9/02*

U.S. Cl. 140—93.4 **12 Claims**

Tool for tensioning a circular band having a tangential tail and a buckle connecting lapping portions of the band, characterized by a portable tool having band tensioning means and a pivoted crimping head adapted to form a specific type of crimp in the outer band, the crimping head adapted to be moved away from an interferring position at which the tool and band may be relatively rotated in the plane of the band to break off the tail adjacent the buckle.



3,837,374

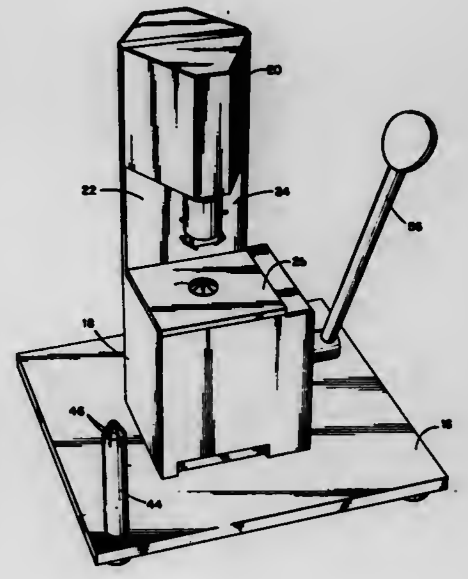
TECHNIQUES FOR FORMING SEMICONDUCTOR LEADS

Richard E. Plante, 103 Dover St., Somerville, Mass. 02144

Filed June 21, 1973, Ser. No. 372,214

Int. Cl. B21f *45/00*

U.S. Cl. 140—105 **21 Claims**



A method and apparatus for forming and trimming the leads of a semiconductor device or the like to simplify subsequent insertion into a receptive socket or holes on a printed circuit board or the like. The technique includes the preliminary spreading apart of the ends of the leads to a configuration in which the ends may be aligned with a specially formed die. The die has a plurality of holes which are receptive to the leads when the leads are placed at the entrance to the holes. The body of the semiconductor device then is gripped firmly and is urged downwardly to force the leads substantially along their axes through the holes. The holes and the die are arranged to progressively bend the leads to their final configuration as the leads are advanced axially through the holes. The lower ends of the leads which extend beyond the other end of the die then are trimmed.

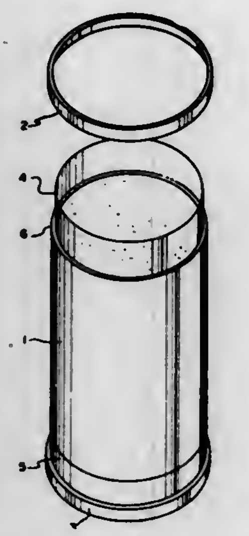
3,837,375
PROCESS FOR PACKAGING HIGHLY VISCOUS TACKY MATERIALS

John J. Higgins, and Nova E. Stucker, both of Westfield, N.J., assignors to Esso Research and Engineering Company, Linden, N.J.

Division of Ser. No. 42,985, June 3, 1970, which is a continuation-in-part of Ser. No. 676,097, Oct. 18, 1967, Pat. No. 3,545,643. This application Mar. 28, 1972, Ser. No. 238,856

Int. Cl. B65b *3/04*

U.S. Cl. 141—1 **8 Claims**



A process for packaging viscous tacky polymers which comprises hot filling a container with the polymer wherein the container has a liner comprising (1) heat-stabilized nylon coated with a silicone release agent; (2) an uncoated cellophane film; (3) a mineral pigment coated kraft paper overcoated with a silicone release agent; or (4) kraft paper coated with finely divided mica.

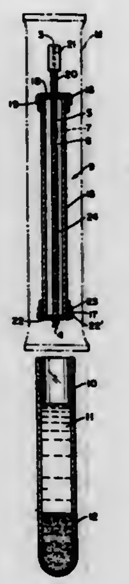
3,837,376
BLOOD SERUM COLLECTION TUBE AND METHOD

Paul Brown, and Joseph O'Brien, both of c/o Metropolitan Pathology Laboratory, Inc., 60 Commerce Way, Ridgewood, N.J. 07606

Continuation of Ser. No. 148,872, June 1, 1971, abandoned, which is a continuation-in-part of Ser. No. 854,982, Sept. 3, 1969, Pat. No. 3,586,064. This application Aug. 7, 1972, Ser. No. 278,227

Int. Cl. B01l *11/00*

U.S. Cl. 141—1 **4 Claims**



The disclosure relates to an improved apparatus and an improved method for removing serum from the uppermost portions of a specimen tube of centrifuged blood, in which the blood serum is disposed in a liquid pool above settled-out cellular solid materials. More particularly, the invention is directed to an easily handleable, readily mailable, collection tube closed at both ends by "one shot" valve structures comprising self-sealing elastomeric elements pierced by a special one-piece hollow needle. Additionally, the lower elastomeric element includes an annular piston-like member which is adapted to engage the inner walls of the specimen tube to pump serum therefrom.

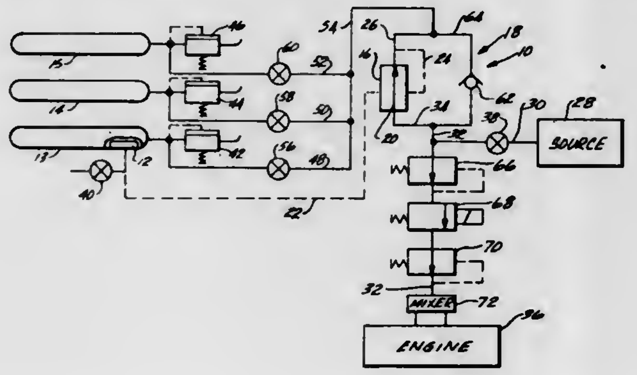
3,837,377
TEMPERATURE COMPENSATED CHARGING SYSTEM AND PROCESS FOR NATURAL GAS AND THE LIKE

Robert W. McJones, 529 Via Del Monte, Palos Verdes Estates, Calif. 90274

Continuation-in-part of Ser. No. 34,966, May 6, 1970, abandoned. This application Oct. 10, 1972, Ser. No. 295,976

Int. Cl. B65b *3/00*

U.S. Cl. 141—4 **13 Claims**



A valve controls communication between a source of pressurized gas and containers which are to be charged with the gas. The valve in turn, is controlled by the pressure of a gas in a reference vessel which is in thermal communication with the containers to be charged. This reference vessel contains a quantity of gas charged into it at a predetermined temperature and pressure. The valve is controlled by the pressure of the reference vessel and the container to be charged such that when a predetermined pressure differential between the two exists, the valve closes communication between the source of gas the the containers.

3,837,378
DEVICE FOR THE TRANSPORT AND FILLING OF AMPOULES

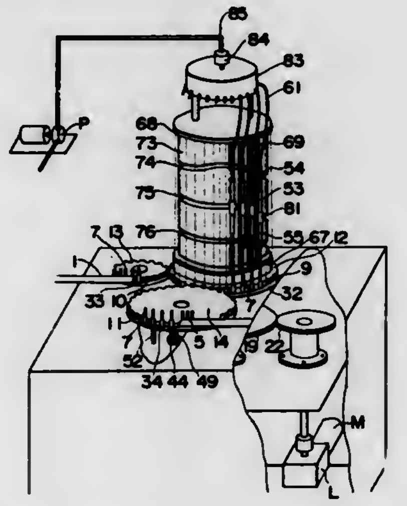
Hiroshi Kanki, Kobe; Torao Suzuki, and Kazuyoshi Kurita, both of Osaka, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Oct. 6, 1972, Ser. No. 295,573

Claims priority, application Japan, Apr. 18, 1972, 47-39384

Int. Cl. B65b *3/04*

U.S. Cl. 141—146 **13 Claims**



A device for the transport and filling of ampoules comprising a rotatory transport plate on the periphery of which is provided at regular intervals holder grooves into each of which an ampoule can be inserted and held by the suction force of a source of suction applied through passages connecting the suction source and the grooves, and reciprocating constant volume pumps, each provided with support yokes co-axial and co-rotatory with the plate and positioned above each of the grooves, and with an exhaust portion to which are connected filler needles which are successively reciprocated to perform filling operations of ampoules during transport of the ampoules in said grooves.

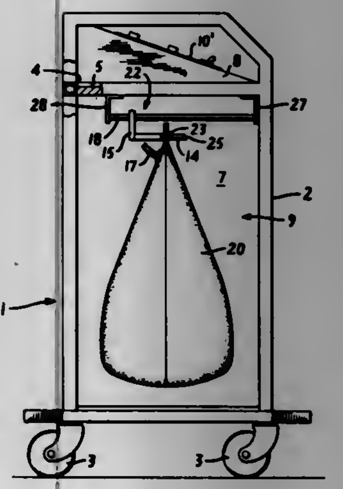
3,837,379
IRRIGATOR LIQUID SUPPLY SYSTEM

Harold Paul McDonald, Jr., Memphis, Tenn., and John Varga, Bayville, N.Y., assignors to East/West Medical Products Inc., New York, N.Y.

Filed May 14, 1973, Ser. No. 360,225

Int. Cl. B65b *3/12, 37/06*

U.S. Cl. 141—232 **10 Claims**



A urological endoscopic irrigation liquid supply system is provided including, in combination, a sterilizer comprising means for sterilizing irrigating liquid and filling the sterile irrigating liquid into a storage reservoir carried on a track, and an irrigator comprising a storage track for the filled storage reservoir, means for supporting a gravity feed reservoir at an elevated position with respect to the filled reservoir, and means for pumping irrigating fluid from the storage reservoir to the gravity feed reservoir. The tracks on each of the sterilizer and irrigator can be interconnected, so as to transfer the storage reservoir containing sterile irrigating fluid from the sterilizer on the track to the irrigator, for connection to the gravity feed reservoir.

3,837,380
MARINE LOADING/UNLOADING SYSTEM

Robert Henry Davies, Anfield, Mill Ln., Herne, England

Filed Mar. 24, 1972, Ser. No. 237,755

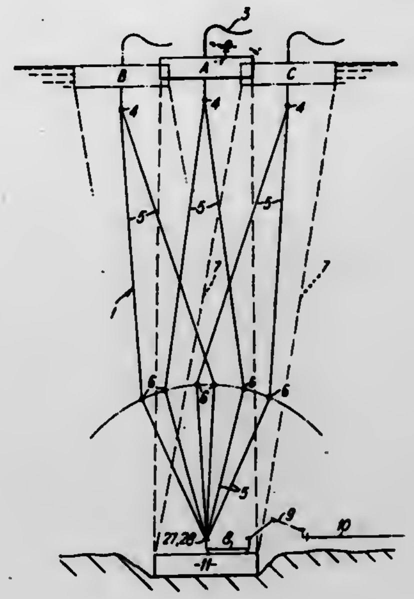
Claims priority, application Great Britain, Mar. 29, 1971, 8046/71; Nov. 29, 1971, 55374/71; Feb. 2, 1972, 4994/72

Int. Cl. B67c *3/30*

U.S. Cl. 141—279 **10 Claims**

Marine loading or unloading system for fluids, particularly for tanker loading in deep water, have a sea-bed pipe line joined to a sea-bed anchor to which directly or indirectly a ship for loading or unloading is moored. A conduit proceeds from the sea-bed anchor to the ship and includes rigid pipe lengths joined by pivoting joints of which at least one is a universal joint.

In one embodiment of system shown, the conduit proceeds as a jointed rigid pipe substantially vertically from the anchor to a captive buoy to which the ship is moored and whence the conduit is conventional hose or the like; in another embodiment, the ship is moored direct to the sea bed anchor and the conduit proceeds as a jointed rigid pipe to a free-floating buoy or capture device. Novel universal joints and swivel bearing constructions for under-water applications are shown, and also a novel variable-buoyancy capture device.



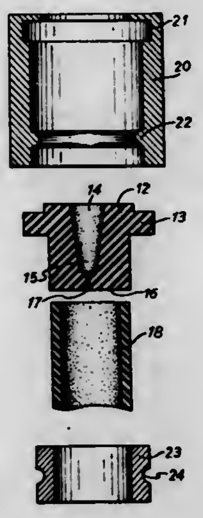
3,837,381
SHUTTOFF VALVE DEVICE

Luis Saenz Arroyo, Mexico City, Mexico, assignor to Products Adex, S.A. Mexico

Filed Dec. 26, 1972, Ser. No. 318,442

Int. Cl. B65b *3/04;* **F16k** *21/04*

U.S. Cl. 141—350 **1 Claim**

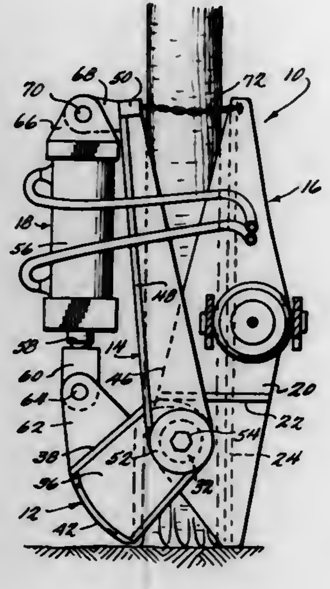


A fluid shutoff device is provided for attachment to inflatable fluid containers for domestic and medical uses. The device comprises four cooperating elements - a flexible tubular member extending from the inflatable tubular container; a hollow tubular cover; an elastomeric body inserted into the end of said tubular member and having therein a truncated conical bore communicating with a valve channel; and a ring member which prevents fluid pressure from loosening the engagement of the elastomeric body and the end of said tubular member. Pressure of fluid in said inflatable container automatically compresses said body and maintains said valve channel in closed condition. Fluid is introduced into or discharged from said container by inserting a convention syringe adapter into said truncated conical bore to open the valve channel.

3,837,382

TREE CUTTING APPARATUS WITH IMPROVED CUTTING AND GRIPPING HEAD ASSEMBLY

Walden M. Gaitten, Sylacauga, Ala., assignor to Kockum Industries, Inc., Talladega, Ala.
Filed June 1, 1973, Ser. No. 365,977
Int. Cl. A01g *23/08*
U.S. Cl. 144—34 E **9 Claims**

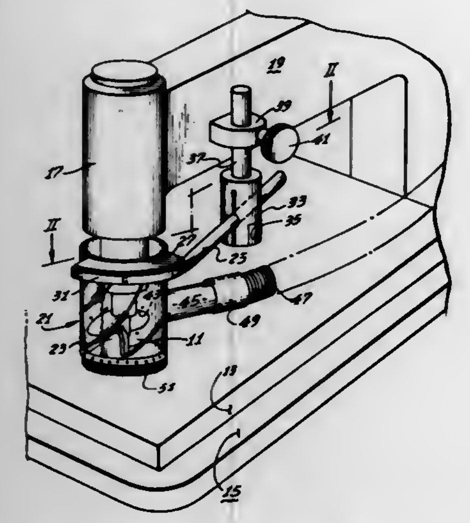


A tree cutting and gripping head assembly for use in a tree felling apparatus which includes a single movement effecting unit, such as a hydraulic ram, connected both with respect to a tree cutting part and a tree gripping part of the head assembly for effecting movement for both of these parts through their respectively operative strokes in response to a single actuating movement of the unit. The head assembly also embodies a number of improved cutting blade constructions which are particularly useful in splitting the tree stump during cutting operation or otherwise forming pockets in the upper surface of the tree stump for retaining moisture which materially aids in the disintegration of the stump.

3,837,383

DUST COLLECTOR AND SAFETY GUARD

Kenneth Ko, 1976 N. Kenmore Ave., Los Angeles, Calif. 90027
Filed Nov. 9, 1972, Ser. No. 305,324
Int. Cl. B27g *21/00;* **B23q** *11/06*
U.S. Cl. 144—251 A **13 Claims**

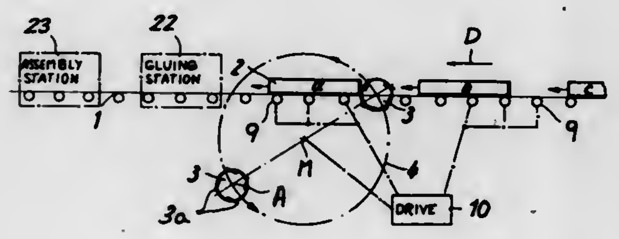


Apparatus for creating a vacuum about a tool for the removal of dust, work chips, etc., generated by contact between the tool and the workpiece. A tubular or cylindrical collecting device is mounted for horizontal and vertical adjustment relative to the tool mounting apparatus and is provided with a tangentially arranged suction apparatus for creating a partial vacuum within the device. In order to allow the operator to follow the contact of the tool with the workpiece visually, in the preferred embodiment the apparatus is manufactured of a transparent material. The device is also a guard to prevent fingers or hands coming in contact with the rotating bit during operation.

3,837,384

SYSTEM FOR CUTTING SPLINES IN BOARDS

Hans Sybertz, Hargesheim, Germany, assignor to Hubel & Platzer Maschinen-Baugesellschaft m.b.H., Bad Kreuznach, Germany
Filed Mar. 26, 1973, Ser. No. 345,219
Claims priority, application Germany, Mar. 29, 1972, 2215308
Int. Cl. B27c *9/04*
U.S. Cl. 144—326 R **10 Claims**

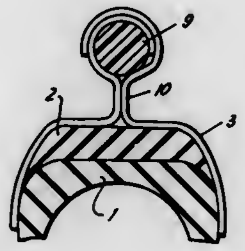


A board is moved along a straight path forming a chord through the circular orbit of a milling head. The relative speeds of the orbiting head and the moving plank are varied with respect to each other such that the vector of the orbiting speed of the head parallel to the plank displacement direction, i.e., the velocity component in this direction is always equal to the velocity of the plank while this head is in contact with a plank end. Thus, splines are cut of equal length and depth. The head can simultaneously cut splines in the trailing end of a leading workpiece and the leading end of a trailing workpiece, and then on the return swing cut splines in the trailing end of the trailing workpiece and in the leading end of the following workpiece. Several such heads may be mounted on a single rotatable carrier. After cutting of the splines the planks are coated on their ends with adhesive and pushed together axially so as to splice them together.

3,837,385

ENVELOPE CLOSURE

Wilhelm Schelkmann, Crengeldanzstrasse 58, Witten, Germany
Filed June 16, 1972, Ser. No. 263,431
Int. Cl. B29h *5/04*
U.S. Cl. 150—54 B **15 Claims**

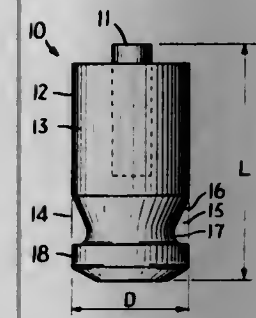


An elastic wrapper encloses at least a portion of a vehicle tire which is to be repaired. Opposite end portions of the wrapper are overlapped once or several times at a distance from the tire which is enclosed in the elastic wrapper, and an annular reinforcing element may be located in the overlap.

3,837,386

ANTI SKID STUD FOR TIRES

Daniel Lejeune, Clermont Ferrand, France, assignor to Compagnie General des Etablissement Michelin raison Sociale Michelin & Cie
Filed Apr. 23, 1973, Ser. No. 353,545
Claims priority, application France, May 5, 1972, 72.16299
Int. Cl. B60c *11/16*
U.S. Cl. 152—210 **4 Claims**

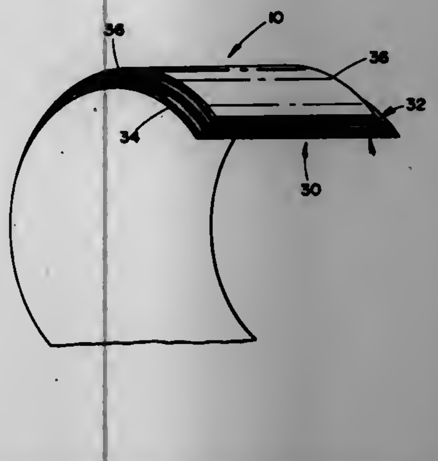


An improved anti-skid stud for tires comprises a cylindrical body having a hard point at one end and having one or more intermediate annular grooves.

3,837,387

BREAKER BANDS FOR PNEUMATIC TIRE

Richard M. Menough, and Robert W. Cuddigan, both of Denver, Colo., assignors to The Gates Rubber Company, Denver, Colo.
Division of Ser. No. 110,688, Jan. 28, 1971, Pat. No. 3,751,316. This application Apr. 12, 1973, Ser. No. 350,671
Int. Cl. B60c *9/18*
U.S. Cl. 152—361 R **4 Claims**



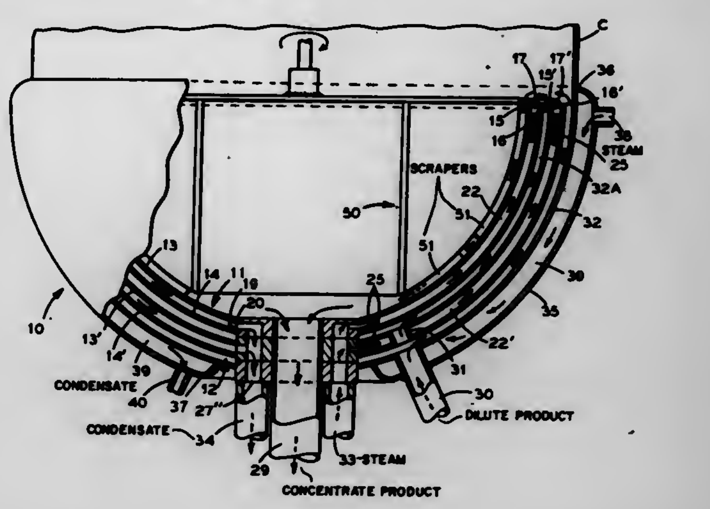
A breaker band for tires having a plurality of plies of biased cut rubberized tire cord, the cords each bevel cut at the edge of the breaker band to define a breaker band that is substantially uniform trapezoidal cross-section.

3,837,388

EVAPORATOR APPARATUS

Thomas Margittai, 778 Cornwall Drive, State College, Pa. 16801
Filed Dec. 21, 1972, Ser. No. 317,423
Int. Cl. B01d *1/22, 1/00*
U.S. Cl. 159—13 R **8 Claims**

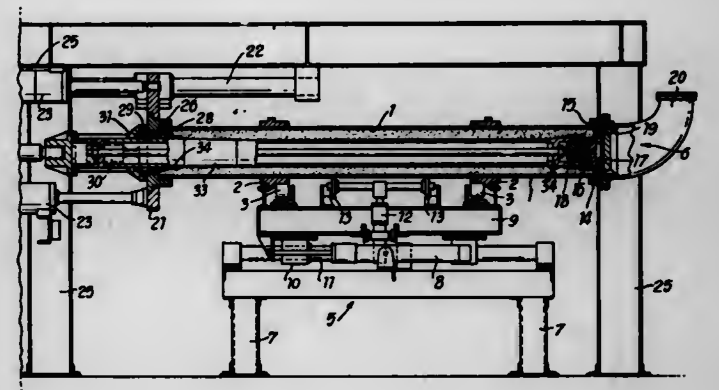
An evaporator apparatus of the thin film type having a structure and a mode of operation such that the amount of liquid to be concentrated in the evaporator is minimal, as compared to the total evaporating capacity of the apparatus; such evaporator comprising a plurality of spaced, nesting cup shaped heat transfer members to provide cup shaped spaces therebetween for (1) admitting a heating medium to the space therebetween; (2) passing liquid to be concentrated upwardly over heated, rapidly increasing surface areas; and (3) passing the concentrated liquid downwardly over heated, rapidly decreasing surface areas to a product outlet.



3,837,389

METHOD OF AND APPARATUS FOR FORMING A SAND MOULD FOR USE IN THE MANUFACTURE OF A CAST IRON PIPE

Duncan Whyte Provan, Shrewsbury, England, assignor to Glynwed Foundries Limited, Bilston, Staffordshire, England
Filed Feb. 6, 1973, Ser. No. 330,013
Claims priority, application Great Britain, Feb. 14, 1972, 006710/72
Int. Cl. B22c *13/10*
U.S. Cl. 164—33 **9 Claims**



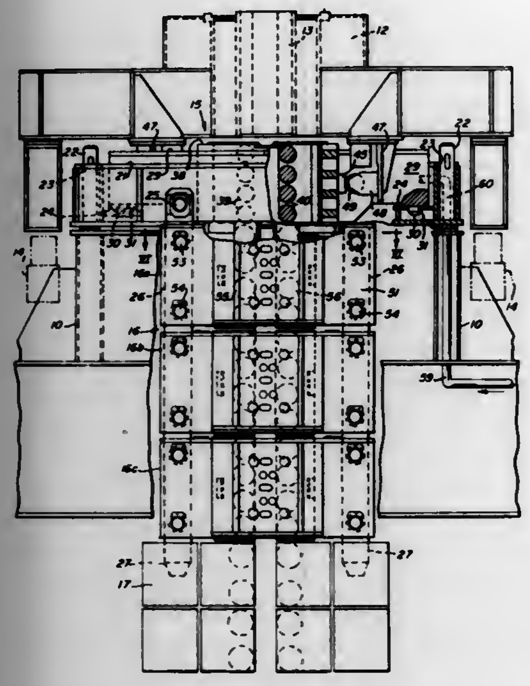
Forming a sand mould prior to centrifugally casting a cast iron pipe by locating a mould containing flask against a sand blow head, bringing a plate against the other end of the flask and passing a mandrel having an oversized head through the plate and locating one end of the mandrel against the blow head, blowing sand into the annulus so formed between the mandrel and flask, compacting the sand at each end of the flask and compacting the remainder of the sand by withdrawing the mandrel from the flask so that the head of the mandrel effects the compacting.

3,837,390

CONTINUOUS CASTING MACHINE EMBODYING A SELF-ALIGNING AND FLEXING GUIDE-ROLL RACK

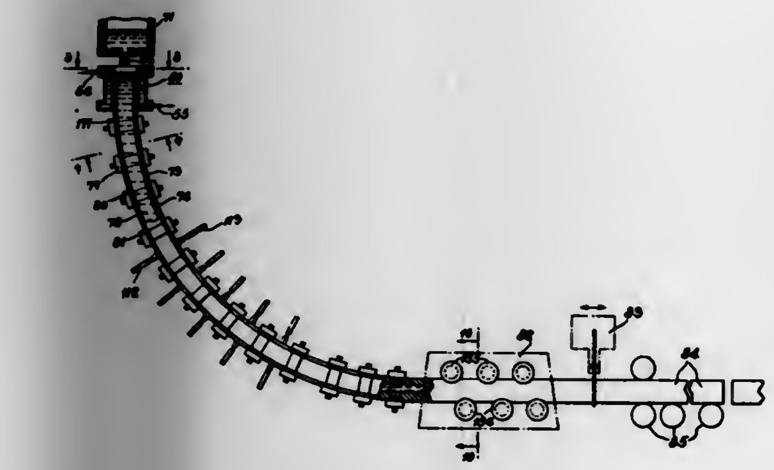
Charles H. Bode, Jr., Upper St. Clair Twp., Allegheny County, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.
Division of Ser. No. 143,077, May 13, 1971, Pat. No. 3,700,073. This application Aug. 1, 1972, Ser. No. 277,709
Int. Cl. B22d *11/12*
U.S. Cl. 164—260 **8 Claims**

A guide-roll rack for use in a continuous-casting machine. The rack is formed of a short-length upper section and a longer lower section which is made up of individual subsections. Both the upper and lower sections are supported on a frame which rests on the supporting structure of the machine. The rack is stationary vertically but can shift horizontally to a limited extent to facilitate aligning it with the mold and its sections and subsections with one another. The mold-support frame oscillates vertically, but carries rollers which ride against the upper section of the rack for aligning the rack with the mold. The sections and subsections are flexibly connected to assure proper alignment.



3,837,391
CONTINUOUS CASTING APPARATUS

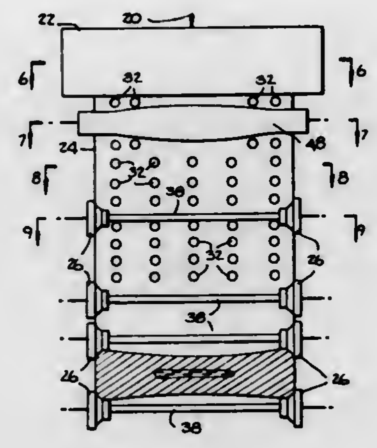
Irving Rossi, Dunros Farm, James St., Morristown, N.J. 07960
Division of Ser. No. 111,488, Feb. 1, 1971, Pat. No. 3,766,982.
This application Feb. 26, 1973, Ser. No. 335,600
Int. Cl. B22d *11/12*
U.S. Cl. 164—282 **10 Claims**



Apparatus for continuously casting steel into a wide-faced continuous slab is disclosed wherein the oppositely disposed wide faces of the outer shell of the cast slab are concavely arched to resist outward bulging due to the ferrostatic head of the molten core. The cast strip is passed between spaced pairs of guide rollers which bear against only the opposite edges of the strip and also buttress the strip against the internal ferrostatic head of the molten core. Therefore, the necessity of guide rollers that bear against the wide surfaces of the strip is eliminated, allowing uniform application of coolant liquid to the wide surfaces, thus greatly enhancing the rate of solidification of the strip.

3,837,392
APPARATUS FOR CONTINUOUSLY CASTING STEEL SLABS

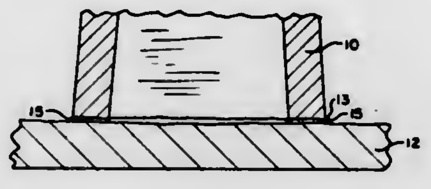
Irving Rossi, Dunros Farm, James St., Morristown, N.J. 07960
Division of Ser. No. 199,988, Nov. 18, 1971, Pat. No. 3,773,099. This application Apr. 11, 1973, Ser. No. 350,017
Int. Cl. B22d *11/12*
U.S. Cl. 164—282 **2 Claims**



Surfaces are reinforced against loads applied to one side by subjecting the opposite side to intense and continuous cooling to establish thermal stresses. This technique is applied in the continuous casting of slabs and billets by giving the slab and billet an initial concavity or at least restraining same from initial convexity and then subjecting its outer surface to the action of continuous and intense coolant sprays.

3,837,393
METHOD AND MEANS FOR SEALING INGOT CASTING MOLDS TO STOOLS

Albert L. McQuillen, Jr., Pittsburgh, Pa., assignor to 33 Hundred, Inc., Pittsburgh, Pa.
Filed May 16, 1973, Ser. No. 360,982
Int. Cl. B22d *33/04*
U.S. Cl. 164—342 **10 Claims**

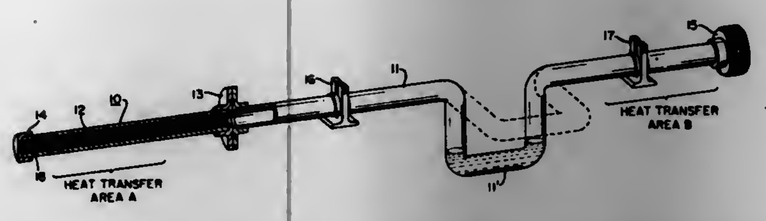


The joint or space between the open bottom mold and the supporting stool used for casting steel ingots is sealed by applying a sealing means which firmly adheres to the mold body and the stool magnetically.

3,837,394
THERMAL TRANSFER APPARATUS PROVIDING TRANSFER CONTROL

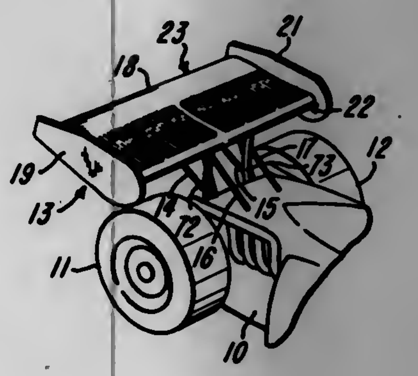
Charles Chester Roberts, Jr., Carol Stream, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Nov. 9, 1973, Ser. No. 414,506
Int. Cl. F28d *15/00*
U.S. Cl. 165—32 **5 Claims**

Heat pipe apparatus comprising a heat pipe having a first section having spiral fins extruded on its inner surface and a second section having a smooth bore interior. The pipe is sealed at each end after evacuation of all noncondensable gases and contains a vaporizable liquid as the medium for heat transfer. The second section of the pipe has a U-shaped portion which, when liquid filled, acts as a vapor or liquid trap when suspended vertically to prevent heat transfer in either direction. Since no capillary return of condensate is possible through the smooth bore section of the pipe when the trap is in an open position, unilateral heat transfer toward either end of the pipe is made possible.



3,837,395
WING SURFACE COOLER

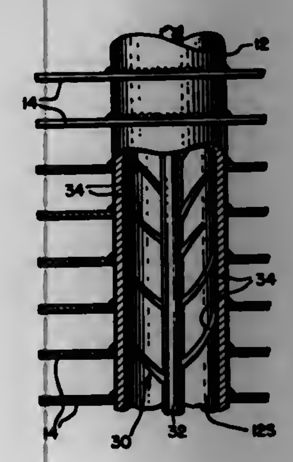
Anson S. Coolidge, Centerville, Ohio, assignor to United Aircraft Products, Inc., Dayton, Ohio
Filed Sept. 13, 1973, Ser. No. 396,702
Int. Cl. F24h *3/00*
U.S. Cl. 165—47 **5 Claims**



A vehicular wing structure which performs a usual functional purpose and which in addition incorporates surface cooler means carrying out a cooling function in conjunction with engine oil or other fluid excessively heated in operation of the vehicle.

3,837,396
VERTICAL SURFACE VAPOR CONDENSERS

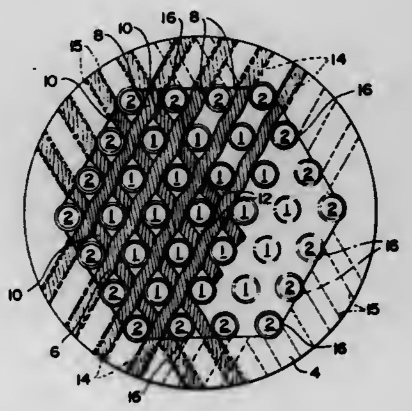
Alwin B. Newton, York, Pa., assignor to Borg-Warner Corporation, Chicago, Ill.
Continuation-in-part of Ser. No. 71,539, Sept. 11, 1970, abandoned. This application Oct. 4, 1972, Ser. No. 295,086
Int. Cl. F28b *9/08*
U.S. Cl. 165—111 **1 Claim**



Improvements in vertical tube or column type surface vapor condensers are disclosed comprising means positioned within the tubes engaging the inner tube walls for guiding condensate away from that primary condensing surface to remove condensate from the condensing surfaces to improve heat transfer. Three types of guide means are disclosed, a tree-like structure having a central trunk and a plurality of up-reaching and spreading wire branches which contact the tube interior wall and remove condensate capillary action as well as gravity; a second tree-like unit having U-shaped double branch contacters extending for a length along the tube wall for increased capillary action and a funnel type that includes a plurality of opening upward split-walled funnels which are affixed at spaced intervals along a central rod and have their outer edges engaging the tube interior walls.

3,837,397
TUBE BUNDLE ASSEMBLY

Michel J. Pettigrew, Deep River, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ontario, Canada
Filed Feb. 14, 1972, Ser. No. 226,161
Claims priority, application Canada, Mar. 19, 1971, 108225
Int. Cl. F28d *7/00*
U.S. Cl. 165—162 **9 Claims**

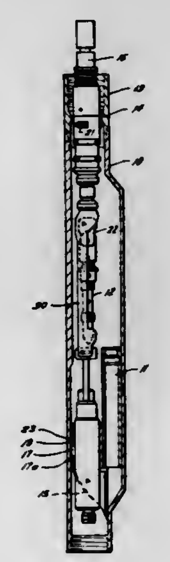


A tube bundle assembly, for example, a heat exchanger tube bundle or a nuclear fuel element tube bundle, comprises a bundle of laterally spaced tubes, a frame around the outermost tubes, and a lattice of wire cables with their ends held against lateral displacement by the frame and the tubes in the lattice interstices.

The cables are deflected round a portion of each tube to space the tubes from one another, and the cables are preferably tensioned against the frame for this purpose.

3,837,398
KICKOVER TOOL

John H. Yonker, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.
Filed July 30, 1973, Ser. No. 384,103
Int. Cl. E21b *7/06*
U.S. Cl. 166—117.5 **5 Claims**

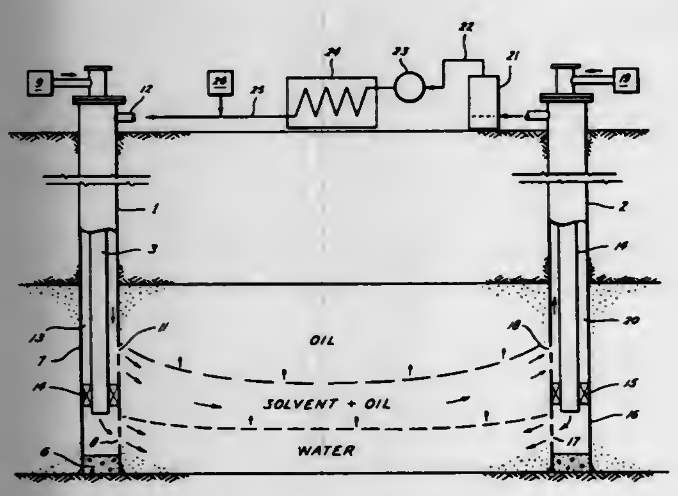


This patent discloses a kickover tool for landing or pulling tools such as gas lift valves from side pocket mandrels in which control of movement of the tool carrier from a running to a landing or pulling position is provided by a dog mandrel which engages a single shoulder within the tubing and is movable between multiple positions to provide the necessary control.

3,837,399
COMBINED MULTIPLE SOLVENT MISCIBLE FLOODING WATER INJECTION TECHNIQUE FOR USE IN PETROLEUM FORMATIONS

Joseph C. Allen, Bellaire; Jack F. Tate, and Jack H. Park, both of Houston, all of Tex., assignors to Texaco Inc., New York, N.Y.

Filed May 4, 1973, Ser. No. 357,412
Int. Cl. E21b *43/20*
U.S. Cl. 166—266 **19 Claims**

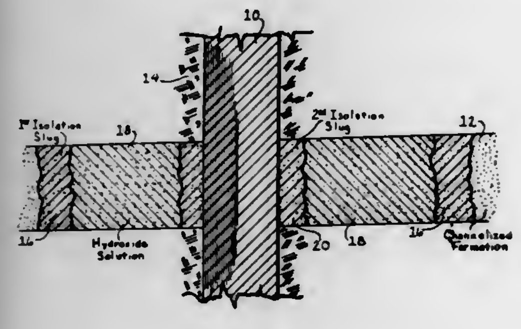


A petroleum recovery method employing a mixed solvent for use in subterranean petroleum-containing formations. The mixed solvent density is less than the density of water and greater than the density of the formation petroleum, and preferably has a boiling point less than the boiling point of the formation petroleum. Water is injected into the bottom of the petroleum formation and solvent is injected into the formation above the depth at which water is injected, and a mixture comprising solvent and petroleum is recovered from production wells. The solvent may be separated from the produced petroleum-solvent mixture by distillation and recondensation for reinjection into the formation. The rate of water injection is controlled to force the horizontally moving solvent bank slowly upward so as to sweep the entire formation.

3,837,400
SELECTIVE PLUGGING PROCESS

Waylan C. Martin, P.O. Box 1468, Monahans, Tex. 79756

Filed Dec. 15, 1972, Ser. No. 315,655
Int. Cl. E21b *33/138, 43/22*
U.S. Cl. 166—274 **4 Claims**

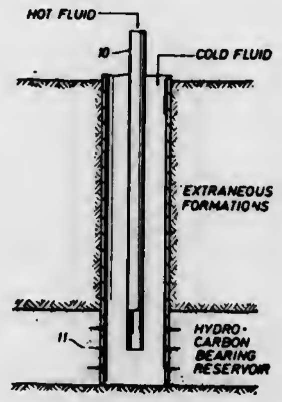


Channels in a water flood oil zone are plugged by injection of a hydroxide solution such as sodium hydroxide. The hydroxide solution is isolated from the magnesium bearing connate water in the vicinity of the wellbore by an isolating slug of low magnesium water.

3,837,401
HOT FLUID INJECTION INTO HYDROCARBON RESERVOIRS

Joseph C. Allen, and Yick-Mow Shum, both c/o Texaco, Inc., P.O. Box 425, Houston, Tex. 77401

Continuation-in-part of Ser. No. 229,927, Feb. 28, 1972, Pat. No. 3,774,684. This application July 12, 1973, Ser. No. 378,474
Int. Cl. E21b *43/24*
U.S. Cl. 166—303 **7 Claims**



Hot hydrocarbon solvent may be injected into a subterranean hydrocarbon reservoir with little heat loss through the casing walls on the way down to the injection zone by placing tubing inside the casing of an injection well and injecting a hot fluid or vapor into the tubing and a solvent fluid into the annulus between the tubing and casing.

3,837,402
PROCESS FOR REMOVING OIL FROM AROUND A WELLBORE

Carl Wayne Stringer, Sugarland, Tex., assignor to Radon Development Corporation, Houston, Tex.

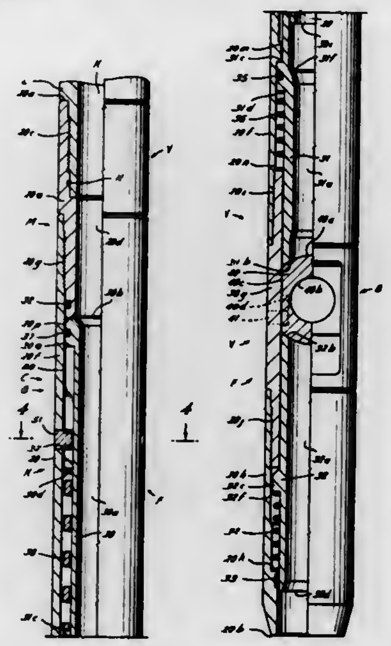
Filed Dec. 1, 1972, Ser. No. 311,131
Int. Cl. E21b *43/22, 43/24*
U.S. Cl. 166—303 **4 Claims**

Chemical combination of 1] the reaction of fatty acid with diethanolamine, and 2] ingredient to enhance such reactant's solubility in water, the combination then, on dilution being used to transfer, suspend or remove petroleum or its products.

3,837,403
ALTERNATING VALVE METHOD AND APPARATUS

James D. Mott, Houston, Tex., assignor to Hydril Company, Houston, Tex.

Filed Jan. 3, 1972, Ser. No. 215,030
Int. Cl. E21b *43/12*
U.S. Cl. 166—315 **30 Claims**



An alternating valve well tool and method relating thereto having a ball-type closure member which is rotatable between open and closed positions in response to the urging of a controlled sequence of preselected fluid pressure changes in the well for shutting in the well at a subsurface location when desired.

3,837,404
COMPOSITIONS FOR BINDING DUST IN COAL MINES

Heinz Buggisch, Saarbrucker Str. 5, Cologne-Ostheim, and Hans Lewer, Waldstrasse 32, 581 Witten-Annen, Germany

Continuation-in-part of Ser. No. 74,842, Sept. 23, 1970, abandoned, which is a continuation of Ser. No. 817,298, April 17, 1969, abandoned, which is a continuation of Ser. No. 581,681, Sept. 26, 1966, abandoned. This application May 11, 1973, Ser. No. 359,385

Claims priority, application Germany, Sept. 28, 1965, 36992

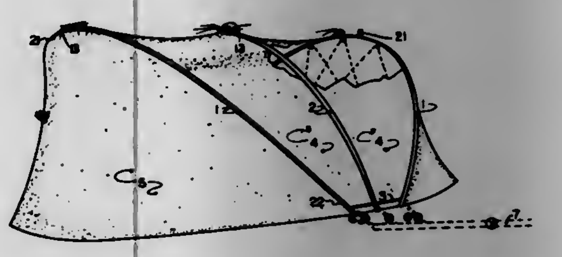
Int. Cl. A62c *3/00*
U.S. Cl. 169—45 **13 Claims**

The present invention relates to a composition for binding dust in coal mines comprising calcium chloride to compositions suitable for binding such coal dust and an improved method of binding coal dust in coal mines.

3,837,405
FIRE PROTECTION SYSTEM FOR ARCH SUPPORTED MEMBRANE STRUCTURES

Carl Frederick Huddle, Pleasant Ridge, Mich., assignor to Tension Structures Co., Pleasant Ridge, Mich.

Filed May 11, 1973, Ser. No. 359,549
Int. Cl. A62c *35/00*
U.S. Cl. 169—56 **11 Claims**



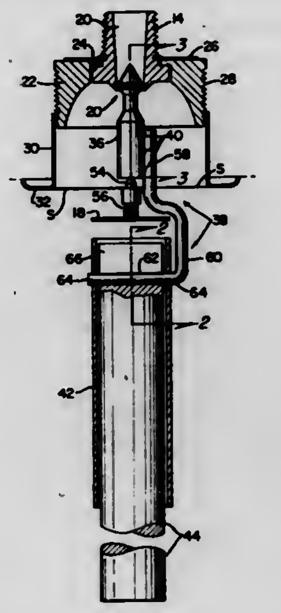
A fire protection system for an arch supported membrane structure comprising a plurality of hollow arches containing a cooling medium. The arches can be made water tight so that they can serve as water mains to supply a sprinkler or deluge system above or below the roof membrane.

3,837,406
SPRINKLER HEAD CLOSURE

Robert J. Straley, and Victor C. Muller, both of Monrovia, Calif., assignors to Fire Sprinkler Control Company, Monrovia, Calif.

Filed July 27, 1972, Ser. No. 275,809
Int. Cl. A62c *13/00*
U.S. Cl. 169—90 **8 Claims**

Apparatus and method for shutting off water flow through the nozzle outlet of a ceiling sprinkler lead, particularly of the flush type, in which lateral access to the space between the outlet and a spreader disposed therebelow is obstructed and the only access to such space is across a circular cross section disposed between the outlet and spreader, characterized by a gooseneck member having a nozzle closure affixed to the upper end thereof, its lower end being affixed to a handle adapted to be removably attached to a pole, the gooseneck being so shaped to permit the closure and gooseneck to be inserted across said space without interference with the sprinkler head, an intermediate portion of the gooseneck adapted to clear the periphery of the spreader when the nozzle closure is disposed in axial alignment with the nozzle outlet.

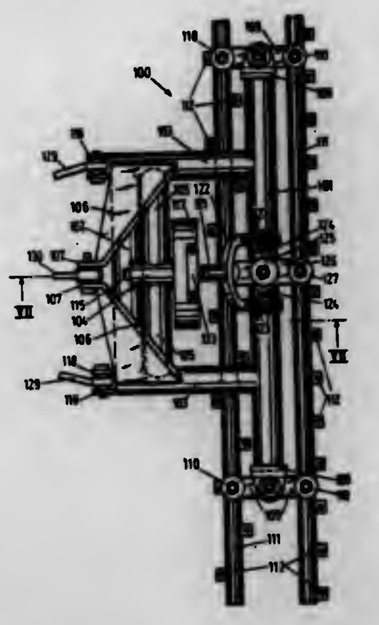


The spreader may be supported by the head by a rigid yoke or flexibly supported by chains or the like but regardless of its manner of support an abutment is provided for preventing the closure from moving away from sealing engagement with the nozzle.

3,837,407
OSCILLATING AGRICULTURAL IMPLEMENT

Cornelis Jan de Koning, and Pieter Adriaan Oosterling, both of Nieuw-Vennep, Netherlands, assignors to H. Vissers N.V., Nieuw-Vennep, Netherlands

Filed Feb. 4, 1972, Ser. No. 223,644
Int. Cl. A01b *35/00*
U.S. Cl. 172—40 **8 Claims**



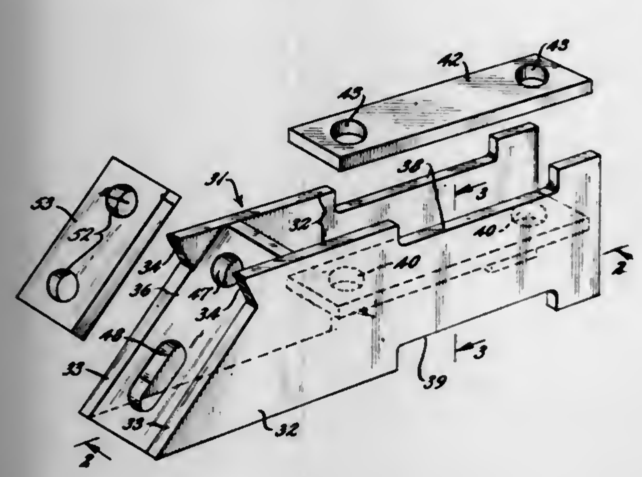
Improvement of an agricultural implement, e.g., fertilizer spreader or harrow, at least comprising a frame to be attached to a vehicle, e.g., agricultural tractor, at least one tool, e.g., spreading nozzle or harrow beam, carried by the frame and oscillatingly moving with respect to the frame, and a driving element rotating about an axis of rotation and driving the tool via a fork, wherein a stalk of the fork is beared rotatably in the driving element outside the axis of rotation and wherein teeth of the fork are beared hingeably about a hinge axis to the tool. For facilitating, assembling and dismantling of the fork in the driving element the fork is beared in a bearing bush removably attached to the driving element and the driving element comprises a recess for letting through the stalk of the fork with removed bearing bush, said fork hinging about the hinge axis.

3,837,408
TOOL BAR MOUNTING CLAMP

Edgar E. Green, Shelbyville, Tex., assignor to Paul Abbott Co., Inc., Blytheville, Ark.

Continuation of Ser. No. 114,653, Feb. 11, 1971, abandoned.
This application May 22, 1973, Ser. No. 362,723
Int. Cl. A01b *15/00*

U.S. Cl. 172—702 **6 Claims**



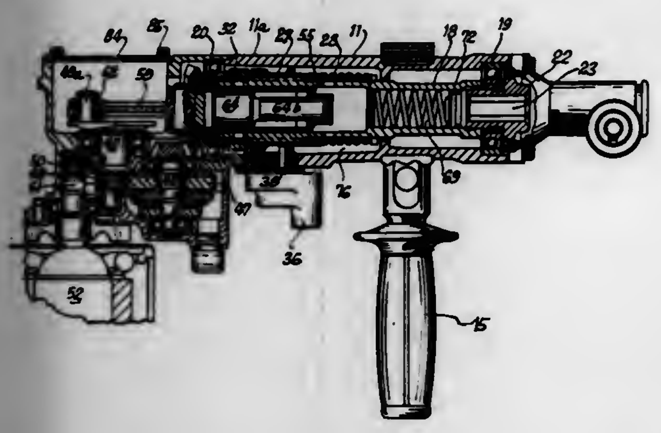
Apparatus adjustably and reversibly mounted on a frame carried by a propelling vehicle and adapted to support a tool bar in a plurality of vertically spaced positions to accommodate a wide variety of implements with minimum movement of the frame.

3,837,409
ROTARY HAMMER POWER TOOL

Frank J. Consoli, Des Plaines; Peter G. Rebechini, Aurora, and Hanspeter E. Beisch, Buffalo Grove, all of Ill., assignors to Skil Corporation, Chicago, Ill.

Filed Feb. 26, 1973, Ser. No. 335,933
Int. Cl. B25d *11/00*

U.S. Cl. 173—48 **3 Claims**



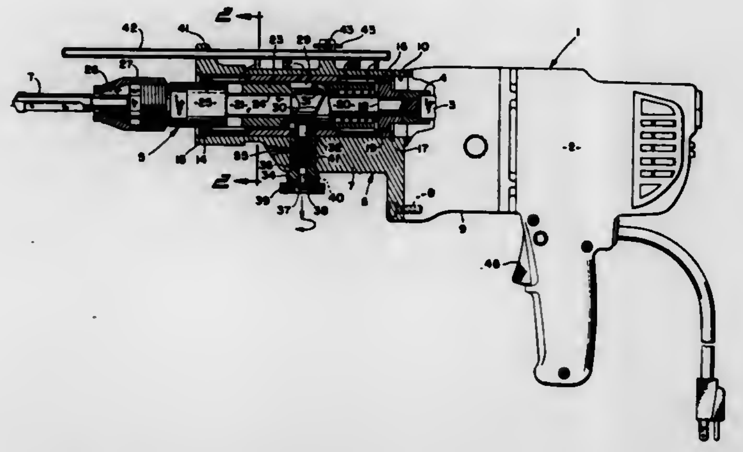
A gear type drive train from the motor rotates a barrel, the latter having a drive formation in one end thereof configured to impart rotation to the shank of a tool element received therein. The gear train reciprocates a cylinder simultaneously with rotation of the barrel, which cylinder is reciprocally mounted within the barrel. A hammer is freely mounted within the cylinder and is pneumatically reciprocated for imparting hammering blows to a tappet mounted in the barrel between the hammer and the distal end of the tool element thereby in turn to impart hammering blows to the latter. A spring biases the tappet against the tool shank thereby to prevent flutter of the former. The rotary drive to the barrel may be selectively disconnected by a manually operated mechanism. A wall of the tool housing cooperates with the barrel to define an annular chamber for receiving a supply of grease; apertures are provided in the barrel and in the sleeve thereby permitting the grease to enter the barrel as well as the sleeve for lubricating the latter and the hammer.

3,837,410
ROTARY IMPACT DRILL

Richard D. Maxwell, 26800 Lake Rd., Bay Village, Ohio 44140

Filed May 23, 1973, Ser. No. 362,944
Int. Cl. B25d *9/00*

U.S. Cl. 173—109 **2 Claims**



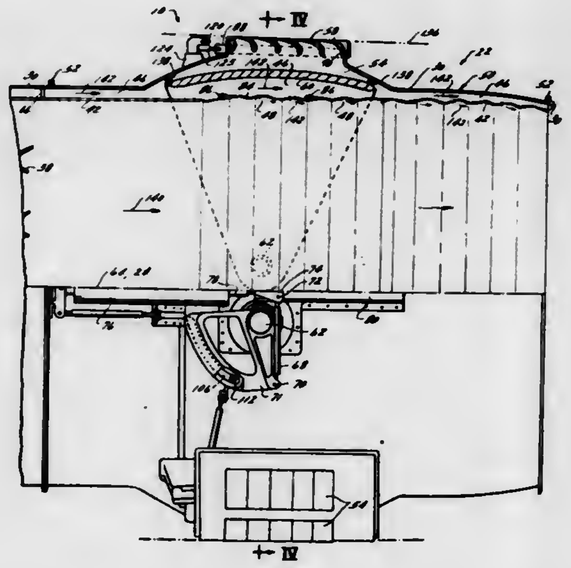
A rotary impact drill includes spaced-apart front and rear bearings in which a hammer is rotatably and axially reciprocably supported for working against an anvil which is also supported in the same front bearing as the hammer. A coupling member is secured to the rear end of the shaft portion of the anvil for coupling to a power-driven drive shaft, and such coupling member also secures an axial thrust bearing to such shaft portion, with such thrust bearing being located between the rear bearing and a retainer. A spring is compressed between the hammer and the thrust bearing for normally biasing the hammer toward the anvil. A cam on the drill cooperates with a cam follower on the housing for reciprocating the hammer toward and away from the anvil in cooperation with the spring.

3,837,411
DIVERTER VALVE FOR A GAS TURBINE WITH AN AUGMENTER

Dudley O. Nash, Cincinnati; Charles S. Lyons, West Chester, and Ronald C. Hollett, Cincinnati, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Nov. 21, 1973, Ser. No. 417,954
Int. Cl. B64c *15/06*

U.S. Cl. 137—610 **11 Claims**



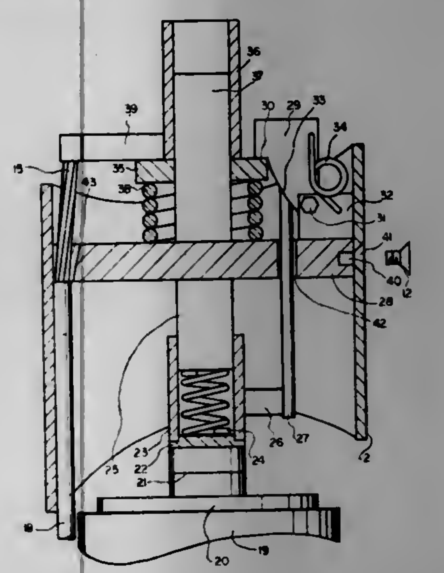
A gas turbine having an augmenter has an exhaust duct and a cooling liner fixed interiorly of the exhaust duct to define an annular space, with portions of both the duct wall and liner wall removed to form openings. A pair of blocker doors are mounted to the duct wall for rotation between a stowed position and an operative position. When the blocker doors are in their stowed position, they replace the removed portions of the duct wall, and an axially translatable liner section replaces the removed portion of the liner wall. When the blocker doors are rotated to their operative position, the liner section is simultaneously translated into telescoping relation with the liner to expose the opening in the liner wall.

3,837,412
DOWNHOLE ELECTRICAL CORE DRILLING SYSTEM

W. B. Driver, 19 Sheridan Rd., Arnold, Md. 21012

Filed Dec. 6, 1972, Ser. No. 312,629
Int. Cl. E21b *3/10, 9/20, 25/00*

U.S. Cl. 175—104 **7 Claims**



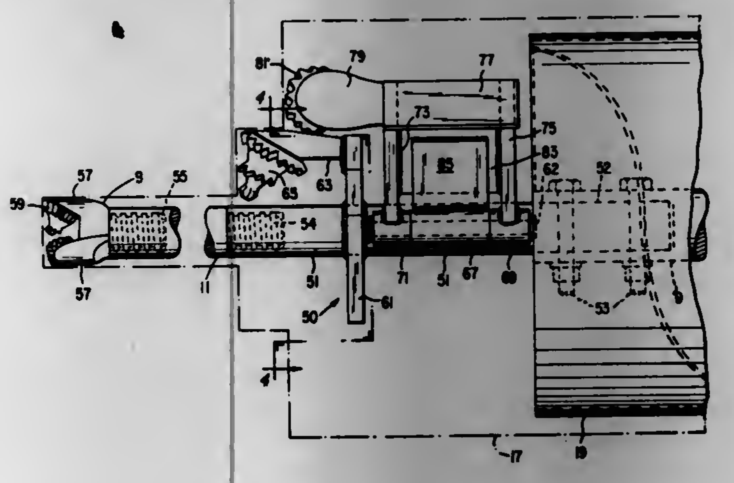
According to the invention a downhole electrical core drilling system that is lowered into a well hole by an electrical cable to drill a core sample or to drill a well hole. The system consists of a core bit, core barrel and a reduction transmission powered by an electric motor, which is attached to the downhole end of a drill collar, which has its up hole end attached to the electrical cable, which is used to raise and lower the system in a well hole and provide electrical power to the system. The core barrel contains a mechanism, which when activated by a drilled core, cuts the drilled core from the formation from which it was drilled, and holds the drilled core in the core barrel while the system is hoisted to the top of a well hole.

3,837,413
BORING METHOD AND IMPROVED BORING HEAD

Richard P. Dunn, Wichita Falls, Tex., assignor to International Boring Systems Co., Inc., Wichita Falls, Tex.

Filed July 18, 1973, Ser. No. 380,409
Int. Cl. E21b *9/28, 9/32*

U.S. Cl. 175—292 **6 Claims**



A horizontal boring method comprises the steps of boring a small diameter pilot hole, thereafter removing the small diameter bit, then boring the final diameter of the bore hole by advancing a boring bit having a lead-off bar guided within and by said pilot hole, simultaneously advancing a cylindrical casing immediately behind said bit, introducing a liquid into the end of the casing to slurry the cuttings and finally, when the boring step is completed, removing the bit through the casing and cleaning the thus installed casing.

A roller bit is provided which is comprised of a pilot bit mounted on a lead-off bar which is attached to the final boring bit having roller overcutters which are retractable to permit removal of the assembly back through the casing when the casing has been completely installed.

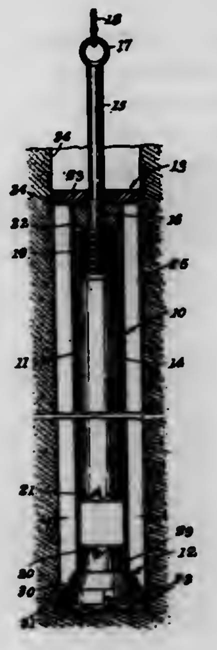
The method and apparatus has particular utility in horizontal boring such as when installing drain pipe, utility mains, etc., under pre-exisiting paved areas and the like.

3,837,414
JAR-TYPE DRILLING TOOL

Kenneth C. Swindle, 8716 Burton St., Bellflower, Calif. 90706

Filed Aug. 1, 1973, Ser. No. 384,727
Int. Cl. E21b *5/00*

U.S. Cl. 175—299 **5 Claims**



A drilling tool that, by means of repeated jarring or percussive forces produced by a cable-hung weight, causes a tool bit to chip away at the bottom of a hole. The bit is affixed to the lower end of a tubular casing in which the weight moves, a reamer being affixed to the upper end of said casing to smooth the wall of the hole that is produced by the tool. The force of the weight may be increased by an expansion spring between the weight and a top fitting closing said casing, said fitting and reamer being fixedly connected.

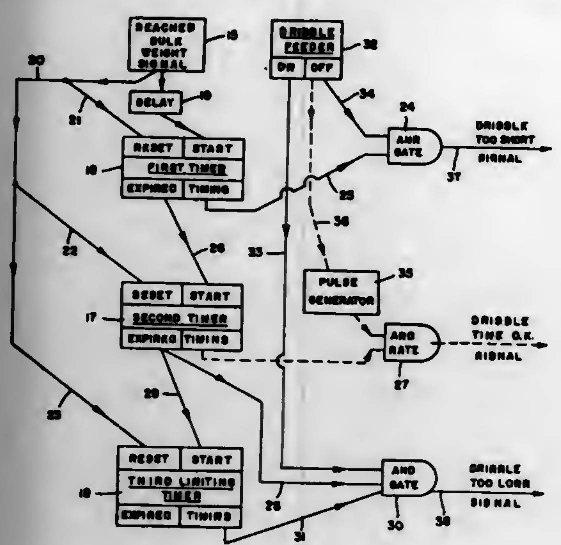
3,837,415
BULK WEIGHT SERVO CONTROL FOR PACKAGING MACHINES

Robert H. Connors, Chicago, and King L. Klopfenstein, Prospect Heights, both of Ill., assignors to Triangle Package Machinery Company, Chicago, Ill.

Filed June 18, 1973, Ser. No. 370,701
Int. Cl. G01g *13/02*

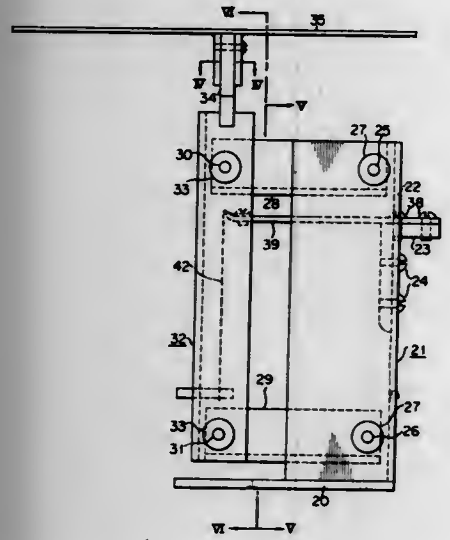
U.S. Cl. 177—123 **16 Claims**

A bulk weight servo control for automatically adjusting the bulk weight setting in the net weighing system of a packaging machine is disclosed, wherein corrective adjustment of an improper or erroneous bulk weight setting is made, in response to a detecting means which detects the fact that the bulk weight setting is in error. The detecting means may take any one of several forms. Preferably, the corrective adjustment may be made in response to the duration of the dribble feed, although it may also be made in response to a check weighing operation or to the time it takes to reach the bulk weight setting.



3,837,416
BALANCE USING A BEAM TYPE LOAD CELL

Yoshiyuki Nozaki, Ichikawa, Japan, assignor to Mitsubishi Seiko Kabushiki Kaisha, Tokyo, Japan
Filed May 25, 1973, Ser. No. 363,822
Claims priority, application Japan, July 14, 1972, 47-69938; July 14, 1972, 47-82505
Int. Cl. G01g *23/32*
U.S. Cl. 177—196 **6 Claims**

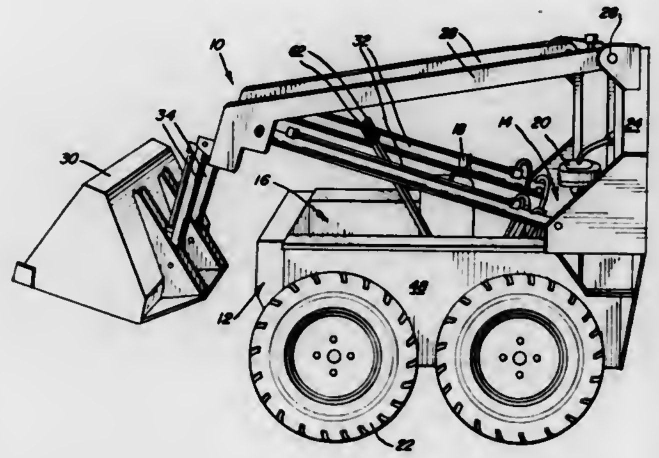


In a balance using a beam type load cell a load to be weighed is applied to the knife edge of the load cell through the wires which are each fixedly secured at one end to the load cell inwardly of and near the knife edge so that their main portions hang below the knife edge and extend across it.

3,837,417
CONTROL MEANS FOR FLUID TRANSLATING DEVICE

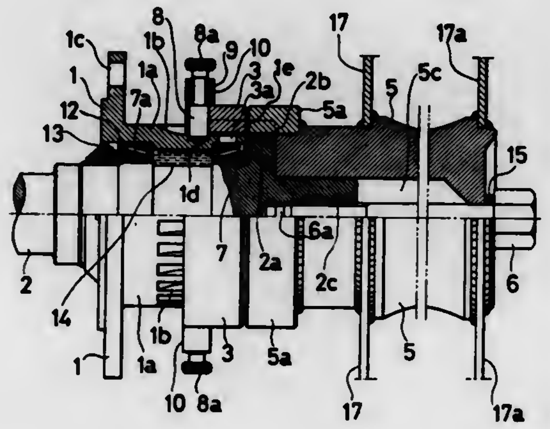
William E. Little, Mediapolis, Iowa, assignor to J. T, Case Company, Racine, Wis.
Filed Jan. 23, 1973, Ser. No. 326,032
Int. Cl. B62d *11/04*
U.S. Cl. 180—6.48 **1 Claim**

The present invention relates to a control means for actuating a fluid translating device in opposite directions from a neutral position and automatically returning the translating device to the neutral position when the actuating force is released. The control means includes a control lever connected to the translating device through linkage means which incorporates a rigid link having two spaced fixed restraining means. A pair of spaced abutments are carried by the link between the restraining means and are axially movable on the link. A pair of fixed stops are positioned at axially spaced locations adjacent the link with biasing means between the abutments for urging the abutments into engagement with the stops to define the neutral position for the translating device. Actuation of the translating device will cause one of the restraining means to move the associated abutment away from the fixed stop and compress the biasing means. The biasing means will therefore automatically move the translating device to the neutral position when the actuating force is released.



3,837,418
WINCH UTILIZING AN AXLE OF AN AUTOMOBILE

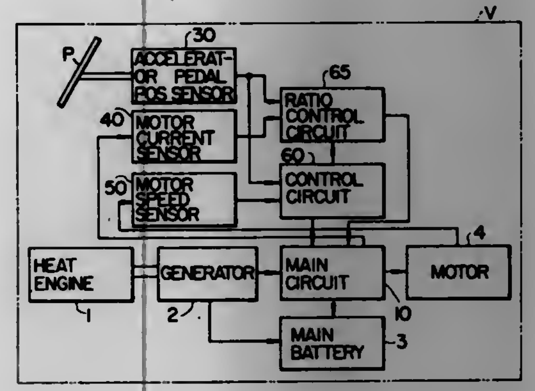
Yasukazu Kawashiro, Ichikawa, Chiba Prefecture, Japan, assignor to Denki Kogyo Company Limited, Tokyo, Japan
Filed Aug. 7, 1972, Ser. No. 278,403
Int. Cl. B60k *25/08*
U.S. Cl. 180—53 WA **3 Claims**



A winch utilizing an axle of an automobile comprising an axle formed with splines, a hub securely mounted on the axle, a coupling ring internally splined to mesh with either or both the splines formed on the axle and hub so as to effect engagement and disengagement of the axle and hub, and a drum formed with internal splines adapted to engage with the splines of said axle so as to engage with or disengage from said axle.

3,837,419
HYBRID ELECTRIC POWER VEHICLE

Kazumasa Nakamura, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan
Filed May 9, 1973, Ser. No. 358,512
Claims priority, application Japan, May 16, 1972, 47-47728
Int. Cl. B60l *11/12*
U.S. Cl. 180—65 R **12 Claims**



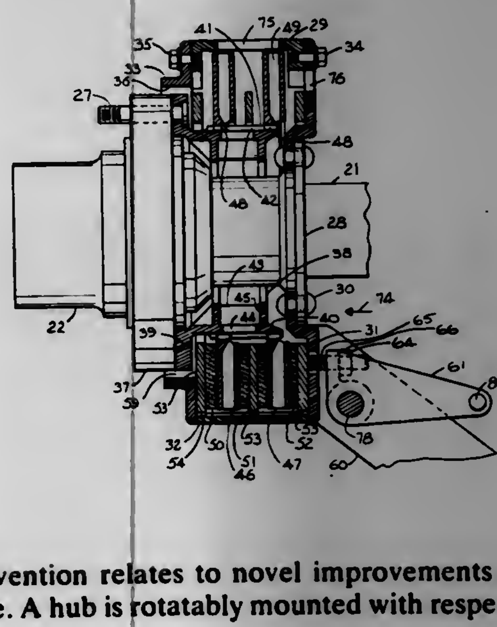
In the hybrid electric power vehicle disclosed, a generator driven by a heat engine turns a motor which moves the vehicle. A main circuit controls the motor with power from the generator. The main circuit includes a first thyristor or relay contact for connecting the main circuit and the battery in series with each other or in parallel with each other and a commutation circuit that operates as a chopper. A second thyristor provides the energy from the generator to the motor in the form of pulses. A switch-over circuit opens the relay contact on the basis of the relationship between the degree to which the accelerator pedal is depressed and the motor speed so as to connect the main battery and the generator in series. An output ratio control circuit turns the two thyristors on so that the generator and main battery outputs are supplied to the motor together. The output of the battery is varied by the first thyristor in response to the degree to which the accelerator pedal is depressed.

ERRATUM

For Class 181—131 see:
Patent No. 3,837,681

3,837,420
VEHICLE DISK BRAKE

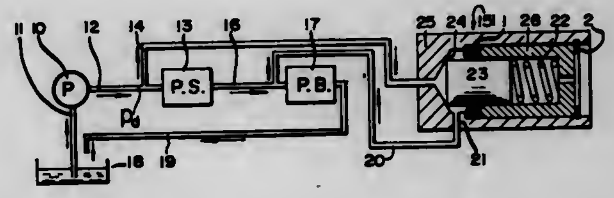
Jack R. Kobelt, 235 E. 5th Ave., Vancouver 10, B.C., Canada
Filed Mar. 22, 1973, Ser. No. 343,782
Int. Cl. F16d *65/84*
U.S. Cl. 188—71.6 **2 Claims**



This invention relates to novel improvements in a vehicle disk brake. A hub is rotatably mounted with respect to an axel. A brake disk guide is secured to the hub and a brake shoe guide is secured to the axel. At least one disk is slidably mounted on the disk guide and a plurality of brake shoes are slidably mounted in the brake shoe guide. Mounted external to the disk-shoe assembly is an actuation system of levers and linear actuators. The disk is ventilated and the disk guide is finned to provide a fan action to enhance heat dissipation. The brake shoes are split to permit replacement without removing the hub portion from the axel portion, and shaped to enhance air circulation in the disk brake assembly.

3,837,421
PRESSURE PRIORITY VALVE FOR A POWER STEERING AND BRAKE SYSTEM

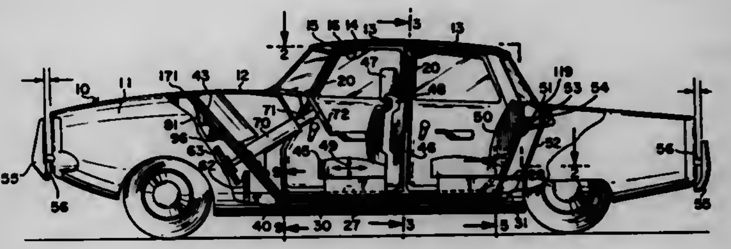
Benjamin Ron, 10 Sanhedrin St., Tel Aviv, Israel
Filed Dec. 2, 1971, Ser. No. 204,286
Int. Cl. B62d *5/06*
U.S. Cl. 180—79.2 R **8 Claims**



A hydraulic circuit comprising a power steering and a power brake, both being hydraulically connected in series to a primary pump, and a pressure priority valve for reducing the relief pressure across the power steering gear in order to prevent the back pressure imposed on the primary pump from exceeding a certain maximum pressure.

3,837,422
SAFETY VEHICLE

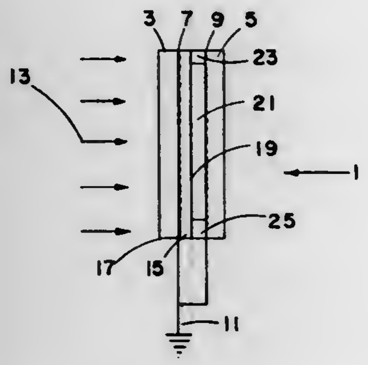
Samuel L. Schlanger, 2600 N. Flagler Dr., Apt. 907, West Palm Beach, Fla.
Filed Nov. 13, 1972, Ser. No. 306,268
Int. Cl. B62d *39/00*
U.S. Cl. 180—91 **21 Claims**



A safety vehicle for passengers, including a vehicle body, a passenger compartment movable on the vehicle body, and pivotable safety nets mounted on the ceiling of the passenger compartment for disposal in front of the passengers in the vehicle in response to the impact of a collision. A pair of elongated, linearly perforated tracks are mounted on the vehicle body, and receive at least one pair of sprocket wheels, rotatably mounted at the rearward end of the passenger compartment. The sprocket wheels engage the perforated tracks and guide the passenger compartment therealong. Guide wheels are rotatably mounted on the front end of the passenger compartment and are disposed in upwardly inclined guide tracks mounted on the vehicle body in front of the passenger compartment. Slidable bumpers engaged during a collision activate a mechanical linkage which releases the passenger compartment so that it is movable on the guide tracks, collapses the steering column of the passenger compartment, and deploying safety nets, inflatable bags, or a combination of both, in front of the passengers of the vehicle to prevent injury to them. The vehicle also includes a safety front passanger seat having a crash barrier which is rigidly affixed to the passenger compartment, and a mechanical linkage for applying the brakes of the vehicle automatically at impact. The movable passenger compartment maintains the momentum of the passengers riding therein until obstructions in the passenger compartment have been removed and safety restraining devices have been activated.

3,837,423
ACOUSTIC EXCITED LIQUID CRYSTAL IMAGE DETECTOR SYSTEM

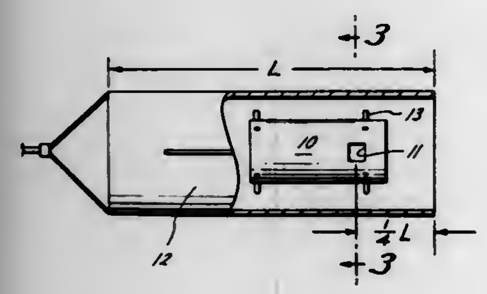
Hugh Mailer, Columbus, Ohio, assignor to The Ohio State University Research Foundation, Columbus, Ohio
Filed Oct. 29, 1970, Ser. No. 85,159
Int. Cl. G02f *1/34*; G01n *21/00*
U.S. Cl. 181—5 AP **7 Claims**



An image detector system for patterned acoustic energy is set forth based upon a liquid crystal cell including a sandwiched layer of nematic liquid crystal material. Sound transducing means at said cell transduce said acoustic energy into corresponding electric field variations across said crystal layer, to effect a light scattering pattern in accordance with the sound pattern.

3,837,424
HIGHLY PENETRATING SEISMIC ENERGY SOUND GENERATOR WITH PULSE SHAPING FOR OFFSHORE SUBSURFACE EXPLORATION

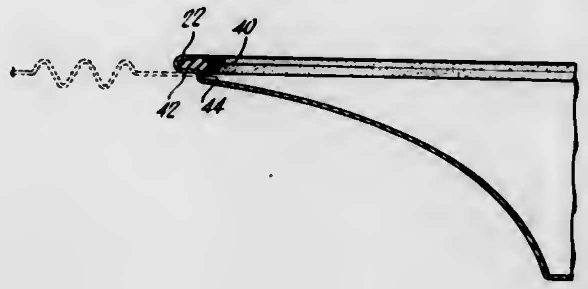
Oswald A. Itria, Bellaire, Tex., assignor to Texaco Inc., New York, N.Y.
Filed Jan. 26, 1972, Ser. No. 220,941
Int. Cl. G01v *1/38*
U.S. Cl. 181—0.5 H **13 Claims**



A method of increasing the useful seismic energy in a generated primary pulse and at least one article for carrying out the method is disclosed. The article comprises a pneumatic sound generator, as an air gun for generating a primary seismic pulse and an openended elongated cylinder surrounding the air gun and having an end opening are nearest the air gun exhaust ports greater than the area of said ports for shaping the primary pulse so that its dominate frequency will be lowered, placing more of the energy in the useful seismic frequency range, resulting in greater penetration of the seismic signal within the sedimentary section.

3,837,425
EDGE-DAMPED DIAPHRAGM FOR ELECTRODYNAMIC LOUDSPEAKERS

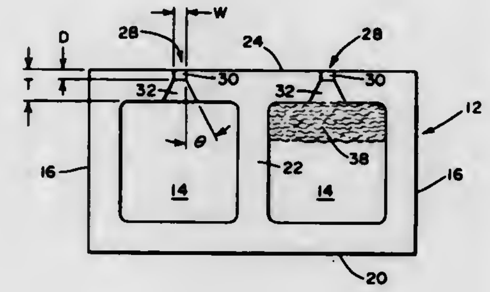
Rudolph T. Bozak, Darien, Conn., assignor to Bozak, Inc., Darien, Conn.
Filed June 11, 1973, Ser. No. 368,977
Int. Cl. G10k *13/00*; H04r *7/00*
U.S. Cl. 181—32 R **5 Claims**



A diaphragm having a damping member formed of soft rubber compressed and retained at its outer periphery by a crimped flange to damp undesirable vibrations in the diaphragm.

3,837,426
SOUND ABSORBING STRUCTURAL BLOCK

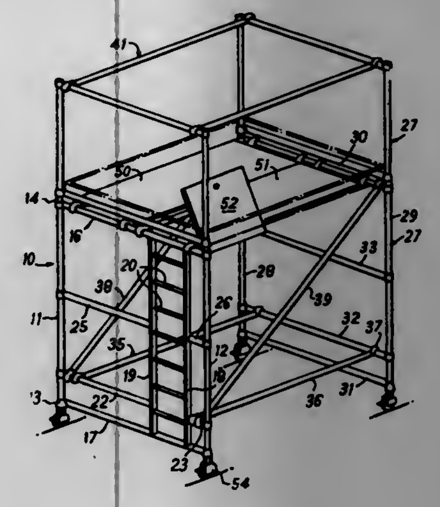
Klaus Kleinschmidt, Lexington, Mass., assignor to Miguel C. Junger, Belmont, Mass.
Filed Jan. 4, 1974, Ser. No. 430,765
Int. Cl. E04b *1/84*
U.S. Cl. 181—33 G **9 Claims**



A sound absorbing block of molded structural material has a cavity that communicates with a region containing the sound to be suppressed through an elongated slot whose width decreases between the cavity and a section of constant width adjacent to the exterior surface of the block. Sound energy is dissipated by the air turbulence in the slot, particularly at the narrowest section, and within the cavity by multiple reflections. The inwardly flared structure of the slot achieves a significant increase in absorption in the mid to high frequency range as compared to conventional constant-width apertures having the same width, while being easier to manufacture and having fewer molding rejects than slots having an outwardly flared configuration.

3,837,427
BUILDERS' STAGING

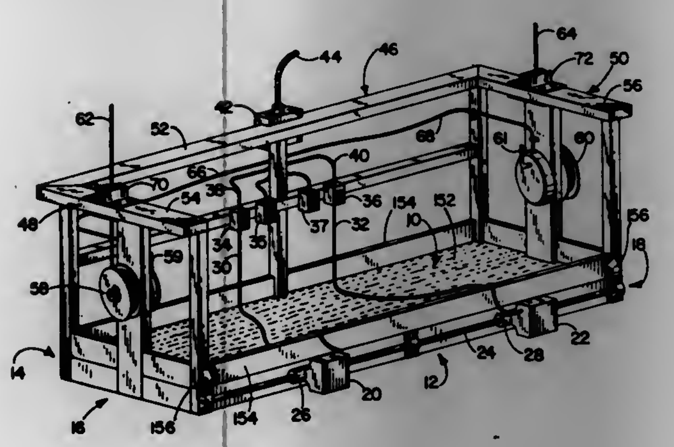
Frederick Mattinson, Andover, England, assignor to Martin-Thomas, Ltd., Andover, England
Filed May 4, 1973, Ser. No. 357,103
Claims priority, application Great Britain, May 12, 1972, 22518/72
Int. Cl. E04g *1/14*
U.S. Cl. 182—115 **5 Claims**



The invention provides a frame type staging for builders having at least one end frame which incorporates a vertical ladder located nearer to one side than the other and provided with anchor rails between the ladder stiles and the frame uprights, which anchor rails can carry struts or other parts.

3,837,428
SAFETY SCAFFOLD WITH ELECTROMAGNETS

Leonard W. Gish, Rt. 1, Mountain Iron, Minn. 55768
Filed June 27, 1973, Ser. No. 374,254
Int. Cl. E04g *3/10, 5/04*
U.S. Cl. 182—129 **4 Claims**

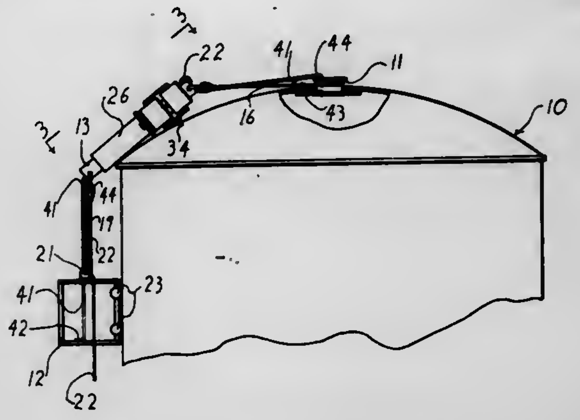


A safety scaffold with electromagnets for holding the scaffold securely to the building under construction.

3,837,429
TRAVELING SCAFFOLD

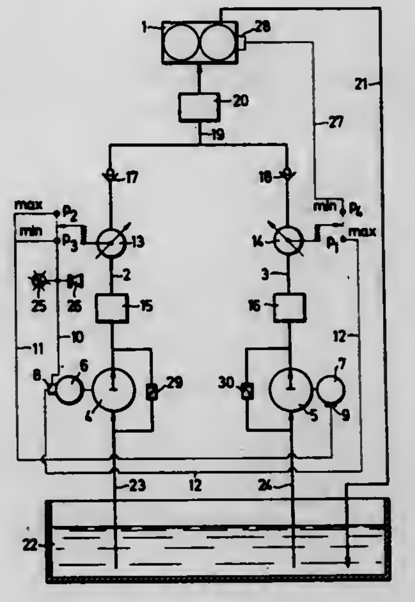
Robert M. Harris, 1012 Fulton Ave., S.W., Birmingham, Ala. 35211
Filed Aug. 3, 1973, Ser. No. 385,535
Int. Cl. E04g *3/10, 3/12*
U.S. Cl. 182—37 **10 Claims**

An elongated power driven roller unit is mounted on an elongated tubular member and is adapted to roll around an elevated structure having a round upper portion. Flexible lines are connected to opposite ends of the tubular member with the lowermost line connected to a work scaffold and the uppermost line connected to anchor means adjacent the top of the elevated structure. Other flexible support lines extend longitudinally through the tubular member with the upper ends thereof connected to the anchor means.



3,837,430
METHOD FOR THE MAINTENANCE OF THE OIL PRESSURE IN A CIRCULATION LUBRICATION SYSTEM FOR HIGHLY LOADED JOURNAL BEARINGS

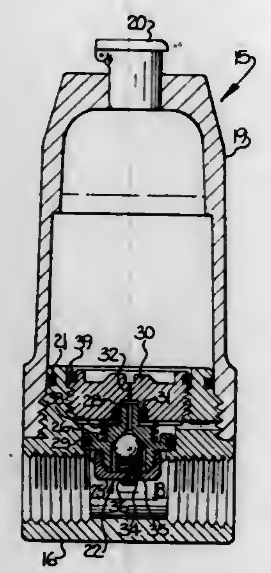
Hanns Decker, and Heinz Hurtmanns, both of Cologne, Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Koln, Germany
Filed Sept. 21, 1972, Ser. No. 290,992
Claims priority, application Germany, Sept. 23, 1971, 2147557
Int. Cl. F16n *29/02*
U.S. Cl. 184—1 E **7 Claims**



For the maintenance of the oil pressure in a circulation lubrication system for heavy duty friction bearings in large crushing machines a motor-driven main pump and a motor-driven auxiliary pump are used, with pressure responsive regulators arranged in the pressure lines of these pumps. Electric circuits are used which are controlled by said regulators in such a manner that the main oil pump is put into operation only after the auxiliary oil pump has produced a predetermined minimum oil pressure in said lubricating system, while the auxiliary oil pump is subsequently disconnected by the said electric circuit means when the main oil pump has raised the oil pressure in said lubricating system to the desired higher operating pressure.

3,837,431
PULSED METERING LUBRICATOR

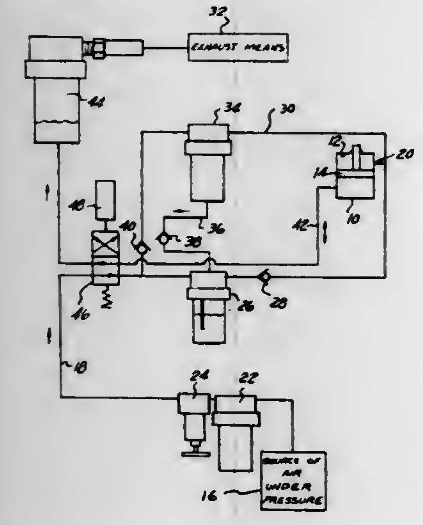
Ronny G. Freize, Gastonia, N.C., and George R. Ferguson, Clover, S.C., assignors to G. W. Murphy Industries, Inc., Houston, Tex.
Filed Sept. 11, 1972, Ser. No. 287,707
Int. Cl. F16n *7/30*
U.S. Cl. 184—7 D **1 Claim**



A cyclically operated pressure fluid actuated device is lubricated by an apparatus which dispenses measured quantities of lubricant into a pressure fluid conduit supplying the device on each increase in pressure in the conduit.

3,837,432
LUBRICATION SYSTEM FOR PNEUMATIC DEVICE

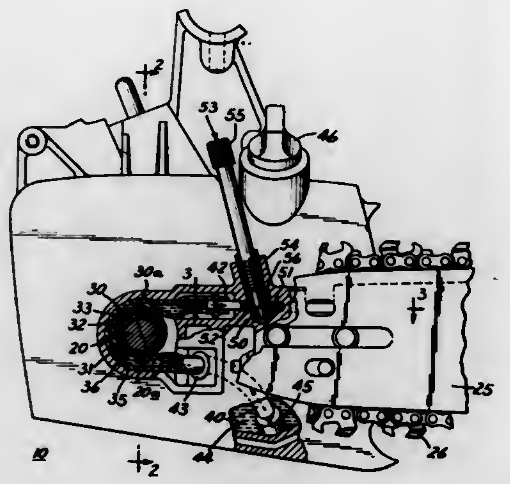
Lorne J. McKendrick, 5131 Surfwood Dr., Milford, Mich. 48042
Filed Feb. 26, 1973, Ser. No. 335,508
Int. Cl. F16n *7/30*
U.S. Cl. 184—7 D **11 Claims**



A pneumatic cylinder is actuated by an air supply system having means for introducing a mist of lubricating oil into the input air being delivered to the cylinder, and means for filtering the output air being exhausted from the cylinder to recover and recirculate the lubricant into the input air.

3,837,433
LUBRICATING SYSTEM FOR CHAIN SAW

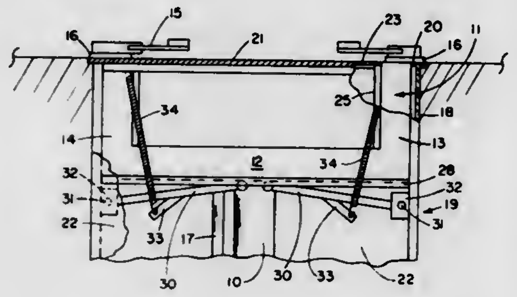
Roscoe Combs, Jr., Kankakee, and Richard W. Condon, Frankfort, both of Ill., assignors to Roper Corporation, Kankakee, Ill.
Filed Mar. 5, 1973, Ser. No. 338,071
Int. Cl. F16n *7/16, 7/24, 13/22*
U.S. Cl. 184—15 R **1 Claim**



A lubricating system for a chain saw which includes a circular single-lobed cam on the sprocket drive shaft surrounded by an anti-friction bearing. The outer race of the bearing engages a C-shaped loop of flexible tubing progressively to produce peristaltic action between the input end of the tubing which is connected to an oil reservoir and the output end which leads to the chain. The output has an adjustable restriction in the form of a throttling valve and an associated bypass line which shunts most of the oil back into the reservoir. The loop of tubing extends about the shaft substantially less than a full revolution and the eccentricity is limited so that the tubing is continuously open throughout its length during at least a portion of each revolution of the drive shaft for impositive pumping of the oil against the restriction for achieving an extremely low but reliable flow rate.

3,837,434
DOOR STRUCTURE FOR RECESSED AUTO LIFT

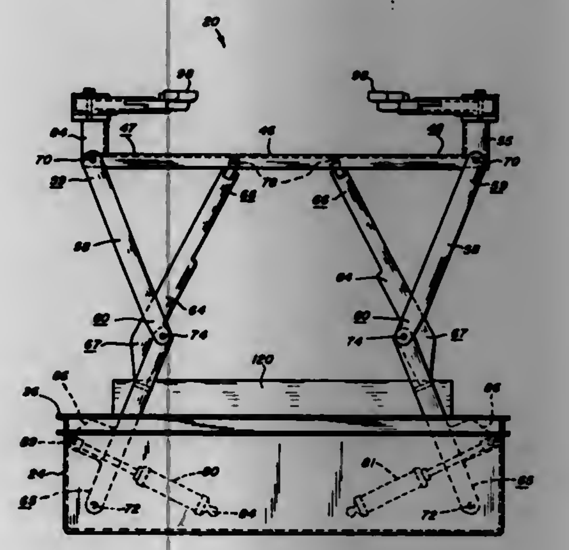
Jesse E. Clarke, Hinsdale, Ill., assignor to Autoquip Corporation, Chicago, Ill.
Continuation of Ser. No. 98,737, Dec. 16, 1970. This application July 3, 1972, Ser. No. 268,798
Int. Cl. B66f *7/00*
U.S. Cl. 187—8.62 **7 Claims**



A vehicle lift has a hydraulic cylinder and a U-shaped bolster, both of which are retracted in the floor when the lift is in the lowered position. A first door, positioned within the area defined by the bolster, rests on the floor when the bolster is in the lowered position and is picked up by the bolster when the vehicle is lifted. A second door is positioned about the ram below the bolster and rides on four pivoted arms. Springs connected to the arms supply force for raising the arms and the second door as the vehicle is raised. As the second door approaches the floor level, the arms pivot across vertical and are blocked from further pivotal movement in that direction so that they become rigid posts to support the second door at the floor level. Cams on the bolster operatively engage the arms as the bolster descends so as to pivot the arms back across the vertical position and allow them to descend as the bolster presses downwardly on the second door.

3,837,435
VEHICLE LIFT

James J. Pelouch, 7041 Hilton Rd., Brecksville, Ohio 44141
Filed Jan. 10, 1973, Ser. No. 322,536
Int. Cl. B66f *7/08*
U.S. Cl. 187—8.72 **7 Claims**

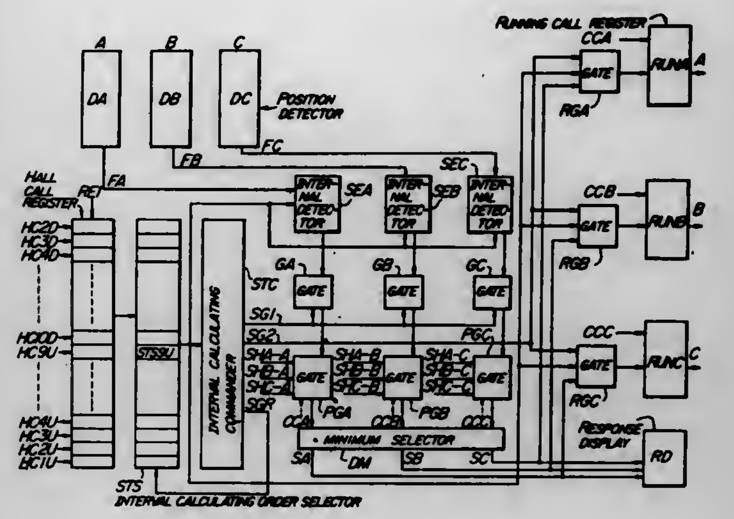


The present disclosure relates to a vehicle lift which includes in combination a lifting beam having first and second end portions. Vehicle engaging and lifting means are connected to each of the first and second end portions of the lifting beam. A support frame having first and second end portions is also provided. First connecting links are located at each of the end portions of the beam and each has first and second portions. Second connecting links are also provided each of which has first and second end portions and an intermediate portion therebetween. The first end portions of the first connecting links are pivotally connected to the first and second end portions of the beam, respectively, and the first end portions of the second connecting links are pivotally connected to the first and second end portions of the support frame, respectively. The second end portions of the first connecting links are pivotally connected to the intermediate portions of the second connecting links, respectively. The second end portions of each of the second connecting links are provided with engagement means in the nature of rollers for engaging the lifting beam and motive power means in the nature of piston and cylinder arrangements are connected to the connecting links for raising and lowering the lift.

3,837,436
ELEVATOR CONTROL SYSTEM

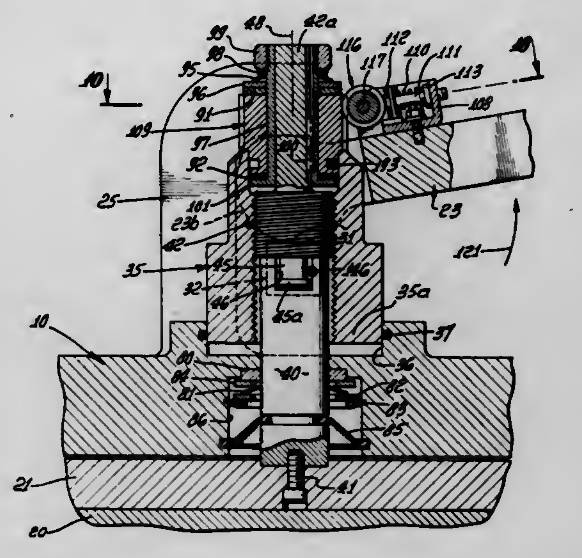
Kotaro Hirasawa; Koichi Kawatake, both of Hitachi, and Tatsuo Iwasaka, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed June 25, 1971, Ser. No. 156,866
Claims priority, application Japan, July 1, 1970, 45-56938; July 1, 1970, 45-56939; July 10, 1970, 45-59918; July 20, 1970, 45-62847
Int. Cl. B66b *1/18*
U.S. Cl. 187—29 R **15 Claims**

An improved elevator control system for maintaining a properly controlled interval between a plurality of elevator cars. The system includes means for detecting the time interval or spatial interval between a preceding elevator car, an intermediate elevator car and a succeeding elevator car. When the interval between the preceding and intermediate elevator cars is more than the interval between the intermediate and succeeding elevator cars, the intermediate elevator car is accelerated, while when the former interval is less than the latter interval, the preseding or succeeding elevator car is accelerated for maintaining a reasonable interval between these elevator cars.



3,837,437
RATCHET ACTUATED BRAKE WEAR COMPENSATION

Samuel J. Martins, Reseda, Calif., assignor to Airheart Products, Inc., Chatsworth, Calif.
Filed Jan. 22, 1973, Ser. No. 325,898
Int. Cl. F16d *55/02*
U.S. Cl. 188—71.8 **14 Claims**

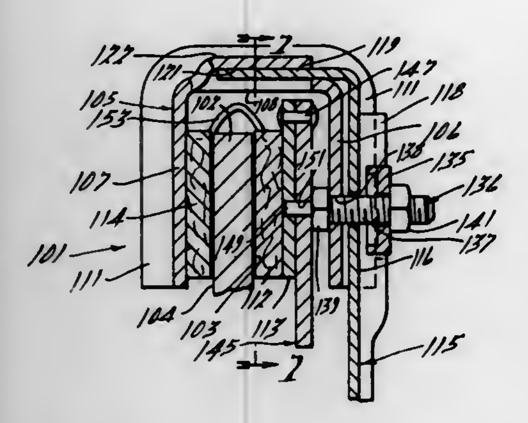


A pneumatically actuated brake system employs a lever, and means responsive to lever swinging to receive primary force transmission via one portion of the lever for effecting advancement of a brake part into braking engagement with a moving part such as a disc, and to receive auxiliary force transmission from another portion of the lever to displace the brake part toward the disc in compensating relation to the degree of brake part wear, whereby the range of lever swinging may be quite limited.

ERRATUM

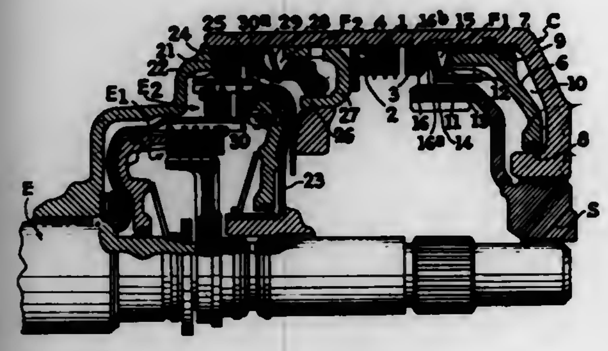
For Class 188—71.6 see:
Patent No. 3,837,420

3,837,438
DISK BRAKE WITH SERVO ACTION
Harold S. Hollnagel, Milwaukee, Wis., assignor to Kelsey-Hayes Company, Romulus, Mich.
Division of Ser. No. 65,080, Aug. 19, 1970, Pat. No. 3,708,040. This application Apr. 17, 1972, Ser. No. 244,979
Int. Cl. F16d *55/46*
U.S. Cl. 188—72.2 **11 Claims**



Two embodiments of disk brake assemblies embodying simplified actuators that include tilting pins. The pins are tilted to cause axial movement of the brake pads into frictional engagement with the associated brake rotor. The direction of tilting of the pins is such that a self-operating force is exerted upon the brake.

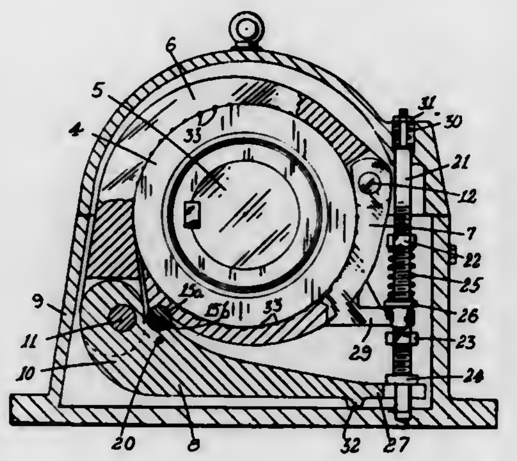
3,837,439
BRAKE DEVICE FOR AN AUTOMATIC TRANSMISSION
Jean Piret, Bougival, France, assignor to Automobiles Peugeot, Paris and Regie Nationale Des Usines Renault, Billancourt, both of, France, part interest to each
Filed July 26, 1971, Ser. No. 166,071
Claims priority, application France, July 30, 1970, 70.28141; June 30, 1971, 71.23964
Int. Cl. F16d *55/26*
U.S. Cl. 188—72.6 **8 Claims**



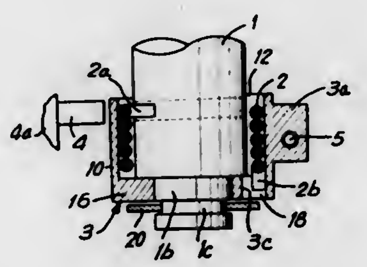
Brake device for an automatic transmission mechanism comprising discs which are shifted to the interengaged braking position by a hydraulic actuating device having a moving element. At least one spring washer is interposed between an abutment integral with the case of the brake device and the moving element so as to resiliently return the moving element to the released brake position.

3,837,440
BRAKING MECHANISMS
Christian F. Prins, P.O. Box 4167, Johannesburg, South Africa
Filed Nov. 29, 1972, Ser. No. 310,241
Int. Cl. F16d *65/06*
U.S. Cl. 188—82.6 **3 Claims**

A braking mechanism or "hold back" is disclosed including a rotatable drum; a strap substantially encircling the periphery of the drum; a lever movable about a fulcrum located in a zone intermediate its ends, one end of the lever being pivotally connected to one end of the strap and the other end of the lever being constrained for movement within a predetermined range; an operative connection whereby movement of the lever is transmitted to the other end of the strap; and a chamber housing the several elements and defining a bath for an oil type liquid; the arrangement being such that normal rotational movement of the drum in one direction acts through the liquid disposed between the drum and the strap to urge the strap to an open position in which it does not obstruct movement of the drum, while rotational movement of the drum in the reverse direction acts through the liquid to urge the lever to move about its fulcrum so as to draw the strap into firm braking engagement with the periphery of the drum. The strap preferably comprises two arcuate sections pivotally connected to each other with a pivotal connection being provided between the free extremity of the first strap section and one end of the lever and a pressure zone in which movement of the lever about its fulcrum in a direction to exert a braking force is transmitted to the free end of the second strap section to tighten the strap about the periphery of the drum.

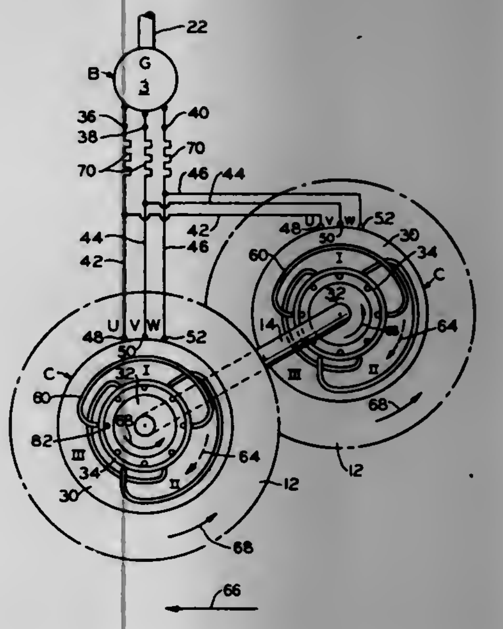


3,837,441
SPRING BRAKE
Naoyuki Uno, Kawagoe, and Koichiro Watanabe, Funabashi, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed Apr. 3, 1973, Ser. No. 347,568
Claims priority, application Japan, Apr. 19, 1972, 47-45631[U]
Int. Cl. F16d *51/04*
U.S. Cl. 188—82.6 **6 Claims**



A spring brake assembly particularly suitable for devices such as cameras. Inner and outer rotary members which have a common axis are turnable each with respect to the other about their common axis, the outer member having a wall extending around but spaced from the inner member so that this wall has an inner surface directed toward the inner member. A cylindrical coil spring is situated between the inner and outer members in frictional engagement with the latter inner surface, the cylindrical coil spring having an axis coinciding with the common axis of the inner and outer members and being connected at one end to the inner member for turning movement with the latter. Thus, when the inner and outer members are turned one with respect to the other in a direction tending to unwind the coil spring, the frictional engagement between the inner surface and the coil spring increases, while when the inner and outer members are turned one with respect to the other in a direction tending to wind the coil spring further, the frictional engagement between the coil spring and inner surface decreases.

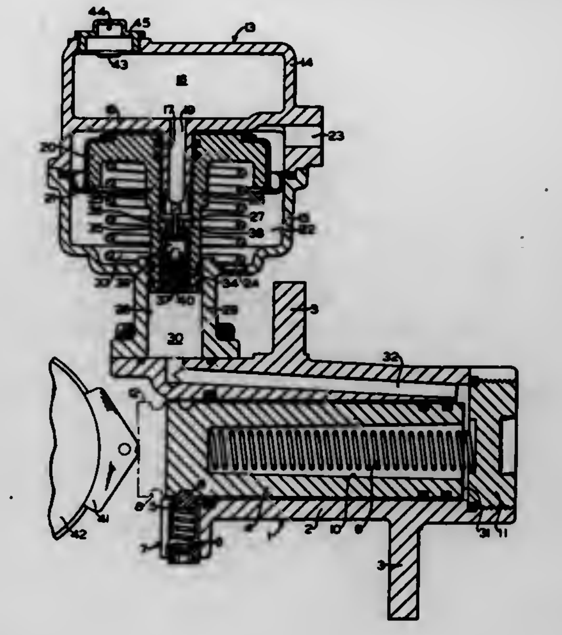
3,837,442
BRAKE DEVICE FOR VEHICLES
Max Baermann, 506 Bensberg, Cologne/Rhine, Germany
Filed July 13, 1973, Ser. No. 378,930
Claims priority, application Germany, Feb. 2, 1973, -2305042
Int. Cl. H02k *49/00*
U.S. Cl. 188—159 **12 Claims**



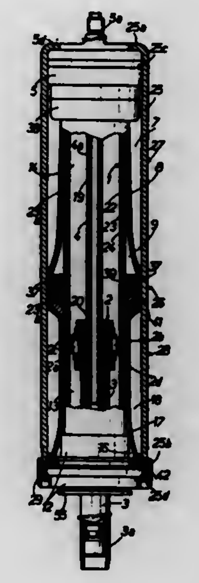
A braking device for vehicles includes a multi-phase generator on the vehicle driven by movement of the vehicle for generating multi-phase electric current. Induction motor means includes a stator and a part which moves relative to the stator during movement of the vehicle. The stator is fixed to the vehicle against movement relative thereto. The generator is connected with the stator of the induction motor for producing a traveling magnetic field in the stator which exerts a force on the moving part in a direction tending to propel the vehicle in a direction opposite to its then direction. This applies a braking force to the vehicle.

3,837,443
SLACK ADJUSTER FOR HYDRO-PNEUMATIC BRAKE UNIT HAVING AUTOMATIC AIR BLEED
Quentin T. Clemmons, Greensburg; Ronald W. Coiner; William B. Jeffrey, both of Irwin, and Allen W. Kyllonen, Pittsburgh, all of Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed Dec. 10, 1973, Ser. No. 423,405
Int. Cl. F16d *65/54*
U.S. Cl. 188—196 A **8 Claims**

A slack adjuster device for hydro-pneumatic railway truck-mounted brake units having the slack adjuster mechanism mounted in a vertical disposition relative to the brake unit to provide vertical gravitational flow of fluid from the hydraulic fluid reservoir to the pressure side of the hydraulic piston during the return or release stroke of the piston so that any air inadvertently present in the hydraulic fluid chamber on the pressure side of the hydraulic piston may flow vertically upwardly and escape via an air vent in the hydraulic fluid reservoir.



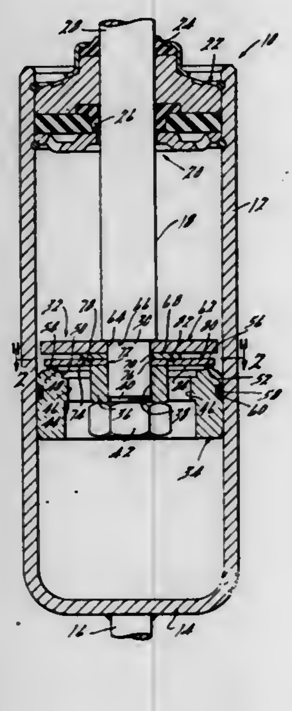
3,837,444
OLEOPNEUMATIC SHOCK ABSORBERS
Fernand Michel Allinquant, 53, Ave. Le Notre, and Jacques Gabriel Allinquant, 12, Ave. Arouet, both of Sceaux, France
Filed Nov. 13, 1973, Ser. No. 415,363
Claims priority, application France, Nov. 17, 1972, 72.40984
Int. Cl. F16f *9/08*
U.S. Cl. 188—315 **9 Claims**



An oleopneumatic shock absorber comprising two coaxial tubes separated by an annular space which is divided by a transverse partition into two compartments each containing a chamber containing hydraulic fluid, each chamber being separated from a respective chamber containing gas by a sleeve of elastomeric material provided with an inner annular flange at its end adjacent to the partition, and with an outer annular flange at its end adjacent to one end of the shock absorber, wherein there is provided a device screwed onto the shock absorber so as to compress the outer flange of one of the sleeves against a fixed part of the shock absorber thus closing a passage which opens into the adjacent chamber containing gas and which communicates with a gap included between the co-operating threads of the shock absorber and of the device, and an annular unit which is supported on the device by a distance-piece so as to compress the inner flange of the one resilient sleeve against a further fixed part of the shock absorber in order to close another passage linking the two chambers containing gas via the transverse partition.

3,837,445
PISTON ASSEMBLY FOR A SHOCK ABSORBER

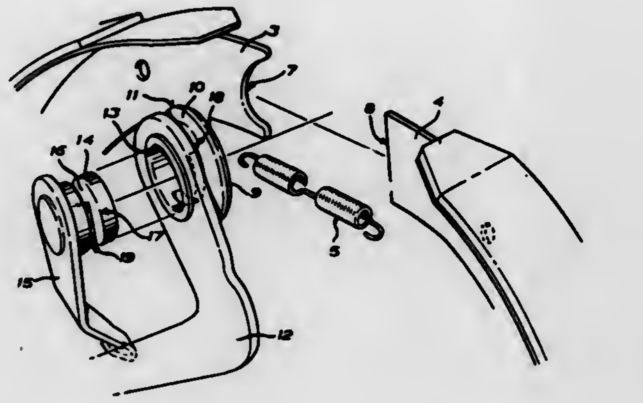
Willy R. J. Pierle, Tienen, Belgium, assignor to Monroe Belgium N.V., Sint-Truiden, Belgium
Filed Jan. 30, 1973, Ser. No. 327,933
Int. Cl. F16f *9/34*
U.S. Cl. 188—322 **4 Claims**



The invention relates to a piston assembly for a direct acting hydraulic shock absorber including a cylinder containing damping fluid and a reciprocal piston rod. The assembly comprises a piston member formed with a plurality of circumferentially spaced axially extending flow ports and an annular cavity having inner and outer circular walls, the inner wall defined by a generally cylindrical body portion concentric with and surrounding the piston rod, the outer wall including an annular peripheral shoulder extending axially from the piston and defining a flat, radially extending sealing surface, the surface being formed with a first plurality of circumferentially spaced bleed openings. A washer concentric with the piston rod and the inner cylindrical projection is carried in fixed position with relation thereto and spaced axially from the cylindrical body portion. A thin resilient valve disc is positioned across the cavity and has its radially outer marginal portion seated against the surface and adapted for movement in a first axial direction away from the shoulder; the radially inner marginal portion of the valve disc being seated against the washer and adapted for movement away from the washer in a second axial direction. A disc shaped metering element is positioned immediately axially inwardly of the first named washer in the space between the first named washer and the cylindrical body portion, the inner diameter of the valve member and the outer diameter of the metering element defining a second plurality of circumferentially spaced bleed openings therebetween, whereby movement of the piston member in one direction causes pressure of damping fluid against the valve member in the opposite direction and causes the valve disc to yieldably flex away from one or its seats and provide an annular opening between the adjacent portions of the valve member and the seat for communicating fluid to and from the ports.

3,837,446
BRAKE OPERATING MECHANISMS

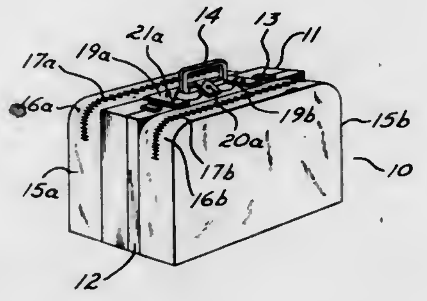
Rune Nilsson, Lindesberg, Sweden, assignor to AB Linde International, Lindesberg, Sweden
Filed Mar. 16, 1973, Ser. No. 341,943
Claims priority, application Sweden, Mar. 22, 1972, 3657/72
Int. Cl. F16d *51/22*
U.S. Cl. 188—329 **3 Claims**



An operating mechanism for a simplex type drum brake in which a pair of brake shoes are applied with their one ends against a stationary abutment and with their other ends against an expanding means. The expanding means is a rotatable body formed with an annular groove, and one portion of the groove bottom is eccentrically localized and forms an abutment surface for one brake shoe which has an abruptly cut transverse end surface, while the remaining groove bottom is arcuate and serves as an abutment surface for the other brake shoe, the end of which has an arcuate recess. The flanks of the groove are adapted to form lateral supports for the two brake shoe ends penetrating into the groove.

3,837,447
LUGGAGE ACCESSORY

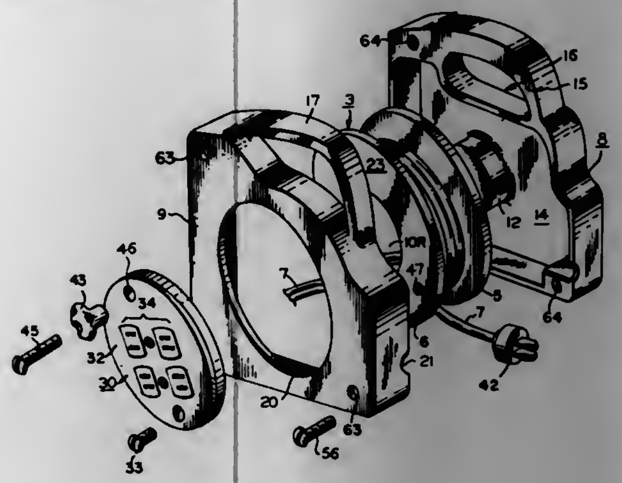
Bernard M. Honan, 46 Riverdale, Tuscaloosa, Ala. 35401
Filed Dec. 13, 1971, Ser. No. 207,183
Int. Cl. A45c *13/00*
U.S. Cl. 190—52 **1 Claim**



There is disclosed herein a luggage accessory for use with a conventional suitcase or attache case. A pair of like, generally rectangular, zippered bags having substantially the same side contour as the suitcase are connected together at the bottom inner edges thereof by a flexible web. The suitcase is disposed on the web between the zippered bags, and overlapping flaps carried at the upper inner edges of said bags project over top of the suitcase and are detachably connected to each other around and through the suitcase handle.

3,837,448
LINE CORD CADDY

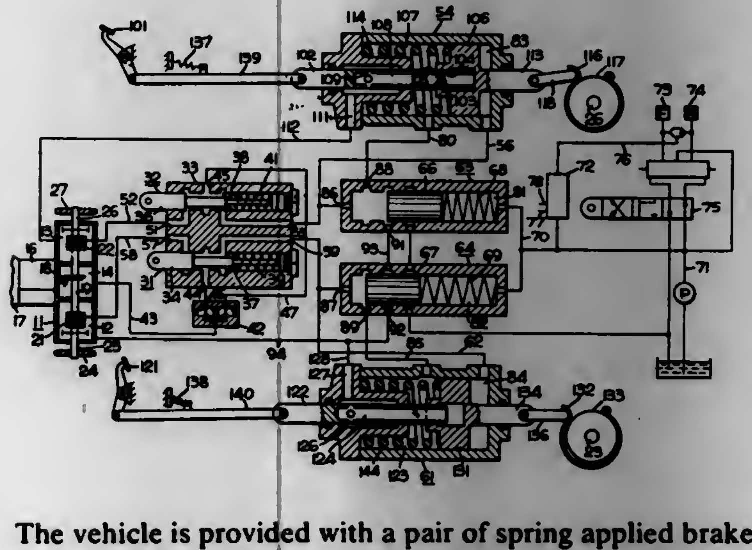
Leonard Hagstrom, Rt. 2, Box 220, Ashland, Wis. 54806
Filed Dec. 15, 1972, Ser. No. 315,651
Int. Cl. H02g *11/00*
U.S. Cl. 191—12.4 **7 Claims**



An extension-cord caddy comprising a spool having an extension cord wound thereon and being encased within a stand-up type cover having a hand grip extending relatively upwardly therefrom. The cover is made up of two saucer-shaped cover sections, one cover section in its central body portion having an inwardly projecting spindle serving as a spool mounting axle. The spindle by design has substantially shorter axial length than that of the spool bore, thereby contributing to the provision of a recess in said bore disposed beyond the spindle end-face for receiving a single or duplex receptacle member including a plurality of plug-in sockets which are accessible thru a circular receptacle face-plate affixed to the spool flange next adjacent the companion cover section. The companion cover section is provided in its body portion with a circular opening having diameter substantially equalling that of the receptacle face-plate and appreciably less than that of the said spool flange. The axial dimensions of the cover sections are such that when they are assembled one to the other with spool in place on the spindle, they hold the spool to the spindle, and also their inner-wall surfaces press on the outer surfaces of the spool side flanges, thereby engendering a drag force effective on the spool which prevents too fast turning thereof upon the extension cord being unspooled in use of the device.

3,837,449
TRANSMISSION CONTROLLED SPRING APPLIED STEERING BRAKES

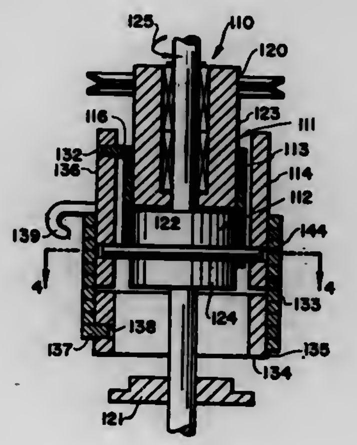
Gary A. Drone, Springfield, Ill., assignor to Fiat-Allis Construction Machinery, Inc., Milwaukee, Wis.
Filed May 7, 1973, Ser. No. 358,136
Int. Cl. F16d *67/04*; **B60k** *29/00*
U.S. Cl. 192—4 C **7 Claims**



The vehicle is provided with a pair of spring applied brakes which are individually controllable through hydraulic actuators acting in opposition to the springs. The brakes are individually controlled by a valve associated with the hydraulic actuators and are automatically, simultaneously applied by operation of brake pressure regulating valves which are biased by the pressure of the hydraulic control system for the forward-reverse clutches of the vehicle transmission. The vehicle brakes are applied by balancing pressure across the piston of the brake actuator. During forward or reverse travel of the vehicle, the pressure on one side of the brake actuator compresses the spring to release the brakes. When low fluid pressure is supplied as when the engine is dead, the brake actuator pressure will drop thereby permitting the springs to apply the brakes. When the engine is running and the hydraulic systems are functioning normally, the brakes are applied by the springs whenever the pressure is balanced on opposite sides of the spring loaded brake actuator. The brake pressure regulator valves cause the pressure to be balanced at reservoir pressure when the biasing pressure from the change speed transmission control drops to a low level as when in neutral or during directional shifts.

3,837,450
CLUTCH BRAKE MECHANISM WITH A LOST MOTION CONNECTION

William R. Mallon, Box 69, Willoughby, Ohio 44094, and John E. Watkins, 9674 Fairmount Rd., Novelty, Ohio 44072
Filed Nov. 6, 1972, Ser. No. 304,046
Int. Cl. F16d *67/02, 43/00, 13/04*
U.S. Cl. 192—12 BA **1 Claim**

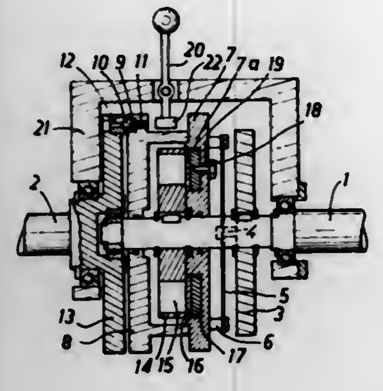


A clutch brake mechanism including input and output members normally drivingly connected by a helical coil spring disposed therearound. One end of the spring is connected to the output member. The other end connects with a sleeve disposed around the spring. A braking system is operable to selectively brake the rotation of the sleeve whereby the ends of the spring are rotated relative to each other, releasing the grip of the spring coils about the input member and interrupting the driving connection normally provided by the spring. In one embodiment, the braking system is operative to brake the sleeve only when actuated while in another embodiment, the braking system is of the "deadman" type, normally braking the sleeve. A lost-motion connection between the sleeve and the output member limits the twisting of the spring during braking and assures positive braking of the output member, even in the event of failure of the spring.

3,837,451
TORQUE-LIMITING CLUTCH

Jean R. Gaillochet, Neuilly, France, assignor to MARINONI, Paris, France
Filed Dec. 27, 1972, Ser. No. 318,723
Claims priority, application France, Feb. 7, 1972, 72.4024
Int. Cl. F16d *7/02*
U.S. Cl. 192—56 R **7 Claims**

This invention permits the counter-balancing of the longitudinal movement due to the transmitted torque of the sliding member with respect to the other member in a torque-limiting clutch of the indexed-release type comprising two oppositely-facing members coupled for rotation, one to the driving shaft and the other to the driven shaft. According to the invention,

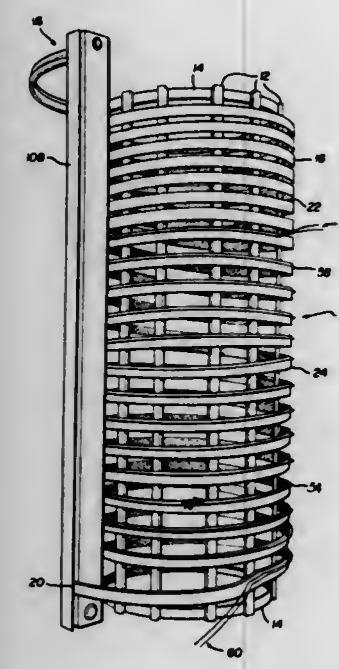


permanent magnets carry out the function of counter-balancing and are advantageously housed in an enclosed space. The invention is especially applicable to the protection of a machine driven by a driving device when this machine becomes mechanically blocked.

3,837,452
METHOD AND APPARATUS FOR CONVEYING WORKPIECES

Henry A. Schuricht, Pontiac, Mich., assignor to Hydromation Filter Company, Livonia, Mich.

Filed Feb. 23, 1973, Ser. No. 335,207
Int. Cl. B65g ***11/06, 11/20***
U.S. Cl. 193—12 **23 Claims**

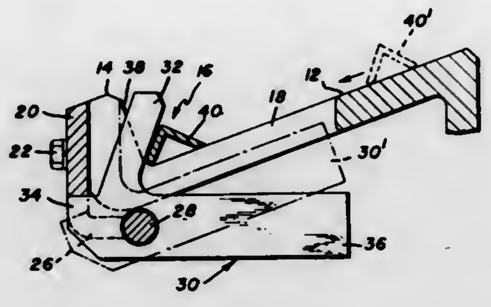


A method and apparatus for conveying workpieces under the influence of gravity from an upper vertical level to a lower vertical level wherein the workpieces have exposed critical, e.g., machined, surfaces which must be protected from contact from other workpieces and from the conveying apparatus itself. A first track has a plurality of rolling separators mounted therein and a second track, adjacent and parallel to the first track is provided to support the workpieces by contacting non-critical portions thereof. The separators have projections which extend into the path of those workpieces in the second track. The separators are interposed between the workpieces, and the projections on the separators maintain the workpieces in a spaced-apart relationship and advance the workpieces along the second track. At the bottom of the second track, only the workpieces are discharged from the conveying apparatus and the separators are recirculated to the upper vertical level of the apparatus for reuse.

3,837,453
MATERIAL HANDLING APPARATUS

Kenneth L. Klusmier, Worcester, Mass., assignor to Morgan Construction Company, Worcester, Mass.

Filed Jan. 15, 1973, Ser. No. 323,642
Int. Cl. B65g ***11/20***
U.S. Cl. 193—40 **3 Claims**

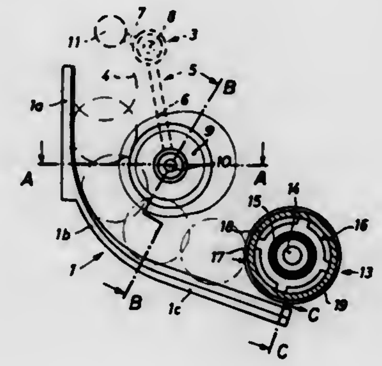


For receiving elongated elements, in particular "angles" and the like, an apparatus which includes an inclined surface along which the elements are permitted to slide laterally into a receiving notch. Counterweighted pivotal finger members protrude through slots at the receiving notch. The finger members absorb the sideward force of the elongated elements while at the same time exerting a retaining action thereon which serves to prevent elements entering the receiving notch from turning or flipping. The finger members are designed to recede into their respective slots as each element is removed from the receiving notch, and to thereafter return to their operative positions in preparation for receipt of the next element.

3,837,454
COIN TESTING DEVICES

Willi Friedrich Joeck, Buxtehude, Germany, assignor to National Rejectors Inc. GMBH, Buxtehude, Germany

Filed Oct. 27, 1972, Ser. No. 301,623
Claims priority, application Germany, Nov. 4, 1971, 2154782
Int. Cl. G07f ***3/02***
U.S. Cl. 194—1 K **10 Claims**



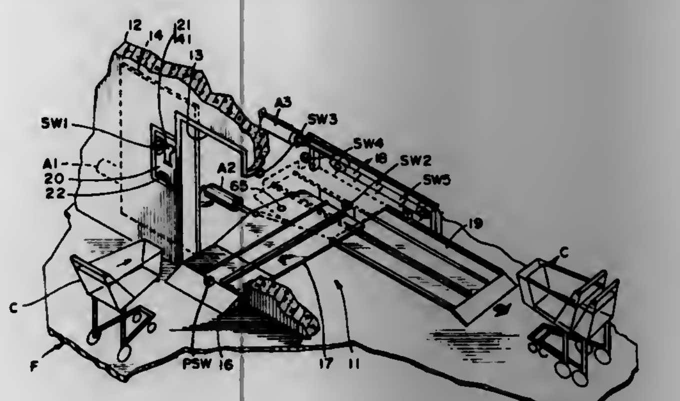
A coin testing device which comprises a coin slot into which coins can be inserted, a coin track leading from the slot to a coin testing means, and damping means, positioned between the slot and the testing means, for damping the movement of a coin when it is rolling along the track.

3,837,455
SYSTEM AND METHOD FOR CUSTOMER RETURN OF MERCHANDISE CARTS

Arthur J. Hurt, 720 S. Elizabeth St., Denver, Colo. 80209

Filed Oct. 10, 1972, Ser. No. 295,857
Int. Cl. G07f ***1/06***
U.S. Cl. 194—4 R **10 Claims**

In a merchandise cart return system and method to encourage the customer to return the merchandise cart to the store after use, there is provided a cart-receiving area normally blocked off by a partition including a movable door to control admittance of a cart into the cart receiving area and block the retraction of the cart from the area once it has been placed therein. The door is opened in response to the placement of the cart in front of the door and the presentation of a token given to the customer when a purchase is made. Once

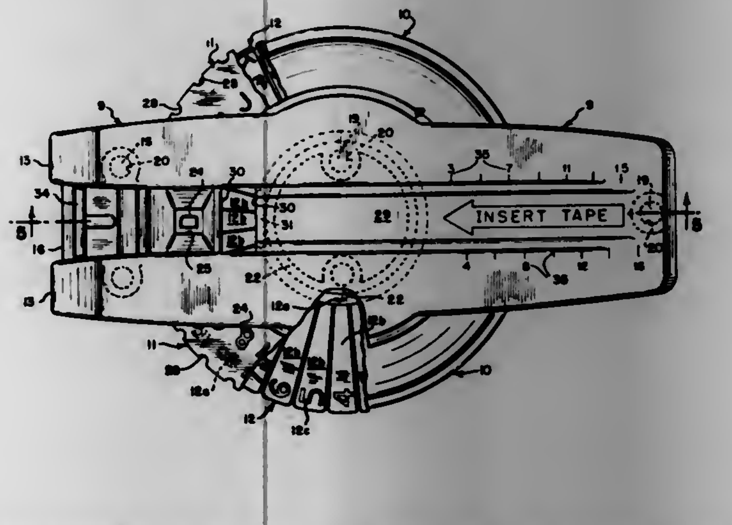


the cart is placed in the cart receiving area via the doorway, the door closes and a payoff device is actuated to pay out a reward for the return of the cart. To further position the cart, if desired, a turntable turns the carts so that the handle faces the direction of movement and a takeaway mechanism moves the cart from the turntable for subsequent pickup by the customers entering the store.

3,837,456
EMBOSSING TOOL

Henry Ruskin, Cranford, N.J., assignor to Swingline, Inc., Long Island City, N.Y.

Filed Jan. 2, 1973, Ser. No. 320,657
Int. Cl. B41j ***1/24***
U.S. Cl. 197—6.7 **11 Claims**



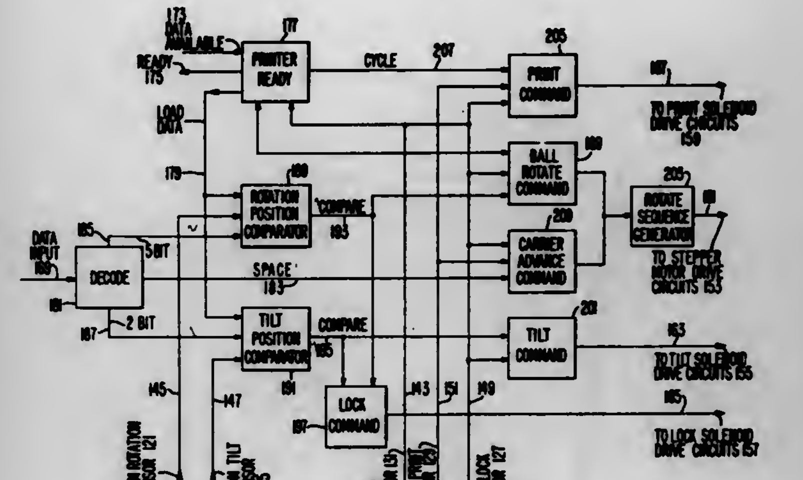
An embossing tool for tape strip labels comprises a single-piece plastic extrusion capable, upon being folded clam-wise, of forming two halves of the tool housing and an integral embossing lever, and two mating embossing discs mounted in the housing for embossing a strip of plastic tape fed between the discs along the radii thereof.

3,837,457
SINGLE ELEMENT PRINTER HAVING A CLOSED LOOP DIGITAL ELECTRONIC CONTROL

Noah L. Anglin, and Roy J. Machamer, both of San Jose, Calif., assignors to Office Communications, Inc., Sunnyvale, Calif.

Filed June 15, 1972, Ser. No. 263,125
Int. Cl. B41j ***1/60, 23/04***
U.S. Cl. 197—18 **7 Claims**

A single spherical ball printing element having a plurality of print characters on its outside surface in rows and columns is selectively operated to present a single desired print character in a printing position in response to a digital electronic data input signal. In moving the ball to its selected position, the digital input data character signal is compared with a digital

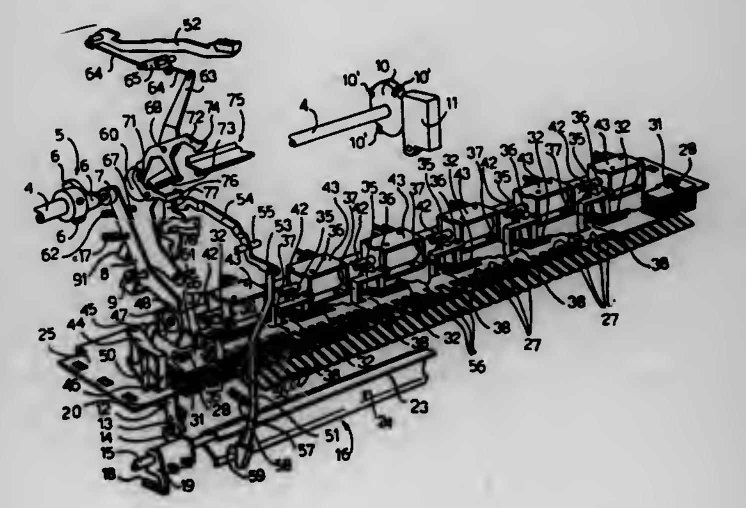


signal proportional to the position of the print ball. When the print ball reaches its desired position where the digital position signal corresponds with the data input signal, the ball is impacted against a printing surface to print the selected character.

3,837,458
CODED INPUT AND OUTPUT APPARATUS FOR TYPEWRITERS

Franco Bretti, Are di Caluso (Turin), and Franco Valle, Ivera (Turin), both of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Turin, Italy

Filed July 19, 1972, Ser. No. 273,080
Claims priority, application Italy, July 20, 1971, 69435/71
Int. Cl. B41j ***5/30***
U.S. Cl. 197—19 **11 Claims**



A typewriter is provided with an input and output apparatus having receiving and transmitting bars. The receiving bars are urged by springs and are latched to latches controlled by electromagnets. A series of decoding levers senses the receiving bars on receiving of input signals for setting one of said decoding levers corresponding to the combination of positions of the receiving bars. A lever rocked by a continuously rotating cam causes the decoding lever so set to be shifted for actuating the type-hammer associated thereto.

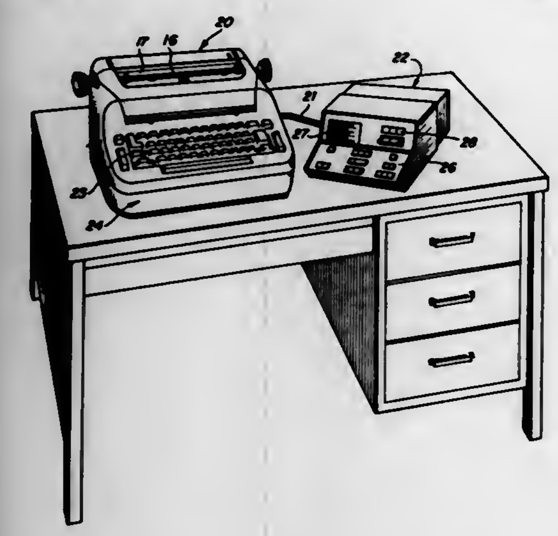
3,837,459
WORD PROCESSOR WITH MEANS FOR PROGRAMMING INDENTED PARAGRAPH FORMAT

Peter G. Martin, Arlington, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass.

Filed Dec. 4, 1972, Ser. No. 311,451

Int. Cl. B41j *5/30*

U.S. Cl. 197—19 **26 Claims**



The invention relates to a word processor of the type utilizing a typewriter as an input/output printer, and comprises indented paragraph typewriter programming and control means for causing the typewriter to establish and maintain a desired indented paragraph format.

3,837,460
HIGH-SPEED DRIVING DEVICE FOR PRINTER OR THE LIKE

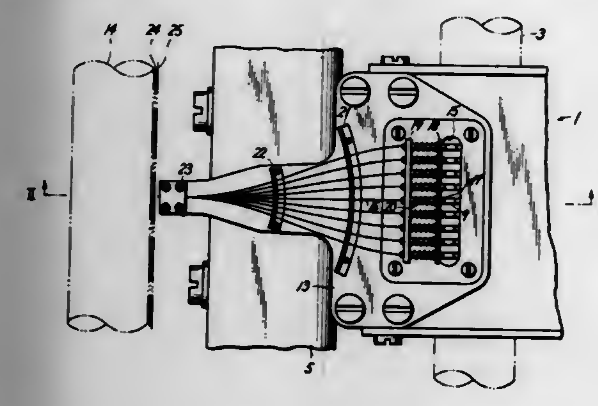
Yoshinori Chida, Matsudo, and Naonobu Sawada, Tokyo, both of Japan, assignors to Kabushiki Kaisha Seikosha, Tokyo, Japan

Filed Feb. 7, 1973, Ser. No. 330,318

Claims priority, application Japan, Feb. 8, 1972, 47/13265

Int. Cl. B41j *3/10*

U.S. Cl. 197—1 R **10 Claims**



A high-speed driving device for use in a high-speed printer or the like. The printer has actuatable printing elements each actuated from a rest position to a printing position. The high-speed driving device actuates each printing element with a plurality of actuators each comprising an electromagnetic system having a driving or operating electrical coil receptive of current pulses for developing opposite polarities in its core in conjunction with pole pieces forming a magnetic field for rocking to an operative position and to an inoperative rest position the core having a pole varied thereon and extending into a gap between the pole pieces. The core is constructed with a multiplicity of extensions or lever arms, one of which is normal to the core portion within the coil and engages a corresponding actuatable element to actuate it to its operative position when the core is rocked. The core is restored to its rest position by application to the operating coil of current of opposite polarity to the current actuating it to its operative position. A spring restores each actuatable printing element to its rest position in readiness for a next printing step. Each core is rockably mounted in a carriage for travel relative the actuation elements so that high-speed printing can be carried out.

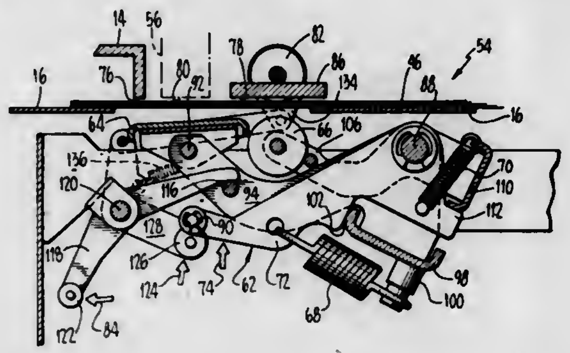
3,837,461
PRINT STATION FOR A MATRIX PRINTER

Helmut K. Waibel, San Leandro, Calif., assignor to The Singer Company, New York, N.Y.

Filed Mar. 13, 1973, Ser. No. 340,869

Int. Cl. B41j *11/58*

U.S. Cl. 197—126 **12 Claims**



A platen assembly for feeding and holding single or multilayer record media for printing thereon which accommodates the rather limited thrust of the wires of a matrix type printer, said assembly comprising a platen and one of a pair of feed rollers pivotally mounted so as to yieldingly engage the record media during the printing operation. The platen yieldingly engages and holds the record media against guides which determine the gap between the matrix head for proper operation of the wires and the roller yieldingly engages the record media to hold the media against a power feed roller during the printing operation. For line-by-line printing, the platen is temporarily disengaged from the record media while the pressure roller and power feed roller move the record media the required distance before the platen again engages the media. This platen assembly is particularly useful in point-of-sale data terminals where the record media is usually multiple copy forms of varying numbers for bills of sale, invoices, contracts of sale, and the like.

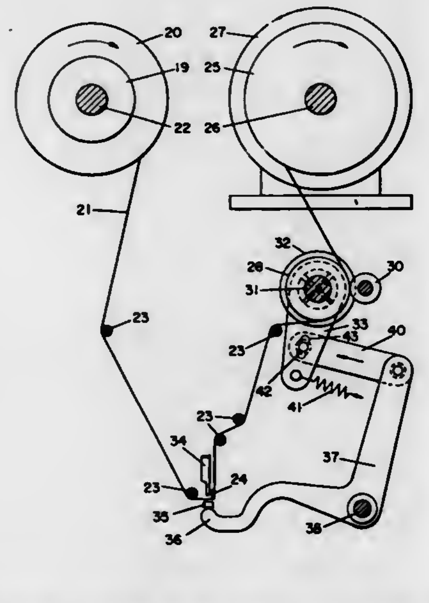
3,837,462
PRINTING RIBBON INDEXING SYSTEM

Ramesh U. Patel, Cambridge, and Rex A. Aleshire, Byesville, both of Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed Nov. 22, 1972, Ser. No. 308,653

Int. Cl. B41j *33/14*

U.S. Cl. 197—151 **4 Claims**



A low cost printing ribbon indexing mechanism for use with a printing mechanism utilizing a single operating hammer member. The indexing mechanism includes a printing ribbon supply reel mounted on a slip clutch, a motor driven take-up reel supplying tension to the ribbon, a feed roll mounted on a one-way clutch, a plurality of link members forming an assembly engaging the clutch and feed roll and actuated by the movement of the hammer in a printing direction to condition the clutch and feed roll for a feed operation and a resilient member engaging said assembly to operate the feed roll to withdraw a predetermined length of ribbon from the supply reel such that the hammer will print on a new area of the printing ribbon.

3,837,463
RIBBON SPOOL HAVING PLASTIC DISCS AND A METAL CORE

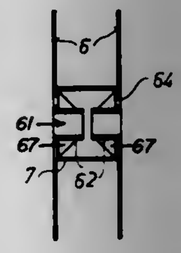
Horst Bille, Wuppertal-Vohwinkel, Germany, assignor to Regentrop & Bernard KG, Wuppertal-Vohwinkel, Germany

Filed Apr. 11, 1973, Ser. No. 350,275

Claims priority, application Germany, Mar. 8, 1973, 2311361

Int. Cl. B41j *35/00*

U.S. Cl. 197—175 **4 Claims**



A ribbon spool for typewriters, accounting machines, business machines and the like for mounting on a spool pin comprises a pair of plastic discs. A metallic spool core is bent into cylindrical shape and secures the discs so as to be concentric and parallel spaced-apart. Each disc includes a plurality of slots disposed therethrough. One side of each disc includes an injection molded channel having an integrally formed circular collar extending therefrom for engaging the spool core. The channels further include a plurality of reinforcing ribs radially disposed from the channel and extending to the collar periphery. The plastic discs have longitudinal recesses placed on their face opposite the channel for receiving a plurality of bending lugs extending from and along the spool axis. By utilizing a metallic spool core a pointed catch may be employed for fastening the ribbon to the spool.

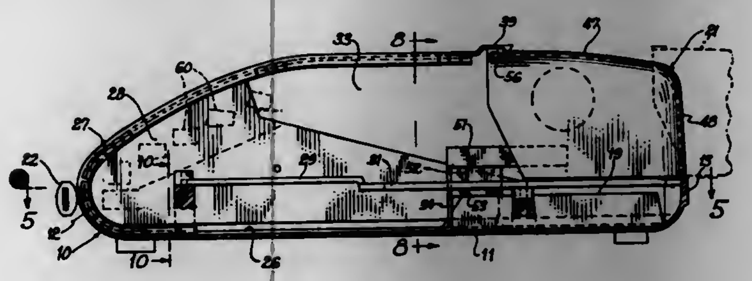
3,837,464
TYPEWRITER WITH SLIDING TAMBOUR COVER

Karl T. Baughman, Lake Forest, Ill., and Richard L. Shannon, Piqua, Ohio, assignors to Sears, Roebuck and Co., Chicago, Ill.

Filed Oct. 15, 1973, Ser. No. 406,226

Int. Cl. B41j *29/02*

U.S. Cl. 197—186 R **5 Claims**



A typewriter or like apparatus having a built-in tambour cover which provides a readily available closure for the typewriter for storage and transport purposes, the tambour cover being operatively connected to the rearward portion of the housing which is slidable and which is caused to be moved by movement of the cover to open and closed positions.

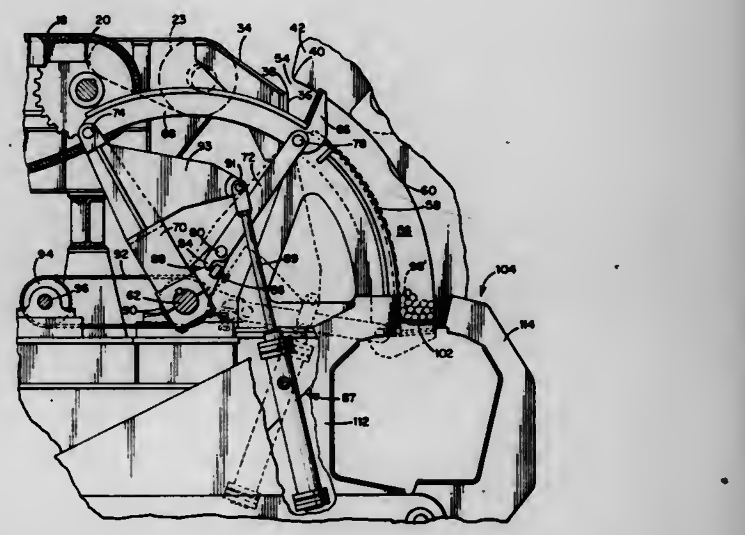
3,837,465
ASSEMBLY AND TRANSFER APPARATUS

Kenneth L. Klusmier, Worcester, and William J. Hill, Holden, both of Mass., assignors to Morgan Construction Company, Worcester, Mass.

Filed Mar. 30, 1973, Ser. No. 346,685

Int. Cl. B65g *47/08*

U.S. Cl. 198—27 **16 Claims**



An apparatus for laterally receiving elongated elements at an upper first location, for assembling the elements thus received, and for transferring the assembled elements downwardly to a lower second location. The apparatus includes a pair of spaced opposed guide surfaces defining an assembly and transfer zone which extends downwardly from the upper to the lower of the aforesaid locations. Carrier members protrude into and are movable along the length of the zone. Elongated elements are fed laterally, and preferably although not necessarily singly, into the zone through an inlet at the upper location. The elements are initially retained adjacent to the inlet and against the carrier members and are thus assembled at the upper end of the zone. The carrier members are moved downwardly along the length of the zone, initially for the purpose of accommodating the entry of elements into the zone during the assembly thereof, and thereafter to carry the assembled elements to the lower second location. The invention further includes apparatus for receiving the assembled elements at the second location, for carrying the same laterally to a third location where the elements are strapped into a dense bundle, and then to a fourth location where the bundle is delivered to other handling apparatus.

3,837,466
BRICK HANDLING

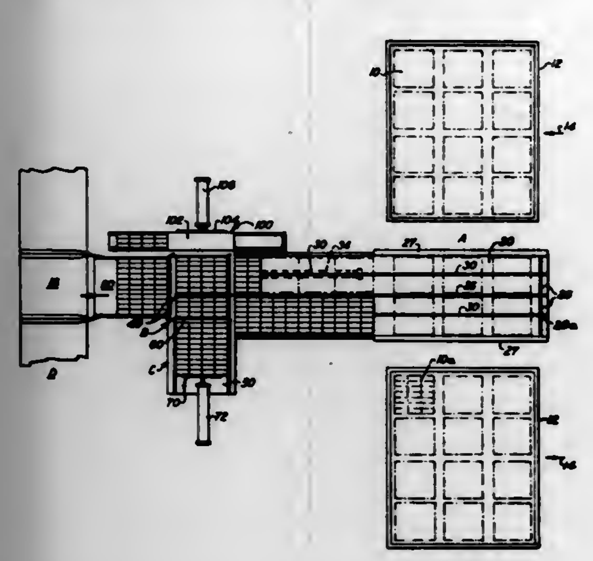
Robert E. Jones, 15 S. Oak Forest Dr., Asheville, N.C. 28803

Filed Oct. 6, 1972, Ser. No. 295,613

Int. Cl. B65g *47/24*

U.S. Cl. 198—30 **36 Claims**

An automatic handling of brick for assembling bricks into a standard brick pack for shipment, method and apparatus whereby bricks are transferred from a kiln car or other supply station to a transfer or blending station in a predetermined number of rows; a certain number of rows are removed from said bricks at said transfer station to reduce the number of rows for further processing at a further station beyond said transfer station; the removed rows of bricks are accumulated and subsequently added to another group of bricks conveyed to said transfer station to form a third group of bricks suitable for processing at said further station. The above process not only serves to assemble the bricks into a predetermined size suitable for receipt in trays of a conveyor used for further processing the bricks into a standard brick pack, but it also serves to blend the bricks with the objective of obtaining a uniform blend of bricks within each brick pack to be formed.



3,837,467

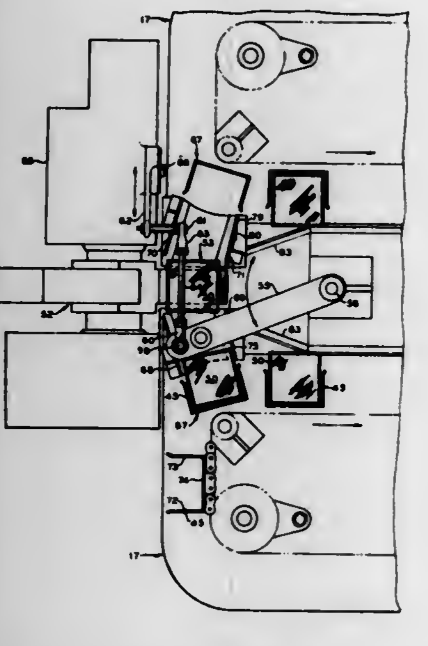
MEANS FOR POSITIONING ARTICLES ON A CONVEYOR

Silvio T. Farfaglia, Fulton, N.Y., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sept. 7, 1973, Ser. No. 395,034

Int. Cl. B65g ***47/24***

U.S. Cl. 198—31 AC **10 Claims**



A transfer means moves an article between guide plates into an article holder at a transfer station on a conveyor. A positioning element is pivotably mounted adjacent the downstream guide plate to contact the article in the holder as the conveyor moves the holder and article away from the transfer station to properly position the article in the holder. The apparatus can be used to position rectangular cartons in rectangular article holders.

3,837,468

GLASS CONTAINER INSPECTION SYSTEM

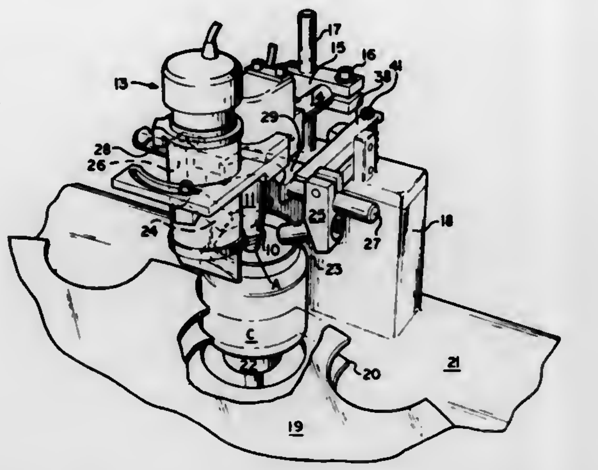
David E. Mills, Bridgeton, N.J., and Thomas B. Sorbie, Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed July 16, 1973, Ser. No. 379,638

Int. Cl. B65g ***47/24***

U.S. Cl. 198—236 **6 Claims**

In the handling of glass containers into optical inspection stations and maintaining the containers at specific positions during rotation of the containers is an important consideration. The present case is directed to an arrangement of rollers which will engage the inner rim surface of the finish of the container when the container is elevated in the inspection station. The rollers are mounted so that they extend inwardly and downwardly with respect to the container finish. With this arrangement and with the rollers spring-biased against the elevated container, rotation of the container about its vertical axis will maintain the container at a specific axial position relative to the inspection system, the rollers and the pad on which the container is supported.



3,837,469

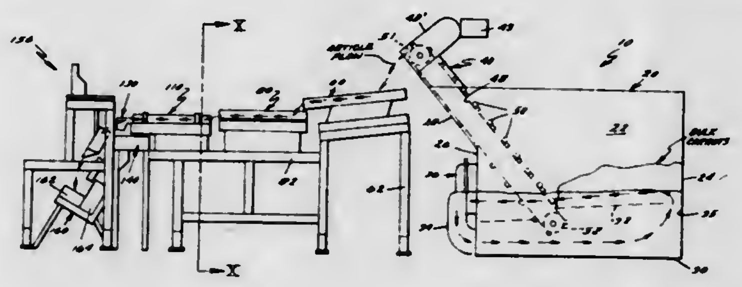
PRODUCT ORIENTING APPARATUS FOR PACKAGING

Lee S. Kihnke, Spring Lake, Mich., assignor to Dake Corporation, Grand Haven, Mich.

Continuation-in-part of Ser. No. 254,076, May 17, 1972. This application Apr. 9, 1973, Ser. No. 348,974

Int. Cl. B65g ***37/00***

U.S. Cl. 198—106 **21 Claims**



Apparatus for conveying and orienting elongated articles in preparation for packaging comprising multiple sections adapted to successively linearly space and longitudinally align in columns a plurality of said articles after they are received randomly in the first of said sections. The sections are aligned rectilinearly and comprise a surge tank and elevating conveyor; a reciprocating, vibratory conveyor which segregates the articles into columns; a conveyor having endless belts with generally V-shaped cross sections; and a final conveyor having endless flat belts, the last three conveyors being located at successively lower levels. The sections are driven at successively faster speeds to facilitate the linear spacing of the articles.

3,837,470

APPARATUS FOR TRANSFERRING OBJECTS

Albert Dunkin, South Norwalk, Conn., assignor to Diamondhead Corporation, Mountainside, N.J.

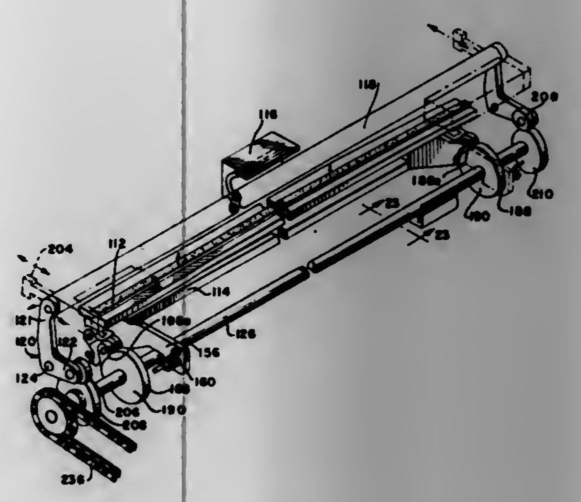
Division of Ser. No. 241,111, April 5, 1972, Pat. No. 3,765,073. This application Apr. 11, 1973, Ser. No. 350,185

Int. Cl. B65g ***15/60***

U.S. Cl. 198—184 **7 Claims**

An improved belt drive and control mechanism for an object transfer apparatus of the type in which different phases of

transfer operation are effected by selective linear travel in transfer apron forming flight portions of an endless belt. The flight length of a loop formation in the apron forming endless belt is varied concurrently with alternate energization of primary and secondary belt brakes to achieve the desired flight travel in the transfer apron. The secondary belt brake includes a brake shoe and a braking roller. The braking roller is supported and actuated by a pair of bell cranks in conjunction with a pair of roll brake actuating cams. The peripheral configurations of the cams are identical and the cams are mounted on a cam shaft so that corresponding points are displaced by 180°. The braking roller may perform both a braking function and a tracking or steering function depending upon the relative positions of the actuating cams. A detecting and control arrangement serves to automatically actuate the cam shaft to correct belt tracking.



3,837,471

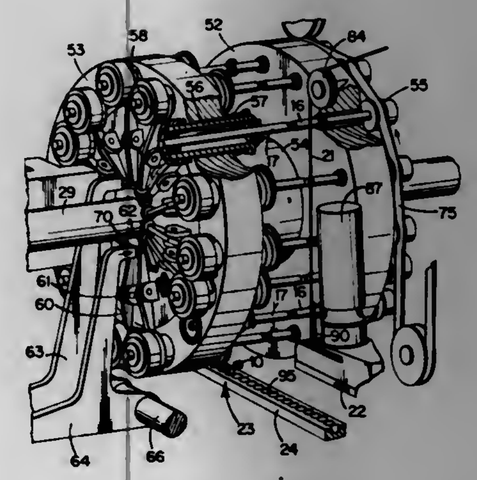
APPARATUS FOR CONVEYING ARTICLES

Theodore H. Van der Schoot, Deering, N.H., assignor to GTE Sylvania Incorporated, Stamford, Conn.

Division of Ser. No. 117,959, Feb. 23, 1971, Pat. No. 3,735,732. This application Feb. 22, 1973, Ser. No. 334,682 Feb. 22, 1973, Ser. No. 334,682

Int. Cl. B65g ***29/00***

U.S. Cl. 198—210 **4 Claims**



Apparatus for applying liquid material to the edges of a die of semiconductor material mounted between two conductive plugs. The plugs and intervening die constitute a semiconductor element which is fed from a vibratory feeder to a transfer wheel and then gripped between a pair of opposed spindles of a conveyor wheel. The conveyor wheel carries the semiconductor element with the spindles rotating into a work station. At the work station the edges of the rotating semiconductor die come into contact with continuously moving filamentary material which passes through a vessel containing liquid coating material before contacting the semiconductor element at the work station. The filamentary material picks up liquid material from the vessel and transfers it to the edges of the die of the semiconductor element at the work station.

3,837,472

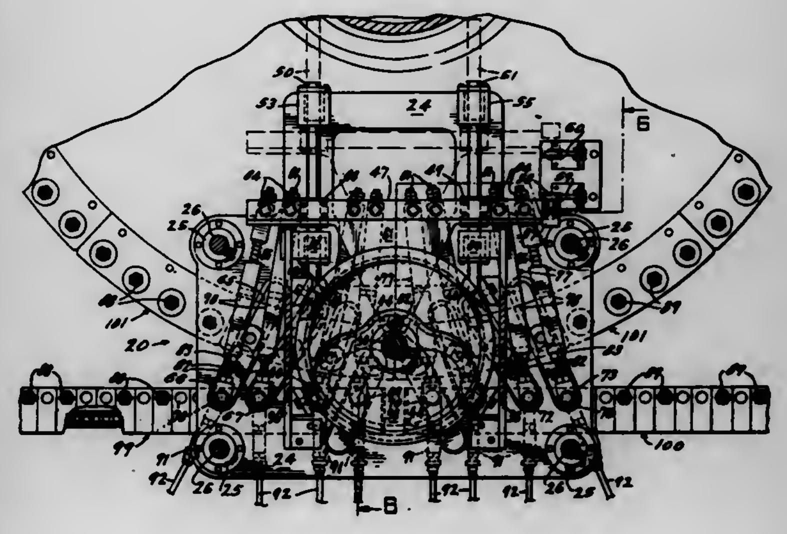
TRANSFER APPARATUS

Dale L. Byerly, Toledo, Ohio, assignor to Champion Spark Plug Company, Toledo, Ohio

Filed Feb. 2, 1973, Ser. No. 329,133

Int. Cl. B65g ***25/04***

U.S. Cl. 198—218 **11 Claims**



The invention is a transfer apparatus for moving a plurality of spaced articles between a linear path and an arcuate path or between an arcuate path and a linear path and at the same time changing the spacing between the articles. A first cam is attached to a rotatable shaft. The first cam supports a lower cam and a lower guide plate. Pick-up heads are moved in response to the cam paths and are horizontally translated along guide slots in the guide plate.

3,837,473

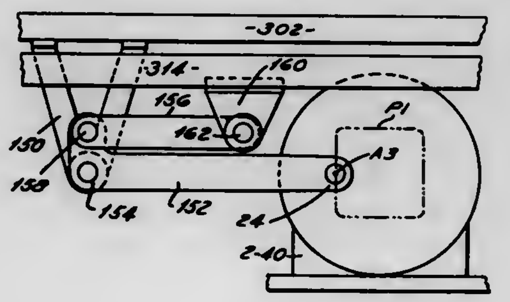
MECHANICAL DRIVE FOR TRANSFER SYSTEM

John Henry Brems, 32867 White Oaks Trl., Birmingham, Mich. 48010

Filed June 26, 1972, Ser. No. 266,454

Int. Cl. B65g ***25/04***

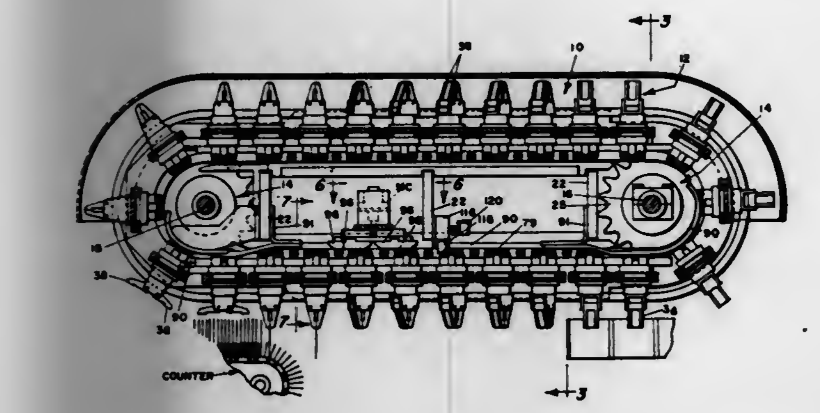
U.S. Cl. 198—219 **15 Claims**



A mechanical drive system for a transfer system using a transfer bar and a power bar which can provide a smooth acceleration and deceleration including a power system with a rotary input, and an output which is quadratic in following a continuous path having two parallel strokes in opposite directions and two parallel strokes normal to the other strokes, and an interconnection which results in the transfer bars moving together during two of the four strokes and moving relative to each other in the other two strokes.

3,837,474
ARTICLE HANDLING APPARATUS

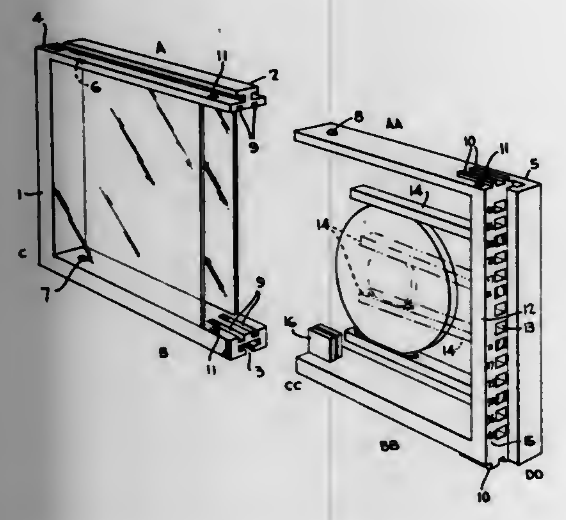
Arthur Alan Brooke, Toronto, Canada, assignor to Dalamere & Williams Company, Limited, Toronto, Ontario, Canada
Division of Ser. No. 198,179, Nov. 12, 1971. This application June 18, 1973, Ser. No. 371,233
Int. Cl. B65q *47/24*
U.S. Cl. 198—240 **7 Claims**



Apparatus comprising a conveyor provided with pairs of jaws arranged to take hold of the upper edges of the tea bags presented thereto in succession in a common plane, turn the tea bags around to an angular position with respect to said plane of presentation and deposit them in a column, for example, on a counter with the bags in parallel relation.

3,837,475
STORAGE DEVICE FOR COINS AND SIMILAR OBJECTS

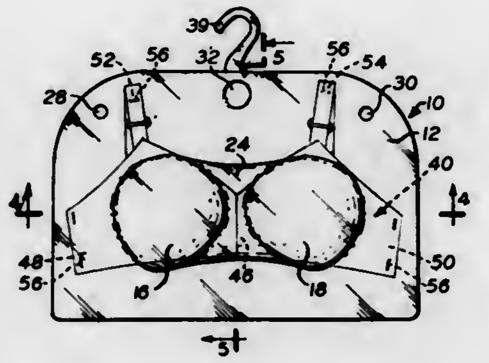
Gerrit M. Bolanz, D-7858 Weil am Rhein, Baslerstr. 59, Baden-Wuurttemberg, Germany
Filed Nov. 29, 1971, Ser. No. 202,863
Int. Cl. A45c *11/28;* **B65d** *21/02*
U.S. Cl. 206—.8 **3 Claims**



Storage device or container for coins of any shape and size or similar objects, which allows e.g. coins irrespective of diameter, thickness and shape, to be stored rigidly and automatically centered. In such a storage container, the object is sealed so as to be fully visible without the risk of oxidation. This enables the coins to be moved without the need for manual contact. The container so designed in accordance with the invention as a unit together with the stored article contained therein on the container principle and can be joined and changed on the unit construction principle. The invention is a unit construction system comprising the structural elements which are the object of the invention, provided on the external narrow sides with matching transverse or longitudinal sections, consisting of two matching container parts and provided on the inside with counteracting flexible rods of a special design.

3,837,476
BRASSIERE DISPLAY PACKAGE

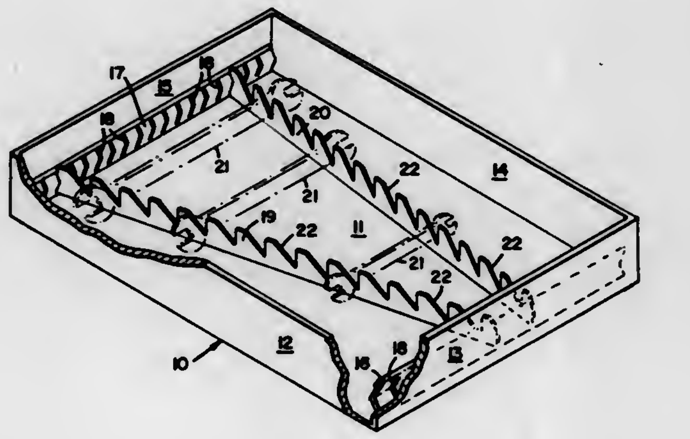
Marcus Schwartz, 1275 15th St., Forest Hills, N.Y. 07024
Filed Jan. 15, 1973, Ser. No. 323,938
Int. Cl. B65d *65/16, 85/18, 85/62*
U.S. Cl. 206—45.34 **18 Claims**



A display package for a brassiere wherein the brassiere is disposed between transparent sheet members that are secured together. The sheets are formed having a pair of laterally spaced cup-like portions that are in nested relation to each other, with the brassiere cups interposed between the respective pairs of nested cup-like portions. The construction is such that the brassiere cups are in laterally tensioned relation to each other with the cups in an outwardly distended condition to simulate the condition of such a brassiere when it is worn by the wearer.

3,837,477
DRAWER ARRANGER

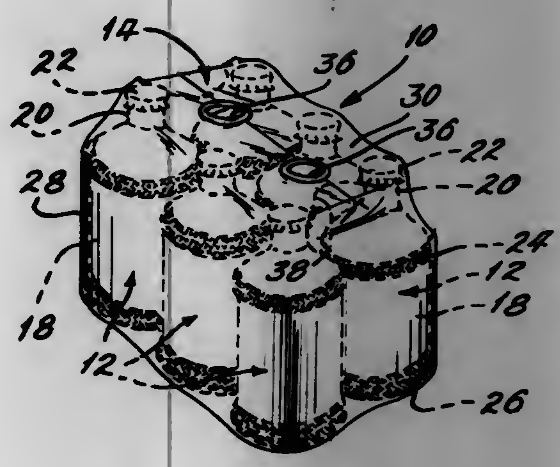
Donald A. Boudreau, 1390 Linton St., San Leandro, Calif. 94577
Filed Jan. 31, 1972, Ser. No. 222,115
Int. Cl. B65d *1/34, 85/20*
U.S. Cl. 206—72 **8 Claims**



There is disclosed a device for holding a set of tools in a drawer, which includes two notched strips having notches spaced and shaped to receive the tools and hold them out of contact with each other and slotted spacing members in contact with opposite interior vertical faces of the drawer receiving opposite ends of each notched strip in a slot thereby holding the strips with predetermined spacing, vertically with their notched edges up.

3,837,478
STRETCHABLE PACKAGING DEVICE FOR CONTAINERS

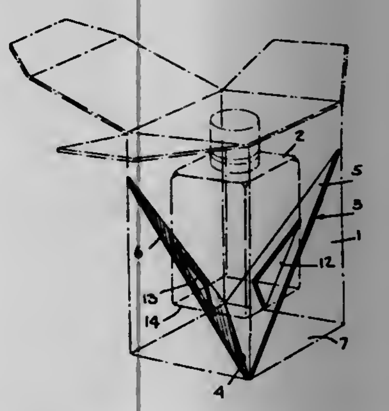
Ernest R. Cunningham, Libertyville, Ill., assignor to Grip-Pak, Inc., St. Louis, Mo.
Continuation-in-part of Ser. No. 27,854, April 30, 1970, abandoned. This application July 29, 1971, Ser. No. 167,385
Int. Cl. B65d *65/04, 65/16, 75/26*
U.S. Cl. 206—427 **9 Claims**



Stretchable and elastic packaging devices are disclosed herein wherein the packaging devices include a wraparound skirt adapted to be stretch mounted in elastic embracing and gripping engagement relative to articles, and an integral top adapted to overlie the articles when the packaging device is assembled thereto.

3,837,479
MEANS FOR FIXING AN OBJECT IN ITS PACKAGING CONTAINER

Myrtil B. Lehmann, Neuilly-sur-Seine, France, assignor to Chanel, Inc., New York, N.Y.
Filed Mar. 11, 1971, Ser. No. 123,226
Int. Cl. B65d *85/30*
U.S. Cl. 206—489 **3 Claims**

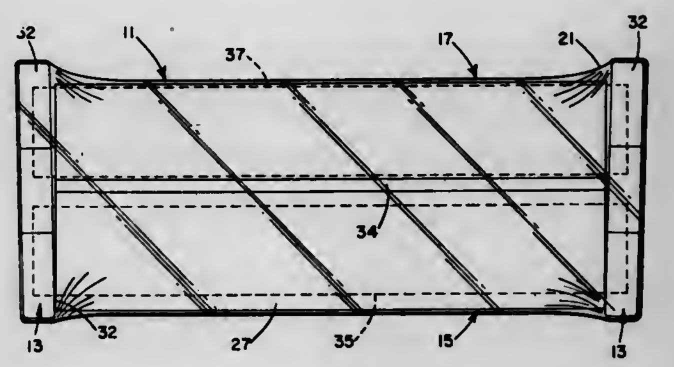


An insert for fixing an article such as a bottle within a packaging container having a bottom wall and side walls to prevent the article from rocking. The insert is formed by a piece of flexible sheet material having two bent flaps which bear against the bottom and side walls of the container and are inclined relative to the side walls. The flaps have openings therein which so accomodate portions of the article as to maintain the position of the article within the container.

3,837,480
WIDE LINE RIBBON PACKAGE

Peter F. Brunett, Monroe, N.Y., assignor to Burroughs Corporation, Detroit, Mich.
Filed Dec. 26, 1972, Ser. No. 318,200
Int. Cl. B65d *85/66*
U.S. Cl. 206—497 **13 Claims**

A package for wide, thin film printer ribbon including a pair of generally butterfly-shaped end pieces of substantially uniform thickness having integral bosses extending orthogonally and inwardly therefrom with a groove surrounding each boss for press fitting thereinto the open ends of a ribbon supply roll and a ribbon leader roll, a span of the ribbon being exposed between the two spaced-apart rolls. The depth of the grooves for the leader roll is less than that for the supply roll or alternately grooves may encircle only the supply roll bosses so that the end pieces angle away from the lead portion of the ribbon exposed between the rolls whereby the edges of the exposed span of film do not touch the end pieces. A heat-shrinkable overwrap encompasses the package, and the end pieces have break open cavities in their outer walls.



3,837,481
SEPARATION OF TOBACCO FINES FROM SAND

George E. Stungis, St. Matthews; Steve L. Merker, Louisville, both of Ky., and Norman D. Heitkamp, Jeffersonville, Ind., assignors to Brown & Williamson Tobacco Corporation, Louisville, Ky.
Filed July 27, 1971, Ser. No. 166,635
Int. Cl. B03b *1/02*
U.S. Cl. 209—4 **5 Claims**

Tobacco fines, mixed with sand, are puffed employing microwave energy to a size at least sufficient to be used directly in cigarette manufacture and are then separated from the sand for use in tobacco products. Other botanicals may be similarly treated.

3,837,482
PROCESS FOR PURIFYING CLAY BY SELECTIVE FLOCCULATION

John J. Sheridan, III, Somerville, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Woodbridge, N.J.
Filed May 3, 1973, Ser. No. 356,763
Int. Cl. B03d *3/06*
U.S. Cl. 209—5 **10 Claims**

An improved method for purifying kaolin clay containing colored impurities by forming a deflocculated aqueous slip of the impure clay and selectively flocculating the clay phase with an anionic polymeric flocculant, such as partially hydrolyzed polyacrylamide. A suspension of the impure clay is rendered strongly alkaline by addition of a soluble hydroxide compound before adding a strong polyanionic clay dispersant such as sodium silicate or sodium condensed phosphate to deflocculate the suspension. Thereafter the pH of the suspension is reduced to a neutral of mildly alkaline value. This is followed by incorporation of the anionic polymeric flocculant which selectively flocculates the clay, leaving the impurities deflocculated.

3,837,483

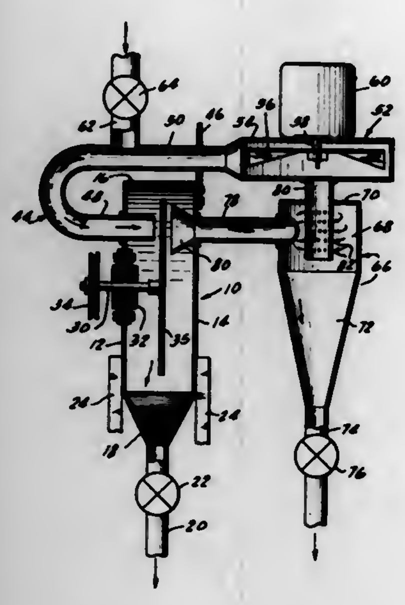
SIFTERS FOR GRAIN AND CHEMICAL INDUSTRIES

Heinrich A. Noll, 70 Nottingham Rd., Springfield, Ill. 62704

Filed Mar. 22, 1973, Ser. No. 343,909

Int. Cl. B07b *9/00*

U.S. Cl. 209—30 **2 Claims**



A sifter or separator particularly for use in connection with grain milling machines provides for continuous circulation of air along a closed pathway within the apparatus. The material to be sifted is introduced in said circulatory stream of air at one point thereof, while the coarse portion of the material is removed from said stream by impingement against a rotary screen which permits finer particles of the material to pass into a cyclone where they are removed from the air stream by centrifugal action and gravity. Inlet and outlet valves are of the type which when operated permits passage of the material while at the same time substantially preventing passage of air regardless of operative position.

3,837,484

MAIL SORTING SYSTEM

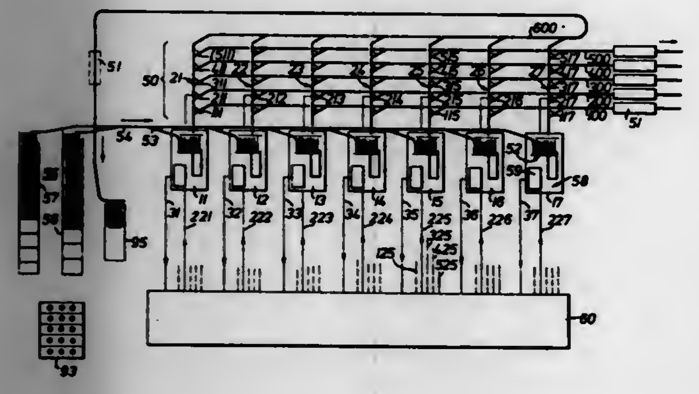
Werner Ruckebier, and Hermann Schorpp, both of Constance, Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Germany

Filed Oct. 30, 1973, Ser. No. 411,172

Claims priority, application Germany, Oct. 31, 1972, 2253384; Oct. 31, 1972, 400012

Int. Cl. B66c *17/06;* **B41f ; G08b** *21/00*

U.S. Cl. 209—73 **14 Claims**



In a mail sorting system in which mail items are routed from a number of distributing stations to appropriate, essentially parallel conveying channels, the stations being spaced along the channels and each item being fed to a selected channel on the basis of its destination address, overloading of a channel is indicated by providing an electrical simulation of the distribution at each moment of items along each channel, the simulation being in response to routing signals from the stations, and by producing an alarm signal when the simulation shows that more than a predetermined number of items are present in a selected length of any one channel upstream of its junction with at least the last station, taken in the direction of conveyance along the channels.

3,837,485

AUTOMATIC SORTING DEVICE

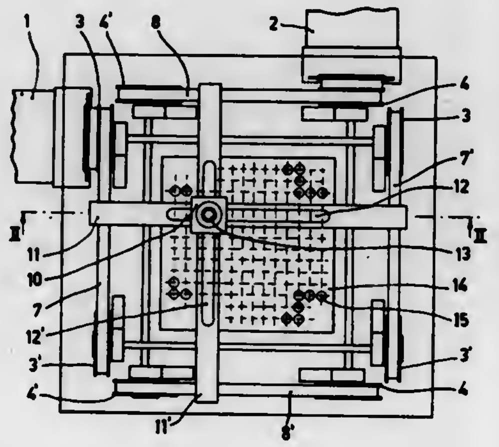
Hans Otten, Reinbek; Helmut Heinze, and Heinz Muller, both of Hamburg, all of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 5, 1973, Ser. No. 338,082

Claims priority, application Germany, Mar. 24, 1972, 2214416

Int. Cl. B07c *3/02*

U.S. Cl. 209—74 R **15 Claims**



The invention relates to a device for the automatic sorting of measured components according to ranges of the measured values. A sorting tray is provided for each range of values. A measurement causes positioning of a supply device by movement in one or more steps in the X and Y directions. Each measured component is conveyed to the sorting tray associated with its measured value. The step-wise movement of the supply device is produced either by means of two stepping motors or by rotary magnets the movement of which is transmitted to the supply device through a mechanical coupling system.

3,837,486

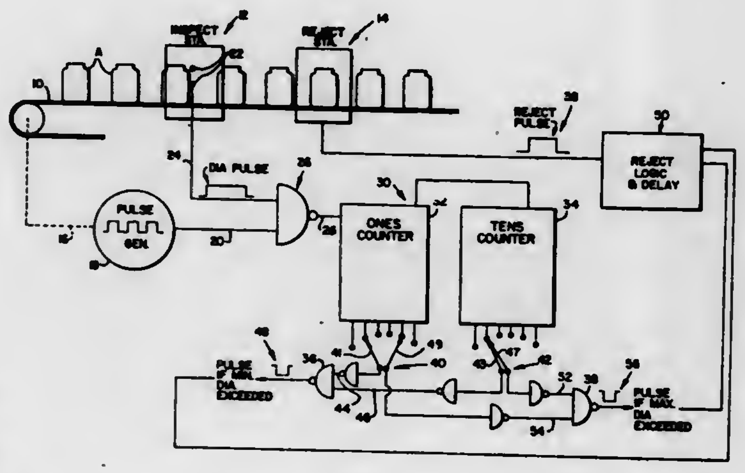
ARTICLE INSPECTION SYSTEM

Edward Boyd Gardner, Bloomfield, Conn., assignor to Emhart Corporation, Bloomfield, Conn.

Filed July 9, 1973, Ser. No. 377,807

Int. Cl. B07c *5/342*

U.S. Cl. 209—111.7 **7 Claims**



At least one light beam is directed across a continuously moving conveyor toward a light sensitive device arranged on the opposite side of the conveyor, and circuitry is provided in association with the light sensitive device to provide a "diameter" pulse proportional in real time to the width or diameter of the article passing along the conveyor. A pulse generator provides a train of pulses proportional in frequency to the speed of the conveyor and hence to the speed of the articles moving thereon. NAND gate means clips the train of pulses providing a series of pulses with a total time span corresponding to the real time duration of the "diameter" pulse. A counter receives these pulses, and has preset minimum and maximum values, which values when exceeded will generate "yes" and "no" pulses to logic circuitry for operation of a reject device downstream of the light beam for removing an article from the line when it does not meet predetermined standards.

3,837,487

FRUIT SIZING EQUIPMENT

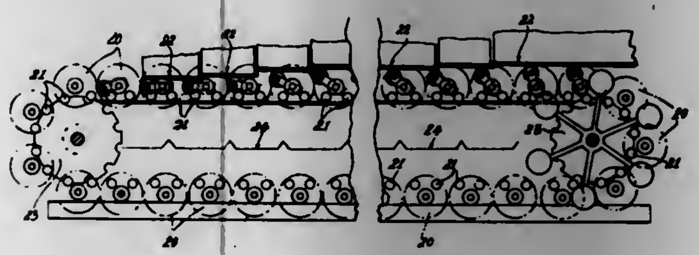
Robert F. Sherwood, Parow North, South Africa, assignor to Bradwood (Proprietary) Limited, Cape Province, South Africa

Filed Aug. 23, 1973, Ser. No. 390,685

Claims priority, application South Africa, Aug. 25, 1972, 72/5856

Int. Cl. B07b *13/04*

U.S. Cl. 209—106 **4 Claims**



Sizing apparatus for particular application in fruit sizing comprises a plurality of elements adapted for rotation and arranged in line and also laterally in banks to form an endless conveyor system, the elements being shaped convexly in planes at right angles to their axes of rotation and concavely in longitude such that a substantially circular aperture is formed between any two elements adjacent in line, which aperture increases in size when the elements are rotated and remains substantially circular.

3,837,488

SEPARATION OF MICA FROM CLAY BY FROTH FLOTATION OF CLAY

David C. Yang, Edison, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Township of Woodbridge, N.J.

Filed Aug. 1, 1972, Ser. No. 277,134

Int. Cl. B03d *1/06*

U.S. Cl. 209—167 **3 Claims**

Mica, present as an impurity in kaolin clay, is removed from the clay particles by stage-wise froth flotation of the clay in a dispersed alkaline pulp, using as a collector for the clay a complex phosphate ester of a nonionic surfactant of the ethylene oxide-adduct type.

3,837,489

MOLYBDENUM DISULFIDE FLOTATION ANTIFOAM

Raymond J. Michalski, Riverdale, and John T. Cantwell, Oak Lawn, both of Ill., assignors to Nalco Chemical Company, Chicago, Ill.

Filed Nov. 24, 1972, Ser. No. 309,013

Int. Cl. B03d *1/06*

U.S. Cl. 209—167 **5 Claims**

An antifoam and process for the separation of molybdenum values associated with predominantly copper ores of the sulfide type. The antifoam, which is primarily directed to laundering or cleaning stages in the moly cycle, consists of a utilization of 1–60 ppm of a polyoxyethylene glycol ester in a hydrocarbon diluent per ton of ore. The oxyethylene fraction has a value of about 100–2,000 and an optimum value of 400, and the fatty acid fraction is selected from $C_{14}-C_{22}$ acids. A preferred antifoam is polyethylene glycol 400 dioleate (P.E.G. 400 dioleate) in kerosene or isoparaffin oil as the diluent. HLB values for the P.E.G. antifoam range from 5–12 with a preferred value of 5–10 for the dioleate.

3,837,490

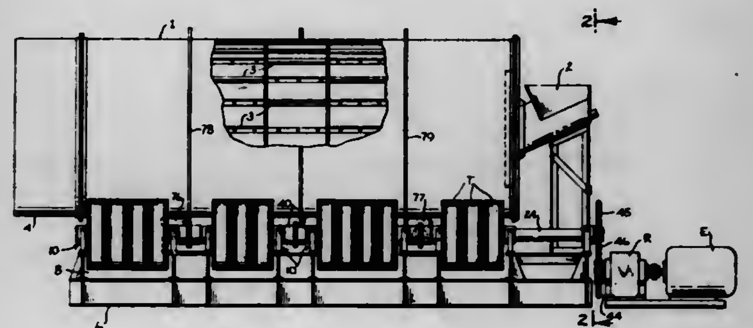
ROTATABLE DRUM TYPE SCRUBBER FOR STONES, ROCKS, GRAVEL, AND THE LIKE

Carl D. Driebel, Milwaukee; Ronald B. Dedlemar, Brown Deer, and Leroy J. Schuman, Milwaukee, all of Wis., assignors to Barber-Greene Company, Aurora, Ill.

Filed Dec. 3, 1973, Ser. No. 421,407

Int. Cl. B07b *1/24;* **B03b** *3/10*

U.S. Cl. 209—288 **4 Claims**



A rotary washer for crushed stone and the like and for scrubbing the stones to eliminate clay, dirt and soft stones and of the type having a hollow rotary drum which is rotated about a generally horizontal axis. The drum is rotatably supported by rubber tire wheel assemblies and in such a manner that the tires can be individually removed for repair, replacement or the like and without dismantling all of the other wheel assemblies or other parts of the rotary mounting means. The scrubber also includes double tapered roller anti-friction bearing assemblies of the pre-seal type and which are used to rotatably support the shafts on which the rubber tire wheel assemblies are mounted.

3,837,491

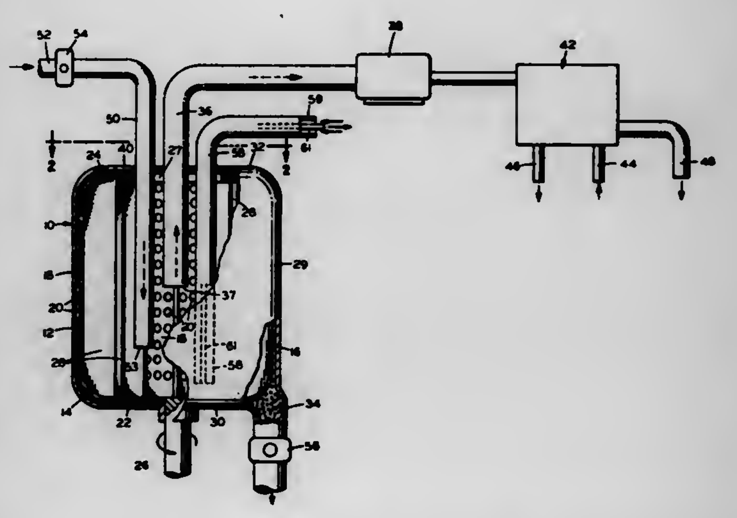
LIQUID PURIFICATION APPARATUS AND PROCESS

Gerald Francis Humiston, South Barre, and Barton Lester Cotton, Barre, both of Vt., assignors to Pollution Control Inc., South Barre, Vt.

Filed Nov. 3, 1972, Ser. No. 303,425

Int. Cl. B01d *33/06*

U.S. Cl. 210—73 **7 Claims**



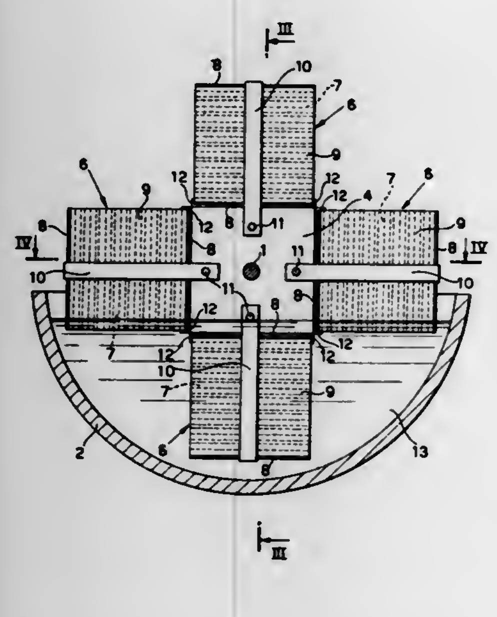
A method for the continuous mechanical purification of a liquid containing solid and dissolved pollutants includes charging a liquid chamber with polluted liquid and simultaneously subjecting the polluted liquid to centrifugal separation and vacuum distillation. The centrifugal separation effects the removal of said pollutants from the chamber and exposes a greater surface of relatively pure liquid for the vacuum distillation.

The purification apparatus is comprised of a stationary housing, a generally cylindrical and circumferentially perforated screen member concentrically disposed within the housing, and vanes within the screen member mounted for rapid rotation about the axis thereof to cause liquid therein to be centrifuged. Vacuum means for applying vacuum to the liquid within the screen member communicates with the liquid within the screen member through a vapor outlet in the housing while liquid inlet means and sludge outlet means located in the housing provide, respectively, for the charging of polluted liquid into the screen member and the removal of the sludge from the housing.

3,837,492

ROTATING FILTER FOR WASTEWATER BIOLOGICAL PURIFICATION

Carmine Di Bello, Via Negroponte 11-Lido, Lido Venezia, Italy
Filed Dec. 22, 1972, Ser. No. 317,787
Claims priority, application Italy, July 11, 1972, 084132-A/72
Int. Cl. B01d *25/00*
U.S. Cl. 210—150 **3 Claims**



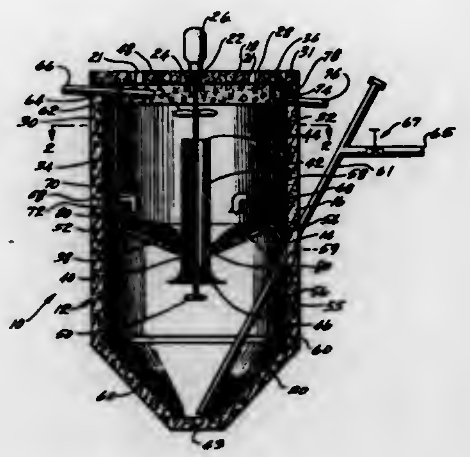
The invention relates to a rotating filter for wastewater biological purification. The filter comprises at least one pack of parallel channels that are open at their extremities. The pack is rotated in the direction of development of the channels, so that it is periodically in contact with the wastewater and then with the atmospheric oxygen. As a consequence of this construction of the filter, its purifying capability is improved greatly.

3,837,493

SEWAGE TREATMENT APPARATUS

Ye-Shih Lin, 213 W. Scenic Dr., Monrovia, Calif. 91016
Continuation-in-part of Ser. No. 124,790, March 16, 1971, Pat. No. 3,753,897. This application July 23, 1973, Ser. No. 381,536
Int. Cl. C02c *1/08, 1/16*
U.S. Cl. 210—197 **6 Claims**

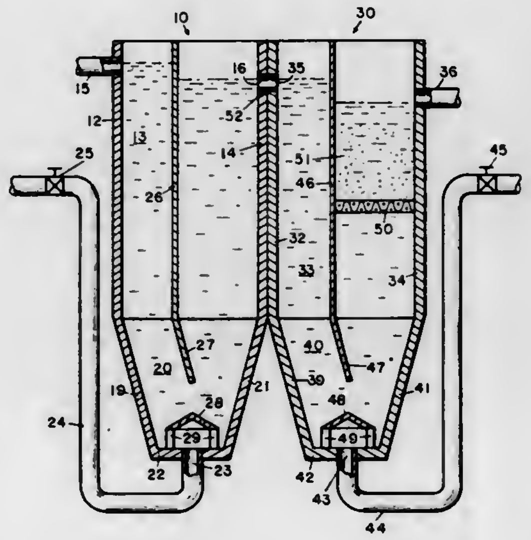
A sewage treatment package plant receives incoming raw sewage and purifies it by performing an activated sludge process thereon. Oxygen for re-aeration of sludge in the stabilization and digestion stages of the process is supplied directly from aerated sewage in the aeration stage. The plant is of unitary structure and includes partition means to subdivide the interior into separate aeration, stabilization and sedimentation chambers with a separate digestion cavity being defined beneath the stabilization chamber. The sedimentation chamber has a volume sufficiently large to fully absorb the effects of shock loadings. Means are included for directing aerated sewage directly from the aeration chamber into the stabilization chamber and digestion cavity for re-aeration of the sludge.



3,837,494

SEWAGE TREATMENT APPARATUS

Bernard H. Stevenson, 1736 Linhart Ave., Fort Myers, Fla. 33901
Filed Aug. 16, 1972, Ser. No. 281,125
Int. Cl. B01d *21/10, 29/00*
U.S. Cl. 210—259 **3 Claims**

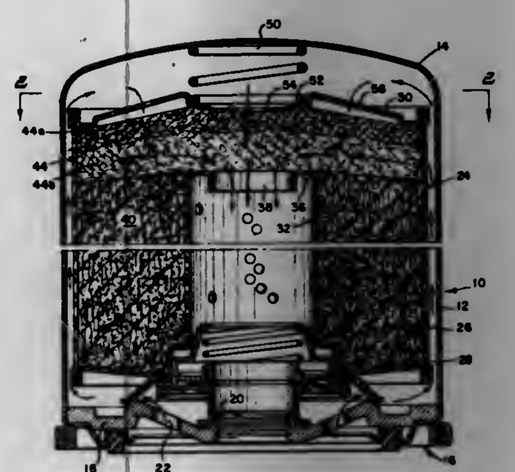


For use in a sewage treatment system, a settling tank and a filtering tank, each such tank having near its upper end an inlet and, at a slightly lower level, an opposite outlet, the outlet of the settling tank communicating with the inlet of the filtering tank, and each tank having in its nether region a section of downwardly progressively reducing cross section terminating in a floor provided with a central sludge withdrawal port. Each tank is provided with a downwardly extending baffle dividing its interior into two legs of unequal section communicating only near the tank floor; and the filtering tank having an upflow filter near the upper end of its outlet leg. A downwardly-flaring guard is concentrically suspended above each sludge withdrawal port and a lower section of each baffle is inclined to terminate above the apex of its associated guard substantially in the median vertical plane of the tank.

3,837,495

LIQUID FILTERS

Jesse A. Baldwin, Kearney, Nebr., assignor to J. A. Baldwin Manufacturing Company, Kearney, Nebr.
Filed Jan. 27, 1972, Ser. No. 221,304
Int. Cl. B01d *27/04, 27/02*
U.S. Cl. 210—314 **4 Claims**



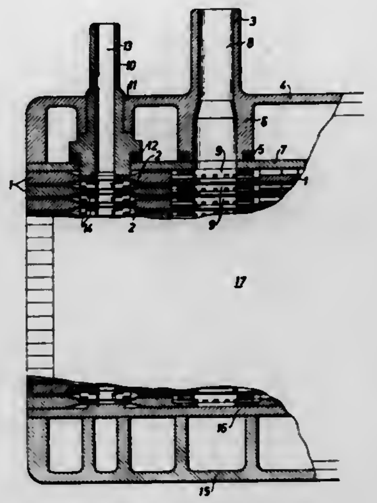
A liquid (engine-lubricating oil) filter comprising a closed-ended can-type housing, one end closure having oil inlet openings and a centrally disposed oil outlet opening; and a filter element or cartridge mounted in coaxial relation within the housing and including an outer cylindrical screen closed top-and-bottom by end caps, an inner, smaller-diameter cylindrical screen (center tube) disposed coaxially within the outer cylindrical screen and disposed therewithin so that it terminates well short of the upper end cap of said outer cylindrical screen, a part-flow section filling the annular space between said center tube and said outer cylindrical screen for the full axial length of said center tube, said part-flow section comprising a form-sustaining winding of cotton filtering material, and a full-flow section substantially completely filling the cylindrical space within said outer cylinderical screen above said part-flow section, said full-flow section comprising a self-contained, form-sustaining disc provided by superimposed layers of non-absorbent rayon viscose filaments which been subjected to a crimping treatment and thereupon texturized and said layers being secured together in face engagement by means, such as needling, which does not substantially impede oil flowing axially through the layer interface, said full-flow section resting directly on and being supported substantially completely by said part-flow section.

3,837,496

DIALYSIS APPARATUS

Olov Hagstrom, Lund, and Gerhard Riede, both of Eslov, Sweden, assignors to Gambro AG, Bern, Switzerland
Filed Apr. 2, 1973, Ser. No. 346,823
Claims priority, application Sweden, Apr. 26, 1972, 5474/72
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **5 Claims**

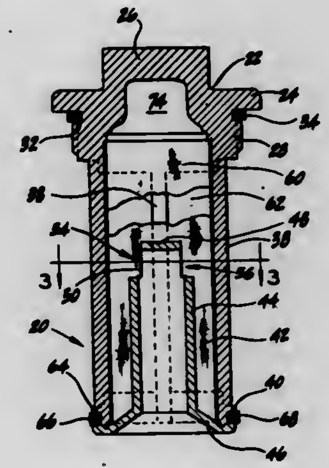
A dialysis apparatus, particulary for purifying blood includes an assembly of flat supporting plates stacked together with pairs of membranes interposed between the sides of adjacent plates. These membranes form passageways between them for the liquid to be purified, and other passageways are formed between each plate and the adjacent membrane for circulating the purifying liquid. The assembly of supporting plates and membrane pairs are traversed by tubular shafts for the purifying liquid and these shafts include distributing disks which clamp the respective pairs of membranes to the adjacent support plate.



3,837,497

FILTER ASSEMBLY

Russell F. Smith, St. Louis, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.
Filed Aug. 14, 1972, Ser. No. 280,236
Int. Cl. B01d *27/00*
U.S. Cl. 210—349 **2 Claims**



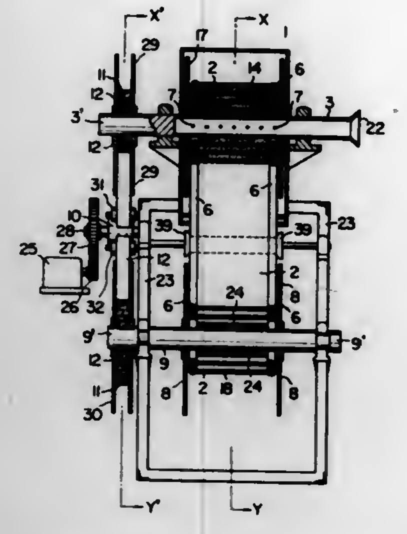
A disposable fuel pump filter assembly for insertion into a valve enclosure includes a first air dome in one end. A second air dome in the other end is defined by a conduit through which fuel passes to and from a filter chamber, a seal surrounding the second end of the filter assembly, and the wall of the valve enclosure itself.

3,837,498

AUTOMATIC FILTER

Kyoji Ito, No. 4 Nishi Inzo-cho, Seto, Japan
Filed June 11, 1973, Ser. No. 369,090
Claims priority, application Japan, Feb. 20, 1973, 48-19750
Int. Cl. B01d *33/02*
U.S. Cl. 210—387 **5 Claims**

An automatic filter which is characterized in that a liquid permeable long filter belt is rolled onto an upper tubular shaft and a lower shaft, and said filter belt and said upper tubular shaft are encased in a filter box to receive the liquid to be filtered. During the filtration, the filtrate is passed through the core material of said filter belt to a plurality of small apertures of said upper tubular shaft and discharged through said upper tubular shaft, while the filter cake is accumulated between the layers of rolled filter belt, and after the filtration, said filter cake is discharged by unrolling said filter belt from said upper tubular shaft to said lower shaft.



3,837,499

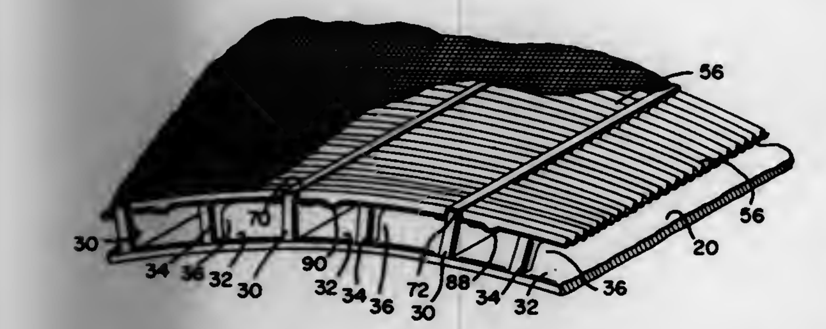
DRUM STRUCTURE FOR ROTARY DRUM FILTERING APPARATUS

Oscar Luthi, Nashua, N.H., assignor to Improved Machinery, Inc., Nashua, N.H.

Filed Mar. 29, 1971, Ser. No. 128,798The portion of the term of this patent subsequent to Aug. 1, 1989, has been disclaimed.

Int. Cl. B01d *33/06*

U.S. Cl. 210—404 **19 Claims**



A drum structure for rotary drum filtering apparatus, comprising a supporting drum carrying rib elements defining filtrate compartments which extend generally longitudinally along the drum circumference, and corrugated cover elements mounted to the rib elements by clips to form a cover circumferentially around the supporting drum over the filtrate compartments. Each groove of the corrugations in the outer surface of each cover element communicates with a therebelow filtrate compartment through a louvered opening arranged to discharge liquid in a direction generally towards the discharge end of the communicating filtrate compartment; and one side of each corrugated element is spaced from the thereadjacent portions of the drum structure to permit lateral expansion of the cover elements.

3,837,500

DIAPHRAGM FOR INVERSE OSMOSIS AND METHOD OF MAKING SAME

Louis Nicolas, Paris, and Richard Dick, Vert-le-Petit, both of France, assignors to Anvar-Agence Nationale de Valorisation, Paris, France

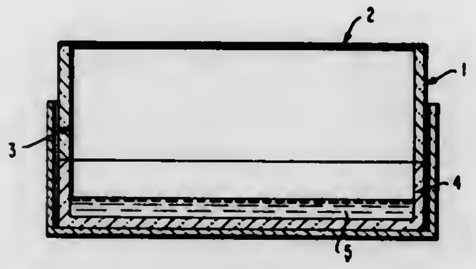
Filed Apr. 16, 1971, Ser. No. 134,815

Claims priority, application France, Apr. 17, 1970, 70.13941

Int. Cl. B01d *31/00*

U.S. Cl. 210—490 **35 Claims**

The invention relates to a method of preparation of semipermeable diaphragms, especially for use in inverse osmosis and enabling substantially pure water to be extracted from aqueous solutions of dissolved substances of low molecular weight, such as sodium chloride, saccharose, etc. The diaphragms for inverse osmosis essentially consist of a film-producing polymer having a sufficient number of mobile hydrogen groups to give, after reticulation, compounds which are insoluble in water. The method covers the preparation of ultra-thin layers which can be employed for hyper-filtration purposes, and also includes the superficial reticulation of a dry film of polymers which include, inter alia, the polyvinyl alcohols and polyvinyl pyrrolidone. The reticulation agent is preferably chosen from the di-isocyanates and may comprise a solvent for a swelling agent for the polymer and a catalyst for the reticulation reaction. An important feature of the invention is that the degree of reticulation of such diaphragms varies progressively throughout the thickness of the film, the most highly reticulated layer being a very thin superficial layer of the diaphragm.



3,837,501

SEPARATION DEVICE

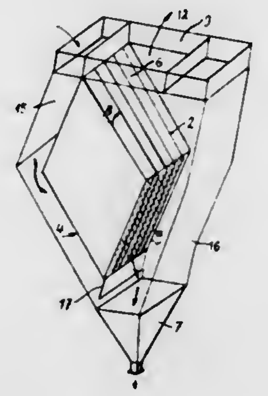
Jacob Pielkenrood, Krommenie, Netherlands, assignor to Pielkenrood-Vinitex N.V., Krommenie, Netherlands

Filed Feb. 4, 1971, Ser. No. 112,620

Claims priority, application Netherlands, Feb. 6, 1970, 7001713; Mar. 27, 1970, 7004494

Int. Cl. B01d *21/10*

U.S. Cl. 210—522 **16 Claims**



A device for separating components from a carrier liquid, comprising mutually parallel corrugated plates, troughs or similarly shaped surfaces, delimiting therebetween separation passages, the longitudinal axes of which corrugations or the like which determine the direction of removal of the separated components include an angle with the direction of the supply and discharge flow of the liquid, in order to obtain an optimal separation between the liquid flow and the flow of the separated components to be removed from the device.

3,837,502

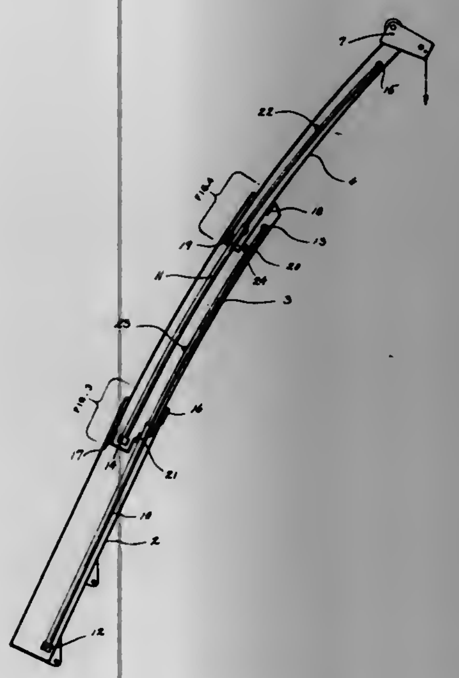
LIGHT WEIGHT BOOM CONSTRUCTION

John T. Hornagold, Waukesha, Wis., assignor to Bucyrus-Erie Company, South Milwaukee, Wis.

Filed Mar. 12, 1973, Ser. No. 340,018

Int. Cl. B66c *23/04*

U.S. Cl. 212—55 **8 Claims**



A truck mounted crane has a three-part, extensible boom in which telescopic motion is accomplished by a pair of extension cylinders contained within the boom. Frictional forces between the slidably mounted boom sections are minimized by improved pad assemblies positioned at selected bearing points. Support members in the form of rollers are positioned within the boom immediately above the lower extension cylinder to not only prevent the extension cylinder from buckling under full load conditions, but to support the outer boom section when it is retracted inward. The result is a reduction in the size and weight of the extension cylinders and a consequent reduction in boom weight.

3,837,503

HOISTING DEVICE FOR USE WITH CRANES

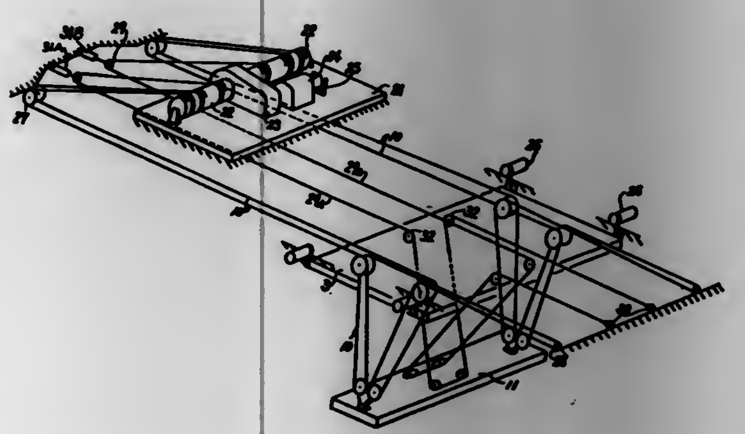
Toshiro Komatsu, Yokohama, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 24, 1972, Ser. No. 246,745

Claims priority, application Japan, Apr. 27, 1971, 46-34062

Int. Cl. B66c *19/00*

U.S. Cl. 212—83 **1 Claim**



A trolley is provided in a set of two or more hoisting pulleys or sheaves on one side and another set of two or more hoisting pulleys or sheaves on the other side carried by a trolley frame which travels along a horizontal girder are so arranged as to mechanically move toward or away from each other, so that the loading and unloading of a cargo in a narrow space may be effected.

3,837,504

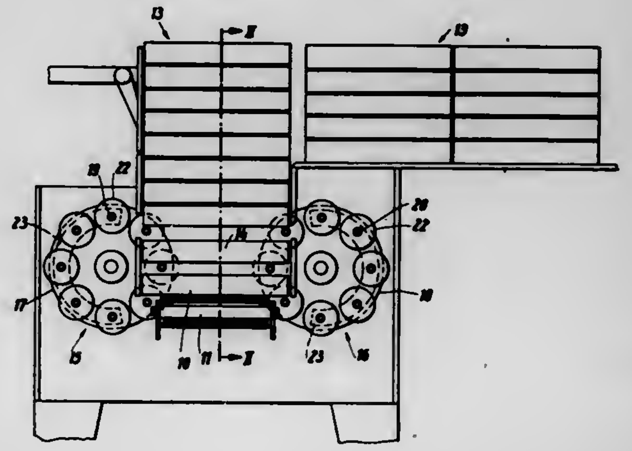
DEVICE FOR LIFTING CONTAINERS IN CONNECTION WITH A PACKING MACHINE

Heinz Focke, Verden/Aller, and Hugo Mutschall, Kreis Verden/Aller, both of Germany, assignors to Focke & Pfuhl, Verdan/Aller, Germany

Filed Mar. 26, 1973, Ser. No. 344,662

Int. Cl. B65g *57/30*

U.S. Cl. 214—6 BA **6 Claims**



Apparatus is described for stacking a plurality of containers upon removal from a conveyor. The stacking apparatus comprises a wheel located at each side adjacent one end of the conveyor, each wheel having a plurality of rods slidingly affixed thereto adjacent the periphery of the wheel. As the wheels are rotated, a rod engages each side of a container or plurality of containers to lift them from the container. Further rotation causes the rods to eventually become disengaged from the containers. The thus raised containers are then supported by those containers raised by subsequent rods.

3,837,505

APPARATUS FOR FORMING PACKAGES FROM CONTINUOUSLY INCOMING PRINTED PRODUCTS OR THE LIKE

Sergio Muggli, Wetzikon, Switzerland, assignor to Fehr & Reist AG, Hinwill, Switzerland

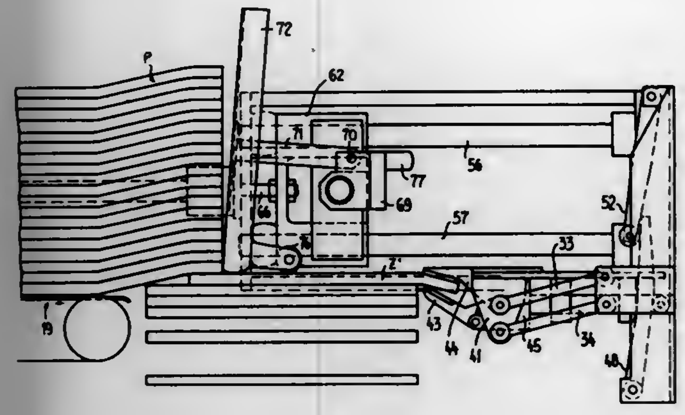
Filed May 1, 1973, Ser. No. 356,136

Claims priority, application Switzerland, May 19, 1972, 7463/72

Int. Cl. B65g *60/00*

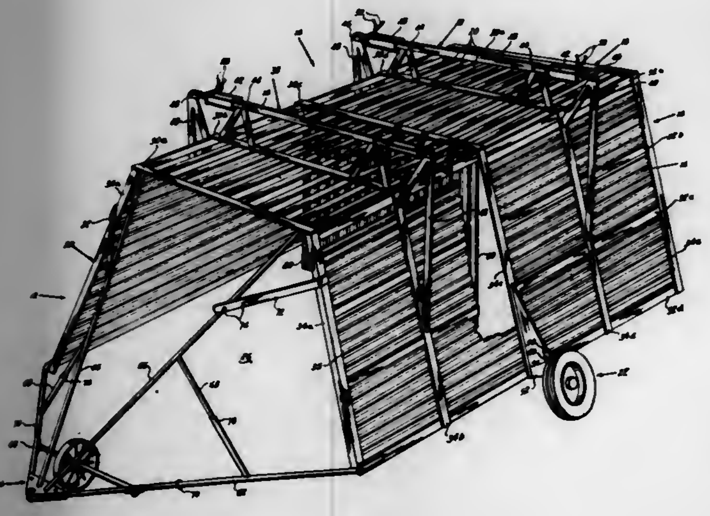
U.S. Cl. 214—6 BA **10 Claims**

An apparatus for forming packages from continuously arriving or incoming printed products or the like, wherein a bottomloaded stacker follows an infeed mechanism for the printed products. A controlled deflecting element is provided at the course or line of the infeed mechanism or the stacker and this deflecting element is effective transversely with respect to the momentary conveying direction in order to place individual printed products into a laterally shifted or offset position with respect to the remaining printed products. A controlled gripper is provided in operable association with the stacker for the purpose of temporarily holding the laterally shifted printed product. Above the gripper there is arranged an ejector controlled to operate in-phase as the gripper, this ejector serving to laterally displace away, in the form of a package, the printed products located upon the held laterally shifted printed product.



3,837,506
STACK FORMER

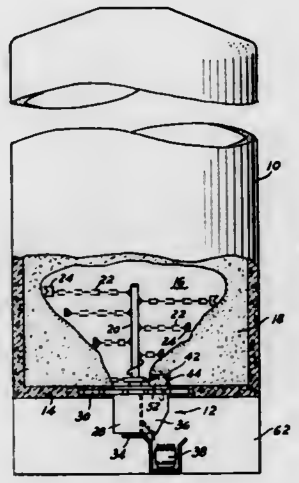
Melvin E. Dreier, Dumont, Iowa 50625
Filed Sept. 14, 1973, Ser. No. 397,271
Int. Cl. B65g *57/00*
U.S. Cl. 214—9 **10 Claims**



A frame structure having a top and sides but no bottom or ends receives blown roughage materials such as corn and hay silage, dry hay, corn stalks and the like and serves as a form to create a stack of silage formed directly on the ground. The frame is wheel mounted at the sides with such sides being hinged at the top so that they can be moved outwardly at the bottom at an incline to the top for stack forming and can be in a vertical position for transportation through gates and over bridges and roads. Movement of the sides is preferably by hydraulic power and the axles of the wheels are rotatable 90° so the wheels can be properly oriented to the direction of movement of the sides when being extended or for forward travel. A baffle plate hingedly depends from the top between the sides to intercept blown roughage and cause it to fill the former which, when filled, can be pulled forwardly by a tractor with the baffle swinging up to ride over the top of the stack. The stack may be of any desired length and is uniform in shape.

3,837,507
ADJUSTABLE BOTTOM DISCHARGE FOR SILO

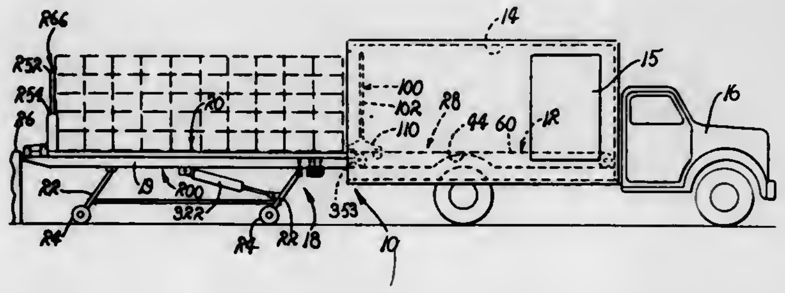
James W. Lepley, Smithville, and John E. Stoltzfus, Apple Creek, both of Ohio, assignors to Flying Dutchman, Inc., Smithville, Ohio
Filed Feb. 20, 1973, Ser. No. 333,474
Int. Cl. B65g *65/48*
U.S. Cl. 214—17 D **13 Claims**



Adjustable discharge means mounted adjacent the bottom of a silo having a discharge opening therein and including a shield member over said discharge opening to prevent clogging thereof, one side of the shield member being open for the admission of material to be discharged therethrough, movement of said material in discharged direction being controlled by a baffle member movable relative to the open side of the shield member and also adapted to close said opening at the completion of a discharge operation. The baffle member is adapted to be adjusted from the exterior of the silo for safety to the operator and minimizing the possibility of ambient air passing into the silo through said discharge opening.

3,837,508
CARGO HANDLING SYSTEM

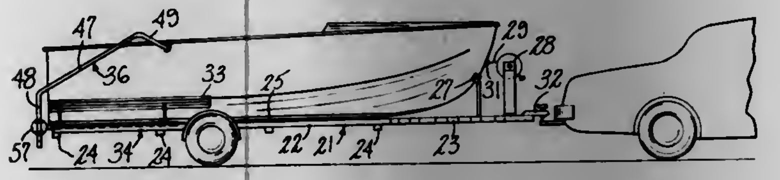
William L. Stefanelli, 1945 W. Yale, Fresno, Calif. 93721
Continuation-in-part of Ser. No. 38,155, May 18, 1970, Pat. No. 3,688,926. This application Apr. 19, 1972, Ser. No. 245,479
Int. Cl. B60p *1/36*
U.S. Cl. 214—83.22 **4 Claims**



A cargo-handling system particularly suited for use in loading and unloading cargo carriers, characterized by a cargo conveyor for positioning cargo at selected and convenient locations within a carrier, such as a truck, and a cargo delivery transport including a delivery conveyor for delivering cargo to and from the cargo positioning conveyor, whereby the efficiency and economy of cargo-handling operations are enhanced.

3,837,509
BOAT ALIGNMENT APPARATUS FOR ATTACHMENT TO BOAT TRAILER

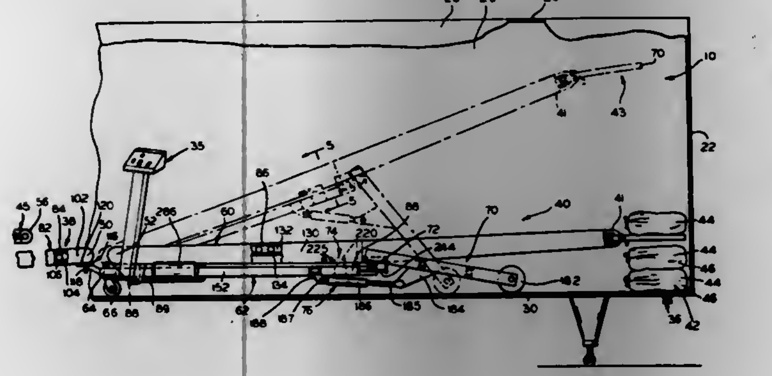
Ronald C. Gladnick, Smithtown, N.Y., assignor to Compass Holding Corporation, New York, N.Y.
Filed Nov. 8, 1972, Ser. No. 304,618
Int. Cl. B60p *1/46*
U.S. Cl. 214—84 **13 Claims**



Apparatus attachable in pairs to rear portions of a boat trailer for guiding a boat onto or off the trailer, wherein the apparatus comprises an elongated rigid first member attachable to the chassis of the trailer; an elongated rigid second member coupled to the first member transversely thereof and pivotable about the longitudinal axis of the first member; an arm-like third member coupled to the second member generally transversely thereof and pivotable about the longitudinal axis of the second member; and means for locking the members at predetermined positions relative to one another.

3,837,510
METHOD OF LOADING BAGGED MAIL FROM A LOADING DOCK INTO A HIGHWAY VEHICLE

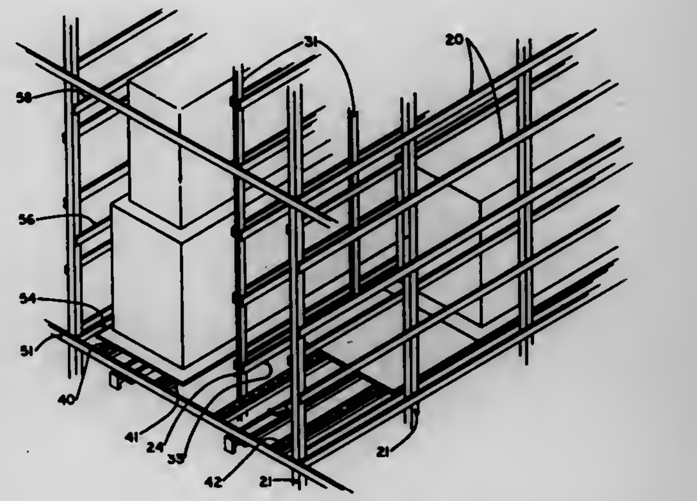
Joseph E. McWilliams, 1345 Canterbury Ln., Glenview, Ill. 60025
Division of Ser. No. 108,500, Jan. 21, 1971, Pat. No. 3,717,263. This application July 17, 1972, Ser. No. 272,477
Int. Cl. B65g *57/11*
U.S. Cl. 214—152 **1 Claim**



The invention relates to the loading of mail bags from a loading dock into an end loading highway vehicle to fully load the vehicle with mail bags, in which a mail bag handling conveyor is provided with a single bar width conveyor section carried by and extending longitudinally of a wheeled frame. The conveyor section projects cantilever fashion from the forward end of the frame, which is supported at its forward end by a swingably mounted leg that is movable between lowered and upright positions to vary the elevation of the discharging forward end of the conveyor section. The conveyor section is swingably connected to the frame at its rearward end, and its forward end rests on a slide bar arrangement for shifting from side to side to facilitate bag stacking or piling.

3,837,511
METHOD OF LOADING AND UNLOADING ARTICLES IN A STORAGE APPARATUS

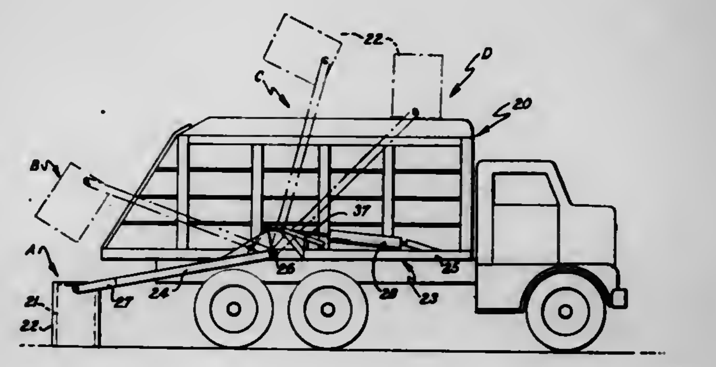
Newel Howlett, 1401 Hillside Pl., Las Vegas, Nev. 89104
Division of Ser. No. 191,947, Oct. 22, 1971. This application Feb. 9, 1973, Ser. No. 331,018
Int. Cl. B65g *1/06*
U.S. Cl. 214—152 **3 Claims**



An improved apparatus and method for storing and handling articles and particularly refrigerated or frozen foods comprises a series of adjacent elongated storage compartments having rollers extending along the length of the bottom of each compartment on which rollers lie a row of flat plates which may be advanced along the rollers and on the upper surface of which plates materials are stacked. Plate advancing means are provided by a guided shaft extending substantially along the length of each compartment which shaft has attached thereto a series of catch members for contacting catch member receiving or stop means located on the underside of each of the plates; an operator advances the row of plates toward one end of the compartment by pulling the end of the shaft.

3,837,512
REFUSE TRUCK CONTAINER HANDLING MECHANISM

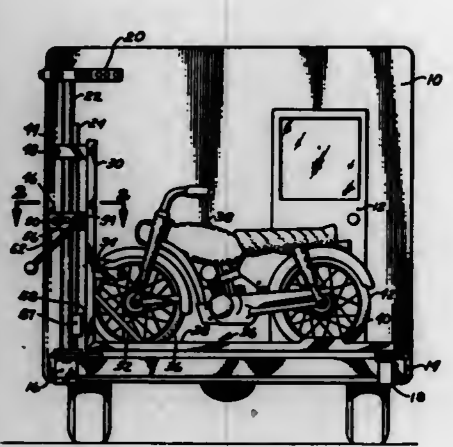
Donald C. Brown, Box 194, Botkins, Ohio 45306
Filed Oct. 30, 1973, Ser. No. 410,983
Int. Cl. B65f *3/02*
U.S. Cl. 214—302 **8 Claims**



A power-operated pivotal arm mechanism for moving refuse containers through a long arcuate path between a rear lowered container loading position and a forward inverted container washing position features a sliding link and fixed guide means therefor for imparting to the arms of the mechanism the required arc of movement.

3,837,513
MOTORBIKE LOADER-CARRIER

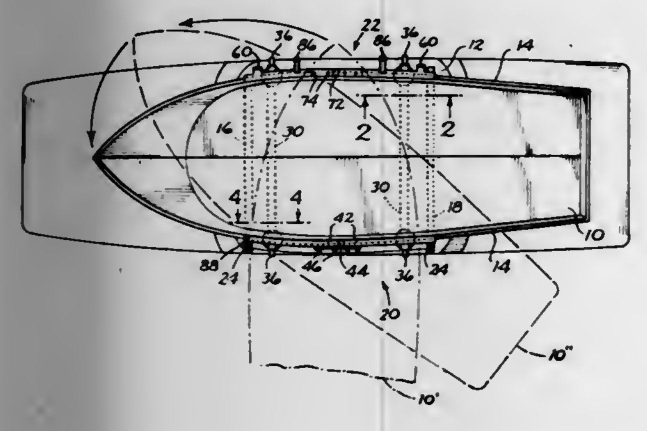
Victor Adamek, 1210 Opal St., San Diego, Calif. 92109
Filed Aug. 31, 1972, Ser. No. 285,199
Int. Cl. B60r *9/00*
U.S. Cl. 214—450 **7 Claims**



A motorbike loader-carrier on the rear of a camper vertically movable for loading and unloading and horizontally swingable while loaded to permit access to the rear storage compartment or door of the camper.

3,837,514
BOAT CARRIER FOR VEHICLES

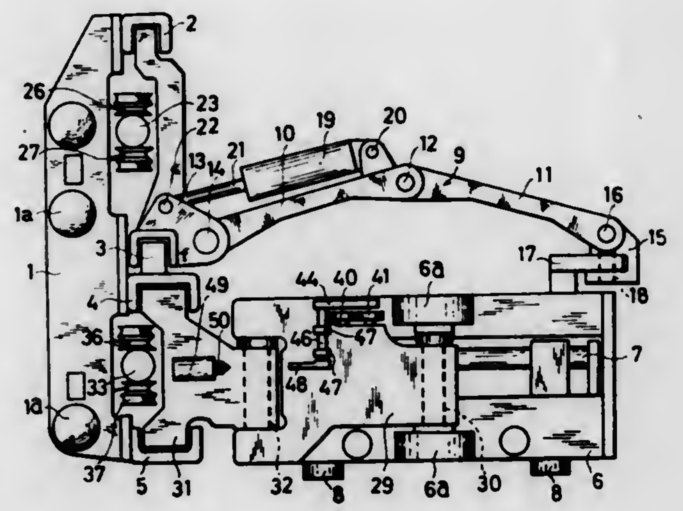
Reno R. Barnes, 3420 Crestview Dr. South, Salem, Oreg. 97302
Filed Nov. 20, 1972, Ser. No. 308,290
Int. Cl. B60r *9/00*
U.S. Cl. 214—450 **6 Claims**



A frame, adapted to be secured to the top of a vehicle, includes a pair of laterally spaced, longitudinal retaining members providing grooves arranged to receive the opposite gunwales of a boat. One of the members is formed of hinged sections arranged to be secured together releasably in gunwale-retaining position. Associated with the hinged sections is a cam member which functions, during closing of the hinged sections, to push the boat toward the opposite groove for entry therein of the associated gunwale. Upon opening of the hinged sections, the cam member functions to elevate the associated side of the boat and to retract the opposite gunwale from its associated groove.

3,837,515
INDUSTRIAL TRUCK

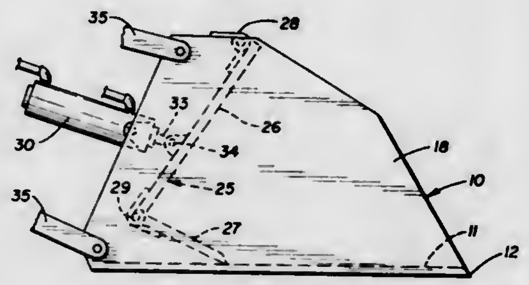
Shuji Ohta, Toyohashi, Japan, assignor to Toyota Automatic Loom Works, Ltd., Aichi-ken, Japan
Filed Sept. 20, 1972, Ser. No. 290,469
Claims priority, application Japan, Sept. 20, 1971, 46-073188
Int. Cl. B66f *9/14*
U.S. Cl. 214—730 **9 Claims**



An industrial "fork-lift" truck comprises a guide means, a load support means, and a pair of connecting means which support said load support means slidably along said guide means, rigidly by a novel connecting means having at least a line and a point support, and swingably only at each end of said guide means, by means of a novel hydraulic system which is controlled by a simple lever with a help of a few unique control valves.

3,837,516
LOADER BUCKET WITH EJECTOR

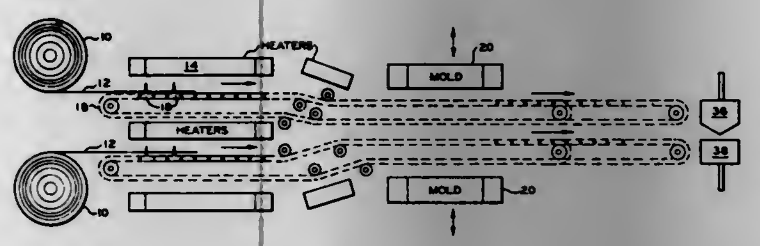
Gustave Meyer, Northglenn, Colo., assignor to Irvin L. Stumpf, Wheat Ridge and Raymond R. Primozich, Westminster, both of, Colo., part interest to each
Filed June 9, 1972, Ser. No. 261,386
Int. Cl. E02f *3/70*
U.S. Cl. 214—767 **3 Claims**



An ejector bucket for mounting on a front end loader or backhoe loader vehicle, provided with an ejector actuated by mechanism carried on the bucket. The ejector comprises two flat plates hingedly connected together, the upper plate being hinged to the forward edge of the top wall of the bucket. In their rearward retracted position, the ejector plates form an acute angle within the rearward portion of the bucket and close openings in the stationary frame-like rear wall and bottom of the bucket, whereby the structure as a whole is lightened. In their forward discharging position the hinged ejector plates are in a substantially single plane. The ejector actuating mechanism includes an hydraulic cylinder pivotally mounted on supports extending across the rear wall opening, and a piston pivotally connected to the upper ejector plate, whereby a short power stroke actuates the ejector for complete discharge of the contents without tilting the bucket, thus permitting operation within restricted areas.

3,837,517
MOLECULARLY ORIENTED HOLLOW ARTICLE, SUCH AS A BOTTLE

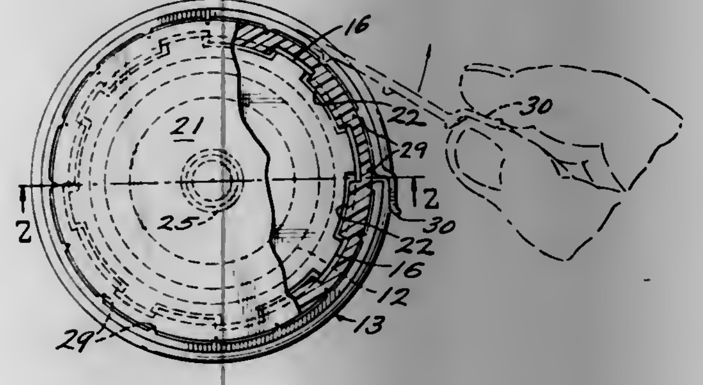
Edward C. Held, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Division of Ser. No. 90,576, Nov. 18, 1970, Pat. No. 3,709,967. This application Sept. 6, 1972, Ser. No. 286,687
Int. Cl. B65d *23/00;* **B29c** *17/04;* **B29b** *5/04;* **B32b** *1/04;* **B27c** *27/00*
U.S. Cl. 215—1 C **7 Claims**



Hollow articles are fabricated from two flat sheets by passing said sheets through a heating zone to heat same to orientation temperature, and thence advancing said sheets between two mold halves. The mold halves are then brought together and differential fluid pressure causes the sheets to conform to the shape of the respective mold halves, the sheets being sealed around the peripheral edges of the mold.

3,837,518
TAMPER-PROOF AND CHILD-PROOF MEDICINE BOTTLE OR THE LIKE

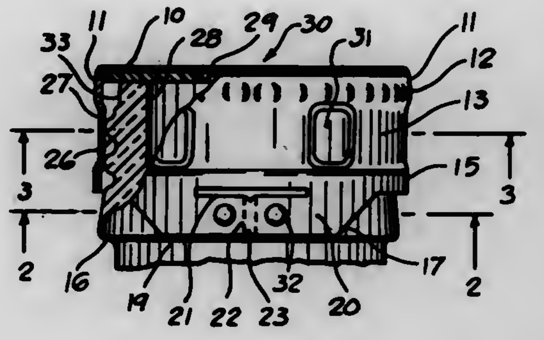
Peter P. Gach, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind.
Filed Nov. 30, 1972, Ser. No. 310,998
Int. Cl. A61j *1/00;* **B65d** *55/02*
U.S. Cl. 215—7 **4 Claims**



A tamper-proof and child-proof closure for a medicine bottle or the like. The closure consists of an inner cap having threads on its inner surface mating with threads on the bottle neck and an outer overcap enclosing the inner cap and normally rotatable relative thereto. Co-operating clutch means on adjacent surfaces of the inner and outer caps are engageable for unscrewing the inner cap by moving at least part of the overcap axially toward the bottle and then rotating the overcap. The overcap has a removable skirt on its lower edge which initially engages the bottle shoulder near the neck to prevent the overcap from being moved into clutch engaging position until after the skirt has been removed.

3,837,519
CONTAINER CLOSURE WITH OPENING INDICATORS

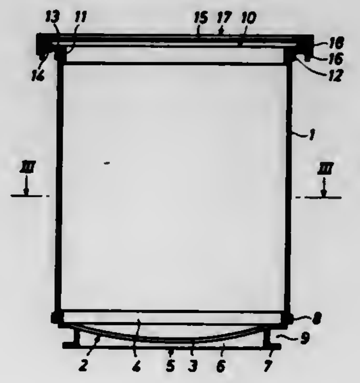
Walter Merton Perry, 76 Locust Hill Rd., Darien, Conn. 06820
Filed Jan. 16, 1973, Ser. No. 324,083
Int. Cl. A61i *1/00;* **B65d** *55/02*
U.S. Cl. 215—7 **14 Claims**



A tamper indicating closure for containers having a threaded section below the mouth and an annular locking shoulder below the threads, in which two or more tamper indicator extensions project down from the closure main body, and have horizontal cross slots and vertical score lines and their lower edges hooked to the locking shoulder, and such that the score lines rupture when the closure is removed. Score lines may be notched at the ends to provide rounded corners and projecting bosses shield the sharp edges. Alternative design comprises complete circle of rectangular segments below a ring of horizontal slots, and with the segments defined by vertical score lines extending from the lower edge up to bisect the wall material between adjacent slots, thus providing firm anchorage of upper corners of all segments after rupture of score lines. The preformed cup for the closure, prior to threading, is made with spaced depressions around the cylindrical side wall to provide concentric alignment of closure top panel and gasket on mouth during sealing and threading. Alternatively depression in top panel provides improved centering. Advantages of closure include less material and lower cost, more positive tamper indication, impossible to restore after tampering, free of sharp corners and sharp edges that cut fingers. A torquing mechanism is provided in the bottling line to insure uniform removal torque. Improvements apply to both pre-threaded and threaded-on-neck types of closures in ductile metal or plastic.

3,837,520
CONTAINER, ESPECIALLY FOR AGRICULTURAL PRODUCTS

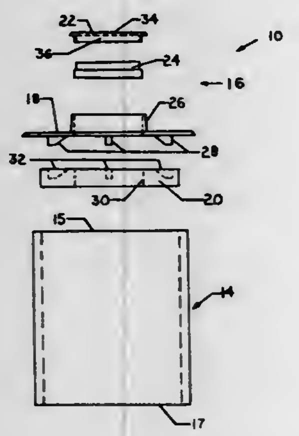
Jan Freudendahl, Lyngby, Denmark, assignor to Jens Axel Freudendahl, Sonderborg, Denmark
Filed Mar. 6, 1973, Ser. No. 338,718
Claims priority, application Denmark, Mar. 7, 1972, 1048/72
Int. Cl. B65d *89/08*
U.S. Cl. 220—1.5 **5 Claims**



The invention consists in a container which is built up of a tube which is open in both ends and bottom end cover means which close the tube air-tightly and constitutes foot means for the container, the top end of the tube being air-tightly closed by top cover means. The bottom cover means are adapted to engage fork-shaped lifting means on a fork lift truck. The container is very cheap to manufacture and has a low weight. The container is easy to detach and to stow away.

3,837,521
INSULATED METER ENCLOSURE

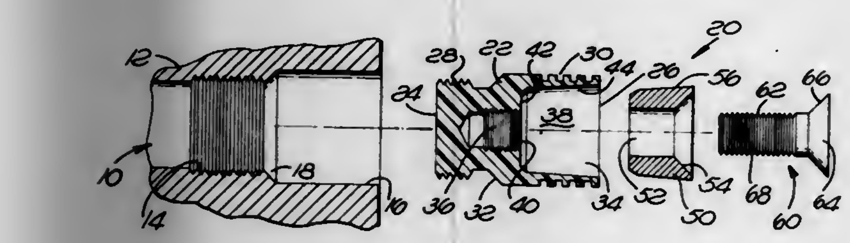
Richard A. Huston, 1009 N. Edgemoor, Wichita, Kans. 67207, and Leroy W. McQueary, 210 N. Walnut, both of Wichita, Kans. 67203
Filed Jan. 10, 1972, Ser. No. 216,466
Int. Cl. H02g *3/08*
U.S. Cl. 220—3.3 **7 Claims**



An insulated meter enclosure has a sidewall of insulative material and a cover of insulative material portions. The meter enclosure mounts in the ground and utilizes a conventional meter box lid structure to which insulating portions are attached.

3,837,522
MULTIPLE RETENTION PLUG FOR SEALING OPENINGS IN METAL PARTS

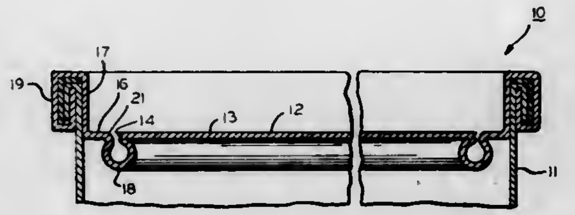
Michael Lesnansky, Jr., Sylmar, Calif., assignor to Textron, Inc., Providence, R.I.
Filed Oct. 9, 1973, Ser. No. 404,543
Int. Cl. B65d *39/12*
U.S. Cl. 220—24.5 **7 Claims**



A plug for sealing opening in metal parts. The plug includes screw threads for engagement with threads in the metal parts and also includes lands and grooves on the outer surface thereof. Means is provided for expanding the outer surface of the plug into sealing engagement with the surface of the opening in the metal part. The expanding means is a pin forced into an opening provided in the plug through the utilization of a screw, which engages interior threads provided in the opening of the plug. The screw remains in position so as to retain the expanding pin against release as a result of vibrations. An alternative embodiment discloses a ball which is pressed into a small diameter opening in the plug, thus causing the threads at the end of the plug to sealingly engage the threads provided in the opening in the metal part. A pin is then inserted into the opening in the plug to force the lands and grooves to expond into engagement and accomplish a second seal with the inner surface of the opening in the metal part.

3,837,523
BEADED CLOSURE FOR CONTAINERS

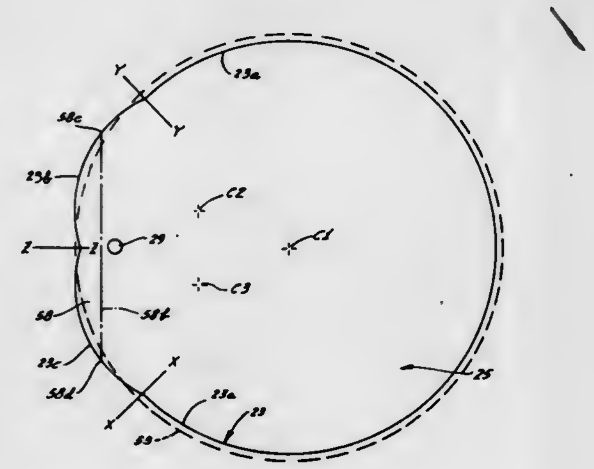
Melvin A. Koboldt, deceased, late of St. Louis, Mo. (by Norma Koboldt, executrix); Ellsworth J. Ruf, Florissant, and Anthony W. Kennedy, Crestwood, both of Mo., assignors to Container Corporation of America, Chicago, Ill.
Filed Jan. 18, 1973, Ser. No. 324,860
Int. Cl. B65d *17/00*
U.S. Cl. 220—27 **1 Claim**



A closure for a container body includes a central panel having a removable portion defined by a line of weakness and a fixed portion surrounding the removable portion and secured to the container body. The fixed portion is detachably joined to the removable portion by an uninterrupted hollow bead disposed below the plane of both portions, the bead having a transverse cross section defining an open top channel. One edge of the opening of the channel is connected to the removable portion at the line of weakness, and the other edge of the opening is connected to the fixed portion, the channel affording entrance for a conventional can closure opening tool which separates the removable portion from the bead at the line of weakness.

3,837,524
EASY OPENING CONTAINER WALL

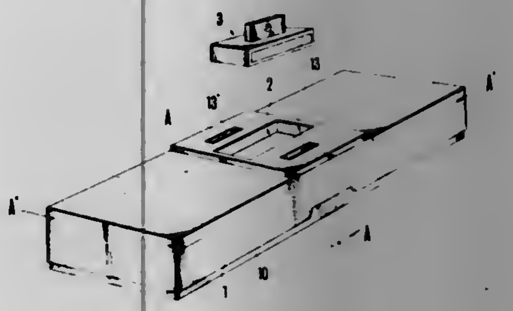
James R. Schubert, 4243 Merrimac Ave., Dayton, Ohio 45405, and Omar L. Brown, 148 Napoleon Dr., Dayton, Ohio 45429
Continuation-in-part of Ser. No. 238,187, March 27, 1972. This application Feb. 28, 1973, Ser. No. 336,404
Int. Cl. B65d *17/20*
U.S. Cl. 220—54 **17 Claims**



An easy opening container wall comprising a container wall of sheet material having a line of weakness therein defining a tear portion at least partially removable from the container wall. Removal of the tear portion provides a relatively sharp edge along the tear portion. A guard is provided along the periphery of the tear portion to protect the consumer from injury. The guard is interrupted adjacent the location at which the line of score is initially ruptured to facilitate such initial rupture. The outer periphery of the guard and the score line are configured and positioned relative to each other to minimize interference by the guard during the opening operation.

3,837,525
CASE HAVING MAGNETIC LOCK MEANS

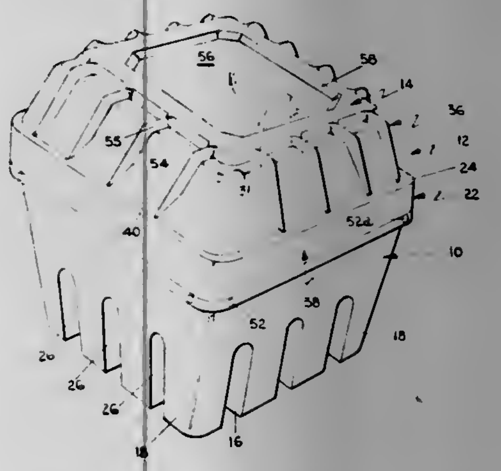
Sanzo Kobayashi, No. 34-9 Ryusen 3-chome, Taito-ku, Tokyo, Japan
Filed Aug. 9, 1972, Ser. No. 279,181
Claims priority, application Japan, Nov. 17, 1971, 46-107707
Int. Cl. A47j *27/08, 36/10;* **B65d** *45/00*
U.S. Cl. 220—55 K **5 Claims**



A case includes a bottom part or tray with a cover part which is telescopically engagable therewith. The top and bottom parts include interengagable latching members, namely a movable depending latch carried by the cover which is engagable with a detent or receiving latch part carried by the bottom when the two parts are telescopically engaged. The top part or cover includes a recess in which designed to receive a magnet, which magnetically attracts the latch parts carried by the cover so that they are displaced out of engagement with the receiving detents carried by the bottom part to unlock the device. The magnet is provided with a handle so that it may be lifted into and out of the recess defined in the top part in accordance with whether the two parts are to be locked together or unlocked.

3,837,526
COVER FOR PRODUCE CARTON

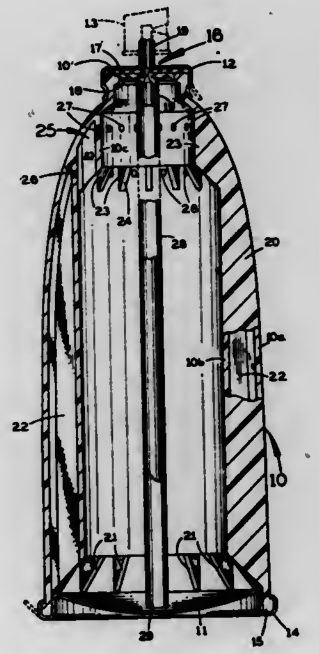
Roger L. Medendorp, Grand Rapids, Mich., assignor to Kirkhof Manufacturing Corporation, Grand Rapids, Mich.
Filed Aug. 31, 1972, Ser. No. 285,344
Int. Cl. B65d *43/10*
U.S. Cl. 220—60 R **16 Claims**



A berry container and its contents are enclosed by a one-piece cover differential-pressure formed of very thin thermoplastic material suitable for packaging, protecting and displaying the berries. The cover is cup-shaped and the interior of each side is formed with a narrow shoulder which seats on the upper lip of the container to index the cover relative the container. A pair of differential-pressure formed, rounded protuberances positioned at each corner beneath the shoulder are cammed over the container lip to releasably lock the cover lip to the container. Increased resistance to deflection by both vertical and transverse loads is obtained by forming into the sides a series of longitudinally spaced vertically standing ribs.

3,837,527
REINFORCED AEROSOL CONTAINER

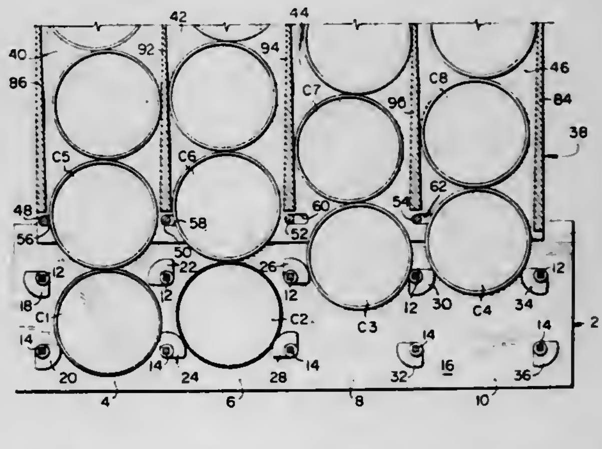
Louis F. Kutik, 8720 S.W. 23rd Pl., Fort Lauderdale, Fla. 33314, and Raymond R. Swier, 20200 W. Country Club Dr., Townhouse 121, North Miami Beach, Fla. 33163
Filed Mar. 16, 1973, Ser. No. 341,895
Int. Cl. B65d *7/42*
U.S. Cl. 220—72 **13 Claims**



An aerosol container having a plastic container body with an annular outer wall reinforced by radial ribs which divide the interior circumferentially into compartments that are open to each other. Preferably, these ribs tie the outer wall to a cylindrical inner wall that is spaced inside the outer wall.

3,837,528
ARTICLE DELIVERY SYSTEMS FOR VENDING MACHINES HAVING SEQUENTIALLY ACTUATED DISPENSERS

John J. Rakucewicz, Northport, N.Y., assignor to Kinematics and Controls Corporation, New York, N.Y.
Division of Ser. No. 52,477, July 6, 1970, Pat. No. 3,713,715. This application Nov. 2, 1972, Ser. No. 303,260
Int. Cl. B65g *3/44*
U.S. Cl. 221—114 **10 Claims**



An article delivery system for vending machines comprising a vending mechanism and a vend rack. The vending mechanism comprises a plurality of vending columns, each having a gate which is disposed out of phase a predetermined amount with at least one other gate, and which is moveably affixed with respect to a vending column. When the gate is in a closed position the articles may be retained in and above the vending mechanism. By periodically causing the gates to move a predetermined amount, one gate will be selectively moved to an open position during each vending cycle such that the articles in and above the vending mechanism may be sequentially vended. The vend rack may be affixed to the vending machine, or comprise a plurality of portable vend rack modules.

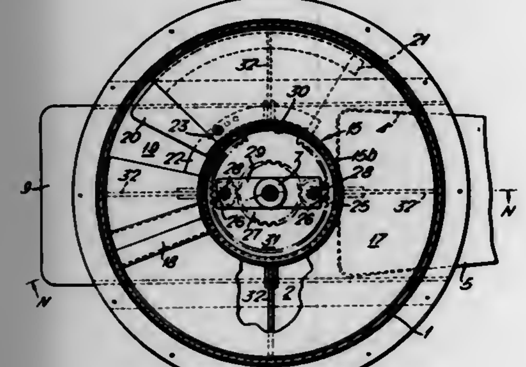
3,837,529
BOTTLING SYSTEM

Kazuo Ueda, Tokyo, Japan, assignor to Shikoku Kakooki Co., Ltd., Tokushima, Japan

Division of Ser. No. 231,286, March 2, 1972, Pat. No. 3,792,949. This application Mar. 19, 1973, Ser. No. 342,379

Int. Cl. B65g *65/48*

U.S. Cl. 221—265 **2 Claims**



A bottling system comprising a molding machine for producing synthetic resin bottles, a bottle aligning machine for continuously receiving the bottles and sending them successively out in a row in an upright position, a bottling machine to be supplied with the bottles from the bottle aligning machine for filling the bottles, a printing machine disposed in the path of travel of the upright bottles for printing the bottles, and a capping machine such as a heat sealer for capping the filled bottles.

3,837,530
SHANK SUPPLY FOR BUTTON-SEWING ATTACHMENTS

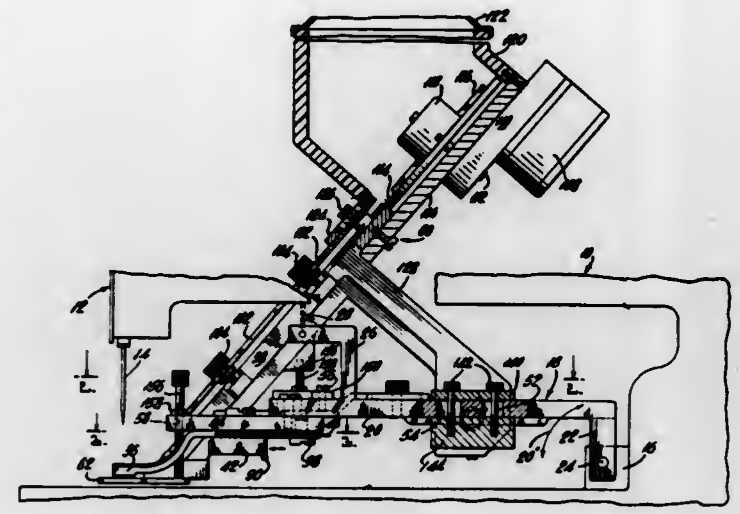
Benjamin L. Snyder, Hillside, N.J., assignor to Pentapco, Inc., Elizabeth, N.J.

Continuation-in-part of Ser. No. 251,824, May 9, 1972. This application Apr. 26, 1973, Ser. No. 354,824

Int. Cl. B65h *5/16*

U.S. Cl. 221—268 **13 Claims**

A shank supply for a button-sewing attachment. The shank supply has a positioning portion for positioning a shank properly with respect to a button, and a feed is provided for feeding a shank to the positioning portion to the held thereby at a proper position with the feed retaining the shank at the location determined by the positioning portion in such a way that the shank is freely rotatable. A guide is provided for guiding a series of shanks in succession to the feed which functions to successively deliver the shanks individually to the positioning portion.



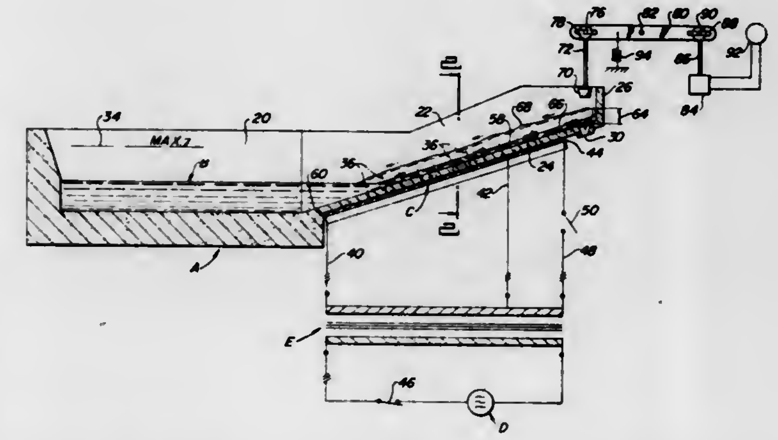
3,837,531
METHOD FOR POURING LIQUID METAL USING ELECTROMAGNETIC PUMP

Henry L. Eickelberg, Port Washington, Wis., assignor to Modern Equipment Company, Port Washington, Wis.

Filed Feb. 14, 1972, Ser. No. 226,114

Int. Cl. B22d *37/00*

U.S. Cl. 222—1 **5 Claims**



Molten metal is poured from a receptacle through a discharge orifice at a substantially constant predetermined discharge rate. Metal is transferred from the receptacle to the orifice at a rate in excess of the predetermined discharge rate to completely cover the orifice with a predetermined head of liquid metal. Metal transferred to the orifice from the receptacle in excess of the predetermined discharge rate is returned to the receptacle so that the predetermined head is maintained substantially constant.

3,837,532
AUTOMATIC SPRAY DISPENSER WITH INTEGRATED TEST APPARATUS

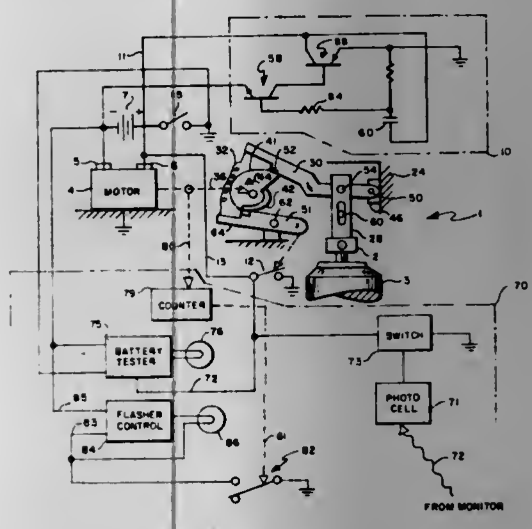
Edward Sahatjian, 98 Cedar St., Lexington, Mass. 02173, and Gottfried Maurer, 281 Country Way, Needham, Mass. 02192

Filed July 16, 1973, Ser. No. 379,373

Int. Cl. B67d *5/28*

U.S. Cl. 222—70 **10 Claims**

Automatic aerosol spray apparatus which contains an aerosol container with a mechanically actuated spray valve, includes a drive motor for driving a mechanism which actuates the valve at regular intervals each initiated by a relatively brief motor drive cycle during which the motor is energized first through a timer circuit and then through a motor drive switch is improved by light actuated testing apparatus integrated therewith. The testing apparatus includes a light actuated photocell which procudes an electrical output for controlling a test switch electrically connected in parallel with the motor drive switch so that the spray apparatus is tested by illuminating the photocell causing the motor to drive through a cycle and actuate the aerosol spray. In a preferred embodiment, the apparatus is energized by a battery and a battery test circuit is connected to the battery and also to a battery test indicator which is activated by the test switch. Thus, by illuminating the photocell, the spray apparatus is actuated and the battery test indicator is operated for observation.



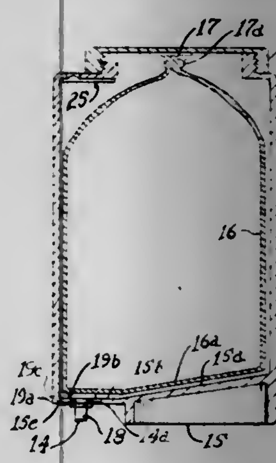
3,837,533
FLUID SUBSTANCE DISPENSER

Robert E. Splan, 900 E. Wilmette Rd., Palatine, Ill. 60067

Filed June 16, 1972, Ser. No. 263,465

Int. Cl. B65d *35/22*

U.S. Cl. 222—94 **3 Claims**



The embodiment of the invention disclosed herein is directed to a fluid dispensing device which is usable as a condiment dispenser for such things as ketchup, mustard, mayonnaise or the like. The dispensing device has a hand-manipulated flexible housing which is provided with an access opening at the top thereof and an outlet port at the bottom. The access opening is adapted to receive a container which is formed of film material and which supports the fluid substance to be placed into the dispensing device. The container is insertable into the housing so that a nozzle or valve element is positioned at the bottom of the container and fits through the outlet port from where the fluid substance can be dispensed. A check valve member is formed in the housing so that upon manual squeezing of the housing pressure is applied to the film container and the fluid substance is thereby dispensed. Upon releasing hand pressure of the housing, atmospheric pressure is pulled into the housing by opening of the check valve. The dispensing nozzle is formed as part of the film container rather than part of the outer support housing. The nozzle is a single, integral element having a starter passage portion into which an initial quantity of fluid substance flows prior to initial opening of the valve, a seal portion downstream of the starter passage portion which is resiliently opened and closed by the normal elasticity of the material forming the nozzle, and a dispensing end completely closeable so that the fluid substance is not left about the nozzle when the upstream seal is in a closed condition.

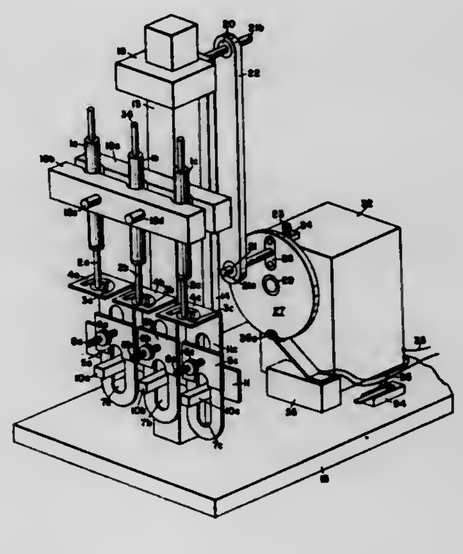
3,837,534
COMPACT, FLEXIBLE, MULTIPLE FLUID DISPENSER

Samuel Natelson, Chicago, Ill., assignor to Rohe Scientific Corporation, Santa Ana, Calif.

Filed Oct. 16, 1972, Ser. No. 297,797

Int. Cl. B67d *5/52*

U.S. Cl. 222—137 **11 Claims**



A simple compact fluid dispenser, capable of dispensing a plurality of fluids from separate containers, the volume dispensed from each container of the dispenser being independently adjustable over a wide range. In the instrument, a motor rotates a cam causing a slide to move up and then down along a slide post. Attached to the slide post is a fixed clamp capable of holding a plurality of containers in the form of syringes. The plungers of these syringes each rest on a separate movable support. Lift bars are attached to a slide in such a manner that free travel is allowed before they engage and lift the different supports. The extent of free travel can be zero, in which case the slide lifts and lowers the plunger its full traverse. On the other hand, it may be so large that as much as 99 percent of its travel distance is free and only 1 percent of the travel of the lift bar causes the plunger to be raised or lowered. Thus, one plunger may have no free travel and the other have 99 percent free travel, delivering only 1 percent of the volume delivered from the first plunger, on the same stroke of the slide. The movement of the slide is also adjustable. This is done by moving a pivot around, which a connecting bar from the cam to the slide rotates so that it is closer or further from the center of the cam, regulating the diameter of the circle that the bar travels, and thus the maximum thrust of the slide. By means of shims, syringes of different bore may be utilized giving further flexibility to the instrument. The instrument can be used in connection with several types of valve arrangements, including a preferred type of multiple rotary valve.

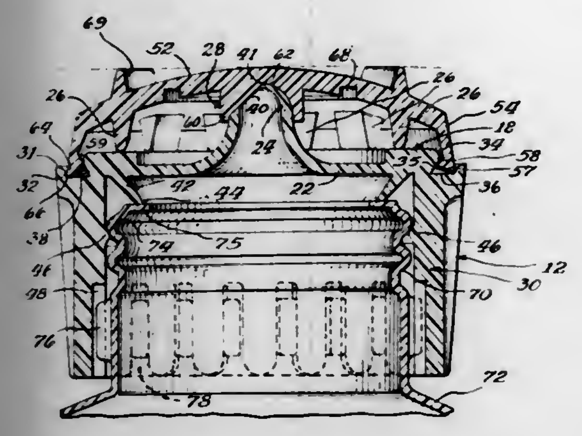
3,837,535
PLASTIC DISPENSING NOZZLE WITH RECLOSABLE CLOSURE CAP

Richard G. Gerk, Palos Park, Ill., assignor to FORMOLD, a division of VCA Corporation, Blue Island, Ill.

Filed Feb. 9, 1973, Ser. No. 331,216

Int. Cl. B65d *55/02*

U.S. Cl. 222—143 **8 Claims**



A plastic dispensing nozzle provided with a flexible diaphragm which has a pouring spout and with a cap for closing the pouring spout, which cap and nozzle have interengaging means so that the cap cannot be removed from its closure position unless pressure is applied to the top central portion of the cap which causes the skirt of the cap to expand and disengage from its locked closure position on the nozzle.

3,837,536
PLASTIC INJECTION MOLDING MACHINE

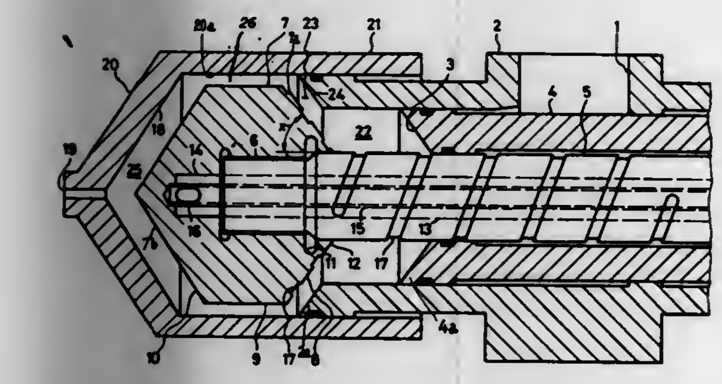
Hans Ulrich Hauser, Niederweningen, Switzerland, assignor to Bucher-Guyer AG Maschinenfabrik, Niederweningen, Switzerland

Filed July 2, 1973, Ser. No. 375,963

Claims priority, application Switzerland, July 18, 1972, 10774/72

Int. Cl. G01f *11/02*

U.S. Cl. 222—146 C **8 Claims**



An injection molding machine for processing plastics wherein the plastic mass for the injection operation is propelled by means of a packer piston through a shearing gap between the inner wall of an injection cylinder and a rotatably driven plasticizing head into a displacement compartment of the injection cylinder and thus plasticized. The plasticizing head is arranged at a shaft piercingly extending through the packer piston and the packer piston is displaceable up to the region of the plasticizing head. The plasticizing head possesses a greater diameter than the packer piston, and the end surface of a packing cylinder which houses the packer piston and confronting the plasticizing head and the face of the plasticizing head confronting the packing cylinder possesses a further gap arranged ahead of the shearing gap and which can be closed by axial displacement of the plasticizing head or the packer piston.

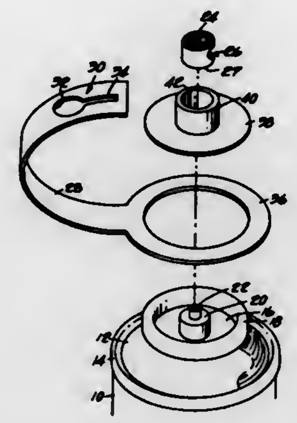
3,837,537
AEROSOL DISPENSER WITH ACTUATOR LATCHING MEANS

Richard F. Baldwin, Almeda, Calif., assignor to The Clorox Company, Oakland, Calif.

Filed Oct. 19, 1972, Ser. No. 298,960

Int. Cl. B67b *5/00*

U.S. Cl. 222—153 **7 Claims**



There is disclosed latching means for an aerosol dispenser of the type having a container with a vertically extending axially movable dispensing and valve actuating tube. An actuating button is mounted on the outer end of the tube and includes a dispensing orifice or nozzle in communication with the dispensing tube. An insert comprises a sleeve engaging the top of the container and extending upward along and surrounding the dispensing tube terminating just short of a lower ledge of the actuating button and defining by the upper edge a shoulder in opposition to a shoulder defined by the lower edge of the actuating button. These shoulders are spaced a distance slightly exceeding the thickness of an elongated strap secured to the container and includes a slot for receiving the dispensing tube so as to dispose portions of the strap adjacent to slot in blocking position between the opposed shoulders defined by the lower edge of the actuating button and the upper edge of the insert sleeve. The insert is of a resilient material and, when not in latch positions, extends beyond the outer edge of the container to block the placement of a cap normally fitted over the dispensing assembly on the rim of said container.

3,837,538
DISTRIBUTING AND PROPORTIONING DEVICE FOR FERTILIZERS, SEED AND OTHER SPREADABLE PRODUCTS, PARTICULARLY FOR AGRICULTURAL PURPOSES

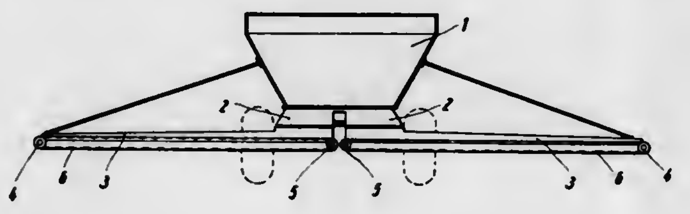
Hubert Wiegelmann, Bielefeld, Germany, assignor to Kuxmann KG, Bielefeld, Germany

Filed May 10, 1973, Ser. No. 358,886

Claims priority, application Germany, May 25, 1972, 2225347

Int. Cl. A01c *19/00*

U.S. Cl. 222—178 **6 Claims**



A distributing and proportioning device for spreadable products that consists of a mobile container and one or two outrigger channels which are positioned with its inner ends under outlet unions of the container and extending transversely to the direction of travel and provided with oblong distributing slots. A substantially plane conveyor belt is running endlessly around horizontal axes above the bottom of the outrigger channels which carries the products fed from the container by friction resistance to the outer ends of the channels which thus are wholly filled. Distributing fingers mounted at the belts spread the products through the distributing slots in an amount dependent on the peripheral speed of the belts or of the vertical distance of the slots.

3,837,539
CART MOUNTED REMOVABLE SPRAYER

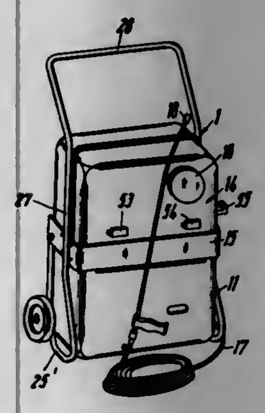
Joachim Schlegel, Sinn, Germany, assignor to W. Ernst Haas and Sohn, Sinn, Germany

Filed Feb. 8, 1973, Ser. No. 330,863

Claims priority, application Germany, Sept. 1, 1972, 2243075

Int. Cl. B62b *1/06*

U.S. Cl. 222—178 **5 Claims**



A frame is provided with an axle having two wheels so that the frame can be pivoted between an upright and a substantially horizontal position. A carrier plate is mounted on the frame and carries a receptacle and a motor, as well as a pressure-producing unit which is removably secured to the plate and can either produce positive or negative pressure.

3,837,540
CONTROL METHOD AND APPARATUS

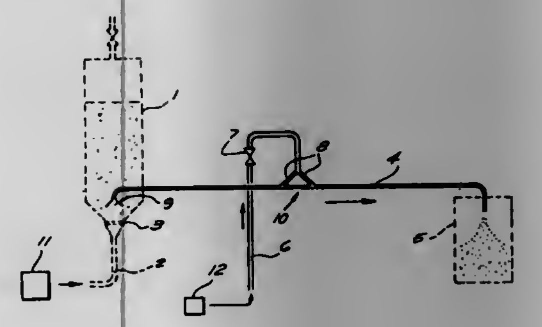
Heinrich Wagener, Bochum, Germany, assignor to Bergwerksverband GmbH, Essen, Germany

Filed Dec. 22, 1972, Ser. No. 317,652

Claims priority, application Germany, Dec. 24, 1971, 2164671

Int. Cl. B65b *3/26*

U.S. Cl. 222—193 **13 Claims**



A method for controlling the flow of fluidized particulate material through a pipe. The material is caused to flow through the pipe due to a pressure differential between the pipe and the region at the outlet thereof; a gas is introduced into the pipe at a pressure sufficient to abruptly interrupt the flow of material. An apparatus for carrying out the method has a container in which the particulate material is fluidized to be conveyed therefrom through a pipe which communicates with the interior of the container and with a region of lower pressure than prevails in the container. Duct means communicate with the interior of the pipe and gas at a higher pressure than that in the pipe may be introduced into the latter via the duct means. This permits control of the flow of material through the pipe by abruptly destroying the pressure gradient between the container and the region to which the pipe discharges.

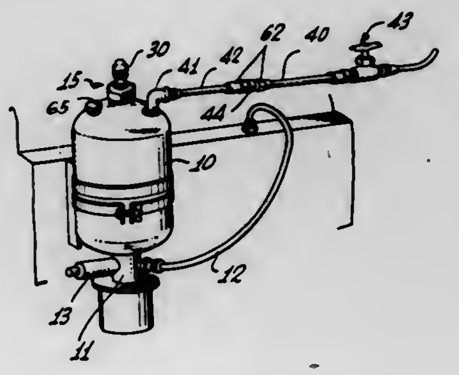
3,837,541
STARTING FLUID INJECTION SYSTEM

Gilbert R. Grigsby, Los Angeles, Calif., assignor to Lubrastart International, Los Angeles, Calif.

Filed Mar. 23, 1973, Ser. No. 344,171

Int. Cl. B65d *83/14*

U.S. Cl. 222—397 **8 Claims**



In a system for dispensing a metered quantity of starting fluid in an internal combustion engine, means for pressurizing the starting fluid reservoir from an external source of compressed air, including a valving system to accomplish this and a special check valve particularly adapted for use in the system.

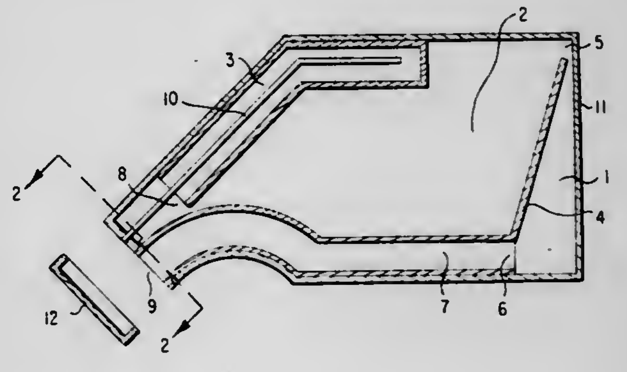
3,837,542
AUTOMATICALLY OPERATING LIQUID DISPENSER

Laacey Laslo Por, P.O. Box 37, Christainsted, St. Croix, V.I. 00820

Filed Dec. 6, 1972, Ser. No. 312,638

Int. Cl. G01f *11/26*

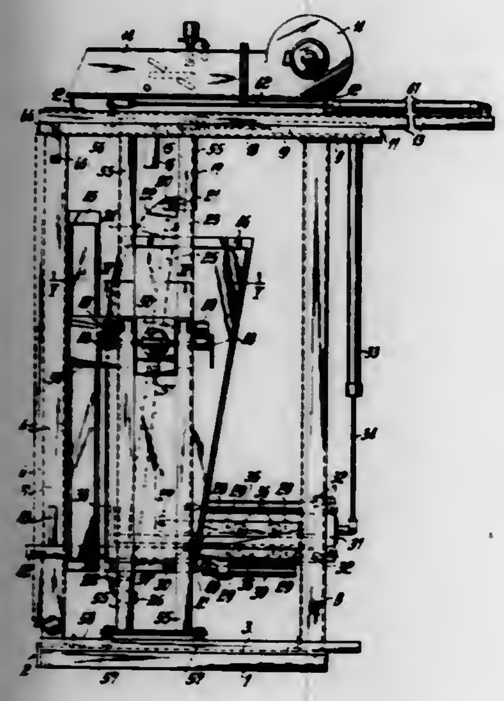
U.S. Cl. 222—456 **4 Claims**



A dispenser of approximately equal amounts of liquid at each pouring is disclosed. It is a container having a bottom and walls extending up from the bottom. A pouring and filling spout extends vertically along a portion of the wall with its lower end in spaced relation to the bottom and its upper end is at the pouring area at the top of the container. An air tube compartment is positioned in the container along a wall portion opposite to the spout. From the bottom end of pouring spout there extends a wall obliquely to the bottom of the container to where it forms with the bottom and adjacent wall opposite the spout and vertically below the air tube compartment an opening and the area defined is the measuring compartment. Above this oblique wall and bounded by the walls of the container is a container compartment that is in communication with the measuring compartment through the opening. When the container is tilted to the horizontal position a measured amount of liquid in the measuring compartment and spout is evacuated.

3,837,543
PANTS PRESSING MACHINE

Gunther Brollos, Ludwig-Siebertstrasse 56, D 8803 Rothenburg O.T., Germany
Filed Oct. 16, 1973, Ser. No. 406,889
Claims priority, application Germany, Oct. 16, 1972, 2250640
Int. Cl. D06c *15/00*
U.S. Cl. 223—73 **10 Claims**

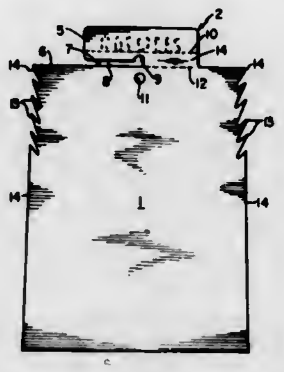


A clamping device on each side of a vertical pipe on a framework is adapted to grip a pair of pants at the front part of the waistband and a downwardly projecting journal reciprocated on the upper portion of the framework is adapted to grip the rear inner part of the waistband to tighten the waistband horizontally. A carriage that is selectively vertically movable on a guide portion of the framework carries a horizontally adjustable carriage having one pair of upwardly extending hooks and a second horizontally adjustable member carrying a second pair of upwardly extending hooks, whereby the hooks are adjustable in height to engage inside the legs of the pants and are horizontally adjustable relative to each other to tighten the cuffs of the pants, the hooks of the pairs disposed on opposite sides of the vertical pipe and a center plate pivoted to the journal which is positioned between the pants legs and a pair of guide frames on opposite sides of the center plate connected for back-and-forth movement relative to the framework and the center plate carrying lateral pressing plate members connected to be selectively moved toward and away from the center plate and vertical pipe to effect pressing of a pair of pants.

3,837,544
GARMENT DISPLAY DEVICE

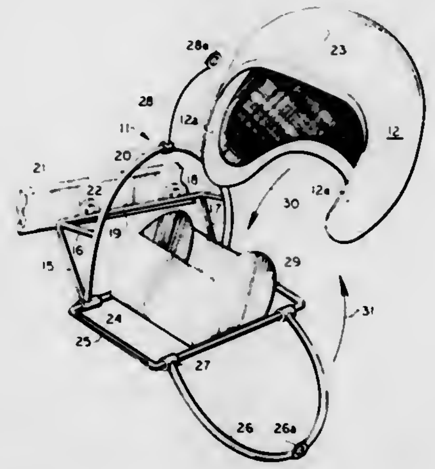
Michael Greenwald, New York, N.Y., assignor to Amtel, Incorporated, Providence, R.I.
Filed June 8, 1973, Ser. No. 368,205
Int. Cl. A47j *51/094*
U.S. Cl. 223—87 **9 Claims**

The device comprises a body adapted to receive disposed thereabout a garment in a manner such that the body is positioned outside the garment interior, and means on the body for removably securing the body to a holder such as a display arm. Serations are optionally provided at the edge of the body and function to maintain the position of a garment disposed about the body fixed relative to the body. The means for removably securing is an inverted substantially L-shaped extension of the body; said means consists of a vertical and a horizontal segment. The vertical segment extends upward from the top edge of the body. The horizontal segment extends from the vertical segment, overhangs the top edge of the body and defines there between a blind slot having a recess which is adapted to removably receive the holder. The body with garment ensconsed thereon can be encased in a clear plastic bag. The substantially L-shaped extension may be totally or partially removable; when completely removed the body can be alternatively removably secured to the holder by means of an opening in the body adapted to receive a holder such as a display arm. The device permits ready viewing of a displayed garment. The body is raised slightly to disengage the display arm from the recess, whereupon the display arm moves into the slot and the body can be moved so that the arm is moved along the slot but not out of the slot. After viewing, the procedure is reversed to replace the garment in its original position on the display.



3,837,545
STRUCTURE FOR SECURITY HOLDING OF A HELMET ON A VEHICLE

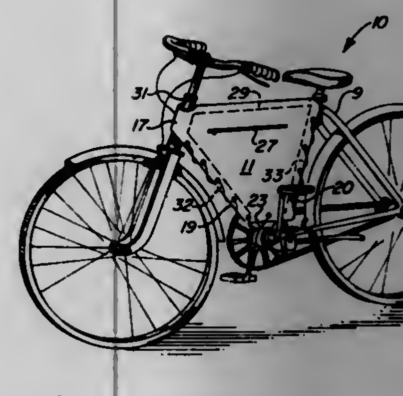
Leonard O. Rogers, Jr., P.O. Box 117, Norman Park, Ga. 31771
Filed Jan. 19, 1972, Ser. No. 219,085
Int. Cl. B62j *11/00*
U.S. Cl. 224—31 **5 Claims**



This invention concerns several embodiments of a structural arrangement on a vehicle by which a riding helmet may be security retained or locked to the vehicle. The structure comprises essentially a vehicle mounted frame with a pair of circularly shaped or curved rod pivotally connected relative to the base of a vehicle mounted frame, or pivotally connected relative to each other in any appropriate manner to the vehicle structure; the curvature or circular shape of the rods being less than the maximum curvature of the helmet exterior. Included is an arrangement whereby the rods are relatively immovable to each other when locked in a position to secure a helmet. Also a security container for valuables may be incorporated with the base portion of the structure so as to locate the open side of such a security container within the interior of a helmet secured to the vehicle through the disclosed structure.

3,837,546
LIGHTWEIGHT LUGGAGE CARRIER FOR BICYCLES

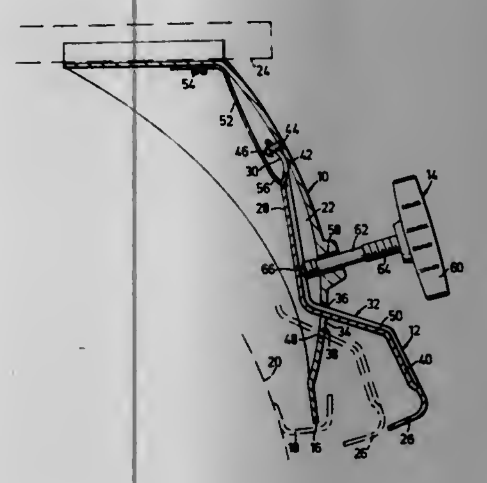
Arthur R. Westermann, 2328 E. Osborn Rd., Phoenix, Ariz. 85016
Filed June 11, 1973, Ser. No. 368,978
Int. Cl. B62j *7/02*
U.S. Cl. 224—35 **7 Claims**



A lightweight, detachably mounted luggage carrier for bicycles formed from one or more pieces of flexible material which, when associated with the frame of a bicycle, forms luggage carrying compartments with openings thereto.

3,837,547
SUPPORT LEG TO BE FASTENED IN ROOF GUTTERS OF AUTOMOBILES

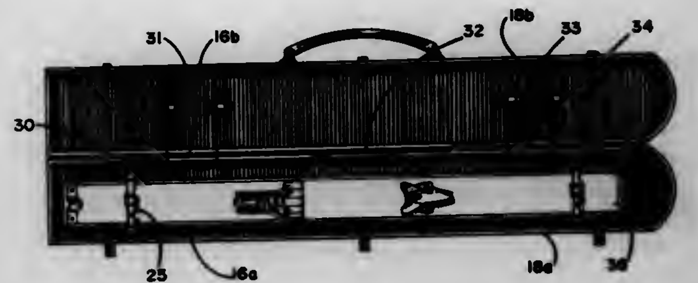
Eric Joos, Malung, Sweden, assignor to AB Eric Joos, Malung, Sweden
Filed Oct. 31, 1972, Ser. No. 302,412
Claims priority, application Sweden, Nov. 1, 1971, 13882/71
Int. Cl. B60n *9/08*
U.S. Cl. 224—42.1 E **8 Claims**



A support leg to be fastened in roof gutters of automobiles comprising a leg and a separate hook-shaped clamping plate to be moved with its hook end towards the lower end of the clamping plate by means of an adjusting screw. The clamping plate extends through an opening in the clamping plate and is guided to be displaced upwardly when the screw is tightened.

3,837,548
SKI CARRYING CASE

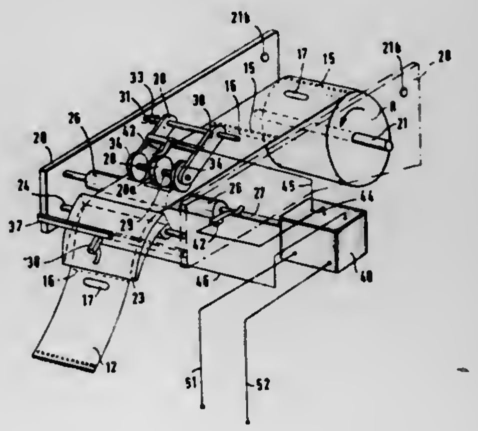
David Nerger, 827 Toni, Pensacola, Fla. 32504
Filed Mar. 27, 1973, Ser. No. 345,291
Int. Cl. A45c *7/00*
U.S. Cl. 224—45 S **6 Claims**



A case for carrying skis comprises a rigid case having oppositely disposed hollow case portions and one or more removable case sections which sections may be removed for varying the length of the ski case.

3,837,549
DISPENSER FOR CARRYING BAGS OR THE LIKE

Karl H. Sengewald, 4801 Kunsebeck, Westphalia, Germany
Division of Ser. No. 93,048, Nov. 27, 1970, abandoned. This application July 2, 1973, Ser. No. 375,641
Int. Cl. B26f *3/02*
U.S. Cl. 225—11 **9 Claims**

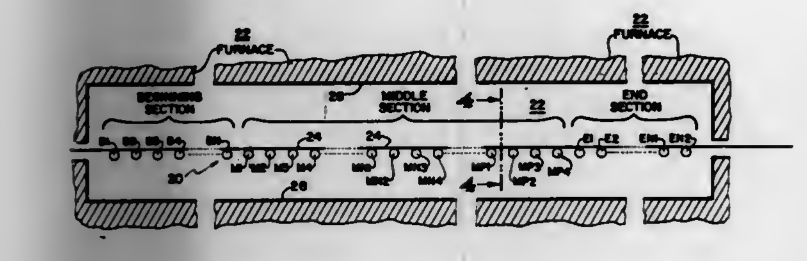


A dispenser for carrying bags from a roll-wound or layer-packed continuous strip form supply, presenting ready for the user a single bag pendent from a mouth device, which is shiftable upon tearing off a bag to initiate automatic feed of a bag length of the strip by strip embracing drive rollers. With bags having grip holes, feed rollers cooperating also as normally closed switch contacts, in sensing arrival of a hole, determine the feed of a bag length for terminating a feed cycle. Small front space is required by the mouth device in store display areas.

3,837,550
ROLLER CONVEYING OF STRIP MATERIAL

Samuel Levy, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Continuation of Ser. No. 256,657, May 25, 1972, abandoned. This application Apr. 18, 1973, Ser. No. 352,112
Int. Cl. B65h *17/42*
U.S. Cl. 226—4 **53 Claims**

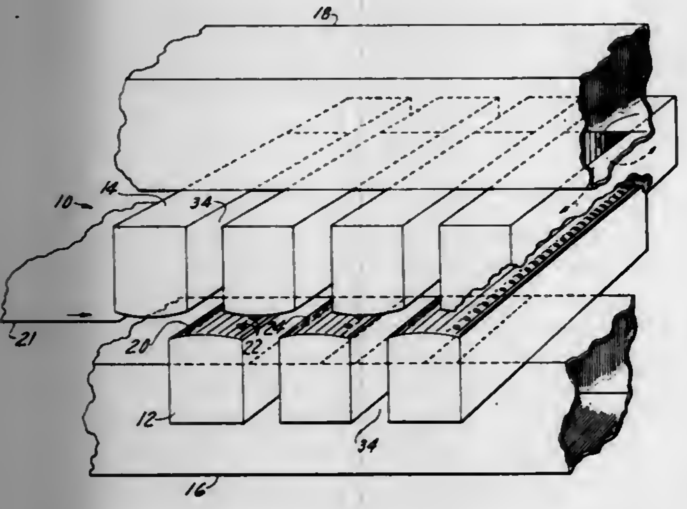
Different peripheral speeds of rollers at opposite ends of a series of unidirectionally driven rollers establish velocity V_s and tension T of a thin steel strip being supported on and conveyed along the series. The rest of the rollers are driven at peripheral speeds which are asynchronous relative to V_s; some slip faster, or forward, while others slip slower, or behind. Substantially equal but oppositely directed frictional forces are developed in the moving strip by the faster and slower slipping rollers so that the tension T is not changed. Consequently, the strip neither tears nor cobbles. The speed of motors driving the asynchronously rotated rollers may be set to cause said rollers to have an average peripheral speed equal to V_s. However, relatively wide variations in motor speed, and resulting peripheral roller speeds, are tolerable because of the relative independence of frictional force magnitudes from slip speed. Also, the speeds of motors driving selected groups of asynchronously rotated rollers may be varied deliberately for, among other purposes, gradually establishing tension in the strip. Also disclosed are ways and means for conveying the strip past one or more groups of stalled rollers. Both cylindrical and frustro-conical rollers are employed in different embodiments.



3,837,551
WEB CONVEYING AND TREATING METHOD AND APPARATUS

Alex J. Schregenberger, Milltown, N.J., assignor to Midland-Ross Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 264,250, June 19, 1972, abandoned. This application Aug. 22, 1973, Ser. No. 390,498
Int. Cl. B65h *17/32*
U.S. Cl. 226—97 **6 Claims**

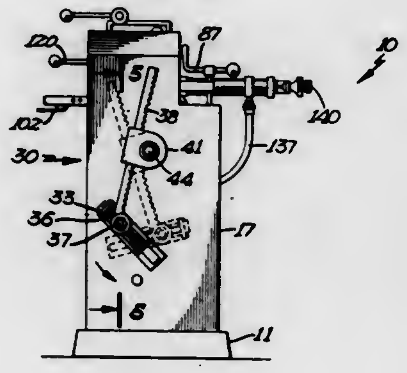


A web conveying apparatus having a plurality of pressure pads positioned transversely to the path of a web. Each pad has a surface generally parallel to the path of the web with a row of eyelid shaped openings extending along each longitudinal side of the pad. The eyelid openings are staggered transversely of the web and are oriented to direct the treating medium toward a region over the centerline of the pad surface.

3,837,552
INTERMITTENT DRIVE MECHANISM

Thomas J. Monahan, Swansea, Mass., and Richard C. Adams, West Barrington, R.I., assignors to G. T. Schjeldahl Company, Northfield, Minn.

Division of Ser. No. 151,842, June 10, 1971, which is a continuation-in-part of Ser. No. 81,369, Oct. 16, 1970, abandoned. This application Apr. 17, 1973, Ser. No. 351,835
Int. Cl. B65h *17/22*
U.S. Cl. 226—122 **12 Claims**



Means for intermittently advancing a web of flexible film comprising drive means for imparting repeating cycles of intermittent motion and dwell to a web of flexible film with the web motion normally being in only the forward direction. The drive means includes an output shaft having first and second input driver means coupled to the output shaft, with the driver means being arranged in phased relationship, one to another, so as to achieve motion in the output shaft for more than 180° of motion in the input shaft. In one operational mode, the driver means are arranged in overlapped phased relationship, one to another, so as to achieve motion from each driver means for less than 180° of motion in the input shaft. In a second operational mode, the driver means are arranged in phased relationship, 180° from each other, so as to achieve motion in the output shaft of 360° during each operational cycle, this 360° of motion being followed by a dwell cycle of 180° of motion, prior to initiating the advance of the web on the next succeeding cycle. In the first operational mode, means are provided for intermittently inter-coupling the first driver means to the input and output shafts for initiating rotation of the output shaft, and for continuing the rotation for a predetermined period of less than one-half cycle of rotation of the input shaft. Thereafter, de-coupling of the first driver means occurs, along with substantially simultaneous inter-coupling occurring between the second driver means and the input shafts for the continued rotation of the output shaft for a second pre-determined period of less than one-half cycle of rotation of the input shaft, at which point, de-coupling the second driver means occurs.

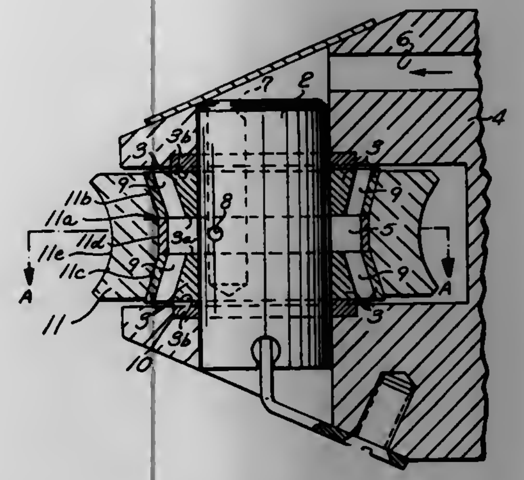
3,837,553
GUIDE ROLLER IN ROLLER GUIDES

Nils Erik Bock, Smedjebacken, Sweden, assignor to Morgardshammar Aktiebolag, Smedjebacken, Sweden

Filed June 6, 1973, Ser. No. 367,524
Claims priority, application Sweden, June 7, 1972, 727462
Int. Cl. B65h *17/20*
U.S. Cl. 226—194 **4 Claims**

An improved guide roller assembly is utilized to guide high-speed rolled stock. The guide roller assembly includes a rim formed of cemented carbide and having a concave annular outer surface which engages the rolled stock and a circular inner surface. The inner surface of the rim includes a pair of axially opposite end portions having a truncated conical configuration. Two truncated conical bearing members are disposed in engagement with the axially opposite end portions

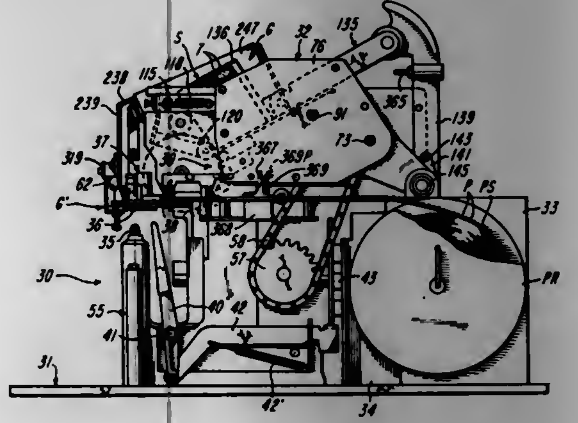
of the inner surface of the rim. Due to the truncated conical configuration of these bearing sections, a relatively uniform load is transmitted between the outer surface of the guide roller and the bearing sections in such a manner as to retard cracking of the cemented carbide rim. guide.



3,837,554
PINNING MACHINE

Harold N. Grushon, Dayton, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio

Filed Jan. 2, 1973, Ser. No. 320,340
Int. Cl. B27f *7/02*
U.S. Cl. 227—25 **27 Claims**

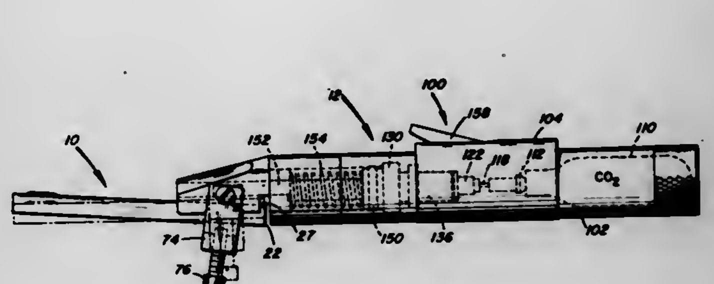


There is disclosed a tag attaching machine, specifically, a pinning machine, for pinning tags onto merchandise. The machine has a die and a cooperable plunger, a pin magazine for driving a pin through a tag and the merchandise while the die and the plunger are in cooperation at a pinning position or zone a pin feeder for feeding pins to the pin magazine, and a tag feeding mechanism for feeding tags to the pinning position. The tag feeding mechanism is adapted to handle a wide range of sizes of tags. The tag feeding mechanism causes relative movement between the tag stack and endless feed means to feed one tag at a time to a waiting position and to thereafter feed the waiting tag to the pinning position. The tag feeding mechanism has a side guide mechanism by which a stack having tags of any selected width can be held in the tag hopper and by which a holding force can be exerted on the tag at the pinning position. A brake mechanism prevents the side guide mechanism from moving into the space occupied by the tag stack when the stack is depleted or nearly depleted. The feeding mechanism is mounted by a subframe pivotally mounted to the frame to provide access to the underside of the feeding mechanism and to the remainder of the machine. A pin clinching and tag holding member is constructed and operated to hold a tag at the pinning position and to thereafter clinch the pointed end of the pin into the tag.

3,837,555
POWERING INSTRUMENT FOR STAPLING SKIN AND FASCIA

David T. Green, Norwalk, Conn., assignor to United States Surgical Corporation, Baltimore, Md.

Continuation-in-part of Ser. No. 97,995, Dec. 14, 1970, Pat. No. 3,717,294. This application Sept. 22, 1972, Ser. No. 291,301
Int. Cl. B25c *1/04*
U.S. Cl. 227—130 **14 Claims**



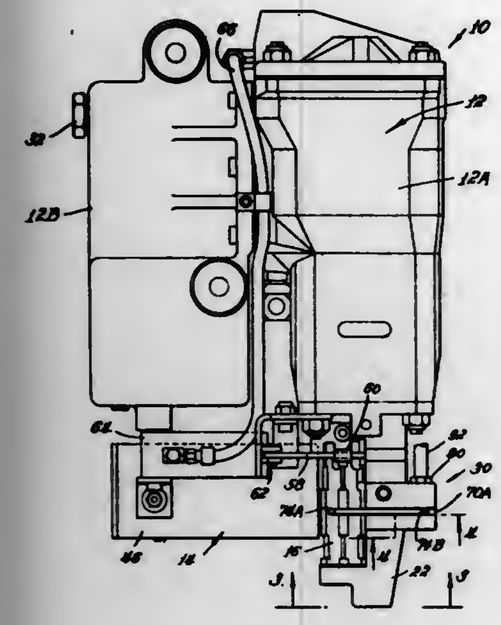
A disposable staple cartridge housing a plurality of staples on a flexible belt and adapted to inject and form the staples, singly, into the disunited skin or fascia of a patient. Downwardly projecting flanges on a staple pusher act directly on the forwardmost staple positioned between a pair of adjacent teeth in the flexible belt and move the staple, the belt and its contents, with each stroke of the pusher. The forwardmost staple, when acted upon by the pusher, advances, rides out of the plane of the flexible belt and into the plane of the pusher and is ejected and bent around an anvil assembly. On the return stroke of the pusher, the downwardly projecting flanges flex out of the plane of the next successive staple, moving over that staple, and then take a position in readiness for the following stapling operation. The cartridge is provided with means for preventing the retraction of the staple housing belt during the rearward stroke of the pusher. In a second embodiment of the disposable cartridge, a plurality of staples are advanced as described above, but the number of disposable elements are reduced. With this embodiment, an inventive adaptor serves to associate the cartridge with a powering instrument. Also disclosed is a novel and simplified gas activated powering unit which develops a rectilinear thrust for advancing and forming staples. In one embodiment of the instrument, the nose is rotatable to facilitate alignment of the cartridge with the incision to be sutured.

3,837,556
PNEUMATIC NAILING MACHINE

Richard H. Doyle, Mount Prospect, and Allen R. Obergfell, Park Ridge, both of Ill., assignors to Fastener Corporation, Franklin Park, Ill.

Filed Sept. 11, 1972, Ser. No. 287,687
Int. Cl. B25c *1/04*
U.S. Cl. 227—136 **5 Claims**

A pneumatic nailer for driving nails from a flexible belt thereof into a workpiece includes an index cylinder for feeding successive nails into a drive track defined by the cylinder and a nosepiece structure. A sensor engaging flutes or recesses in the cylinder wall controls a control valve assembly to inhibit operation of a driver when the cylinder is not properly positioned. The control valve assembly includes a single cycle valve controlled by a control valve for controlling a pneumatic motor for the driver so that the driver is automatically retracted after a power stroke. This permits the use of the nailer in assembly machines wherein the nailer and the workpieces are moved relative to each other by preventing the

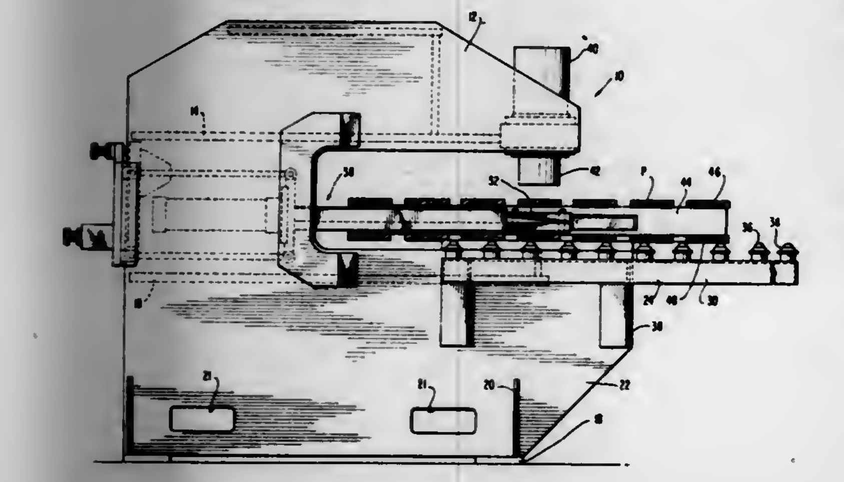


driver "follow-through" from locking the nailer and the workpiece together. The sensor disables the control valve when the cylinder is not properly positioned.

3,837,557
PRESS FOR REPAIRING PALLET DECKBOARDS

John Calvin Jureit, Coral Gables, and Benjamin Harry Kushner, Miami, both of Fla., assignors to Automated Building Components, Inc., Miami, Fla.

Filed Mar. 27, 1973, Ser. No. 345,320
Int. Cl. B27f *7/02*
U.S. Cl. 227—152 **10 Claims**

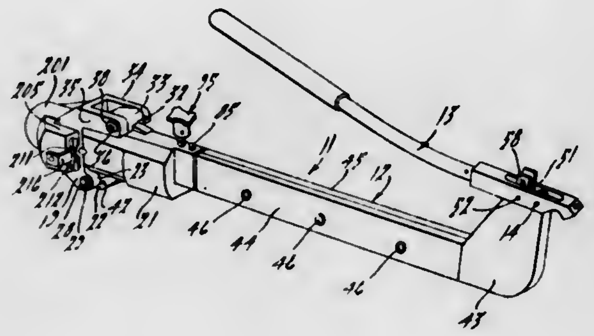


The press includes a pallet support structure and a horn carried on a pantographic linkage biased to locate the horn for reception between upper and lower deckboards of a pallet disposed on the support structure. The horn carries a wedge which underlies a lower press platen. The press also carries an upper platen. In use, a pallet is disposed on the support structure with the horn received between the deckboards. The portion of a deckboard undergoing repair is located between the registering platens and the upper platen is moved downwardly to embed a reinforcing plate into the top face of the deckboard. A cylinder displaces the wedge carried by the horn to raise a reinforcing plate carried by the lower platen into engagement with the underside of the deckboard. Upon engagement, and continued displacement of the wedge, the horn is displaced downwardly through its pantographic linkage mounting until it rests on the lower deckboards whereupon further displacement of the wedge raises the lower platen to embed the teeth of the reinforcing plate into the underside of the deckboard.

3,837,558
HYDRAULICALLY OPERATED BUTT WELDER

William E. Good, Cinnaminson, and Arthur S. Davies, Avalon, both of N.J., assignors to Kelsey-Hayes Company, Romulus, Mich.

Continuation-in-part of Ser. No. 217,096, Jan. 12, 1972, Pat. No. 3,800,997. This application Feb. 23, 1973, Ser. No. 335,057
Int. Cl. B23k *21/00*
U.S. Cl. 228—3 **5 Claims**

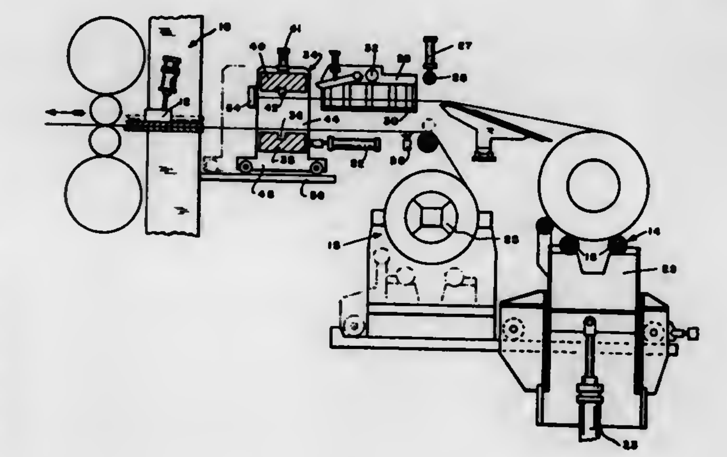


A tool for cold pressure welding workpieces such as coaxial cables together. The tool has a compact arrangement so that it may be hand held and operated. A hydraulic pump and motor are incorporated for providing a force amplification which lends to the compactness and light weight of the assembly. The hydraulic motor operates pairs of dies which dies first grip the ends of the workpieces to be welded and then force these ends into engagement to achieve a cold pressure weld. The pump is constructed so as to effect rapid initial movement of the dies and subsequent slower movement with a greater force amplification. A pressure relief valve is interposed in the hydraulic circuit for limiting the force applied to the dies. The dies are held in pivotally supported parts of the tool so that the tool may be conveniently opened for inspection, replacement or cleaning of the dies.

3,837,559
STRIP JOINING APPARATUS FOR ROLLING MILLS AND THE LIKE

Joseph Irwin Greenberger, Pittsburgh, Pa., assignor to Wean United Inc., Pittsburgh, Pa.

Filed Mar. 22, 1973, Ser. No. 343,750
Int. Cl. B23k *27/00*
U.S. Cl. 228—4 **9 Claims**



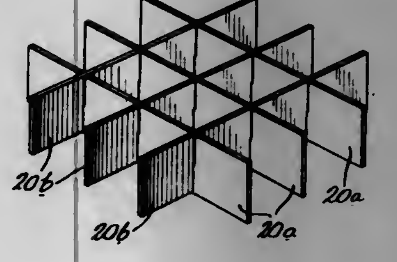
The disclosure pertains to a strip feeding device for a rolling mill adapted to roll joined coils of strip in a continuous and uninterrupted manner. It provides a flying stitcher or multi-spot welder arranged between a coil uncoiling means and the entry guide of the mill. A holding shelf arranged on the entry side of the stitcher or welder and above the mill passline supports the leading end of a second coil in the stitcher or welder

when the stitcher or welder is in its retracted position. When the trailing end of the first coil is about to pass into the mill the supported leading end of the second coil is lowered to the trailing end of the first coil and while the stitcher or welder is advanced towards the mill at a speed substantially synchronous with the speed of the travelling end, the two strips are joined by the stitcher or spot welder. The joining operation is performed without interrupting the travel of the strip so that the mill can maintain its threading speed. After joining, the stitcher or welder and holding shelf can be repositioned to receive the leading end of the next coil.

3,837,560
EXPANDED POLYSTYRENE PARTITION STRUCTURE AND METHOD OF MAKING THEREOF

Louis G. Kuchuris, Chicago, and Stanley Gembicki, Des Plaines, both of Ill., assignors to Cutting Equipment Leasing, Inc., Chicago, Ill.

Filed May 18, 1972, Ser. No. 254,749
Int. Cl. B65d *5/48*
U.S. Cl. 229—15 **1 Claim**

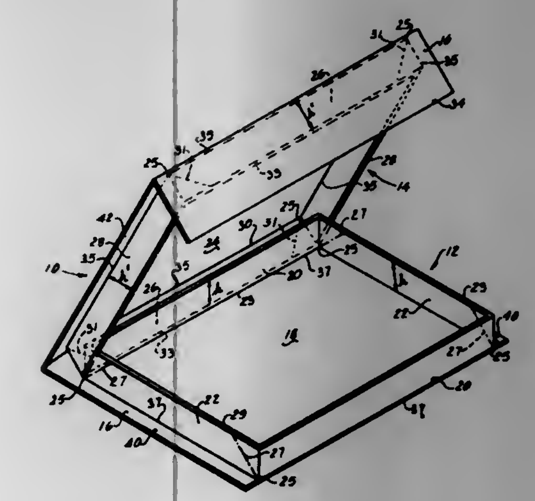


A partition structure for shipping or storage containers having a plurality of interfitting partition strips with interlocking slots and with the partition strips being formed of expanded polystyrene. In one form thereof, the planar faces of a partition strip have a relatively low density because of said surfaces being formed by saw cut from a block of expanded polystyrene, while the entire peripheral edge of the partition strip, including the interlocking slots, are formed by hot wire cutting to have a higher density on the surface thereof to provide greater physical strength for the partition strip.

3,837,561
BOX STRUCTURE

Marion Sturm Rubin, 65 W. 95th St., New York, N.Y. 10025

Continuation-in-part of Ser. No. 879,991, Nov. 26, 1969, Pat. No. 3,679,120. This application July 24, 1972, Ser. No. 274,420
Int. Cl. B65d *5/36, 13/04, 65/10*
U.S. Cl. 299—23 BT **4 Claims**

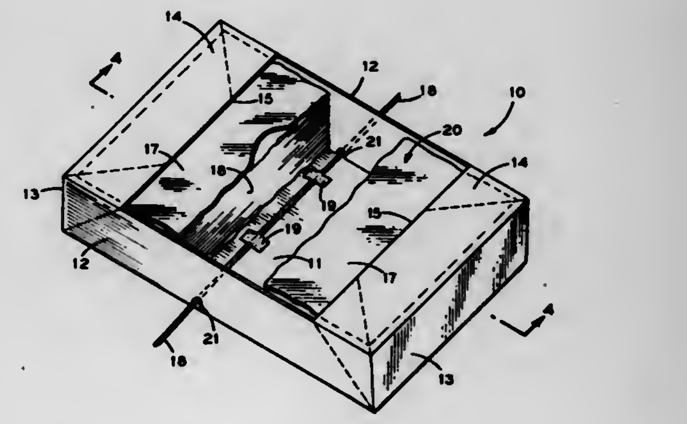


A box structure comprising a pair of box sections that, when erected, can telescope one within the other. Each box section has a central wall, a pair of opposed side walls and a pair of opposed end walls. By the provision of appropriate fold lines, the side walls of one box section are folded outwardly and its end walls are folded inwardly, while the other box section has its side walls and end walls folded conversely. The box sections, when overlying one another, in unerected condition, form a relatively thin package for shipping and storage purposes. The box is strengthened by the fact that inwardly folded walls of one box section counteract the outwardly folded walls of the other box section, when the walls are erected and the box sections are telescoped.

3,837,562
CONTAINER FOR PACKAGING PAPERS

Albert Cali, 2481 Lancaster St., East Meadow, N.Y. 11554

Filed July 3, 1972, Ser. No. 268,621
Int. Cl. B65d *5/20, 85/00*
U.S. Cl. 229—32 **1 Claim**

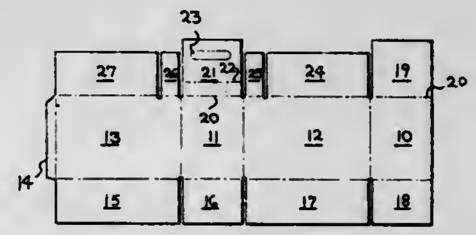


A generally rectangular container for packaging newspapers and other sheet-like material, in which there are provided a pair of top panels that retain the newspapers within the container and which are spaced-apart to provide an opening for inserting the newspapers into the container.

3,837,563
PAPERBOARD CONTAINER WITH INTEGRAL CARRYING MEANS

Daniel Brackette, Jr., Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Feb. 9, 1973, Ser. No. 331,222
Int. Cl. B65d *5/46*
U.S. Cl. 229—52 B **4 Claims**



A paperboard container and blank for making same which can be used for carrying bottles or cans, having a carrier handle formed in the blank without die-cutting, which, when folded, is on the outside of the sealed container. To a typical rectangular container are added the features of one of the first-folded top flaps having formed in it a line-cut oval handhold and a fold line between the handhold and the fold line connecting the flap to the container so that after the first-folded flaps are folded down over the end of the container the handle portion of the flap is bent back and upwards away from the container. The top or covering flaps are formed with slots so they can be folded down and glued to the first-folded flaps with the handle protruding through the slots, held in place by the covering flaps on both sides.

3,837,564
CARRIER BAG

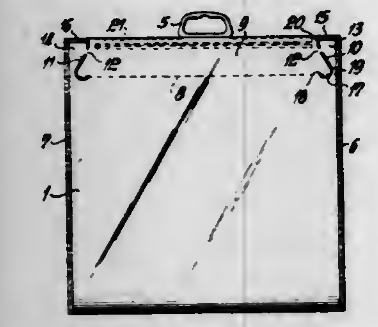
Bruno Marquardt, Osnabruck-Nane, and Frank Bosse, Ibbenburen-Dorenthe, both of Germany, assignors to Windmoller & Holscher, Lengerich of Westphalia, Germany

Filed Apr. 4, 1972, Ser. No. 240,922

Claims priority, application Germany, Apr. 8, 1971, 2117224

Int. Cl. B65d *33/06*

U.S. Cl. 229—54 R **9 Claims**



In a plastics carrier bag comprising two confronting walls which are interconnected by welded side seams, one said wall is provided with a form-retaining handle at the bag mouth and the other wall with a slit through which the handle can be passed to close the bag mouth. The slit is located along substantially the fold line of an inwardly turned flap of said other wall, the flap being engaged by said side seams to define a pocket for receiving a tongue portion of said one wall carrying the handle. The tongue portion is bounded at the sides by incisions which, at a level corresponding to the free edge of the flap, are directed away from the side seams. The incisions may be interrupted so that the tongue portion remains attached to the side seams until it is to be inserted in the pocket.

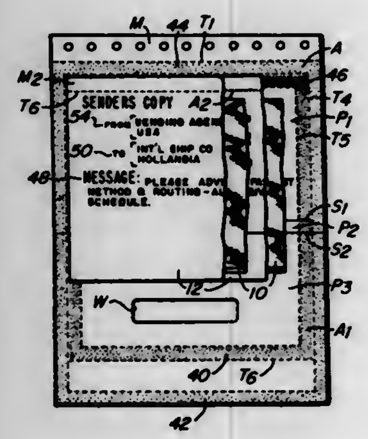
3,837,565
RAPID PRODUCTION ENVELOPE ASSEMBLIES

Edward L. Johnsen, 12 Fox Meadow Ln., Wayland, Mass. 01778

Filed Feb. 15, 1972, Ser. No. 226,415

Int. Cl. B65d *27/04, 27/06, 27/10, 27/34*

U.S. Cl. 229—68 R **19 Claims**



For attaining high speed production of envelope assemblies, with substantial savings of costly time and labor, the present invention teaches a method or plan of manufacture which involves the use of high speed collating machinery such as is customarily employed in the production of continuous record forms, business forms, and the like, from continuous paper webs passed through the collating machinery uninterruptedly at a rapid rate of speed. The envelope assemblies so produced leave the collating machinery as complete units ready for use.

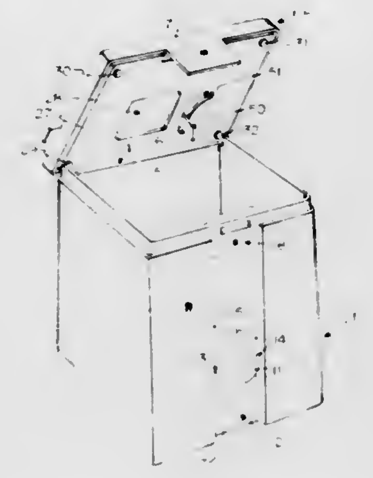
3,837,566
SELF-LOCKING COIN RECEPTACLE

Gerald B. McGough, Huntsville, Ala., assignor to GTE Automatic Electric Laboratories, Incorporated, Northlake, Ill.

Filed July 31, 1972, Ser. No. 276,809

Int. Cl. G07b *15/00*

U.S. Cl. 232—15 **2 Claims**



A coin receptacle is provided which is simple and less costly to produce than coin receptacles now in use for similar purposes and which has a shutter-latch mechanism in which the latch cannot be actuated and the shutter locked unless the shutter is opened.

3,837,567
LOCKING DEVICE FOR MACHINE FRAME COVER

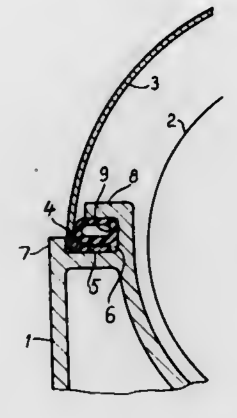
Carl-Goran Nilson, Tullinge, and Sven Olov Olsson, Farsta, both of Sweden, assignors to Alfa-Laval AB, Tumba, Sweden

Filed Apr. 9, 1973, Ser. No. 349,552

Claims priority, application Sweden, Apr. 12, 1972, 4695/72

Int. Cl. B04b *7/06*

U.S. Cl. 233—1 B **7 Claims**



The frame and cover have supporting surfaces engageable by a hose in an expanded condition thereof to lock the cover in its closed position. Control means are provided for maintaining the hose filled with fluid to hold it in its expanded position, such means being operable to discharge fluid from the hose so that it contracts to a condition in which said supporting surfaces permit movement of the cover to an open position.

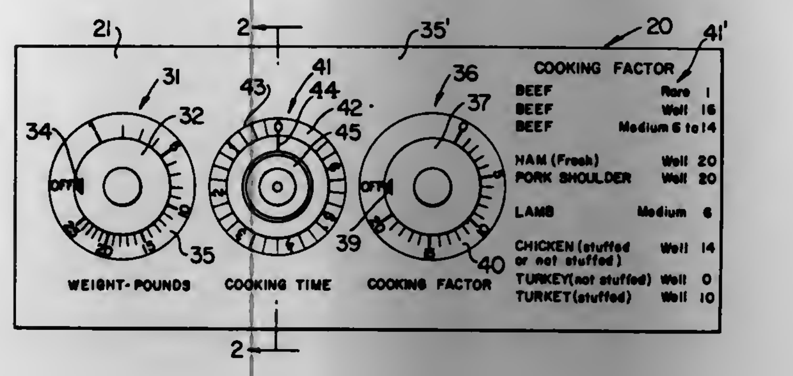
3,837,568
COMPUTER COOKING MEANS

Carl J. Goodhouse, Litchfield, and Emil Niemand, Waterbury, both of Conn., assignors to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 125,743, March 18, 1971, Pat. No. 3,746,250. This application May 2, 1973, Ser. No. 356,499

Int. Cl. G06g *1/00*

U.S. Cl. 235—61 A **15 Claims**



A computer-controller device for controlling the cooking operation of a cooking apparatus, the device having a manually settable weight input for indicating a single selected indicated weight applicable to all meat items and corresponding to the weight of a particular meat item to be cooked. The device has a second manually settable input for indicating a selected variable under other than the weight of the meat. The device has a timer that has a time period output operatively associated with the inputs to provide as an output a cooking time period for the particular meat item computed as a function of both of the inputs. The timer has a time period setting indicator operatively interconnected to the inputs to indicate the computed cooking time period as selected by the inputs. The timer has a reference means movable relative to the indicator to indicate lapsing time during the running of the computed cooking time period.

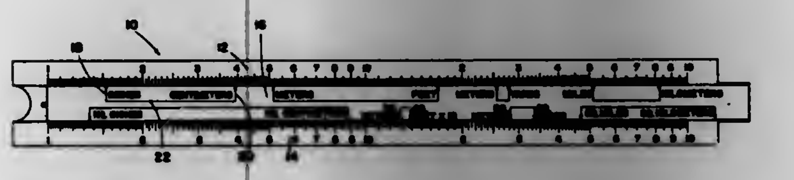
3,837,569
METRIC CONVERSION RULER

Robert C. Bradbury, Closter, N.J., and Joseph H. Sullivan, New York, N.Y., assignors to Borden, Inc., Columbus, Ohio

Filed May 7, 1973, Ser. No. 358,113

Int. Cl. G06g *1/02;* **G06c** *3/00*

U.S. Cl. 235—70 R **10 Claims**



This device for converting British units to metric units and vice versa includes a pair of spaced, rigidly affixed members each provided with a two-cycle logarithmic scale and a slide plate disposed therebetween in a tight, slidable relationship, said slide plate being provided with a plurality of conversion indicia on each side thereof. Each conversion indicia includes a pair of spaced arrows pointing either toward one or the other of said pair of members with the distance between said pair of arrows representing a specific conversion factor which is determined by the distance between numeral "1" on logarithmic scale and the numeral corresponding to the conversion factor.

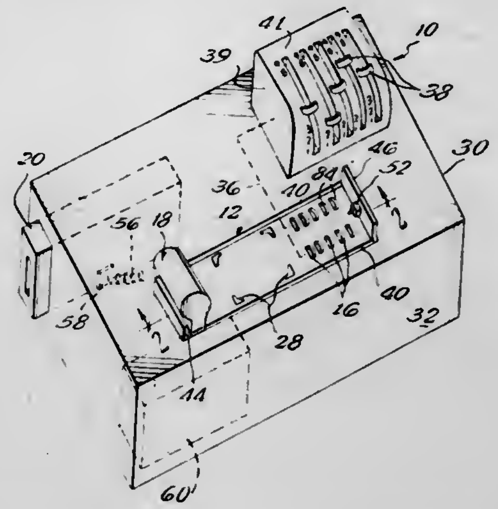
3,837,570
DATA RECEIVING STORING AND IMPRINTING APPARATUS

Irwin Ginsburgh, Morton Grove, Ill., assignor to Standard Oil Company, Chicago, Ill.

Filed Apr. 1, 1970, Ser. No. 24,782

Int. Cl. G06k *15/02, 7/08*

U.S. Cl. 235—61.9 R **3 Claims**



Data corresponding to the amount of a sale and the account number of the customer are received and stored in an apparatus using a modular cassette tape recorder. A customer's credit card including machine readable data indicia corresponding to the customer's account number is placed in a holding station on the apparatus. Then, manually operable means are adjusted to provide machine readable data indicia corresponding to the value of a purchase. The apparatus includes a movable data imprinting and reading head mounted so that it can scan the indicia on the card and also the indicia corresponding to the purchase. This head generates electromagnetic signals corresponding to the indicia and these signals are recorded and stored on the tape in the cassette recorder. A sales ticket at the station and overlying the card is simultaneously imprinted when the indicia is scanned by the head.

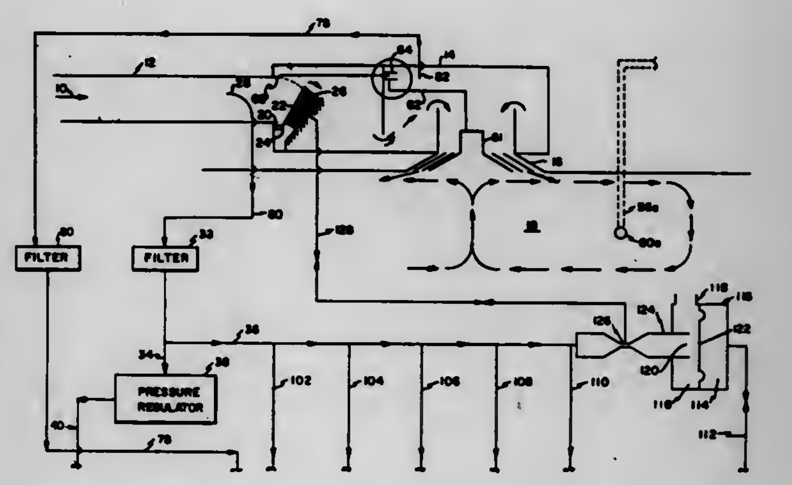
3,837,571
SELF-CONTROLLED AIR DISTRIBUTION SYSTEM

William J. Waeldner, Waverly, and William J. Harris, Tunkhannock, both of Pa., assignors to Dynamics Corporation of America, New York, N.Y.

Filed Nov. 15, 1972, Ser. No. 306,559

Int. Cl. F24f *11/02;* **G05b** *11/46*

U.S. Cl. 236—49 **20 Claims**



An air distribution system for supplying conditioned air to at least one zone to be conditioned and comprising a supply duct connected with a diffuser discharging to the conditioned zone. A modulating valve is provided with a bellows actuator and a control for the actuator is of the fluidic type with power for the actuator and control supplied from a total pressure pick-up in the duct. A duct static or differential pressure signal is fed to the fluidic control together with a pressure set-point and a zone temperature signal. Zone temperature may be measured at the diffuser with a total duct pressure powered aspirator drawing air over a thermostat or a zone located thermostat may be provided. A warm up override is optional. The fluidics comprise a multistage proportional amplifier and a diaphragm amplifier controlling an orifice in a total duct pressure conduit. A venturi in the conduit has its throat section connected with the bellows actuator selectively to pressurize and draw air therefrom whereby to adjust valve position.

3,837,572

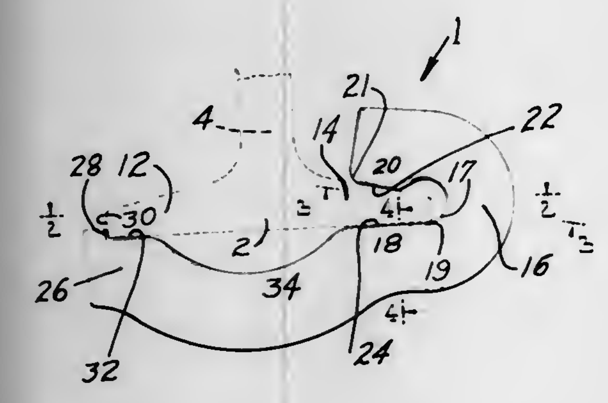
RAIL ANCHOR

Arthur Dale Van Sant, Colorado Springs, Colo., assignor to CF&I Steel Corporation, Pueblo, Colo.

Filed Jan. 18, 1973, Ser. No. 324,815

Int. Cl. E01b *13/02*

U.S. Cl. 238—315 **6 Claims**



A one-piece rail anchor of substantially U-shaped cross section which is substantially maintained throughout the entire profile having an improved bearing surface configuration which provides an increased holding capacity.

3,837,573

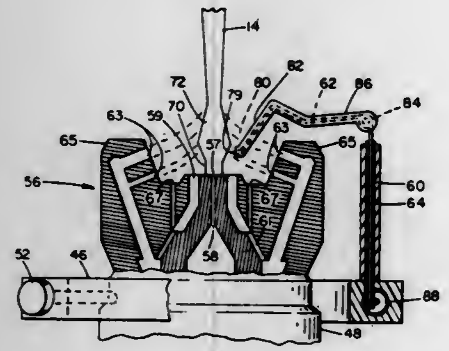
APPARATUS FOR ELECTRIFIED SPRAYING

William C. Wagner, 11 Hilltop Dr., Wenham, Mass. 02180

Continuation-in-part of Ser. No. 231,210, March 2, 1972, abandoned. This application Feb. 26, 1973, Ser. No. 335,522

Int. Cl. B05b *7/08, 5/02*

U.S. Cl. 239—15 **22 Claims**



Apparatus for electrified spraying operation and including a power supply with a flow operated switch and an integral assembly with an elongated electrode mounted with an end adjacent to and outside of spray from a spray gun. The electrode is adjustable in position from 0.25 to 1.50 inches from the spray orifice and has a pointed distal end portion extending perpendicularly to the direction of flow of the spray, a sloped portion extending from said end portion laterally and forwardly, and a looped portion for resiliently maintaining the position of the pointed end, with the electrode having an insulating coating over its greater part but with its pointed end bare.

3,837,574

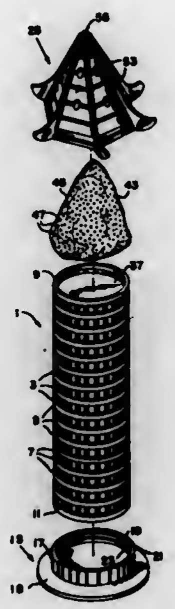
PERFUMED PACKAGE FOR A SOLID DIFFUSING MATERIAL

Frank J. Curran, Downers Grove, Ill., assignor to Frank J. Curran Co., Downers Groves, Ill.

Filed Nov. 10, 1972, Ser. No. 305,263

Int. Cl. A61l *9/04;* **B65d** *85/00*

U.S. Cl. 239—57 **2 Claims**



A vaporizable solid mass to be used as a deodorant room freshener is packaged with a separately contained perfumed mass. The perfume retains its aromatic potency during shelf storage and use of the deodorant freshener product.

3,837,575

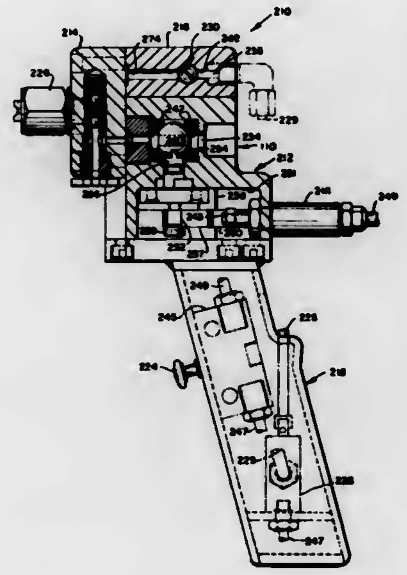
SPRAY GUN

Andrew B. Lehnert, Copley, Ohio, assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Aug. 27, 1973, Ser. No. 391,928

Int. Cl. B05b *7/04*

U.S. Cl. 239—112 **9 Claims**



A spray gun is disclosed for use in admixing and spraying, as a homogeneous mixture, two or more chemically reactive fluid components, more especially catalyzed polymerizable resin coating materials such as polyurethanes, epoxides, polyesters and other thermosets, either of the self-foaming or film-forming type. Because of the high rate of reactivity of the fluid components involved, the gun is designed to restrict actual admixture of them to a relatively small region within the gun body located immediately upstream of the spray discharge orifice so that application to the surface occurs as promptly as practical after admixture. Flow rate control and check valve means are provided in the gun for the several fluid components; in addition a solvent flush system is also incorporated for purging the gun after use. The flow rate control valves are of special ball design, affording greater mechanical simplification and better sealing maintenance than conventional poppet or needle valves. The check valve means are likewise designed to facilitate gun maintenance by the provision of a unitized cartridge, design, making them easily removable from and replaceable in the gun body and giving easier and more complete access to the interior of the gun in connection with periodic major maintenance servicing of it.

3,837,576

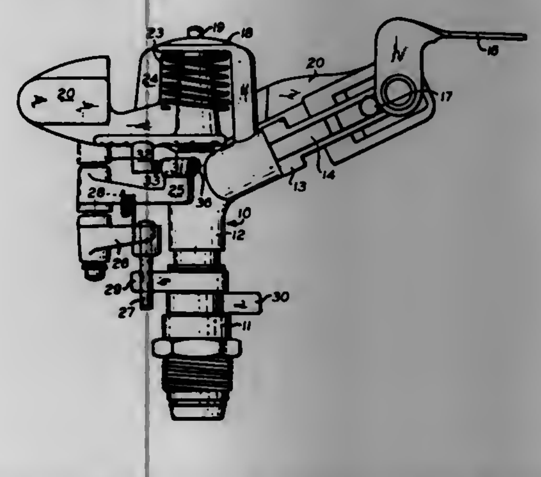
WATER SPRINKLER DEVICE

Jules J. Rosenkranz, New York, N.Y., assignor to Lafayette Brass Manufacturing Co., Inc., New York, N.Y.

Filed Aug. 24, 1973, Ser. No. 391,232

Int. Cl. B05b *3/08*

U.S. Cl. 239—230 **2 Claims**



A water sprinkler device in which a spring-return impactor is driven by the water jet issuing from a rotary sprinkler head and executes oscillatory movement to apply impact forces to the sprinkler head which turn the sprinkler head changing the direction of the water jet. The intensity of the impact forces transmitted to the sprinkler head can be selectively varied for a given level of water jet impulse by operating an adjustment means provided on an impact receiving means.

3,837,577

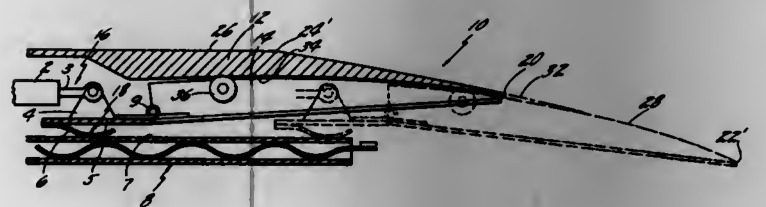
MINIMUM DRAG VARIABLE AREA EXHAUST NOZZLE

Walter M. Presz, Jr., North Wilbraham, Mass., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed June 29, 1973, Ser. No. 375,275

Int. Cl. B64c *23/00, 1/38*

U.S. Cl. 239—265.33 **7 Claims**



A variable area exhaust nozzle has the external contour of its flaps forming a substantially continuous afterbody surface with the downstream portion of the engine nacelle when the flaps are extended wherein the afterbody surface so formed has a maximum cross sectional area at its forward end which decreases linearly with respect to its axial length to a minimum cross sectional area at its rearward end. This results in an exhaust nozzle having the lowest possible external drag.

3,837,578

TURBOJET ENGINES WITH PIVOTING JET PIPE AND THRUST REVERSING MEANS

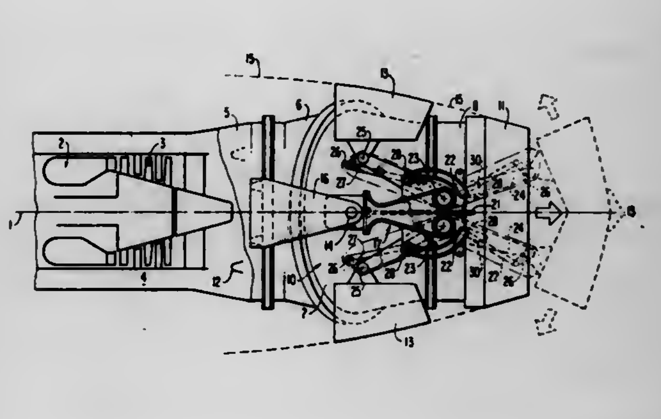
Heinrich Leibach, Grafrath-Wildenroth, Germany, assignor to Motoren-und Turbinen-Union Munchen GmbH, Munich, Germany

Filed Oct. 3, 1973, Ser. No. 402,907

Claims priority, application Germany, Oct. 3, 1972, 2248480

Int. Cl. B64c *9/38, 15/04*

U.S. Cl. 239—265.35 **23 Claims**



A jet exhaust control arrangement for controlling the exhausting of thrust gases supplied by turbo jet engines. The arrangement includes a fixed pipe section for accepting gases from the engine and at least one further downstream pipe section which is pivotal with respect to the fixed pipe section for effecting changes in the direction of the exhausting of gases through a nozzle arranged at the downstream end of the pivotal pipe section. Thrust reversing deflecting flaps are mounted for movement with the pivotal pipe section and are movable into and out of the exhaust of the nozzle for effecting a reversal of the thrust forces. The pivoting movement of the pivotal pipe section and the movement of the deflecting elements into and out of the exhaust gas stream is controlled so as to accommodate an effective attitude control by the combination of selecting the exhaust direction and the amount of thrust reversal.

3,837,579

VARIABLE-GEOMETRY NOZZLE FOR A JET ENGINE

Andre Alphonse Mederic Leon Camboulives, Savigny-sur-Orge; Jean Francois Chambon, Le Mee-sur-Seine; Gerard Ernest Andre Jourdain, Evry; Theophile Francois Le Maout, Cesson, and Roger Alfred Jules Vandenbroucke, Antony, all of France, assignors to Societe Nationale D'Etude et de Construction de Moteurs d'Aviation, Paris, France

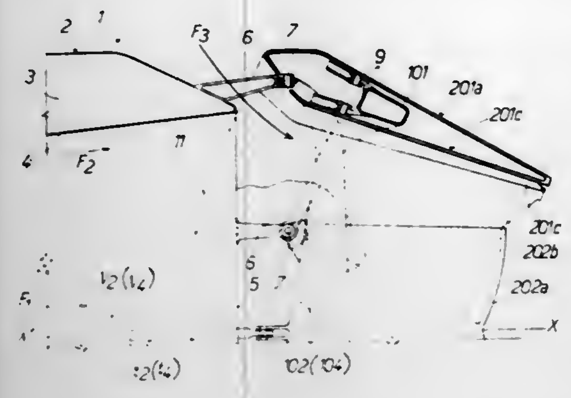
Filed June 19, 1973, Ser. No. 371,659

Claims priority, application France, June 19, 1972, 72.22052

Int. Cl. B64c *15/04*

U.S. Cl. 239—265.39 **12 Claims**

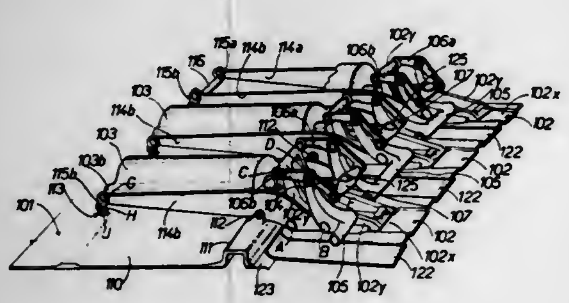
A variable-geometry nozzle for a jet engine is of the type which comprises a fixed structure, flaps adjustable in position with respect to the fixed structure, and control means for adjusting the position of the flaps. A plurality of swivelling frames are arranged around the circumference of the nozzle and are separately hinged to the fixed structure for pivotal adjustment about axes perpendicular to the longitudinal direction of the nozzle. The control means comprise jacks operable to pivot the frames about their respective axes, and the adjustable flaps are connected to the frames. The flaps comprise, in resect of each frame, two flaps each of which is hinged to the corresponding frame for positional angular adjustment with reference to that frame about an axis which has a component perpendicular to the pivotal axis of the frame concerned.



3,837,580
NOZZLES HAVING AN ADJUSTABLE CROSS-SECTION

Andre Alphonse Mederic Leon Camboulives, Savigny-sur-Orge; Gerard Ernest Andre Jourdain, Evry, and Theophile Francois Le Maout, Cesson, all of France, assignors to Societe Nationale D'Etude et de Construction de Moteurs d'Aviation, Paris, France

Filed Oct. 2, 1973, Ser. No. 402,836
Claims priority, application France, Oct. 6, 1972, 72.35502
Int. Cl. B64c *15/06*
U.S. Cl. 239—265.39 **1 Claim**

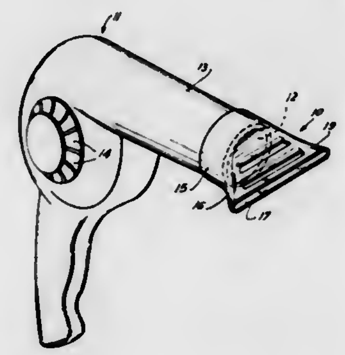


A jet propulsion nozzle comprising a plurality of actuated flaps articulated at their upstream ends about substantially tangentially disposed axes distributed circumferentially around the downstream portion of a fixed nozzle duct, said flaps being adapted, under the control of a plurality of actuators, to pivot about their respective axes in order to vary the cross-sectional area of the nozzle, said nozzle comprising furthermore a plurality of intermediate levers separate from the actuators and disposed respectively each between two consecutive actuated flaps, each of said levers being connected through the medium of connecting rods to the two consecutive actuated flaps and being itself articulated about a substantially tangential axis, wherein the flap axes and the intermediate lever axes are carried by a system of longitudinal side plates distributed circumferentially about the nozzle axis and themselves carried by the fixed duct of the nozzle and extending downstream beyond the downstream extremity of said duct, and wherein the geometric figure described, on the one hand by the respective points of articulation of one and the same connecting rod to a actuated flap and to an intermediate lever and on the other hand by the respective intersections with one of said side plates of the axes of said flap and said lever, is substantially a parallelogram which is capable of deforming during variations in cross-sectional area of the nozzle, while nevertheless maintaining one fixed side which is constituted by a straight line section extending within said plate and joining said intersections in which each actuator has a moving part which is fastened to a cross-bar which extends in a tangential direction, relative to the nozzle and connects the two connecting rods associated with the respective flap, and in which the trace of each of said cross-bars onto the plane of the associated deformable parallelogram is separated from the fixed side of said parallelogram. at any moment, by a distance which is less than the height of said parallelogram.

3,837,581
HAIR DRYER NOZZLES

Eli Orsoff, Selden, N.Y., assignor to Continental Hair Products, Inc., Brooklyn, N.Y.

Filed Oct. 11, 1973, Ser. No. 405,361
Int. Cl. B05b *1/24, 1/14;* **A45d** *20/12*
U.S. Cl. 239—289 **10 Claims**



A nozzle for a hair dryer having a cylindrical barrel terminating in a circular output port. The nozzle includes a cylindrical section for frictionally engaging the output port end of the barrel, and a fluid accelerating section having an oblong opening for providing a flat main stream of air. The accelerating section includes a pair of arcuate surfaces which extend from the cylindrical section and define the long sides of the oblong opening. The arcuate surfaces include slots for providing auxiliary streams of air substantially parallel to the main stream. In one embodiment louver boards extend over the slots for directing the auxiliary streams.

3,837,582
BENEFICIATION OF NEW YORK STATE TALC

Tryggve Baak, Princeton, N.J., assignor to Cyprus Mines Corporation, Trenton, N.J.

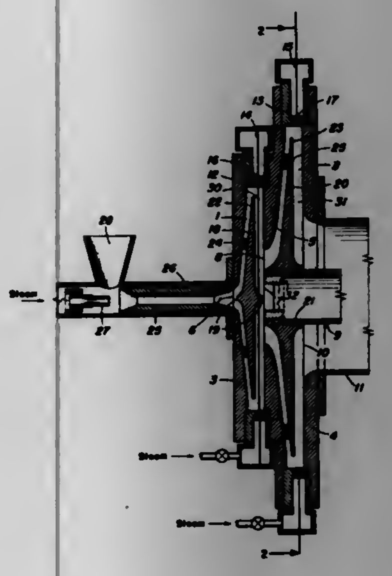
Filed Dec. 27, 1972, Ser. No. 319,001
Int. Cl. B02c *19/00*
U.S. Cl. 241—4 **12 Claims**

Process of beneficiating Gouverneur, New York talc ore to produce a high purity, platy talc substantially free of tremolite. The process involves crushing the ore and irradiating the crushed ore with short wavelength ultraviolet radiation to cause the talc in the crushed ore to fluoresce predominantly white and the tremolite in the crushed ore to fluoresce a predominantly non-white color. The irradiated crushed ore is then separated into a first portion in which the fluorescent areas of the constituent rocks fluoresce predominantly white, and a second portion in which the fluorescent areas of the constituent rocks fluoresce a predominantly non-white color. The rocks in the first portion are crushed further preferably to a particle size of minus 100 Tyler mesh, and are subjected to at least one froth flotation step. The talc recovered from the froth formed during the last froth flotation step is characterized by a G.E. brightness about 90 and a tremolite content of less than 1.0 percent by weight.

3,837,583
MULTI-STAGE JET MILL

Joachim Kugelberg, Leverkusen; Carlo Servais, and Rolf Dieter Uihlein, both of Odenthal, all of Germany, assignors to Kronos Titan G.m.b.H., Leverkusen, Germany

Filed May 14, 1973, Ser. No. 360,353
Claims priority, application Germany, May 13, 1972, 2223441
Int. Cl. B07b *7/04*
U.S. Cl. 241—39 **8 Claims**

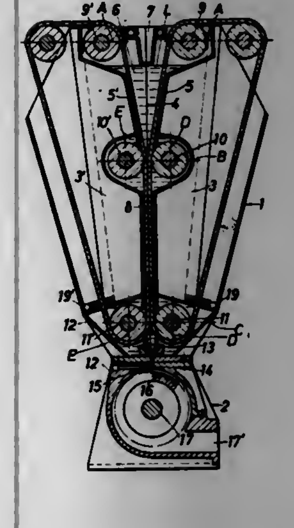


An improved multi-stage jet mill is described which may, for example, be used for dry milling pigments.

3,837,584
APPARATUS FOR GRANULATING THERMOPLASTIC STRANDS

Heinz Lehr, Gelnhausen, Germany, and Walter Swarat, Elmhurst, Ill., assignors to Condux-Werk Herbert A. Merges KG, Wolfgang near Hanau, Germany

Filed Mar. 9, 1973, Ser. No. 339,947
Claims priority, application Germany, Mar. 15, 1972, 2212345
Int. Cl. B02c *21/00*
U.S. Cl. 241—65 **7 Claims**

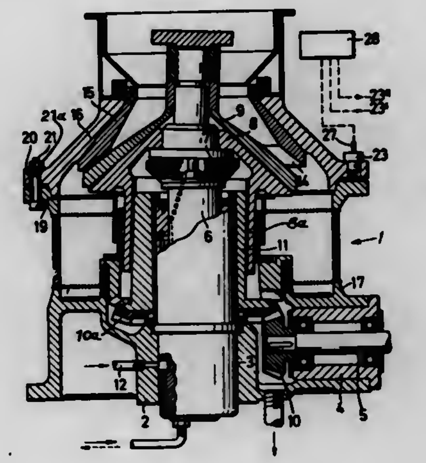


In an apparatus for granulating thermoplastic strands there is provided a feeding device which, at its downstream end is interlocked with a comminuting device. The strands are advanced by cooperating conveyor belts along a supply path in the feeding device and are introduced into the comminuting device. In the feeding device and in the granulating device there is contained a liquid coolant which has a uniform liquid level and in which the cooperating portions of the conveyor belts are submerged to ensure that the strands are comminuted in a condition in which their outer surface is already hardened, while their interior is still soft.

3,837,585
GYRATORY CRUSHER WITH HYDRAULIC MEANS FOR LIFTING THE UPPER PART OF THE HOUSING FROM THE LOWER PART

Hanns Decker, Cologne-Rath, and Heinz Hurtmanns, Cologne, both of Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne, Germany

Filed July 12, 1972, Ser. No. 271,146
Claims priority, application Germany, July 15, 1971, 2135272
Int. Cl. B02c *2/04*
U.S. Cl. 241—213 **4 Claims**

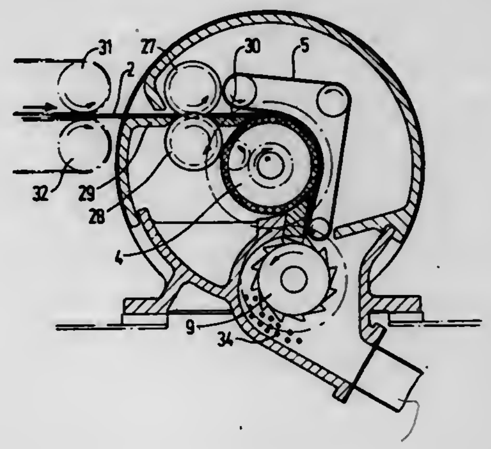


A gyratory crusher provided with a housing consisting of two superimposed parts provided with flanges traversed by bolts and nuts which releasably connect the two parts of the housing with each other and also provided with a plurality of hydraulically operating lifting devices arranged in apertures of one of the flanges and engaging the other flanges for lifting the upper part of the housing from the lower part of the same.

3,837,586
APPARATUS FOR GRANULATING STRANDS OR BANDS OF MATERIAL, ESPECIALLY SYNTHETIC MATERIALS

Otto Perschbacher, Schaafheim; Friedrich Hunke, Grossostheim-Ringheim, and Berthold Glaab, Wenighoesbach, all of Germany, assignors to Automatic Apparate-Machinenbau H. Hench GmbH, Grossostheim, Ostring, Germany

Filed Dec. 1, 1972, Ser. No. 311,386
Claims priority, application Germany, Dec. 6, 1971, 2160466
Int. Cl. B02c *23/02, 18/44*
U.S. Cl. 241—223 **9 Claims**



The present apparatus for granulating elongated material includes a transport roller, and infeed and output tables arranged to extend substantially tangentially to the transport roller. A conveyor belt is wrapped around the transport roller and extends from one guide or drive roller adjacent the infeed table and another drive or guide roller adjacent the output table. A tool cooperating with the end of the output table away from the transport roller effects the granulation of the elongated material. The region between the infeed table and the belt is generally funnel shaped. The region between the transport roller and the conveyor belt forms a sheet advance region which extends close to the end of the output table. The portion of the apparatus including the conveyor belt and the input table may be rotated to permit ready access to the end of the output table, which may be formed as a replaceable counter knife.

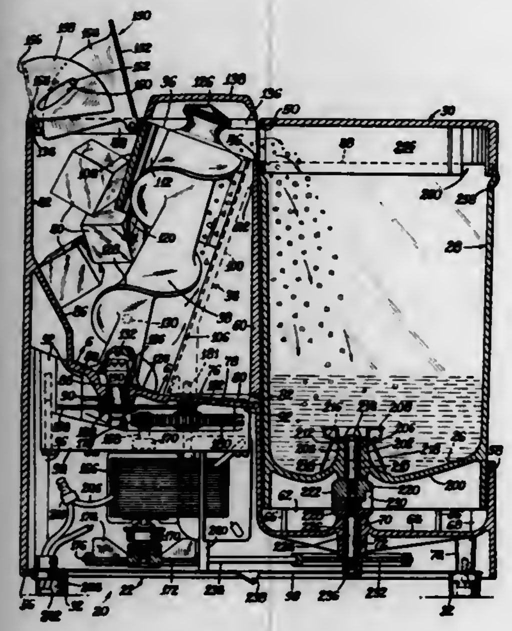
3,837,587
COMBINATION ICE CRUSHER AND DRINK MIXER

John Walter, Evergreen Park; Worthy L. Chambers, Lombard, and John M. Stipanuk, Elmhurst, all of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Division of Ser. No. 226,157, Feb. 14, 1972, Pat. No. 3,791,597. This application Oct. 10, 1973, Ser. No. 405,044

Int. Cl. B02c *19/00*

U.S. Cl. 241—260.1 **10 Claims**



A combination ice crusher-drink mixer appliance which serves either as an ice crusher or as a drink mixer or as a combination of the two whereby to provide crushed ice to a drink as it is being mixed. An electric motor is operably connected to an upwardly inclined ice-crushing auger which is rotatable in an ice-crushing barrel whereby ice cubes introduced to the lower end of the auger-barrel combination through a vertically disposed ice chute are simultaneously crushed, sized, and transported upwardly to a crushed ice discharge port at the upper end of the barrel. A crushed-ice-receiving and drink-mixing container has an agitator mounted off center in the bottom thereof with the container being selectively positionable adjacent the crushed ice discharge port in either of two positions. In one of these positions only, the agitator is automatically coupled to the electric motor. The path of ice movement through the appliance from the entrance to the ice chute to the bottom of the container is in the form of an inverted N and the ice crushing auger and barrel are formed of high strength plastic. The drive connection between the electric motor, which has a built-in impact clutch, and the auger includes a gear reduction mechanism and a modified universal-joint with the drive ratio therebetween being in the order of 100:1, the drive ratio between the electric motor and the agitator being in the order of 1:1. The ice chute has a cover which, when opened, defines an upward extension of the ice chute. The auger is readily removable from the barrel for cleaning and the container has a pouring spout with a strainer and a hand-grip formation. The components of the combination ice crusher-drink mixer appliance are nested together to provide a compact multi-purpose appliance which occupies a minimum amount of countertop space.

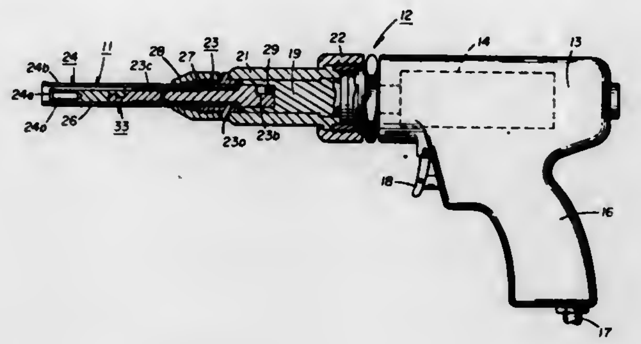
3,837,588
COMPOSITE WIRE WRAPPING BIT

James O. Chambers, Yukon, Okla., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Apr. 27, 1973, Ser. No. 355,243

Int. Cl. H01r *43/00*

U.S. Cl. 242—7.06 **10 Claims**



A wire wrapping assembly includes a composite wire wrapping bit mounted in a cylindrical sleeve. The bit includes an elongated cylindrical shank member and a wear resistant, cylindrical wire wrapping head which is primarily of molded construction, as for example being formed of a pressed and sintered metal powder composition. The wire wrapping head may be connected to the shank member by a quick-releasable drive connection capable of permitting limited universal movement between the head and the shank member, and capable of imparting rotatable movement of the head in synchronism with the shank member. In the alternative, the wire wrapping head may be rigidly secured to the shank member.

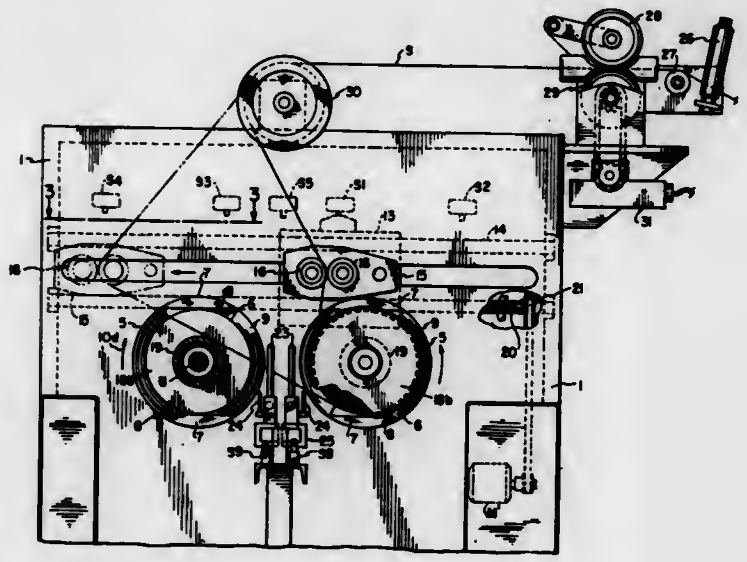
3,837,589
APPARATUS AND METHOD FOR CONTINUOUS SPOOLING

Frank B. Johnson, Middletown, and Theodore O. Palm, North Haven, both of Conn., assignors to Davis Electric Company, Wallingford, Conn.

Filed May 18, 1972, Ser. No. 254,717

Int. Cl. B65h *54/02, 54/44*

U.S. Cl. 242—25 A **5 Claims**



Apparatus and method are disclosed for continuously spooling flexible stock material onto a pair of take-up spools rotatably mounted with their axis in parallel relationship to each other. The stock material is spooled first onto one of the take-up spools and when it is filled the stock material is automatically transferred to the other take-up spool for spooling thereon without interruption of the spooling operation. The apparatus is specially constructed to dependably and reliably insure proper transfer of the stock material from one take-up spool to the other. For applications involving the spooling of insulated stock and the testing of the insulated stock for electrical defects as it is being fed to the take-up spools, the apparatus is provided with means for maintaining the linear rate of feed of the stock material substantially constant as the winding on each of the take-up spools takes place. Means are also provided for grounding the insulated cable to the apparatus.

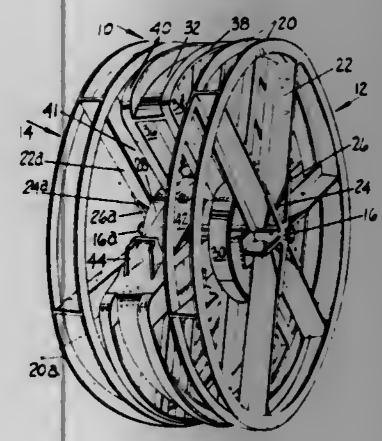
3,837,590
CABLE REEL ASSEMBLY

Edward George Pollak, York, Maine, assignor to Johns-Manville Corporation, Denver, Colo.

Filed June 26, 1972, Ser. No. 266,196

Int. Cl. B65h *75/02;* **B63b** *21/52*

U.S. Cl. 242—54 R **10 Claims**



A cable reel assembly is disclosed herein and includes two outer cable support drums and a center cable support drum coaxially positioned around a common axle and between two, preferably spoked, annular reel frames also positioned coaxially around the common axle. The center drum, which is preferably of greater diameter than the outer drums, is separated from the outer drums by a pair of circumferential dividers positoned between the three drums. The assembly also includes three cables, each of which is connected at one end to a common cable connector having an elongated portion adapted to sit unconnected in a slot provided in the center drum. The dividers also include slots which are aligned with the center drum slot and which receive opposite end sections of the elongated connector portion. In this manner, the three cables can be wound around respective support drums without interferring with one another. Constructed in this fashion, the reel of the assembly will completely disconnect itself from the arrangement of interconnected cables after the latter have been unwound therefrom. Hence, the assembly is quite suitable for anchoring an object such as, for example, a buoy, where the cable would otherwise provide an undesirable drag to the anchor.

3,837,591
STANDS FOR REELS OF PAPER

William Frank Clarke, Bristol, England, assignor to Masson Scott Thrissell Engineering Limited, Summerstown, London, England

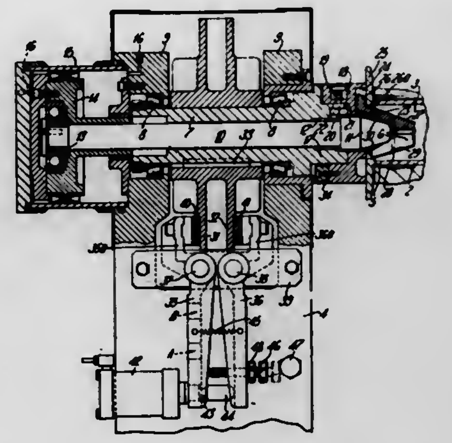
Filed Sept. 17, 1971, Ser. No. 181,524

Claims priority, application Great Britain, Sept. 18, 1970, 44593/70

Int. Cl. B65h *19/00*

U.S. Cl. 242—68.4 **8 Claims**

A stand for reels having a hollow core is provided with a pair of spaced housings having disposed therein axially aligned shafts which are movable toward and away from each other for insertion and removal from the hollow core. Each of the shafts is provided with segmental jaws which are radially expandable to engage the inner surfaces of the hollow core of the reels. A spring biased plunger is provided to release the housing and segmental jaws from the shaft.



3,837,592
DEVICE FOR AUTOMATICALLY POSITIONING THE WINDINGS FORMED BY A FLEXIBLE ELONGATED MEMBER STORED IN AN ANNULAR BASKET ROTATABLE ABOUT A VERTICAL AXIS

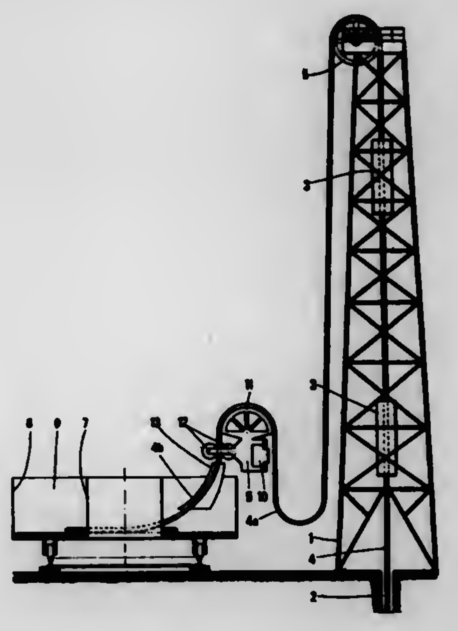
Jean Thiery, Le Pecq; Remi Reynard, Montesson, and Yves Willm, Suresnes, all of France, assignors to Institut Francais du Petrole, des Carburants et Lubrifiants, Rueil-Malmaison, France

Filed Dec. 26, 1972, Ser. No. 318,614

Claims priority, application France, Dec. 24, 1971, 71.46684

Int. Cl. B21c *47/00*

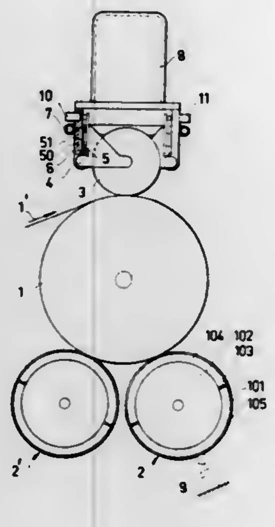
U.S. Cl. 242—83 **12 Claims**



Device for automatically positioning the windings of a flexible elongated element in a storage annular basket comprising means for drawing said flexible element and forming a loop portion thereof free of tensile stress, means for guiding the introduction of said flexible element into said basket, means for driving said basket in rotation, means for controlling the rotation of said basket in response to the feeding rate of the flexible element thereto and means for controlling, in response to the rotation of said basket, said guiding means and the length of said loop.

3,837,593
SUPPORTING-ROLLER REELING APPARATUS

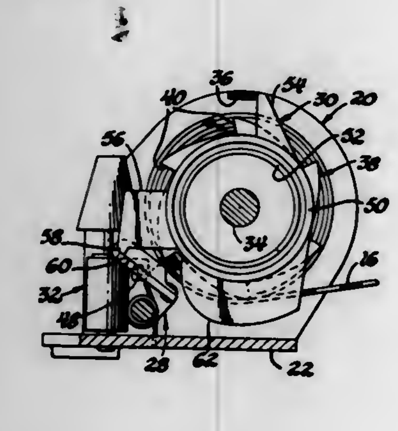
Gerhard Walter Dorfel, Weilheim-Teck, Germany, assignor to A. Ahlstrom Osakeyhtio, Noormarkku, Finland
Filed Sept. 22, 1972, Ser. No. 291,408
Claims priority, application Germany, Sept. 24, 1971, 2147673
Int. Cl. B65h *17/08*
U.S. Cl. 242—66 **8 Claims**



In a reeling apparatus for moving webs, such as paper webs, irregular tensions on the web due to thickness variation in the same are eliminated by providing an even pressure along the reel between the reel and at least one driven supporting roller supporting the reel and rotating it by circumferential contact. The invention is specifically applicable to the reeling of barrel shaped reels or reels of similar form deviating more or less regularly from the ideal cylindrical shape. It provides sensor means in contact with the reel for sensing the mantle shape thereof, said sensor means operating measurement converter means transmitting signals based upon said mantle shape. These signals are received by a control unit controlling the deflection or bending of the supporting roller, which thus must be of the known type having controllable deflection. The sensor elements may be mounted onto several load roller arranged closely together above the reel and independently vertically movable but loading the reel with an even line pressure. This may be achieved by having said load rollers pneumatically or hydraulically controlled and thus also pneumatically or hydraulically interconnected.

3,837,594
SEAT BELT RETRACTOR APPARATUS

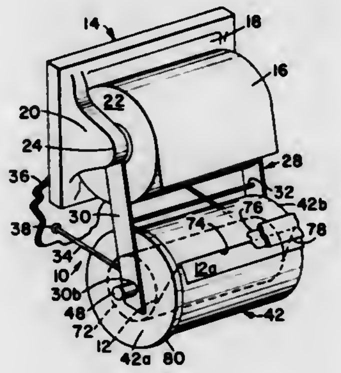
Gerald F. Lewis, 1850 Columbia, Berkley, Mich. 48072
Filed Apr. 6, 1972, Ser. No. 241,539
Int. Cl. A62b *35/02;* **B65h** *63/04*
U.S. Cl. 242—107.4 **12 Claims**



Seat belt retractor apparatus having a spring biased latching device for locking the seat belt in a selected extended position. The latching device incorporates a latch that is releasably held in an unlatched position by a condition responsive latch holding device so that the seat belt user is permitted free movement and also to preclude premature latching prior to the belt being buckled. The condition responsive latch holding device responds to inertia forces in any direction acting on the retractor apparatus and when of a certain magnitude will release the latch for movement to the latched position. A latch positioning device is also included that prevents ratcheting during rotation of the belt in the belt retracted direction, that can be used to reset the holding device, and that insures that latching occurs in the event that the condition responsive latch holding device malfunctions. This interaction of the two devices is facilitated by a lost motion connection therebetween.

3,837,595
SUPPLEMENTAL SHEET-DISPENSING DEVICE FOR A TOILET-TISSUE DISPENSER

Philip Boone, 15 Fenwick Rd., Winchester, Mass. 01890
Division of Ser. No. 356,143, May 1, 1973, which is a continuation-in-part of Ser. No. 238,578, March 27, 1972, Pat. No. 3,744,448, which is a continuation-in-part of Ser. Nos. 678,600, Oct. 27, 1972, abandoned, and Ser. No. 715,768, March 25, 1968, Pat. No. 3,652,174, and a continuation-in-part of Ser. No. 257,745, May 30, 1972, abandoned, and Ser. No. 334,309, Feb. 21, 1973, which is a continuation-in-part of Ser. No. 48,916, June 6, 1970, Pat. No. 3,707,945. This application Dec. 26, 1973, Ser. No. 428,225
Int. Cl. B65h *19/06*
U.S. Cl. 242—55.3 **26 Claims**

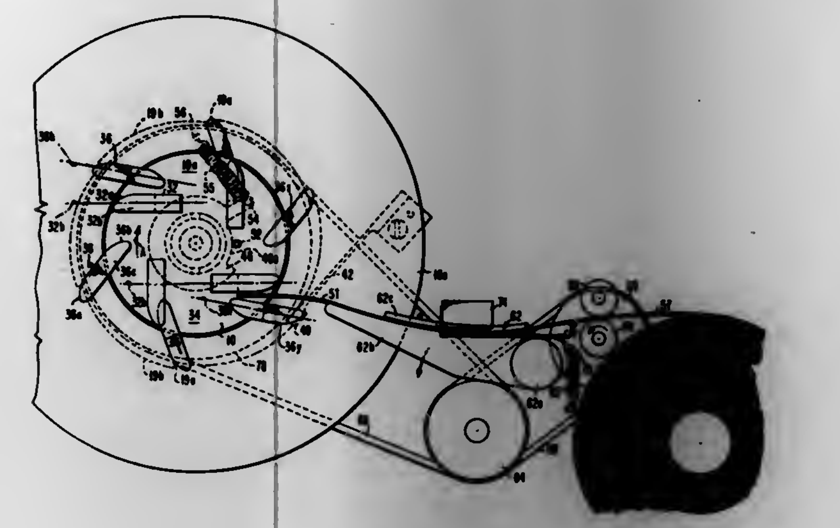


A compact auxiliary device providing wetted or self-wetting sheets for releasable proximate mounting in conjunction with a conventional toilet-tissue dispenser of dry sheets; comprises an inexpensive container or magazine component pre-loaded with the supplemental sheets. The magazine can be snapped into functional position rapidly. It serves an improved health care and cleanliness function.

3,837,596
SELF-THREADING TAKE-UP SPOOL DEVICE

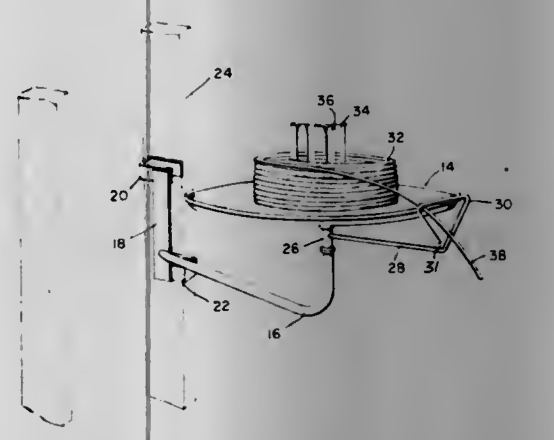
Richard Edward Lagergren, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed May 4, 1973, Ser. No. 357,428
Int. Cl. B65h *75/28*
U.S. Cl. 242—74 **10 Claims**

A take-up device for a paper web or the like having an inner rotating hub and an outer, initially stationary spool, with the hub and spool carrying vanes between which an advancing paper web may be gripped so that the spool then begins rotation to wind up the web on the outer ends of its vanes. Indexing mechanism for the outer spool is provided so that a web guide directs the advancing paper web between two of the vanes of the initially stationary outer spool, and the indexing mechanism includes a spring for returning the outer spool to this non-blocking position for the web when a completed roll of web is removed from the spool.



3,837,597
COILED CABLE DISPENSER

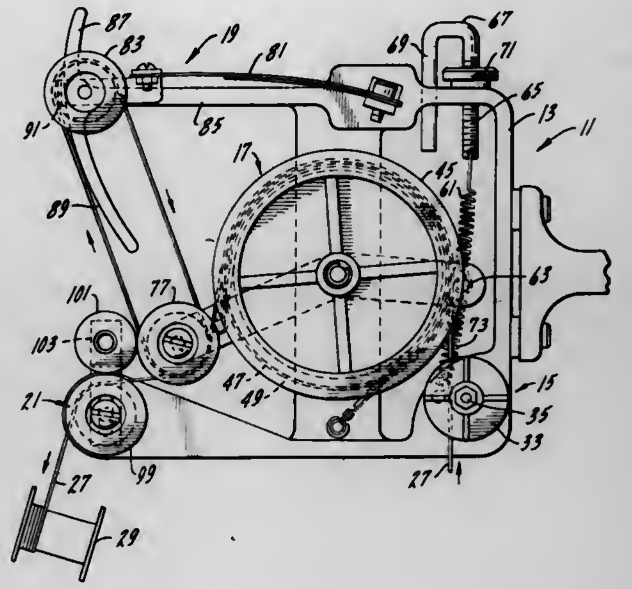
Francis Kurt Bourhenne, 1308 1/2 Anaheim St., Harbor City, Calif. 90710
Filed Feb. 5, 1973, Ser. No. 329,659
Int. Cl. B65h *49/00;* **D01h** *7/16*
U.S. Cl. 242—129 **4 Claims**



A coiled cable dispenser for use by the building trade in constructing buildings. The coiled cable usually packaged in 250 foot rolls is centrally located on a rotatable table. A spindle mounting assembly pivotally supports the table at one end and contains a pair of spaced apart U shaped members attached to each other by a single arm at the other end. The U shaped members are adapted to fit over opposite sides of a conventional two by four stud member which are usually located 16 inches on center. The cable is dispensed from the periphery of the coil through a cable guide assembly that is pivotally attached to the spindle mounting assembly below said rotating table. The table is frictionally restrained thereby allowing the construction worker to pull a selected amount of cable from the rotating table.

3,837,598
WIRE TENSIONING APPARATUS

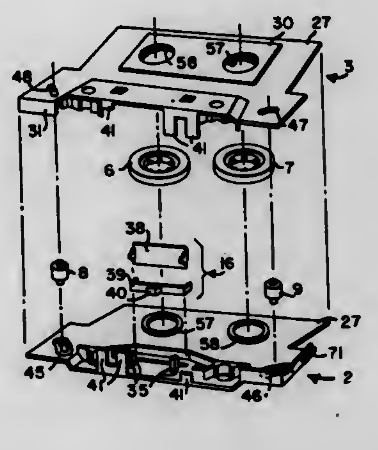
Maurice H. Brown, P.O. Box 367, Palos Heights, Ill. 60463
Filed Oct. 3, 1973, Ser. No. 403,112
Int. Cl. B65h *59/16, 59/40*
U.S. Cl. 242—155 R **3 Claims**



An apparatus for use on a wire winding machine to apply tension and to accurately indicate the tension in the wire as it is pulled therethrough even where the pull on the wire fluctuates rapidly.

3,837,599
CASSETTE

Augustine A. Souza, San Jose, Calif., assignor to Polygon Concepts, Inc., Menlo Park, Calif.
Continuation-in-part of Ser. No. 136,365, April 22, 1971. This application May 26, 1972, Ser. No. 257,436
Int. Cl. G03b *1/04;* **G11b** *15/32, 23/04*
U.S. Cl. 242—199 **6 Claims**



A cassette comprising a pair of identical sleeves in mating relationship enclose a tape reel and hub assembly, a tape guiding and tensioning member assembly and a tape back-up pressure assembly. The sleeves are inserted within a body member and removably held therein mechanically. The construction eliminates the need for sonic welding and liquid bonding. The elimination of undercuts in the design and the above method of assembly permits the use of low cost materials and manufacturing techniques. For tape control during tape run-up, running, and changing of the direction of tape movement there is provided tape guiding and tensioning members in the form of a plurality of self-adjusting idler rollers which absorb tape shock and slacks for reducing whipping, looping, spilling and other tape jamming events. A plurality of cantilever mounted resilient spring-like members are further provided for applying a variable degree of retarding force through friction to tape reel hubs to further reduce tape jamming. To permit removal of the sleeves and various assemblies enclosed therein, the sleeves are provided with means for manually releasing the sleeves from the body member. In an alternative embodiment, a tape hub or hub ring with diametrically opposed raised portions is provided for reducing friction. For improved tape pack uniformity a hub with a plurality of radially extending blades to form a reel is provided. A flexible tape retaining member in a hub for automatic machine tape loading is also provided.

3,837,600

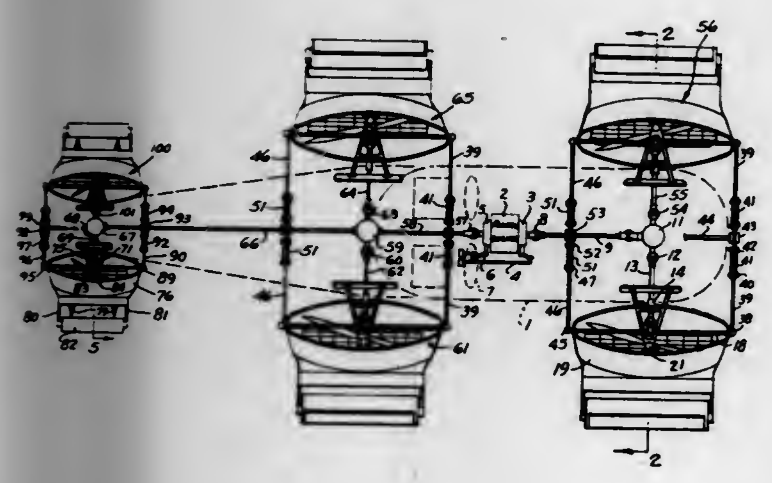
VERTICAL TAKE-OFF AND LANDING AIRPLANE

Ralph S. Mason, Rt. No. 1 Box 75, Proctor, W. Va. 26055

Filed May 21, 1973, Ser. No. 362,309

Int. Cl. B64c *29/04*

U.S. Cl. 244—12 R **8 Claims**



An aircraft capable of flying in any direction by means of driven propellers, housing turbulence eliminators, wings and ailerons supported on the front and middle sides of an airplane frame and controlled for simultaneous pivoting in a direction longitudinally of said airplane frame together with driven propellers, housing, turbulence eliminators, rudders and elevators pivotally mounted and controlled at the sides of the tail end of said airplane frame.

3,837,601

AERODYNAMIC SLOT CLOSING MECHANISM

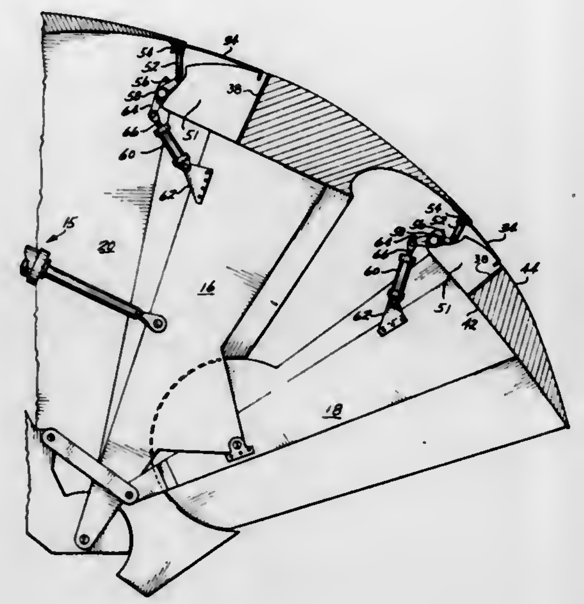
James Byron Cole, Mercer Island, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Mar. 9, 1973, Ser. No. 339,645

Int. Cl. B64c *21/04*

U.S. Cl. 244—42 DB **12 Claims**

In present day aircraft, the wing normally has two or more airfoil segments chordwise thereof, and the segments are extendible and retractable in relation to one another so that the adjacent edges thereof open and close an aerodynamic slot therebetween. According to the invention, an auxiliary closure member is provided on the slot-defining edge portion of one of the segments, which is shiftable in relation to the segments when the slot is open, between a position in which the member closes the slot, and a position in which the slot is reopened. In the reopened position, the closure member fairs into the edge portion of the one segment, relatively peripherally of the slot, whereas in the closure position, the member fairs into a chordwise surface of the wing, relatively crosswise of the slot.



3,837,602

MOUNTINGS FOR POWER PLANTS

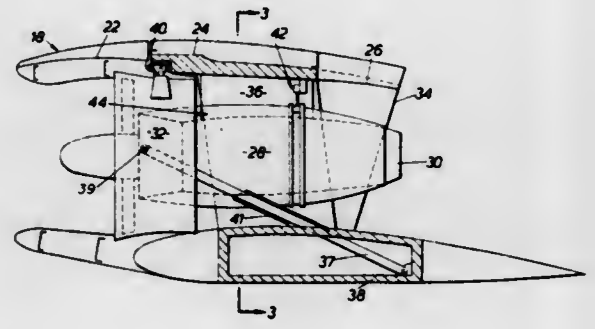
John Albert Mullins, Chellaston, England, assignor to Rolls-Royce (1971) Limited, London, England

Filed Feb. 26, 1973, Ser. No. 336,044

Claims priority, application Great Britain, Mar. 4, 1972, 10242/72

Int. Cl. B64d *27/00*

U.S. Cl. 244—54 **9 Claims**



An aircraft is provided with overwing mounted ducted fan gas turbine engines, the engines being mounted within nacelles formed on the upper surface of the wing main spar. The nacelles provide a part of the engines fan flow ducts and also provide attachment points to which the engines are attached in a manner which transmits thrust loads directly to the wing main spar.

3,837,603

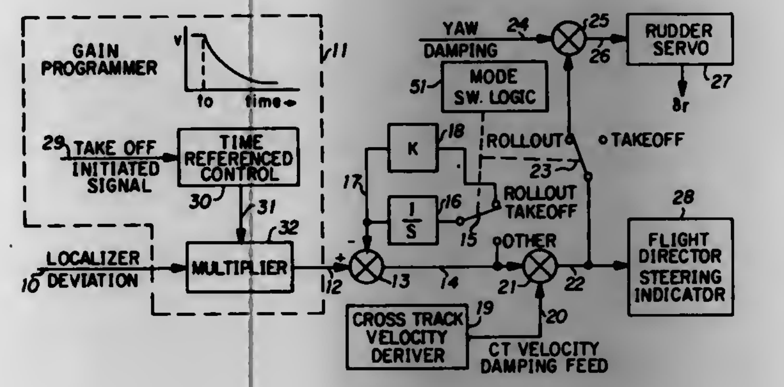
LATERAL AXIS ROLLOUT, GO-AROUND, TAKEOFF CONTROL FOR AIRCRAFT

Elmer L. Schultz, Marion, Iowa; Robert F. Tribuno, Santa Monica, Calif.; John C. Hall, Cedar Rapids, Iowa, and Theodore J. Schuldt, Jr., Thousand Oaks, Calif., assignors to Collins Radio Company, Dallas, Tex.

Filed Jan. 4, 1973, Ser. No. 321,117

Int. Cl. B64c *13/18*

U.S. Cl. 244—77 A **1 Claim**



Automatic control of aircraft which provides runway centerline guidance during landing rollout, takeoff roll and low altitude initiated go-around flight modes, wherein lateral dispersion is minimized during a go-around manuever for the case of an outboard engine.

3,837,604

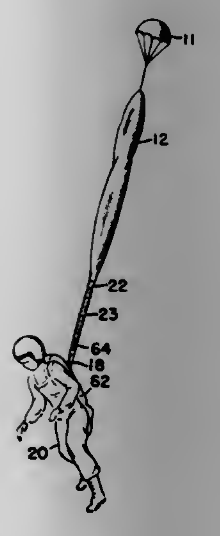
MEANS FOR CONTROLLING THE DEPLOYMENT AND THE DEVELOPMENT OF A PARACHUTE CANOPY

John T. Matsuo, El Centro, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 6, 1972, Ser. No. 295,769

Int. Cl. B64d *17/22*

U.S. Cl. 244—152 **6 Claims**



A simple technique is proposed for achieving near-optimum parachute canopy deployment without the need for additional equipment by bundling together the suspension lines and forming therein a series of gradually releasable daisy-chain slip knots. The daisy-chained suspension lines are connected to the canopy skirt by means of a releasable locking device which enables the suspension lines gradually to unravel in a taut condition until the skirt is released by the locking device enabling the drag-producing surface fully to inflate.

3,837,605

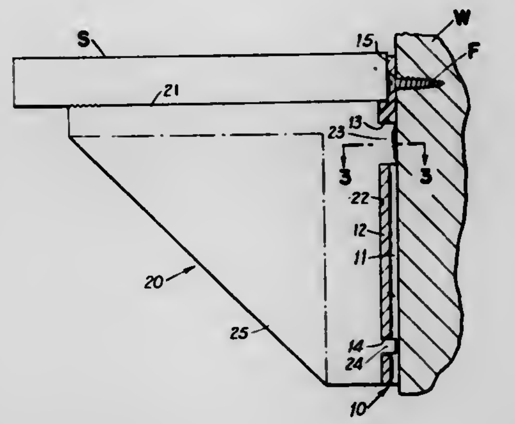
SHELF BRACKETS

Marcel Clarence Sicard, 1666 N. Rolling Acres, New Haven, Conn. 06410

Filed Sept. 13, 1972, Ser. No. 288,504

Int. Cl. A47b *96/06*

U.S. Cl. 248—235 **1 Claim**



A shelf bracket having a vertical surface adapted to engage a wall and having a plate-like tab extending upwardly therefrom to be attached to the wall by a fastener and hidden from view by the supported shelf.

3,837,606

CLAMPING MECHANISM FOR PLATFORM

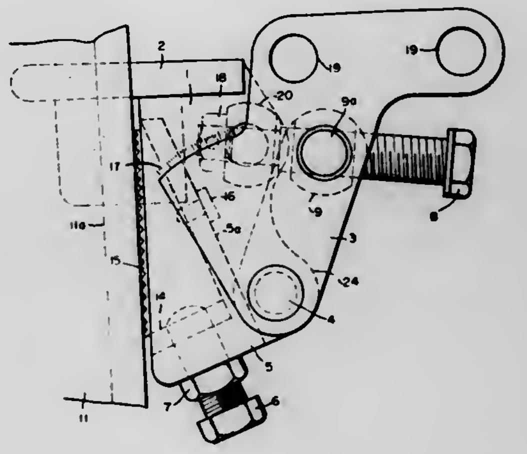
Akio Hikai; Yoshiyuki Kobayashi, and Kazuyoshi Furuta, all of Shimizu, Japan, assignors to Nippon Kohan Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 29, 1972, Ser. No. 319,767

Claims priority, application Japan, Dec. 29, 1971, 46-2639

Int. Cl. E04g *3/04*

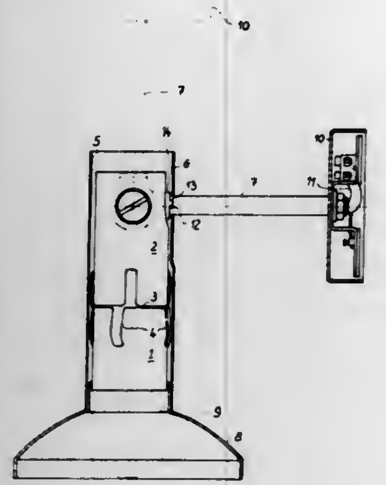
U.S. Cl. 248—242 **2 Claims**



In the clamping mechanism for a working platform, which is temporarily set up in the constructing of structures, e.g., a building, a hull or the like, an improved clamping mechanism wherein a cotter having counter teeth is so fitted as to be slidable between a flange of fixture of a clamp body, which is arranged along side wall of structure, and said body, and a rotatable cross arm is further connected to said clamping body. The setting-up and taking down of this mechanism is easily accomplished.

3,837,607
LIGHTING FIXTURE

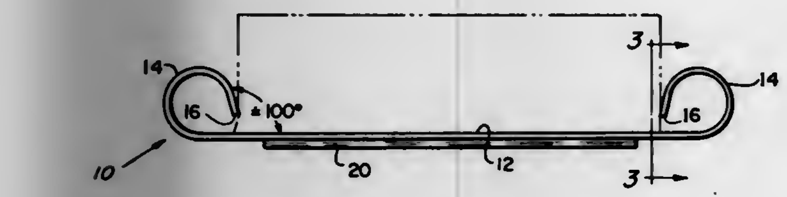
Kurt Hesse, 492 Lemgo, Waterfohr 38, Germany
Filed Jan. 29, 1973, Ser. No. 327,369
Claims priority, application Germany, Jan. 31, 1972, 7203465
Int. Cl. F16l *27/00*
U.S. Cl. 248—278 **4 Claims**



A lighting fixture including a bulb socket mounted on an extension arm, wherein means for tilting and rotating the bulb socket are formed as part of the socket assembly.

3,837,608
DISPENSER HOLDER

Edward J. Simon, 307 Henry Ave., Sewickley, Pa. 15143
Filed Aug. 9, 1972, Ser. No. 278,938
Int. Cl. F16m *13/00*
U.S. Cl. 248—313 **2 Claims**

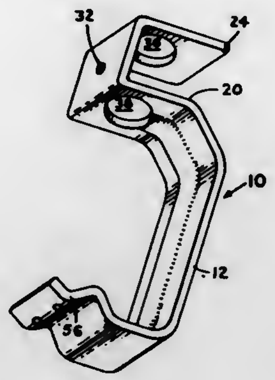


A holder for pasteboard dispensers is provided to position the paste board dispensers conveniently for removal of materials therefrom. The dispenser holder of the present invention is formed from a single piece of spring metal shaped to retain the pasteboard dispenser. The spring metal may be attached to surfaces by adhesive material or may be an integral part of other items, such as shelf brackets, whereby the dispensers retained by the holder occupy a minimum usable space in the home, or in automobiles.

3,837,609
SUPPORT BRACKET FOR RAILS AND THE LIKE

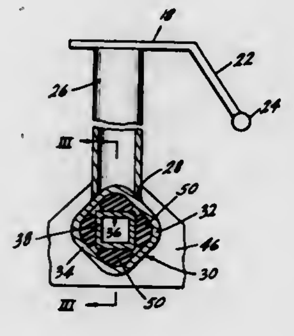
Morton A. Weiss, Springfield, and Bernard S. Speckhart, Short Hills, both of N.J., assignors to White Machine Co., Kenilworth, N.J.
Filed Sept. 18, 1972, Ser. No. 290,023
Int. Cl. E01b *25/22*
U.S. Cl. 248—317 **10 Claims**

A rail support bracket is formed from a stamping of a single sheet of metal. One end of the sheet is bent to form a "U" shaped attaching head for fastening the bracket to various support members. Two axially aligned holes can be formed in the arms of the U shaped attaching head to receive a suspension pipe to which the bracket is to be attached. A single jam screw is threadably engaged in the third side of the attaching head of the support bracket to bear against the suspension pipe to force the pipe against holes in the attaching head in order to lock the bracket in place. The other end of the sheet is bent to form a rail support cradle for attachment of rails to the bracket. Other embodiments of the bracket enable connection of the attaching head to common structural members, such as angle irons, channels or flat surfaces.



3,837,610
PLAYGROUND SUPPORT USING COMPRESSIBLE ELASTOMER ELEMENT

Ronald L. Ewers, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich.
Continuation-in-part of Ser. No. 125,629, March 18, 1971, abandoned. This application Oct. 2, 1972, Ser. No. 293,784
Int. Cl. F16j *1/38*
U.S. Cl. 248—374 **1 Claim**

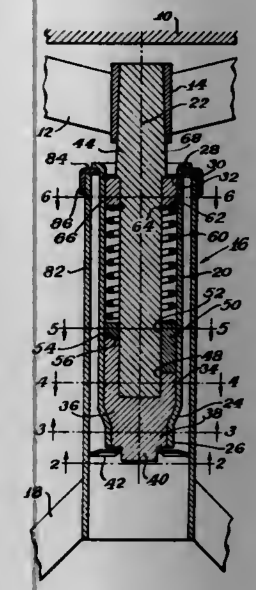


A resilient support for playground apparatus upon which an occupant is seated including a seat supporting member and a fixed support wherein an elastomer, such as rubber, is interposed between the seat support and fixed support such that an oscillating pivotal movement about an axis compresses the elastomer, and produces a resilient support, and oscillation, of the seat. The playground equipment includes a polygonal support, and the seat includes a polygonal member extending through the support. The compressible elastomer elements are so disposed between the polygonal members as to be compressed during relative angular rotation occurring between the polygonal members.

3,837,611
SWIVEL CONSTRUCTION FOR A CHAIR

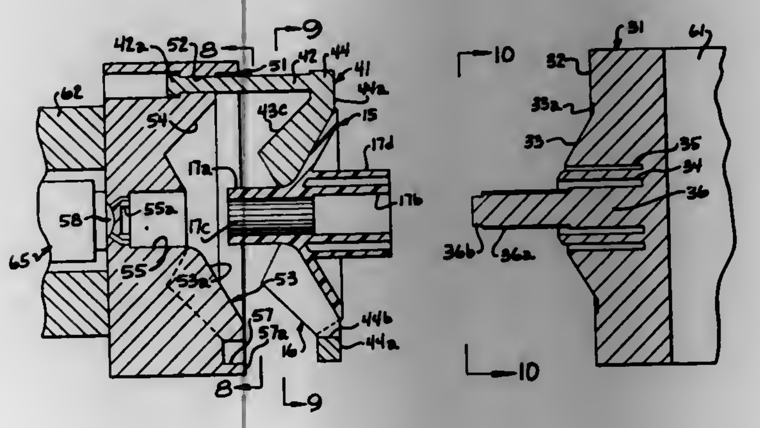
Nolan K. Rhoades, Beloit, Wis., assignor to Keystone Consolidated Industries, Inc., Peoria, Ill.
Filed Oct. 1, 1973, Ser. No. 402,347
Int. Cl. B60n *1/02;* **F16m** *13/00*
U.S. Cl. 248—417 **5 Claims**

An improved chair swivel includes a housing tube which may be attached to the chair legs. Within the tube is a stationary cam and a movable cam. The movable cam is attached to a spindle that engages the chair seat. The movable cam is biased into engagement with the stationary cam and has a normal rest position. Upon rotation of the chair seat, the movable cam is driven from the normal rest position by the spindle. Release of the force on the chair seat permits the seat to return to its normal rest position.



3,837,612
MOLD APPARATUS FOR MIXED FLOW IMPELLER

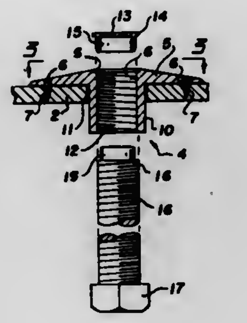
Elmer M. Deters, Muscatine, Iowa, assignor to Red Jacket Manufacturing Company, Davenport, Iowa
Filed June 1, 1973, Ser. No. 366,074
Int. Cl. B29c *1/06*
U.S. Cl. 249—105 **10 Claims**



A mold apparatus for a mixed flow impeller having radially curved and axially pitched vanes at the front side of a conical impeller body. The mold apparatus has a rear mold section for shaping the rear side of the impeller and two interfitting front mold sections for forming the conical front face and the radially curved and axially pitched vanes on the front face. The two front mold sections are axially movable relative to the rear section and relative to each other and interfit along parting lines located angularly intermediate adjacent vane forming cavities and such that one of the front mold sections has a plurality of rigidly interconnected segments which define the trail wall of the several vane forming cavities and the other front mold section has a corresponding number of rigidly interconnected segments which define the lead wall of the several vane forming cavities.

3,837,613
DEVICE FOR STRIPPING FORMS FROM CAST CONCRETE STRUCTURES

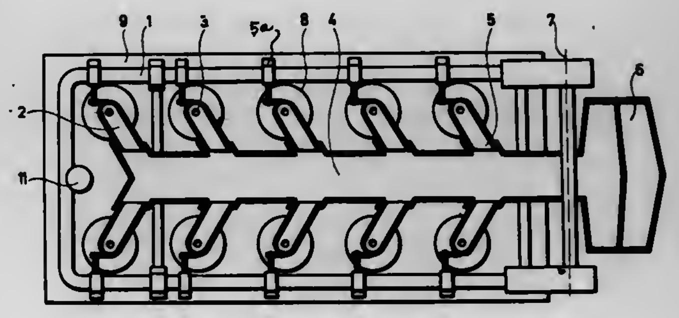
John Sontag, 7438 18th Ave., Burnaby, B. C., Canada
Continuation-in-part of Ser. No. 204,654, Jan. 31, 1972, abandoned. This application Mar. 19, 1973, Ser. No. 342,791
Int. Cl. B28b *7/10*
U.S. Cl. 249—66 **10 Claims**



A device having an apertured reaction plate for engagement against the concrete forming face of a concrete form, and a hollow bushing extending coaxially from the reaction plate for engagement through a hole in the form. A plug is provided for the aperture to prevent ingress of concrete and means such as a bolt or a hydraulic or pneumatic ram are provided for exerting a force through the hollow bushing and plug against the concrete to effect separation of the form from the concrete.

3,837,614
CASTING APPARATUS WITH SLIDABLY MOUNTED BRANCH RUNNERS

Pal Palovits, Ajka; Tiborne Laar, Budapest; Endre Mucsy, Budapest; Tibor Laar, Budapest, and Janos Harmath, Ajka, all of Hungary, assignors to Femipari Kutato Intezet, Budapest and Ajka, Hungary
Filed June 12, 1973, Ser. No. 359,360
Int. Cl. B22d *35/04*
U.S. Cl. 249—108 **7 Claims**



Apparatus for simultaneously casting a plurality of aluminum ingots comprises a vertically swinging metal frame of substantially zero coefficient of thermal expansion, supported above an elongated series of molds. A main runner for molten aluminum extends lengthwise of the frame and the series of molds. A container supplies molten aluminum to the main runner. To solve the problems of thermal expansion of the main runner, branch runners, one individual to each mold, are supported not by the main runner but rather by the frame and are movable relative to the main runner. Downward vertical swinging movement of the assembly feeds molten aluminum to the runners, while upward swinging movement of the assembly returns excess aluminum to the container. As a result, ingots of uniform size, good surface quality and uniform crystalline properties are achieved.

3,837,615
PROCESS AND DEVICE FOR THE CONTROL OF A MEMBRANE CHANNEL-VALVE

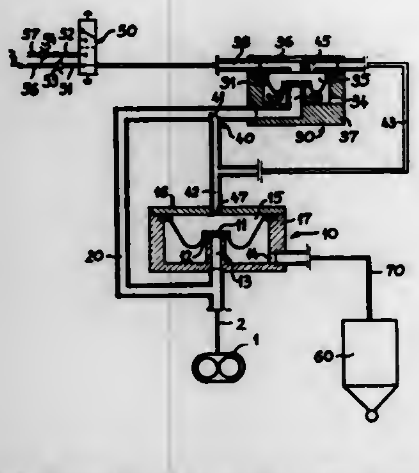
Frans Joris Espeel, Minneapolis, Minn., assignor to Gebrueder Buehler AG, Uzwil, Switzerland

Filed Feb. 20, 1973, Ser. No. 334,062

Claims priority, application Switzerland, Feb. 20, 1972, 2834/72

Int. Cl. F16k *31/165*

U.S. Cl. 251—29 **15 Claims**



A membrane channel-valve is disclosed, having a switching membrane responsive to the pressure in a switching chamber therein to open or close a conduit to control gas flow between pressure medium intake and outflow connections. The channel-valve is controlled by a conversion valve forming a seal between a control medium intake line and a control medium output line so that when closed there is a static pressure in the intake line and when open there is a gas current flow through the intake line. A jet pump is provided having an exit opening in the control medium intake line and an entrance opening in the switching chamber of the channel-valve, to pressurize the switching chamber during static pressure conditions to close the channel-valve and to provide a low pressure therein during current flow conditions to open the channel-valve.

3,837,616
PIVOTING VALVE

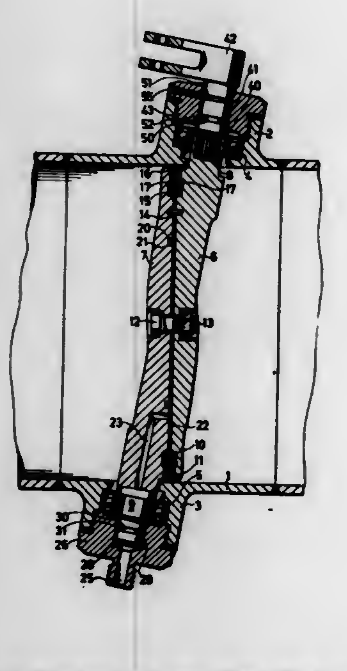
George Castriota-Scanderbeg, Winterthur, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland

Filed Apr. 11, 1973, Ser. No. 350,146

Claims priority, application Switzerland, Apr. 21, 1972, 5905/72

Int. Cl. F16k *31/143*

U.S. Cl. 251—30 **10 Claims**



The valve body is formed of two disc-like portions which are sandwiched together after mounting and which carry an annular inflatable sealing member in bridging relation across a gap between the two portions. A duct is formed in one portion to extend to a pressure medium supply source which is controlled to supply a pressure fluid via the gap to the sealing member to inflate the same into sealing contact in a pipeline.

Control means are provided to deflate the sealing member prior to opening of the valve and to inflate the sealing member after closing of the valve.

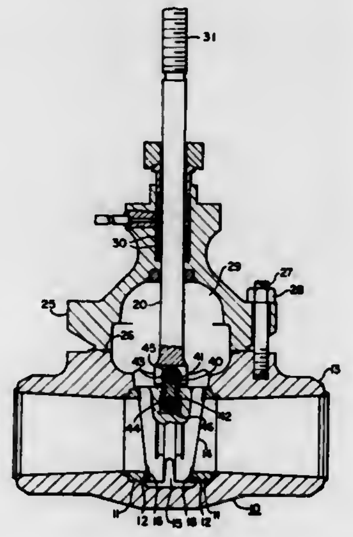
3,837,617
GATE VALVE

Harry E. Eminger, Valencia, and Alan H. Campbell, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 19, 1973, Ser. No. 352,823

Int. Cl. F15k *3/314;* **F16k** *3/316*

U.S. Cl. 251—87 **12 Claims**



A gate valve is disclosed having an improved operating lifetime. A flexible connection is provided between the valve stem and the valve disc which is substantially free from binding and allows translatory motion of the valve disc. A coordinated guide system utilized with the flexible connection assures full guidance of the disc by the valve seat during initial stages of valve opening. During an intermediately opened position and thereafter, guidance of the disc is accomplished by a closely fitted guide which prevents flow induced vibration and chatter.

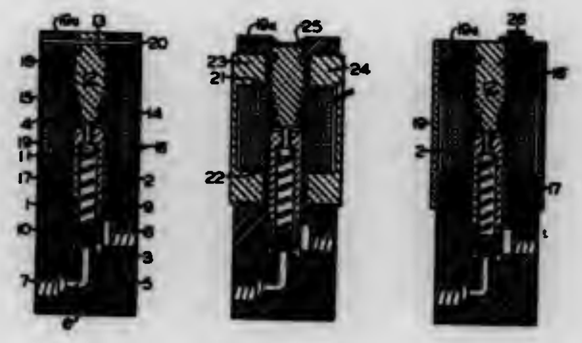
3,837,618
ELECTRO-PNEUMATIC VALVE

Bernard Juhel, Epinay sur Seine, France, assignor to Compagnie des Freins et Signaux Westinghouse, Sevran, France

Filed Apr. 26, 1973, Ser. No. 354,756

Int. Cl. F16k *31/06*

U.S. Cl. 251—129 **13 Claims**



An electrovalve comprising a core plunger disposed in the bore of a non-magnetic tubular member for movement between end stops arranged to cooperate with the core plunger to control fluid pressure flow in passageways connected to the bore via the end stops. The tubular member is arranged to receive an induction coil in an annular recess formed about the periphery of the tubular member so as to surround a portion of the core plunger and a portion of a magnetic plug providing one of the end stops. Pole pieces at each end of the coil concentric with the bore are interconnected by an annular sleeve via which the magnetic flux lines of the coil are channeled in providing a magnetic member which connects magnetic force across the tubular member to the plug and core plunger to effect movement of the latter between its end stops when the coil is energized.

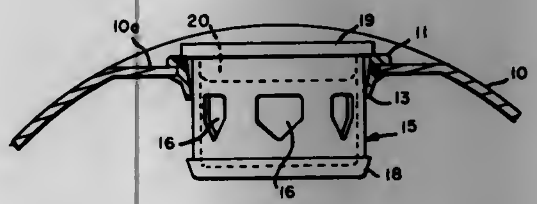
3,837,619
ADJUSTABLE VALVE FOR USE ON IRRIGATION PIPES

Roger M. Sherman, 3381 Stevens Creek Blvd., San Jose, Calif. 95117

Continuation-in-part of Ser. No. 353,746, April 23, 1973, Pat. No. 3,794,294. This application Jan. 14, 1974, Ser. No. 432,868

Int. Cl. F16k *31/58*

U.S. Cl. 251—145 **2 Claims**



An adjustable valve for use on irrigation pipes to control or to shut off the water flow. This device is provided with a flexible grommet that is inserted into a hole in the irrigation pipe and supports the valve member on the pipe. The grommet is provided with a tapered inwardly projecting lip that extends a short distance into the irrigation pipe and frictionally engages the body of the valve member. This grommet lip is stretched slightly by a tapered flange that is provided on the valve member when the valve member is inserted into the grommet. This lip contracts to grip the body of the valve member after the tapered flange of the valve member is pressed through the grommet. The valve member may be adjusted in the grommet to control the water flow out of the pipe through openings in the body of the valve member. When it is desired to close the valve, the valve member is moved outward until the grommet lip and tapered flange engage each other. These parts also limit the outward withdrawal of the valve member from the grommet.

3,837,620
BUTTERFLY VALVE HAVING AN IMPROVED STEM SEAL

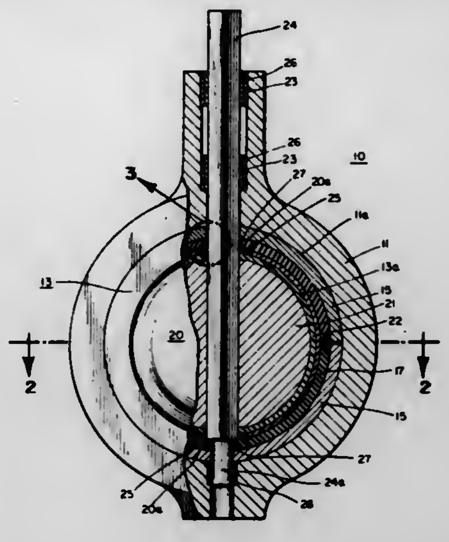
Edward D. Malloy, Westmont, N.J., and William L. Parsons, Jr., Drexel Hill, Pa., assignors to Garlock, Inc., Palmyra, N.Y.

Filed Nov. 5, 1973, Ser. No. 412,764

Int. Cl. F16k *1/226*

U.S. Cl. 251—306 **12 Claims**

This invention utilizes the pressure of the fluid media being controlled by the butterfly valve to bring about a sealing action around the axis of the valve disc to provide an improved stem seal through the means of a double lip seal operating in a flanged sleeve. The sleeve is an independent member riding between the disc axis and the valve liner thereby preventing the seal from being broken by the radial distortion of the liner when the disc is in a closed position.



3,837,621
HYDRAULIC JACKS FOR TENSIONING REINFORCEMENT ELEMENTS

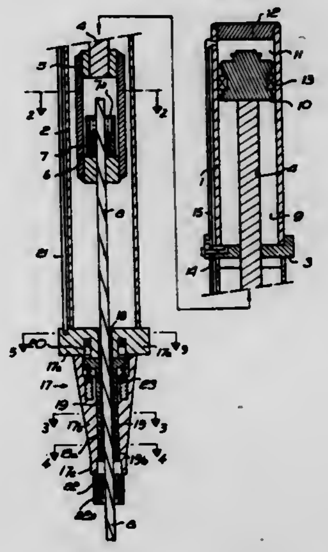
Juan Bautista Ripoll Gomez, Consejo de Ciento, 304, Barcelona, Spain

Filed Sept. 15, 1972, Ser. No. 289,450

Claims priority, application Spain, Sept. 27, 1971, 173142

Int. Cl. E21b *19/00*

U.S. Cl. 254—29 A **6 Claims**

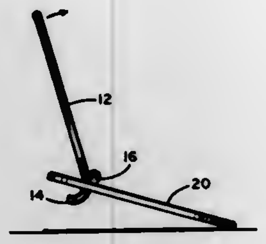


A hydraulic jack for tensioning reinforcing elements such as wires, rods, bars, cables or the like having a nose member with a longitudinal groove extending from its mouth so that the jack can be placed in position by a lateral movement. A plunger having a longitudinal channel is adapted to slide in the groove of the nose member and the rod to be tensioned is arranged in the channel of the plunger. A number of rams are mounted in the nose member to urge the plunger against biasing return springs towards the mouth to drive home anchor wedges in an anchoring plate for anchoring the rod. A profile member is attached to the nose member. The rod is tensioned by a traction gripper head mounted on a piston rod of a double-acting hydraulic assembly, which is mounted at the end of the profile member opposite the nose member. The profile member has a longitudinal channel which is aligned with the channel of the plunger and the groove of the nose member. One edge of the profile member is turned back to provide a further protection channel for a hydraulic duct for the rams associated with the plunger.

3,837,622

MANHOLE COVER PULLER AND METHOD

Myron C. Gale, 592 S. 700 E., St. George, Utah 84770
Filed Mar. 9, 1973, Ser. No. 339,563
Int. Cl. B66f *3/00*
U.S. Cl. 254—131 **3 Claims**

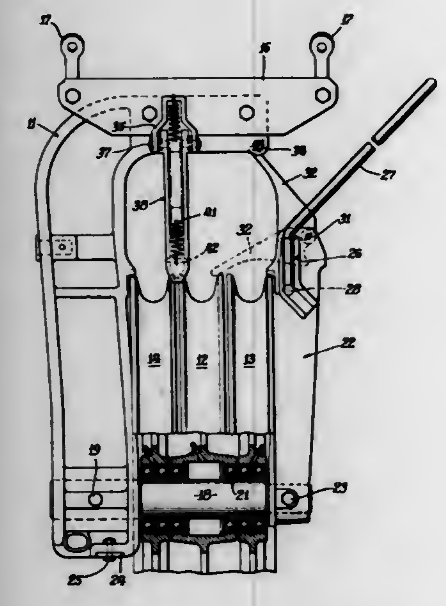


A device for pulling a manhole cover comprises an elongated rod having a straight upper portion and an angled lower portion extending normally to the axis of the upper portion and from the lower end thereof, a stop member secured to the upper portion adjacent the lower end and opposite the lower portion, and a handle at the upper end of the upper portion. The device is used by inserting the angled portion into an orifice on the manhole cover and pulling the upper portion upwardly and away from the cover so that the short lower portion acts as a lever and lifts the side of the manhole cover closest to the orifice.

3,837,623

HELICOPTER BUNDLE BLOCK

William H. Chadwick, Jr., Rossville, Ga., assignor to Sherman & Reilly, Inc., Chattanooga, Tenn.
Filed Dec. 3, 1973, Ser. No. 420,953
Int. Cl. E21c *29/16*
U.S. Cl. 254—134.3 PA **3 Claims**

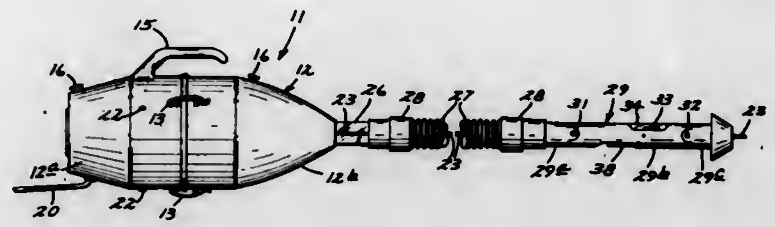


Bundle block having plurality of axially aligned sheaves for simultaneously stringing two or more conductors, with means for receiving a pilot or pulling line from a helicopter and guiding it over the outside conductor sheave or sheaves and onto the center or pulling line sheave and a guard assembly for preventing further axial inward movement of the pilot or pulling line onto the conductor sheave or sheaves mounted inwardly of the center or pulling line sheave.

3,837,624

APPARATUS FOR INSTALLING PULL LINES

Thomas G. Dandurand, 3195 Elcanto Dr., Colorado Springs, Colo. 80907
Filed Sept. 28, 1973, Ser. No. 401,619
Int. Cl. E21c *29/16*
U.S. Cl. 254—134.4 **23 Claims**

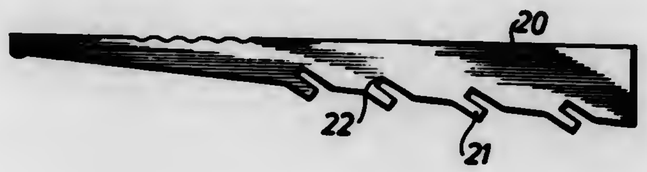


The disclosure is directed to apparatus for pressurizing and installing a pull line into conduit. Each of the two embodiments disclosed consists of a portable housing defining an internal pressure chamber in which a predetermined length of line or cord is stored. The housing has an outlet to which a flexible hose is connected, the hose terminating in a pressure fitting which sealably engages the conduit end. The line or cord is threaded through the hose and pressure fitting, and a carrier adapted to move through the conduit upon application of pressure is removably connected to the cord end. An electrically operated blower disposed within the housing generates pressure within the chamber, which in turn is applied through the pressure fitting to the conduit. The carrier is accordingly moved through the conduit by the pressure, carrying the cord with it for subsequent use as a pull line for electrical conducting wire or the like.

3,837,625

WEDGE MEMBER

Nils Gosta Loov, Ersmark, Sweden, assignor to Looveverken Raufoss AB
Continuation of Ser. No. 131,608, April 6, 1971, Pat. No. 3,734,549. This application Feb. 23, 1973, Ser. No. 335,386
Claims priority, application Sweden, Apr. 23, 1970, 5660/70
Int. Cl. B66f *13/00*
U.S. Cl. 254—104 **1 Claim**



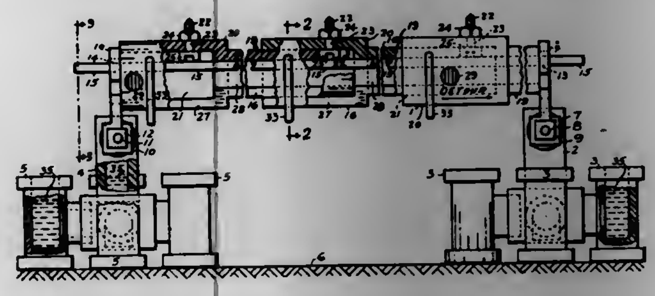
A wedge member which is constructed so that it is easy to observe when the wedge has been driven in sufficiently far to establish the desired rigidity of the wedge connection.

3,837,626

DETACHABLE SAFETY WARNING DEVICE

Herd Vrill Dixon, Route No. 1, Box 208, Montgomery, La. 71454
Filed June 26, 1973, Ser. No. 373,894
Int. Cl. E01f *13/00*
U.S. Cl. 256—64 **4 Claims**

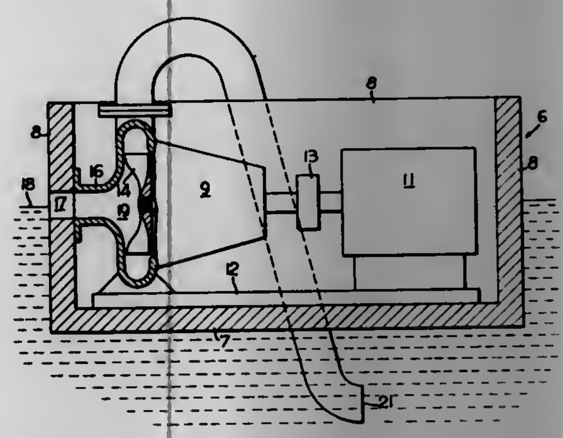
The detachable safety warning device invention utilizes posts with weighted feet connected by rod or cable spanning the distance between said posts with socketed connected tubular pipe bodies having longitudinal slots running the full length of each pipe to enable the quick assembly of same over said rod or cable and quick detaching of said pipes from said rod or cable stretched between said posts. The device is used to locate across roads in repair or under construction with writings and/or colored safety warning displays painted on or attached to a single pipe or a series of pipes joined together and mounted on said rod or cable. Said pipes, preferably, are to be made of plastic or other suitable light weight material. Thus, is an oncoming vehicle on the roadway did by accident collide with safety warning device it would not cause any damage or very slight damage to the vehicle or the driver and passengers therein. The feet on the posts are weighted with water, dirt or other easily accessible materials which may be dumped when said device is to be moved to another location. Said feet are open at their tops so that the weighted materials may be dumped therefrom and said device may be dis-assembled, handled and transported to another location for use in a facile manner.



3,837,627

METHOD AND APPARATUS FOR GASIFYING A LIQUID

Leonard H. Sence, Milford, and Thomas E. Sutton, Springdale, both of Ohio, assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed June 7, 1972, Ser. No. 260,633
Int. Cl. B01f *3/04*
U.S. Cl. 261—29 **2 Claims**



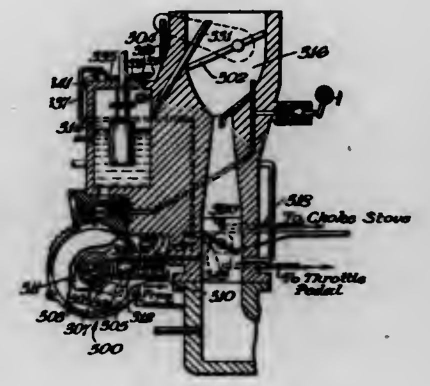
Floating apparatus for introducing gas into a liquid utilizing a centrifugal pump with its inlet only partially submerged below the liquid level so that both liquid and gas are drawn into the pumping chamber. The gas and liquid are agitated in the pumping chamber and discharged from the pump as a mixture of gas and liquid.

3,837,628

INDUCTION SYSTEM

Earl Bartholomew, Birmingham, Mich., assignor to Ethyl Corporation, Richmond, Va.
Continuation-in-part of Ser. No. 725,243, Jan. 29, 1968, Pat. No. 3,523,680. This application Dec. 9, 1969, Ser. No. 883,566
Int. Cl. F02m *1/10*
U.S. Cl. 261—39 B **1 Claim**

Gasoline engine induction system for automobiles and the like provides less emission of undesirable exhaust products by having carburetor without an idle jet so that engine idles on a lean main jet with small enrichment arranged for idle as against off-idle operation. Enrichment can be provided as by having the closing of the throttle open an external vent in the carburetor bowl, or by having a supplemental fuel jet opening in throttle barrel alongside idle position of downstream tip of throttle blade. Automatic choke can also be operated by mixture taken from downstream of carburetor venturi, heated,

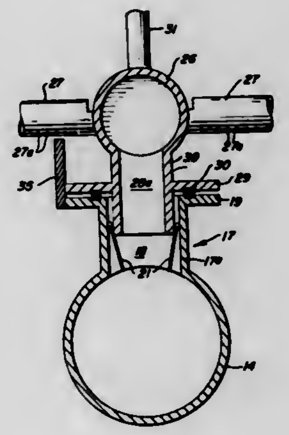


and delivered to thermally responsive choke actuator. Above features can be incorporated in a single small primary carburetor that is combined with one or two large secondary carburetors used for high power operation. Supplemental heating can be provided for mixture delivered by primary carburetor.

3,837,629

GAS DIFFUSING MECHANISM

Edward J. Matras, Palatine, and Fred W. Broling, Barrington, both of Ill., assignors to FMC Corporation, Chicago, Ill.
Filed July 2, 1973, Ser. No. 375,676
Int. Cl. B01f *3/04*
U.S. Cl. 261—122 **9 Claims**



The apparatus provides for releasably coupling diffusion headers to a main gas distribution line which is fixedly positioned in an aeration tank. The main distribution line includes a plurality of access passages adapted to receive gas communication channels extending from each diffusion header. The access passages are provided with positive closure means which prevent the escape of gas from the distribution line when a diffusion header is removed from the tank for service. The closure means are opened when a header is lowered by a swing-type linkage and the header channel is inserted into the access passage.

3,837,630
METHOD OF LINING METALLURGICAL FURNACES AND A LINING MATERIAL

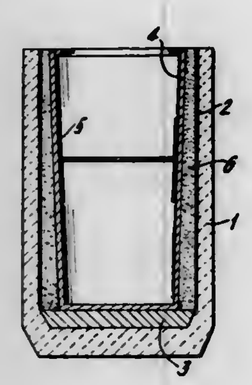
Helmut Kobl; Siegfried Forhauser; Detmar Mantell, all of Gelsenkirchen; Karl-Ernst Granitzki, Virsen; Heinrich Hess, Troisdorf, and Paul Schiefer, Hennef-Uckerath, all of Germany, assignors to Rheinstahl AG, Essen; Vertriebsgesellschaft fur Feurfeste and Giesstechnische Erzeugnisse mbH, both of Viersen, all of, Germany

Filed Feb. 28, 1973, Ser. No. 336,556

Claims priority, application Germany, Mar. 20, 1972, 2213392

Int. Cl. F27d *1/16*

U.S. Cl. 266—43 **9 Claims**



A method of lining a metallurgical furnace particularly induction furnaces using a form which is placed at a spaced location from the furnace wall comprises filling the hollow space between the furnace wall and the form with a granular and dry refractory material, compacting the material, subjecting the compacted material to a ceramic sintering process by heating it to an intermediate termperature in the range of from about 300° to 800° C. until the material attains a sufficient stability of shape, thereafter removing the form and subjecting the refractory material to a further ceramic sintering process by further heating. A self supporting lining for the metallurgical furnaces comprises a highly compacted and dry structure of a refractory oxide or an oxide mixture to which a dry sintering agent is added and which has been consolidated at a temperature of from between 300° to 800° C.

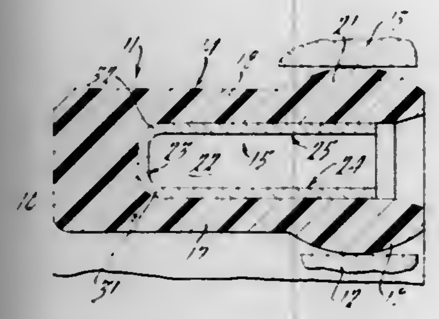
3,837,631
SPRING FOR COMPOSITE SEALING RING AND METHOD OF MANUFACTURE

Bryce B. Evans, Jackson, Mich., and Edwin C. Elsner, Kanosh, Utah, assignors to Aeroquip Corporation, Jackson, Mich.

Filed May 8, 1972, Ser. No. 251,366

Int. Cl. F16f *9/36*

U.S. Cl. 267—1.5 **8 Claims**



A spring for a composite sealing ring of the type having a channel-shaped jacket. The spring comprises an annular member of U-shaped cross section, the web of the U engaging the web of the jacket, the flanges of the U pressing against the flanges of the jacket and having a plurality of circumferentially spaced slots. In one form, useful primarily for radial seals, the spring comprises a sinuous member bent to form the web and flanges. In another form, useful for face seals, the web is circumferentially continuous and the flanges are formed by spaced legs. The spring is fabricated by first forming it in flat shape and then bending the flanges out of the plane of the web. The flat blank may be made by a photoetch process or, in the case of the sinuous embodiment, bending a wire into sinuous shape, flattening the wire and then bending the flanges away from the web.

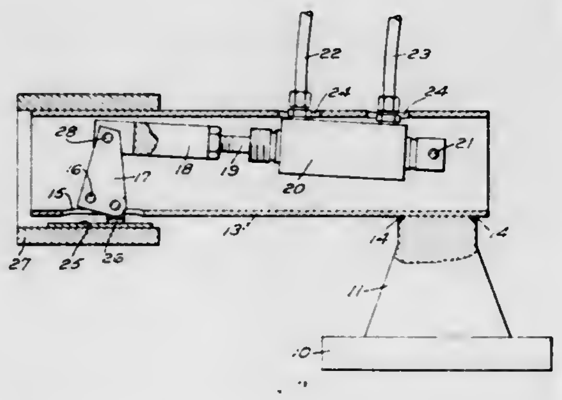
3,837,632
VISE FOR TUBULAR ARTICLES

Howard F. Nelson, South Attleboro, Mass., assignor to George Lemieux, Pawtucket, R.I., a part interest

Filed Feb. 8, 1973, Ser. No. 330,729

Int. Cl. B23b *31/40*

U.S. Cl. 269—48.1 **4 Claims**



A vise for tubular articles which grips the tubular article from the inside to present an unobstructed outer surface for working. The vise comprises a base on which a hollow, tubular mandrel is horizontally mounted. A flat cam member is mounted within the mandrel adjacent the front end and pivoted on a pin extending transversely through the mandrel. A second pivot pin is mounted transversely further along the mandrel, and the rear end of an air cylinder is pivotally mounted on the second pin. The outer end of the piston, extending from the air cylinder, is pivotally attached to the top of the flat cam. The cam is pivoted just above a slot in the mandrel, so that movement of the cam will cause it to swing into and out of the mandrel through the slot. Reciprocation of the piston controls the pivotal movement of the cam. A short post is pivoted to the bottom edge of the cam spaced from the cam pivot. An arcuate shoe is mounted on the bottom of the post, so that when the cam is in withdrawn position the shoe is nested against the lower outer surface of the mandrel. When a piece of tubular work is slipped over the mandrel, actuation of the cylinder and its piston causes the cam to pivot downwardly and force the shoe against the inner surface of the tubular work to hold it in position. Movement of the piston in the opposite direction will release the work.

3,837,633
CENTRIFUGE TEST TUBE HOLDER

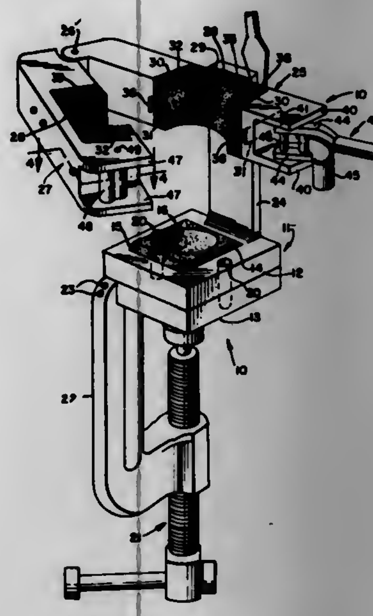
Charles Paulsen, Newtown, Conn., assignor to Ivan Sorvall, Inc., Norwalk, Conn.

Filed Mar. 7, 1973, Ser. No. 338,858

Int. Cl. B25b *5/04, 5/14, 5/16*

U.S. Cl. 269—128 **6 Claims**

This specification discloses a centrifuge test tube holder that accepts tubes of various radial dimensions, clampingly engages the upper end of a tube with a yieldable force that is susceptible of adjustment to provide a predetermined clamping effect which is overcome when excessive rotative force is applied to a cap that is screwed onto the neck of the tube, and in which the tube is adjustable vertically to insure that the mouth of the tube and the cap are at the same level. The holder is adapted to be secured directly to a table by screws, through the medium of a C-clamp, or through a vacuum base.



The holder includes a pair of complemental jaws which grip the tube and which may be quickly connected in clamping position or rapidly disengaged.

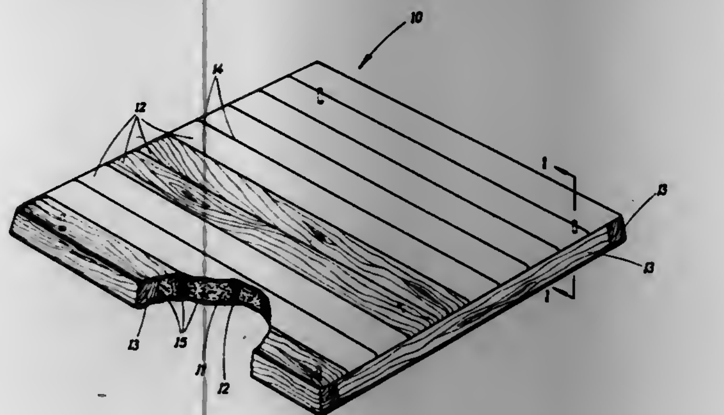
3,837,634
CUTTING BOARD

Westray Stewart Cobb, 1820 Casselberry Rd., Louisville, Ky. 40205

Filed Feb. 28, 1973, Ser. No. 336,431

Int. Cl. B23q *3/00*

U.S. Cl. 269—289 **6 Claims**



A cutting board comprised of a particle board center having a plurality of veneer strips adhesively secured to the top and bottom surfaces thereof and lumber edge members adhesively secured to its edges, the securing adhesive coating the entire surface of said particle board to prevent water from penetrating into said board, the overall result being an inexpensive, dimensionally stable cutting board having the appearance of being made from solid pieces of lumber.

3,837,635
MEDICAL EXAMINING CHAIR

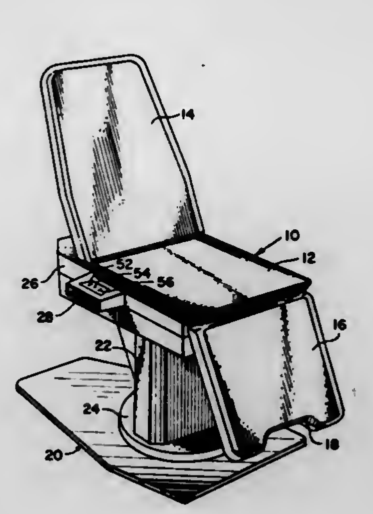
Larry K. Long, Tempe; Thomas C. Knight, Scottsdale; William F. Jackson, and John W. Winter, both of Phoenix, all of Ariz., assignors to Amerco, Inc., Phoenix, Ariz.

Filed Apr. 10, 1973, Ser. No. 349,892

Int. Cl. A61g *15/00*

U.S. Cl. 269—325 **4 Claims**

Medical examining chairs, particularly a medical examining chair which is articulated from a flat horizontal position to a vertical chair support type position. The chair includes a horizontal mid-portion, together with a head portion and a foot portion hinged at opposite ends of said mid-portion. Both the head portion and foot portion are interconnected by supporting linkage. The chair is mounted upon a rotatable base and includes power driven actuating means to raise the chair vertically, as well as to pivot the head and foot portions from the horizontal plane of the mid-portion to vertical planes intersecting the mid-portion.



3,837,636
METHOD AND APPARATUS FOR INSERTING PAPER BETWEEN PLATE-SHAPE MATERIAL

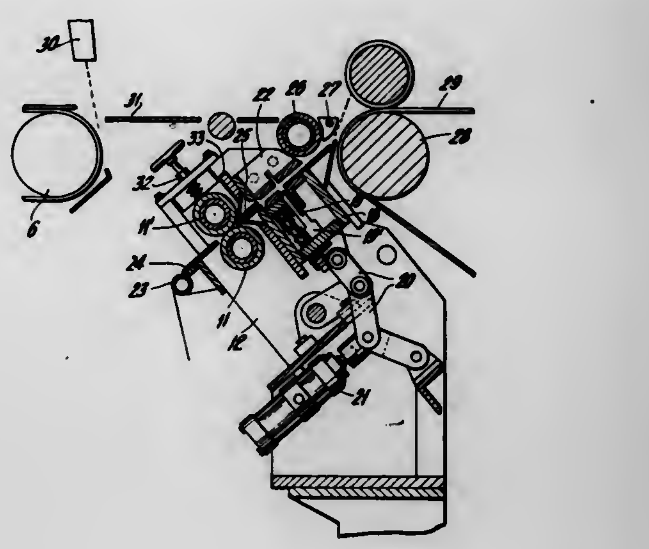
Nobumitsu Hegi; Takeshi Kitamura, both of Kitakyushu; Seishiro Saida, and Tadao Kawaguchi, both of Hikari, all of Japan, assignors to Nippon-Steel Corporation, Tokyo, Japan

Filed Sept. 6, 1972, Ser. No. 286,816

Claims priority, application Japan, Oct. 29, 1971, 46-8003; Dec. 6, 1971, 46-114566

Int. Cl. B65h *39/02*

U.S. Cl. 270—45 **4 Claims**



A method of inserting film shape protective material as paper, and the like between plate-shape material and such as steel sheets, aluminum sheets, glass plates, and the like, which are piled in a stack, being piled up by placing the protective material on the top or bottom of the plate-shape material, and characterized in that the forward end of the protective material is positioned transversely of the path of the plate-shape material on it is moved into the stacking position and is folded back in such manner as wrapping the forward end of the plate-shape material so that the protective material is surely attached to the plate-shape material.

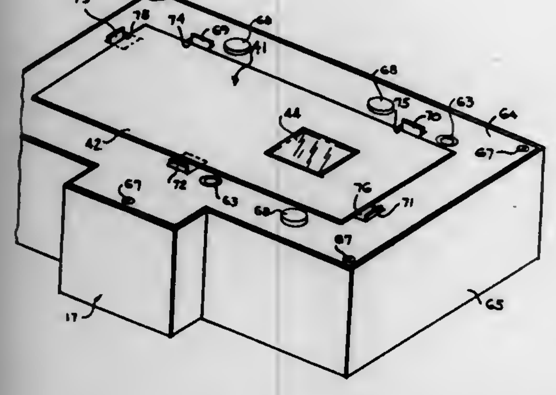
3,837,637
ALIGNMENT STATION FOR APERTURE CARD PHOTOGRAPHIC COPYING MACHINE

Dale S. Endter, and Edwin E. Miller, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 31, 1972, Ser. No. 302,432

Int. Cl. B65h *9/10*

U.S. Cl. 271—11 **5 Claims**



A photographic copying machine has a card holder which picks up a topmost aperture card from a stack of these cards and carries the picked-up card to successively arranged operating stations. At several of the stations, a photosensitive film insert on the picked-up card is exposed and processed. At a preceding one of the stations, the picked-up card is temporarily released by the card holder and positioned in a given relation to such holder before again being picked-up. This is done to insure accurate registration of the film insert with the exposing and processing stations, when the card holder with the picked-up card arrives respectively at such stations.

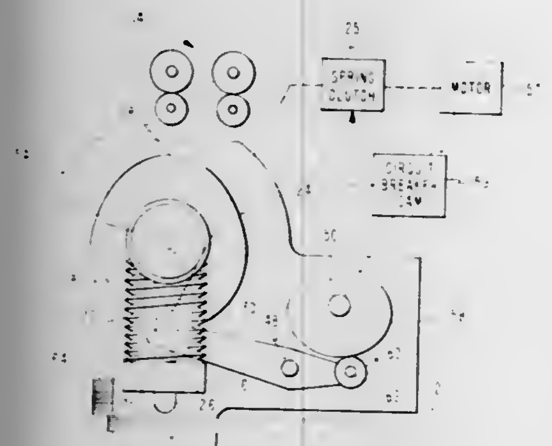
3,837,638
SHEET PICK-UP AND FEEDING DEVICE

Theodore H. Anderson, Pine Island; George J. O'Konski, and Michael N. Zell, both of Rochester, all of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 155,969, June 23, 1971, abandoned. This application Jan. 15, 1973, Ser. No. 323,683

Int. Cl. B65h *3/08*

U.S. Cl. 271—95 **6 Claims**



A vacuum picking and feeding mechanism wherein the motion of the picker-foot is interrupted before actual contact with the upper most document of the stack by sensing the proximity of the foot to the upper most sheet in the stack and actuating a stopping means to stop the movement of the foot toward the stack at a position where the negative air pressure is strong enough to attract the upper most sheet. By doing this, air between the upper most sheets will not be forced out. A conventional fluffer is automatically valved by the picker foot.

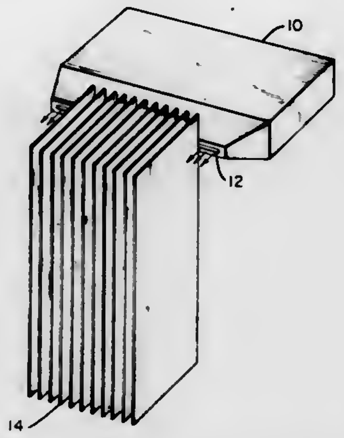
3,837,639
FREE JET RECORD SEPARATOR

Edwin R. Phillips, Rosemont, Pa., assignor to Sperry Rand Corporation, New York, N.Y.

Filed June 22, 1973, Ser. No. 372,545

Int. Cl. B65h

U.S. Cl. 271—105 **7 Claims**



The invention discloses a fluffing arrangement to provide separation between the records contained in a cartridge in order to facilitate random removal of an individual record. A free jet of low pressure directly impinges on the deck to maintain separation between the records.

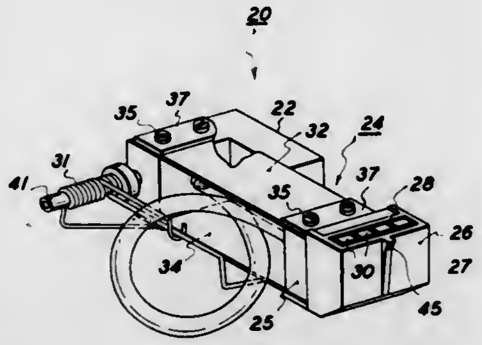
3,837,640
STRIPPER FINGER WITH AIR CUSHION

James R. Norton, Rochester, N.Y., and Herbert F. Schmalzbauer, Chester, Conn., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 13, 1972, Ser. No. 306,238

Int. Cl. B65h *29/56*

U.S. Cl. 271—174 **5 Claims**



A stripping apparatus for stripping copy sheets from the surface of the xerographic drum without destroying the developed latent electrostatic image on the copy sheet and without contacting the drum surface. A stripping finger is mounted on a linkage which is supported from the machine frame to position the finger in close proximity with the drum surface. The finger has a tip portion which protrudes slightly past the point of tangency of the finger with the drum surface. Small apertures are formed at the bottom of the finger which is hollow and is in communication with an air supply to cause an air cushion to be formed under the finger. The finger floats on an air cushion which is maintained at a predetermined distance from the drum surface. By virtue of the position of the tip with the drum surface, stripping of the leading edge of copy sheets to be stripped from the drum surface is accomplished without contacting the drum surface. A tiny channel formed in the forward surface of the tip is in communication with the air supply and provides sufficient pressure to blow developer material away from the tip to maintain it in clean condition. The linkage is arranged to exert a pressure biasing action on the finger in the direction normal to the direction of drum movement.

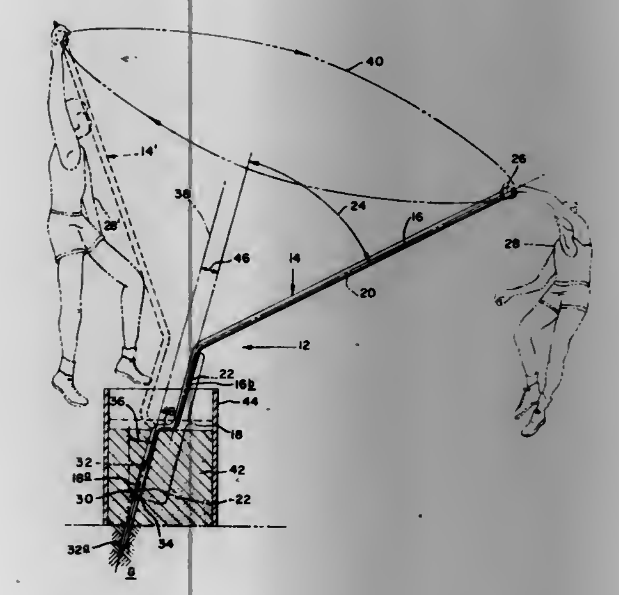
3,837,641
ROTATABLE SWING BAR

Clarence A. Hanson, 305 Illinois St., Hobart, Ind. 46342, and Richard A. Hanson, 5750 Tamarack Way, Concord, Calif. 9452

Filed Feb. 2, 1973, Ser. No. 328,895

Int. Cl. A63g *1/20*

U.S. Cl. 272—33 R **6 Claims**



An exercise and amusement device to swing a user in a circular path about a preselected tilted upright axis wherein the device consists essentially of a bar formed to define two sections, one at an angle to the other, rotatably mounted on the ground or other base. A container, or ground cavity, surrounds the lower section of the device to carry therein a dry, non-fluid, granular material in contact with at least a portion of the lower section of the bar. Such material provides frictional drag against rotation of the bar, thus providing constraint and variety to circular movement experienced by the user.

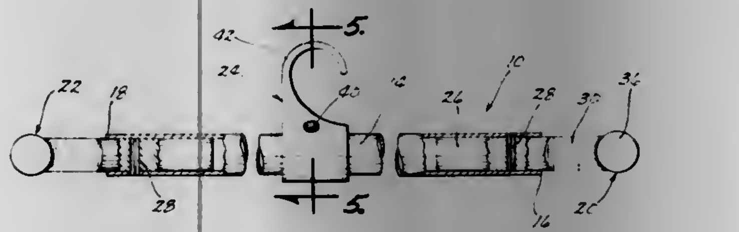
3,837,642
TOGGLE BAR FOR BRACHIATION IN PLACE BY THE UPPER LIMBS

Robert M. Martin, 90 N. Hudson, Pasadena, Calif.

Continuation of Ser. No. 177,797, Sept. 3, 1971, abandoned. This application July 5, 1973, Ser. No. 376,617

Int. Cl. A63b *1/02*

U.S. Cl. 272—62 **1 Claim**



A toggle bar for brachiation in place by the upper limbs is disclosed herein and comprises an elongated tubular bar having T-shaped handles at the opposite ends thereof. A support is secured to the bar intermediate the ends thereof and has a hook shaped portion extending upwardly therefrom which is adapted to be detachably mounted on a suspended support whereby the bar is pivotally movable with respect thereto.

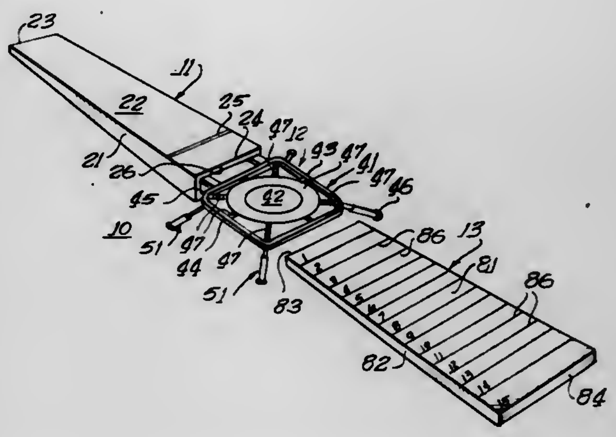
3,837,643
JUMPOLENE GAME

Jay H. Lee, 112 S. Bolmar St., West Chester, Pa. 19380

Filed May 7, 1973, Ser. No. 358,151

Int. Cl. A63b *5/18*

U.S. Cl. 272—65 **8 Claims**



A jumpolene recreational apparatus type game consisting of a trampolene having a generally rectangular frame and a trampolene bed within the frame and connected to the sides and ends of the frame by a plurality of spaced resilient connectors each under tension to yieldingly hold the bed in a tightly stretched position relative to the frame, the frame having adjustable legs spaced thereabout to support the frame above the ground with the legs being adjustable to control both the height of the frame above the ground and the inclination of the frame relative to the ground, a sloped runway leading up to the front end of the frame with the elevated portion of the runway nearest the front end of the frame, and a longitudinally extending jumping mat disposed on the opposite end of the frame with one end thereof adjacent the rear end of the frame with the mat projecting longitudinally outwardly therefrom and marked off by transversely extending lines to indicate relative distances from the rear end of the trampolene frame.

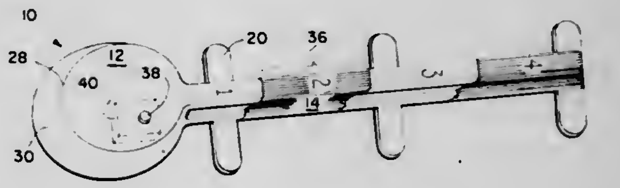
3,837,644
TIME AND DISTANCE INDICATING BALANCING TOY

William C. Stinchcomb, 634 Charraway Rd., Baltimore, Md. 21229

Filed Mar. 28, 1973, Ser. No. 345,683

Int. Cl. A63b *1/02*

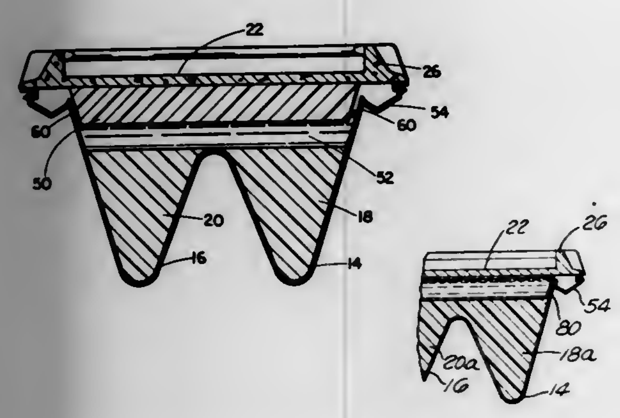
U.S. Cl. 273—1 R **9 Claims**



A walk-on type horizontal rail with cross-ties and a platform at one end of the rail having a footswitch-controlled timing mechanism for giving audible and visual signals to contestants, who start at the platform and attempt to progress as far as possible along the rail im minimum time; the platform has stabilizing pads and all the bottom surfaces have non-skid provisions; special paint patterns both aid and hinder contestants in various embodiments; novel folding arrangements and safely rounded corners are also disclosed.

3,837,645
PLAYING TABLE WITH BASE FOR HOLDING FLUID THEREIN

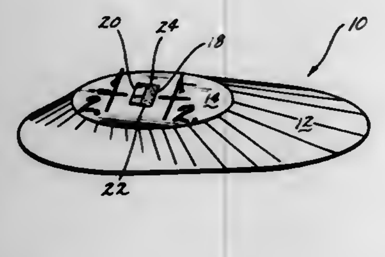
Richard R. Criswell, 33182 Palo Alto, Dana Point, Calif. 92629
Continuation-in-part of Ser. No. 42,318, June 1, 1970, abandoned. This application Apr. 21, 1972, Ser. No. 246,282
Int. Cl. A63d *15/00*
U.S. Cl. 273—3 C **8 Claims**



There is disclosed herein a playing table for games, such as billiards or the like, generally employing a playing board and a base wherein fluid in the base is utilized for distributing the supporting force to the board in a uniform manner and providing substantially all of the supporting force therefor. A float device may underlie substantially the entire board and float upon a liquid within the base, or the support and uniform distribution of the board may be provided by a bladder type device. Additionally, the uniform support and force distribution arrangement permits use of board materials not otherwise generally considered usable for providing a flat playing surface, such as a slab of concrete. A nut arrangement attached to the board provides for clamping of the board to the base in a substantially fixed relationship for maintaining the plane of the board substantially fixed.

3,837,646
PITCHING RUBBER

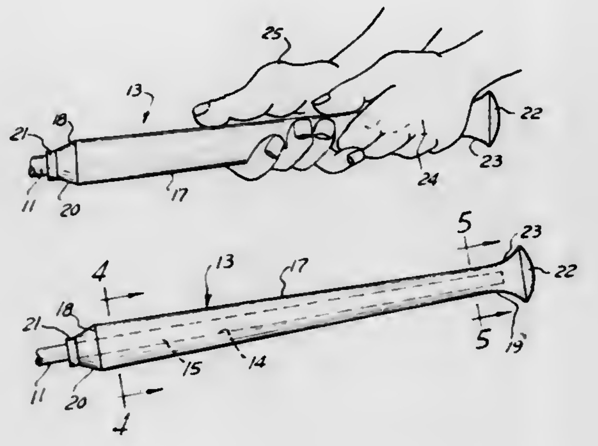
John J. Goeders, Altoona, Iowa, assignor to True Pitch, Inc., Altoona, Iowa
Filed Jan. 12, 1973, Ser. No. 323,240
Int. Cl. A63b *71/00*
U.S. Cl. 273—25 **8 Claims**



A pitching rubber for a portable pitching mound having a depression or toe hole formed in the upper surface thereof. The pitching rubber comprises a vertically adjustable rear rubber portion constructed of conventional slightly resilient material and a front rubber portion constructed of sponge or foam rubber material. The front rubber portion is positioned adjacent the forward vertical face of the back rubber portion to shield the same from a hit baseball. The two rubber portions fill the depression and have their upper surfaces normally coplanar with the upper surface of the mount. The front rubber portion is impervious to water to prevent the toe hole from filling with water.

3,837,647
GOLF CLUB HAND GRIP

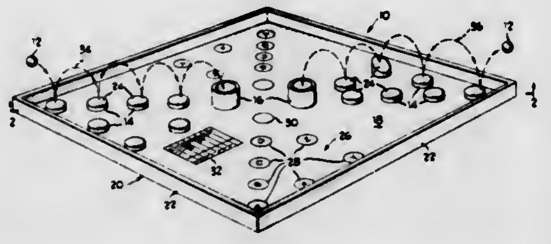
Edward J. Jacques, 45167 Kensington, Utica, Mich. 48087
Filed June 18, 1973, Ser. No. 370,669
Int. Cl. A63b *53/14*
U.S. Cl. 273—81 R **3 Claims**



A golf club hand grip formed of a tubular sleeve of substantially circular cross-section surrounding the free end of the golf club shank, with the grip being formed in an elongated, truncated conical shape whose larger base is at the sleeve end closest to the club head end of the shank and whose smaller base is adjacent the free end of the shank, so that the outer surface of the grip is gradually tapered along a straight line taper whose smaller diameter is adjacent the free end of the club, for the full length of the grip, with the grip smaller diameter end terminating in an integral, enlarged diameter knob-like portion.

3,837,648
AERIAL-PROJECTILE GAME HAVING MOVABLE REBOUNDING SURFACES

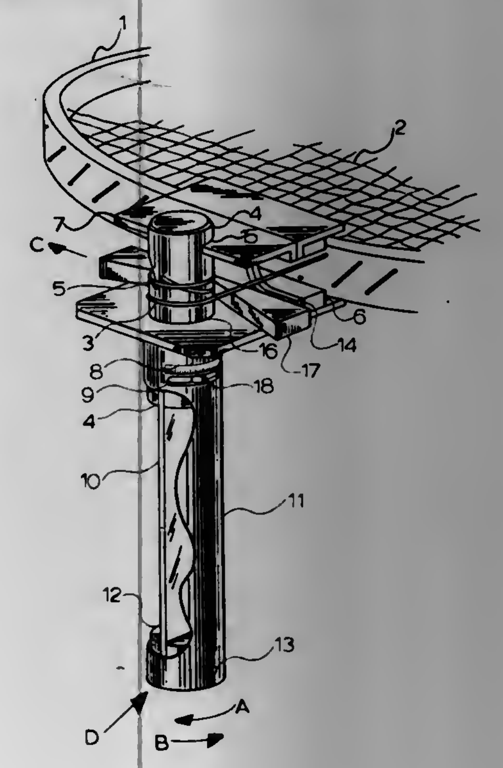
Jeffrey D. Breslow, Chicago, Ill., assignor to Marvin Glass & Associates, Chicago, Ill.
Filed Oct. 15, 1971, Ser. No. 189,700
Int. Cl. A63b *71/02*
U.S. Cl. 273—95 R **14 Claims**



An aerial-projectile type game generally including a playing surface, a goal and a plurality of rebound elements on the playing surface. Each rebound element has a generally upwardly facing flat surface so that the projectile may be bounced downwardly thereagainst and rebound upwardly therefrom. The rebound elements are selectively positioned on the playing surface relative to one another so that the projectile may bounce thereagainst in a predetermined order thereby defining the path of travel for the projectile towards the goal. The playing surface also has a group of marked locations in predetermined relation to one another to locate the rebound elements over any of a combination of marked locations, each combination representing a path of travel of a different degree of difficulty.

3,837,649
TENSION ADJUSTING DEVICE FOR SPORTS RACKET STRINGS

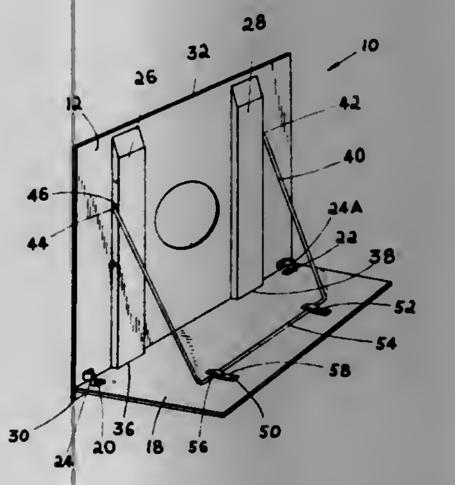
Paul James Burchett, 410 Acarid St., Corona Del Mar, Calif. 92625
Filed Oct. 11, 1972, Ser. No. 282,192
Int. Cl. A63b *49/00*
U.S. Cl. 273—73 A **4 Claims**



A pocket-sized device for stringing tennis rackets is held against the racket frame by a newly inserted racket string, wound around one end of the operating handle. A torsion spring connects the two ends of the handle. Relative deflection of the ends gives a visible indication of the amount of string tension caused by hand-twisting of the other end of the handle. A wedge is slid against the handle to maintain the string tension, while an awl is inserted into the frame hole. The operation is repeated for each string to be installed.

3,837,650
COLLAPSIBLE TOSSING GAME TARGET

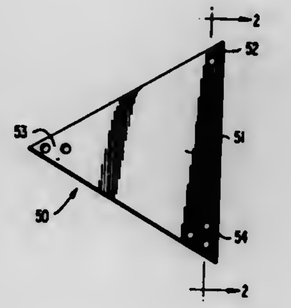
Harold I. Haney, 2623 S. Twelfth St., Ironton, Ohio 45638
Filed Oct. 19, 1972, Ser. No. 298,939
Int. Cl. A63b *72/00*
U.S. Cl. 273—105 R **1 Claim**



A bag tossing game target device having a pair of hingedly connected panels, one being obliquely inclined and having a bag receiving hole. A u-shaped brace is pivotally mounted to a pair of inner support beams mounted on opposite sides of said hole. The brace pivots into detachable engagement with a pair of catch members attached to the other panel. The target device can be easily collapsed to a flat storable position or opened into a rigid game target.

3,837,651
GAME WITH REVERSIBLE PIECES

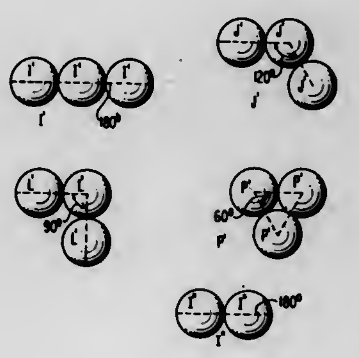
Marc Odier, 85 Boulevard Exelmans, Paris, France
Division of Ser. No. 47,969, June 22, 1970, Pat. No. 3,687,455. This application July 10, 1972, Ser. No. 273,510
Int. Cl. A63f *9/20*
U.S. Cl. 273—137 D **1 Claim**



A game comprises a set of 20 polygonal pieces having a limited number of different indicia on the apices thereof, the possible combinations of the indicia being repeated once and only once, and forming sequences to be read in order. The pieces are reversible, so that the same indicium is reproduced in the corresponding position on the opposite side of the piece (the mirror image position). The indicia may be provided only on the opposite surfaces of the pieces, or may extend all the way through the pieces. Because of the mirror image placement of the indicia, twenty four different sequences of indicia are producible with the twenty pieces by inverting the four pieces which have a different indicium at each apex.

3,837,652
SOLID PUZZLE

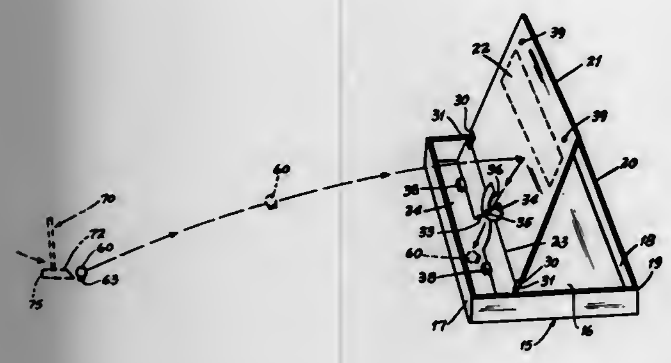
Akira Kuwagaki, and Sadao Takenaka, both of Kyoto, Japan, assignors to Nippon Cloth Industry Co. Ltd., Kyoto, Japan
Filed May 1, 1973, Ser. No. 356,227
Claims priority, application Japan, May 13, 1972, 47-46886
Int. Cl. A63f *9/12*
U.S. Cl. 273—157 R **2 Claims**



A solid puzzle of regular geometrical configuration consists of a number of layers of identical spheres, each of said layers including several kinds of connected units of spheres having connecting axes extending through the centers of the individual spheres, all of the connecting axes being on the same plane and any of two adjoining axes forming an included angle of 60°, 90°, 120° or 180°.

3,837,653
INDOOR GOLF GAME

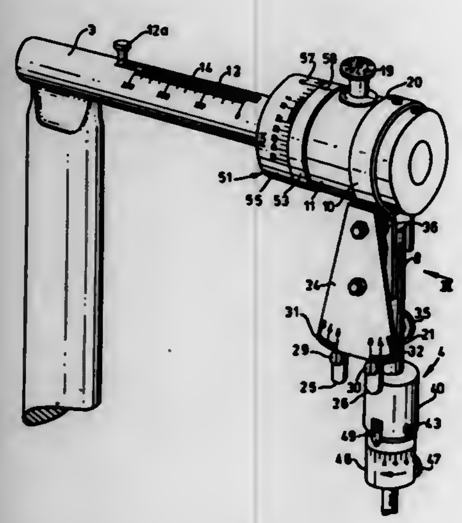
Robert B. Fox, 28 Medial Pl., Decatur, Mo. 62521, and Ernst F. Sturm, 8768 Del Vista Dr., Saint Louis, Mo. 63126
Filed Aug. 16, 1972, Ser. No. 281,052
Int. Cl. A63b *69/36*
U.S. Cl. 273—178 R **6 Claims**



A golf-type game comprises a carton with a top panel hingedly connected to the back wall, and an overlying target panel hinged to the forward edge of the top panel, so that upon raising the top panel, the target panel may be hinged down to dispose its lower edge in the carton, back from the front edge of the carton. The target panel may have a target hole in it, but is preferably solid to constitute a force-absorbing member that deadens the impact of a projectile striking it. The target panel may have a supplemental lower edge panel fitted with a putting hole, with a movable gating member to be moved over the hole to change its size. The projectile is a ball made of a shell of light plastic having built into it a tee portion also of light plastic. The projectile is struck by a club having a head with oppositely disposed chipping and putting faces, and head being connected by a universal joint to an extensible shaft. A supplemental target may be provided.

3,837,654
GOLF PRACTICE DEVICE

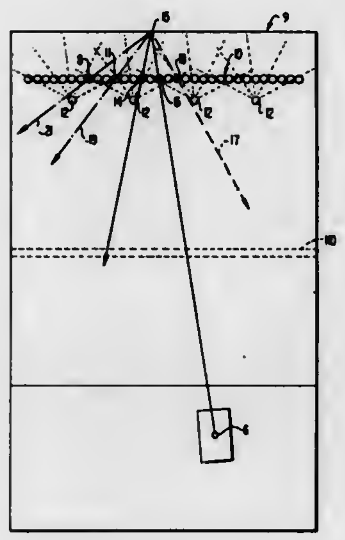
Richmond E. Hall, 2 Langley Rd., Highcliffe-on-Sea, England
Filed Mar. 22, 1973, Ser. No. 343,961
Claims priority, application Great Britain, Apr. 10, 1972, 16425/72
Int. Cl. A63b *69/36, 57/00*
U.S. Cl. 273—185 D **4 Claims**



A golf practice device comprising a horizontal arm, a further arm mounted on one end of the arm for rotation about the arm, a ball on the outer end of the further arm, an indicator to indicate the number of revolutions of the further arm about the arm when the ball is hit by a golf club, a fade and draw indicator to indicate the extent of rotation of the ball with respect to the further arm and a deviation measuring mechanism for measuring deviations of the path of the ball from a plane perpendicular to the arm. The deviation measuring mechanism comprises a pivot mounting for the further arm, having a pivot of pivotally mounted interlocked arms displaceable with respect to a scale, one or other of the arms being moved with respect to the scale upon movement of the further arm about the pivot axis and thereby locking the other of the arms against movement with respect to the scale. The device also includes a pivotable detachable arm including a target end and a short-putt indicator, which can be used with the tethered golf ball to determine whether or not putts of desired lengths have been achieved.

3,837,655
APPARATUS FOR DETECTING SPIN OF GOLF BALL IN INDOOR GOLF PLAYING SYSTEM

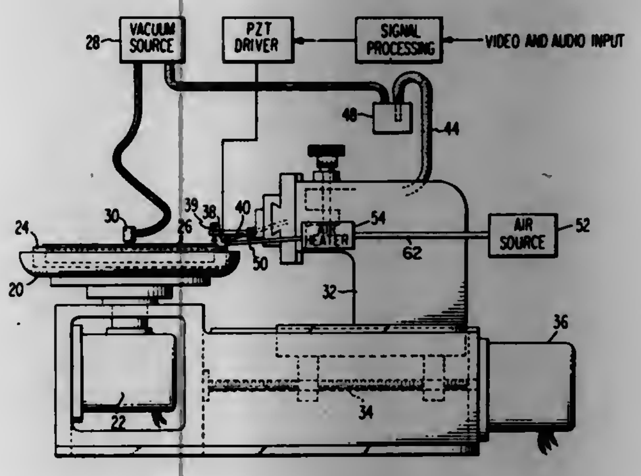
Arthur C. Angelos, 8202 Langbrook Rd., Springfield, Va. 22152
Filed Mar. 13, 1973, Ser. No. 340,648
Int. Cl. A63b *69/36*
U.S. Cl. 273—185 R **10 Claims**



In an indoor golf playing system, it is very advantageous if a golfer can determine the amount of side spin, i.e., slice or hook imparted to the ball. The ball is placed at a known point which is part of the indoor system and is hit into an impact surface such as a wall or screen which displays a picture of an appropriate portion of a golf course as it is seen by a golfer. A row of detectors is positioned in front of the impact surface and, as the golf ball is hit toward the surface and crosses the row of detectors, it actuates one or more of the detectors to produce an output. In this manner, the path of the ball travelling towards the surface is detected. The ball, upon hitting the surface, rebounds back toward the golfer and is again detected by one or more of the detectors as it passes back through the row of detectors. The angle at which the ball rebounds from the surface is a function of the side spin imparted to the ball by the golfer. Therefore, by detecting the point at which the ball crosses the row of detectors as it travels toward the surface and comparing this point to the point at which the ball travels through the row of detectors as it rebounds from the surface, the amount of side spin can readily be determined. In the event the golf ball is to be hit from points of origin that may not be determined, a second row of detectors may be positioned between the first row of detectors and the points of origin.

3,837,656
CHIP REMOVAL IN THE MASTERING OF FINE-GROOVED DISCS

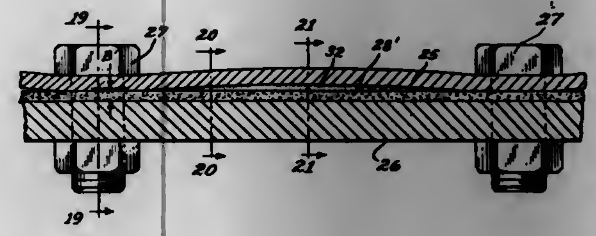
Michel Pradervand, Chene-Bougeries, Geneva, Switzerland, assignor to RCA Corporation, New York, N.Y.
Filed Mar. 12, 1973, Ser. No. 340,606
Claims priority, application Great Britain, Apr. 19, 1972, 18153/72
Int. Cl. G11b *3/58*
U.S. Cl. 274—46 B **9 Claims**



A system for removing chips cut away from a video disc master utilizes a stream of tempered air to direct the chips towards a vacuum orifice which in turn carries these chips off the disc.

3,837,657
BEADED GASKET AND METHOD OF USING SAME

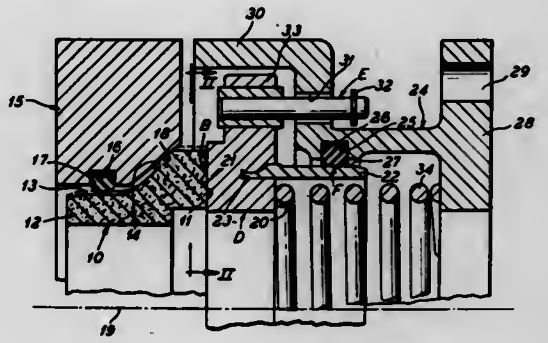
Robert G. Farnam, New Lisbon, and Michael T. Passarella, Wis. Rapids, both of Wis., assignors to F. D. Farnam Co., New Lisbon, Wis.
Continuation-in-part of Ser. Nos. 211,003, Dec. 22, 1971, and Ser. No. , , which is a continuation-in-part of Ser. No. 76,459, Sept. 29, 1970, Pat. No. 3,655,210, and Ser. No. , , which is a continuation-in-part of Ser. No. 66,958, Aug. 26, 1970, abandoned. This application Aug. 7, 1972, Ser. No. 278,259
Int. Cl. F16j *15/06*
U.S. Cl. 277—1 **19 Claims**



A gasket structure and the method of making the gasket structure, as well as the method of utilizing the gasket for effectively sealing incongruous mating surfaces, which is characterized by providing the gasket with an upstanding bead on one or both sides, the density of which is always less than that of the unbeaded portion to provide maximum compressibility with maximum sealing conformability. The gasket is further characterized by having the unbeaded portion having a density that is, or can be, tailored to provide a prepressed body portion that is more stable to uneven clamping pressures, thus minimizing distortion while having increased torque retention. Where greater heat insulating qualities may be required the gasket structure may be made from asbestos fiber millboard having a minimum amount of binder and with either type of gasket where additional sealing properties are desired the gasket structure may be provided with a coating layer that is cured to effect maximum sealing and protect the gasket from deleterious effects of the environment in which it is used.

3,837,658
ROTARY STEAM SEAL FOR DRYER DRUM

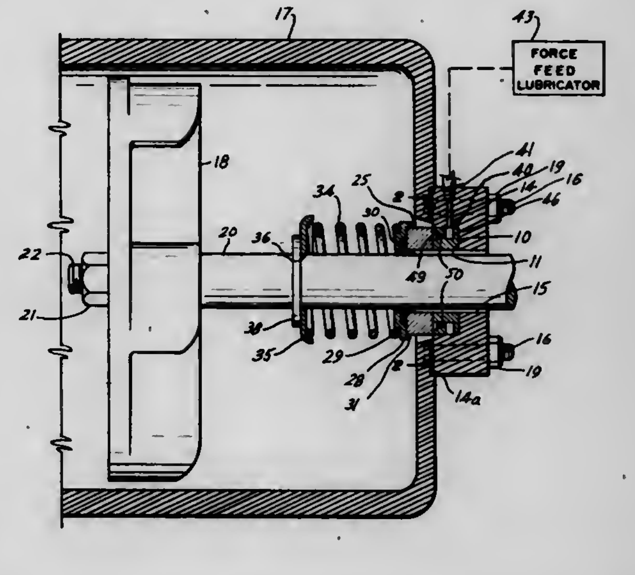
Eugene S. Skinner, Roscoe; Elmer E. Crist, and Louis D. Phelps, both of Beloit, all of Wis., assignors to Beloit Corporation, Beloit, Wis.
Filed Jan. 5, 1973, Ser. No. 321,328
Int. Cl. F16j *15/38*
U.S. Cl. 277—26 **11 Claims**



A rotary union including first and second relatively rotating units, the second unit being stationary and the first unit including a carbonaceous sealing ring having a radial sealing face and a rearwardly facing beveled centering face, a rotatable holding member having a beveled holding face in engagement with said centering face and a secondary O-ring seal behind the centering face, the stationary unit including a second sealing ring urged against the first sealing ring by a coiled compression spring and supported in a holding member with axial sliding pins preventing rotation of the second sealing member relative to the holdering member and an O-ring between the holding member and second sealing ring accommodating axial movement thereof.

3,837,659
SEALS FOR ROTARY SHAFTS

E. Ray Moncrief, 1132 Plum, La Marque, Tex. 77568
Filed Dec. 4, 1972, Ser. No. 311,858
Int. Cl. F16n *17/04, 15/00;* **F16j** *15/34*
U.S. Cl. 277—74 **2 Claims**



Seals for rotary shafts wherein a surface-to-surface lapped seal is lubricated by injection of lubricant to between the lapped surfaces. Where formation of ice at the seal is likely to occur, the lubricant may be an oily material capable of preventing formation of ice crystals between the lapped sealing surfaces and of removing previously formed ice crystals from between the lapped sealing surfaces, rendering the invention particularly useful in connection with handling of materials such as ethylene and propylene in which ice formation occurs when moisture is present.

3,837,660
COMPOSITE SEAL RING

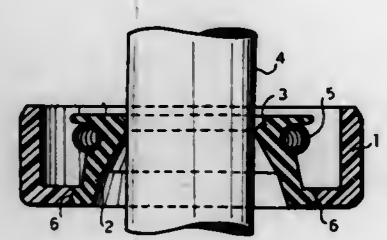
Mario Poggio, c/o Mongul, Supertex s.p.a., Via Torino N 220/222, 10040 Leini, Turin, Italy

Filed Apr. 24, 1972, Ser. No. 247,081

Claims priority, application Italy, Jan. 12, 1972, 67085/72

Int. Cl. F16j *15/00*

U.S. Cl. 277—227 **1 Claim**



Seal rings for rotating shafts are manufactured by locating or causing to be supplied in a mould having the shape of the complete ring two materials having a chemical affinity and suitable the one to embody the outer rigid part and the other to embody the inner flexible part of the ring, and by effecting the polymerization of said materials.

The seal ring thus obtained consists of a single piece of synthetic material, rigid in its outer part and flexible in the internal part corresponding to the seal lip.

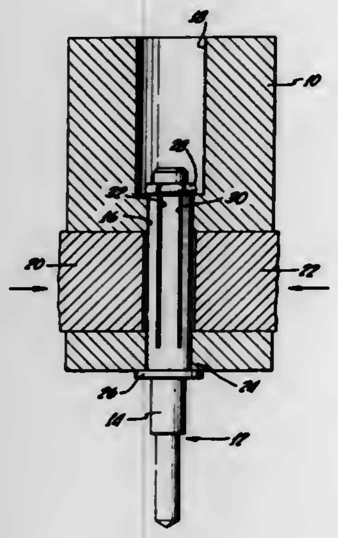
3,837,661
CHUCK SLEEVE

Edward F. Phillippi, Palos Verdes Peninsula, Calif., assignor to Excellon Industries, Torrance, Calif.

Filed June 21, 1972, Ser. No. 264,897

Int. Cl. B23b *31/14*

U.S. Cl. 279—1 C **12 Claims**



A sleeve for the tool receiving bore of a chuck is formed with a number of longitudinal slits, a stop collar at one end and a peripheral retaining bead at the other end. The sleeve is interposed between the conventional gripping members of the chuck collet and the inserted tool shank. Forces exerted by the gripping members are transmitted to the tool shank through the sleeve. When used in a chuck having several centrifugally urged holding members the sleeve keeps the holding members from flying out of the chuck body when the chuck is rotated without a tool inserted therein and maintains apertures of the holding member in alignment to facilitate insertion of a tool. The sleeve is made in different wall thicknesses to enable use of tool shanks of different diameters in the same chuck collet.

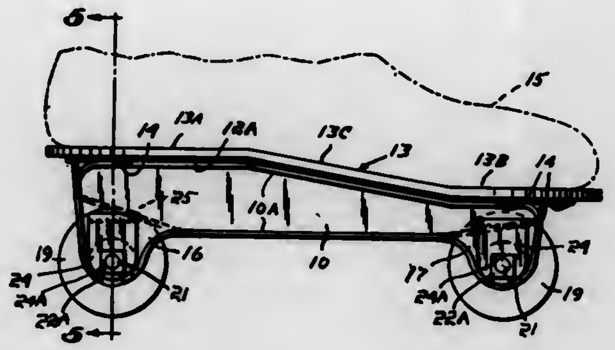
3,837,662
TWO WHEELED ROLLER SKATE

Robert G. Marks, Walpole, Mass., and Robert E. Beaupre, 67 Jackson St., Lynn, Mass. 01902, assignors to said Beaupre, by said Marks

Filed Dec. 13, 1972, Ser. No. 314,747

Int. Cl. A63c *17/06*

U.S. Cl. 280—11.23 **4 Claims**



A two wheeled roller skate having supporting structure attachable to a shoe is disclosed. The supporting structure has forward and rearward wheel holders each consisting of a pair of portions disposed and spaced apart to receive a wheel between them, each such portion having a downwardly opening slot. Each wheel has a tread surface that is arcuate transversely considered and is supported by bearings that have surfaces arranged to take the load as the skate is tilted from side-to-side in use and include independently rotatable parts having projections slidably seated in the downwardly opening slots. Releasable keepers underlie the projections to block their escape from the slots in which they are seated but are movable to permit the wheels to be removed and replaced.

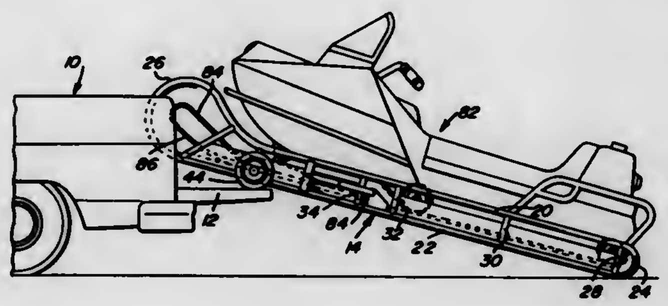
3,837,663
SNOWMOBILE LOADING RAMP

Clemet M. Ness, Rt. 5, Bemidji, Minn. 56601

Filed May 1, 1970, Ser. No. 33,589

Int. Cl. B62b *13/18*

U.S. Cl. 280—8 **8 Claims**



An elongated ramp structure for use in loading a snowmobile on to an elevated vehicle load bed. The ramp is designed to be disposed in an inclined position with its lower end upon the ground and its upper end resting upon the rear of the associated load bed. The ramp includes opposite side support wheels at its upper or forward end and automatic chock structure disposed forward of the longitudinal center of the ramp and shiftable between a lowered position depressed below the upper surface of the ramp and an upper position projecting above the upper surface of the ramp. The chock structure is spring-biased to its upper position and includes a forwardly facing upstanding abutment surface disposed above the upper surface of the ramp when the chock structure is in its upper position. The chock structure is engageable by the front skis of a snowmobile being driven up the ramp and is depressed by the front skis of the snowmobile as the latter move over the chock structure. As the rear ends of the skis of the snowmobile pass forwardly of the chock structure, the latter is released for upward displacement to its upper position whereby rearward displacement of the snowmobile along the ramp is prevented by the forwardly facing abutment surface of the chock surface. After a snowmobile has been loaded upon the ramp, the rear end of the ramp is lifted above the ground with the ramp generally horizontally disposed and the front end thereof supported on the load bed by its supporting wheel structure for forward rolling movement into position fully overlying the associated load bed.

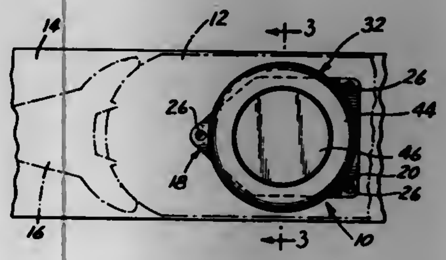
3,837,664
SOLE SUPPORT FOR USE WITH SKI BINDINGS

Gerald H. Asp, 135 S. Lasalle St., Hinsdale, Ill. 60603

Filed Nov. 5, 1973, Ser. No. 412,952

Int. Cl. A63c *9/08*

U.S. Cl. 280—11.35 C **13 Claims**



A safety device is disclosed for supporting the sole of a skier's boot on a ski generally adjacent a ski binding which is adapted to release the ski boot when the ski boot is subjected to a predetermined force, the safety device facilitating low friction movement and release of the ski boot relative to the ski when subjected to the predetermined force.

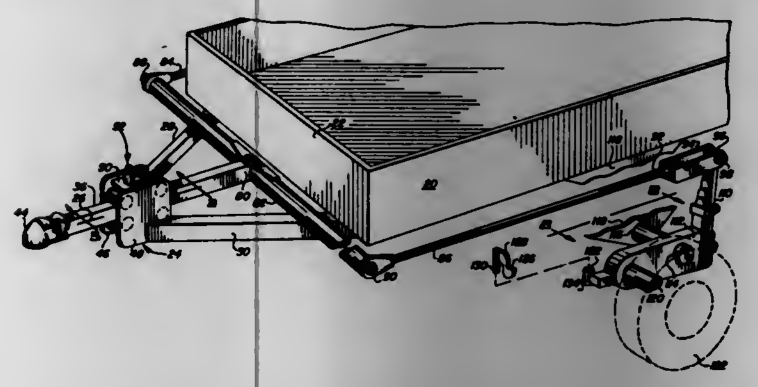
3,837,665
ELEVATABLE TRAILER MECHANISM

Arthur G. Schramm, 3113 N. Highland Ave., Phoenix, Ariz. 85016

Filed Oct. 1, 1973, Ser. No. 402,173

Int. Cl. B62d *21/14*

U.S. Cl. 280—43.18 **9 Claims**



An elevatable trailer having a tongue adapted to be coupled to a towing vehicle. A frame provided with a tongue guide in which said tongue is movable forwardly and backwardly; and linkage and lever means comprising bell crank arms pivoted on the frame of the trailer and carrying wheels such that the linkage means pivots the bell crank arms and thereby elevates the frame when the tongue is pulled forward and latch means for latching the tongue in forward position relative to the frame for maintaining the frame in elevated position relative to the ground and on the wheels carried by the bell crank arms.

The disclosure also relating to novel frame guide and latch means for guiding the tongue relative to the frame and for latching the tongue in forward position.

The disclosure also relating to the novel scissor linkage mechanism interconnecting a pair of bell crank arms by means of suspension springs and tension rods to provide efficient tandem axle lifting of an elevatable trailer frame.

The disclosure also relating to means for locking wheels of the trailer in relation to the bell crank arms so that the wheels are frictionally held on the ground while the tongue of the trailer is pulled forward and the bell crank arms are thereby pivoted relative to the frame for elevating it upwardly from the ground level.

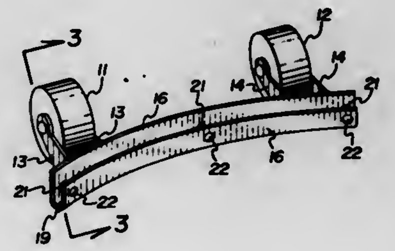
3,837,666
CONTAINER WHEEL ATTACHMENT

Beryl D. Hodson, 4801 Greenbrier Ave., San Diego, Calif. 92120

Filed Feb. 16, 1973, Ser. No. 333,165

Int. Cl. B62b *1/12*

U.S. Cl. 280—47.13 R **1 Claim**



A container wheel attachment for attaching wheels to a container such as a standard metal trash can having a downwardly extending lip at the bottom portion thereof in which an arcuate U-shape bracket having an opening at the top portion thereof with a radius of curvature corresponding to the radius of curvature of the downward extending lip of a container for receiving the said lip and having a pair of wheels attached to one surface of the bracket, the bracket being attached to the lip by a plurality of attachment screws resulting in a wheel attachment with the bottom surface of the wheels substantially coplanar with the bottom surface of the downwardly extending lip of the container.

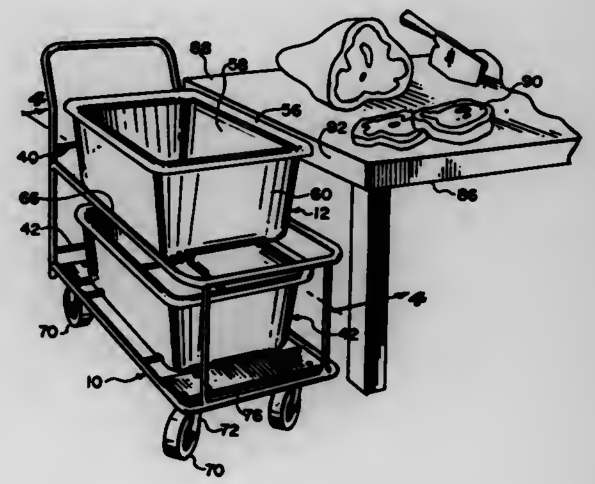
3,837,667
LUGS AND CART THEREFOR

Morton A. Sernovitz, 8642 Keystone Ave., Skokie, Ill. 60076

Filed June 21, 1973, Ser. No. 372,323

Int. Cl. B62b *3/00*

U.S. Cl. 280—47.34 **10 Claims**



The combination of an open-framed cart and a plurality of containers or lugs, as they are called in this art, is disclosed which fit together in a number of convenient carrying arrangements. The containers have transverse spaced grooves in their bottom surfaces which fit upon and coincide with pairs of longitudinal and transverse frame members of the cart to hold the containers thereon during produce handling procedures. The cart has two tiers in the frame such that each tier can hold one container longitudinally or two containers transversely. The containers also nest in stacked relationship within each other and the longitudinal distance between the bottom grooves of the containers is the same as the transverse distance between their top longitudinal rolled flange edges so that one container will rest on the other in a stable relationship.

3,837,668
PROTECTION DEVICE FOR VEHICLE PASSENGERS

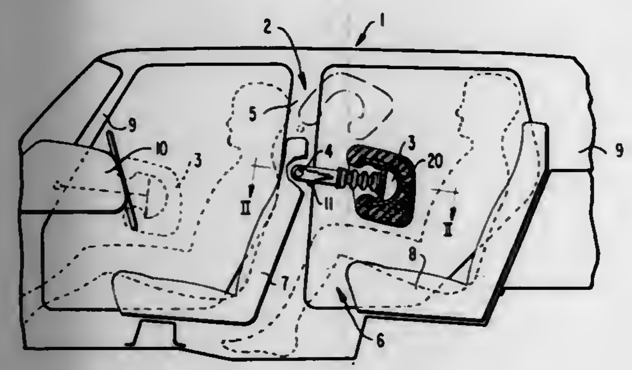
Bela Barenyi, Maichingen, and Hermann Renner, Boblingen, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

Filed Nov. 5, 1971, Ser. No. 196,062

Claims priority, application Germany, Nov. 7, 1970, 2054916

Int. Cl. B60r *21/02*

U.S. Cl. 280—150 B **54 Claims**



A protection installation for the passengers of vehicles, especially of passenger motor vehicles, in which an impact device adjustable from a rest position into a use position is provided within the area of the persons seated alongside the driver and/or the rear passengers.

3,837,669
PROTECTOR BAG STORAGE DEVICE OF MOTOR VEHICLE SAFETY DEVICE

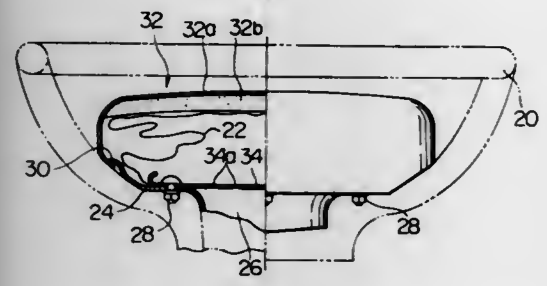
Yasuo Nagazumi, Tokyo; Tokuichiro Hosaka, Yokohama, and Kohei Maeda, Tokyo, all of Japan, assignors to Nissan Motor Company Limited, Yokohama City, Japan

Filed Feb. 10, 1972, Ser. No. 225,080

Claims priority, application Japan, Feb. 15, 1971, 46-6607

Int. Cl. B60r *21/08*

U.S. Cl. 280—150 AB **5 Claims**



In order to protect a vehicle occupant from being hurt by collision with a considerably hard container of a protector bag which is held in a folded position in a motor vehicle apparatus in which the protector bag is expanded between the vehicle occupant and a structural part of the vehicle cabin, the protector bag is usually stowed in a storage device including cushioning means which cover the folded protector bag when the safety apparatus is held in an inoperative condition and which is readily released from the protector bag when the protector bag is expanded with pressurized fluid blown thereinto in the event the motor vehicle encounters a collision.

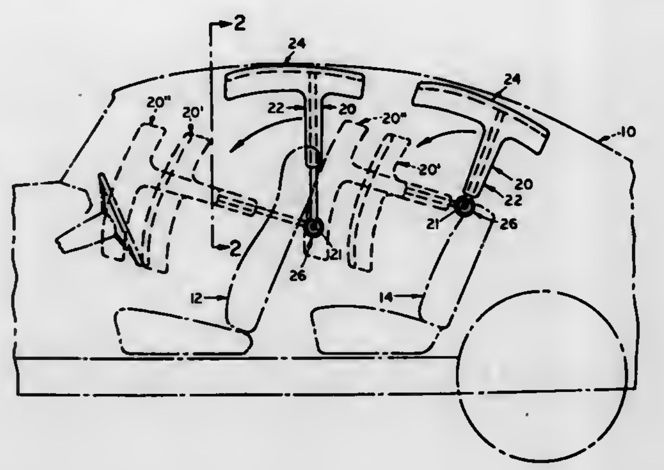
3,837,670
VEHICLE OCCUPANT RESTRAINING DEVICE

Gail D. Hilyard, Toledo, Ohio, assignor to Hugh A. Kirk and Robert E. Hilyard

Filed June 19, 1972, Ser. No. 263,864

Int. Cl. B60r *21/08*

U.S. Cl. 280—150 B **9 Claims**



The Hilyard Halter is an inverted U-shaped pendulum type of device which is pivoted at the outer ends of the U behind the back and below the head of an occupant in a vehicle and has a cushioned pad or net across the base of the U which is normally stored above the head of the occupant in the roof of the vehicle, and which in an emergency stop situation automatically quickly moves down in front of the occupant, by its own inertia and with aid, as well as extends to decelerate, surround and hold the occupant. The hubs for the pivoted frame are provided with adjustable spiral springs to increase the speed of action of the device, and the frame may be held from operation by adjustable spring applied balls in sockets around the hubs and/or solenoid operated catches that release when a given deceleration of the vehicle occurs. These hubs are also provided with stops for limiting the angular movement of the device. The legs of the U may be telescopic and provided with hydraulic pistons and/or compression springs for aiding in the deceleration of the occupant together with the resiliency of the cushion pad or net across the base of the U.

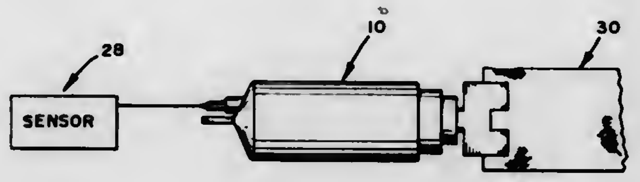
3,837,671
INFLATING MEANS FOR INFLATABLE VEHICLE RESTRAINT SYSTEMS

Brian K. Hamilton, Utica, Mich., assignor to Allied Chemical Corporation, New York, N.Y.

Filed Nov. 6, 1972, Ser. No. 304,291

Int. Cl. B60r *21/08*

U.S. Cl. 280—150 AB **9 Claims**



A compact inflating means which does not require a device to generate large quantities of gas or movable mechanical parts is provided for use with inflatable restraint systems for vehicles, particularly inflatable restraint systems of the inflatable band type. The inflating means comprises a source of pressurized gas and means to release the pressurized gas in response to an increase of the gas pressure as a result of the pressurized gas being heated. More particularly, the inflating means comprises containing means, pressurized gas stored within the containing means, sealing means normally preventing discharge of the pressurized gas from the containing means and capable of releasing the pressurized gas from the containing means in response to the pressure of the pressurized gas reaching a predetermined level, and heating means actuatable to heat the pressurized gas and thereby increase its pressure to at least the predetermined level, whereby the sealing means releases the pressurized gas.

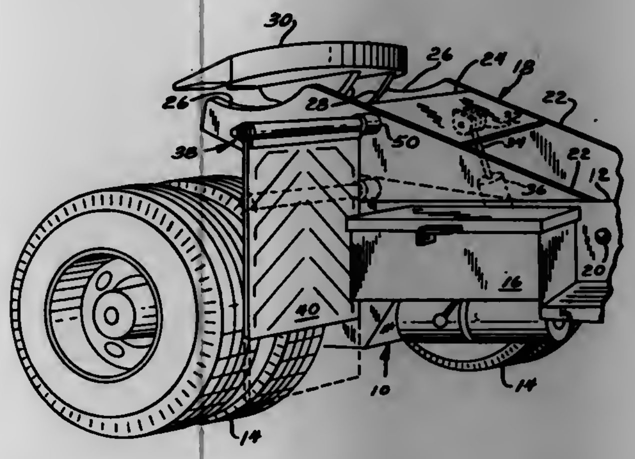
3,837,672
TRACTOR AND MUD FLAP THEREFOR

Lloyd A. Molby, Longview, Tex., assignor to Capacity, Inc., Downers Grove, Ill.

Filed Oct. 19, 1972, Ser. No. 299,108

Int. Cl. B62d *25/16*

U.S. Cl. 280—154.5 R **6 Claims**



An improved mud flap system for prime movers such as tractors employed in towing trailers. The mud flap is mounted for up and down movement on the prime mover frame and in a location forwardly of the drive wheels thereof so that the same can be selectively elevated when a trailer is not being towed by the prime mover to intercept mud thrown forwardly of the drive wheels off of the upper surface thereof.

3,837,673
TRAILER BACKABLE TO LOADING DOCK FROM EITHER END

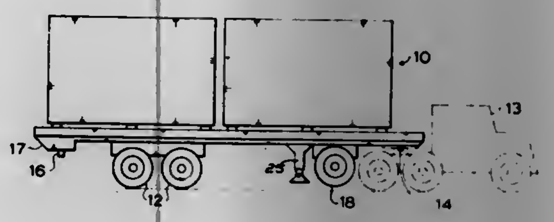
Robert Joseph McCarthy, Sutton W., Ontario, Canada, assignor to Robert A. Brown, Willowdale, Ontario, Canada

Filed June 4, 1973, Ser. No. 366,375

Claims priority, application Canada, June 23, 1972, 145502

Int. Cl. B62d *53/06*

U.S. Cl. 280—415 B **3 Claims**



An auxiliary fifth wheel connection for a trailer with auxiliary wheels allows backing of the trailer in either direction.

3,837,674
TRAILER HITCH CONVERTER

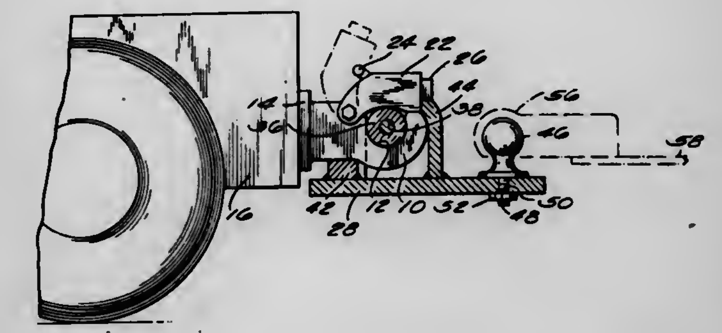
Quintin J. Rathsack, Rt. 6, Box 153, Appleton, Wis. 54911

Filed Aug. 3, 1973, Ser. No. 385,624

Int. Cl. B60d *1/06*

U.S. Cl. 280—417 **3 Claims**

A pintle hook trailer hitch which includes a hook and a closure member is attached to the rear of a towing vehicle. The closure member is movably mounted over the eye of the hook for opening and closing the same. A converter for other hitch systems is attachable to the hook and comprises an elongated base plate, two side plates which are attached to opposite side edges of the base plate and a shaft which is attached between the two side plates, the shaft being dimensioned to fit in the eye of the hook, and the side plates being positioned to bear against opposite sides of the hook to prevent sidewise rotation of the base plate with respect to the hook. An abutment on the front end of the base plate bears against the bottom of the hook to prevent downward rotation of the base plate with respect to the hook. A rear plate is attached between the two rear edges of the side plates and constitutes an abutment bearing on the closure member to prevent upward rotation of the base plate with respect to the hook. The ball portion of a ball hitch is removably attached to the rear of the base plate through an opening in the base plate which is dimensioned to receive the pin of a pin and clevis hitch when the ball is removed from the base plate.



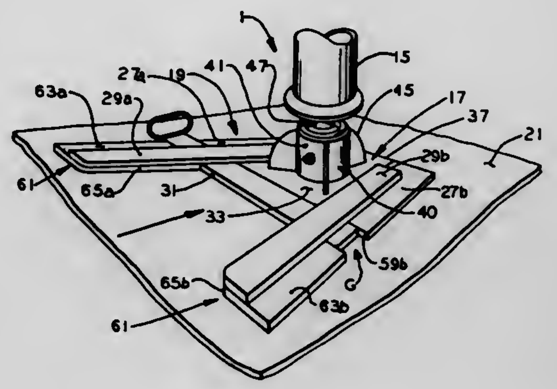
3,837,675
TRAILER HITCH FOR COUPLING WITH PICK-UP TRUCK

Roger L. Barnes, Hillsboro, and David H. Hill, Fillmore, both of Ill., assignors to Tri-Star Corporation, Fillmore, Ill.

Filed Feb. 14, 1973, Ser. No. 332,427

Int. Cl. B62d *53/08*

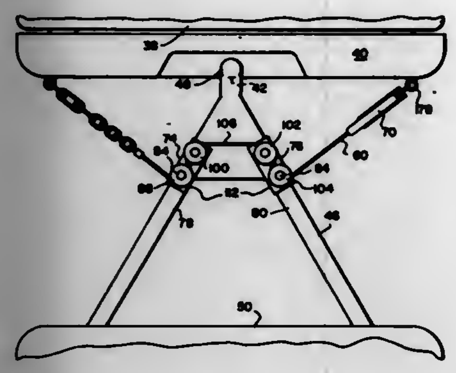
U.S. Cl. 280—423 R **9 Claims**



A hitch for coupling a goose-neck trailer to a towing vehicle (e.g., a pick-up truck) comprising a shoe carried by the goose-neck portion of the trailer and adapted for limited rotation relative to the trailer about any axis, and means mounted on the bed of the pick-up truck for receiving the shoe in a hitching position. This receiving means comprises abutment means engageable with the shoe for preventing movement of the shoe from its hitching position along a line extending the direction of travel of the pick-up truck and laterally of said line, hold-down members overlying portions of the shoe for preventing upward movement thereof, and a locking bar movable to and from a locking position in which it is engageable with the shoe for preventing movement of the shoe from its hitching position in the other direction along said line.

3,837,676
SWAY CONTROL DEVICE FOR TRAILER HITCHES

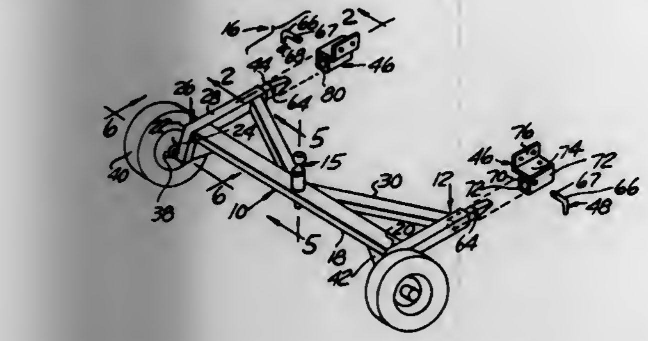
William L. Rendessy, 8028 N. 14th Pl., Phoenix, Ariz. 85021
Continuation-in-part of Ser. No. 848,602, Aug. 8, 1969, Pat. No. 3,680,891. This application June 14, 1972, Ser. No. 262,466
Int. Cl. B60d *1/00*
U.S. Cl. 280—446 B **19 Claims**



A sway control device for trailer hitches comprising a cable means having opposite ends and an intermediate portion; said intermediate portion engaged by a plurality of rotary members at least one of said rotors frictionally damped to resist the movement of said rotor; said cable engaging peripheral portions of said rotors substantially less than 360° thereof and being disposed in a serpentine path about said rotors so as to provide substantial peripheral engagement of said cable therewith; opposite ends of said cable removably connectable to a towing vehicle in laterally spaced relation to the normal pivotal hitch connection of a trailer and towing vehicle; the disclosure also devoted to novel frictional bearing means for said rotors such that tension and deployment of said cable thereabout causes substantial damping and friction to resist rotation of said rotors and to thereby damp movement of said pivotal hitch connection. Further, the disclosure relates to toggle means for imposing tension upon said cable to cause substantial friction dampening of said rotors on their respective axle means.

3,837,677
STABILIZING TRAILER HITCH DOLLY

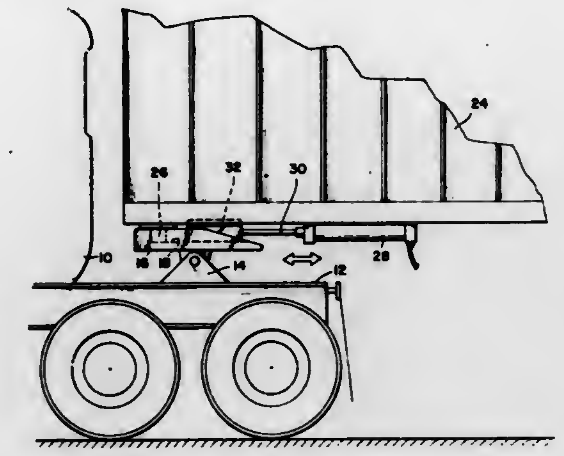
Robert William Haskins, 3050 Spring St., Orchard Lake, Mich. 48033
Filed Oct. 30, 1972, Ser. No. 302,216
Int. Cl. B60d *7/00*
U.S. Cl. 280—476 R **10 Claims**



This stabilizing trailer hitch dolly consists of a dolly frame having a pair of ground wheels on the opposite ends of a cross member carrying a trailer ball hitch. The frame has forwardly-extending laterally-spaced opposite side members perpendicular to the cross member terminating in wedge-shaped coupling members adapted to be pivotally connected to frame-mounted coupling adapters arranged to be secured permanently to the towing vehicle chassis near the rearward end thereof. The wedge-shaped coupling members provide limited rise and fall of the dolly relatively to the adapters on the towing vehicle, the vertical movement being cushioned by springs adjustably regulated by stop screws. Ground wheel axles carrying rotatable ground wheels are rigidly mounted on the down-turned opposite ends of the cross member.

3,837,678
ANTI JACK KNIFE APPARATUS

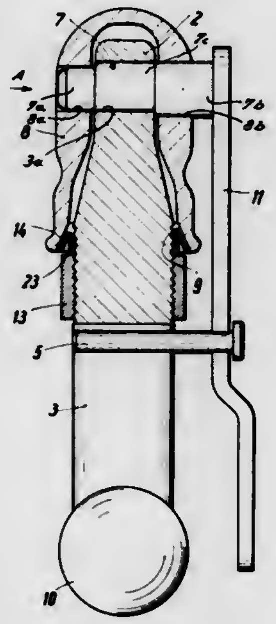
Rocco Cicero, Brooklyn, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed May 3, 1973, Ser. No. 357,015
Int. Cl. B62d *53/08*
U.S. Cl. 280—432 **4 Claims**



Anti-Jack Knife Apparatus comprising a horizontal member pivotally secured to the rear of a tractor and pivotable in the longitudinal direction in a vertical plane. The member is horseshoe shaped and has a longitudinal recess extending from one end disposed at a point intermediate the edges to the other end at an edge of the member. A vertical rod rigidly secured to the front of a trailer extends downward into the recess at the one end. The rod is rotatable in the recess. Means is provided with an element having extended and withdrawn positions. In the extended position, the element extends into the recess and locks the trailer and tractor into longitudinally aligned positions. The element in withdrawn position is withdrawn from the recess to unlock the trailer and tractor. Jack knifing cannot occur when the trailer and tractor are locked together.

3,837,679
HITCHING ASSEMBLY FOR HITCHING A TRAILER TO A TOWING VEHICLE

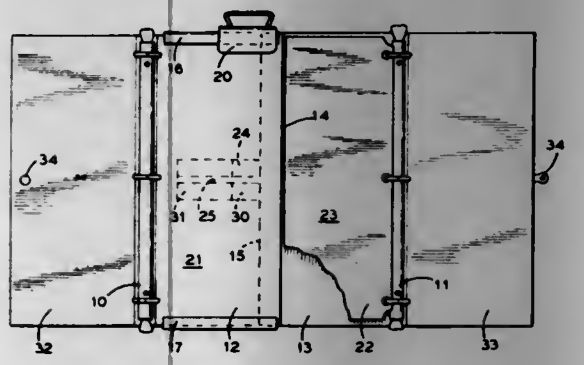
Thomas Dickmann, Karlsruhe, Germany, assignor to PEKA-Fahrzeugbau Eberhardt KG, Karlsruhe, Germany
Filed Nov. 29, 1972, Ser. No. 310,401
Claims priority, application Germany, Nov. 30, 1971, 2159234
Int. Cl. B60d *1/16, 1/06*
U.S. Cl. 280—491 E **11 Claims**



A hitching assembly for hitching a trailer to a towing vehicle, especially a passenger car, which comprises a rod provided with a ball at one end and a transverse bore at the other end portion of the rod. The assembly furthermore comprises mounting means attachable to the towing vehicle and comprising a sleeve slidable relative to the said other end of the rod, the sleeve and the rod being respectively provided with mutually complementary abutment means for abutting engagement with each other while an eccentric bolt journaled in cylindrical axially aligned bores of the sleeve has a portion eccentric with regard to said cylindrical bores located in said transverse bore which is eccentric to said cylindrical bores, said eccentric portion being operable when received in said eccentric bores to cause relative displacement of the rod and the sleeve as to lock the same together.

3,837,680
RING BINDER

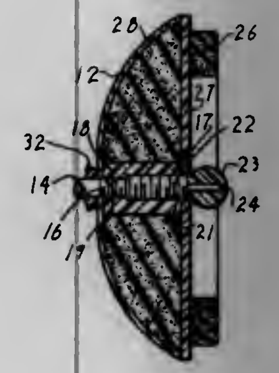
Peter D. Cimini, 120 Northwood Rd., Newington, Conn. 06111
Filed Aug. 25, 1972, Ser. No. 283,935
Int. Cl. B42d *3/00*
U.S. Cl. 281—16 **2 Claims**



A book structure that has two loose-leaf binders with outwardly folding end covers. Inwardly directed covers for the two loose-leaf binders are joined together and overlap in a mutually sliding relation. Sleeves that engage the edges of the overlapping covers, as well as a stop on one of the covers, enables the central portion of the book structure to form a stable, rigid and generally flat surface when fully extended.

3,837,681
STETHOSCOPE

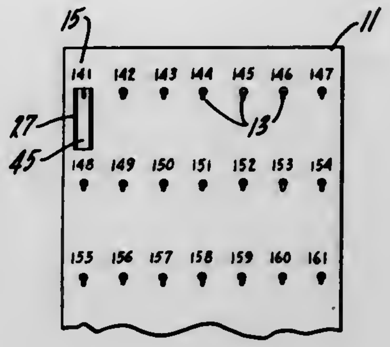
Walker Reynolds, Jr., 327 E. 10th St., Anniston, Ala. 36201
Filed June 28, 1973, Ser. No. 374,471
Int. Cl. A61b *7/02*
U.S. Cl. 181—24 **2 Claims**



A rigid cup-like member has an opening therethrough for receiving an end of a sound delivery tube of a stethoscope. A deformable member extends around the cup-like member adjacent the periphery thereof and is adapted to engage and conform to the shape of the head surrounding the ear of a user so that the cup-like member together with the deformable member encases the ear of a user. The ear piece is adjustable relative to the sound delivery tube and a sound absorbing material is positioned between the cup-like member and the ear piece.

3,837,682
METHOD AND APPARATUS FOR ACCOUNTING

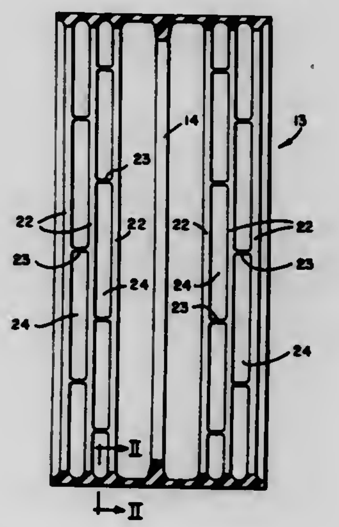
Arthur G. Feller, Box 267, Cissna Park, Ill. 60924
Continuation of Ser. No. 154,275, June 18, 1971, abandoned. This application July 20, 1973, Ser. No. 381,026
Int. Cl. B41l *1/00, 1/22*
U.S. Cl. 282—8 R **1 Claim**



A method and apparatus for use in accounting for sales and purcheses of items at an auction. Each bidder is assigned a number. The identifying number is recorded on both parts of a two part identification tag. One part is retained by the bidder for use at the auction. The second part is marked with the bidder's name and address and is stored in numerical order during the auction. The sale of each item is recorded on a sales slip, which is stored with the second part of the bidder's identification tag during the auction, as well as on a permanent sales record. After the auction, the second part of the bidder's identification tag and the sales slips are used to record the dollar amount of the sales on a duplicate settlement slip. One copy of the duplicate sales settlement slip plus the sales slips are returned to the purchasing bidder while the other copy of the duplicate sales slip plus the second part of the bidder's identification tag are stored in numerical sequence as a permanent record of the sales.

3,837,683
PIPE JOINT SLEEVE

Thomas B. Franklin Taylor, Islington, Ontario, Canada, assignor to Ste Croix Foundry Ltd., Ste Croix, Calif.
Filed Aug. 2, 1973, Ser. No. 385,025
Claims priority, application Canada, May 9, 1973, 170827
Int. Cl. F16l *21/00*
U.S. Cl. 285—236 **11 Claims**



The present invention relates to a sleeve for a packing disposed about the joint existing between adjacent ends of a pair of substantially axially pipes. The inner periphery of the sleeve is provided with a plurality of non-communicating compartments which serve to inhibit leakage from such a joint.

3,837,684

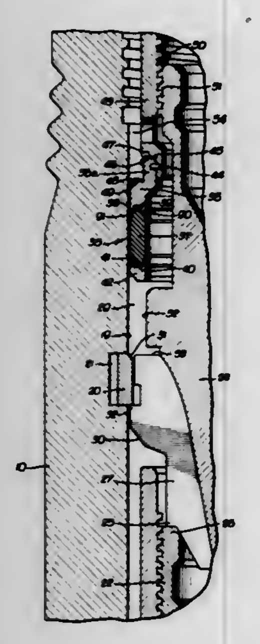
SUBSEA CASING HANGER PACK-OFF APPARATUS AND METHOD

Joseph H. Hynes, Ojai, Calif., assignor to Vetco Offshore Industries, Inc., Ventura, Calif.

Filed Oct. 30, 1972, Ser. No. 301,781

Int. Cl. F16l ***35/00***

U.S. Cl. 285—3 **26 Claims**



A casing hanger carries a follower and a packing assembly releasably secured to the follower, the combination being lowered on a tubular running string from a drilling rig floating in water and landed in a wellhead, the running string then being removed. A setting tool is then lowered from the rig on a tubular running string into engagement with the packing assembly to release it from the follower, the setting tool and running string imposing downweight on the packing assembly to release it from the follower and expand it into sealing engagement with the wellhead and casing hanger, after which the follower is shifted into locking or holding engagement with the expanded packing assembly. The effectiveness of the seal can be pressure tested, the pressure imposed exerting an additional downward force on the packing to apply an additional pack-off force on the packing assembly, the follower being further movable into locking or holding engagement with the expanded packing assembly.

3,837,685

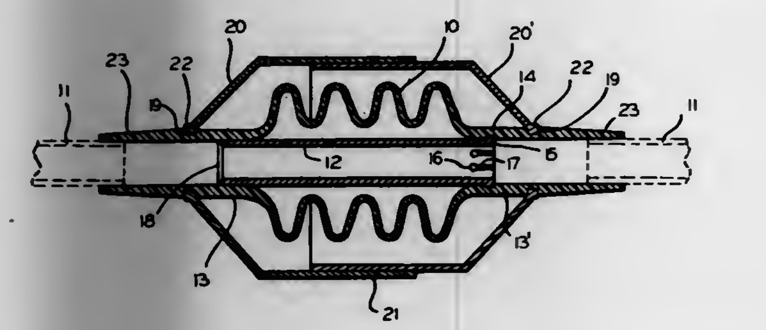
PIPE EXPANSION AND REPAIR FITTING

John H. Miller, Rt. 4 Box 300, Manitowoc, Wis. 54220

Filed Jan. 2, 1973, Ser. No. 320,168

Int. Cl. F16l ***55/18***

U.S. Cl. 285—45 **4 Claims**



A pipe expansion and repair fitting wherein the component parts are of plastic or the like. The component parts comprise a bellows arrangement having tapered tubular ends for fitting around and connecting two ends of the pipe and being extended or repaired. A flow tube assembled in the bellows reduces turbulence. A telescoping shield protects the bellows from the adverse effects of the surrounding environment.

3,837,686

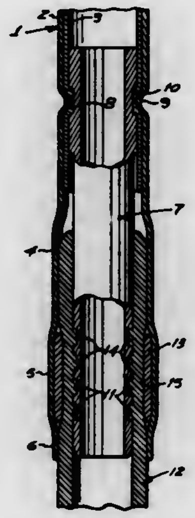
GAS SERVICE CONNECTOR

Jonathon S. Powell, 11 W. State St., Pasadena, Calif. 91105

Filed July 20, 1973, Ser. No. 380,981

Int. Cl. F16l ***55/00***

U.S. Cl. 285—55 **6 Claims**



A gas service connector wherein a metal tube, having an outer and an inner lamination of different metals, is provided at one end with an enlarged portion to receive a plastic underground conduit and at its other end with a fitting for connection to a service member or the like; the enlarged end being fitted with an internal connecting sleeve mechanically interlocked to the inner lamination and extending within the plastic conduit; the enlarged end portion of the metal tube containing a seal member and being constrictible about the sleeve and plastic conduit to effect a mechanical interlock between the sleeve and plastic conduit as well as to effect a seal between the metal tube and plastic conduit.

3,837,687

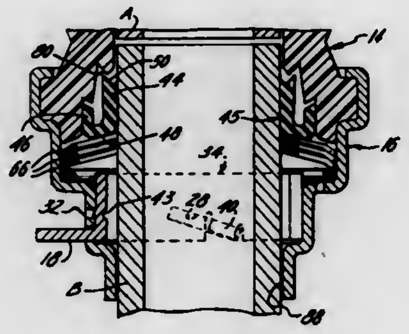
COUPLING FOR TUBING

George Hamlin Leonard, 327 Hollow Tree Ridge Rd., Darien, Conn. 06820

Filed Dec. 29, 1972, Ser. No. 319,520

Int. Cl. F16l ***17/02***

U.S. Cl. 285—111 **21 Claims**



A novel fitting includes an enclosure containing a sealing ring and at least one grip-ring both of which are self-energizing into cooperation with an inserted tube having an ordinary cylindrical exterior. A device in the coupling enlarges the inner diameters of both rings to admit a tube and to release an inserted tube, without danger of the tube scarring the sealforming surface of the sealing ring, or of the grip-ring scoring the tube.

3,837,688

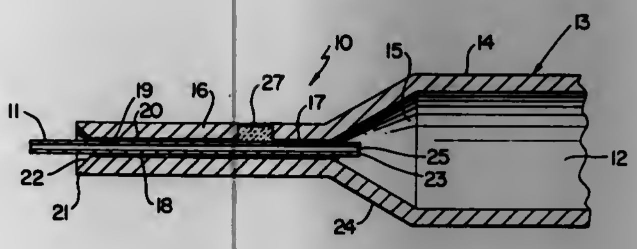
JOINT CONSTRUCTION AND METHOD OF MAKING THE SAME OR THE LIKE

Harald E. Vollbehr, Irwin, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 218,236, Jan. 17, 1972, abandoned. This application July 9, 1973, Ser. No. 377,602

Int. Cl. F16l ***25/00***

U.S. Cl. 285—177 **12 Claims**



A first tubular metallic member has a relatively small transverse cross section and has a portion thereof telescopically disposed within a reduced portion of a second tubular metallic member, the reduced portion of the second tubular member having an opening therethrough and leading to a spacing between the telescoped portions. A heated securing means, such as a brazing material or a soldering material, is disposed in the opening and fills at least part of the spacing between the telescoped portions to secure the telescoped portions together whereby the heat affected area of the first tubular member is confined inside the telescoping portion of the second tubular member, causing the heated portion of the first tubular member to retain substantially its original strength.

3,837,689

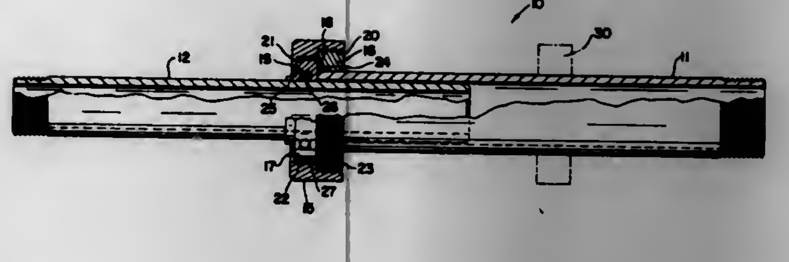
TELESCOPING TUBE ASSEMBLY

Geza M. Csatlos, Wadsworth, Ohio, assignor to Akron Standard, division of Eagle-Picher Industries, Inc., Akron, Ohio

Filed Aug. 28, 1973, Ser. No. 392,252

Int. Cl. F16l ***15/02***

U.S. Cl. 285—302 **1 Claim**



An assembly for maintaining a fluid pressure seal between rigid telescoping conduit tubes. The assembly comprises a flange nut, a round flange, a ring collar, and elastomeric annular seals located and positioned coaxially around rigid telescoping conduit tubes.

3,837,690

INFORMATION STORAGE ARTICLES EMPLOYING RESILIENT LOCKING SLEEVES

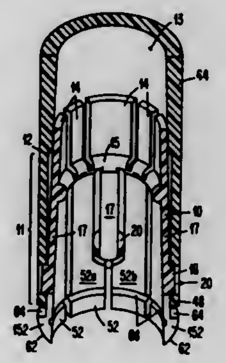
Harvey R. Fraser, Jr.; Richard T. Larson, both of Boulder, and Helfried O. Rinkleib, Longmont, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 6, 1973, Ser. No. 386,234

Int. Cl. F16l ***39/00***

U.S. Cl. 285—319 **19 Claims**

A tape spool and cover are latched together by a tubular sleeve arrangement. A hollow core tape spool has an inner frustro-conical camming surface adjacent an axially outwardly facing shoulder. A releasable latch includes a unitary resilient sleeve inserted into the hollow core and is cammed radially inwardly for creating radial outward forces on the opposite sleeve end outside the spool. A first axial end portion of the sleeve has a first type locking resilient finger extending out of the hollow core and a second type resilient finger in locking engagement with the hollow core tape spool. A radially inwardly extending annular rib divides the first and second axial end portions to provide a bending moment transfer ring. The slots defining the axially extending fingers extend to and preferably into the rib for providing a moment bridge for transferring the radial inward compression on the second axial end portion to a radially outwardly exerting force in the first axial end portion. It is preferred that such slots terminate on or near a common circumferential line extending around the sleeve. The outer end portion of the first type of fingers includes a latching shoulder, plus a camming surface for enabling radial inward camming all first type fingers for enabling releasable engagement between the tape spool and a cylindrical cover.



3,837,691

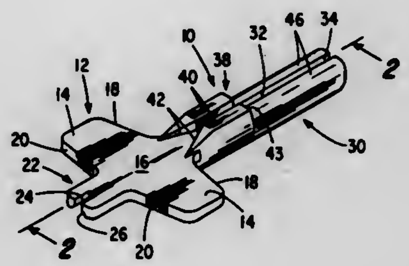
KNOT TYING APPARATUS

Richard N. Smythe, 4082 Deep Valley, Dallas, Tex. 75234

Filed Apr. 9, 1973, Ser. No. 349,486

Int. Cl. D03j ***3/00***

U.S. Cl. 289—17 **9 Claims**



Disclosed is an improved knot tying implement for use in attaching a line to an object such as a fishing lure, hook or the like.

3,837,692

SAFETY FASTENER FOR CONTAINER

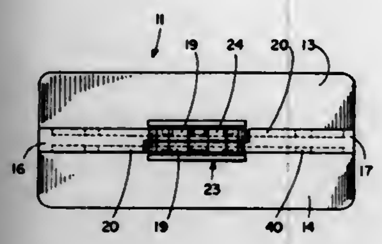
Grover W. Ayers, Vinton, Va., and Gerald B. Zinnbauer, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed June 7, 1973, Ser. No. 367,917

Int. Cl. E05b ***65/52;*** **E05c** ***19/10***

U.S. Cl. 292—152 **9 Claims**

A safety fastener for a two-section container having an integral slide which is selectively engaged with a portion of one or both sections of the container to permit the container to be opened or to be maintained in a locked position. The slide has



a resilient portion which upon being depressed permits movement of the slide from a locked position to a free position thereby allowing the container to be opened.

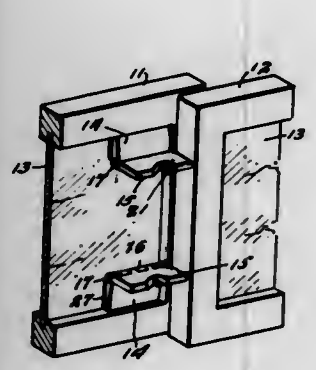
3,837,693
LOCKS FOR SLIDING MEMBERS

Edward J. Adickes, deceased, P.O. Box 3385, late of Idialantic, Fla. 32903 (Dorothy Randall Frisch, executrix)

Filed Dec. 7, 1972, Ser. No. 312,959

Int. Cl. G05c *3/04*

U.S. Cl. 292—207 **4 Claims**



This invention is directed to locking mechanisms for overlapping parallel sliding members, such as sliding doors, double sash windows and the like, comprising a hinge member having two leaf members, each of which has knuckles aligning with the other to receive a pivot pin; one of said leaf members being provided with means for permanently affixing it to one sliding member, and the other leaf member being freely pivotal. The freely pivotal leaf member has a spring loaded detent positioned transversely thereof, and the fixed leaf member has an aperture in a pivot knuckle positioned to receive the detent when the said leaf members are substantially perpendicular to each other. The freely pivotal leaf member has an arcuate recess in the free edge thereof adjacent the spring loaded detent, to provide access to said detent to release the locking of the detent from the aperture.

3,837,694
HYDRAULIC HEAD CLOSURE MECHANISM

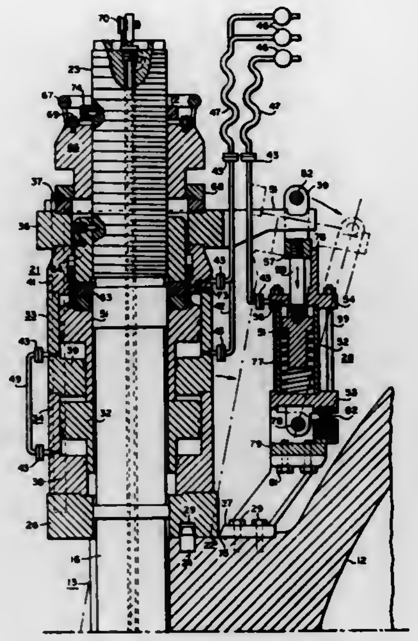
Erling Frisch, deceased, late of Pittsburgh, Pa. (Dorothy Randall Frisch, executrix), and Harry N. Andrews, Export, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 8, 1970, Ser. No. 53,198

Int. Cl. B65d *45/30*

U.S. Cl. 292—256.75 **15 Claims**

In order to reduce the time required for removal and replacement of a reactor vessel closure head, previously used studs for securing the closure head are replaced with a reduced member of larger diameter bolts located in radial slots in vessel and head flanges. All bolts are provided with individual hydraulic tensioning and tilting devices mounted on the head flange. The devices are operated simultaneously to preload the bolts and to actuate the bolts and the devices to an inclined position to permit the head to be removed when the tension load on the bolts is released.



3,837,695
BUMPER MEMBER FOR A VEHICLE

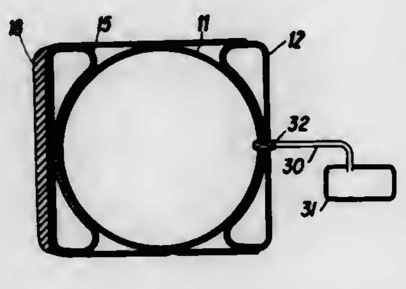
Ernst-Gunter Haase, Egmating, and Rudolf Konig, Ottobrunn, both of Germany, assignors to Messeschmitt-Bolkow-Blohm, Munich, Germany

Filed Feb. 15, 1973, Ser. No. 332,593

Claims priority, application Germany, Feb. 18, 1972, 2207560

Int. Cl. B60r *19/08*

U.S. Cl. 293—71 P **4 Claims**



A bumper-like member for a vehicle is formed of a closed flexible hollow body containing a highly compressible fluid, such as air, and a bending support beam on which the hollow body is supported. Preferably, a flexible cover member is secured to the supporting beam and encloses the hollow body. The compressible fluid in the hollow body can be at ambient pressure or at a pressure above ambient. A pressure release valve is connected to the hollow body and is arranged to open when the compressible fluid reaches a predetermined level after the hollow body has contacted an obstacle in the path of the vehicle. An additional bending support beam can be positioned in bearing contact with the hollow body on the opposite side from the other supporting beam and further hollow bodies can be mounted on the additional supporting beam on the opposite side from the other hollow body. In addition to the pressure release valve, an opening is provided into the hollow body through which air can be reintroduced after it has been released through the release valve.

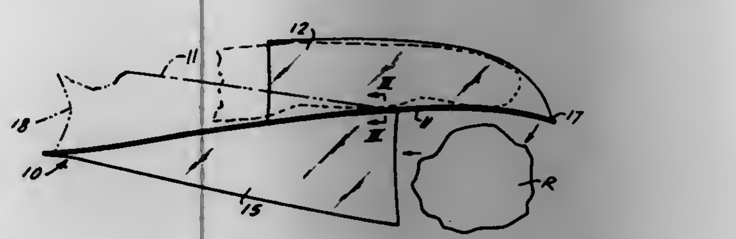
3,837,696
DISPOSABLE POCKETED MANUAL REFUSE COLLECTOR

Grace L. Dahlke, 5212 W. Irving Park Rd., Chicago, Ill. 60641

Filed Nov. 17, 1972, Ser. No. 307,646

Int. Cl. A47l *13/52;* **B65g** *7/12*

U.S. Cl. 294—1 R **9 Claims**



A disposable pocketed manual refuse collector, in a normally flat form for convenient stacking in dispensing packet for distribution, comprises a permanently secured assembly of flexible sheet material members, namely, a palm covering member supporting on one face a finger cot member and on its opposite face a pocket member so related that a users fingers can be received in a glove between the finger cot member and the palm member for manipulating refuse into a pocket defined between the pocket member and the palm member opening forwardly under the fingers and with the edge of the pocket member providing a scoop. After the pocket has been loaded, the forwardly extending finger cot portion of the palm member can be inserted into the mouth of the pocket as a retaining closure.

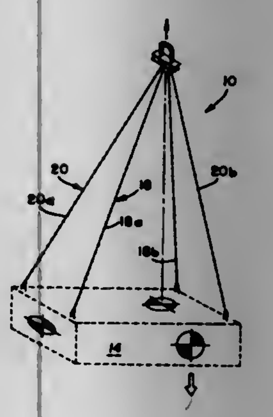
3,837,697
ADJUSTABLE MULTI-LEG LOAD-CARRYING SLING APPARATUS

Donald B. Goodrich, 1935 Sandalwood, El Centro, Calif. 92243

Filed Dec. 18, 1972, Ser. No. 316,324

Int. Cl. B66c *1/12*

U.S. Cl. 294—74 **3 Claims**



A multi-leg sling apparatus is presented for lifting loads having individual sling legs adjustable in length in a simple, and highly reliable manner to enable balanced and unbalanced loads to be supported in a variety of different orientations.

3,837,698
LIFTING APPARATUS

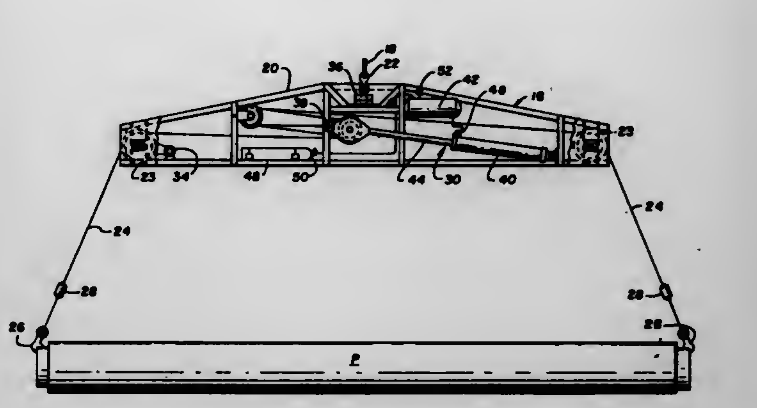
Robert Don Foster, Houston, Tex., assignor to CRC-Crose International, Inc., Houston, Tex.

Filed July 29, 1971, Ser. No. 167,386

Int. Cl. B66c *1/10*

U.S. Cl. 294—81 R **4 Claims**

A lifting spreader bar suitable for lifting pipe or other articles from one floating vessel to another wherein such vessels could have movement relative to each other, said spreader bar having an elongate structure, lifting lines extending from opposite ends of said elongate structure, means for establishing a preselected tension in said lifting lines while they are moving relative to said elongate structure, means indicating such relative movement of the lifting lines, a hoisting connection to the central portion of said elongate structure, and means for indicating the angle of said hoisting connection with respect to vertical.



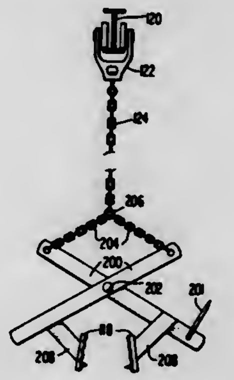
3,837,699
METHOD AND APPARATUS FOR BREAKING ANIMAL CARCASSES AND HANDLING MEAT PRODUCTS

A. D. Anderson, Sioux City, Iowa; Walter E. Lauridsen, South Sioux City, Nebr., and Charles L. Overstreet, Sioux City, Iowa, assignors to Iowa Beef Processors, Inc., Dakota City, Nebr.

Division of Ser. No. 706,557, Feb. 19, 1968, Pat. No. 3,593,369. This application July 15, 1971, Ser. No. 163,001

Int. Cl. B66c *1/30*

U.S. Cl. 294—118 **6 Claims**



Meat-supporting tongs are provided with opposed plates which carry a plurality of blunt projections for engaging the meat, and pointed projecting members which extend a greater distance than the blunt projections to promote initial engagement between the plates and the meat prior to movement of the blunt projections into contact with the meat. A chain or other elongated flexible member is used to attach the tong support linkage to an overhead support rail.

3,837,700
INFLATABLE WEATHER SEAL FOR CAMPER-TRUCK COMBINATIONS

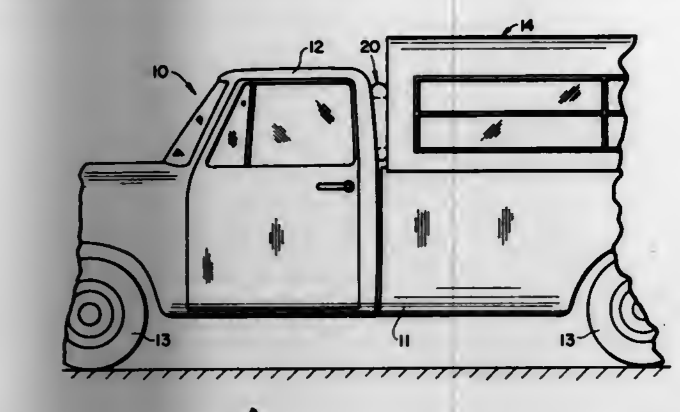
Gary C. Van Slyke, 317 N. Chestnut, Jefferson, Ohio 44047

Filed Aug. 23, 1972, Ser. No. 283,198

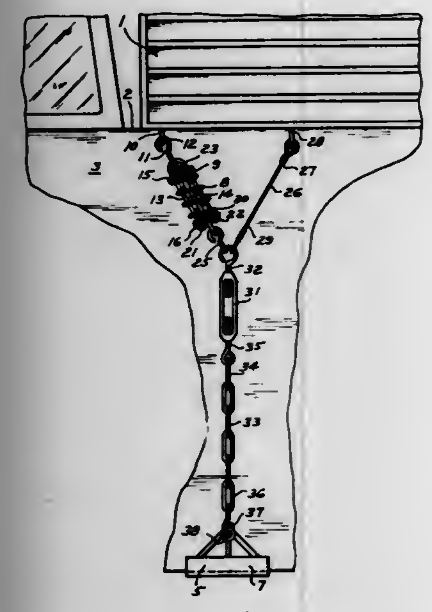
Int. Cl. B60p *3/32*

U.S. Cl. 296—23 MC **6 Claims**

A method and apparatus for establishing a weathertight passageway between aligned window openings in opposed spaced walls of a vehicle cab and a vehicle-carried camper. A tubular inflatable weatherseal is positioned between the walls around the window openings and inflated to establish a weathertight passageway communicating the window openings.



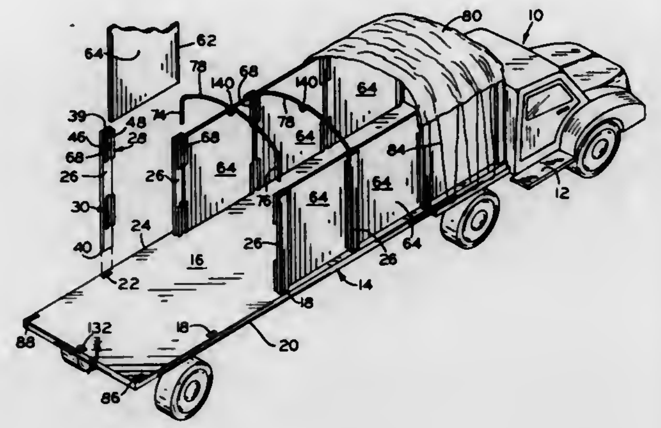
3,837,701
CAMPER MOUNTING APPARATUS
George B. Curtis, and Betty L. Curtis, both of Hooper, Colo., assignors to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Oct. 15, 1973, Ser. No. 406,496
Int. Cl. B60p ***3/32***
U.S. Cl. 296—23 MC **2 Claims**



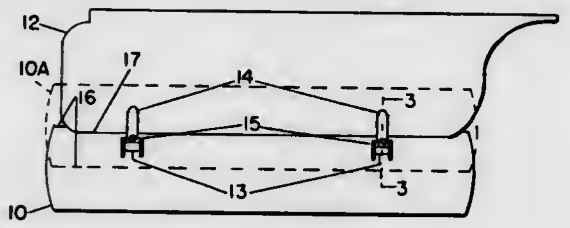
Camper mounting apparatus comprises a member having one end affixed to the chassis of a pickup truck and a free end extending transversely beyond the bed of the truck. An adjustable tension spring has one end affixed to a first point on a camper seated in the bed of the truck. A cable has one end affixed to a second point on the camper spaced from the first point and another end affixed to the other end of the spring. A turnbuckle has one end affixed to the common ends of the spring and the cable. A chain has one end affixed to the other end of the turnbuckle and another end affixed to the free end of the member.

3,837,702
SYSTEM FOR CONVERTING FLATBED TO LOWSIDE TRAILERS
Oran L. Case, 269 S. Roberts Ave., Lima, Ohio 45804
Filed July 10, 1972, Ser. No. 269,992
Int. Cl. B62d ***33/00***
U.S. Cl. 296—36 **5 Claims**

A series of wooden stakes each has a bracket mechanically secured thereto one at each of the opposite ends of the stake. The bracket includes a base and two laterally offset flanges which are spaced sufficiently from the stake to form a pocket for receiving the edges of panels between adjacent spaced stakes. The bracket includes at the upper end a cylinder welded thereto for receiving a bow which is positioned with one end in each of the oppositely facing stakes at opposite sides of the bed. At the rear of the trailer are two corner stakes each with a bracket having a flange adapted to receive a panel at the side of the flatbed and a transverse second flange for holding upright a panel at the end of the bed. The stakes, with the exception of the corner stakes, are interchangeably positionable at either side of the flatbed.

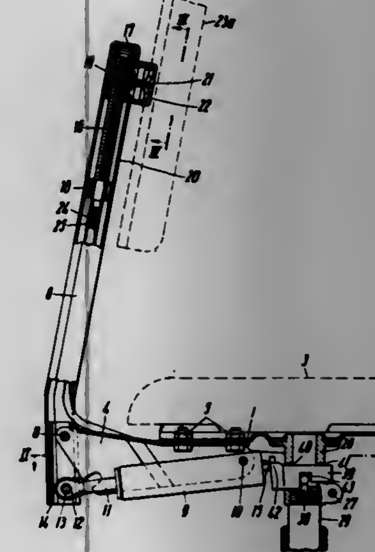


3,837,703
GLARE SHIELDS
Forrest E. Holladay, 14314 Shadywood Dr., Plymouth, Mich. 48170
Continuation of Ser. No. 19,747, March 16, 1970, abandoned. This application Oct. 26, 1971, Ser. No. 192,603
Int. Cl. B60j ***3/02***
U.S. Cl. 296—97 C **9 Claims**



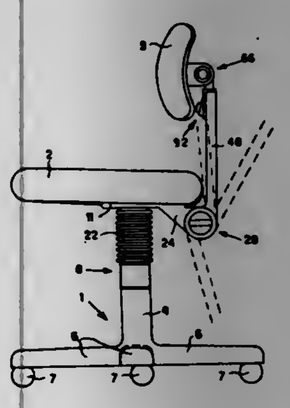
A glare shield assembly for mounting on a sun visor of a motor vehicle. A light-filtering shield is mounted in offset relationship to and on a pair of spaced pivots attached to and below the lower edge of the sun visor. The offset pivot makes it possible to position the shield as a lower extension of the visor either by pivoting the shield forwardly of the visor or rearwardly of the visor. Further, the pivot is located closer to one of the horizontal edges of the sheild than to the opposite horizontal edge of the shield so that in one of its positions more of the shield projects below the visor than in the other of its positions. In addition, an area of the shield has different filtering characteristics on one side of its pivot than on the other side of its pivot for selectively to overcome different glare conditions.

3,837,704
SEATING FURNITURE
Fritz Bauer, 8503 Altdorf, Schulzstr. 14, Germany
Filed June 21, 1973, Ser. No. 371,968
Int. Cl. A47c ***7/40***
U.S. Cl. 297—345 **7 Claims**



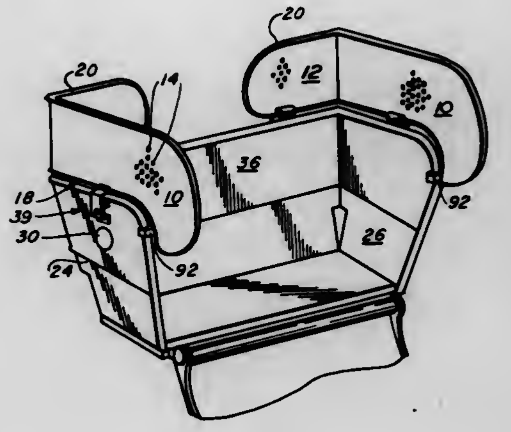
An article of seating furniture having means to continuously adjust the seat height, back rest height and back rest tilt through the operation of a single operating lever which can be operated from a seated position. Motion of the lever in one direction releases a gas spring controlling seat height, motion of the lever in a second direction releases a gas spring controlling back rest tilt, and rotation of the lever causes height adjustment of the back rest.

3,837,705
OFFICE CHAIR
Franco Marraccini, Massa, Italy, assignor to Ing. C. Olivetti & Co., S.p.A., Ivrea (Torino), Italy
Filed Jan. 24, 1973, Ser. No. 326,334
Int. Cl. A47c ***1/00***
U.S. Cl. 297—353 **4 Claims**



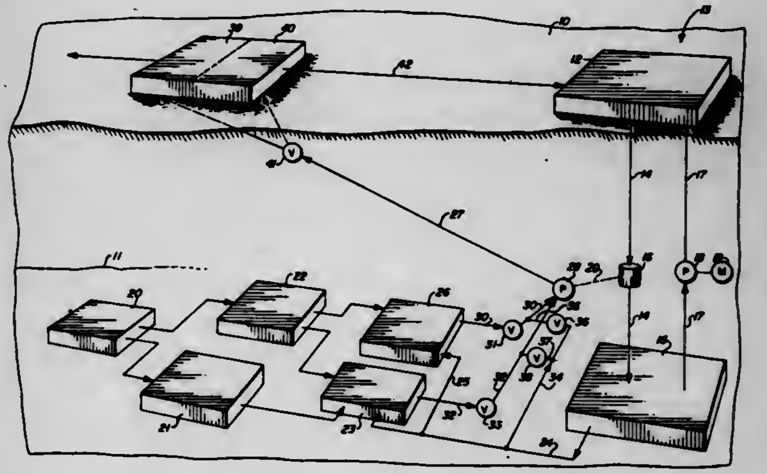
An office chair in which the seat height and back inclination and height are adjustable and having a frictional pivotal coupling between the back and the back supporting member. The adjustment of the back inclination is accomplished with a hub affixed to the back supporting member and a slider disposed for axial motion within said hub and angularly fixed with respect to the chair seat. A pair of projections in the slider ride in helical grooves in the hub so that as the slider is moved axially the back is rotated. A rack attached to the back and slidable in the back supporting member is engaged by a spiral gear member attached to the back supporting member for controlling the height of the back.

3,837,706
AMUSEMENT RIDE SEAT AND SAFETY GUARD
Eldon J. Suttles, Jacksonville, Ill., assignor to Eli Bridge Company, Jacksonville, Ill.
Filed Feb. 21, 1974, Ser. No. 444,279
Int. Cl. B60r ***21/10***
U.S. Cl. 297—384 **4 Claims**



This invention relates to a safety guard which is mounted on the upper surface of the seat back and side frames on a ferris wheel seat structure to prevent the long hair of persons riding therein from becoming entangled in the adjacent moving structure.

3,837,707
HYDRAULIC MINING SYSTEM
Oliver B. Kilroy, 5 Calle Carta St., Tucson, Ariz. 85716
Continuation-in-part of Ser. Nos. 293,401, Sept. 29, 1972, Pat. No. 3,790,214, and Ser. No. 398,951, Sept. 20, 1973, which is a continuation-in-part of Ser. No. 293,401,. This application Oct. 17, 1973, Ser. No. 407,072
Int. Cl. E21c ***41/00***
U.S. Cl. 299—8 **6 Claims**



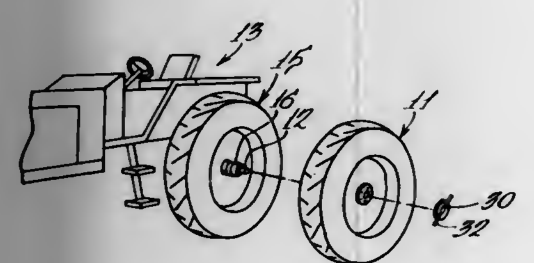
An hydraulic mining system comprising the generation of power from a column of water which downflows from a surface reservoir to an underground reservoir and in which at least a portion of spent water is recirculated and with the column of water operating a turbine, mechanically driving a pump included in a transfer tube extending from the mining level to the ground surface from the turbine, converting waste rock into slurry form, converting mineral-containing ore into slurry form, introducing the slurries into said tube to be pumped upwardly therein, separating water from said slurries at the ground surface and returning this spent water to the surface reservoir.

In three embodiments, the mineral components of the ore are separated from the ore by micro-bacteriological processes and apparatus which includes a mill and a fermentation tank.

In one of these embodiments, the separation is substantially completed at the mining level. In a second embodiment, it is initiated at the mining level, continued in the transfer tube and completed at the ground surface. In a third embodiment, it is carried out substantially at the ground surface.

3,837,708
QUICK-CONNECT WHEEL MOUNTING MEANS

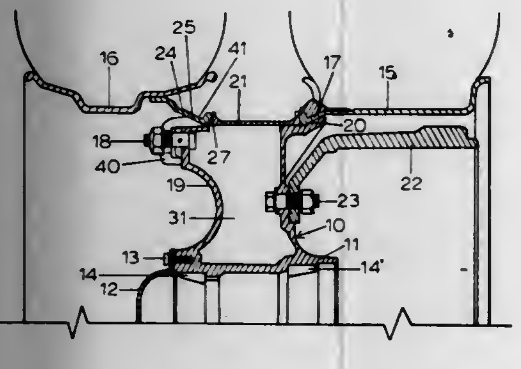
Daniel C. Donnell, RFD, Malta, Ill. 60150
Filed Nov. 2, 1973, Ser. No. 412,327
Int. Cl. B60b *11/00*
U.S. Cl. 301—1 **13 Claims**



A quick-connect mechanism for removably mounting a wheel to an axle. The mechanism includes a hub portion and means for constricting the hub portion into secured association with the axle. The constrictible hub further defines a male attachment portion adapted to receive a female attachment portion of a wheel mount. The wheel mount may be threadedly secured to the hub. A lock is provided to prevent loosening of the wheel mount on the hub in use.

3,837,709
DUAL WHEEL ASSEMBLY

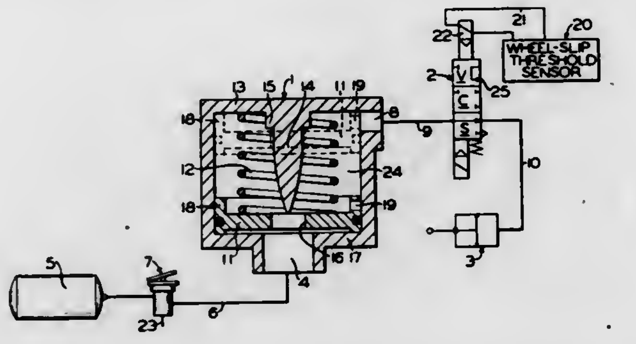
Russell K. Williamson, Erie, Pa., assignor to Erie Malleable Iron Company, Erie, Pa.
Filed Aug. 28, 1972, Ser. No. 284,356
Int. Cl. B60b *11/06*
U.S. Cl. 301—13 SM **1 Claim**



A spacer block for a dual wheel assembly. The spacer block has a curved bottom to rest on the outside diameter of the wheel spoke and tapered dovetail flanges on the sides of the block receive the tapered side flanges of the spoke so that the spacer block is held against rotation with the rim should the rim slip relative to the wheel. The blocks have inclined protrusions on their ends which are forced under the rims thereby holding the rims rigidly against an inclined surface on the spokes.

3,837,710
ANTI-SKID APPARATUS FOR WHEELS

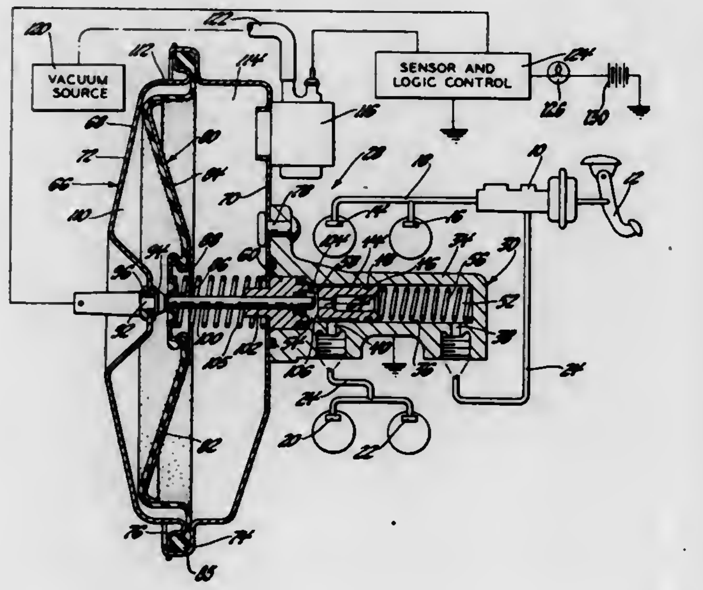
Erich Reinecke, Beinhorn; Fritz Isernhagen, Letter; Alfred Klatt, Ronnenberg; Lutz Weise, Misburg, and Karl-Heinz Maisold, Berenbostel, all of Germany, assignors to Westinghouse Bremsen-und Apparatebau GmbH, Hannover, Germany
Filed Nov. 30, 1972, Ser. No. 310,681
Claims priority, application Germany, Dec. 27, 1971, 2164833
Int. Cl. B60t *8/12*
U.S. Cl. 303—21 F **6 Claims**



Anti-skid apparatus for vehicle wheels including wheel-slip threshold sensor means for detecting the value of deceleration rate of a vehicle wheel at which wheel-slip, due to braking action and prevailing road surface condition, becomes imminent and for emitting a control impulse accordingly, said apparatus being operable responsively to said control impulse for first causing a reduction of brake-applying pressure to a reduced degree at which neutralization of the wheel-slip tendency is initiated, secondly for maintaining the reduced brake-applying pressure at the reduced degree until the wheel resumes normal rotation, and thirdly for effecting restoration of brake-applying pressure at a progressive rate compatible with the existing road friction condition.

3,837,711
ANTI-LOCK BRAKE PRESSURE MODULATOR

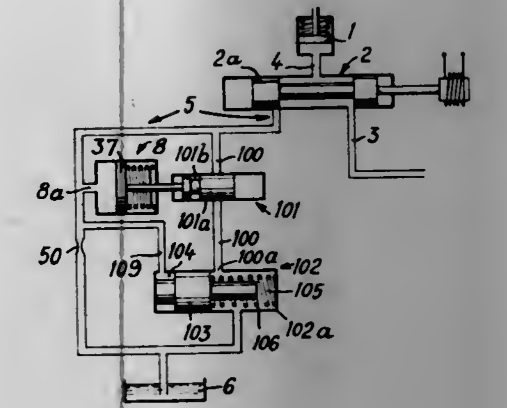
Robert M. Van House, and Jimmy C. Mayne, both of Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich.
Filed May 9, 1973, Ser. No. 358,713
Int. Cl. B60k *8/06*
U.S. Cl. 303—21 F **5 Claims**



A brake pressure modulator includes a housing having a bore in which a piston is slidably movable and divides the bore into an outlet chamber communicating with the master cylinder and an outlet chamber communicating with the wheel brakes. A passage in the piston connects the inlet and outlet chambers to permit free fluid communication between the master cylinder and the wheel brakes during normal brake actuation. A plunger operatively associated with a fluid motor extends sealingly through the housing and into the outlet chamber. Brake fluid pressure in the outlet chamber urges the plunger outwardly of the outlet chamber and the fluid motor into engagement of the housing to support the plunger against movement by the brake pressure from a normal position. A valve arrangement is provided to close the passage in the piston upon movement of the plunger from the normal position by a pressure differential acting on the fluid motor in response to a sensed incipient wheel lock condition. Further movement of the plunger forcibly moves the piston to decrease the volume of the inlet chamber and increase the volume of the outlet chamber so that the brake fluid pressure communicated to the wheel brake is decreased. The fluid motor reciprocates the plunger and piston to cyclically release and reapply the brakes. Upon termination of the sensed wheel condition the plunger and fluid motor return to the normal position separated against movement by the brake pressure by engagement with the housing.

3,837,712
ANTI-LOCKING BRAKING DEVICE

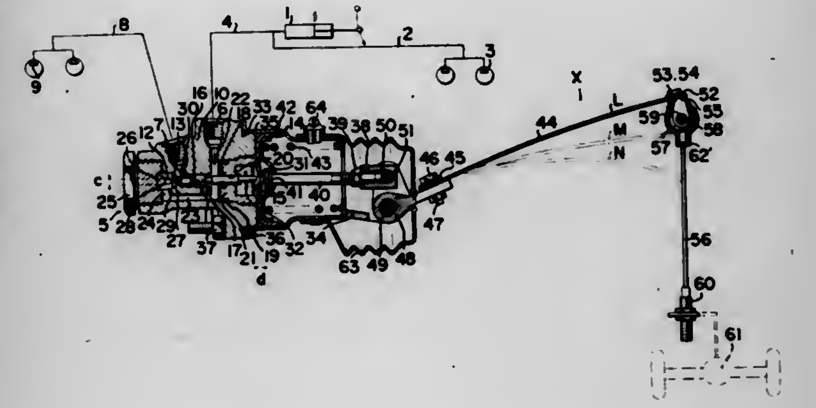
Albert Grosseau, Chaville, France, assignor to Societe Anonyme Automobiles Citroen, (Seine) Paris, France
Filed July 19, 1973, Ser. No. 380,852
Claims priority, application France, July 31, 1972, 72.27601
Int. Cl. B60t *8/12*
U.S. Cl. 303—21 F **3 Claims**



An anti-locking braking device for a wheel of a motor vehicle for reducing jerky braking, wherein a fluid operated brake cylinder is connectable, when the wheel is about to lock, to a fluid outlet comprising first and second flow paths leading to a reservoir. In the first flow path a restriction is provided downstream of a first chamber whose volume is increased by movement therein of a spring biased first piston under the effect of pressure of the fluid admitted to the chamber. Such movement is arranged to open a first valve in the second flow path, and fluid form the brake cylinder to the reservoir can bypass the restriction and thus a faster rate of pressure drop in the brake cylinder can be achieved, provided a second valve, also in the second flow path is open. Movement of this second piston controls opening and closing of the second flow path by the second valve which is open when fluid pressure in the first flow path upstream of the restriction exerts a lower force on one side of the second piston than the force exerted on the other side by a spring.

3,837,713
LOAD SENSING PROPORTIONING VALVE

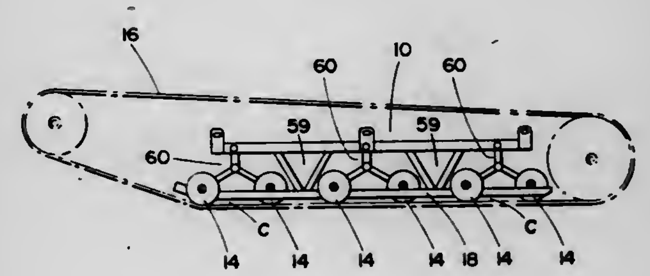
Moasuke Masuda, Higashi-Matsuyama; Toshihiro Abe, Kawagoe, and Yoshihiko Kato, Higashi-Matsuyama, all of Japan, assignors to Jidosha Kiki Co., Ltd., Tokyo, Japan
Filed Mar. 19, 1973, Ser. No. 342,712
Claims priority, application Japan, Mar. 24, 1972, 47-29027
Int. Cl. B60t *8/18*
U.S. Cl. 303—22 R **5 Claims**



A load sensing proportioning valve for detecting the loading weight condition of a vehicle as represented by a distance between upper and lower positions of a spring. In this fashion, the fluid pressure acting on a rear wheel brake cylinder is controlled. The valve includes a push rod of a plunger; a loading spring coaxially mounted on the side of the push rod of the plunger, the load of the loading spring being applied to a housing during non-operation of a brake; a spacer spaced apart from the push rod arranged between the push rod and the loading spring; a leaf spring for reducing a load of the loading spring, the load being applied to one end of a lever and the leaf spring through connecting member; and a connecting wire wherein displacement at the other end of the leaf spring does not provide any displacement to the loading spring but transmits only a load or force.

3,837,714
ENDLESS TRACK SUSPENSION SYSTEM

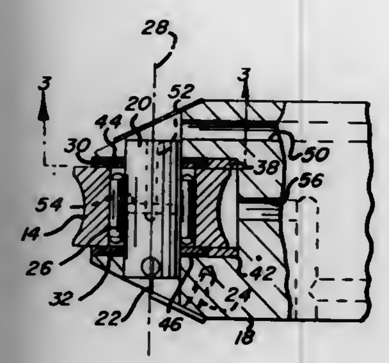
Paul E. Russ, Sr., Englewood, Colo., assignor to The Gates Rubber Company, Denver, Colo.
Division of Ser. No. 48,587, May 14, 1970, Pat. No. 3,761,143.
This application June 21, 1973, Ser. No. 372,439
Int. Cl. B62m *27/02*
U.S. Cl. 305—24 **2 Claims**



A wheel and slide suspension system for supporting or aligning a flexible and endless track from a wheel substitute vehicle used over various types of terrain and climatic conditions. Under hard-packed terrain conditions, wheels support the track away from the slide; and under soft terrain conditions, the track deflects to a position to engage and receive support from the slide. Lugs projecting from the track are engagable with the slide to maintain the track in longitudinal alignment.

3,837,715
ROLLER GUIDE INCLUDING AXIAL BEARINGS

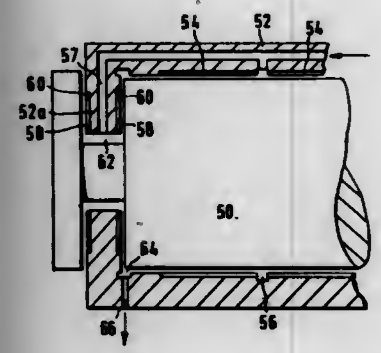
Nils Erik Bock, Smedjebacken, Sweden, assignor to Morgardshammar AB, Smedjebacken, Sweden
Filed Feb. 5, 1973, Ser. No. 329,836
Int. Cl. F10c *21/00*
U.S. Cl. 308—6 R **10 Claims**



A roller guide for guiding an elongated longitudinally traveling material into the grooves of the main rolls of a rolling mill has a pair of rollers, one on each side of the traveling material, mounted for rotation on parallel axes and contacting the material. Thrust bearings are provided at the upper and lower ends of each roller, each thrust bearing comprising an annular disc encircling a fixedly supported axle and constrained from rotation about the axle by a retainer device. Each disc is a separate part not secured to other parts of the roller guide. A lubricant and coolant flows under pressure through the axle, through a radial bearing of the roller and through an axial space between each end of the roller and its respective thrust bearing.

3,837,716
AIR, GAS OR FLUID BEARINGS

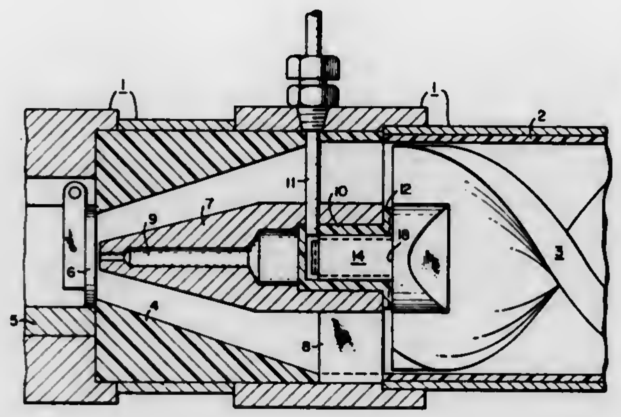
Nigel Stafford David Allen, Poole, and Walter Kammerling, Bournemouth, both of England, assignors to Federal-Mogul Westwind Air Bearings Limited, Branksome, Pool, Dorset, England
Filed Nov. 15, 1972, Ser. No. 306,805
Claims priority, application Great Britain, Nov. 16, 1971, 53090/71
Int. Cl. F16c *17/16*
U.S. Cl. 308—9 **11 Claims**



A fluid bearing which comprises first and second mutually facing relatively rotatable members, one of the mutually facing surfaces having formed therein a recess acting as a fluid reservoir to which is supplied pressure fluid via a supply conduit and a series of blind ended, preferably parallel, grooves formed in that one surface and in communication with the recess.

3,837,717
AIR BEARING

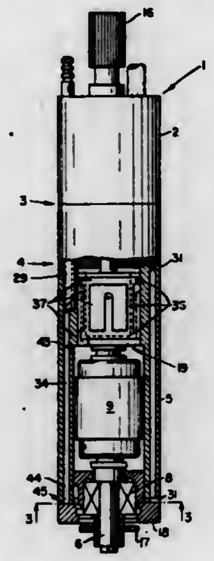
Harry P. Kipple, Penn Hills, Pa., and Virgil J. Cozzarin, Clarence, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Aug. 7, 1972, Ser. No. 278,700
Int. Cl. F16c *17/16*
U.S. Cl. 308—9 **12 Claims**



An air bearing is disclosed for use in a pump which moves fluidized solid resinous powders. The bearing comprises a shaft inside a casing of a low-friction thermally non-conductive material. The shaft is provided with keyways thereby preventing the powders from entering the bearing, melting, and jamming the pump.

3,837,718
MACHINING DEVICE WITH A ROTARY WORKING SPINDLE

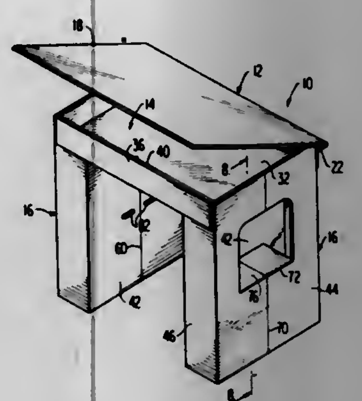
Fritz Nattefort, Leichlingen, Germany, assignor to Rockwell International Corporation, Pittsburgh, Pa.
Filed Mar. 2, 1972, Ser. No. 231,116
Claims priority, application Germany, Mar. 5, 1971, 2110662
Int. Cl. F16c *37/00*
U.S. Cl. 308—77 **14 Claims**



A machining device which includes a housing surrounding a rotary working spindle and a motor for rotating the spindle along with internally located arrangements for circulating a coolant and a lubricant through the device.

3,837,719
COLLAPSIBLE DESK AND CHAIR

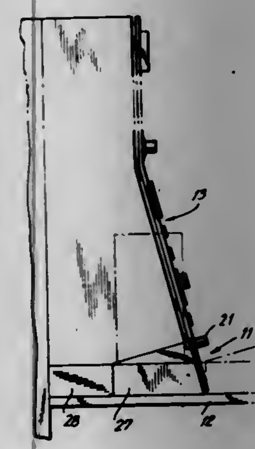
Abraham Barron, Hallendale, Fla., assignor to Abe Hochhauser, Queens, N.Y., a part interest
Filed July 25, 1972, Ser. No. 274,970
Int. Cl. A47b *41/00*
U.S. Cl. 312—195 **6 Claims**



A collapsible desk and chair formed of paperboard, cardboard or the like. The desk is formed from a plurality of blanks which are secured together to provide a unitary construction. The connected blanks define a top member, a pair of side support members and an inner shelf member which can be folded together into a relatively flat configuration for storage, and which can be unfolded and erected to define a desk having a pivotable top member and inner and side shelves for storage. The chair is formed from a base member blank and a seat member blank which are secured together to provide a unitary construction, and a separate inner support member formed of a single blank. The seat member is pivotally connected to the base member, and the separate inner support member is foldable and receivable within the erected base member for the purpose of reinforcing it and is supported by connected foldable flaps on the lower portion of the base member.

3,837,720
AUXILIARY CABINET FOR COMPUTER CONSOLE

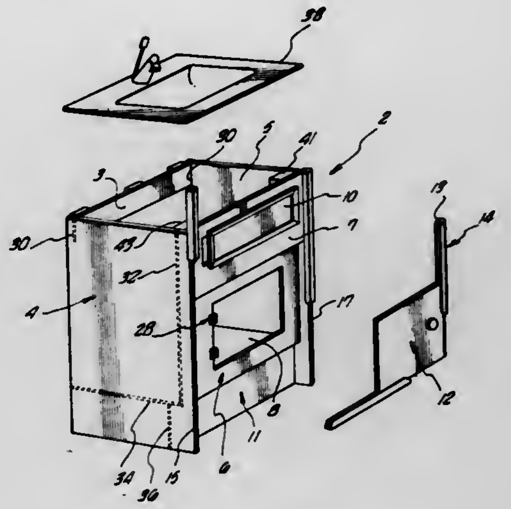
Sam Boris, Kingston, and Larry R. Nye, Woodstock, both of N.Y., assignors to Data Processing Aids, Inc., Ulster Park, N.Y.
Filed Sept. 26, 1973, Ser. No. 400,761
Int. Cl. A47b *53/00*
U.S. Cl. 312—198 **8 Claims**



An auxiliary cabinet which fits into the space between a computer console and the usual desk beneath same, has a hinged front and side walls dimensioned to engage the sides of the console. The cabinet makes it possible to use the space between the console and the desk for storage of small accessories to be used with the computer as well as writing instruments and signs of various types.

3,837,721
MOLDING AND CABINET CONSTRUCTION

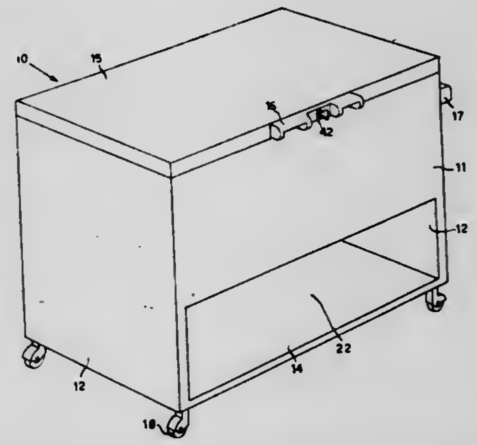
Glen Dell Manlove, 1109 S. Sixth Ave., Arcadia, and Paul Kenneth Ishler, 24336 Ridgewood, El Monte, both of Calif.
Filed Dec. 11, 1972, Ser. No. 313,775
Int. Cl. A47b *43/00, 47/00*
U.S. Cl. 312—257 **5 Claims**



The cabinet construction of the present invention utilizes a key hole method of joining panel members and a plastic molding for the exposed edges. The plastic molding is designed to snap on or slide onto the key hole tongues of the cabinet panel edges. The molding is such a size and construction to permit section blanks of a panel to be removed and the perimeter of the blank to be covered with the molding which thereby permits it to be utilized as a door or a decorative panel without any loss of material. In the preferred embodiment, the molding consists of a rear flat surface designed to interface with the back of the panel and a front and top surface designed to provide a decorative finish and to overlap the interface of the panel key hole tongue and surface.

3,837,722
TOP-ACCESS CABINET FOR SUSPENDED FILES AND THE LIKE

Pietro Ceccarelli, Massa, Italy, assignor to Ing. C. Olivetti & Co., S.p.A., Ivrea (Torino), Italy
Filed Apr. 5, 1973, Ser. No. 348,412
Claims priority, application Italy, Apr. 6, 1972, 1001/72
Int. Cl. A47b *81/00*
U.S. Cl. 312—276 **6 Claims**



A top-access cabinet including a lid movable manually from a closed position to an open position in which the lid is adjacent the rear wall of the cabinet, comprising a bail having a crosspiece pivotally connected to the lid, two arms pivotally connected to the side walls of the cabinet and a spring tensioned between at least one of the said arms and the cabinet for balancing the weight of the lid in any intermediate position between the closed position and the open position. Two support members fixed to the top edge of the rear wall are each provided with a slot into which a bent rim of rear edge of the lid enters during the last part of the closing movement to prevent the rear edge of the lid being lifted when the lid is closed.

3,837,723

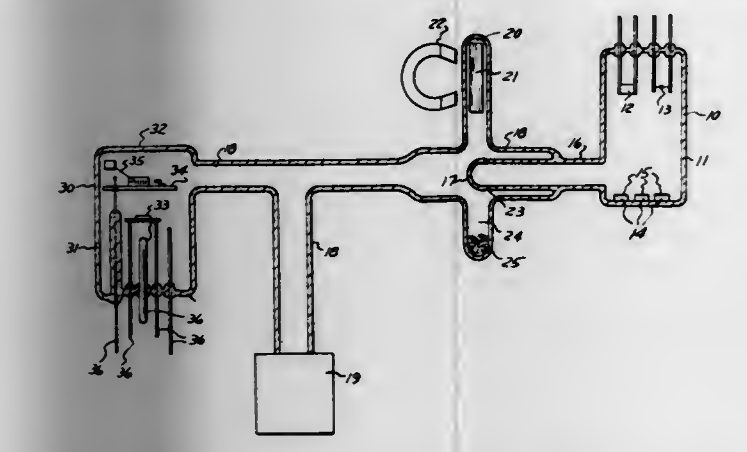
METHOD FOR MAKING HYBRID RADIANT ENERGY SENSOR WITH SOLID STATE ELEMENT AND TRANSFER ENERGY-SENSITIVE, ELECTRON-EMISSIVE SURFACE

Clive E. Catchpole, Southfield, Mich., assignor to Galileo Electro-Optics Corporation, Sturbridge, Mass.

Filed Nov. 3, 1971, Ser. No. 195,327

Int. Cl. H01j *9/38*

U.S. Cl. 316—19 **6 Claims**



A method for making a hybrid radiant energy sensor with a vacuum enclosure, an energy-sensitive electron-emissive surface, and at least one internal solid state electron multiplying element, where the energy-sensitive electron-emissive surface is formed outside the vacuum enclosure and subsequently transferred in a vacuum atmosphere into the vacuum enclosure and sealed therein, eliminating exposure of said solid state electron multiplier element to the alkali metals used in forming the energy-sensitive electron-emissive surface.

3,837,724

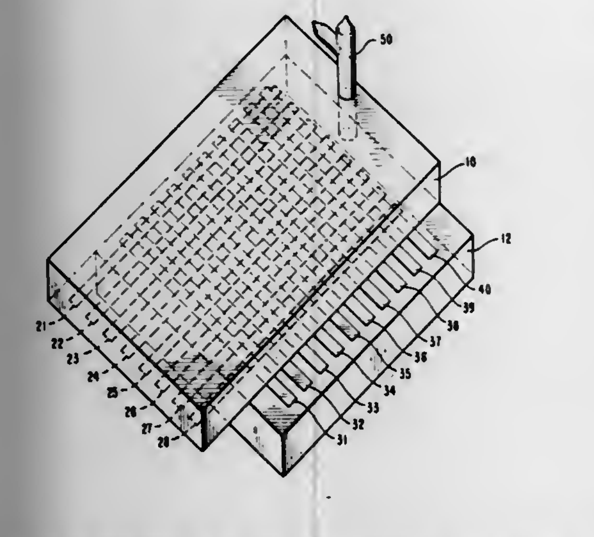
GAS PANEL FABRICATION

Peter H. Haberland; Frank M. Lay, both of Woodstock; Thomas J. Murphy, Rhinebeck; Marvin B. Skolnik; Oliver S. Spencer, both of Woodstock; Peter R. Wagner, Lake Katrine; Howard L. Whitaker, and Donald M. Wilson, both of Kingston, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 214,348, Dec. 30, 1971, abandoned. This application Oct. 10, 1973, Ser. No. 405,205

Int. Cl. H01j *9/38, 9/18, 9/26*

U.S. Cl. 316—20 **27 Claims**



A method is disclosed for the fabrication of a gas panel which includes depositing parallel lines as electrical conductors on a pair of glass plates, providing a protective coating of glass over the parallel lines, placing a sealing material between the glass plates around the periphery thereof, spacing the glass plates a given distance apart, firing the assembly in an oven to seal the glass plates together with a chamber therebetween, evacuating the chamber, filling it with an illuminable gas, and exposing each parallel lines at one end of each glass plate as an electrical contact.

3,837,725

SYSTEMS FOR CONSTRUCTING SMALL FRESNEL HOLOGRAMS

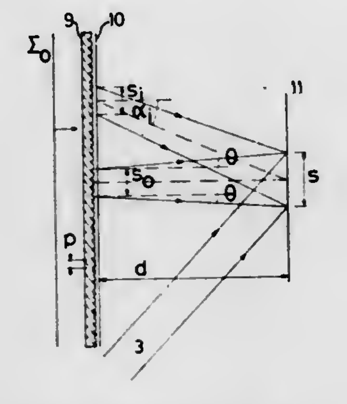
Claude Bricot; Jean Pierre Le Merer, and Claude Puech, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed June 16, 1972, Ser. No. 263,616

Claims priority, application France, June 29, 1971, 71.23621

Int. Cl. G02b *27/00*

U.S. Cl. 350—3.5 **11 Claims**



The present invention relates to the construction of Fresnel holograms having an area smaller than the area of the non-uniform transparency object utilised to construct them.

The invention relates to a construction system wherein the illumination of the object is effected through the medium of an optical concentrating system converting a parallel beam, into a set of elementary parallel beams intersecting in the exposure window.

The invention can be applied to the high-density storage of optical data.

3,837,726

CAMERA FOR MAKING HOLOGRAMS

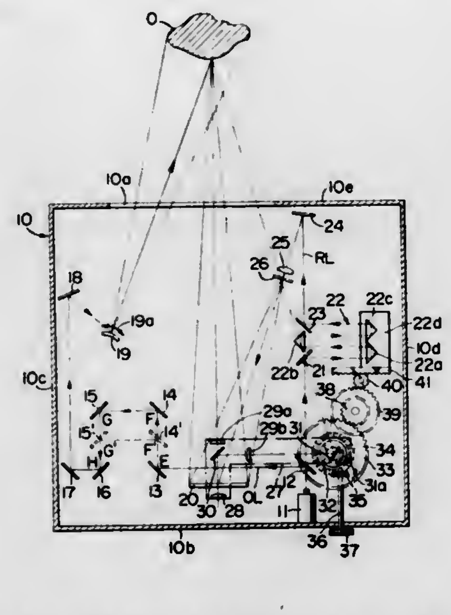
Masane Suzuki; Motonori Kanaya, and Kazuhisa Seki, all of Omiya, Japan, assignors to Fiji Photo Optical Co., Ltd., Uetake-cho, Omiya-shi, Japan

Filed Nov. 5, 1973, Ser. No. 412,889

Claims priority, application Japan, Jan. 20, 1973, 48-9026

Int. Cl. G03c *7/00;* **G03b** *27/10*

U.S. Cl. 350—3.5 **9 Claims**



A camera for making a hologram is provided with a device for varying the optical path length of the object light or the reference light. The camera includes a range finder to measure the distance from the camera to the object to be recorded on the hologram. The range finder has a rotatable mirror which is rotated to determine the distance. The rotatable mirror is associated with the device for varying the optical path length of the object light or the reference light so that the optical path length of the light may be varied according to the distance of the object to be recorded on the hologram. Both the object light and the reference light may be provided with the optical path length varying device so that the optical path length of one of the lights may be shortened and that of the other may be lengthened.

3,837,727

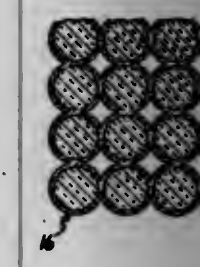
MULTIFIBER OPTICAL COMPONENTS

Frederick H. Norton, Gloucester, Mass., assignor to American Optical Company, Southbridge, Mass.

Continuation of Ser. No. 43,752, July 19, 1960, abandoned, which is a division of Ser. No. 669,883, July 3, 1957, Pat. No. 2,992,516. This application Jan. 24, 1972, Ser. No. 220,527

Int. Cl. G02b *5/16*

U.S. Cl. 350—96 B **17 Claims**



Optical image transfer components and devices comprising a plurality of multifiber elements bonded together to form an optical image-transmitting device. Each of the multifibers comprised of a core clad with clear transparent glass. Each of the multifibers having opposite ends fixedly fused together in side-by-side identically geometrically patterned arrangements.

3,837,728

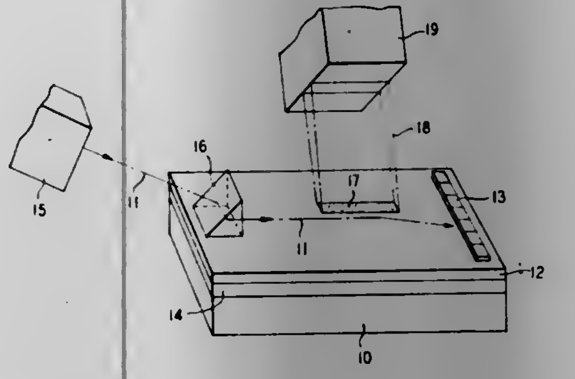
INJECTED CARRIER GUIDED WAVE DEFLECTOR

Ralph Andre Logan, Morristown; James Hoffman McFee, Colts Neck; Robert Edward Nahory, Lincroft, and Martin Alan Pollack, Westfield, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Sept. 26, 1973, Ser. No. 400,852

Int. Cl. G02b *5/14*

U.S. Cl. 350—96 WG **8 Claims**



There is disclosed an injected carrier device for deflecting a guided beam of radiation, such as the 10.6 micron beam from a conventional carbon dioxide laser. The waveguide structure comprises a lightly doped gallium arsenide thin film formed on a lower refractive index aluminum gallium arsenide substrate. Free charge carriers are selectively injected into a localized region of the film laterally displaced from the center of the path of the beam therein. Sufficient densities of carriers are injected either optically or electrically to cause the beam to deflect within the plane of the film away from the localized region. Deflection angles of the order of 1° to 2° and response times as short as 6 nanoseconds have been experimentally obtained with the device.

3,837,729

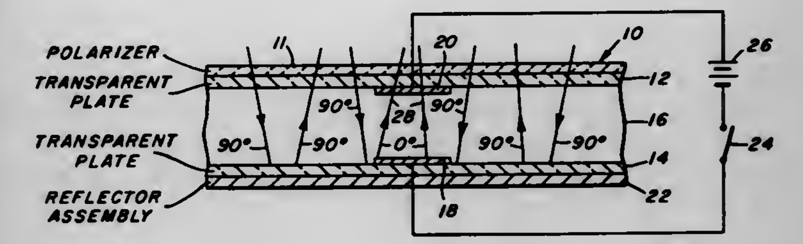
LIQUID CRYSTAL DISPLAY

Thomas B. Harsch, Stow, Ohio, assignor to Hoffman-La Roche Inc., Nutley, N.J.

Filed May 14, 1973, Ser. No. 360,306

Int. Cl. G02f *1/16*

U.S. Cl. 350—160 LC **6 Claims**



High efficiency reflection without ghosts or distracting background images is obtained in a liquid crystal display of the type having a twisted nematic structure. The display employs only a single polarizer on the front face of the display; while the rear surface is provided with a reflector assembly which will scatter and reflect polarized light without depolarizing the same. The reflector can comprise a transparent plate having a diffused surface facing the liquid crystal layer and a metalized reflecting backing on its opposite side. Alternately, the reflector assembly can comprise a metalized reflecting surface which is roughened to produce the required scattering effect.

3,837,730

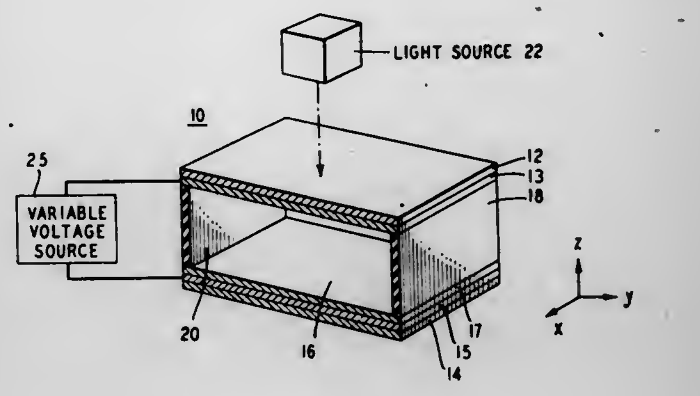
MATRIX-ADDRESSED LIQUID CRYSTAL DISPLAY

Walter Bryan Hatfield, Fair Haven, and Donald Lawrence White, Bernardsville, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Nov. 28, 1973, Ser. No. 419,613

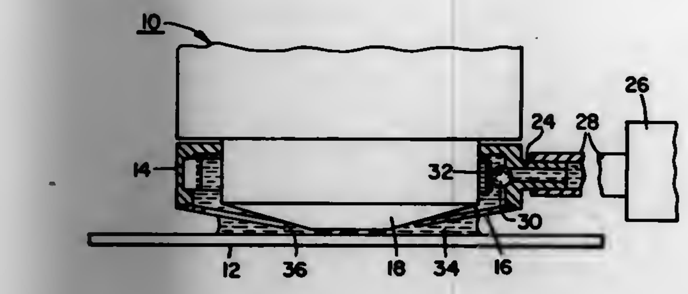
Int. Cl. G02f *1/16*

U.S. Cl. 350—160 LC **4 Claims**



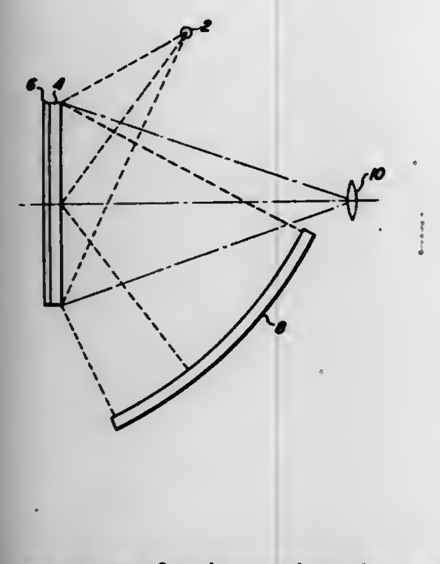
A row-by-row matrix-addressed display comprises a plurality of liquid crystal cells. Each cell includes a cholesteric-type liquid, with a pleochroic dye dissolved in the liquid crystal material. In operation, each cell has applied thereto either an energizing voltage or an above-zero holding voltage. When energized, a cell is transparent. In response to the holding voltage a cell is either transparent or colored and turbid depending, respectively, on whether or not an energizing voltage was last applied thereto. The clear state at the holding voltage is metastable and eventually decays to the colored turbid condition.

3,837,731
OIL DISPENSER FOR MICROSCOPE OBJECTIVE
Lynn G. Amos, Raleigh, and Charles A. Howard, Apex, both of N.C., assignors to Corning Glass Works, Corning, N.Y.
Filed June 22, 1973, Ser. No. 372,676
Int. Cl. G02b *3/12, 21/02*
U.S. Cl. 350—179 **9 Claims**



A device for dispensing oil between the leading portion of a microscope objective and a microscope slide. The oil dispenser of the present invention includes an enclosure which is attached to the microscope objective such that the leading edge of the objective protrudes through a central aperture in the face plate of the enclosure. Oil is automatically fed from a suitable source to the enclosure through a check valve. The oil is caused to flow from the enclosure to the space between the microscope objective and a microscope slide so as to effect a full oil contact therebetween.

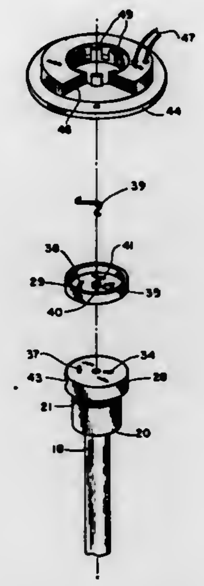
3,837,732
PARTIALLY TRANSPARENT PLATES FOR INCREASED IMAGE CONTRAST
Goerge T. Bauer, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Continuation of Ser. No. 666,213, Sept. 7, 1967, abandoned. This application May 22, 1972, Ser. No. 255,496
Int. Cl. G02b *27/02*
U.S. Cl. 350—235 **8 Claims**



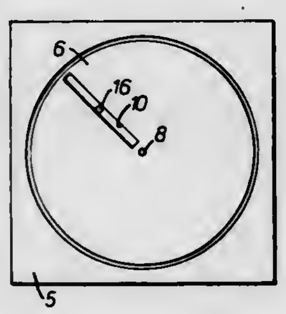
A method and apparatus for increasing the contrast of images utilizing a partially transparent plate in close contact with a diffusely reflecting opaque image layer is disclosed.

3,837,733
SHIFTABLE SCANNER APERTURE
Clinton W. Shoch, Orlando, and George Lamar Harmon, Winter Park, both of Fla., assignors to Martin Marietta Corporation, New York, N.Y.
Continuation of Ser. No. 783,058, Dec. 11, 1968, abandoned. This application Nov. 27, 1970, Ser. No. 90,781
Int. Cl. F41g *7/00*; **G02f** *1/30*
U.S. Cl. 350—272 **12 Claims**

This invention relates to a shiftable aperture arrangement for an optical area correlator, which device functions effectively to accomplish a switching between fields of view during range closure of a missile with respect to its target. It is desirable to launch a missile while viewing with small field of view optics, a comparatively small target area on the ground, and then at about 15 percent range closure, to switch so as to view with large field of view optics the same area. Rather than accomplishing field of view switching by using separate optical elements and a combining glass and shutter arrangement, this invention provides the equivalent field of view switching by a simple mechanical repositioning of the area correlator scanning slit at the image plane so as on occasion to scan a larger area. The repositioning of the slit is accomplished in a very precise manner even though the speed of slit rotation may be high.

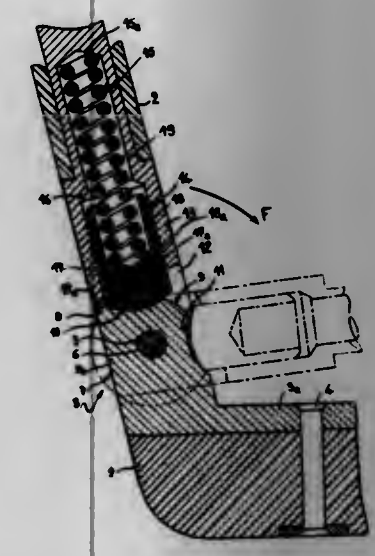


3,837,734
METHOD OF AND APPARATUS FOR MEASURING VISUAL LATENCY
David Regan, Newcastle-under-Lyme, England, assignor to Wilkinson Sword Limited, London, England
Filed Feb. 1, 1973, Ser. No. 328,780
Claims priority, application Great Britain, Feb. 2, 1972, 4865/72
Int. Cl. A61b *3/02, 3/06*
U.S. Cl. 351—17 **22 Claims**



Visual latency in a human subject is tested by apparatus having a central light source serving as a fixation mark and a second light source movable radially and azimuthally relative thereto. For each position of the second source, the illumination level of the two sources is abruptly altered. The time lag between the instant when the illumination level of one source is altered and the instant when the illumination level of the other source is altered is adjusted until both are perceived by the subject to alter together. This process is repeated for each test. In a modification, both light sources are movable together to different radial and azimuthal positions relative to a fixation mark, and the same type of test is repeated but with polarizing filters over the two sources to ensure that each one is perceived by only one of the subject's eyes.

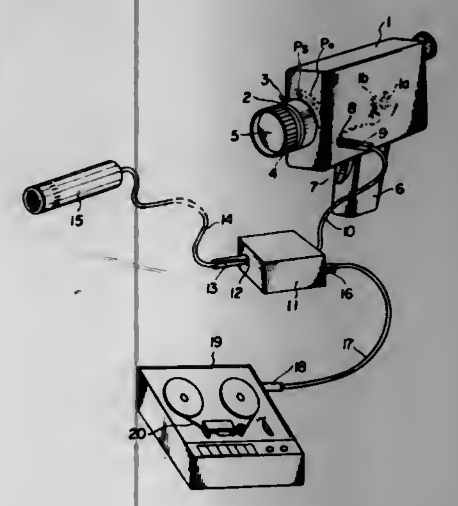
3,837,735
IMPROVED SPRING LOADED SPECTACLE HINGE
Henri Guillet, 2 Boulevard Georges, Clemenceau Oyonnax, France
Filed Apr. 6, 1973, Ser. No. 348,693
Claims priority, application France, Apr. 6, 1972, 72.12698
Int. Cl. G02c *5/16, 5/22*
U.S. Cl. 351—113 **2 Claims**



Eyeglass frame of which the bows can assume two distinct positions with respect to the front under the effect of a loaded part which cooperates with two notches in one of the parts of the hinge, characterized in that the loaded part, which is located in an axial housing of the bow has the form of a shoe of which the one end is convex and cooperates in a known manner with the part of the hinge having the notches, while the opposite end comes to rest against a shoulder located in the corresponding housing of the bow in order to limit the folding out of the bow towards the outside.

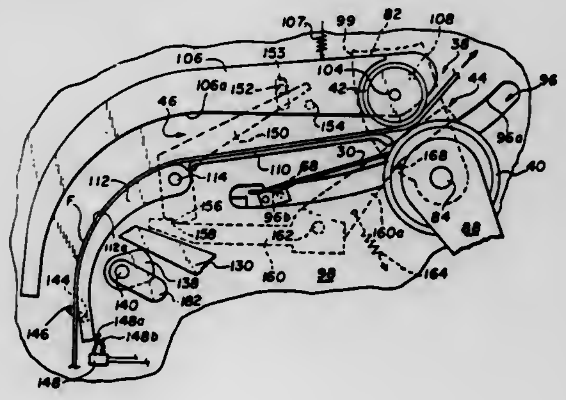
Part 3 of the hinge comprises two notches 10 and 11 separated by a cylindrical part 9. Bow 2 which is pivotably mounted with respect to face 1 is hollowed out by an axial bore 14 in which a shoe 17 is placed. If the bow is opened past its normal position, end 17*b* of the shoe comes to rest against the shoulder of bore 14. When the bow is released, spring 19 returns the bow to its use position by acting on 17.

3,837,736
CAMERA AND MICROPHONE COMBINATION HAVING A VARIABLE DIRECTIONAL CHARACTERISTIC IN ACCORDANCE WITH A ZOOM LENS CONTROL
Mitsutoshi Ogiso, Kawasaki; Kazuya Hosoe; Kiyoshi Takahashi, both of Tokyo, and Takashi Itani, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 29, 1973, Ser. No. 392,427
Claims priority, application Japan, Aug. 29, 1972, 47/86498
Int. Cl. G03b *31/00*
U.S. Cl. 352—12 **10 Claims**



A simultaneous picture and sound recording system provides variation of the directional characteristic of a sound-receiving microphone in accordance with the zoom lens adjustment of a motion picture camera. The motion picture camera having a zoom lens is provided with a potentiometer which is interlocked with a zoom control ring capable, upon rotation, of moving the zoom lens assembly along the optical axis to derive a difference signal which is fed to an electric circuit device incorporated in the system. The electric circuit device is connected to a microphone having a variable directional characteristic so that the output signal from the device is directed to the input of the microphone. The combination makes it possible to increase the directional response characteristic of the microphone in the main direction, while adjusting the focal length of the motion picture camera from the wide angle setting to the telephoto setting.

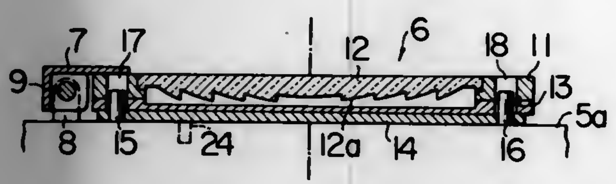
3,837,737
MOTION PICTURE PROJECTOR APPARATUS
William A. Martin, and John Q. St. Clair, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Division of Ser. No. 77,959, Oct. 5, 1970,. This application Jan. 22, 1973, Ser. No. 325,288
Int. Cl. G03b *23/00*
U.S. Cl. 352—124 **5 Claims**



Motion picture projector apparatus includes a hook-like member that is adapted to be moved into close proximity to a rotating roll of film or the like for engaging the film through an opening in a leading end portion of the film. The hook member then delivers the leading end portion of the film to self threading apparatus of the projector, and the hook is automatically disengaged from the film. The self threading apparatus comprises a pair of puck drive members which receive the film from the hook and drive it through a film guide toward a film gate at a rate that exceeds the rate film is advanced through the gate. The puck drive members are disengaged in response to the accumulation of film in the film guide. During rewind of film through the gate the puck drive members are disengaged to permit film to pass therebetween. The projector apparatus disclosed provides for review or manual rewind of film.

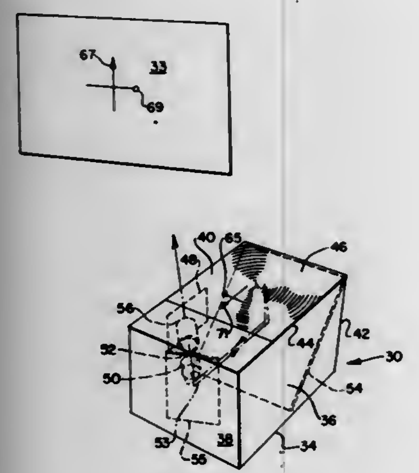
3,837,738
AUDIO-VISUAL APPARATUS INCLUDING MAGNETIC SHEET MOUNTING AND HOLD-DOWN MEANS
Saburo Kato, c/o Kabushiki Kaisha Ricoh, 3-6, 1-Chome, Naka-magome, Ohta-Ku, Tokyo, and Saburo Hokari, 345, Futako, Kawasaki-Shi, Kanagawa-Ken, Japan
Division of Ser. No. 174,701, Aug. 25, 1971, Pat. No. 3,752,574. This application May 21, 1973, Ser. No. 362,406
Int. Cl. C03b *1/48*
U.S. Cl. 353—23 **2 Claims**

The apparatus includes a magnetic sound reproducer having a record mounting surface adapted to support an audiovisual record sheet having a magnetic record surface facing downwardly, the sheet including a base formed with holes for correctly positioning the sheet on the support surface. A hold-down means includes a frame mounted for pivoting toward the mounting surface and carrying a Fresnel lens having an irregular surface facing downwardly, the frame further carrying a transparent plate beneath the Fresnel lens and protecting the irregular surface thereof.



3,837,739
LOW PROFILE EPISCOPIC PROJECTOR AND OPAQUE MATERIALS THEREFOR

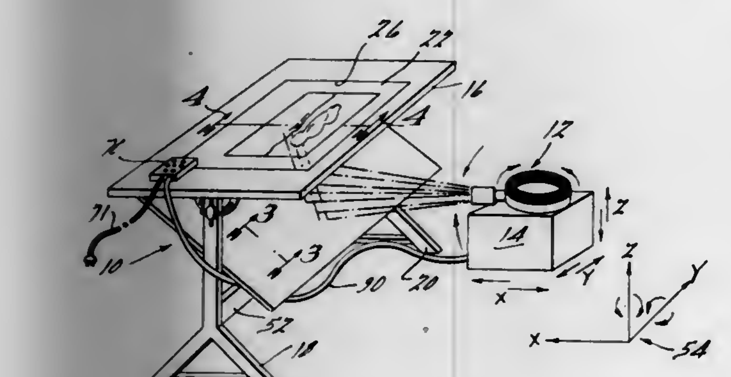
Gerald Altman, 41 Westminster Rd., Newton, Mass. 02159
Continuation-in-part of Ser. No. 81,987, Oct. 19, 1970, Pat. No. 3,778,142. This application Feb. 5, 1973, Ser. No. 329,574
Int. Cl. G03b *21/32, 21/06*
U.S. Cl. 353—66 **9 Claims**



A large copy projector, in which the presence of elevated optics in front of the screen is avoided, uses opaque sheeting that is adapted to receive related graphic matter on its upper and lower faces. Simultaneously, the upper face is unobstructedly available for direct observation and manual access, and the lower face is unobtrusively available for image projection through a folded optical path below the opaque sheeting and a projection lens positioned elsewhere than directly over the copy. The copy is characterized by a lower specularly reflecting face that is accessible to the optical system from below but that can be marked from above by chemical etching from a user's pen or the like.

3,837,740
PHOTO PROJECTION DRAWING BOARD

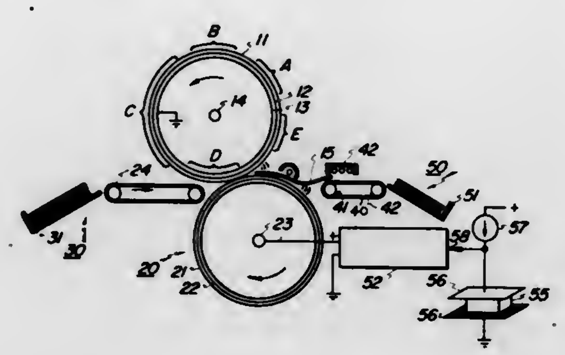
Daniel E. Johnson, 1711 Wisconsin, Marysville, Mich. 48040
Filed Jan. 20, 1972, Ser. No. 219,319
U.S. Cl. 353—122 **1 Claim**



An apparatus for displaying a photograph projected onto a work surface for purposes of reproduction, the apparatus comprising a mirrored surface for reflecting a photographic image from the projector to a transparent screen located in the top of a worktable, and including a remotely movable carriage supporting the projector and selectively locatable relative to the mirrored surface whereby the projected image may be selectively scaled and rectified on the screen. For remotely effecting movement of the projector carriage and/or the projector, a manually actuatable control box is located on or adjacent the work surface of the table in order to obviate the need for manual adjustment.

3,837,741
CONTROL ARRANGEMENT FOR TRANSFER ROLL POWER SUPPLY

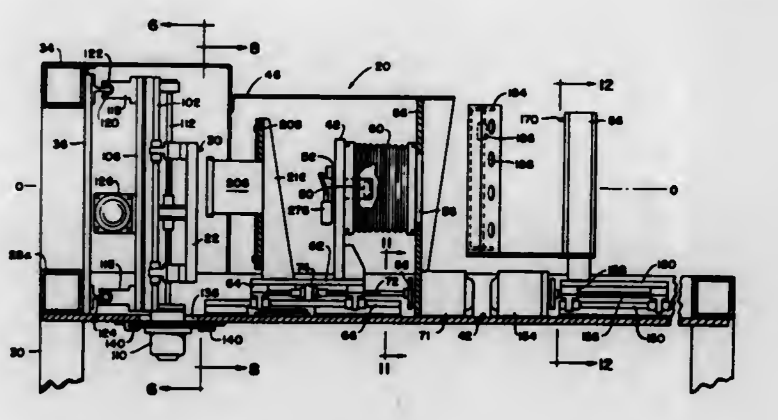
Paul R. Spencer, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Dec. 28, 1973, Ser. No. 429,249
Int. Cl. G03g *15/16*
U.S. Cl. 355—3 R **8 Claims**



An arrangement for controlling the electrical bias applied to a bias transfer roller comprising a voltage source coupled to the transfer roller which is variable in response to a control signal, the control signal being generated by sensing the voltage across a sample of the roller material connected in series with a constant current source. Since the resistivity of the sample material varies with changes in humidity, the voltage and the control signal likewise vary with humidity to change the voltage applied to the transfer roller.

3,837,742
PHOTOREPRODUCTION APPARATUS

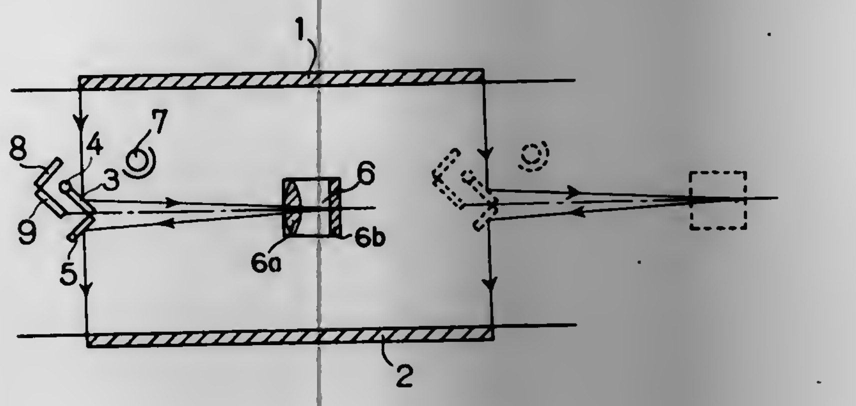
Joseph H. Wally, Jr., Shawnee Mission, Kans., assignor to Filminiature Systems, Inc., Kansas City, Mo.
Filed Sept. 12, 1972, Ser. No. 288,265
Int. Cl. G03b *27/44*
U.S. Cl. 355—54 **23 Claims**



Apparatus including a stepping camera having a movable film platen under control of a digitally programmed indexer is disclosed for photographing images of sheet copy individually mounted in carriers and positioned by the camera subject holder on the optical axis of the objective, a different portion of the film being aligned with the camera objective for each carrier-mounted copy thus located by the subject holder causing images of the copies imposed on the film to be in a programmed sequence and arrangement, the film when processed being useful to make "imposition" printing plates in a companion projector.

3,837,743
DUPLICATION MAGNIFICATION VARIABLE DEVICE FOR USE IN A DUPLICATOR

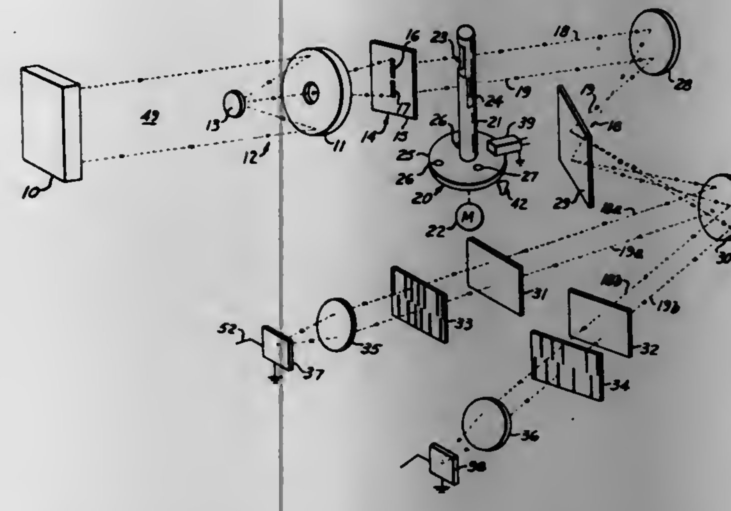
Kinya Amemiya, Tokyo, Japan, assignor to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan
Filed Dec. 7, 1972, Ser. No. 312,791
Claims priority, application Japan, Dec. 7, 1971, 46-98318
Int. Cl. G03b *27/32*
U.S. Cl. 355—60 **7 Claims**



The device comprises a movable mirror which forms part of an optical system, light path changing mirrors adapted to integrate reflected light from the movable mirror, and a lens disposed in a light path and movable therealong. The movable mirror is turned upon switching the operation from non-magnified duplication to varied magnification duplication and vice versa. The lens is moved in conjunction with the motion of the mirror. Variable magnification copying is thereby effected.

3,837,744
SPECTROMETERS

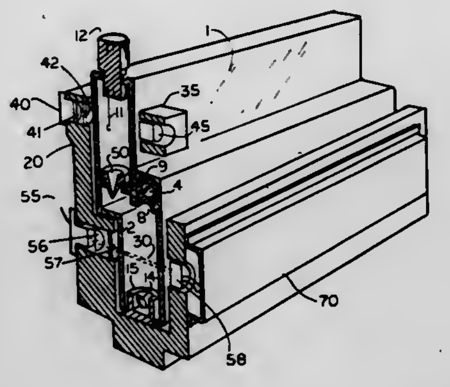
Dale W. Egan, Montrose; Geoffrey B. Holstrom, Los Angeles, and Harry C. Lord, Pasadena, all of Calif., assignors to Environmental Data Corporation, Monrovia, Calif.
Filed Sept. 17, 1969, Ser. No. 858,802
Int. Cl. G01j *3/42*
U.S. Cl. 356—93 **15 Claims**



A spectrometer according to this disclosure includes optical means for receiving radiation from a region which may or may not contain particular materials to be monitored. Spectrum display means is provided for displaying the spectrum of received radiation. A first output means having first apertures is disposed to pass an image of absorption lines associated with the particular material being monitored, and second output means having second apertures is disposed to pass an image of continuum associated with the particular material.

3,837,745
APPARATUS FOR EVALUATION OF BIOLOGICAL FLUID

Jesse L. Acker, Rockaway, N.J., and Peter M. Meserol, East Northport, N.Y., assignors to Akro-Medic Engineering Corp., Rockaway, N.J.
Filed Sept. 20, 1972, Ser. No. 290,654
Int. Cl. G01n *21/24*
U.S. Cl. 356—201 **15 Claims**



The apparatus comprises a plurality of stationary cuvettes, a chamber for the fluid to be evaluated, means for placing the chamber in fluid communication with each of the cuvettes and for permitting the flow of fluid from the chamber into each of the cuvettes, a plurality of optical transmitting means in registration with each of the cuvettes for transmitting a beam of radiant energy through each of the cuvettes, and detector means for intercepting each of the beams of radiant energy and for measuring any optical changes in the radiant energy passing through the fluid in each of the cuvettes.

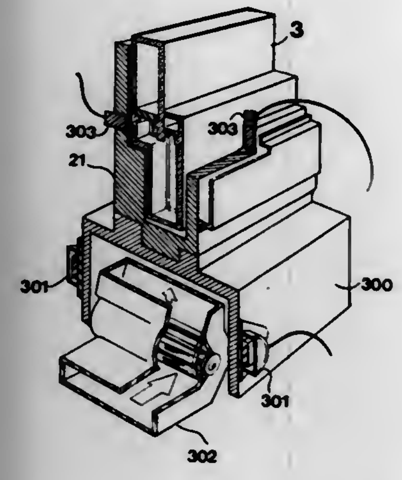
The chamber for the fluid, the plurality of cuvettes and the fluid communication means are all housed within, preferably, a disposable, self-contained cartridge of unitary construction. The cartridge is mountable within a carriage that houses the transmitting and detector means of the apparatus. The chamber which forms the upper portion of the cartridge can be prefilled with bacterial suspension. Periodically, during the growth of the subject bacteria the suspensions are agitated by suitable means. Samples of antibiotics of varying potency are placed in the cuvettes. The cartridge is mounted in the carriage. On a signal from the detector means a portion of the suspension passes into each of the cuvettes to begin the antibiotic titer which is evaluated by means of the transmitting and detector means and associated electronic circuitry.

3,837,746
APPARATUS FOR EVALUATION OF BIOLOGICAL FLUID

Jesse L. Acker, Rockaway, N.J., and Peter M. Meserol, E. Northport, N.Y., assignors to Akro-Medic Engineering Corporation, Rockaway, N.J.
Continuation-in-part of Ser. No. 290,564, Sept. 20, 1972. This application Aug. 27, 1973, Ser. No. 392,107
Int. Cl. G01n *21/24*
U.S. Cl. 356—201 **2 Claims**

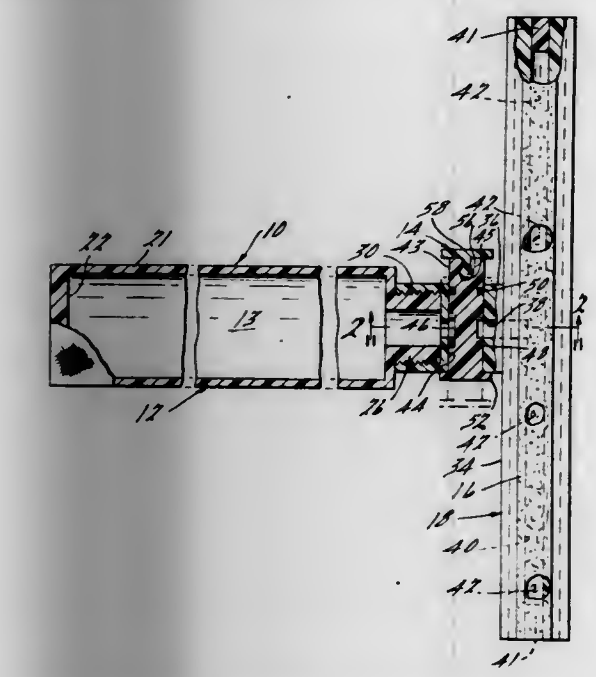
The apparatus comprises a plurality of stationary cuvettes, a chamber for the fluid to be evaluated, means for placing the chamber in fluid communication with each of the cuvettes and for permitting the flow of fluid from the chamber into each of the cuvettes, a plurality of optical transmitting means in registration with each of the cuvettes for transmitting a beam of radiant energy through each of the cuvettes, and detector means for intercepting each of the beams of radiant energy and for measuring any optical changes in the radiant energy passing through the fluid in each of the cuvettes.

The chamber for the fluid, the plurality of cuvettes and the fluid communication means are all housed within, preferably, a disposable, self-contained cartridge of unitary construction. The cartridge is mountable within a carriage that houses the transmitting and detector means of the apparatus. The chamber which forms the upper portion of the cartridge can be prefilled with bacterial suspension. Periodically, during the growth of the subject bacteria the suspensions are agitated by suitable means. Samples of antibiotics of varying potency are placed in the cuvettes. The cartridge is mounted in the carriage. On a signal from the detector means a portion of the suspension passes into each of the cuvettes to begin the antibiotic titer which is evaluated by means of the transmitting and detector means and associated electronic circuitry.



3,837,747
WASHER/SQUEEGEE

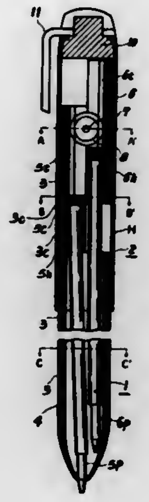
Ulysee Seymore, 12248 Meyers Rd., Detroit, Mich. 48227
Filed Jan. 30, 1973, Ser. No. 327,996
Int. Cl. A47l *1/08*
U.S. Cl. 401—25 **5 Claims**



A self-contained, cleaning appliance is comprised of a tubular shaped handle forming a liquid reservoir and including an end portion detachably connected to a receptacle carrying washer and squeegee elements. The washer element is in selective fluid communication with the reservoir in response to selective positioning of a valve means operatively supported by the receptacle. In a preferred construction, the receptacle, handle, and valve means are fabricated from a plastic material.

3,837,748
PEN

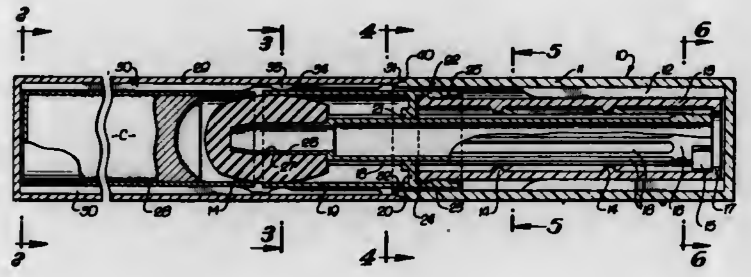
Minoru Wada, 209, 1520, Gojyonocho, Kashiharashi, Naraken, Japan
Filed Jan. 8, 1973, Ser. No. 321,711
Claims priority, application Japan, Mar. 21, 1972, 47-28400
Int. Cl. B43k *27/14*
U.S. Cl. 401—30 **7 Claims**



A writing instrument, more specifically a pen, having a plurality of individual writing tips which can be moved to project the tips one at a time from the instrument body. This may be accomplished while the writer maintains the same finger grip on the instrument as used when actually writing. The instrument comprises individual writing tips secured in individual movable carriers. At least one of the carriers forms a portion of the instrument outer surface in the area in which the instrument is grasped while writing and is slidably mounted thereon to permit movement of the particular tip secured therein to project it from the instrument body by sliding the carrier along the instrument body outer surface. Another carrier is mounted opposed to the slidably movable one and is coupled thereto by gear means for reciprocating movement. Means are also provided for securing all the writing tips in a retracted position within the instrument body.

3,837,749
COSMETIC APPLICATOR

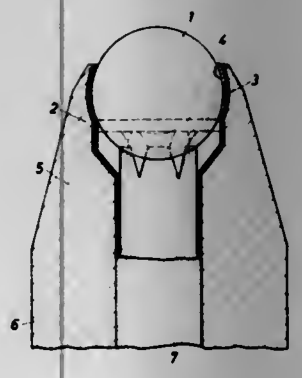
Walter B. Spatz, Santa Monica, Calif., assignor to Spatz Corporation, Venice, Calif.
Continuation-in-part of Ser. No. 205,225, Dec. 6, 1971, Pat. No. 3,768,915. This application Mar. 12, 1973, Ser. No. 340,473
Int. Cl. A45d *33/00*
U.S. Cl. 401—130 **10 Claims**



An applicator is affixed to the forward end of an elongate driver or shaft extending into a barrel structure, and having a rear head meshing with internal threads in a female member of the barrel structure, the driver being splined to a forward sleeve adapted to surround the applicator and being swivelly connected to the female member. A removable cap containing a cosmetic mass has its rear portion surrounding the sleeve and rotatable on the barrel structure, the cap frictionally engaging the external portion of the sleeve to provide a slippable clutch therewith capable of transmitting a predetermined torque before slipping, whereby relative rotation in one direction between the barrel structure, on the one hand, and the cap, sleeve and driver, on the other hand, produces forward feeding of the applicator toward and against the cosmetic mass, continued relative rotation and application of torque causing the clutch to slip, while effecting relative rotary movement between the applicator and cosmetic mass to coat the applicator with a portion of the mass. Removal of the cap exposes the coated applicator for use.

3,837,750
SOCKET STRUCTURE FOR THE BALL OF A BALL POINT PEN REFILL

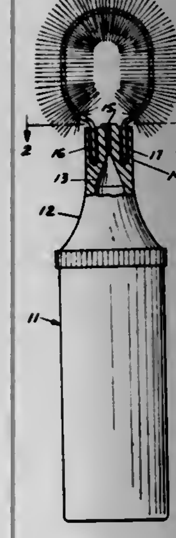
Heinz Gunther Herrnring, Alveslohe, Germany, assignor to Montblanc-Simplo GmbH, Hamburg, Germany
Filed June 4, 1973, Ser. No. 366,855
Int. Cl. B43k *7/10*
U.S. Cl. 401—216 **4 Claims**



A socket structure for a ball point refill, which comprises a ball made of corundum and arranged inside an outer supporting shell provided in its interior with a compound bearing consisting of a backing shell having a hardness exceeding 800 kg/sq.mm Vickers and an inner lining facing the ball and having a hardness of less than 200 kg/sq.mm Vickers.

3,837,751
FOUNTAIN BRUSH

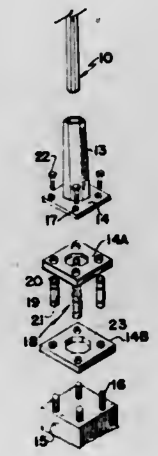
John M. Ross, 3660 Monroe, Dearborn, Mich. 48124
Filed Feb. 26, 1973, Ser. No. 335,677
Int. Cl. A46b *3/00, 11/02*
U.S. Cl. 401—290 **1 Claim**



An improved fountain brush including a squeezable bottle, with a rigid closure member and a wire frame brush with its ends received in bores formed in the closure member, improvements consisting of providing said bores with brushing like inserts, the inserts having locking or retaining elements on the inside faces, arranged to prevent the inadvertent displacement of the wire ends from the bores, but permit the removal and replacement of the brush by predetermined force.

3,837,752
COUPLING FOR BREAK AWAY POLE BASES

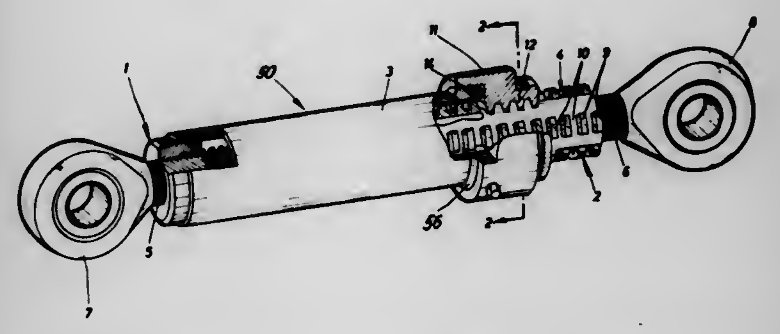
John Shewchuk, 645 Grierson Ave., Winnipeg, Manitoba, Canada
Filed Jan. 26, 1973, Ser. No. 326,580
Int. Cl. F16b *31/00*
U.S. Cl. 403—2 **2 Claims**



A pole has a base and is secured to an anchor block and spaced above same by a plurality of couplers which are frangible if the force of impact upon the pole exceeds forces such as wind force, normally encountered. Normally such impact forces would be those encountered when a vehicle strikes the pole and the coupler should fracture at a force less than that which is considered critical to the occupants. However, the principle can be utilized under other circumstances if desired.

3,837,753
LONGITUDINALLY ADJUSTABLE GUIDE ROD

Helmut Weiste, Bad Sassendorf-Steningsen, and Ferdinand Schumacher, Coesterweg 42, Soest 477, both of Germany
Filed Feb. 14, 1973, Ser. No. 332,493
Claims priority, application Germany, Mar. 30, 1972, 7212144
Int. Cl. F16b *7/14*
U.S. Cl. 403—33 **8 Claims**



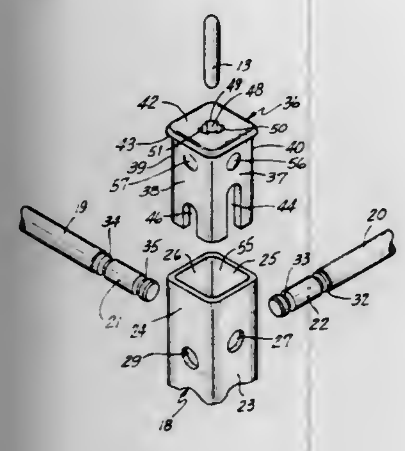
A guide rod particularly for connecting parts of agricultural implements comprises first and second telescopically interengageable rod portions each having an outer end with an eyelet or similar means for securing it to an implement part and each having an inner end which is interengaged with the respective inner end of the other rod portion. One of the rod portions carries a rotatable lock nut which has a plurality of circumferentially extending and circumferentially spaced and axially extending rows of projecting cams which engage in recesses between the cams of similar rows arranged on the other rod portion. The parts are locked together when the projecting cams of the nut engaged behind the cams of the other rod portion and spring biasing means is provided to urge the nut into a locking position. The parts may be disengaged by rotating the lock nut against the biasing spring to release them.

3,837,754

CORNER SUPPORT STRUCTURE AND CAP MEMBER UTILIZED IN CONNECTION WITH SAME

Frank J. Malcik, Berwyn, Ill., assignor to Swingline Inc., Long Island City, N.Y.

Filed June 21, 1971, Ser. No. 155,164
Int. Cl. F16b *7/04*
U.S. Cl. 403—217 **5 Claims**



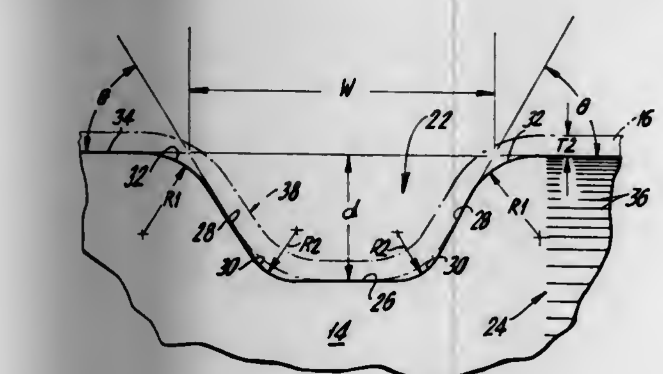
A corner support structure is shown which includes a hollow upstanding post which is provided with a plurality of angularly disposed lateral openings therewithin, one above another. Within each of the openings the end portion of an outwardly extending member is disposed. A cap is disposed within the post and overlies the outwardly extending members. The cap has securing means therewithin to hold the extending members in position. The cap is preferably made of a machineable resilient plastic material and has an outwardly laterally extending top portion and an open bottom. The cap is provided with a downwardly depending opening within the top portion and also has a plurality of downwardly depending peripheral spaced openings adjacent the first-named downwardly depending opening.

3,837,755

MULTI-PIECE ROD FOR CONTROL AND STRUCTURAL MEMBERS

Robert L. Benoit, Franklin Square; Winslow W. Peters, Lindenhurst, and Joseph Morgan, Babylon, all of N.Y., assignors to Grumman Aerospace Corporation, Bethpage, N.Y.

Filed Oct. 17, 1973, Ser. No. 407,178
Int. Cl. F16b *7/00*
U.S. Cl. 403—274 **4 Claims**



A multi-piece rod employing a thin central tubular member in combination with end members. The end members are provided with circumferential grooves and advantageously a knurled section. The circumferential grooves have a critical diameter and configuration for receiving the tubular member to effect attachment therebetween.

3,837,756

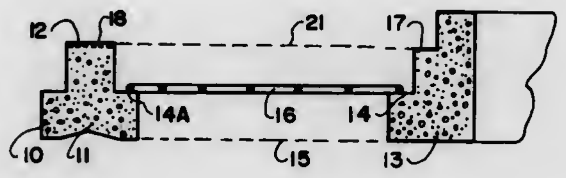
PRECAST OR EXTRUDED CENTRAL DIVIDERS FOR HIGH CHAIRS AND CURBS FOR ROAD CONSTRUCTION

Alfred Schwarz, 12½-578 Agnes St., Winnipeg, Manitoba, Canada

Filed Jan. 30, 1973, Ser. No. 328,143

Claims priority, application Great Britain, Feb. 16, 1972, 7142/72

Int. Cl. E01c *11/18*.
U.S. Cl. 404—70 **5 Claims**



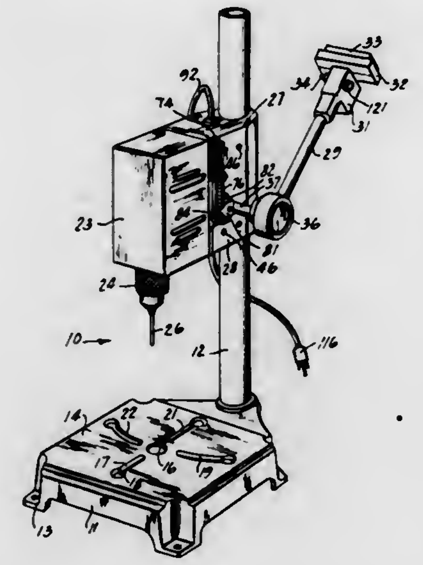
A central divider strip and a curb section are laid upon a prepared surface and are provided with outwardly extending ledges to support a mat of reinforcing steel spaced above the prepared surface. The upper sides of the divider strip and curb act as guide rails for a conventional road laying machine. The divider strip can be provided with reflective beads, luminescent dye or metal particles throughout the mix. The beads define the center line by reflecting the headlights of vehicles and the particles can be used for the detection of the center lines by electronic detection devices in the vehicle.

3,837,757

DRILL PRESS

Aaron J. Levine, 3147 North Cambridge Ave., Chicago, Ill. 60657

Filed May 29, 1973, Ser. No. 364,933
Int. Cl. B23b *39/12, 47/00, 49/00*
U.S. Cl. 408—14 **6 Claims**



A drill press which comprises a stand with an upright and a movable drill controllable by a handle including a switch which allows the drill to be run at variable speeds as well as to be reversed and in which the stand is provided with a pair of arcuate slots aligned with the drill so that the drill will not hit into the drill stand and provided with adjustable limits for controlling the upper and lower limits of the drill movement as well as adjusting means for moving the entire drill assembly relative to the upright of the stand.

3,837,758

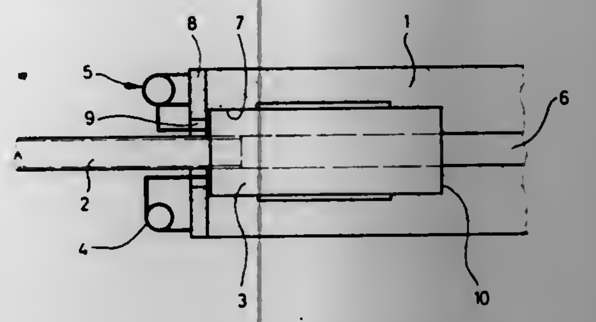
MEANS FOR DAMPING VIBRATIONS OF TOOLS IN DRILLING MACHINES OR THE LIKE

Peter Streicher, Gebersheim, Germany, assignor to Tiefbohr-Technik GmbH & Co., Dettingen, Germany

Filed Aug. 23, 1972, Ser. No. 283,232

Claims priority, application Germany, Aug. 25, 1971, 2142549

Int. Cl. B23b *47/02*
U.S. Cl. 408—143 **25 Claims**



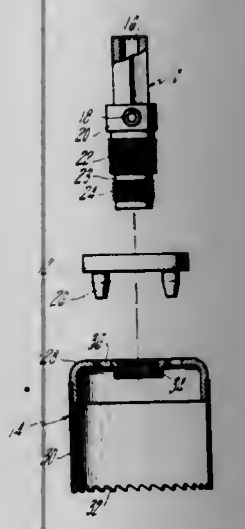
A drilling machine wherein two parts which are rotatable relative to each other are connected by an elastic coupling which serves to reduce or eliminate vibrations, especially torsional oscillations, of the tool during removal of material from a stationary or rotary workpiece. The coupling may be installed between two parts of the supporting structure for workpieces, between two parts of the tool, between two parts of the tool supporting structure, or between the tool and its supporting structure. The coupling may consist of one or more elastic elements and one or more damping elements, such as eddy current brakes.

3,837,759

HOLE SAW AND QUICK DISCONNECT DRIVE THEREFOR

Joseph E. Bittern, Weatogue, Conn., assignor to Capewell Manufacturing Company, Hartford, Conn.

Filed July 12, 1972, Ser. No. 271,040
Int. Cl. B23b *51/04*
U.S. Cl. 408—204 **8 Claims**



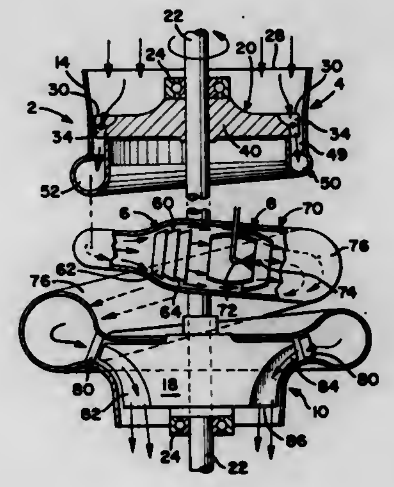
A hole saw equipped with a quick disconnect drive arbor which comprises a drive shaft having a pair of axially spaced threaded sections of opposite thread direction adjacent one end of the shaft. One of the threaded sections has a substantially higher helix angle than the other threaded section with an included angle between the helices being self-releasing, or non-locking, say, about 15° or more. A quick disconnect drive ring is mounted on the higher pitch thread and is provided with a pair of depending aligning and drive pins. The hole saw is threadably mounted on the other threaded section and is provided with a pair of radially spaced apertures which cooperate with the aligning and drive pins of the drive ring. The rotation of the drive ring and hole saw in unison relative to the drive shaft causes the bottoming of the drive ring on the saw with the pins in the apertures to provide a drive connection for transmitting rotary torque therebetween. Reverse rotation of the drive ring and saw in unison relative to the drive shaft coupled with the self-releasing angle between the two threaded sections provides for the quick disconnect of the saw from the arbor.

3,837,760

TURBINE ENGINE

Edward A. Stalker, Bay City, Mich., assignor to The Stalker Corporation, Essexville, Mich.

Filed July 13, 1972, Ser. No. 271,274
Int. Cl. F04d *21/00, 29/44*
U.S. Cl. 415—181 **2 Claims**



A turbine type engine employs an axial type compressor in which the rotor has flow passages between the blades of decreasing cross-sectional area from inlet to outlet while the blades are configured to turn the flow of fluid substantially back toward its original direction, so that the supersonic flow is discharged at a relatively flat angle to the plane of rotation of 30° or less. The direction of discharge flow of the compressor has its greatest component of velocity substantially in the peripheral direction. A collector is used free of stator vanes leading to a tubular type diffuser. The diffuser is formed with tubular segments positioned in successive downstream relation defining peripheral flow slots. The discharge of the combustor is directed to a radial inflow turbine.

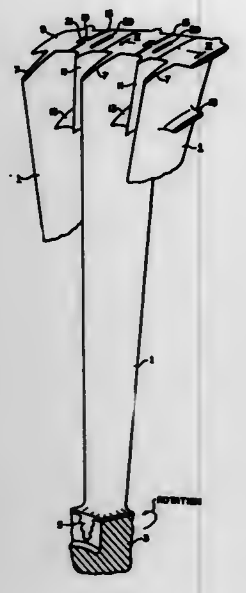
3,837,761

GUIDE VANES FOR SUPERSONIC TURBINE BLADES

Robert O. Brown, Media, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Division of Ser. No. 173,486, Aug. 20, 1971, Pat. No. 3,751,182. This application Feb. 14, 1973, Ser. No. 332,458
Int. Cl. F01d *5/22*
U.S. Cl. 416—191 **3 Claims**

Guide vanes are installed between blades of the last stage of blading of a large steam turbine to form converging-diverging openings to minimize losses in this portion of the turbine. The guide vanes are fastened to adjacent blades through a shroud ring and through a lashing ring to connect the blades in such a manner as to reduce vibration and allow thermal expansion of the rotor.



3,837,762
PUMPS

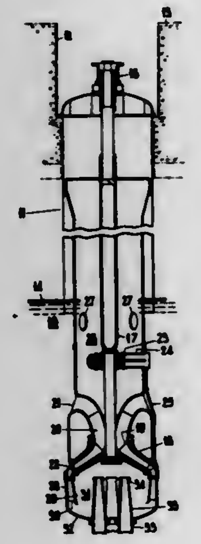
Alan Stuart Lee, Leicester, England, assignor to The English Electric Company Limited, London, England

Filed May 30, 1973, Ser. No. 365,163

Claims priority, application Great Britain, May 31, 1972, 25426/72

Int. Cl. F04d *29/44, 29/54, 15/02*

U.S. Cl. 415—207 **5 Claims**



A pump assembly having a chamber into which a pump is arranged to discharge, and a plurality of outlet pipes each having one end extending into the chamber, the wall of each outlet pipe at said one end being of streamline form, and the part of each pipe extending away from said one end being in the form of a diffuser of gradually increasing internal cross-sectional area with increasing distance from the said one end.

3,837,763
LIQUID METAL CONDUCTION PUMP

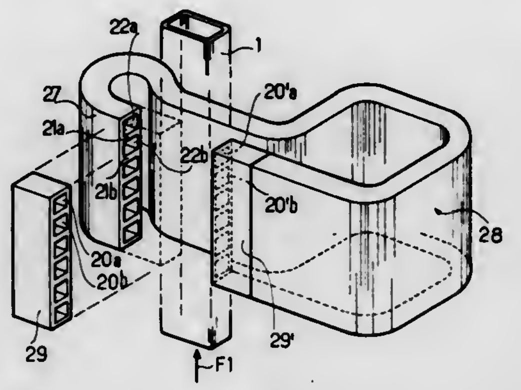
Andre Ertaud, Paris; Jacques Panossian, Chaville, and Henri Carbonnel, Antony, all of France, assignors to Groupement Atomique Alsacienne Atlantique, Le Plessis-Robinson, France

Filed Dec. 22, 1972, Ser. No. 317,842

Claims priority, application France, Dec. 22, 1971, 71/46211

Int. Cl. H02n *4/20*

U.S. Cl. 417—50 **10 Claims**



A conduction pump having a simple structure for liquid metal, comprising a coil constituted by a refractory casing containing liquid metal and a metal flow duct connnected to the casing by two end pieces each comprising at least one opening.

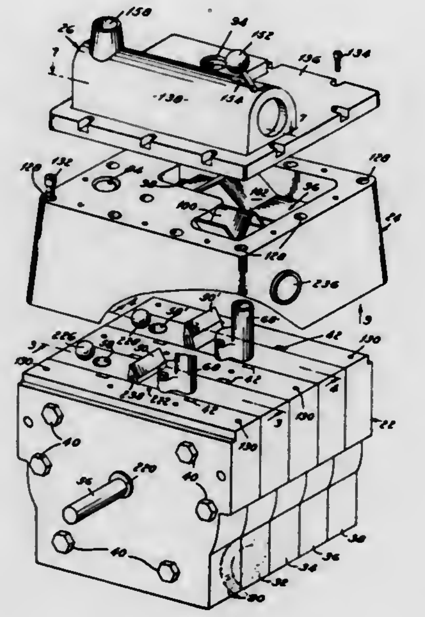
3,837,764
MULTI-STAGE ROTARY VACUUM PUMP WITH SEPARATE OIL RESERVOIR

Junior L. Fritch, Edgerton, and Don R. Brandeberry, Montpelier, both of Ohio, assignors to Robinair Manufacturing Corporation, Montpelier, Ohio

Continuation of Ser. No. 252,213, May 11, 1972, Pat. No. 3,791,780. This application Nov. 12, 1973, Ser. No. 414,695

Int. Cl. F04b *23/04;* **F01c** *11/00;* **F04c** *23/00*

U.S. Cl. 417—62 **3 Claims**



An improved vacuum pump of the rotary mechanical type having interchangeable component parts which may be assembled in "building block" fashion to provide single and multi-stage pumps built up from the same basic parts. The multi-stage pump may be provided with a switchable feature whereby the stages may be operated in series or in parallel, with automatic switching therebetween if desired. Both air ballast and oil injection are provided, the latter incorporating a check valve to control the supply of oil to the pumping chamber.

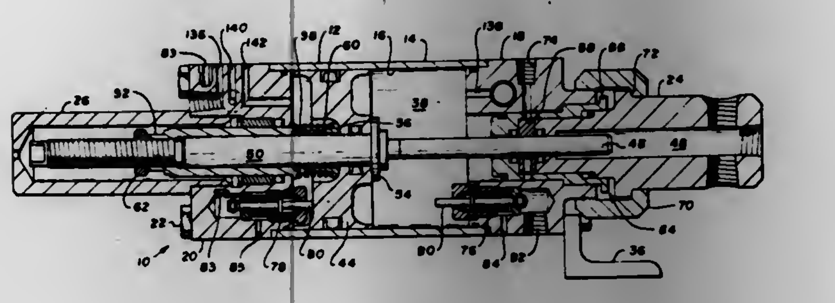
3,837,765
PUMP

Irvin B. Weise, Bellaire, and Ernest H. Purfurst, Houston, both of Tex., assignors to Anderson, Greenwood & Co., Houston, Tex.

Continuation of Ser. No. 132,353, April 8, 1971. This application Aug. 6, 1973, Ser. No. 385,885

Int. Cl. F04b *35/02*

U.S. Cl. 417—399 **13 Claims**



A pump having a lost motion connection between the power piston and the pumping piston so that the stroke of the pumping piston may be varied without changing the stroke of the power piston, a restriction in the outlet from at least one end of the power cylinder to control the rate of movement of the power piston, and a control valve as a subcombination having relationships between the valve member and ports defined to prevent stopping of the pump in a mid position. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

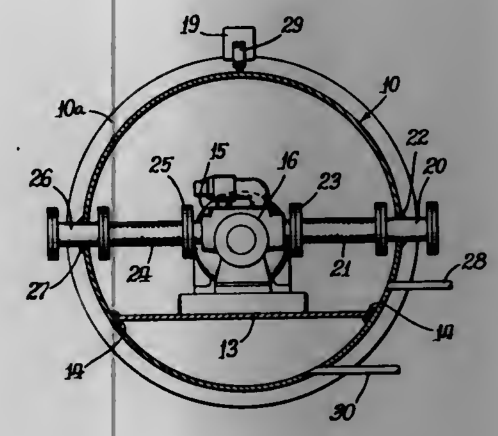
3,837,766
PUMPING DEVICE FOR LIQUIDS

Jerry J. Cook, 1010 Darlington Ln., Crystal Lake, Ill. 60014

Filed Sept. 4, 1973, Ser. No. 393,956

Int. Cl. F04b *17/00, 35/04*

U.S. Cl. 417—414 **3 Claims**



A liquid pump is housed within a sealed tank. The tank is internally charged with an inert gas and maintained at a pressure exceeding the pressure of the liquid developed by the pump.

3,837,767
SMALL PUMP

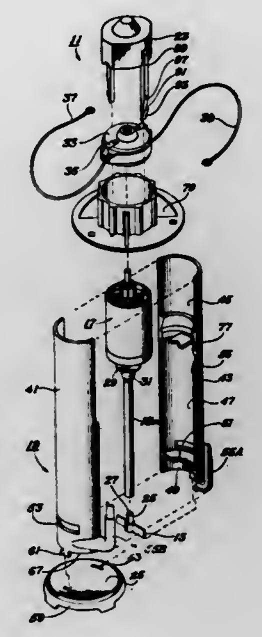
T. Dwight Aller, Dallas, Tex., assignor to Hydrometals, Inc., Dallas, Tex.

Filed May 31, 1973, Ser. No. 365,568

Int. Cl. F04b *17/00*

U.S. Cl. 417—424 **11 Claims**

Improvement in a small pump having the usual impeller, shaft, motor and housing characterized by a plurality of elongate housing sections that conformingly fit together laterally in an assembled condition to form the housing. The improved pump has a clamp ring serving as a portion of a means for joining and holding the housing sections together in the assembled condition; and a shroud for covering the motor for protection against droplets of spray. Also disclosed are specific structural features; such as, leg portions on the shroud for immobilizing the motor against movement longitudinally of the housing, flared end walls of the housing sections for effecting better clamping action, use of an adhesive means for joining edges of the housing sections together, and a separable base and impeller to facilitate assembly.



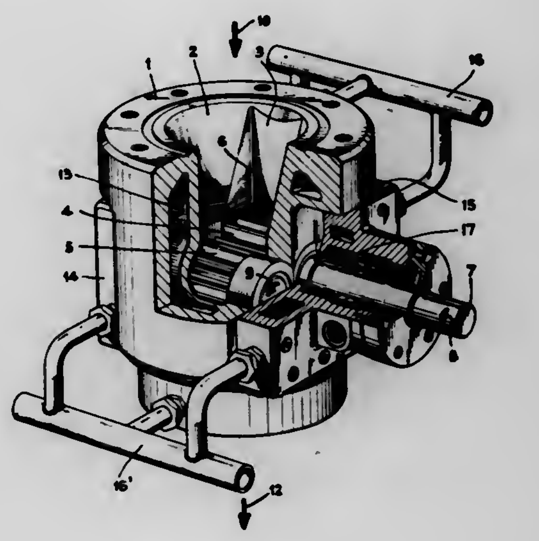
3,837,768
GEAR PUMP FOR HIGHLY VISCOUS MEDIA

Fritz Haupt, Regensdorf, Switzerland, assignor to Maag Gear-Wheel & Machine Company Limited, Zurich, Switzerland

Filed Aug. 31, 1973, Ser. No. 393,395

Int. Cl. F01c *1/24*

U.S. Cl. 418—206 **5 Claims**

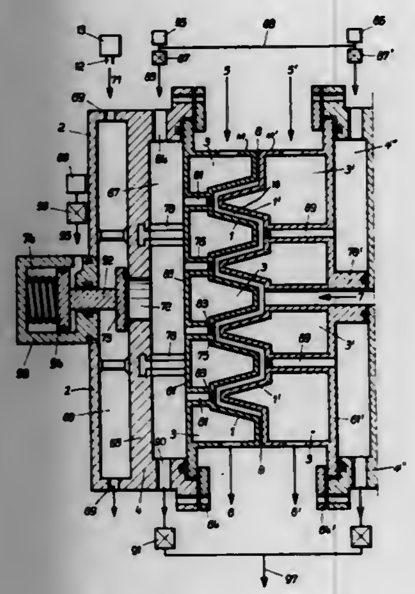


A gear pump for highly viscous media includes a housing having an inlet passage at one end and a discharge passage at the opposite end and a pair of pump gears are rotatably supported within the housing and have intermeshing teeth. The inlet passage comprises an inwardly converging cone havng an angle aperture of 36° to 60° and leads centrally to the space overlying the meshing gears. On a side of the inlet passage which overlies the side of one of the gears, there is provided an additional rectangular opening or recess having a cross-section with a width substantially equal to the width of one of the gears and a length corresponding substantially to the double outside diameter of each gear wheel minus a tooth height.

3,837,769

APPARATUS FOR THE MANUFACTURE OF MOLDED ARTICLES OF FOAM-FORMING THERMOPLASTIC SYNTHETICS

Hans Erlenbach, 5429 Lautert, Rhein-Lahn-Kreis, Germany
Filed Nov. 20, 1972, Ser. No. 307,847
Claims priority, application Germany, July 29, 1972, 2237397
Int. Cl. B29d *27/04*
U.S. Cl. 425—4 R **26 Claims**

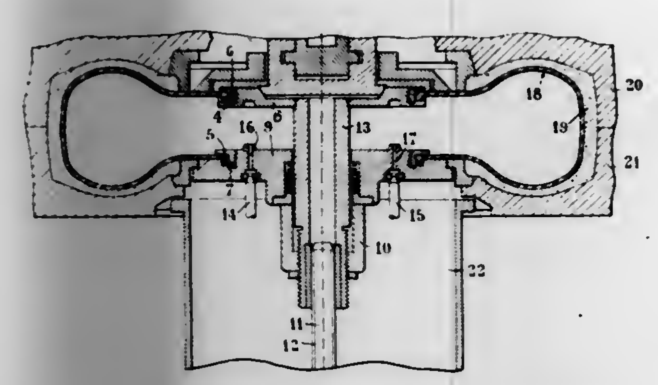


Apparatus for molding articles of foam forming thermoplastic synthetics wherein the mold assembly has separate and independently controlled systems respectively for heating and cooling the mold walls and for injecting steam during the foam forming operation, and in one embodiment the same heat transfer liquid is selectively circulated through heating and cooling devices in the system for heating and cooling the mold walls, including preheating of the mold walls prior to introduction of the plastic in a variation of this embodiment.

3,837,770

VULCANIZING PRESS INTENDED FOR CURING RADIAL TIRES BY MEANS OF A BLADDER OF TOROIDAL SHAPE

Georges Gazuit, Chemin Chauveau, Montlucon, France
Filed Sept. 28, 1972, Ser. No. 293,089
Claims priority, application France, Sept. 28, 1971, 71.34816
Int. Cl. B29h *5/02*
U.S. Cl. 425—33 **5 Claims**



This bladder is a piece of rubber or other air-impervious plastic material which is adapted to be introduced into the crude tires fitted in vulcanizing presses to constitute the internal element of the mould in which the tire is to be cured.

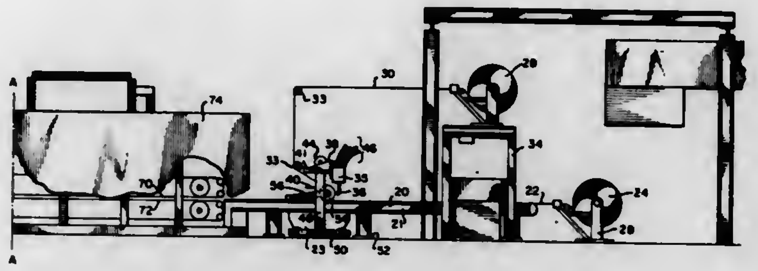
This bladder is of substantially toroidal configuration, has a constant thickness and dimensions approaching very closely the internal dimensions of the crude tire to be cured, and comprises two beads of same diameter and same axial direction.

This bladder is intended more particularly for use in presses designed for vulcanizing radial ply tires.

3,837,771

APPARATUS FOR PRODUCING FOAMED RESIN-CARE WEB-FACED LAMINATES IN CONTINUOUS LENGTHS

Richard A. Kolakowski, Northford, Conn.; Robin L. Grieve, Delfzijl, Netherlands, and Peter J. Tilgner, Akron, Ohio, assignors to The Upjohn Company, Kalamazoo, Mich.
Filed Nov. 17, 1972, Ser. No. 307,441
Int. Cl. B29d *27/04*
U.S. Cl. 425—110 **7 Claims**

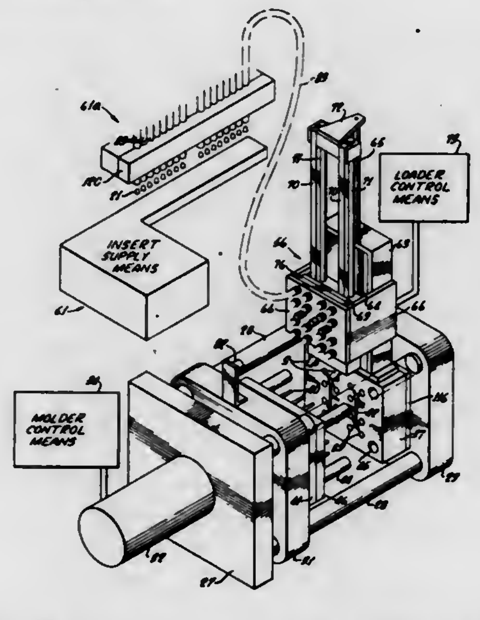


Apparatus is disclosed for continuously producing foamed resin-core web-faced laminates useful as insulating and construction panels or the like, in which provision is made to simplify and improve adaptation of the apparatus for more practical, commercial production of panels of widely varying thickness specifications, while maintaining uniformity of foam density and cell size regardless of panel thickness. Self-foaming resin mix is applied to a pair of continuously advancing facing webs and allowed to expand between them to form the laminate or foam board. Provision is made for changing the point of lay-down of the resin mix on the facing web in relation to the point of entry of the webs to a curing zone. Where the resin is applied in the form of a liquid stream, provision is made for adjusting the position of a nip roll relative to the curing zone entrance and/or point of lay down, the facing webs being passed through an adjustably restricted gap formed by the nip roll after the lay-down of resin mix to effect more even distribution and adherence of the resin to the webs. A modification is also disclosed employing spray application of the resin. The disclosure also covers the method of continuously producing foam board using the apparatus.

3,837,772

APPARATUS FOR MOLDING ARTICLES CONTAINING INSERTS AND MEANS FOR FEEDING INSERTS TO THE MOLD

Roger D. Van de Walker, and Blair E. Howe, both of Costa Mesa, Calif., assignors to California Injection Molding Co., Inc., Costa Mesa, Calif.
Division of Ser. No. 79,191, Oct. 8, 1970, Pat. No. 3,719,396. This application Nov. 24, 1972, Ser. No. 309,202
Int. Cl. B29c *1/06*
U.S. Cl. 425—126 **16 Claims**

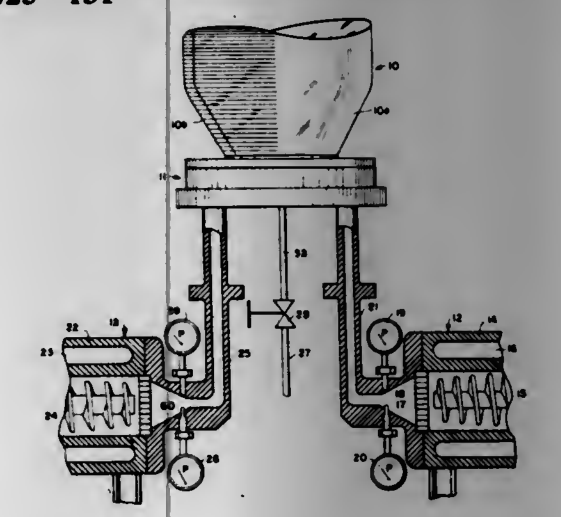


Apparatus for mass-manufacturing elongated hollow plastic objects, such as covers for electronic thermometer probes, and ball point pens, having inserts at the ends thereof. The inserts are automatically loaded, by vibrating the same into pockets and then lifting them out of the pockets into suction tubes which pass through a horizontal transfer plate into nests in a vertical transfer plate. Vacuum is employed to maintain the inserts in the nests during movement of the vertical transfer plate to positions adjacent the distal ends of hollow core pins through which air is sucked. The vacuum in the vertical transfer plate is then converted to pressure to cause the inserts to fly across the air gaps to the core pin ends, following which the inserts are maintained on such ends by suction. The mold is then closed to cause the inserts to engage spring-biased plungers, following which the plastic is injected.

3,837,773

EXTRUDED PLASTIC FILM METHOD AND APPARATUS FOR THE MANUFACTURE THEREOF

Garland E. Raley, Morris Plains, N.Y., assignor to Ethyl Corporation, Richmond, Va.
Division of Ser. No. 508,424, Nov. 18, 1965, abandoned. This application Mar. 27, 1969, Ser. No. 834,920
Int. Cl. B29d *23/04*; **B29f** *3/12*
U.S. Cl. 425—131 **1 Claim**

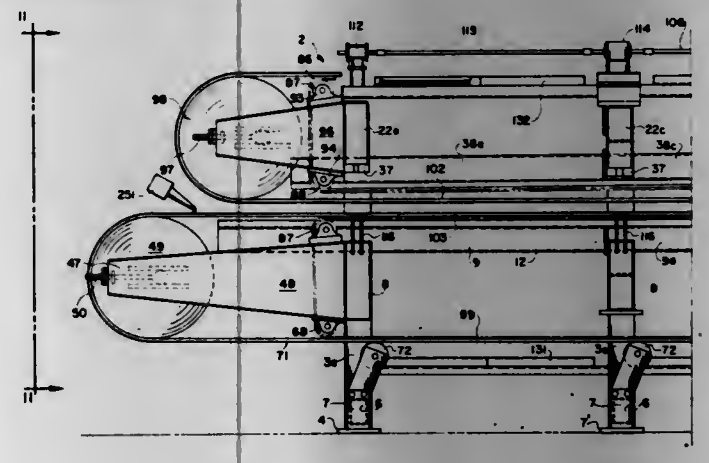


This invention relates to extruding thermoplastic materials. More particularly, the invention relates to a new extruded seamless lay-flat blown tubing, to an apparatus and a method for the manufacture thereof.

3,837,774

APPARATUS FOR MOLDING RIGID PRODUCT FROM SYNTHETIC RESINOUS MATERIAL

Lee F. Ross, Los Gatos; James E. Wilkinson; Fred A. Craig, both of San Jose, and Allan M. Hudson, Mountain View, all of Calif., assignors to Thiokol Corporation, Bristol, Pa.
Division of Ser. No. 107,174, Jan. 18, 1971, Pat. No. 3,736,089. This application Dec. 1, 1972, Ser. No. 311,088
Int. Cl. B29c *3/06*
U.S. Cl. 425—144 **6 Claims**

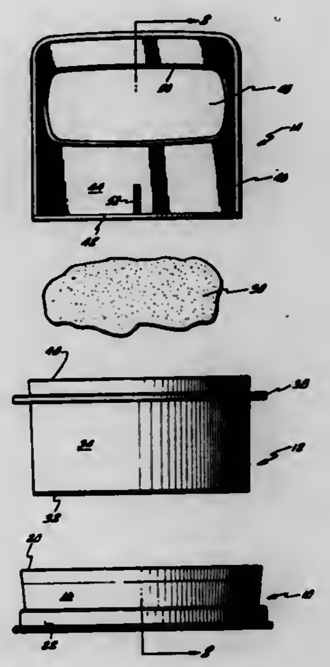


A machine operable to produce molded synthetic products in finished form in a continuous process, including mixing, pouring, molding, and curing the resultant product.

3,837,775

COMBINED FOOD STORAGE CONTAINER AND MOLD THEREFOR

Richard A. Boucher, Northboro, Mass., assignor to Dart Industries Inc., Los Angeles, Calif.
Filed Aug. 16, 1973, Ser. No. 388,850
Int. Cl. A23p *1/00*
U.S. Cl. 425—195 **3 Claims**

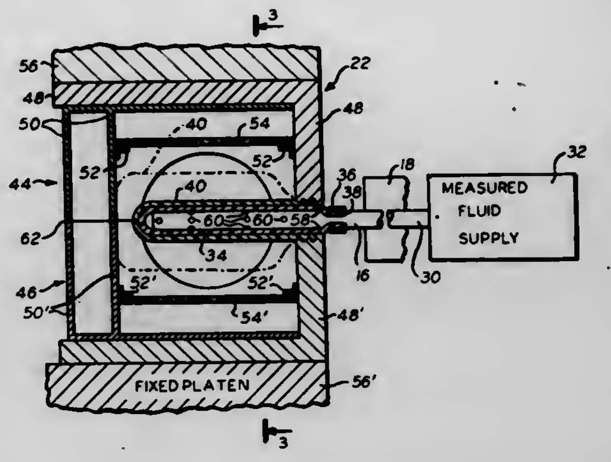


A modular food storage container and a mold and press used in conjunction therewith enables the production of a molded foodstuff within the container and out of contact with the sidewall areas thereof. The container is further adapted for interengagement with like containers to produce an integral sealed stack of such containers each containing the foodstuff described.

3,837,776

PRODUCT COOLING FOR BLOW MOLDING

John J. Farrell, Green Brook, N.J., assignor to Farrell Patent Company, Dunellen, N.J.
Filed July 6, 1973, Ser. No. 377,052
Int. Cl. B29d *23/03*
U.S. Cl. 425—242 B **14 Claims**



A blow molding machine for making plastic articles has the plastic blown to the desired shape without requiring a blow mold cavity. A plastic coating is applied to a core rod which is covered by an expandible balloon, in deflated condition, hugging the core rod. The extent of expansion of the blown article is regulated by metering the amount of fluid used for blowing; and more accurate control can be obtained by using a liquid for blowing. A stream of air against the outside of the plastic cools the article. By making the wall of the balloon thicker at localized areas the expansion and consequent shape of the article can be controlled. If wide flat bottoms are desired, a baffle can be used for regulating the lengthwise expansion of the balloon and blown article.

3,837,777

PLASTIC MATERIAL INJECTION MOULDING MACHINE

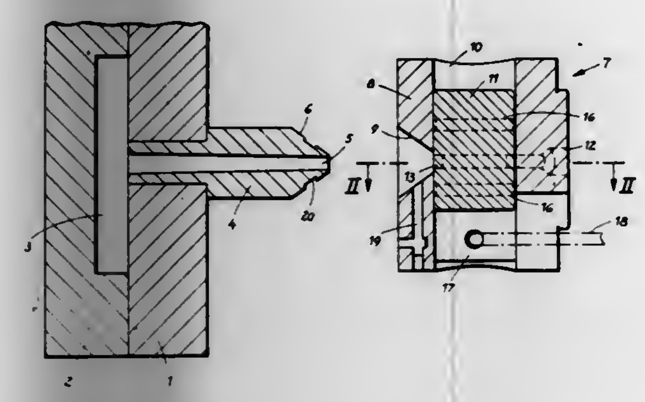
Werner Hunten, Stein bei Nurnberg; Erich Untheim, Kalchreuth uber Nurnberg, and Dieter Popp, Nurnberg, all of Germany, assignors to Demag Kunststofftechnik GmbH, Bavaria, Germany

Filed July 12, 1972, Ser. No. 270,887

Claims priority, application Germany, July 16, 1971, 2135792

Int. Cl. B29f *1/03*

U.S. Cl. 425—247 **13 Claims**



A plastics material injection moulding machine in which the free end of a sprue runner of the mould is engageable in a complementary shaped orifice of an injection nozzle; the point of separation between the sprue runner of the mould and the injection nozzle being situated at or in the immediate vicinity of a valve of the injection nozzle. The valve comprises an axially displaceable valve body which has at least one annular groove having two interruptions therein. One of the interruptions is located between two openings from injection units and the other is located in the vicinity of the injection nozzle whereby the flows of plastics materials from the injection units are maintained separated until they enter the sprue runner.

3,837,778

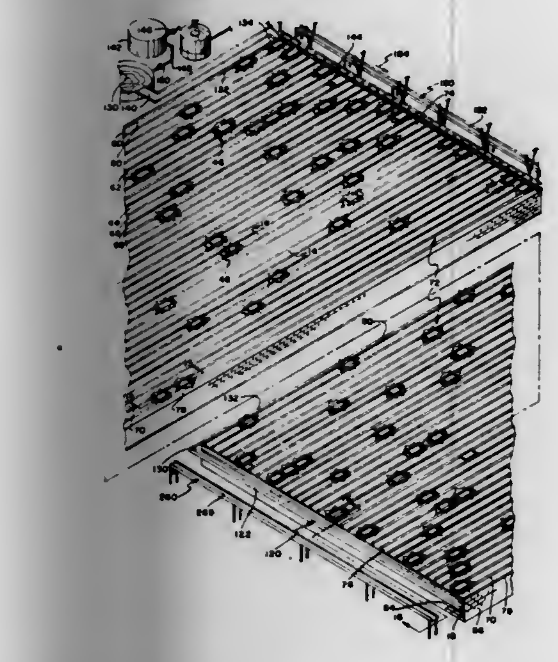
APPARATUS FOR PACKAGE MOLDING, ROOFING ASPHALT

Reid T. Parker, 1347 S. Washington, Wichita, Kans. 67211

Filed Dec. 22, 1972, Ser. No. 317,533

Int. Cl. B29c *5/00*

U.S. Cl. 425—256 **20 Claims**



Roofing asphalt packaged in a film of polyester resin and the packaging method wherein hot asphalt is poured into a mold or boat that is lined by the polyester film at a charging station, such boat being floated on a stream of cooling water that carries the boat and its cooling contents to a discharge station whereat the cooled asphalt enveloped in the resin film is removed from the boat as the packaged product with the boat being returned to the charging station for reuse.

3,837,779

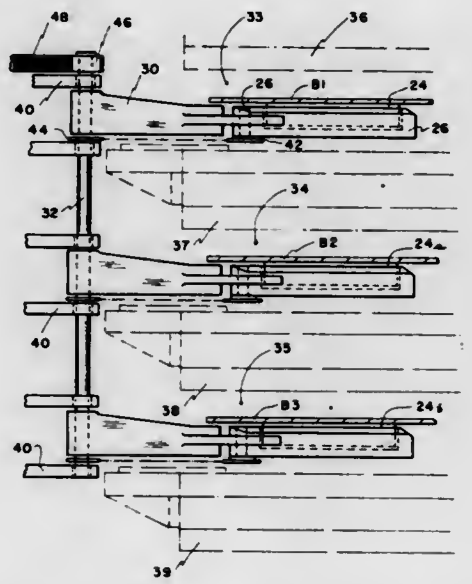
BELT CARRIER DEVICE FOR PRESSES

David Weinschenk George, New Castle, Pa., assignor to Wean United, Inc., Pittsburgh, Pa.

Filed Sept. 4, 1973, Ser. No. 394,434

Int. Cl. B29d *29/00;* **B29h** *7/22;* **B30b** *15/00*

U.S. Cl. 425—28 B **7 Claims**



The disclosure pertains to a roller assembly which is movable from a position outside a belt press to a position within the press to support a belt being threaded through the press when the platens thereof are opened. The roller assembly comprises a cantilever collapsible arm secured to the frame of the press, the arm being extended and collapsed in a very small radius by a sprocket rack and piion power system.

3,837,780

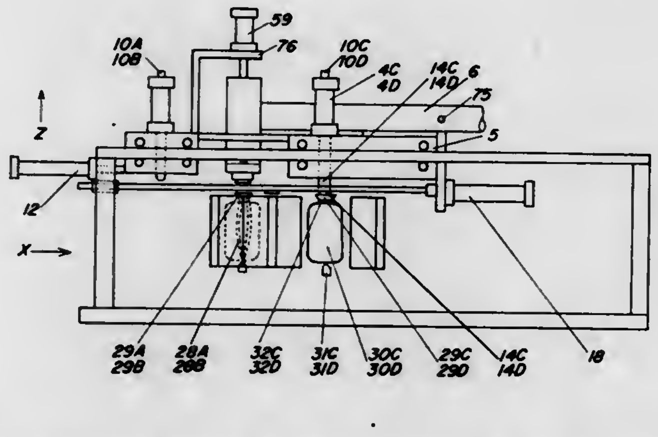
BLOW MOLDING MACHINE

Paul G. Strong, 6530 Kenwater Ave., Canoga Park, Calif. 91304

Division of Ser. No. 211,904, Dec. 27, 1971, abandoned. This application May 25, 1973, Ser. No. 363,828

Int. Cl. B29c *17/07*

U.S. Cl. 425—297 **9 Claims**



This invention relates to improvements in machinery and the process for manufacturing all types of blown hollow articles made of thermoplastic materials and particularly those having a neck opening. Means are provided so that after a mold at a first station has closed around a parison and the parison has been severed by the knife, the extruder and knife assembly is caused to move to a second mold station and in so doing they move with them a neck forming pin which is inserted into a neck section of the hollow article.

3,837,781

DEVICE FOR COOLING AND GRANULATING STRANDS OF PLASTIC MATERIAL DISCHARGED FROM AN EXTRUDER

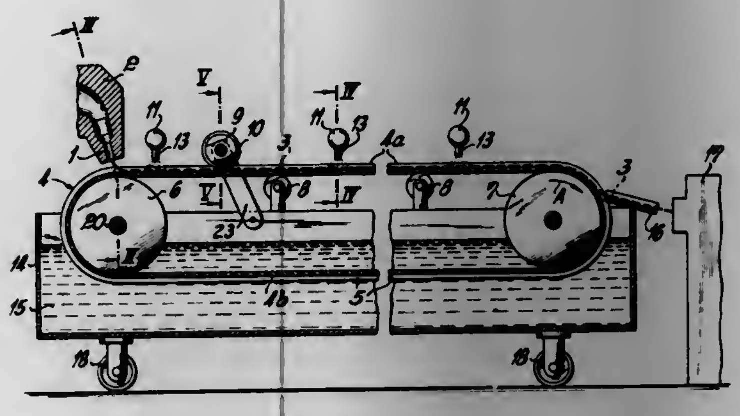
Friedrich Lambertus, Stuttgart, Germany, assignor to Werner & Pfleiderer, Stuttgart-Feuerbach, Germany

Filed Nov. 24, 1972, Ser. No. 309,167

Claims priority, application Germany, Dec. 9, 1971, 2161067

Int. Cl. B29f *3/08*

U.S. Cl. 425—308 **9 Claims**



There is disclosed a device for cooling and granulating strands of synthetic plastic material as they are continuously extruded through the discharge head of an extruder. The device comprises an extruder head with a plurality of side-by-side disposed discharge openings through which a corresponding number of strands are extruded. The strands are fed upon the pulling portion of a conveyor band disposed below the discharge head. The band has on its surface facing the discharge head a plurality of lengthwise grooves for receiving therein and holding spaced apart the strands fed upon it. The initially hot strands are cooled by directing a flow of coolant thereupon as they are carried along by the conveyor. A granulating device at the end of the pulling portion cuts the now cooled strands into pieces of selected length. The idling portion of the conveyor is subjected to cooling action so that is is reasonably cooled before it again becomes the pulling portion of the conveyor.

3,837,782

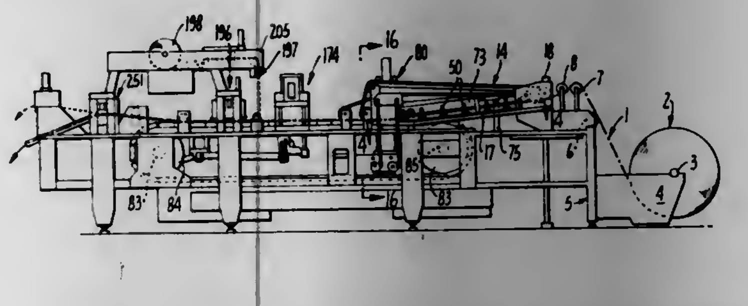
APPARATUS FOR FORMING CONTAINERS

Konrad E. Meissner, Lafayette; William A. Lane, Danville, and Edwin J. Pelster, Pleasanton, all of Calif., assignors to Filper Corporation, San Ramon, Calif.

Division of Ser. No. 208,178, Dec. 15, 1971, Pat. No. 3,766,702. This application July 5, 1973, Ser. No. 376,679

Int. Cl. B29c *3/02*

U.S. Cl. 425—347 **7 Claims**



A packaging machine for individual portions in which a strip of thermoplastic film is automatically releasably gripped along its longitudinally extending marginal portions by rows of gripping elements and while so gripped, the film is moved in a forward direction and is progressively heated by a heater and progressively tautened transversely of its movement as it softens. After leaving the heater and while still gripped, the softened film is positioned over upper mold forms at a cup-forming station at one end of the upper run of an endless row of such forms which upper run is moved in said forward direction toward a filling and sealing station successively spaced from said one end. A lower mold form at said cup-forming station is moved against the upper mold form to form the cup-mold and mechanical and suction means forms a plurality of cups in the film after which the marginal grippers and the lower mold form automatically release the film for movement to the filling station where the cups in the film are filled, and the filled cups are then moved to the sealing station while the cups are still in the upper mold forms. At the sealing station a cover sheet is positioned over the cups and is heat sealed to the upper surface of the film around the cup openings during uniform application of pressure against the upper and lower sides of the film at said surface, and finally the film and filled, sealed cups therein are moved out of the upper mold forms and the cups are cut from the film to provide filled and sealed individual packages.

3,837,783

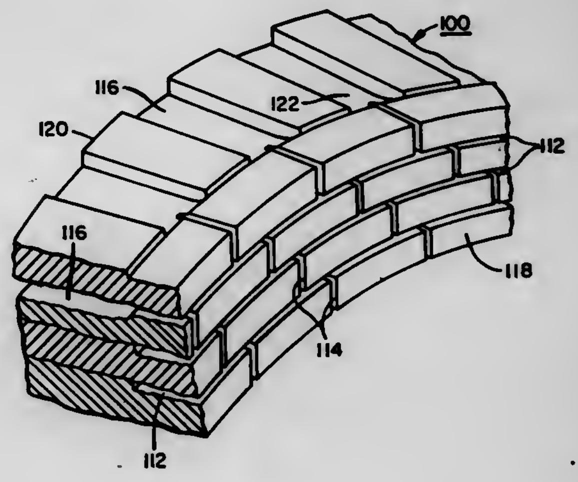
EXTRUSION DIE

Rodney D. Bagley, Big Flats, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Division of Ser. No. 295,813, Oct. 10, 1972, Pat. No. 3,803,951. This application Nov. 14, 1973, Ser. No. 415,679

Int. Cl. B28b *21/52;* **B29c** *23/00*

U.S. Cl. 425—464 **3 Claims**



A die for extruding a matrix with essentially circumferential walls is formed by helically winding a slotted and grooved strip of material about a central hub, and bonding or otherwise joining the thus-wound strip material together as an integral body. The strip material is provided with a longitudinal groove and a plurality of transverse slots communicating with such groove which combine to form discharge outlets for extruding thin-walled, small cell sized matrices.

3,837,784

METHOD FOR OPERATING MODULATED BURNERS ACTUATED BY AN EMULSION

Claude Delatronchette, Cachan, France, assignor to Elf-Union, Paris, France

Filed May 14, 1973, Ser. No. 359,871

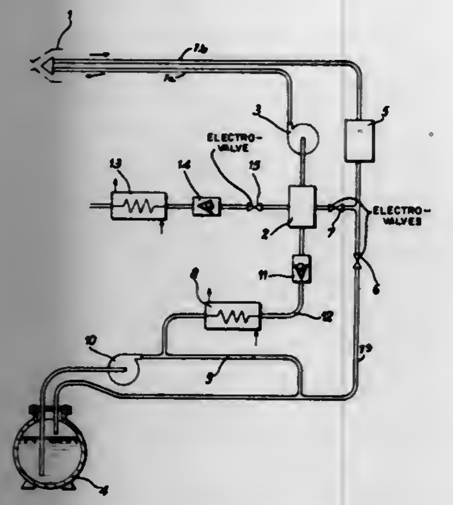
Claims priority, application France, May 16, 1972, 72.17500

Int. Cl. F23j *7/00*

U.S. Cl. 431—4 **4 Claims**

A method for operating modulated burners actuated by an emulsion and using a pre-stream exclusively formed of fuel before the re-ignition of the burner 1, said method comprising:

establishing the return of said pre-stream generated by a high pressure pump, through the medium of a modulated regulator 5 and of a first electro-valve 6;



establishing a flow of liquid fuel and water emulsion to the burner, by opening a second electro-valve 7;

interrupting said pre-stream by closing said first electro-valve 6, and igniting the burner 1 before it has been reached by the emulsion.

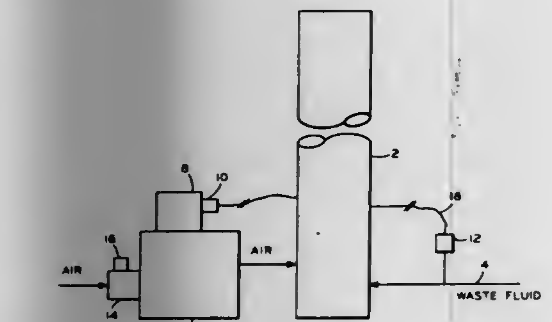
3,837,785

APPARATUS FOR DELIVERING WASTE FLUIDS FOR COMBUSTION

Robert W. Evans, and David M. Simmons, Jr., both of Sweeny, Tex., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed May 29, 1973, Ser. No. 364,919
Int. Cl. F23d *13/20*

U.S. Cl. 431—5 **8 Claims**



An apparatus and method for passing waste fluids into a flare stack for combustion, passing air substantially continuously into said stack while passing waste fluids thereinto, and controllably passing additional air into the flare stack in response to the flow rate of waste fluids into said stack.

3,837,786

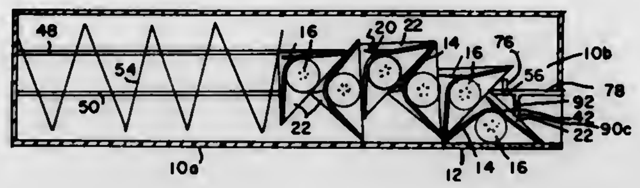
PHOTOFLASH ASSEMBLY WITH SERIALLY ADVANCING LAMPS AND EJECTOR

Thomas B. McDonough, Allenwood, and John W. Shaffer, Williamsport, both of Pa., assignors to GTE Sylvania Incorporated, Danvers, Mass.

Filed Nov. 21, 1973, Ser. No. 417,960
Int. Cl. F21k *5/02*

U.S. Cl. 431—93 **22 Claims**

A photoflash magazine comprising a plurality of flashlamps and associated reflectors movably supported within a closed container having a front face window located at a remote firing position in the container. Each lamp-reflector combination is mounted on a respective triangular-shaped pallet slidably retained in a channel. The plurality of pallets are alternately oriented along a two-track portion of the channel to minimize space requirements, and the pallets are urged toward the firing position by loading spring. A releasable latch engages the pallet located at the firing position and is operable for momentarily releasing the pallets to permt indexing thereof until the latch engages the next pallet. A cammed portion of the channel orients each pallet moving into the firing position so that the reflector and lamp on that pallet are operatively aligned with the front face window, and the firing position and window are offset from the camera lens sufficiently to reduce "red-eye" effect. When employing percussively ignitable flashlamps with associated striker springs on each pallet, a mechanical coupling is disposed between the firing position and an access aperture in the magazine for transmitting an impulse from a camera actuating member to individually release a striker spring to fire a lamp at the firing position. An opening is provided in the side of the magazine whereby the used lamp may be ejected subsequent to latch release, which may be actuated by a film advancing mechanism in the camera.



3,837,787

LIGHTERS

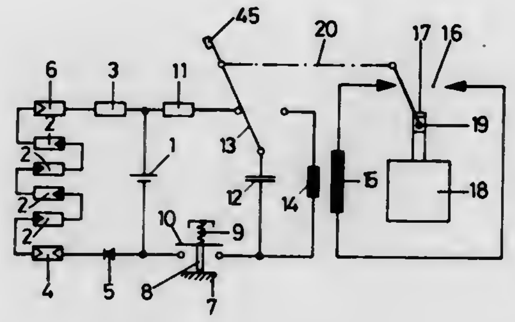
Hermann Remy, Dietzenbach-Steinberg, and Adolf Lamprechet, Hausen, both of Germany, assignors to Rowenta-Werke GmbH, Haussen, Germany

Filed July 20, 1972, Ser. No. 273,400

Claims priority, application Germany, July 24, 1971, 2137163; Germany, July 1, 1972, 2232491

Int. Cl. F23q *2/28*

U.S. Cl. 431—255 **43 Claims**



An electrically ignited gas lighter with photoelectric transducers as the prime electrical energy source. Power from the photoelectric transducers is stored in accumulator cells and selectively metered through charging of a capacitor to a spark ignition circuit operable by discharge of the capacitor across a spark gap. An alternative embodiment has direct charging of the capacitor from the photoelectric transducers. Voltage multiplication by parallel connection of accumulator cells to the photoelectric transducers and series connection to the capacitor is disclosed, also by means of step-up transformers and d.c. converters connected between the photoelectric transducers and the accumulator cells and between the capacitor and the discharge gap.

3,837,788

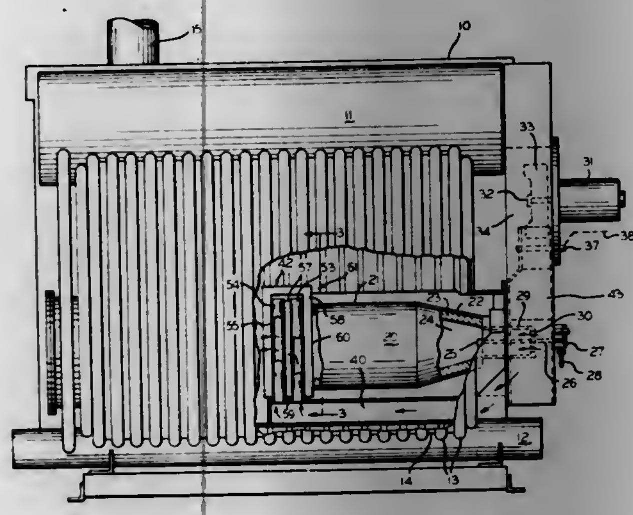
REDUCTION OF GASEOUS POLLUTANTS IN COMBUSTION FUEL GAS

Glenn D. Craig, Menomonee Falls; David T. Feuling, Milwaukee, both of Wis., and Paul G. LaHaye, Cape Elizabeth, Maine, assignors to Aqua-Chem, Inc., Milwaukee, Wis.

Filed Oct. 5, 1972, Ser. No. 295,249
Int. Cl. F23l *9/00*

U.S. Cl. 431—351 **18 Claims**

Fuel is burned in a primary combustion chamber with less than the air required for stoichiometric combustion so that the combustion gases have a high carbon monoxide (CO) and a hydrocarbon content and the temperature of the gases is held below that at which significant nitrogen oxides (NO_x) would be produced. The combustion gases are then passed through a secondary combustion zone in which more air is injected into the gas stream to oxidize the CO and hydrocarbons to carbon dioxide (CO_2). The secondary burner comprises a plurality of foraminous tubes through which secondary air is emitted. Combustion in the secondary zone is maintained at a temperature below that at which nitrogen oxides (NO_x) will be produced in significant quantities.



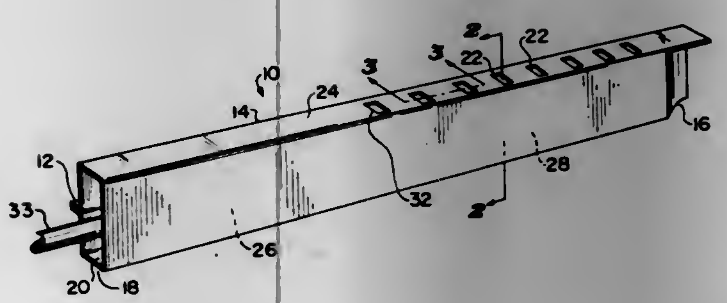
3,837,789

GAS BURNER

Herbert Schindler, Tarzana, and Willard O. Ware, Stockton, both of Calif., assignors to M.M.S. Limited, Alameda, Calif. and Automation International, Inc.

Filed Jan. 8, 1973, Ser. No. 322,072
Int. Cl. F23d *13/40*

U.S. Cl. 431—354 **14 Claims**



A gas burner formed as a hollow elongate tube having an entrance and a closed end, the tube having an upper wall and a plurality of spaced openings formed along a length of said upper wall, an inwardly depending baffle portion adjacent each opening, each baffle portion having a length substantially equal to one dimension of the adjacent opening.

3,837,790

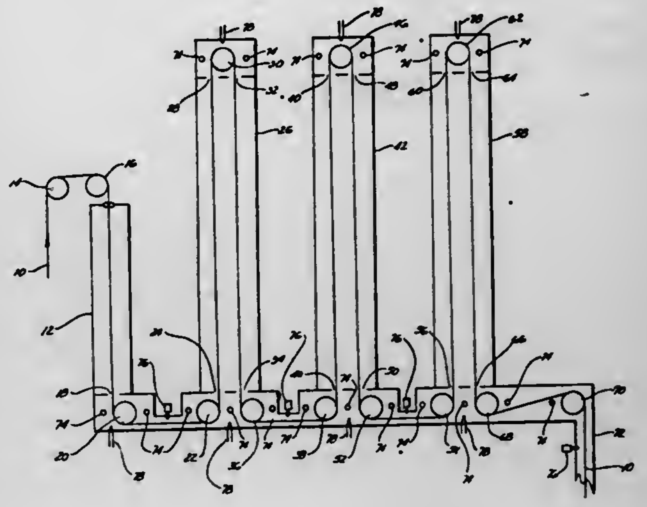
METHOD AND APPARATUS FOR HEATING METALLIC STRIP

Marvin B. Pierson, Franklin, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio

Filed Dec. 29, 1972, Ser. No. 319,281
Int. Cl. F27b *9/28*

U.S. Cl. 432—8 **7 Claims**

A method and apparatus for continually heating a metallic strip in a furnace having one or more sections through which the strip passes in a vertical path of travel, and having turnaround rolls and roll chambers baffled from the furnace atmosphere between adjacent vertical sections. Independent heating means are disposed adjacent the surface of each roll and individually controlled so as to maintain the temperature of at least the surface of each roll at substantially the temperature of the strip passing thereabout.



3,837,791

APPARATUS AND PROCESS FOR PREHEATING SCRAP IRON

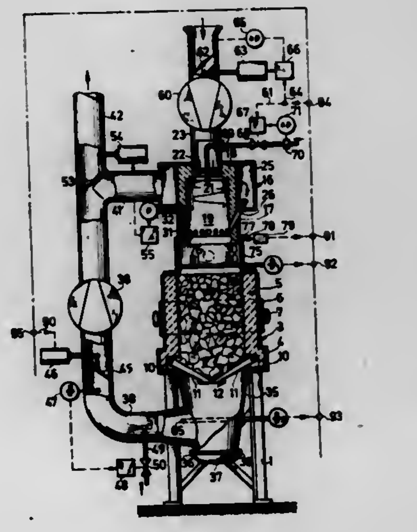
Hans Schoch, Thalwil, and Josef Herzog, Winterthur, both of Switzerland, assignors to Sulzer Brothers Ltd., Winterthur and Hayek Engineering Ltd., Zurich, both of, Switzerland

Filed July 6, 1973, Ser. No. 376,943

Claims priority, application Switzerland, July 6, 1972, 10124/72

Int. Cl. F27b *1/26*

U.S. Cl. 432—21 **6 Claims**

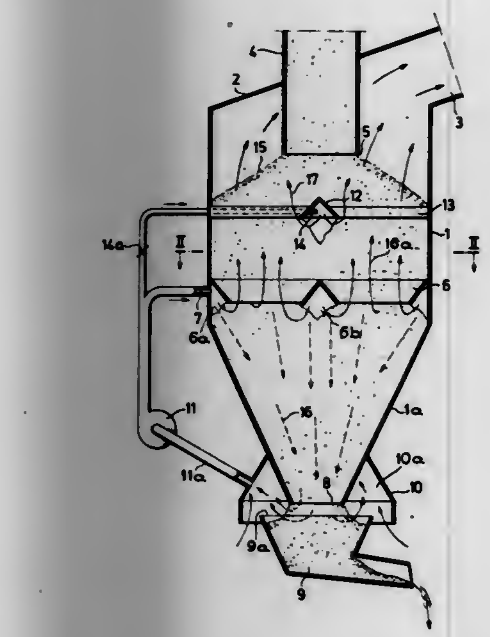


Preheating is carried out in two time-stages. During the first stage, the burner performance is initially at a maximum and when the temperature below the charged basket reaches a certain temperature, e.g., 110°C to 160°C, the performance drops to between 60 percent to 90 percent. During this time, the temperature at the top of the basket is regulated at a maximum, e.g. 1,000°C, by adjusting the quantity of re-circulated air.

During the second stage-which beings when the temperature below the basket reaches 500°C – the quantity of recirculated gas is increased to the maximum and the burner performance regulated to maintain the temperature of 500°C below the basket. Should the burner operation fall below 30 percent, the temperature above the basket is again regulated by the quantity of re-circulated air and the temperature below by burner regulation.

3,837,792
COOLING DEVICE FOR KILN MATERIAL

Herbert Deussner, Bensberg, Germany, assignor to Klockner-Humboldt-Deutz AG
Filed June 19, 1973, Ser. No. 371,495
Claims priority, application Germany, June 19, 1972, 2229810
Int. Cl. F27b *1/16, 7/38*
U.S. Cl. 432—77 **18 Claims**

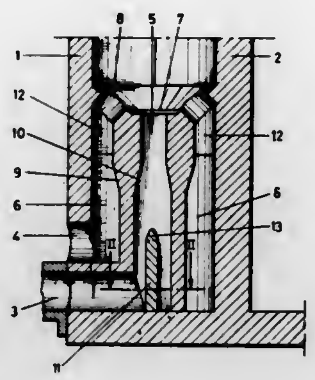


A structure for cooling particulate hot kiln material by contact with cooling air including a cooling chamber having an upper receiving end with a lower discharge end and a rotary gas fired kiln discharging into the upper end through a feed conduit extending into the upper end of the chamber, an upper downwardly facing air distribution device, a lower downwardly facing air distribution device having radially extending spokes and an outer portion lying adjacent the wall of the cooling chamber, and opening at the lower end discharging into the hopper with an air intake chamber arranged so that air flows over the exposed surface of the material into an intake blower connected to the air distribution devices.

3,837,793
CERAMIC BURNER FOR USE IN AN AIR-PREHEATER OR HOT BLAST STOVE FOR A BLAST FURNACE PLANT

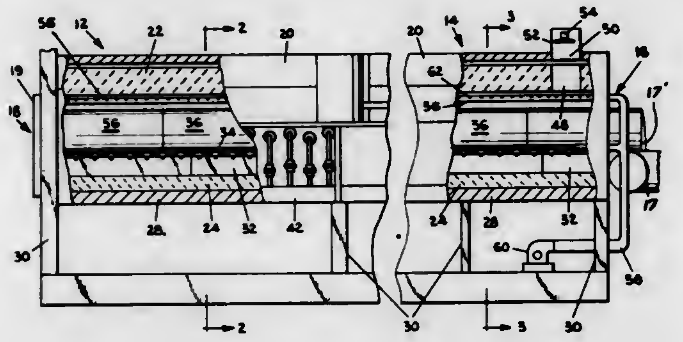
Wouter Bram Lucieer, Amsterdam, and Theodorus Antonius Maria Van Amerongen, Bennebroek, both of Netherlands, assignors to Koninklijke Nederlandsche Hoogovens En Staal-Fabrieken N.V., Ijmuiden, Netherlands
Continuation of Ser. No. 141,855, May 10, 1971, abandoned. This application Aug. 6, 1973, Ser. No. 385,666
Int. Cl. F23l *9/04*
U.S. Cl. 432—217 **4 Claims**

A ceramic burner for the air preheater of a blast furnace plant is provided with a vertical core in at least the lower part of the fuel passage, which defines with the walls of the fuel passage a substantially slot-like and continuous passage around the core. The arrangement promotes uniformity of gas flow and uniformity of combustion over the entire surface of the slot-like burner head.



3,837,794
BILLET HEATING

William A. Phillips, Comstock Park, Mich., assignor to Granco Equipment, Inc., Grand Rapids, Mich.
Filed July 16, 1973, Ser. No. 379,266
Int. Cl. F27b *9/00*
U.S. Cl. 432—8 **17 Claims**

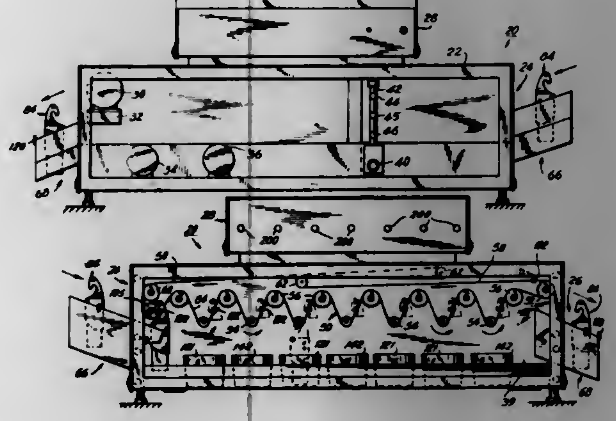


A method and apparatus for heating articles such as billets wherein the articles are passed serially through a preheating zone and into a fired discharge zone of a furnace. A burning combustible mixture of gases is directed against the articles in the fired discharge zone and the hot gases are passed to the preheating zone for heat exchange with the articles therein. The heated gas~~es are turbu~~lated by blowing cooler air through holes in pipes positioned along the length of the preheat chamber. Desirably, the pipes extend into the fire discharge zone to further turbulate the gases therein.

CHEMICAL

3,837,795
METHOD AND APPARATUS FOR STAINING SLIDES

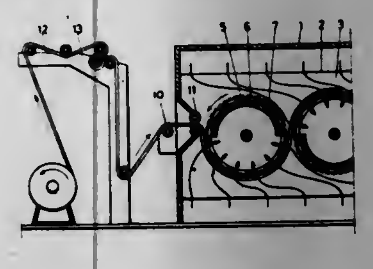
Stanley A. Becker, Stroudsburg; William B. Fizette, Henryville, both of Pa., and Richard T. Wood, Staten Island, N.Y., assignors to Biomatics Instrument Corporation, Stroudsburg, Pa.
Filed Nov. 5, 1971, Ser. No. 195,911
Int. Cl. D06p *3/00*
U.S. Cl. 8—3 **8 Claims**

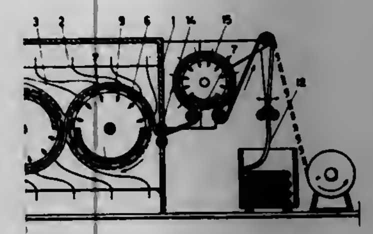


A method for staining biological material on flat slides is disclosed. A group of slides is successively dipped in vessels containing different liquids conventionally used in staining. All the slides in the group are held in vertical parallel relationship while the slides are in the successive vessels. The time a group of slides is in any given vessel is controlled in accordance with the staining technique desired. One of the vessels has a de-colorizing agent in it. In at least this vessel a laminar flow of de-colorizing liquid is directed over the flat faces of the slides to create a chimney effect that minimizes cross-contamination. The de-colorizing liquid is withdrawn continuously from its vessel, filtered and re-introduced into the vessel.

3,837,796
PROCESS AND APPARATUS FOR FIXING SYNTHETIC FIBROUS MATERIALS AND DYESTUFFS

Heinz Fleissner, Egelsbach, and Hans-Ulrich von der Eltzi, Frankfurt-Main, both of Germany, assignors to Fleissner GmbH, Egelsbach and Farbwerke-Hoechst Aktiengesellschaft vormals Meister & Bruning, Frankfurt/Main, both of, Germany
Continuation of Ser. No. 596,321, Nov. 22, 1966, abandoned. This application June 8, 1970, Ser. No. 48,805
Claims priority, application Germany, Nov. 29, 1965, 50923; May 11, 1966, 49170
Int. Cl. D06p *3/82*
U.S. Cl. 8—21 R **9 Claims**





The damage to the selvage of a textile fabric and distortion of this fabric when subjected to a thermosetting or thermosoling process is avoided by passing hot air or other inert gas onto and through the fabric while it is supported on a perforated drum which is covered with a fine meshed sieve fabric.

3,837,797
LEATHER

Alfred R. Conklin, Rt. 4, Harrodsburg, Ky. 40330
Filed Aug. 13, 1971, Ser. No. 171,752
Int. Cl. C14c *3/04*
U.S. Cl. 8—94.26 **6 Claims**

An improved iron tanned leather is produced by the use of a novel acidic aqueous solution containing ferric iron and citric acid as essential ingredients. Optionally, glycerine may be added. This solution is used substantially according to known tanning procedures. The novel leather obtained is characterized by a pleasing light-fast, tan color, a shrink temperature which compares favorably with that required of the more expensive chrome tanning and stability of aging. On ashing at 1,000°C. in air the leather leaves an 8 to 17 percent by weight residue which is at least 90 percent ferric oxide.

3,837,798
POLYESTER MODIFICATION WITH AN OXIDIZING CHEMICAL

Robert E. Yelin, Willingboro, N.J.; James E. Hendrix, New Orleans, La., and Ralph F. Villiers, Mexico, Mexico, assignors to FMC Corporation, New York, N.Y.
Filed Dec. 15, 1971, Ser. No. 208,386
Int. Cl. D06m *5/06*; **D06p** *3/52*
U.S. Cl. 8—115.5 **4 Claims**

This invention provides a process for treating polyester materials employing an aqueous treatment solution containing an oxidizing chemical whereby the cotton-like hand of the polyester is improved and the polyester is made cationically dyeable.

3,837,799
PROCESS FOR CREASEPROOFING CELLULOSIC FIBER-CONTAINING FABRIC USING FORMALDEHYDE VAPOR AND A SOLID AND A SOLID CATALYST

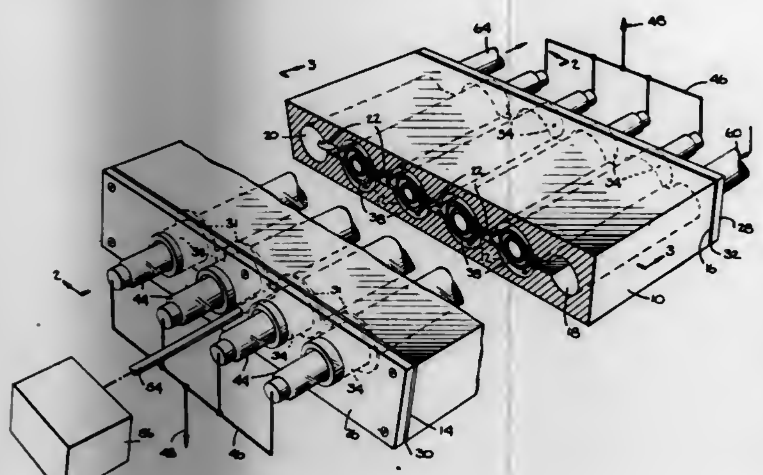
Katherine W. Wilson, Newport Beach; Ronald Swidler, Pasadena, and Jose P. Gamarra, Santa Ana, all of Calif., assignors to Cotton, Incorporated, New York, N.Y.
Continuation of Ser. No. 762,135, Sept. 24, 1968, abandoned. This application May 26, 1971, Ser. No. 147,201
Int. Cl. D06m *13/14, 13/54*
U.S. Cl. 8—115.6 **11 Claims**

Cellulosic materials such as cotton fabrics or garments are made crease resistant by exposing them to formaldehyde vapor at an elevated temperature after pre-impregnation of fabric with a formaldehyde-free aqueous solution of a latent catalyst, preferably zinc chloride.

3,837,800
METHOD AND APPARATUS FOR PURIFYING FLUIDS

M. Dale Wood, Hasbrouck Heights, N.J., assignor to Harold Meltzer, Jersey City, N.J., a part interest
Continuation-in-part of Ser. No. 140,919, May 6, 1971,. This application Jan. 11, 1973, Ser. No. 322,688
Int. Cl. A61l *1/00*
U.S. Cl. 21—54 R **8 Claims**

A method and apparatus for continuously purifying a fluid by the emission of ultraviolet rays characterized by a body with a series of spaced, parallel, elongated, cylindrical radiation chambers extending therethrough, and a plurality of elongated, interconnecting chambers having a height substantially less than the diameter of the radiation chambers, a plurality of elongated, ultraviolet ray emitting lamps removably mounted in jackets in the radiation chambers, respectively, and extending from the front to the rear of the radiation chambers. Fluid to be purified is continuously received in an elongated chamber and spread into sheet-like flow attitude and thence passed serially and transversely between the lamp jackets and the walls of the radiation chambers, the walls being in close proximity to the jackets to maintain sheet-like flow for a substantial distance around the periphery of the lamps, and the fluid is maintained in sheet-like flow between adjacent radiation chambers by passing through the interconnecting chambers, and thence the purified liquid is discharged from the last of the radiation chambers.



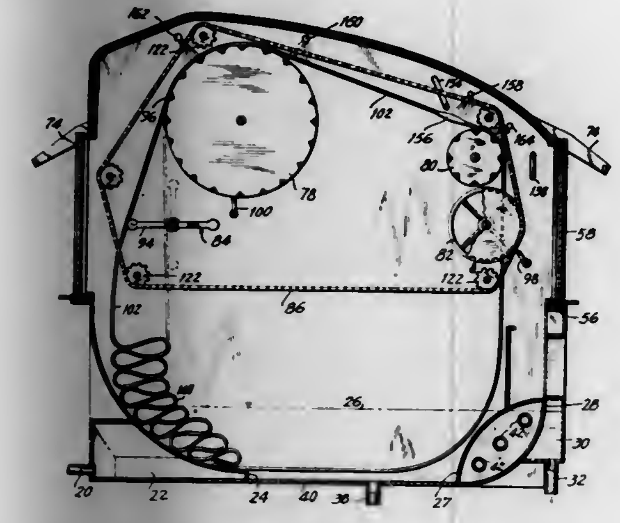
3,837,801
METHOD AND APPARATUS FOR PROCESSING FABRICS IN ROPE-LIKE FORM

Dan Ben Shmuel, Johnsville, N.Y., assignor to Woodside Construction Corp., Johnsville, N.Y.

Filed Mar. 21, 1972, Ser. No. 236,662

Int. Cl. B05c *3/134*

U.S. Cl. 8—151.1 **12 Claims**



An apparatus and method for processing a fabric in a vat, which vat is at least partially filled with a processing liquid. The fabric is in rope-like form and has a leading and a trailing end. Means is provided for forming vertically pleated adjacent piles of the fabric at the back of the vat wherein the fabric at the top of each pile is in the same vertical plane as the fabric at the bottom of the same pile. Means is provided for winding the fabric into helical convolutions, each of which contains one such pile, wherein the fabric unwinds at the trailing end and rewinds at the leading end as successive convolutions advance in a direction toward the trailing end of the fabric and for intermittently moving the convolutions in a direction perpendicular to the vertically pleated piles of fabric. The vat has a doubly insulated frame to reduce radiation loss therefrom so that the temperature in the vat above the surface of the processing liquid is approximately equal to the temperature in the vat below the surface of the processing liquid whereby chilling of the fabric is avoided after the fabric has been pulled through and lifted above the surface of the processing liquid.

3,837,802
PROCESS FOR DYEING

Alfred Litzler, Itingen; Hans Wilhelm Liechti, Oberwill; Jean-Frederic Guye-Vuilleme, Aigle; Eugen Johann Koller, Oberwil; Branimir Milicevic, Riehen, and Hans-Joerg Angliker, Basel, all of Switzerland, assignors to Ciba-Geigy AG, Basle, Switzerland

Continuation of Ser. No. 808,661, March 19, 1969, abandoned. This application Jan. 4, 1972, Ser. No. 215,403

Claims priority, application Switzerland, Jan. 27, 1969, 1200/69; Mar. 28, 1968, 4626/68

Int. Cl. D06p *1/38*

U.S. Cl. 8—173 **10 Claims**

A process for dyeing wherein textile material is dyed or printed with a solution containing at least one fiber-reactive dyestuff in a solvent.

3,837,803
ORTHOPHOSPHATE CORROSION INHIBITORS AND THEIR USE

David A. Carter, Warminster; Chester A. Bishof, North Hills, and Frederick G. Vogt, Philadelphia, all of Pa., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed July 11, 1972, Ser. No. 270,782

Int. Cl. C23f *11/00*

U.S. Cl. 21—2.7 **28 Claims**

The present disclosure is directed to the inhibition of the corrosion of metallic parts in contact with aqueous systems. This effect is accomplished by the addition to the system of a corrosion inhibiting concentration of a water-soluble organo-phosphonic acid compound having a carbon to phosphorus bond in combination with a water-soluble orthophosphate. The aqueous system should contain solubilized calcium salts and should possess a basic pH. Under certain conditions it is desirable to utilize water-soluble metal cations as a adjunct to the treatment.

ERRATUM

For Class 21—54 see:
Patent No. 3,837,800

3,837,804
PROCESS FOR DEACIDIFYING A BOOK WHICH HAS A PYROXYLIN-CONTAINING COVER

Bernard F. Walker, Richmond, and James E. Kusterer, Jr., Montpelier, both of Va., assignors to Council on Library Resources, Inc., Washington, D.C.

Filed Aug. 15, 1973, Ser. No. 388,472

Int. Cl. A61l *13/00*

U.S. Cl. 21—58 **11 Claims**

Books having pyroxylin-containing covers can be deacidified by impregnation with morpholine vapors without substantially damaging the covers, if the impregnation is conducted for about 5 to 15 minutes with a gaseous atmosphere consisting essentially of about 30 to 55 weight percent morpholine and a balance of water vapor at a temperature of about 90° to 115° F.

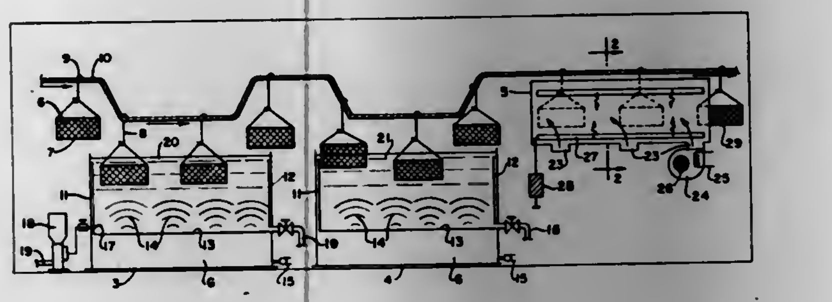
3,837,805
APPARATUS FOR CONTINUOUS STERILIZATION AT LOW TEMPERATURE

Raymond M. G. Boucher, New York, N.Y., assignor to Wave Energy Systems Inc., New York, N.Y.

Division of Ser. No. 106,739, Jan. 15, 1971, Pat. No. 3,708,263. This application Sept. 27, 1972, Ser. No. 292,615

Int. Cl. A61l *13/00, 1/00, 3/00*

U.S. Cl. 21—102 A **20 Claims**



An automatic method and apparatus to continuously surface sterilize at temperatures below 75° C any objects, parts or components made of metal or heat sensitive materials. Said method consists of treating materials first in a synergistically active chemical solution in an ultrasonic tank, then of rinsing in a second ultrasonic tank. The final step consists of drying the processed material in a sterile atmosphere. The three different processing steps taken place in a matter of minutes inside a laminar flow positive pressure clean or white room. The apparatus continuously delivers sterile parts or instruments ready for packaging and sealing. Sterilized parts or instruments are not physically or chemically affected by the process and do not contain dissolved corrosive or toxic compounds.

3,837,806
METHOD OF ANALYZING COATINGS ON PARTICULATE MATERIAL

James R. Ritter, Ridgewood, and Otto R. Strauch, Wyckoff, both of N.J., assignors to Potters Industries Inc., Carlstadt, N.J.

Filed Sept. 5, 1972, Ser. No. 286,060

Int. Cl. G01n *31/22;* **B44d** *1/44;* **C03d** *17/28*

U.S. Cl. 23—230 R **13 Claims**

A method of analyzing molecular layers of an amino silane coupling agent on glass spheres, in which a saturated solution of 1-chloro-2,4 dinitrobenzene in methyl alcohol is added to a sample of the spheres without substantial agitation, and the materials are then heated to a temperature sufficient to react the 1-chloro-2,4 dinitrobenzene with the coupling agent. The yellow color of the reaction product is compared with successive color standards representative of known thicknesses of the silane layers to determine the thickness of the layers on the spheres being analyzed.

3,837,807
IMPROVED ABSORBENT FOR CARBON-14 DIOXIDE

Viekko Tarkkanen, Breda, Netherlands, assignor to Packard Instrument Company, Inc., Downers Grove, Ill.

Filed Apr. 7, 1972, Ser. No. 242,243

Int. Cl. G01n *31/06, 31/12;* **G01t** *1/10*

U.S. Cl. 23—232 R **7 Claims**

In the absorption of carbon-14 dioxide gas in a liquid alkaline absorbent preparatory to liquid scintillation counting of the carbon-14 in a scintillation mixture including an aromatic hydrocarbon, the absorbent is a primary alkoxy alkylamine. Enhanced solubility of the carbon-14 dioxide-alkoxy alkylamine carbamate permits the scintillation mixture to be prepared without the hitherto indispensable use of an alcohol, which had caused undesirable chemical quench effects.

3,837,808
METHOD OF ANALYZING OXYGEN

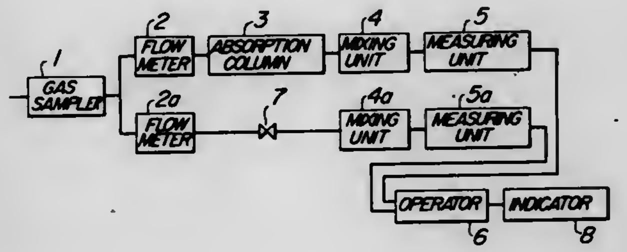
Toshio Sugimoto, Nagoya; Toru Uema, Kasugai, and Isamu Takeuchi, Nagoya, all of Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan

Filed Feb. 22, 1973, Ser. No. 334,714

Claims priority, application Japan, Feb. 25, 1972, 47-19936; Dec. 29, 1972, 47-2478

Int. Cl. G01n *27/26*

U.S. Cl. 23—232 E **22 Claims**



A method of analyzing oxygen capable of measuring the concentration of oxygen in a sample gas with accuracy and a minimum fluctuation with time, even when said sample gas contains combustible gases together with oxygen, which comprises:

dividing the sample gas into two parts;
removing oxygen from the one part of the two divided sample gas;
adding a predetermined amount of oxygen of a known concentration to the one part of the sample gas from which oxygen has been removed and another part of the sample gas, respectively;
converting the oxygen concentration in each part of the sample gas thus treated into electromotive force electrochemically by means of an oxygen concentration cell comprising a solid electrolyte; and
determining and indicating the difference between said respective electromotive forces.

3,837,809
STERILIZING PROCEDURES

Arthur William Chapman, 53 Ranmoor Cres., Sheffield, England

Filed Nov. 29, 1972, Ser. No. 310,542

Int. Cl. G01n *31/22*

U.S. Cl. 22—253 TP **8 Claims**

Indicator means for showing that a surgical material or appliance has been sterilized by steam and formaldehyde vapour, the indicator means comprising a carrier for a sulphite to react with the formaldehyde to produce an alkali, and an indicator for the alkali having a change point on the alkaline side of neutrality.

3,837,810
COMPOSTER

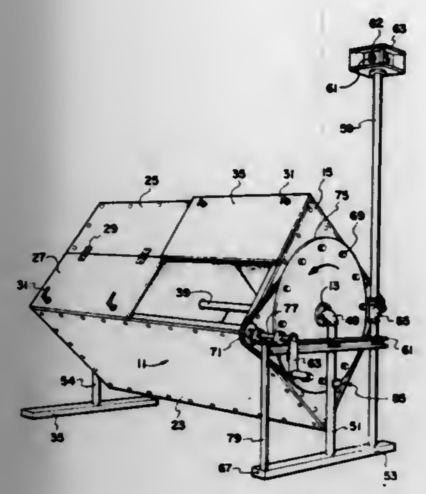
Albert Z. Richards, 2022 S. 1635, E., Salt Lake City, Utah 84103, and Lynn S. Madsen, 2747 Sherwood Dr., Salt Lake City, Utah 84108

Filed Aug. 9, 1972, Ser. No. 279,094

Int. Cl. C05f *9/02*

U.S. Cl. 23—259.1 **5 Claims**

A rectangular or square container, made of a heat insulating material such as wood, for converting organic wastes into compost is mounted for rotation about a supported perforated pipe extending axially through the container. A water-holding manifold is connected via a conduit to the perforated pipe. Water vapor is carried from the manifold by means of air which is introduced into the manifold through a vertical, upstanding pipe. The wet air passes through the perforated pipe and into the container, providing adequate moisture and air for the composting operation. A mechanism is also provided to selectively rotate the container and to hold it at a preselected angular position.



3,837,811
CRYSTALLIZATION APPARATUS

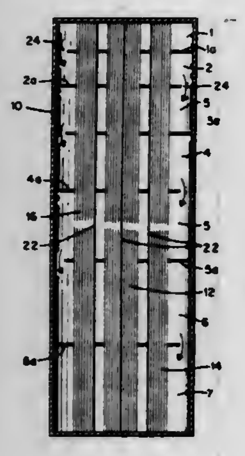
George Windal, Roubaix, France, assignor to Fives Lille-Cail, Paris, France

Filed Sept. 28, 1972, Ser. No. 292,858

Claims priority, application France, Sept. 29, 1971, 71.34999

Int. Cl. B01d *9/02*

U.S. Cl. 23—273 R **7 Claims**



A crystallization apparatus with a horizontal tank subdivided into a plurality of intercommunicating compartments has a plurality of walls parallel to the longitudinal axis of the tank arranged in each compartment to form therein two cells laterally adjacent the tank walls and at least one central cell. The neighboring cells in each compartment also communicate with each other, as does each cell laterally adjacent the tank walls with a like cell upstream or downstream, the ports in the dividing walls being so arranged that the product in the tank circulates therethrough in a sinuous path. Radiators are positioned in the lower part of the tank and pass through all compartments, the radiators being divided into several sections each positioned in one of the cells and forming in each cell a return passage for the product under the radiators.

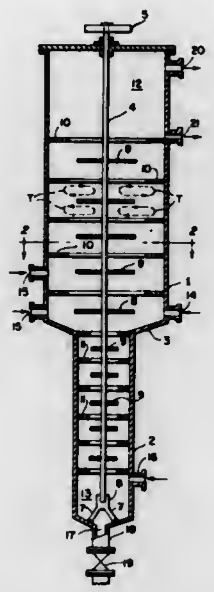
3,837,812
ROTATING DISC CONTACTOR

Jan Th. Boontje, Santpoort, Netherlands, assignor to Verenigde Kunstmestfabrieken Mekog-Albatros N.V., Utrecht, Netherlands

Continuation-in-part of Ser. No. 889,097, Dec. 30, 1969,. This application Apr. 25, 1972, Ser. No. 247,416

Int. Cl. B01d *9/02, 11/02*

U.S. Cl. 23—273 R **10 Claims**



A rotating disc contactor comprising two cylindrical shells of different diameter in open connection to each other, the wider one situated on top of the narrower one and both provided with annular stationary baffles and disc-like rotor baffles, each of which rotor baffles being located between two annular stationary baffles and mounted on a shaft. The apparatus is useful for carrying out chemical reaction between substances dissolved in liquids resulting in solid precipitates (for instance, chemical reactions between ions resulting in crystalline precipitates) and washing the precipitates. Whereas the reaction and the crystallization are caused to take place within the wider shell, the coarser particles of the product are allowed to sink through an upward current of washing liquid in the narrower shell.

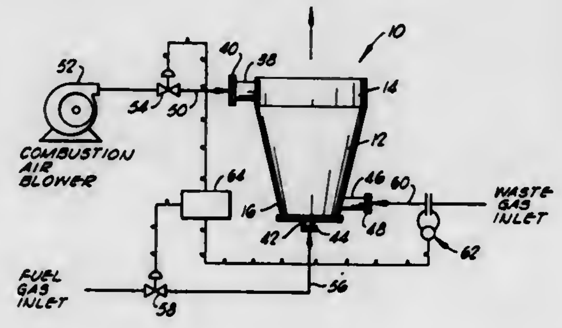
3,837,813
WASTE GAS INCINERATOR

Harold O. Ebeling, and Russell D. Smith, both of Houston, Tex., assignors to Black, Sivalls & Bryson, Inc., Houston, Tex.

Filed Feb. 1, 1973, Ser. No. 328,775

Int. Cl. F23g *7/06*

U.S. Cl. 23—277 C **5 Claims**



Apparatus for incinerating waste gas which includes a hollow outer shell having a hollow inner liner supported therein so that an air passageway is formed therebetween. Front and rear walls are provided secured to the outer shell, and an intermediate wall having an opening disposed therein is secured within the outer shell. An air inlet is formed in the outer shell adjacent to the forward end thereof for admitting combustion air into the air passageway and means for injecting fuel gas into the outer shell at a position between the rearward end of the inner liner and the intermediate wall are provided. A waste gas inlet is formed in the outer shell for admitting waste gas thereto between the rear wall and the intermediate wall.

3,837,814
EXHAUST GAS CLEANING DEVICE

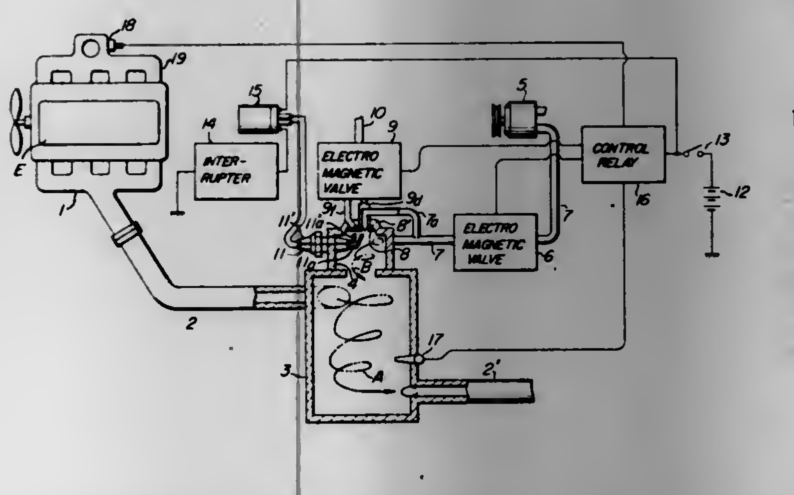
Yasusi Tanasawa, Nagoya; Mitsumasa Yamada, Shizuoka; Mikiji Ito, Nagoya, and Kenji Ishiguro, Aichi, all of Japan, assignors to Nippondenso Co., Ltd., Kariya-shi; Toyota Jidosha Kogyo Kabushika Kaisha, Tokyo-shi and Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya-shi, all of, Japan

Filed Oct. 28, 1971, Ser. No. 193,473

Claims priority, application Japan, Dec. 1, 1970, 45-106601; Dec. 26, 1970, 45-128989; Dec. 26, 1970, 45-128990

Int. Cl. F01n *3/14*

U.S. Cl. 23—277 C **5 Claims**



In an exhaust gas cleaning device comprising an exhaust gas combustion chamber provided in the exhaust system into which the exhaust gases as well as secondary air are fed in a tangential direction with respect thereto to form a vortical current of the burning gases with secondary fuel supplied thereto, the quantity of secondary air and secondary fuel being respectively regulated by respective regulating means which are controlled by a control relay according to the temperature of said exhaust gas combustion chamber and the suction vacuum of the engine, so as to maintain the exhaust gas combustion chamber in desirable condition.

3,837,815
METHOD OF RECLAIMING SELENIUM AND METAL BASE FROM ELECTROPHOTOGRAPHIC PLATES

William E. Bixby, Deerfield, Ill., assignor to A. B. Dick Company, Niles, Ill.

Filed Mar. 29, 1973, Ser. No. 346,051

Int. Cl. B02c *23/00, 21/00;* **C01b** *19/00*

U.S. Cl. 23—293 R **13 Claims**

A method for separating a coating, such as of selenium, from the smooth surface of a base material such as a metal electrophotographic plate comprising rapidly reducing the temperature of the coated base metal to far below freezing temperature of water, wetting the coated surface of the refrigerated base metal with a liquid such as water which forms a frozen layer such as ice on the coated side of the base metal, and then applying heat to effect separation of the frozen layer from the base metal with the coating adhered to the separated frozen layer, and wherein the coating material is separated as a solid from the liquid phase of the removed frozen layer.

3,837,816
THERMAL AND ABRASION RESISTANT SINTERED ALLOY

Kentaro Takahashi, Ohmiya; Minoru Hasegawa, Saitama, and Kaoru Nara, Kawaguchi, all of Japan, assignors to Nippon Piston Ring Co., Ltd., Tokyo, Japan

Filed Sept. 5, 1972, Ser. No. 286,392

Int. Cl. B22f *1/00*

U.S. Cl. 29—182 **1 Claim**

An alloy prepared by adding 0.3 to 5 percent by weight of a ferrocarbide of an iron-carbon alloy containing one or more of carbide forming elements to a base comprising 0.6 to 2 percent of carbon, 0.5 to 5 percent of molybdenum, 6.0 to 15 percent of cobalt, 0.5 to 4 percent of nickel, by weight, and the balance iron and molding and sintering has large thermal resistance and abrasion resistance.

3,837,817
SLIDING MEMBER HAVING A SPRAY-COATED LAYER

Yoshikatsu Nakamura, Kanagawa, Japan, assignor to Nippon Piston Ring Co., Ltd., Tokyo, Japan

Filed Oct. 18, 1972, Ser. No. 298,713

Int. Cl. B32b *15/00*

U.S. Cl. 29—195 **6 Claims**

A sliding member, such as a piston ring in an internal combustion engine, having a spray-coated layer on at least its sliding surface comprising from about 10 to 50 percent by weight of molybdenum, about 10 to 50 percent by weight of a self-fluxing alloy and from about 20 to 60 percent by weight of a metal carbide or a metal oxide. The sliding member has excellent scuff resistance and abrasion resistance.

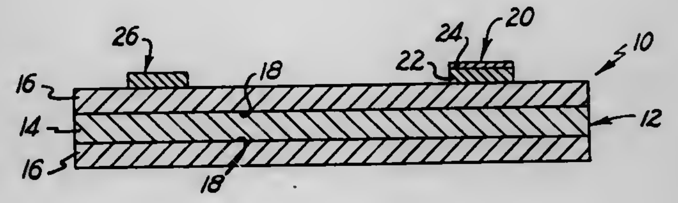
3,837,818
ELECTRICAL CONTACT ARM MATERIAL AND METHOD OF MAKING

Marvin B. Happ, Hingham, Mass.; Leonard A. Weston, Newark, Del., and Carl Redfield, N. Attleboro, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Sept. 11, 1972, Ser. No. 288,204

Int. Cl. B32b *15/00*

U.S. Cl. 29—196.3 **3 Claims**



An inexpensive but improved composite strip material for use in making resilient electrical contact arms and the like is shown to comprise a strip of composite, electrically-conductive spring material having a layer of copper metallurgically bonded between outer layers of hardened stainless steel, at least one of these stainless steel layers having a stripe of solder adhered to the stainless steel material extending along the length of the composite spring material and preferably having a stripe of precious metal material displaying low electrical contact surface resistance properties extending along the length of the spring material. The solder stripe is provided on the stainless steel surface of the spring material by fluxing the stainless steel surface, by depositing a molten solder stripe on the fluxed strip surface, and by rapidly chilling the spring material as the solder is deposited thereon for solidifying the solder stripe in such a way as to assure adherence of the solder stripe to the stainless steel spring surface.

3,837,819
ZINC DIFFUSED COPPER

Louis E. Hibbs, Jr., Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 73,590, Sept. 18, 1970, Pat. No. 3,729,294, which is a division of Ser. No. 797,201, Feb. 5, 1969, Pat. No. 3,600,221, which is a continuation-in-part of Ser. No. 720,201, April 10, 1968, abandoned. This application June 19, 1972, Ser. No. 264,028

Int. Cl. B32b *15/20*

U.S. Cl. 29—199 **1 Claim**

The surface of a copper body which may, for example, be a coating, foil or wire, is provided with a zinc coating. The zinc coating is diffused into the copper surface to form an alloy surface zone which protects and preserves the properties of materials such as polymers and carbon that ordinarily degrade when contacted with copper.

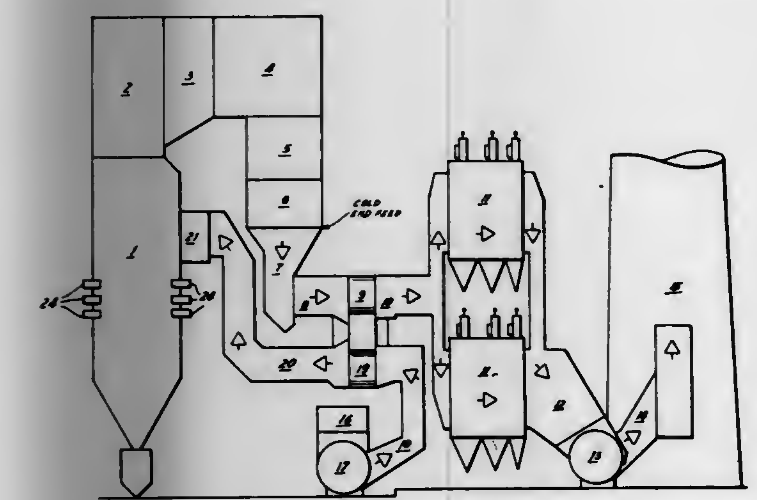
3,837,820
COMBUSTION CONTROL BY ADDITIVES INTRODUCED IN BOTH HOT AND COLD ZONES

Ira Kukin, West Orange, N.J., assignor to Apollo Chemical Corporation, Clifton, N.J.

Filed Sept. 1, 1971, Ser. No. 176,979

Int. Cl. C10l *9/00*

U.S. Cl. 44—5 **24 Claims**



By burning fuel in the presence of manganese and magnesium, and by then additionally adding to the products of combustion at a relatively low temperature zone an additional amount of magnesium, noxious and undesirable emissions are greatly reduced and internal boiler conditions are greatly improved.

3,837,821
ELEVATING NATURAL GAS WITH REDUCED CALORIFIC VALUE TO DISTRIBUTION PRESSURE

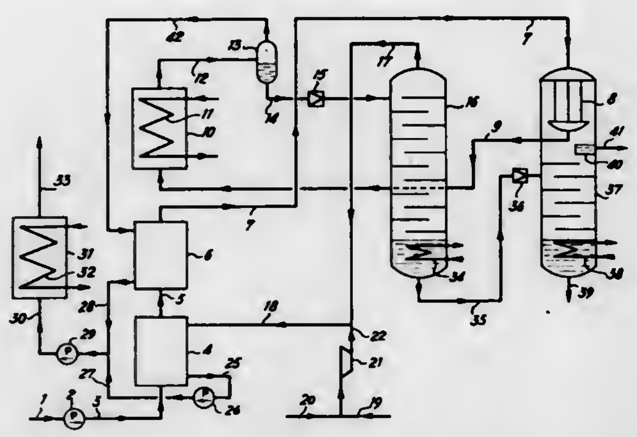
Jean-Pierre Buffiere, Saint Mande, and Maurice Grenier, Paris, both of France, assignors to L'Air Liquide, Societe Anonyme pour l'etude et l'exploitation des procedes Georges Claude, Paris, France

Continuation of Ser. No. 837,518, June 30, 1969. This application Mar. 29, 1972, Ser. No. 239,136

Int. Cl. C10j *1/00;* **C10k** *1/00*

U.S. Cl. 48—196 R **10 Claims**

A method of production under high pressure of a gas rich in methane, to which is added a volatile gaseous fraction in which the natural gas is brought to an intermediate pressure and a volatile gaseous fraction is added to the natural gas at the said intermediate pressure, wherein the volatile gaseous fraction is added to the natural gas in the liquid state, after which the mixture obtained is brought to the pressure of the distribution system reheated and vaporized.



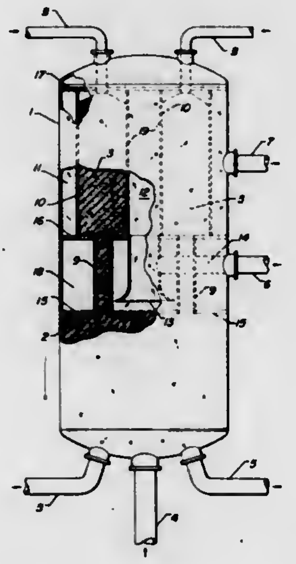
3,837,822
TWO-STAGE COUNTERCURRENT FLUID-SOLID CONTACTING PROCESS

Dennis J. Ward, Barrington, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Sept. 28, 1972, Ser. No. 293,246

Int. Cl. C10g *35/10*

U.S. Cl. 48—214 **2 Claims**



An upflow fluid-solid contacting process in which the overall flow of solid particles is in a downward direction while the overall flow of fluids contacting the solids is in an upflow direction. The process specifically is defined as a two-stage fluid-solid contacting process in which fresh solids are added to a contacting zone at a top portion of the zone with spent solid particles removed from a lower section of the contacting zone. In the lower section of the contacting zone there is introduced a first fluid stream which passes in a countercurrent manner and in an upflow direction through the lower section. The effluent from that zone meets with a second feed fluid and passes into an upper section of the contacting zone. The processing flow in the upper section of the contacting zone is in an essentially lateral direction normal to the overall fluid flow in the lower section. More specifically, the fluid flow in the upper section is into a radial flow contacting zone where upon the fluids contact descending solids by passing in a horizontal manner to an outer shell and out of the upper section.

The process flow is applicable to general fluid-solid contacting processes and fluid-solid conversion processes such as hydrocracking or naphtha cracking to substitute natural gas products.

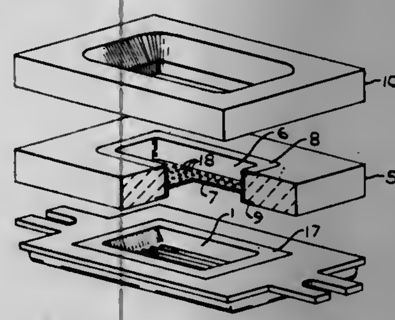
3,837,823
BUSHING BLOCK ASSEMBLY AND SCREEN

Robert G. Shealy, Shelby, N.C., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 13, 1973, Ser. No. 424,585

Int. Cl. C03b *37/02*

U.S. Cl. 65—1 **6 Claims**



A bushing block screen and bushing assembly is described which involves the positioning of a flow block, a bushing block and a glass fiber bushing adapted to produce glass fibers at the bottom thereof in the floor of a glass furnace forehearth. The bushing block is provided with a screen covering the surface area of an internal canal provided in the bushing block. The bushing block canal communicates with a similar canal of similar dimension positioned in the flow block and the top of a fiber glass bushing. The screen is positioned near the bottom of the bushing block and the bushing block canal is lined with precious metal, preferably platinum, or a platinum alloy and is further provided with a platinum flange at the top and the bottom thereof where the bushing block contacts the flow block and the bushing respectively.

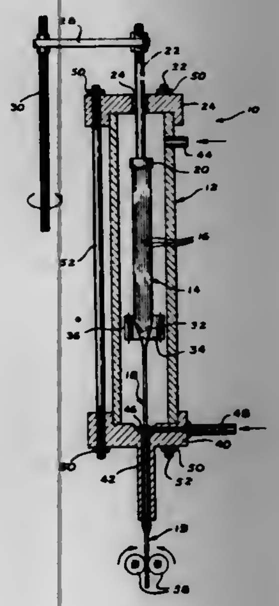
3,837,824
DRAWING OPTICAL FIBER UNDER SUPERATMOSPHERIC PRESSURE

Walter P. Siegmund, Woodstock, Conn., assignor to American Optical Corporation, Southbridge, Mass.

Filed May 29, 1973, Ser. No. 364,785

Int. Cl. C03c *23/20, 15/00*

U.S. Cl. 65—4 **2 Claims**



Heating and drawing bundles of optical fibers under superatmospheric pressure to avoid the formation of gas bubbles therewithin and blemishing caused by their inclusions in components drawn from the bundle. Apparatus is provided within which heating and drawing of the bundle of optical fibers is accomplished in a pressure chamber while the component being drawn therefrom is continuously removed from the chamber through a fluid sealed gland.

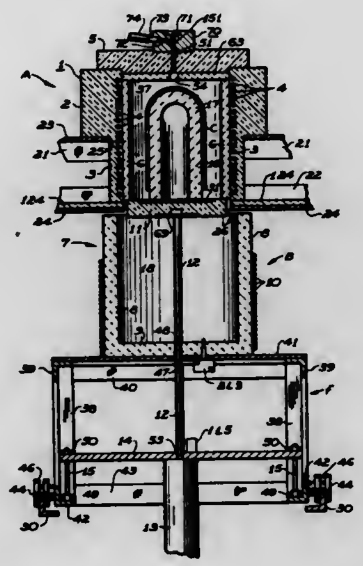
3,837,825
PROCESS FOR MAKING TRANSPARENT SILICA GLASS

Ted A. Loxley, Mentor; Walter G. Barber, North Perry; Walter W. Combs, Mentor, and John M. Webb, Chagrin Falls, all of Ohio, assignors to Sherwood Refractories, Inc., East Cleveland, Ohio

Continuation-in-part of Ser. No. 135,140, April 19, 1971, abandoned. This application May 24, 1973, Ser. No. 363,622

Int. Cl. C03g *23/20*

U.S. Cl. 65—18 **22 Claims**



A crucible formed from pulverized particles of fused quartz is fired and vacuum dried to remove all water and is thereafter placed on a heated graphite form or susceptor shaped to conform to the surface of said article and rapidly heated in an induction furnace to a high temperature, in the range of about 3000°F. to about 3150°F. The crucible is maintained at a temperature in such range in a vacuum or in a helium atmosphere for a period of at least one minute sufficient to obtain full density while avoiding substantial devitrification. The vacuum drying preferably provides the glass of the crucible with an infrared absorption beta OH factor below .01 at a wavelength of 3.5 microns. A unique apparatus is provided to carry out the process rapidly and efficiently without forming significant amounts of cristobalite and to cause gases trapped in the crucible to move radially outwardly. The process minimizes devitrification and can be employed for mass production of precision transparent amorphous quartz glass products having excellent resistance to thermal shock.

3,837,826
COLOR SORTING OF IRRADIATED QUARTZ MATERIALS

Baldwin Sawyer, Gates Mills, Ohio, assignor to Sawyer Research Products, Eastlake, Ohio

Filed Nov. 6, 1972, Ser. No. 303,857

Int. Cl. C03c *21/00*

U.S. Cl. 65—30 **10 Claims**

Methods of isolating quartz, glass or silicate materials having selected aluminum contents are described. The nondestructive method comprises subjecting the materials to ionizing irradiation for a period of time and at an intensity (preferably uniform) sufficient to develop the several distinctive color centers of the materials containing aluminum ions. According to the ions associated with the aluminum ions, the depth of color of each of the various tints developed corresponds to the amount of aluminum in said crystals. The colored crystals which correspond in tint and depth of color to the aluminum contents outside the desired content can be separated. In this manner, aluminum free quartz, glass or silicate materials can be isolated if present in a mixture, or fractions of such materials can be selected, each containing uniform aluminum content.

3,837,827

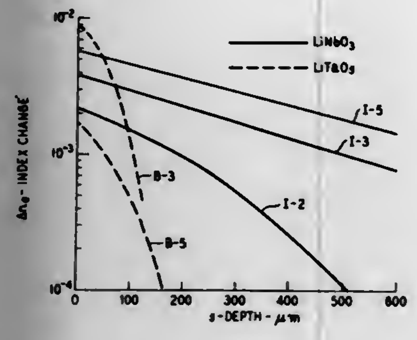
METHOD FOR PRODUCING OPTICAL WAVEGUIDING LAYERS IN SOLID TRANSPARENT MEDIA

John Robert Carruthers, Murray Hill, and Ivan Paul Kaminow, New Shrewsbury, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 18, 1973, Ser. No. 324,884

Int. Cl. C03c *15/00;* **C03b** *29/00*

U.S. Cl. 65—30 **6 Claims**



The specification describes a method for producing light guiding layers in transparent crystals, such as $LiNbO_3$ and $LiTaO_3$, by selectively outdiffusing the Li_2O component, by heating above 1,000° C in a nonreactive environment thereby effecting a change in the refractive index of the surface portion of the crystal. Effective light guiding layers in acoustooptic and electrooptic devices based on these crystals can be produced by this technique.

3,837,828

METHOD OF MELTING LASER GLASS IN A NOBLE METAL CONTAINER IN A CONTROLLED REDUCING ATMOSPHERE

Earl D. Dietz, and Paul R. Wengert, both of Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Sept. 1, 1971, Ser. No. 177,090

Int. Cl. C03b *5/00*

U.S. Cl. 65—32 **20 Claims**

This invention provides methods for melting glass laser compositions to provide glass laser rods with a minimum of noble metal inclusions and a minimum of dissolved noble metal content. The process comprises melting the laser glass in a noble metal container that is preferably platinum in a controlled reducing atmosphere in which the partial pressure of oxygen is between about 10^{-2} and 10^{-30} atmospheres.

3,837,829

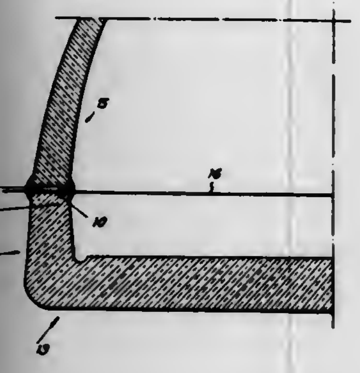
METHOD OF MANUFACTURE FOR CATHODE-RAY TUBES FOR COLOR TELEVISION RECEIVERS

Pierre Lebel, Kremlin-Bicetre, France, assignor to France-Couleur, Paris, France

Division of Ser. No. 35,831, May 8, 1970, abandoned. This application May 10, 1972, Ser. No. 255,883

Int. Cl. C03c *27/02*

U.S. Cl. 65—59 **4 Claims**



A method of manufacture for cathode-ray tubes for color television receivers of the type in which a grid consisting of parallel metal wires is disposed in the tube facing the front wall on which the television image is formed. The wires of the grid are of a non-magnetic alloy with a high cobalt content, as a rule more than 20 percent by weight, the composition further being such that in the course of heat treatment for joining the front portion of the tube with the conical portion by means of a sealing compound, oxides favorable to the airtight connection between the alloy and the sealing compound appear at the surface of the wires which renders unnecessary a second step of heat treatment for forming a sealing fillet at the outer ends of the wires.

3,837,830

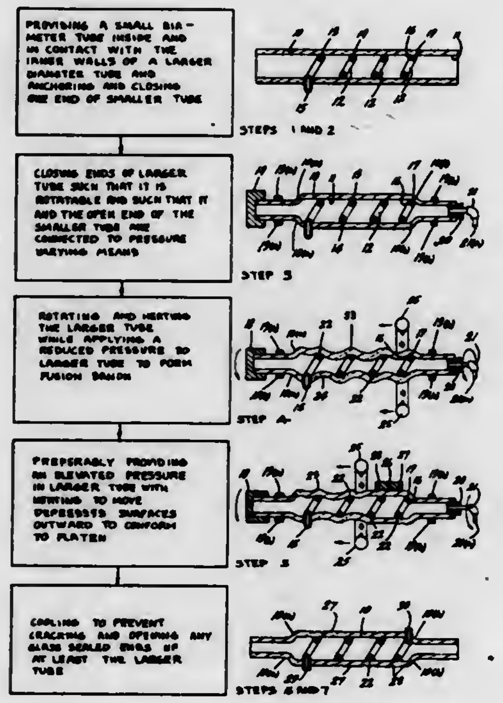
METHOD FOR FORMING INTEGRAL INTERNAL CHANNELS IN GLASS TUBING

Wolfgang R. Eberhart, 1115 Jarvis St., Windsor, Ontario, Canada

Filed Sept. 14, 1972, Ser. No. 288,971

Int. Cl. C03b *23/20*

U.S. Cl. 65—54 **12 Claims**


PROVIDING A SMALL DIAMETER TUBE INSIDE AND IN CONTACT WITH THE INNER WALLS OF A LARGER DIAMETER TUBE AND ANCHORING AND CLOSING ONE END OF SMALLER TUBE
STEPS 1 AND 2
CLOSING ENDS OF LARGER TUBE SUCH THAT IT IS ROTATABLE AND SUCH THAT IT AND THE OPEN END OF THE SMALLER TUBE ARE CONNECTED TO PRESSURE VARYING MEANS
STEP 3
ROTATING AND HEATING THE LARGER TUBE WHILE APPLYING A REDUCED PRESSURE TO LARGER TUBE TO FORM FUSION BANDS
STEP 4
PREFERABLY PROVIDING AN ELEVATED PRESSURE IN LARGER TUBE WITH HEATING TO MOVE DEPRESSED SURFACES OUTWARD TO CONFORM TO PLATEN
STEP 5
COOLING TO PREVENT CRACKING AND OPENING ANY GLASS SEALED ENDS OF AT LEAST THE LARGER TUBE
STEPS 6 AND 7

A method for forming integral internal channels defined by a wall with an annular cross-section inside high softening temperature glass tubing is described. In particular, a reduced pressure is provided inside a rotating tube with heating outside which softens the glass for deformation by the reduced pressure while a smaller tube is maintained in position in contact with the inside walls of the larger tube. The pressure is the smaller tube is usually the same as that in the larger tube and is such that it can collapse at the point of contact to form at least one fusion band along the inside wall of the larger tube. The position of the smaller tube is maintained such that the larger tube has concave depressions between the fusion bands. Usually the heating is accomplished by a gas flame ring burner positioned under the larger tube and moved progressively along the larger tube until the desired fusion of the tubes is completed. The next step which is preferred is to provide a positive pressure in the larger tube with heating to soften the glass to move the concave depressions out and mold them against a platen provided in spaced relation to the depressions outside of the larger tube. This can also be progressively accomplished with the ring burner. While the glass tubes are being manipulated, the sections being fused and molded are maintained above the strain point temperature of the glass. The glass is then usually annealed and then it is cooled. The articles produced are strain free, compact, durable and particularly useful for heat transfer applications such as reflux, still-head and take-off condensers used in conducting chemical reactions and liquid distillation operations. Preferably the channels form a helical coil inside the tube. In addition an electrical resistance wire can be provided in the channels to produce reaction vessels suitable for heating liquids and for conducting chemical reactions.

3,837,831

MELTING AND REFINING OF AMBER GLASS

Ronald H. Moore, Sylvania, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Mar. 14, 1973, Ser. No. 341,166

Int. Cl. C03g *5/16*

U.S. Cl. 65—134 **7 Claims**

Disclosed is a process for improving the melting and refining characteristics of soda-lime amber glasses containing iron and sulfur as the color-producing ingredients, by substituting copper oxide in the batch in part for the iron or sulfur colorants in a manner to maintain a normal amber color density while decreasing the incidence of gaseous inclusions in the glass.

3,837,832

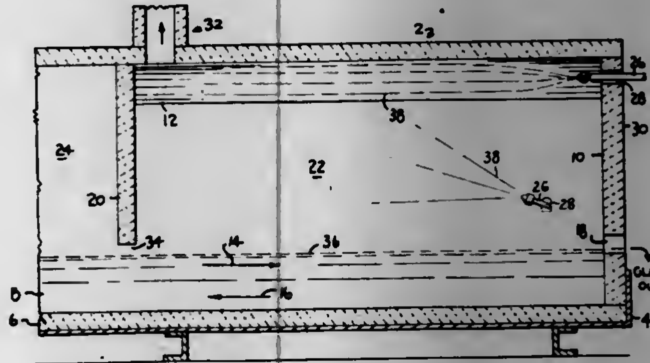
APPARATUS FOR MAKING FLOAT GLASS

George A. Pecoraro, Lower Burrell; John F. McConnell, and Leonard A. Knavish, both of Pittsburgh, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 138,699, April 29, 1971, Pat. No. 3,734,701. This application Feb. 27, 1973, Ser. No. 336,285

Int. Cl. C03b *18/02, 5/22*

U.S. Cl. 65—182 R **7 Claims**



In the production of high-quality flat glass by the float process, tridymite-frost stone defects are safely avoided by providing burners in the refiner zone of the furnace to shield the crown of that portion of the furnace from contact with alkali vapors, and at the same time providing not only a barrier that substantially separates the refiner-zone headspace from the melter headspace but also preferably a means associated with refiner-zone headspace for exhausting or venting it.

3,837,833

HEATED COVER PROTECTOR FOR PRESS BENDING BLOCK

Gerard Couture, Oshawa, Ontario, and Leo H. Lindberg, Whitby, Ontario, both of Canada, assignors to PPG Industries, Inc., Pittsburgh, Pa.

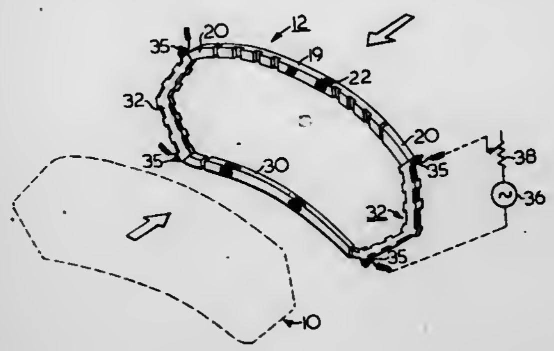
Filed June 12, 1972, Ser. No. 261,952

Claims priority, application Canada, Nov. 2, 1971, 126674

Int. Cl. C03b *23/02*

U.S. Cl. 65—288 **15 Claims**

A press bending member having a shaping surface of predetermined contour covered with a flexible cover member which tends to wear rapidly in certain areas is provided with metal cover protectors to eliminate wear in said areas. The metal cover protectors are heated by passing electrical currents therethrough to eliminate any tendency for thermal shock to occur in glass sheets contacting the same during press bending operations.



3,837,834

PLANT REGULATOR COMPOSITIONS AND METHOD

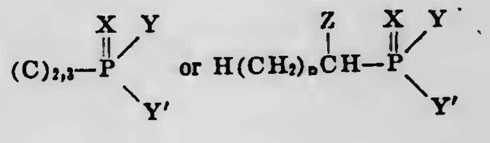
Kenneth Lee Hill, Doylestown, Pa., and John Francis McCarthy, Medina, N.Y., assignors to FMC Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 843,853, July 22, 1969, abandoned, which is a continuation of Ser. No. 609,286, Jan. 12, 1967, abandoned. This application June 19, 1972, Ser. No. 264,022

Int. Cl. A01n *9/36*

U.S. Cl. 71—76 **12 Claims**

Chemical compounds of the formula



$$(C)_{2,3}-\overset{X}{\overset{\|}{P}}\genfrac{}{}{0pt}{}{\diagup Y}{\diagdown Y'} \quad \text{or} \quad H(CH_2)_n\overset{Z}{\overset{|}{C}}H-\overset{X}{\overset{\|}{P}}\genfrac{}{}{0pt}{}{\diagup Y}{\diagdown Y'}$$

wherein $(C)_{2,3}$ represents a two or three carbon atom straight-chain hydrocarbon group; Z is hydroxy or acetoxy; n is 1 or 2; X is oxygen or sulfur; and Y and Y′ represent substituents such that the compound is a phosphonic acid, monoester, oxide, salt, halide, or a corresponding sulfur compound; are effective in modifying growth and development of plants, particularly in retarding or arresting growth without killing the plants. Different types of plant regulator activity are exemplified.

3,837,835

PREPARATION OF NON-DUSTING AND NON-CAKING GRANULAR FERTILISERS

Ferdinand Weinrotter, Linz/Donau; Walter Muller, Leonding near Linz/Donau; Wilfried Krulla, Doppl near Linz/Donau, and Gerhard Stern, Linz/Donau, all of Austria, assignors to Osterreichische Stickstoffwerke Aktiengesellschaft, Linz/Donau, Austria

Filed Oct. 20, 1972, Ser. No. 299,360

Claims priority, application Germany, Oct. 28, 1971, 2153789; Austria, Oct. 25, 1971, 9193/71

Int. Cl. C05c *1/00*

U.S. Cl. 71—59 **14 Claims**

Granules of fertiliser based on ammonium nitrate are conditioned to make them non-dusting and non-caking by applying to the surface of the granules a protective coating of a substituted s-triazine derivative.

3,837,836

HERBICIDAL COMPOSITION AND METHOD OF USING 4-ALKYL-AMINO-3-NITROQUINOLINES

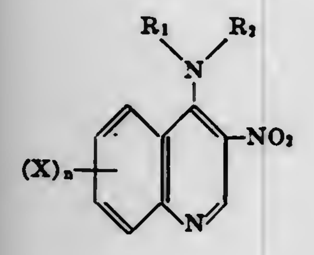
Robert Eugene Diehl, Trenton, and Richard Joseph Magee, Princeton, both of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 820,649, April 30, 1969, Pat. No. 3,700,674. This application May 26, 1972, Ser. No. 257,464

Int. Cl. A01n *9/22*

U.S. Cl. 71—94 **9 Claims**

The herbicidal compounds have the formula:



wherein:

R_1 and R_2 are each hydrogen, lower alkyl, or (lower alkylthio)lower alkyl except that R_1 and R_2 may not both be hydrogen,

X is halo, nitro, or trifluoro(lower)alkyl, and *n* is 0 to 3.

3,837,837

METHOD OF INCREASING SUGAR ACCUMULATION IN PLANT STORAGE ORGANS

Jacob Amir, Beer-Sheva, Israel, and Joe H. Cherry, West Lafayette, Ind., assignors to Purdue Research Foundation, Lafayette, Ind.

Filed Aug. 5, 1971, Ser. No. 169,537

Int. Cl. A01n *9/24*

U.S. Cl. 71—113 **5 Claims**

Sugar accumulation in plant storage organs, especially in the kernels of sweet corn is increased by the introduction, in vivo, of water soluble chelating agents, particularly water soluble salts of aminopolycarboxylic acids, into the plant system approximately one to five days prior to harvest of the plant product at the normal harvest period.

3,837,838

HIGH STRENGTH, DUCTILE COBALT-BASE DENTAL ALLOY

M. Hamdi A. Mohammed, 5G Talcott Ridge Rd., Farmington, Conn. 06032

Filed Dec. 18, 1972, Ser. No. 316,273

Int. Cl. C22c *19/00*

U.S. Cl. 75—134 F **6 Claims**

A low-cost cobalt-base alloy system suited for dental and other biomedical appliances is essentially free of carbon and molybdenum, and has an alloy base comprising cobalt, chromium, and nickel as essential major alloying elements and a member of the group comprising tantalum and niobium alloyed therewith as the major strengthening element to produce an alloy matrix having a structure which is ductile at room temperature, has high stacking fault energy to achieve further ductility and an average low electron hole number for the complete alloy matrix to prevent the formation of embrittling phases during cooling. The alloy system utilizes coherent strengthening compounds which form an integral part of the alloy matrix. Combinations of selected percentages, by weight, of cobalt, chromium, nickel, e.g. 35–45 percent cobalt, 20–32 percent chromium, and 30–40 percent nickel, are disclosed as the alloy base and is hardened by selected percentages of strengthening elements, e.g., tantalum and niobium, which have sufficient solubility in the alloy base to produce significant solid solution hardening and combine with cobalt to form coherent precipitate particles. Modifications are also disclosed.

3,837,839

METHOD OF PREPARING IRON POWDER SUITABLE FOR MAGNETIC RECORDING

Hans Rau, Laurensberg; Joachim Rolf Wegener, Oberforstbach, both of Germany, and Peter Townsend Greene, Emmasingel, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 26, 1973, Ser. No. 335,908

Claims priority, application Germany, Mar. 17, 1972, 2212933

Int. Cl. C22b *5/12*

U.S. Cl. 75—.5 AA **3 Claims**

A method of preparing a metal powder which consists mainly of iron by reduction of finely divided acicular iron oxide hydrate. The iron oxide hydrate particles are doped with a metal which is catalytic for hydrogen reactions (for example Co, Ni, Ru). The reduction to metal then occurs more rapidly.

3,837,840

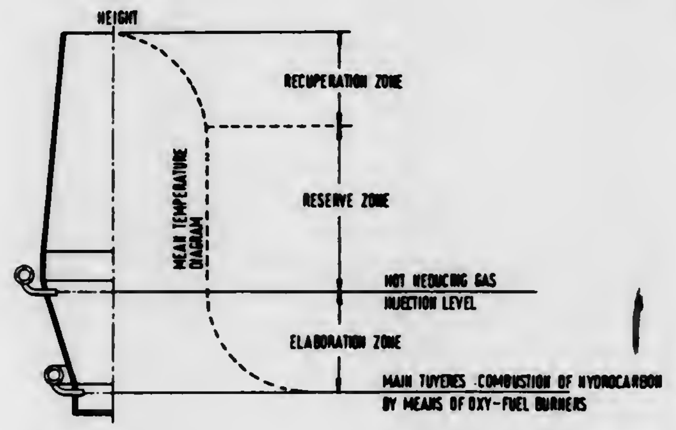
SHAFT FURNACE OPERATION WITH A DOUBLE FUEL INJECTION

Arthur Gerard Poos, Embourg, and Nicolas Gerassimos Ponghis, Liege, both of Belgium, assignors to Centre de Recherches Metallurgiques-Centrum Voor Research in de Metallurgie, Brussels, Belgium

Filed Oct. 12, 1971, Ser. No. 188,013

Int. Cl. C21b *5/00*

U.S. Cl. 75—42 **16 Claims**


HEIGHT
RECUPERATION ZONE
MEAN TEMPERATURE DIAGRAM
RESERVE ZONE
HOT REDUCING GAS INJECTION LEVEL
ELABORATION ZONE
MAIN TUYERES -COMBUSTION OF HYDROCARBON BY MEANS OF OXY-FUEL BURNERS

A fluid hydrocarbon is injected into the lower portion of a furnace, by means of a burner. The temperature of the combustion gas, resulting from the burning of the hydrocarbon and any coke in the furnace, is at least 1,600°C. Reducing gas is injected into the upper portion of the furnace at the level of the lower part of the reserve zone. The temperature of the reducing gas as it enters the furnace is equal to or slightly greater than the temperature of the material in the furnace at the level of injection of the reducing gas.

3,837,841

PROCESS FOR CONTROLLED REMOVAL OF CARBON UNDER VACUUM FROM HIGHLY ALLOYED STEELS

Horst Kutscher, Dortmund-Berghofen, Germany, assignor to Vacmetal Gesellschaft fur Vakuum-Metallurgie m.b.H., Dortmund, Germany

Filed Mar. 17, 1972, Ser. No. 235,506

Claims priority, application Germany, Mar. 25, 1971, 2114600

Int. Cl. C21c *5/30, 7/10*

U.S. Cl. 75—49 **7 Claims**

In a process for removing carbon from a highly-alloyed steel, such as a chrome steel, the steel is treated by blowing oxygen into or on to the molten steel in a vacuum vessel to remove carbon from the melt. The temperature of the gases extracted from the vessel is monitored to detect an abrupt drop in the gas temperature, at which point the oxygen treatment is arrested and the temperature of the melt is immediately measured. The composition of the melt is then corrected on the basis of the known equilibrium concentration of carbon and chrome, or other constituent, which occurs at that measured melt temperature. The composition of the melt may be corrected either by adding further alloying substances thereto, or by further oxygen treatment, as the situation requires.

3,837,842

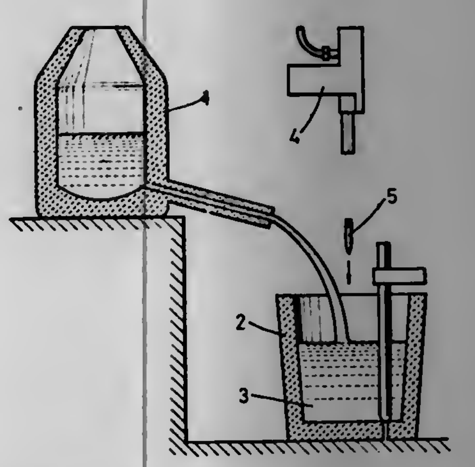
A METHOD FOR PROJECTING PIECES OF A DEOXIDIZING AGENT INTO MOLTEN STEEL

Toyosuke Tanoue, Toyonaka; Taiji Araki, and Takeo Aoki, both of Nishinomiya, all of Japan, assignors to Sumitomo Metal Industries Limited, Osaka, Japan

Filed Aug. 2, 1971, Ser. No. 168,072

Int. Cl. C21c *7/06*

U.S. Cl. 75—58 **5 Claims**



A method for projecting pieces of a deoxidizing agent into molten steel wherein the pieces are thrust into a body of molten steel to a depth such that the pieces will become completely dissolved as they float upwardly through the molten steel. Thus, loss of deoxidizing agent is substantially eliminated and a homogenous steel product is obtained.

3,837,843

PROCESS FOR THERMAL PRODUCTION OF MAGNESIUM

Rene Pons, Grenoble; Marcel Poyet, Gourdan-Polignan; Jean Desbert, Barbazan, and Andre Mena, Saint-Benat, all of France, assignors to Societe Francais d'Electrometallurgie, Paris, France

Filed Oct. 29, 1973, Ser. No. 410,965

Claims priority, application France, Oct. 30, 1972, 72.38394

Int. Cl. C22b *45/00*

U.S. Cl. 75—67 **9 Claims**

The invention relates to processes for production of magnesium of greater purity by reaction of a reducing agent with a substance containing magnesium oxide in the presence of a molten slag. The process according to the invention consists of agglomerating the reducing agent (ferro-silicon) with a binder formed of a mixture of water and slag which has been slowly cooled, drying and calcining and introducing the agglomerated material into the furnace in lieu of the lumps of reducing agent normally employed.

3,837,844

WEAR RESISTING MAGNETIC MATERIAL HAVING HIGH PERMEABILITY

Mutsuo Makita, Kanagawa-ken; Wataru Hayakawa, Odawara; Masaaki Hayashi, Odawara, and Yukio Kitagawa, Odawara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

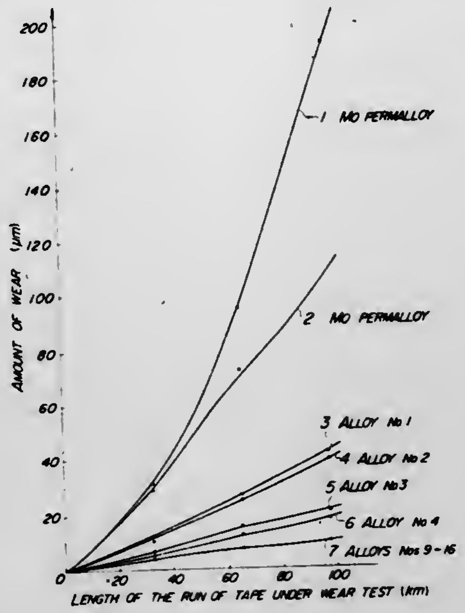
Filed Aug. 6, 1971, Ser. No. 169,638

Claims priority, application Japan, Aug. 10, 1970, 45-69222

Int. Cl. C22c *19/00, 39/40*

U.S. Cl. 75—122 **4 Claims**

A wear resisting magnetic material having high permeability in which not more than 10 percent by weight of at least one additive element selected from the group consisting of V and Ti is added to the conventional Fe-Ni series permalloy such as Fe-Ni, Fe-Ni-Mo, Fe-Ni-Cr and so on in order to enhance it's wear resisting property without impairing workability.



3,837,845

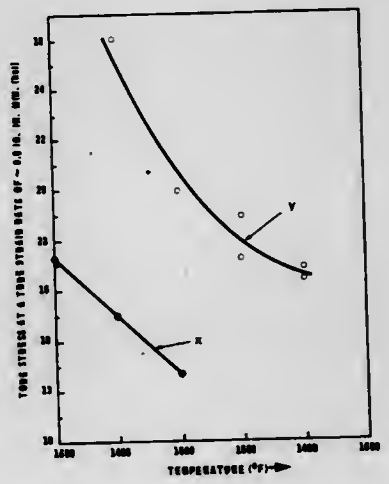
OXIDE COATED FERROUS METAL POWDER

Nathan Lewis Church, Warwick, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.

Filed Mar. 27, 1972, Ser. No. 238,238

Int. Cl. B22f

U.S. Cl. 75—.5 **11 Claims**



Steel powder forged at a temperature at which the steel is characterized by a microstructure containing specified percentages of ferrite and austenite contributes to low flow stress and other indicated advantages.

3,837,846

AUSTENITIC STEEL ALLOY ADAPTED TO BE WELDED WITHOUT CRACKING

Horst Becker, and Gerhard Kohlert, both of Altena, Germany, assignors to Vereinigte Deutsche Metallwerke AG, Zeilweg, Germany

Filed Mar. 23, 1972, Ser. No. 237,488

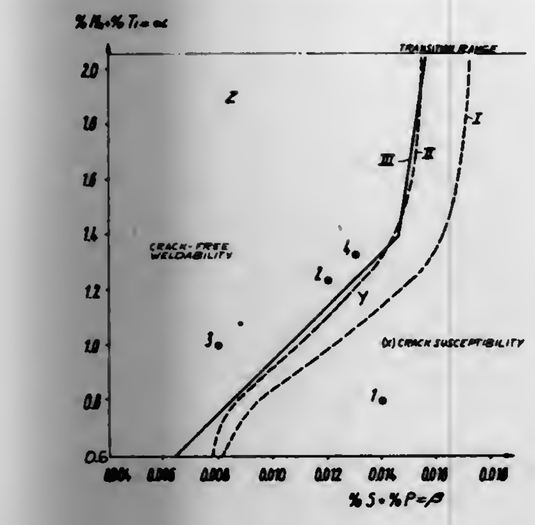
Claims priority, application Germany, Apr. 8, 1971, 2117233

Int. Cl. C27c *37/10*

U.S. Cl. 75—124 **14 Claims**

An austenitic steel alloy capable of being welded without cracking by the argon arc-welding process, consists of substantially 16 to 35 percent by weight chromium, 15 to 45 percent by weight nickel, 0 to 5 percent by weight molybdenum, 0 to 3 percent by weight copper, 0.1 to 1.5 percent by weight aluminum, 0.01 to 0.10 percent by weight carbon, 0.30 to

0.60 percent by weight silicon, 0 to 0.008 percent by weight calcium, 0 to 0.05 percent by weight zirconium, and manganese, titanium, sulfur and phosphorus in weight-percent



concentrations within the area to the left of curve I in the graph of FIG. 2 of the drawing, the balance being iron and the usual (inevitable) impurities.

3,837,847
CORROSION RESISTANT FERRITIC STAINLESS STEEL

Clarence George Bieber, West Milford, N.J., assignor to The International Nickel Company, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 841,138, July 11, 1969, abandoned. This application Dec. 23, 1971, Ser. No. 211,740

Int. Cl. C22c *39/20, 37/10*

U.S. Cl. 75—128 W **13 Claims**

A ferritic stainless steel resistant to pitting and crevice corrision and containing in addition to iron, correlated amounts of chromium, molybdenum, silicon, nickel and metal from the group consisting of titanium, vanadium and columbium. Other constituents can also be present.

3,837,848
METHOD OF MAKING TOOLS BY IMPREGNATING A STEEL SKELETON WITH A CARBIDE, NITRIDE OR OXIDE PRECURSOR

Otto Wessel, Duisburg-Ungelsheim, Germany, assignor to Mannesmann Aktiengesellschaft, Dusseldorf, Germany

Filed June 23, 1971, Ser. No. 156,029

Claims priority, application Germany, June 29, 1970, 2032814

Int. Cl. B22f *3/26*

U.S. Cl. 75—203 **24 Claims**

Method of making tools by compressing, e.g., steel particles into a porous skeleton, having high temperature strength and being penetrated by a continuous network of pores of total volume below 50 percent and by filling at least part of the pores with a non-metallic material that is substantially undeformable and harder than the skeleton at temperatures up to about 650° C.

3,837,849
MULTILAYERED VARIABLE SPEED PHOTORECEPTOR AND METHOD OF USING SAME

Anthony J. Ciuffini, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Feb. 20, 1973, Ser. No. 334,176

Int. Cl. G03g *5/04;* **Go3g** *13/22*

U.S. Cl. 96—1 R **10 Claims**

A xerographic member which comprises a supporting substrate having thereon an insulating blocking layer, a layer of halogen doped selenium overlaying the insulating layer, and a transport layer of vitreous selenium overlaying the halogen doped layer. The member is imaged by charging to a negative polarity followed by uniformly exposing to light which results in the negative charge being trapped in the halogen doped layer. The member is then uniformly positively charged and exposed to a pattern of light which results in the formation of a latent electrostatic image.

3,837,850
PHOTOCONDUCTIVE RUTILE TITANIUM DIOXIDE

Hajime Miyatuka, Kanagawa-ken, Japan, assignor to Rank Xerox, Ltd., London, England

Filed Dec. 29, 1972, Ser. No. 319,116

Int. Cl. G03q *5/08, 5/04*

U.S. Cl. 96—1.5 **6 Claims**

Disclosed is a process for the production of TiO_2 having an increased photosensitivity (while maintaining continuous tone reproduction) by the heat treatment of a hydrated oxide sol obtained from hydrolyzed organic titanic esters.

3,837,851
PHOTOCONDUCTOR OVERCOATED WITH TRIARYLPYRAZOLINE CHARGE TRANSPORT LAYER

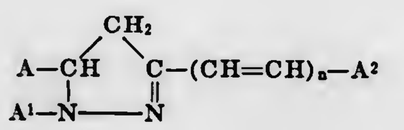
Meredith David Shattuck, San Jose, and William Joseph Weiche, Los Gatos, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1973, Ser. No. 323,677

Int. Cl. G03g *5/04, 5/06, 5/08*

U.S. Cl. 96—1.5 **4 Claims**

Electrophotographic plates are provided having a charge generation layer and a separate charge transport layer comprising a tri-aryl pyrazoline compound having the formula:



wherein *n* is zero or one, and A, A^1 and A^2 are each aryl radicals.

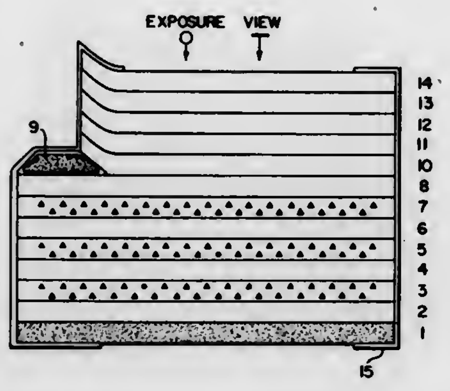
3,837,852
COLOR DIFFUSION TRANSFER PROCESS UTILIZING AZO COUPLING TO ACTUATE DIFFUSION OF COLOR PROVIDING SPECIES

Felix Viro, Apalachin; Robert Thomas Shannahan, Endicott, and Burton Harvey Waxman, Endwell, all of N.Y., assignors to GAF Corporation, New York, N.Y.

Filed Oct. 2, 1972, Ser. No. 293,940

Int. Cl. G03c *7/00, 1/00, 1/40*

U.S. Cl. 96—3 **13 Claims**



In a color diffusion transfer process utilizing azo coupling as a means to actuate solubilization and to accelerate the diffusion transfer process of color providing species, light sensitive layers are provided which contain oil dispersions of 4-equivalent color formers capable of coupling in the alkaline processing solution with the oxidation product of a p-phenylene diamine color developer and thereby form imagewise non-diffusible and insoluble dye species. These color formers are also capable of reacting with incorporated highly diffusible carboxy or sulfo substituted diazonium salts or their precursors to yield alkali soluble and highly diffusible azo dyes which diffuse imagewise to a mordanted receiving layer. In the receiving layer a p-phenylene diamine developer is oxidized for the purpose of converting these azo dyes via oxidative coupling into azo methine or indoaniline dye species thereby providing a true reproduction in color, hue and density of the scene originally recorded in the light sensitive silver halide layers.

3,837,853
ELECTROPHOTOGRAPHIC METHOD OF IMAGING WITH AN ELEMENT CONTAINING AN AMORPHOUS SEMICONDUCTOR

Tatsuo Masaki, Tokyo; Hiroshi Hanada, Yokohama, and Nobuo Kitashima, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 43,535, June 4, 1970, abandoned. This application Oct. 31, 1972, Ser. No. 302,586

Claims priority, application Japan, June 10, 1969, 44-45920; Nov. 24, 1969, 44-94093; Nov. 24, 1969, 44-94094

Int. Cl. G03g *5/04*

U.S. Cl. 96—1.5 **6 Claims**

An electrophotographic photosensitive member which comprises mainly a base layer, an amorphous semiconductor capable of reversible transition between a highly resistive and conductive state, and a photoconductive layer. An electrophotographic process utilizing said photosensitive member produces images of high contrast and high resolving property.

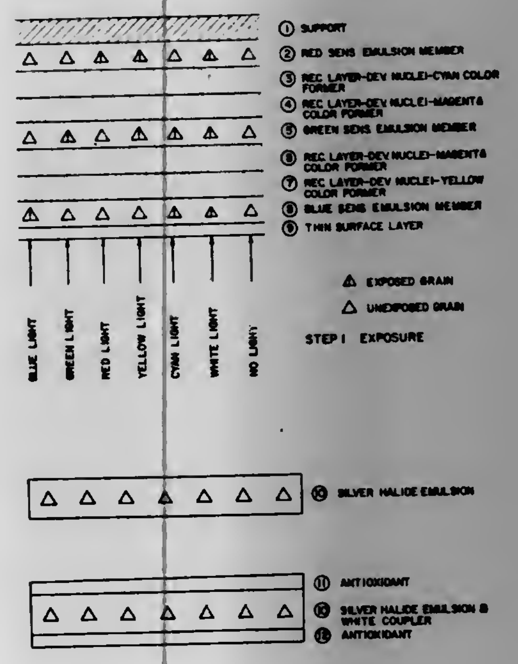
3,837,854
PHOTOGRAPHIC COLOR PROCESS BASED ON CONTROLLED FLOW OF SILVER IONS

Burton Harvey Waxman, Endwell; Robert Thomas Shannahan, Endicott, and Felix Viro, Apalachin, all of N.Y., assignors to GAF Corporation, New York, N.Y.

Filed Aug. 14, 1972, Ser. No. 280,426

Int. Cl. G03c *7/16, 1/76, 1/34*

U.S. Cl. 96—22 **24 Claims**


① SUPPORT
② RED SENS EMULSION MEMBER
③ REC LAYER-DEV NUCLEI-CYAN COLOR FORMER
④ REC LAYER-DEV NUCLEI-MAGENTA COLOR FORMER
⑤ GREEN SENS EMULSION MEMBER
⑥ REC LAYER-DEV NUCLEI-MAGENTA COLOR FORMER
⑦ REC LAYER-DEV NUCLEI-YELLOW COLOR FORMER
⑧ BLUE SENS EMULSION MEMBER
⑨ THIN SURFACE LAYER
EXPOSED GRAIN
UNEXPOSED GRAIN
STEP I EXPOSURE
BLUE LIGHT
GREEN LIGHT
RED LIGHT
YELLOW LIGHT
CYAN LIGHT
WHITE LIGHT
NO LIGHT
⑩ SILVER HALIDE EMULSION
⑪ ANTIOXIDANT
⑫ SILVER HALIDE EMULSION & WHITE COUPLER
⑬ ANTIOXIDANT

Positive multicolor images are produced by exposing, developing with a black-and-white developer, washing and then treating with an alkaline processing solution containing a paraphenylene diamine or other color producing developer and minute quantities of silver halide solubilizing agents a film package constructed of emulsion layers backed by color providing layers containing nucleating species and color providing couplers designed to react in said color providing layers with oxidized color developer produced by the catalytic reduction of solubilized silver ions in areas corresponding to unexposed portion of the film package. Between each emulsion and its contiguous nucleating and color providing layer unit is placed a separation layer which impedes the flow of silver ions from one emulsion layer to any layer other than the layer providing color complementary to the sensitized layer. Quantities of silver halide solvent are selected to assure a proper solubilization rate coupled with a rapid physical development effecting a sink condition whereby the nucleating layers pull silver ions of unexposed silver halide grains from adjoining layers only to produce colors complementary to the sensitization of the respective emulsion layers.

3,837,855
PATTERN DELINEATION METHOD AND PRODUCT SO PRODUCED

Denis Lawrence Rousseau, and William Robert Sinclair, both of Summit, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed May 9, 1973, Ser. No. 358,727

Int. Cl. G03c *5/00*

U.S. Cl. 96—35 **11 Claims**

A process for the fabrication of a supported iron oxide pattern involves electromagnetic wave irradiation of a blank. The blank consists of a layer of iron oxide which is soluble in, for example, an acid medium. Irradiation results in insolubilization so that delineation is accomplished by immersing the processed blank in a suitable solvent.

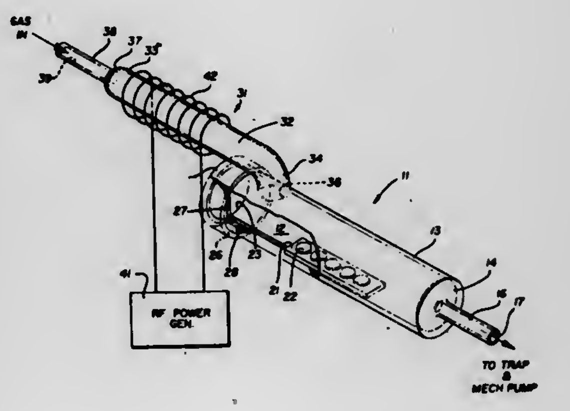
3,837,856
METHOD FOR REMOVING PHOTORESIST IN MANUFACTURE OF SEMICONDUCTOR DEVICES

Stephen M. Irving, Cupertino, and Kyle E. Lemons, San Jose, both of Calif., assignors to Signetics Corporation, Sunnyvale, Calif.

Continuation of Ser. No. 49,613, June 25, 1970, abandoned, which is a continuation of Ser. No. 4,165, Jan. 15, 1970, abandoned, which is a continuation of Ser. No. 628,425, April 4, 1967, abandoned. This application Sept. 22, 1972, Ser. No. 291,246

Int. Cl. G03c *5/00*

U.S. Cl. 96—36.2 **3 Claims**



Dry method for removing photoresist utilizing gases excited by electrodeless radio frequency excitation, commonly called glow discharge in the manufacture of semiconductor devices.

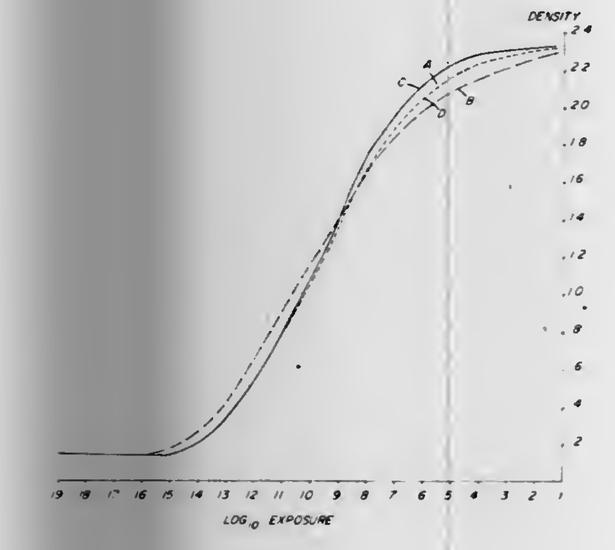
3,837,857
PHOTOGRAPHIC MATERIALS CURVE SHAPE STABILIZED WITH CARBOXY SUBSTITUTED 4-THIOURACILS

Thomas Irving Abbott, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 37,323, May 14, 1970,. This application Nov. 2, 1972, Ser. No. 303,295

Int. Cl. G03c *1/84, 7/32*

U.S. Cl. 96—74 **14 Claims**



Photographic layers, emulsions and elements comprising them are stabilized against color balance distortion by addition of carboxy substituted 4-thiouracils. Specific examples of stabilizers include 1-carboxyalkyl 5(H)-4-thio-cyclopenta-(d)-uracil.

3,837,858
PRINTING PLATE AND METHOD OF MAKING THE SAME

Richard T. Traskos, Brooklyn, Conn., assignor to Lith-Kem Corporation, Lynbrook, Long Island, N.Y.

Filed Sept. 11, 1972, Ser. No. 288,043

Int. Cl. G03f *7/02*

U.S. Cl. 96—75 **14 Claims**

An aqueous developable subtractive printing plate is presented comprising a photosensitized hydrophilic surface having a photosensitive diazo-borofluoride salt thereon.

A method for making a photosensitized printing plate is also presented wherein a photosensitive diazo-borofluoride salt is coated on the plate.

3,837,859
LIGHT-SENSITIVE COMPOSITION CONTAINING XYLENE RESIN

Nobuo Tsuji, and Eiichi Hasegawa, both of Ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 30, 1972, Ser. No. 257,621

Claims priority, application Japan, May 28, 1971, 46-36831

Int. Cl. G03c *1/68, 1/70*

U.S. Cl. 96—91 N **11 Claims**

A light-sensitive composition comprising a light-sensitive resin selected from the group consisting of a cinnamic acid resin, a cinnamylidene acetate resin and a cyclized rubber resin, and a xylene resin is disclosed.

3,837,860
PHOTOSENSITIVE MATERIALS COMPRISING POLYMERS HAVING RECURRING PENDENT O-QUINONE DIAZIDE GROUPS

Leo Roos, 36 Riveredge Rd., New Shrewsbury, N.J.

Filed June 16, 1969, Ser. No. 833,756

Int. Cl. G03c *1/52, 1/68*

U.S. Cl. 96—91 D **17 Claims**

A photosensitive composition which comprises a natural or synthetic polymer having pendent recurring o-quinone diazide groups. The compositions are useful in elements for the preparation of relief images, photoresist applications, etc.

3,837,861
GELATINO-SILVER HALIDE EMULSIONS CONTAINING MODIFIED GELATIN GRAFT COPOLYMERS

Bohdan Rakoczy, East Brunswick, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 23, 1973, Ser. No. 344,167

Int. Cl. G03c *1/72, 1/02*

U.S. Cl. 96—114 **32 Claims**

Films prepared from emulsions containing a novel graft copolymer, made from the reaction between one or more ethylenically unsaturated monomers and a hydrolyzed and modified gelatin, exhibit a remarkable resistance to becoming desensitized, a defect which occurs when the film is handled or "kinked". The gelatin used herein may be first hydrolyzed with acid or base followed by reaction of the product therefrom with a dibasic acid anhydride prior to further reaction with the ethylenically unsaturated monomer to form the graft copolymer. In some instances, prior to formation of the graft copolymer, the product above may be further reacted with an aldehyde, such as allyl aldehyde or 2,4-dihydroxybenzaldehyde. These novel graft copolymers are added to the silver halide emulsion at any point during the preparation of the emulsion and are particularly useful in X-ray products.

3,837,862
SPECTRALLY SENSITIZED SILVER HALIDE PHOTOGRAPHIC EMULSION

Keisuke Shiba; Akira Sato, and Akira Ogawa, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sept. 5, 1972, Ser. No. 286,396

Claims priority, application Japan, Sept. 2, 1971, 46-67712

Int. Cl. G03c *1/14*

U.S. Cl. 96—126 **17 Claims**

A silver halide photographic emulsion sensitized with the combination of (1) at least one dimethine merocyanine dye wherein the carbon atom at the 2-position of an oxazole nucleus bearing an alkyl group containing a sulfo or a carboxyl group on the nitrogen atom at the 3-position thereof and the carbon atom at the 5-position of a 2-thiohydantoin nucleus bearing a hydrogen atom or an alkyl group on the nitrogen atom at the 1- and 3-positions thereof are connected with each other through a dimethine chain, and (2) at least one of a J-band type carbocyanine dye wherein a sulfo group-containing alkyl group is attached to the nitrogen atom at the 3-position of a naphthothiazole nucleus, a naphthoselenazole nucleus, a benzothiazole nucleus or a benzoselenazole nucleus and the carbon atom at the 2-position is attached to mesoalkyl-substituted trimethine chain is disclosed.

3,837,863
PROCESS FOR PREPARING LIGHT-SENSITIVE SILVER HALIDE PHOTOGRAPHIC MATERIALS

Kaiichiro Sakazume, Tokyo; Eiichi Sakamoto, Hanno; Kiyomitsu Mine, Tokyo, and Masaru Kanbe, Yamanashi, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd.

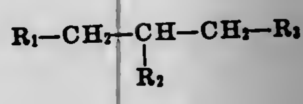
Filed June 19, 1972, Ser. No. 264,286

Claims priority, application Japan, June 18, 1971, 46-43286

Int. Cl. G03c *1/16*

U.S. Cl. 96—130 **5 Claims**

Light-sensitive photographic materials are prepared by incorporating various photographic additives into definite layers of light-sensitive silver halide photographic materials. The photographic additives are dissolved in a solvent and are then dispersed in a silver halide-gelatin colloid. The solvent used is a halogenated alcohol of the general formula (I) or (II),



$$R_1-CH_2-\underset{\displaystyle R_2}{\underset{|}{CH}}-CH_2-R_3 \qquad (I)$$

wherein R_1, R_2 and R_3 are individually a hydrogen atom, a chlorine atom or a hydroxy group, two of them being a chlorine atom and a hydroxy group, or

$$A-CH_2OH \qquad (II)$$

wherein A is CF_3 or $H(CF_2-CF_2)n$ (where *n* is an integer of 1 to 3.).

3,837,864
COMPOSITION FOR PREVENTING BIODETERIORATION OF CONCRETE IN BIOLOGICALLY ACTIVE WATER

Dinu Stefan Moraru; Ion Pitis, both of Bucharest, and Dumitru Topala, Constanta-Aleen, all of Romania, assignors to Institutul de Cercetari in Constructii si Economia Constructiilor-Incerc, Bucharest, Romania

Filed Oct. 10, 1972, Ser. No. 296,088

Claims priority, application Romania, Oct. 15, 1970, 68476

Int. Cl. C09d *5/14*

U.S. Cl. 106—15 AF **1 Claim**

A composition for the treatment of concrete structures to protect them against biodegradation in contact with biologically active water. The density of the treatment composition is designed such that it penetrates to a depth to about 10 mm and has a specific gravity which is 10^7 times greater than the solution surface tension as against concrete. The composition may contain a toxic substance which reduces biological attack and white spirit to obtain the desired specific gravity.

3,837,865
SETTABLE DENTAL COMPOSITIONS

Michael A. Pellico, Los Angeles, Calif., assignor to Denton Industries, Inc., Los Angeles, Calif.

Filed Dec. 8, 1972, Ser. No. 313,449

Int. Cl. C09k *3/00*

U.S. Cl. 106—35 **10 Claims**

A two-component system is provided wherein the components are adapted to interact to form an oral, settable dental composition. The first component includes a high molecular weight, liquid polycarboxylic acid as, for example, C_{36} dimer acid, C_{54} trimer acid and mixtures thereof and, advantageously, is formulated to also include rosin and a reaction rate activator such as acetic acid. The second component contains a metallic base such as zinc oxide or a mixture of zinc oxide and magnesium oxide in a suitable fluid carrier. The components interact to form a solid, cementitious, coherent mass which is substantially devoid of odor and taste during oral application.

3,837,866
LOW MELTING VANADATE GLASSES

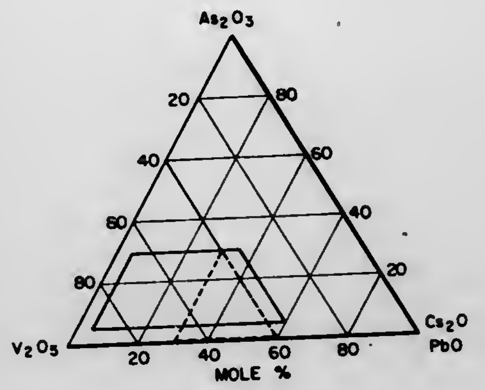
Joseph W. Malmendier, and Joseph E. Sojka, both of Painted Post, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Apr. 24, 1972, Ser. No. 247,118

Int. Cl. C03c *3/12*

U.S. Cl. 106—47 R **2 Claims**

Glasses are disclosed that melt at low temperatures in the range of 500°–900°C. and that are composed essentially of 25–85 percent by weight vanadium oxide, 5–60 percent lead and/or cesium oxide, and 5–45 percent arsenic oxide. The



glasses may be adapted either for encapsulating and sealing electrical elements, or for the fabrication of semiconducting elements.

3,837,867
$PbO-CdO-Tl_2O-Fe_2O_3$ GLASSES

William H. Dumbaugh, Jr., Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Mar. 26, 1973, Ser. No. 345,082

Int. Cl. C03c *3/12, 3/24, 3/30*

U.S. Cl. 106—47 R **4 Claims**

A new system of glasses is composed essentially of 33–68 cation percent PbO, 2.5–27 cation percent CdO, 10–30 cation percent Fe_2O_3, and 4–28 cation percent Tl_2O. The glasses are low-melting, have extremely high densities and refractive indices, and have excellent infrared transmission characteristics.

3,837,868
STABILIZED BISMUTHATE GLASSES

Albert J. Berleue, Bradford, and William H. Dumbaugh, Jr., Painted Post, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Mar. 26, 1973, Ser. No. 345,083

Int. Cl. C03c *3/12, 3/24, 3/30*

U.S. Cl. 106—47 R **8 Claims**

Iron oxide is used to stabilize infrared transmitting, lead and cadmium bismuthate glasses. The resulting glasses contain, in cation percent, 8 to 80% Bi_2O_3, 0–57% PbO, 0–32% CdO, at least 5% Pbo + CdO, 5–32.5% Fe_2O_3, and 0–15% miscellaneous other oxides.

3,837,869
CELSIAN CONTAINING DIELECTRIC CROSSOVER COMPOSITIONS

Rudolph J. Bacher, New Castle, and Takashi Nakayama, Wilmington, both of Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed July 20, 1972, Ser. No. 273,355. The portion of the term of this patent subsequent to Apr. 18, 1989, has been disclaimed.

Int. Cl. C03c *3/10, 3/04, 3/30*

U.S. Cl. 106—53 **8 Claims**

Improved crossover dielectric compositions which are finely divided powders of glass and preformed celsian; the compositions are capable of producing printed capacitors of reduced dielectric constant.

3,837,870
FUSED CAST REFRACTORY PRODUCTS CONTAINING CHROMIC OXIDE

Joseph Recasens, Sorgues, and Maurice Gardiol, Avignon, both of France, assignors to L'Electro-Refractaire, Paris, France

Filed May 11, 1973, Ser. No. 359,596

Claims priority, application France, May 12, 1972, 72.17015

Int. Cl. C04b *35/10, 35/12, 35/48*

U.S. Cl. 106—57 **10 Claims**

The invention relates to the refractory art and, more specifically, to fused cast refractory compose of crystalline phases based on chromic oxide, zirconia and, possibly, alumina, and of a vitreous phase comprising silica, a substantially saturating amount of alumina and at least one oxide of the group consisting of Na_2O, K_2O, Li_2O, CaO, BaO, BeO and MgO, the composition of the product, expressed by weight in terms of the oxides, being as follows: 1–74% Cr_2O_3, 15–40% ZrO_2, 3–76% Al_2O_3, 7.5–20% SiO_2 and a minor amount of at least one oxide of the group consisting of Na_2O, K_2O, Li_2O, CaO, BaO, BeO and MgO.

The products of the invention are useful for the construction of glass furnaces.

3,837,871
HEXAGONAL SILICON ALUMINUM OXYNITRIDE

Gerald Q. Weaver, Worcester, Mass., assignor to Norton Company, Worcester, Mass.

Filed Apr. 24, 1972, Ser. No. 246,818

Int. Cl. C04b *35/56, 35/58*

U.S. Cl. 106—65 **9 Claims**

The quaternary compound silicon aluminum oxynitride having a hexagonal phenacite crystal structure is described. The quaternary compound is formed by reacting silicon oxynitride with an appreciable percentage of aluminum. The percent of the product which is converted to the hexagonal quaternary compound is believed to be about 6 times the percentage of aluminum in the product, up to about 15 parts Al/100 parts Si_2ON_2 when the silicon oxynitride in the product is largely converted to cthe hexagonal quaternary compound $Si_{2-x}AlaxON_2$ As more aluminum is added, the relative proportions of aluminum and silicon in the compound seem to change until the formula $SiAlON_2$ is reached at which point no additional aluminum can be accommodated in the crystal lattice. When the mixture is hot processed, the product has high strength and less than about 1 percent porosity. The process of making this novel product is also described.

3,837,872
METHOD OF MAKING WASTES NON-POLLUTING AND DISPOSABLE

Jesse R. Conner, Pittsburgh, Pa., assignor to Chemfix Inc.,, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 1,554, Jan. 8, 1970, abandoned. This application Jan. 4, 1972, Ser. No. 215,421

Int. Cl. C04b *31/00*

U.S. Cl. 106—74 **3 Claims**

An aqueous solution of an alkali metal silicate is mixed with waste material and a silicate setting agent to cause the silicate and setting agent to react with each other. The proportions of the silicate and setting agent are such that the reaction converts the mixture into a consolidated chemically and physically stable solid product that is substantially insoluble in water and in which pollutants are entrapped in the solidified silicate so that the waste material is rendered non-polluting and fit for ultimate disposal.

3,837,873
COMPOSITIONS FOR USE IN FORMING A DOPED OXIDE FILM

Gordon P. Pollack; John G. Fish, both of Richardson, and Samuel R. Shortes, Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed May 31, 1972, Ser. No. 258,173

Int. Cl. C09k *3/00;* **H01l** *7/44*

U.S. Cl. 106—287 SE **5 Claims**

A doped silicon oxide-forming film is produced on a semiconductor wafer by coating the wafer with a solution prepared by the reaction of tetraethylorthosilicate with acetic anhydride in the presence of a suitable solvent. A suitable dopant species is also contained in the solution. Upon heating the wafer to diffusion temperature, a doped oxide film is formed, and the dopant diffuses from the doped oxide film into the semiconductor.

3,837,874
BLACK PIGMENT AND METHOD OF MAKING SAME

George B. De Laney, Detroit, and Robert D. Shannon, Ann Arbor, both of Mich., assignors to Ebonex Corporation, Melvindale, Mich.

Filed July 12, 1973, Ser. No. 378,752

Int. Cl. C08h *17/08*

U.S. Cl. 106—307 **9 Claims**

A black pigment for use in paints and the like consists of diatomaceous earth and activated carbon saturated with color bodies derived from unclarified corn syrup. The diatomaceous earth and activated carbon employed in the pigment are coated on a screen used as a filter as part of a decoloring step in corn syrup production. When the coating becomes saturated with color bodies from the syrup it is removed from the screen, washed with water to remove any residual syrup, and then dried by heating it at a low temperature. The dried material is then crushed in a ball mill and graded as to particle size in an air separator to achieve a desired size range.

3,837,875
COMPOSITION FOR CLEANING, SEALING, PRESERVING, PROTECTING AND BEAUTIFYING HOST MATERIALS

John A. Murphy, 920 E. 36th Pl., Tulsa, Okla. 74105

Filed Jan. 19, 1973, Ser. No. 325,109

Int. Cl. C08h *9/00*

U.S. Cl. 106—264 **1 Claim**

A composition for indepth cleaning, sealing, preserving, protecting and beautifying host materials consisting of a mixture of boiled linseed oil, turpentine, pine oil, a dryer and atomized metallic copper with the copper being present in a ratio of about 28 parts per million. The composition is applied to the host material such as terrazzo floors, wood surfaces, furniture, panelling, marble, gem stones, artifacts, glass, plexiglas, metals, fiberglas, cement, brick, vinyl and other type flooring. The composition seals, fills, polishes, cleans, serves as a bacteriacide, pesticide and fungicide. The composition has no toxic properties upon contact with the skin.

3,837,876
ORGANOSILICONE COMPOSITIONS

Tetsuya Mayuzumi, and Yoshio Inoue, both of Annaka, Japan, assignors to Shinetsu Chemical Company, Tokyo, Japan

Filed Jan. 15, 1973, Ser. No. 323,340

Claims priority, application Japan, Jan. 13, 1972, 47-475997

Int. Cl. C07g *17/00*

U.S. Cl. 106—287 SB **5 Claims**

Organosilicone compositions which consist essentially of the product of the reaction of a mixture of a certain aminoalkylalkoxysilane and a certain epoxyalkylalkoxysilane. The organosilicone compositions are used in the form of a blend with a sealant or a primer coating for improving the adhesion of such blends onto various surfaces, or the adhesion of the sealant itself onto the various surfaces, respectively.

3,837,877
PRODUCTION OF ROD-SHAPED MICRO-CRYSTALLITES FROM CLAY

Orlando Leonard Bertorelli, Havre de Grace, Md., assignor to J. M. Huber Corporation, Locust, N.J.

Continuation-in-part of Ser. No. 141,180, May 7, 1971, abandoned. This application Jan. 10, 1973, Ser. No. 322,602

Int. Cl. C08h *17/04;* **C09c** *1/28*

U.S. Cl. 106—288 B **4 Claims**

A method for preparing unique rod-shaped micro-crystalline particulates from kaolin clay is disclosed. The method involves the hydrothermal treatment of an aqueous dispersion of kaolin clay and a hydroxide of an alkali metal which transforms the clay into alumino-silicate rod-shaped micro-crystallites. The product has particular utility as reinforcing agents for non-elastomer type plastics. By controlling the process variables a product having predetermined characteristics and/or properties can be obtained.

3,837,878
PROCESS FOR TREATING SILICA FILLERS

Melvin D. Beers, Ballston Lake, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Dec. 4, 1972, Ser. No. 311,486

Int. Cl. C08h *17/04;* **C09c** *1/28*

U.S. Cl. 106—308 Q **11 Claims**

A process for treating silica fillers comprising contacting the silica filler with a mixture of a hydroxyl amine, a cyclic siloxane and silyl nitrogen compound. These additives are added to the silica simultaneously and allowed to come in contact with the silica filler at a temperature in the range of 100° to 180°C. The remaining amounts of the additives are removed through vacuum devolatilization after the treatment. A filler treated in this manner has a large number of organosiloxy groups appended to it.

3,837,879
REMOVING OF WORN COATING FROM METAL ELECTRODES

Guy Sluse, Rixensart, and Gustave Joannes, Meise, both of Belgium, assignors to Solvay & Cie., Brussels, Belgium

Filed Apr. 18, 1972, Ser. No. 245,192

Claims priority, application Luxembourg, Apr. 21, 1971, 63028

Int. Cl. C23f *1/00*

U.S. Cl. 117—2 R **13 Claims**

A method including immersing a coated electrode into a molten salt bath including essentially at least one bisulphate or pyrosulphate of an alkali metal or ammonium, at a temperature between 300° and 500° C. and water-rinsing the so-treated electrode after cooling thereof.

3,837,880
METHOD OF PREVENTING COATING DIFFUSION FLOW

Cecil Behringer, Edina, Minn., and George J. Kamin, Towanda, Pa., assignors to GTE Sylvania Incorporated, Stamford, Conn.

Division of Ser. No. 141,351, May 7, 1971, , which is a division of Ser. No. 16,583, March 4, 1970, Pat. No. 3,623,921. This application Nov. 24, 1972, Ser. No. 309,367

Int. Cl. B44d *1/52*

U.S. Cl. 117—5.5 **2 Claims**

A solid material containing a rare earth compound suspended in a fugitive carrier is useful in preventing braze and diffusion flow by applying the slurried compound to the material to be brazed or diffusion coated in a continuous layer by conventional methods. Alternative compositions are suspensions of rare earth compounds in a fugitive carrier and refractory metal oxides, admixed with rare earth compounds and mixtures thereof suspended in a fugitive carrier.

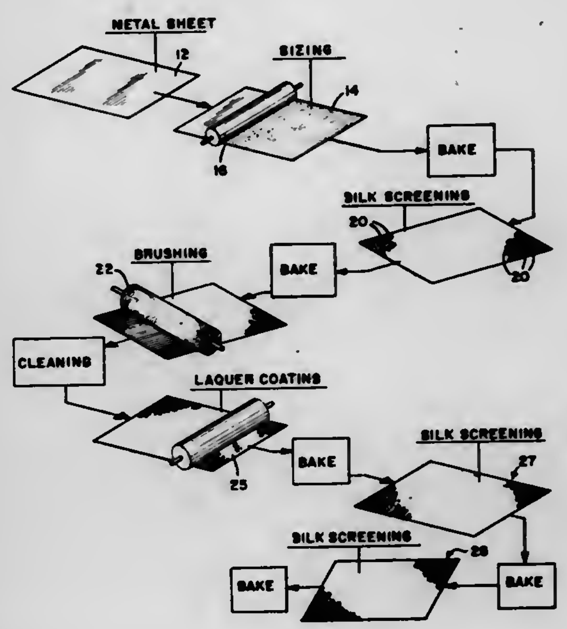
3,837,881
METHOD FOR COATING AND TEXTURING A SURFACE

Leslie P. Hix, Union, Ohio, assignor to Angell Manufacturing Company, Dayton, Ohio

Filed July 3, 1972, Ser. No. 268,596

Int. Cl. B44c *5/00*

U.S. Cl. 117—8 **7 Claims**



The surface of a polished metallic panel is coated with a sizing and a heavy transparent ink is then silk screened in a pattern thereon. Next the surface is abraded, with the transparent ink protecting the areas it covers to produce a pattern of bright and dull areas. The entire surface is next covered with a protective lacquer coating, following which additional layers of transparent ink are silk screened thereonto substantially in registration with the first layer, yielding lense-like ink accumulations which produce an optical effect giving an illusion of depth to the panel surface. The built up areas actually appear as depressions.

3,837,882
OPTICAL BODIES WITH NON-EPITAXIALLY GROWN CRYSTALS ON SURFACE

Carl F. Swinehart, University Heights, and James T. Lindow, Cleveland Heights, both of Ohio, assignors to Kewanee Oil Company, Bryn Mawr, Pa.

Filed Sept. 2, 1971, Ser. No. 177,447

Int. Cl. B44d *5/02;* **C09k** *1/06*

U.S. Cl. 117—16 **14 Claims**

This is a process for growing non-epitaxially a different crystal upon a base crystal surface and thereafter destroying said different crystal, thereby generating a uniformly random arrangement of surface irregularities which are independent of lattice orientation in the base crystal. The texture of the treated surface is unlike prior art surfaces, whether produced chemically or mechanically, and specular reflections are essentially eliminated.

3,837,883
IMAGE TRANSFER PROCESS

Elsie L. Menz, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Division of Ser. No. 886,838, Dec. 22, 1969, Pat. No. 3,706,553. This application Oct. 30, 1972, Ser. No. 302,367The portion of the term of this patent subsequent to Dec. 19, 1989, has been disclaimed.

Int. Cl. G03g *13/14*

U.S. Cl. 117—17.5 **7 Claims**

A method of transferring insulating image material containing a static charge from an image bearing surface to an electrically non-conductive image receiving surface by means of coulombic attraction and the rearrangement of electrical charges.

3,837,884
METHOD OF PRODUCING BLUE COLORED TRANSPARENT LAYERS

Peter Rheinberger, Furstentum, Liechtenstein, assignor to Balzers Patent-Und Beteiligungs-Aktiengesellschaft, Balzers, Furstentum, Liechtenstein

Claims priority, application, Switzerland, July 12, 1971, 10243/71

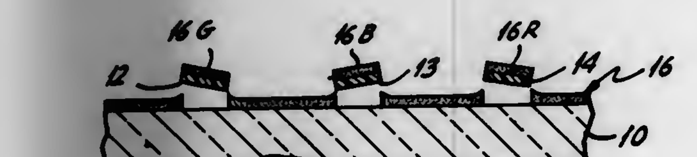
Filed July 10, 1972, Ser. No. 270,547
Int. Cl. C23c *13/04*
U.S. Cl. 117—33.3 **9 Claims**

A powdery mixture of cobalt hydroxide, aluminium oxide, and oxides which absorb substantially no visible light, preferably silicon dioxide, is vacuum evaporated in an oxidizing atmosphere and deposited on a base material and subsequently heat treating at approximately 300°C. The coating of the base material thereby obtained is a hard, well adherent, pure blue colored and transparent film. The proportions of the principal components of the primary mixture used for evaporation are 30 to 40 percent of cobalt hydroxide and 5 to 15 percent of aluminium oxide, the refractive index of the whole mixture is approximately equal to the refractive index of the base material and the thickness of the film produced is approximately 1/1000 mm.

3,837,885
CATHODE RAY TUBE MANUFACTURE

Louis J. Angelucci, Jr., Norristown, Pa., assignor to Philco-Ford Corporation, Philadelphia, Pa.

Continuation of Ser. No. 63,823, Aug. 14, 1970, abandoned. This application Aug. 17, 1972, Ser. No. 281,464
Int. Cl. G03c *5/00*
U.S. Cl. 117—33.5 CM **1 Claim**



A process of manufacturing color image screens of the type comprising a multiplicity of triplets of tri-color phosphor dots adherent to a glass substrate and spaced from each other by intermediate light absorbing screen areas. A layer of photo-bondable material is deposited, exposed, and developed, whereby to provide on the substrate dots of photo-bondable material occupying elemental areas corresponding in size and location to the desired phosphor dots. A layer of light absorbing material is then applied across the substrate and across said elemental areas, after which a debonding agent is used which is effective to loosen the photo-bonded material remaining in said elemental areas and cause the same to break free from the substrate in the form of minute individual platelets which carry with them the light absorbing material which overlies the same. This exposes elemental substrate areas in a dark matrix, and the desired phosphor dots are formed by depositing in these areas phosphors of the desired fluorescence.

3,837,886
PROCESS FOR PRODUCING PHOTOGRAPHIC MATERIALS

Sumitaka Tatsuta, and Wataru Ueno, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-Shi, Kanagawa, Japan

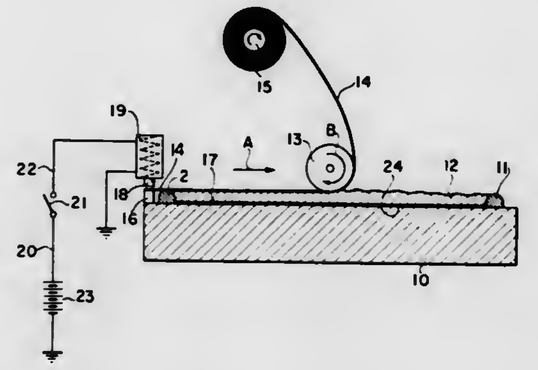
Filed May 12, 1971, Ser. No. 142,815
Claims priority, application Japan, May 15, 1970, 45-41358The portion of the term of this patent subsequent to Oct. 10, 1989, has been disclaimed.
Int. Cl. G03c *1/78;* **B44d** *1/092*
U.S. Cl. 117—34 **12 Claims**

There is disclosed a process for producing a photographic material using a polystyrene film as a support by subjecting a biaxially drawn, surface-roughened polystyrene film to a high frequency electrodeless discharge in a vacuum at a frequency of 13.56 MHz, and then coating an aqueous emulsion or suspension containing gelatin as a binder on the film. The bond strength between the film support and the coating proves superior to those materials in the prior art.

3,837,887
PROCESS FOR THE PREPARATION OF PRINTING PLATE OF PHOTOSENSITIVE RESIN

Kiyoshi Akamatsu, Tokyo; Masayasu Maruta, Ohi, and Yasushi Yonekura, Tokyo, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 45,745, June 12, 1970, Pat. No. 3,687,785. This application June 14, 1972, Ser. No. 262,827
Claims priority, application Japan, June 16, 1969, 44-46817
Int. Cl. C03c *1/74, 3/26;* **G03c** *1/00*
U.S. Cl. 117—34 **1 Claim**



An apparatus for the preparation of a printing plate comprising a layer of photo-sensitive liquid resin, wherein the improvement comprises an application means for laminating an anti-wrinkle plastic sheet on the resin surface upon being doctored and at the same speed with that of the doctor.

3,837,888
DUPLICATING MATERIAL

Gerhard Hoffmann, Vienna, Austria; Walter Schutzner, deceased, late of Vienna, Austria (by Lilly Schutzner, heir); Ingrid Schutzner, and Peter Schutzner, heirs, both of Vienna, Austria, assignors to Kores Holding Zug AG, Zug, Switzerland

Filed Apr. 25, 1972, Ser. No. 247,463
Claims priority, application Austria, Apr. 28, 1971, 3651/71
Int. Cl. B41m *5/10*
U.S. Cl. 117—15 **4 Claims**

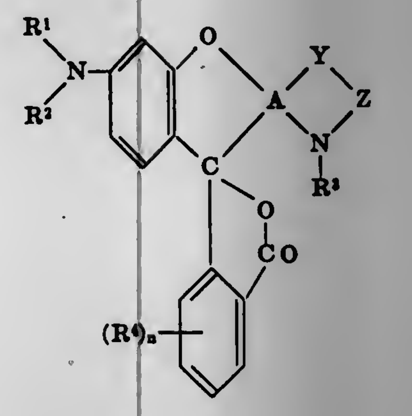
A pressure sensitive duplicating material comprises upper and lower sheets. Each upper sheet on its rear side is provided with a color layer having a loosened structure and under writing pressure being selectively transferable to a lower or copy sheet only provided with a special adhesive layer. Said selective transferability can be deleted if an additional binder is applied to the color layer in certain areas, the additional binder filling interstices of said color layer.

3,837,889
COLOUR FORMERS

Nigel Hughes, and Andrew Hunter Morris Renfrew, both of Blackley, Manchester, England, assignors to Wiggins Teape Limited, London, England

Filed Feb. 16, 1973, Ser. No. 333,347
Claims priority, application Great Britain, Feb. 21, 1972, 7848/72
Int. Cl. B41m *5/22*
U.S. Cl. 117—36.2 **6 Claims**

Colourless colour formers which are compounds characterised by the general formula:



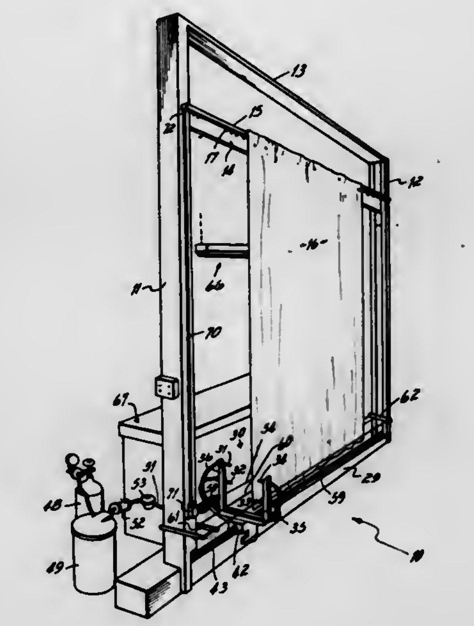
wherein R^1, R^2 and R^3 each independently represents hydrogen, an optionally substituted alkyl radical having from one to five carbon atoms or forms part of a heterocyclic ring containing the attached nitrogen atom; R^4 represents a halogen atom or an alkyl, aryl, aralkyl, alkoxy, nitro, optionally substituted amino, acyl, carboxy, cyano or sulphamyl radical; *n* represents an integer of from 0 to 4; A represents an optionally substituted aromatic ring the points of attachment being at two pairs of ortho positions; Y represents a direct link, optionally substituted methylene, oxygen, sulphur or a group of the formula $-NR^6-$ wherein R^6 denotes hydrogen or an optionally substituted alkyl, aryl or aralkyl radical; and Z represents an optionally substituted divalent organic radical such that a five-or six-membered ring is formed with Y, $-NR^3-$ and A.

3,837,890
DRAPERY MARKING METHOD UTILIZING INVISIBLE DYES

Paul E. Sumner, 1009 Lanette Dr., Cincinnati, Ohio 45230, and Joseph E. Peter, Cincinnati, Ohio, assignors to said Sumner, by said Peter

Division of Ser. No. 106,975, Jan. 18, 1971, Pat. No. 3,749,051. This application Dec. 14, 1972, Ser. No. 315,179
Int. Cl. B05b *17/00*
U.S. Cl. 117—37 R **2 Claims**

A drapery or curtain is hung from an adjustable frame so that it hangs freely in a similar manner to its intended use. One or more dye squirting orifices or nozzles traverse the width of the drapery at predetermined heights to mark cut-off or fold lines on the drapery and/or lining. The dye may be invisible as applied on the drapery and may become visible only when exposed to light of a predetermined wavelength for subsequent cutting, folding or sewing of the drapery. The orifice may be a



hypodermic neddle which provides a very thin continuous unbroken liquid stream or jet that marks the line on the drapery.

3,837,891
PROCESS OF STRENGTHENING POLYCRYSTALLINE REFRACTORY OXIDE FIBERS

Raymond Frank Tietz, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed June 30, 1972, Ser. No. 268,022
Int. Cl. C23d *7/00*
U.S. Cl. 117—46 FA **7 Claims**

A process for strengthening polycrystalline refractory oxide fibers, particularly alumina fibers, which comprises subjecting them to a silicone-containing liquid to obtain a coating on the fiber. On subsequent heating of the coated fiber, the silicone is decomposed to silica, and the silica is vitrified into an adherent, optically uniform, thin coating. By controlling the thickness of the coating, refractory oxide fibers having improved tensile properties are obtained.

3,837,892
GLASS FIBER REINFORCED ELASTOMERS

Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jan. 28, 1972, Ser. No. 221,680
Int. Cl. B32b *17/02;* **B44d** *1/44*
U.S. Cl. 117—62.1 **16 Claims**

This invention is addressed to the improvement in the bonding relationship between glass fibers and elastomeric materials in which glass fibers are treated with a functional organo silicon compound containing at least one of an amino, a hydroxy or an epoxy group, and then the glass fibers are treated either with a polyurethane prepolymer containing free isocyanates or an organic polyisocyanate for subsequent reaction with free hydroxyl groups, or a polyurethane prepolymer or a polyhydroxylated compound.

The polyurethane prepolymer containing free isocyanate groups may be prepared by reaction of excess polyisocyanate with a hydroxyl terminated polybutadiene or a polyhydroxylated polyester prepared by reaction of a polyol with a polycarboxylic acid of anhydride containing ethylenic unsaturation. These prepolymers are capable of undergoing co-cure or vulcanization with elastomeric material.

3,837,893

NON-LAMINATED, NON-DYEABLE METALLIC YARN

Peter J. Schoots, Anderson, S.C., assignor to Lurex N.V., Amsterdam, Netherlands

Filed June 7, 1972, Ser. No. 260,673

Int. Cl. B05c *9/04*

U.S. Cl. 117—68 **4 Claims**

A non-dyeable coated metallic flat yarn cut from a transparent film metallized on both sides and coated on both sides with an ethylene copolymer, preferably an ethylene acrylic acid copolymer containing 2–15 percent acrylic acid.

3,837,894

PROCESS FOR PRODUCING A CORROSION RESISTANT DUPLEX COATING

Robert C. Tucker, Jr., Indianapolis, Ind., assignor to Union Carbide Corporation, New York, N.Y.

Filed May 22, 1972, Ser. No. 255,457

Int. Cl. C23c *7/00;* **C23d** *5/00*

U.S. Cl. 117—70 A **10 Claims**

A process for producing a corrosion resistant duplex coating having a metallurgically sealed undercoat, said undercoat being obtained by plasma depositing two or more materials onto a substrate in a substantially unreacted state so that when the coated substrate is heat treated in a non-oxidizing atmosphere, reaction/diffusion will occur between the materials thereby forming a metallurgically sealed undercoat securely bonded to the substrate and to a primary overcoat.

3,837,895

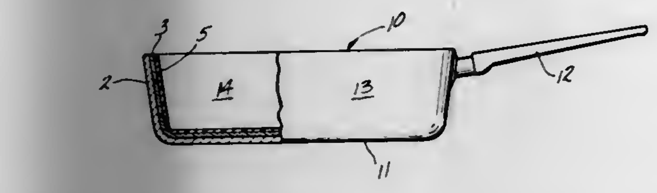
ORGANIC RESIN-GLASS-METAL COMPOSITE

Michael J. Pryor, Woodbridge, and James M. Popplewell, Guilford, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 78,899, Oct. 7, 1970, Pat. No. 3,676,292, and a continuation-in-part of Ser. No. 231,834, March 6, 1972, , and a continuation-in-part of Ser. No. 254,666, May 18, 1972,. This application July 7, 1972, Ser. No. 269,869

Int. Cl. B44d *1/14, 1/34*

U.S. Cl. 117—70 A **31 Claims**



A composite, the process of making the composite and articles formed of the composite. The composite comprises a copper base alloy component containing from about 2 to 12% aluminum and the balance essentially copper. A glass or ceramic component comprising a coating of a glass or ceramic frit covering from about 40 to 100% of the surface area of a major surface of the copper base alloy component. The glass or ceramic component is bonded to the copper base alloy component. A heat resistant organic resin coating is provided over the glass or ceramic component and the major surface of the copper base alloy component. The composite is particularly useful for cooking utensils.

3,837,896

SINTERED CEMENTED CARBIDE BODY COATED WITH TWO LAYERS

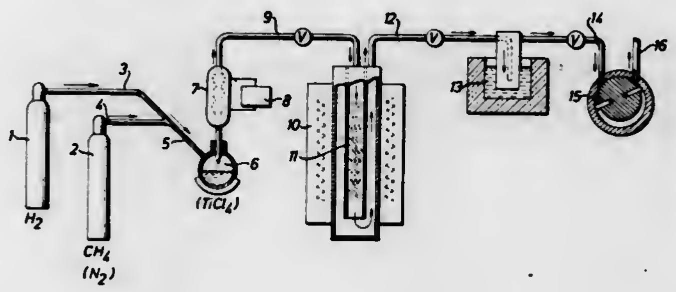
Jan Nils Lindstrom, Hagersten; Bo Folke Jonsson, Huddinge, and Fall Johan Olof William Ohlsson, Enskede, all of Sweden, assignors to Sandvik Aktiebolag (a/k/a Sandvikens Jernverks Aktiebolag), Sandviken 1, Sweden

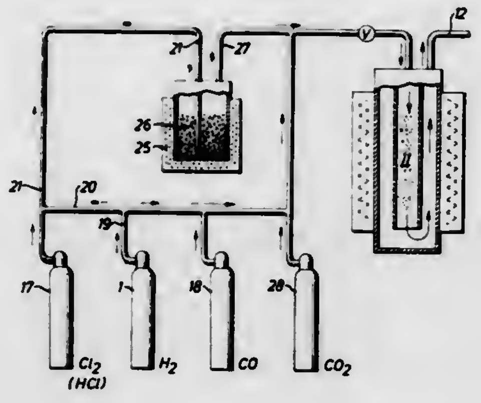
Filed Nov. 3, 1972, Ser. No. 303,362

Claims priority, application Sweden, Nov. 21, 1971, 14479/71

Int. Cl. C23c *11/14, 13/02;* **C23d** *5/00*

U.S. Cl. 117—70 A **3 Claims**





A sintered hard metal body (e.g., a cutting insert) is provided as to wear resistance by depositing thereon an intermediate thin coating of a metallic carbide or metallic nitride free from binder metal and applying over this intermediate coating a thin ceramic coating free from binder metal.

3,837,897

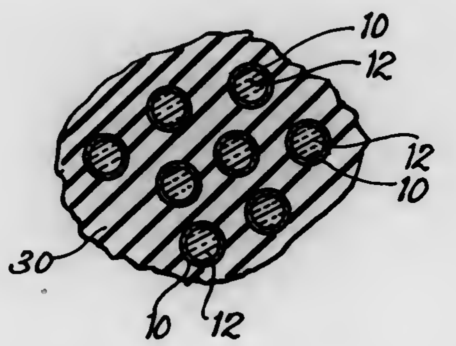
GLASS FIBER REINFORCED ELASTOMERS

Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed May 4, 1972, Ser. No. 250,391The portion of the term of this patent subsequent to Dec. 5, 1989, has been disclaimed.

Int. Cl. B32b *17/04;* **C08g** *31/24;* **C07f** *7/02*

U.S. Cl. 117—72 **17 Claims**



Improvements in the bonding relationship between glass fibers and elastomeric materials wherein glass fibers are treated with a composition containing as the essential component a copolymer of an amino silane and a resorcinolato silane. Alternatively, the glass fibers can also be treated with a composition formulated of an elastomer and a resorcinol formaldehyde resin prepared in the presence of a copolymer of an amino silane and a resorcinolato silane. The resulting composition and glass fibers treated therewith are used for reinforcement of elastomeric materials.

3,837,898

GLASS FIBER SIZE COMPOSITION

Frank Paul McCombs, Granville, and Michael Graeg Roberts, Newark, both of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed June 19, 1972, Ser. No. 264,091

Int. Cl. B32b *17/02, 17/10;* **C08d** *7/00*

U.S. Cl. 117—72 **26 Claims**

This invention is addressed to an improved size composition for use in the treatment of glass fibers in the manufacture of glass fiber textiles, glass fiber reinforced plastics and glass fiber reinforced elastomeric products wherein the size is formulated to contain, as the essential ingredients, a polybutadiene, and preferably a low-molecular weight polybutadiene, and a glass fiber anchoring agent. Bundles of glass fibers sized with the composition of the invention are particularly well suited for impregnation with an elastomer compatible material containing a resorcinol-aldehyde resin component and an elastomer component for use in the manufacture of glass fiber reinforced elastomeric products.

In one embodiment, the glass fiber anchoring agent is a mixture of a polyamino silane and hyrolyzable amino-substituted akyl silane. The composition may also contain a polymerizable alkenyl aromatic compound, a heat activated free radical intiator, a thixotropic gel agent, a poly-alpha-olefin or a glass fiber lubricant.

3,837,899

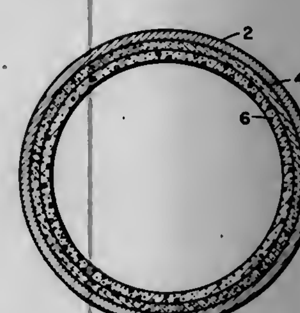
METHOD OF COATING THE INTERIOR SURFACE OF A METAL VESSEL AND THE COATED VESSEL

Bobbie L. Carlberg, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

Filed June 14, 1972, Ser. No. 262,893

Int. Cl. B44d *1/14;* **B32b** *15/04*

U.S. Cl. 117—92 **3 Claims**



Method of coating the interior surface of metal vessels with a first coating of a mastic-like material and second coating of a hydraulic cement.

3,837,900

SEMI-PERMEABLE MEMBRANE

Robert D. Englert, Corona Del Mar; Lester P. Berriman, 18871 Portofino Dr., Irvine, and John L. Rendall, Portola Valley, all of Calif., assignors to Koratec, Inc., San Francisco, Calif.

Continuation of Ser. No. 132,171, April 7, 1971, abandoned. This application Jan. 22, 1973, Ser. No. 325,362

Int. Cl. F26b *3/34;* **C08g** *9/00, 9/10*

U.S. Cl. 117—93.1 DH **28 Claims**

A treated cellulosic reverse osmosis membrane having decreased compaction and better resistance to flux rate decrease with time as compared with an untreated membrane. An untreated membrane is contacted with cross-linking resins such as methylolated melamines and subjected to microwave radiation.

3,837,901

DIFFUSION-COATING OF NICKEL-BASE SUPERALLOY ARTICLES

Alan U. Seybolt, Ballston Spa, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Aug. 21, 1970, Ser. No. 66,069

Int. Cl. C23c *9/02*

U.S. Cl. 117—107.2 P **10 Claims**

A nickel-base superalloy article is provided with an oxidation-resistant coating by heating it to 1,050°C for 3 hours in a bed consisting of a mixture of fine particles of $FeAl_3$ (40%), NH_4F (0.2%) and Al_2O_3 under a hydrogen atmosphere.

3,837,902

METHODS OF MAKING ALUMINUM LEAD ALLOYS

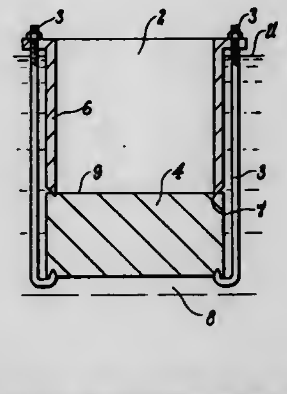
Lionel Stern, 3/47 Studley Park Rd., Kew, Australia

Filed Dec. 15, 1972, Ser. No. 315,670

Claims priority, application Australia, Dec. 17, 1971, 7438/71

Int. Cl. C23c *1/06*

U.S. Cl. 117—114 R **3 Claims**



The invention concerns aluminium-lead ingots or other articles as well as bearings and other products made therefrom and also to methods of making such ingots or other articles. The improved aluminium-lead ingot is made from an aluminium-tin ingot having a substantially continuous tin rich network which is expelled from the aluminium matrix and replaced by lead in the network passages originally occupied by the tin rich phase.

3,837,903

TREATMENT OF CELLULOSIC MATERIALS TO IMPART FLAME RESISTANCE THERETO

Giffin D. Jones, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed July 21, 1972, Ser. No. 273,834

Int. Cl. B44d *1/22*

U.S. Cl. 117—138 **3 Claims**

Normally flammable cellulosic material rendered flame resistant by the addition thereto of from about 10 and 30 weight percent, based on the weight of cellulosic material, of calcined boron phosphate.

3,837,904

METHOD OF SIZING CARBON FIBERS

James Edward Hill, Johnson City, Tenn., assignor to Great Lakes Carbon Corporation, New York, N.Y.

No Drawing. Continuation-in-part of Ser. No. 17,928, March 9, 1970, abandoned. This application Feb. 29, 1972, Ser. No. 230,447

Int. Cl. C08j *1/44*

U.S. Cl. 117—139.5 A **9 Claims**

A method for sizing carbon fibers to improve handleability and strand strength of yarns, rovings, tapes, tows with a size, comprising a resin such as an epoxide, a polyimide, a polyamide or a polyester and a reactive functionally terminated polymer dissolved therein which percipitates therefrom when the resin is subjected to a curing temperature. Examples of reactive functionally-terminated polymer include carboxy-terminated butadiene/acrylonitrile copolymer, mercaptan-terminated butadiene/acrylonitile copolymer, and other relatively low molecular weight polymers with reactive end-groups such as hydroxyl, carboxy and thiol.

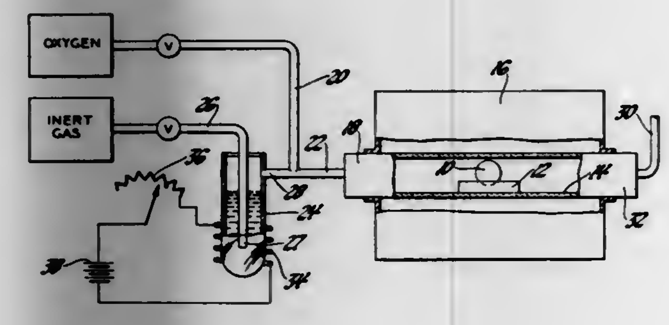
3,837,905
THERMAL OXIDATION OF SILICON

John W. Hile, Birmingham, and Mao-Chieh Chen, Sterling Heights, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 182,586, Sept. 22, 1971, abandoned. This application Aug. 14, 1972, Ser. No. 280,490

Int. Cl. C23c *11/00;* **B44d** *5/12*

U.S. Cl. 117—201 **7 Claims**



Silicon dioxide is thermally grown on a silicon surface in an oxygen atmosphere containing trichloroethylene (C_2HCl_3) vapor. Smaller concentrations of trichloroethylene provide clean oxide layers. Significantly larger concentrations provide an oxidation rate increase. Metal-oxide-semiconductor (MOS) devices can be produced having an initially low oxide space charge and an improved electrical stability under bias-temperature stress.

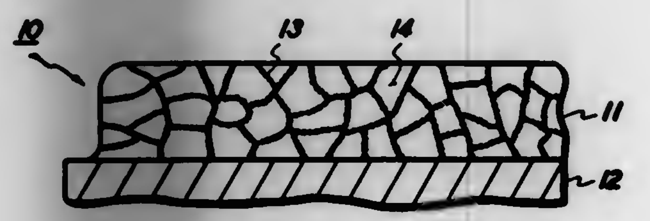
3,837,906
METHOD OF MAKING A XEROGRAPHIC BINDER LAYER, AND LAYER SO PREPARED

Robert N. Jones, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 88,842, Nov. 12, 1970, abandoned, which is a continuation-in-part of Ser. No. 627,664, April 3, 1967, abandoned. This application Oct. 16, 1972, Ser. No. 298,056

Int. Cl. G03g *5/04;* **C23c** *3/00*

U.S. Cl. 117—201 **13 Claims**



A xerographic binder layer which comprises inorganic photoconductive particles contained in an insulating, fused, inorganic glass matrix, the photoconductive particles are present in an amount from about 1 to 25 percent by volume of the binder layer, and in the form of a plurality of continuous paths through the thickness of the layer. The method of making and imaging the binder layer is also described.

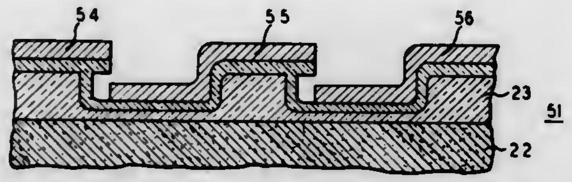
3,837,907
MULTIPLE-LEVEL METALLIZATION FOR INTEGRATED CIRCUITS

Carl Neil Berglund, Warren Twp., Somerset County; Edward Haig Nicollian, Murray Hill; Michael Francis Tompsett, Summit, all of N.J., and Herbert Atkin Waggener, Allentown, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 22, 1972, Ser. No. 236,886

Int. Cl. B44d *1/18;* **H01l** *5/02*

U.S. Cl. 117—212 **1 Claim**



A method of forming multi-level metallization in integrated circuits with essentially zero effective lateral spacing between adjacent isolated metal portions. Indentations are formed at least partially through a first dielectric layer; and a second dielectric layer having apertures registered with and smaller than the indentations is formed thereover such that portions of the second layer overhang the indentations at the perimeters thereof. A thin metal layer then is deposited over the surface of the structure. Because the second dielectric layer overhangs the indentations, the deposited metal is discontinuous at the perimeter of each of the indentations if the deposited metal layer is kept sufficiently thin. Selective connection of adjacent metal portions at any portion of the perimeter of any indentation is made by any of a variety of techniques, such as electroless plating of gold through a photoresist mask.

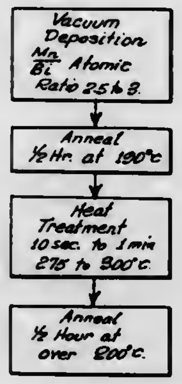
3,837,908
MANGANESE BISMUTH FILMS WITH NARROW TRANSFER CHARACTERISTICS FOR CURIE-POINT SWITCHING

George W. Lewicki, Studio City, and John E. Guisinger, Altadena, both of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Continuation-in-part of Ser. No. 57,439, July 23, 1970, abandoned. This application Nov. 1, 1972, Ser. No. 302,913

Int. Cl. H01f *10/02*

U.S. Cl. 117—239 **8 Claims**


Vacuum Deposition Mn/Bi Atomic Ratio 2.5 to 3.
Anneal ½ Hr. at 190°c
Heat Treatment 10 sec. to 1 min 275 to 300°c.
Anneal ½ Hour at over 200°c.

Manganese bismuth films having improved characteristics for recording information by Curie-point switching, and especially for Curie-point recording of information in analogue form, can be produced by a vacuum deposition of Bi and Mn with an atomic ratio of Mn to Bi between 2 and 3.5 or 1.4 and 1.6, followed by a specialized heat treatment which includes very brief exposure to a temperature between about 275° and 300°C. Similar MnBi films can be produced more reliably and reproducibly if the initial Bi layer is annealed prior to deposition of the Mn layer. Such an annealing step renders most other factors of the processing relatively non-critical. Deposition of both initial layers is preferably carried out in a vacuum approaching 10^{-8} Torr, but at least traces of oxygen are then made available to the reaction site prior to the subsequent reaction of the Mn and Bi layers to form ferromagnetic MnBi.

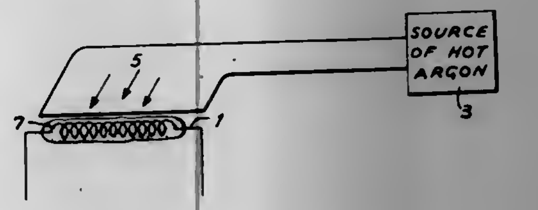
3,837,909
COATED COIL EMISSIVE ELECTRODE

Richard A. Menelly, Danvers, Mass., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed July 27, 1972, Ser. No. 275,644

Int. Cl. H01j *1/4;* **B44d** *1/02*

U.S. Cl. 117—224 **6 Claims**



A coated coil emissive electrode of the type utilized in fluorescent lamps and a method for making such an electrode. The electrode includes a tungsten coil, a bonding layer of an emissive form of barium tungstate coating said tungsten coil, and a layer of porous barium oxide coating said barium tungstate, said barium tungstate bonding said barium oxide to said tungsten coil. The electrode is made by coating said tungsten coil wuth a mixture of barium peroxide, cellulose nitrate and butyl cellosolve and heating said coated coil to the exothermal decomposition temperature of said cellulose nitrate. The exothermal decompositon of said cellulose nitrate raises the temperature of the barium peroxide to its exothermal decomposition temperature thereby forming said bonding layer of the emissive form of barium tungstate and releasing bubbles of oxygen causing the pores in said barium oxide.

3,837,910
METHOD OF MANUFACTURING A POLYCRYSTALLINE FERRITE BODY

Karel Van der Laan, and Hans Peter Peloschek, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 4, 1971, Ser. No. 186,254

Claims priority, application Netherlands, Oct. 7, 1970, 7014697; Aug. 18, 1971, 7111359

Int. Cl. C04b *35/30, 35/38*

U.S. Cl. 117—234 **4 Claims**

A method of manufacturing a polycrystalline ferrite body obtained by sintering a compressed block of the starting material. A readily detrition-resistant material having interdigitated crystals of an average grain size of more than 50 microns is obtained by adding prior to sintering a material from the group BaF_2, SrF_2; the oxides of B, Bi, Ca, Cu, Mg, Pb, Si, V; and $Fe_3(PO_4)_2$ and choosing a very particular combination of added quantity and sintering temperature.

3,837,911
MAGNETIC DEVICES UTILIZING GARNET EPITAXIAL MATERIALS AND METHOD OF PRODUCTION

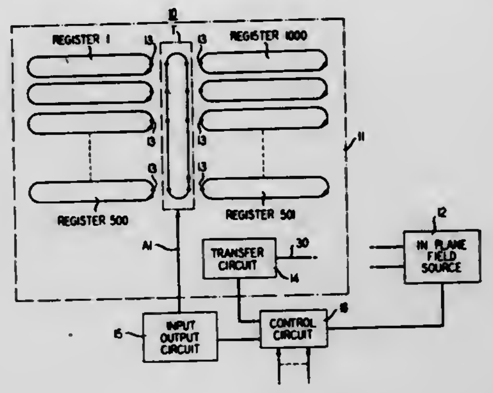
Andrew Henry Bobeck, Chatham, Morris County; Hyman Joseph Levinstein, Berkeley Heights, Union County, and Larry Keith Shick, Bridgewater Township, Somerset County, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Continuation-in-part of Ser. No. 133,361, Apr. 12, 1971, which is a continuation-in-part of Ser. No. 89,632, Nov. 16, 1970, abandoned. This application Oct. 29, 1971, Ser. No. 193,976

Int. Cl. H01f *10/02*

U.S. Cl. 117—235 **17 Claims**

Magnetic garnet compositions grown by liquid phase epitaxy have appropriate magnetic properties for use in bubble domain devices - a class of magnetic devices in which information is represented by enclosed domain regions of polarity opposite to that of immediately surrounding material. Critical selection of compositions, all containing mixed rare earth cations, as well as careful choice of processing conditions yield films which are both uniform in composition and dimension, as well as lacking in hillock formation and other surface irregularities.



3,837,912
ENVIRONMENTALLY STABLE IRON-BASED MAGNETIC RECORDING MEDIUM

John S. Roden, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 22, 1972, Ser. No. 255,260

Int. Cl. H01f *10/02*

U.S. Cl. 117—240 **6 Claims**

Environmentally stable magnetic recording medium comprising fine metal particles based on iron, cobalt, or nickel dispersed in a nonmagnetizable binder material, the particles having a chromium-based outer layer formed by exposing the particles to a solution containing dichromate or chromate ions under high-shear mixing conditions.

3,837,913
CONTINUOUSLY OPERATING CENTRIFUGE

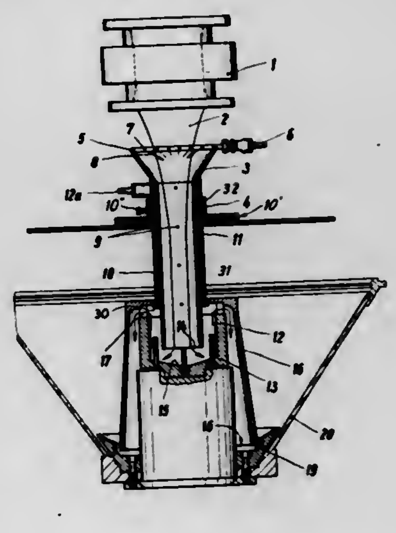
Heinrich Hillebrand, and Helmut Schaper, both of Braunschweig, Germany, assignors to Braunschweigische Maschinenbauanstalt, Braunschweig, Amalten Bahnhof, Germany

Filed June 23, 1972, Ser. No. 265,575

Claims priority, application Germany, Feb. 18, 1972, 2207663

Int. Cl. B04b *5/00, 11/00*

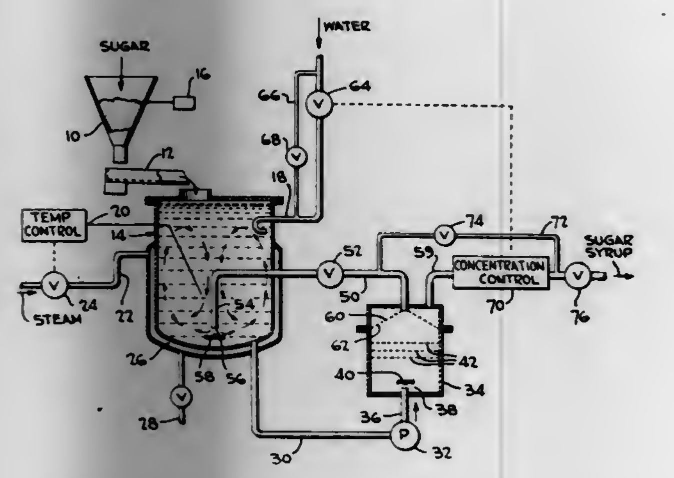
U.S. Cl. 127—19 **7 Claims**



A sugar centrifuge is provided with a feed-in arrangement for sugar massecuite in which a massecuite stream falling through an inlet tube is sprayed with water. Steam is also circulated around the stream of massecuite whereby the latter is exposed to steam jets. The massecuite falls into a distribution cup having vertical projecting mixing pins. An accelerating cone receives the massecuite from the cup and feeds it to the centrifuge proper.

3,837,914
METHOD AND APPARATUS FOR DISSOLVING SUGAR AND OTHER SOLUBLE SOLIDS

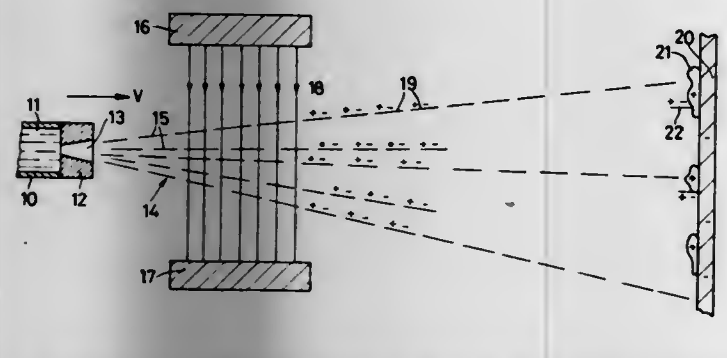
Angelo Cadeo, and Josef Cavelti, both of Rothrist, Switzerland, assignors to Frebar A.G., Zug, Switzerland
Filed May 23, 1972, Ser. No. 256,121
Int. Cl. B01f *1/00;* **C13f** *1/14*
U.S. Cl. 127—22 **38 Claims**



A continuous method of, and apparatus for, forming a solution of a powdered solid, such as sugar, which involves introducing the solid and a solvent, such as water, into a first dissolving unit, continuously withdrawing a portion of the contents of the first unit into a second dissolving unit, continuously re-cycling the contents of the second dissolving unit back to the first dissolving unit and continuously withdrawing the resulting solution from the second dissolving unit. Each dissolving unit is provided with means, such as a nozzle and a splach plate, to impart a facilitating dissolving motion to the solution being transferred from one dissolving unit to the other.

3,837,915
PASSING ATOMIZED LIQUID THROUGH MAGNETIC FIELD FOR IMPROVED SPRAY WASHING

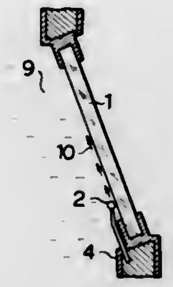
Georg O. Erb, D-5241 Bindweide, Germany
Filed Nov. 6, 1972, Ser. No. 304,054
Claims priority, application Germany, Nov. 6, 1971, 2155278
Int. Cl. B08b *3/10, 3/02*
U.S. Cl. 134—1 **10 Claims**



A method of cleaning objects such as surfaces of a vehicle and the like by passing a washing fluid, such as water, which may contain a washing agent, through an atomizing nozzle to form an atomized jet and then passing the atomized jet through a magnetic field which is preferably at right angles to the axis of the jet so as to induce voltages in the drops of the atomized jet and then impinging the jet against the surface to be cleaned so that the cleaning is more effective by equalizing the electrostatic charges bonding the dirt particles to the surface to be cleaned.

3,837,916
METHOD FOR PREVENTING LIVING THINGS SUCH AS MICROORGANISMS IN THE SEA FROM STICKING TO SUBMARINE EQUIPMENT BY SPRAYING WITH FRESH WATER

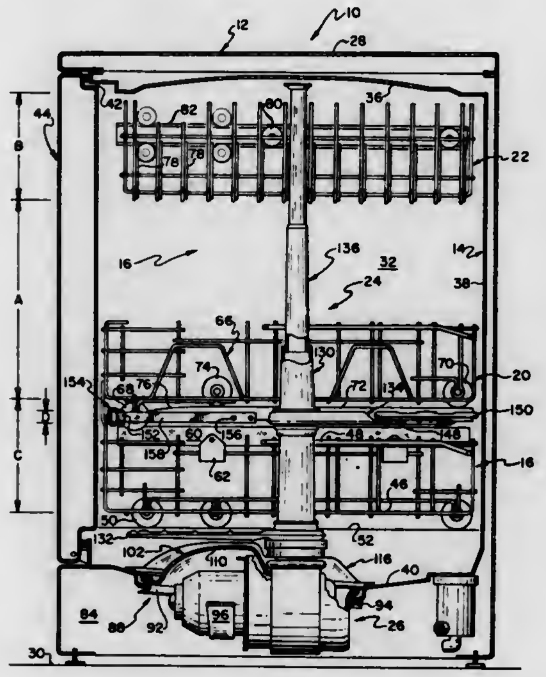
Toshio Omachi, No. 26-6, Oi 5-chome, Tokyo, Japan
Filed Sept. 25, 1972, Ser. No. 292,101
Int. Cl. B08b *3/04;* **B63b** *59/00*
U.S. Cl. 134—34 **8 Claims**



Living things such as microorganisms in the sea water are kept from sticking or adhering to submerged outer surfaces such as transparent windows of submarine equipment such as submarine houses, submarine boats and tanks in the deep-sea as well as submarine illuminating devices so as to maintain proper transparency of the windows. The method comprises the step of supplying fresh water onto the surface of the transparent window exposed to the sea water so as to cause the continuous or intermittent flow of the fresh water over the surface in contact therewith thereby permitting the smell of fresh water to be maintained on the surface of the window exposed to the sea water. Since living things and microorganisms in the sea water dislike the smell of fresh water, the living things will not stick to or will leave the surface of the transparent window even though they stick thereto thereby permitting the transparent window to maintain proper transparency thereof.

3,837,917
DISHWASHER

Thomas E. Jenkins, and Donald S. Cushing, both of Louisville, Ky., assignors to General Electric Company, Louisville, Ky.
Filed Jan. 2, 1973, Ser. No. 320,615
Int. Cl. B08b *3/02*
U.S. Cl. 134—144 **9 Claims**

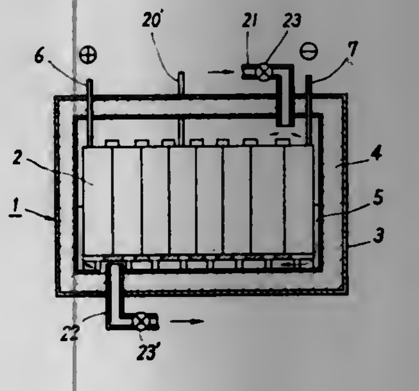


There is disclosed a front opening dishwasher of conventional cabinet height having lower, center and upper article

receiving racks. The effective height of the washing chamber has been increased by providing a rubber boot which directs liquid accumulating adjacent the tub bottom toward a pump inlet. The rubber boot allows lowering of the tub bottom thereby increasing effective wash chamber height. A spray system is provided for each of the racks in the wash chamber. A rotatable spray arm, between the lower and central spray racks, is prevented from contact with articles in the lower rack by an abutment which precludes movement of the lower rack into the wash chamber if an article therein protrudes into the path of spray arm movement.

3,837,918
SODIUM SULFUR STORAGE BATTERY

Takashi Nakabayashi, Takatsuki City, Japan, assignor to Agency of Industrial Science and Technology, Tokyo, Japan
Filed Mar. 14, 1973, Ser. No. 341,089
Claims priority, application Japan, May 16, 1972, 47-47758
Int. Cl. H01m *43/00*
U.S. Cl. 136—6 FS **3 Claims**



This invention relates to a novel sodium sulfur storage battery comprising a double vessel with thermal insulating layer therein and at least one unit cell, each unit cell containing a plurality of individual cells including sulfur as a cathodic reactant, sodium as an anodic reactant and a non-porous solid electrolyte. The storage battery is provided with a temperature control means. According to this invention, performance and durability of the soidum sulfur storage battery are highly improved.

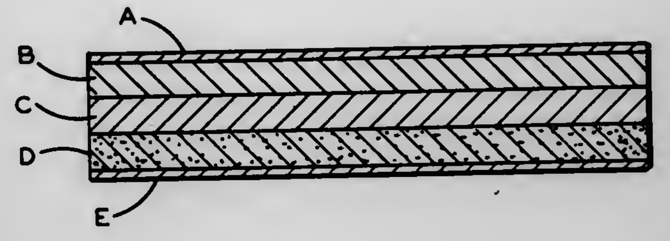
3,837,919
PREPARATION OF CADMIUM ELECTRODES

Ian Paul Gutrdige, Kingswinford, England, assignor to The International Nickel Company, Inc., New York, N.Y.
Filed Oct. 20, 1972, Ser. No. 299,355
Claims priority, application Great Britain, Oct. 26, 1971, 49669/71
Int. Cl. H01m *35/30*
U.S. Cl. 136—24 **5 Claims**

A process for producing negative active mass suitable for use in nickel-cadmium cells or similar cells or batteries which comprises electrically depositing cadmium hydroxide from an electrolyte containing cadmium cations and reducible anions such as nitrate anions and a small proporation of nickel cations. The negative active mass thus produced contains about 1 percent to about 10 percent of nickel, has excellent initial capacity and exhibits excellent retention of capacity after electrochemical cycling.

3,837,920
A BATTERY CONTAINING A SOLID ELECTROLYTE HAVING CATIONIC DEFECTS

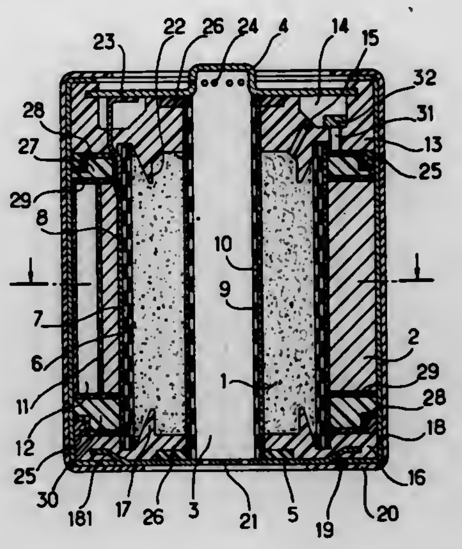
Charles C. Liang, Andover, and Carl R. Schlaikjer, Arlington, both of Mass., assignors to P. R. Mallory & Co., Inc., Indianapolis, Ind.
Filed July 9, 1971, Ser. No. 161,016
Int. Cl. H01m *11/00*
U.S. Cl. 136—83 **6 Claims**



A solid electrolyte material comprises an alkali metal halide solid electrolyte matrix containing an additive therein for introducing defects into the matrix for increasing the ionic conductivity of the material.

3,837,921
STORAGE OXYGEN DEPOLARIZED CELL

Hans Friedrich Henssen, Oberhochstadt, Germany, assignor to Compagnie Industrielle des Piles Electriques, Perret, France
Filed Aug. 3, 1972, Ser. No. 277,611
Claims priority, application Germany, Aug. 5, 1971, 2139227
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 A **12 Claims**

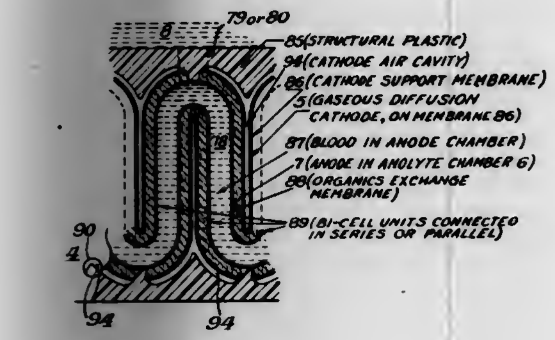


Storable air depolarization cell provided with an electrolyte-repellent porous positive electrode, a separator layer and a powdered negative zinc electrode. Spaces having walls that are permeable to gases and impervious to the electrolyte extend along the negative electrode and serve as gas collectors and communicate through valve means with an exhaust space in the upper part of the cell. Such a cell can be stored for a long time prior to use and is leakproof as to electrolyte.

3,837,922
IMPLANTABLE FUEL CELL

Daniel Y. C. Ng, Chicago; Sidney K. Wolfson, Jr., Highland Park, and Anthony J. Appleby, Chicago, all of Ill., assignors to Institute of Gas Technology, Chicago, Ill.
Filed Sept. 12, 1969, Ser. No. 857,322
Int. Cl. H01m *27/00, 27/30*
U.S. Cl. 136—86 R **7 Claims**

An implantable fuel cell power source for an artificial heart or pacemaker device which utilizes blood carbohydrates as the anode fuel. The cathode of the implantable fuel cell is an oxygen utilizing cathode, and may be air breathing, for example, following being ventilated through a percutaneous airway by a balloon system. The fuel cell may be integrated as part of a heart pump prosthetic mechanism, or placed at some remote location where a portion of the venous blood can be diverted to the fuel cell on its way to the heart. The anode chamber of the fuel cell may form a portion of the atria or the blood collecting plenum of the heart pump, but preferably is placed at the outflow passage of the prosthetic heart pump right ventricle so that the pumping force provides enough power to overcome the resistance of both the anode and the pulmonary vascular bed. The anode is separated from the whole venous blood by a thin, porous membrane capable of passing a blood ultra-filtrate containing the oxidizable organics. The organics contact the catalyst anode which is preferably of a "felt" -type construction, with the ultra-filtrate at approximately neutral pH acting also as the electrolyte. The anode is backed by a similar membrane, on the obverse side of which is coated the cathode catalyst. The implanted fuel cell may be connected in parallel with an implanted storage battery to form a hybrid power system which gives a fuel cell - storage battery hybrid system an outstanding redundancy capability.


79 or 80
8
85(STRUCTURAL PLASTIC)
94(CATHODE AIR CAVITY)
86(CATHODE SUPPORT MEMBRANE)
5(GASEOUS DIFFUSION CATHODE, ON MEMBRANE 86)
87(BLOOD IN ANODE CHAMBER)
7(ANODE IN ANOLYTE CHAMBER 6)
88(ORGANICS EXCHANGE MEMBRANE)
89(BI-CELL UNITS CONNECTED IN SERIES OR PARALLEL)
18
90
4
94
94

3,837,923

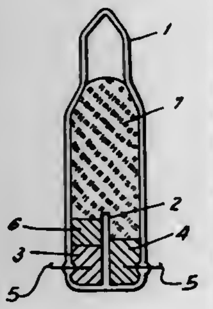
TRANSPORTABLE STANDARD CELLS AND PROCESS FOR MAKING SAME

Cornelia Buzatu, and Costica Topor, both of Bucharest, Romania, assignors to Institutul de Metrologie, Bucharest, Romania

Filed Jan. 24, 1972, Ser. No. 219,970

Int. Cl. H01m *17/04*

U.S. Cl. 136—88 **2 Claims**



A standard cell adapted to withstand the rigors of transportation is made by introducing the cell components into respective components and packing the space bridging the components with a porous mass of glass or other inert particles to form a porous plug by vibrating the vessel or subjecting same to centrifugal force. The porous mass is then filled with electrolyte and the cell sealed.

3,837,924

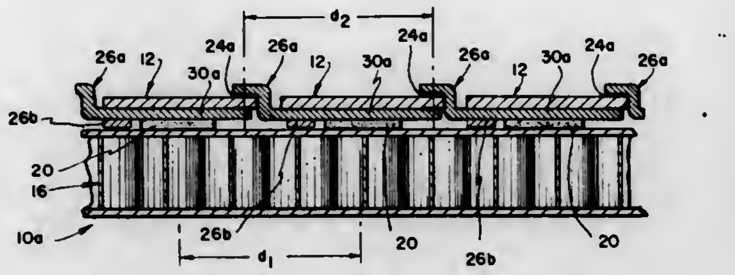
SOLAR ARRAY

Wilfred R. Baron, Palos Verdes Peninsula, Calif., assignor to TRW, Inc., Redondo Beach, Calif.

Continuation of Ser. No. 148,386, June 1, 1971, abandoned. This application July 20, 1973, Ser. No. 381,105

Int. Cl. H01l *15/02*

U.S. Cl. 136—89 **3 Claims**



A solar array and method of its fabrication wherein the solar cells are attached to a supporting substrate and electrically joined by interconnects having end terminals attached to the cell contacts with predetermined center distances between adjacent cell-substrate attachment points and the terminal attachment points of each interconnect, such that during thermal cycling of the solar array, each interconnect and the portion of the substrate between the adjacent cell-substrate attachment points undergo substantially equal thermal expansion and contraction so as to virtually eliminate stressing and flexing of the interconnects and thereby eliminate the need for flexibility in and avoid fatigue failure of the interconnects.

3,837,925

ELECTROCHEMICAL GENERATORS

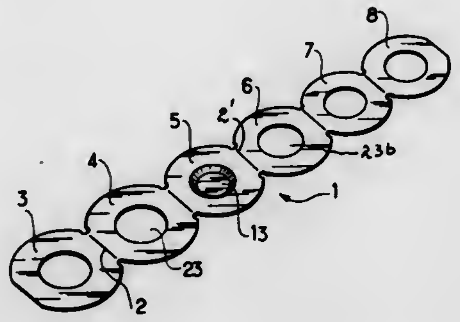
Jean-Pierre Cailley, Ambares, and Henri Braun, Bouscat, both of France, assignors to Saft-Societe des Accumulateurs Fixes et de Traction, Romainville, France

Filed Sept. 25, 1972, Ser. No. 291,905

Claims priority, application France, Sept. 29, 1971, 71.35029

Int. Cl. H01m *13/10*

U.S. Cl. 136—134 **18 Claims**



An electrochemical generator of the type embodying an electrode-separator assembly in which the electrodes of opposite polarity respectively project and outwardly from said assembly at different locations and have bared conductive portions to which current collectors are respectively conductively integrated, for example, by welding. The current collector is connected to the electric output terminal of like polarity by a strip of conductive material embodying a plurality of segments of a shape conforming substantially with the shape of the cross-sectional area of the assembly. Transverse scorings in the strip delineate the respective segments and permit folding of the segments. One segment of the strip has a depression to receive and retain a terminal therein as by welding or the like.

The other segments are each provided with centralized openings. The scorings results in permitting accurate reverse folding of the segments in overlying relationship.

3,837,926

METHOD OF PRODUCING A CORROSION-RESISTING COATING ON METALLIC MOLYBDENUM SURFACES

Istvan Hangos; Laszlo Varkonyi; Jozsef Hodacs, and Neuhof-Suski, all of, Budapest, Hungary, assignors to Egyesult Izzolampa es Villamosagi Reszvenytarsasag, Budapest, Hungary

Filed July 31, 1972, Ser. No. 276,754

Claims priority, application Hungary, Sept. 14, 1971, EE 1950

Int. Cl. H01k *3/00*

U.S. Cl. 148—6.3 **6 Claims**

Method of producing surface layers of bromide on molybdenum elements such as those used in incandescent halogen lamps. The surface of the molybdenum elements is degreased, the elements are heated in a stream of hydrogen at approximately 700°C for at least 10 minutes, and the elements are then treated with bromine-containing gas at about 1000°C for 10 minutes. Subsequently, the treated elements are cooled in a gas such as nitrogen.

3,837,927

CHEMORESISTANT ELECTRODUCTIVE SUBSTANCE AND PROCESS FOR MAKING SAME

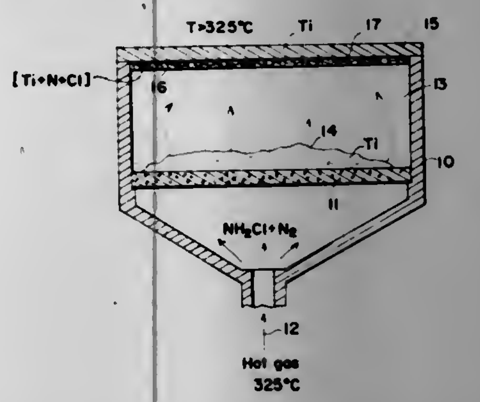
Heinz-Peter Fritz; Wolfram Treptow, both of Munchen, and Peter Faber, Kahl/Main, all of Germany, assignors to Rheinisch-Westfalisches Elektrizitatswerk A.G., Essen, Germany

Filed Aug. 7, 1972, Ser. No. 278,641

Claims priority, application Germany, Aug. 7, 1971, 2139722; May 10, 1972, 2222797

Int. Cl. C23f *7/00*

U.S. Cl. 148—6.3 **12 Claims**



To produce an electronically conductive substance resistant to alkalies and acids, a metal from Group IVB, VB, VIB, VIIB or VIII of the Periodic Table -- especially titanium -- is reacted in a gaseous atmosphere free from water vapor and oxygen, at temperatures between about 325° and 650°C, with chloramine or with a combination of reactants (such as ammonia and carbon tetrachloride, chloroform or sulfuryl chloride) yielding the constitutents of the chloramine radical. The metal may constitute a solid body to be coated with the reaction product forming a protective layer thereon.

3,837,928

CONVERSION COATING ON METAL

Alexander Robley Morrison, Caulfield, Victoria, Australia, assignor to Dulux Australia Ltd., Victoria, Australia

Filed Sept. 12, 1972, Ser. No. 288,338

Claims priority, application Australia, Oct. 5, 1971, 6526/71

Int. Cl. C23f *7/10*

U.S. Cl. 148—6.15 Z **3 Claims**

The quality of a crystalline zinc phosphate conversion coating deposited on a ferrous or zinciferous surface from an aqueous, acidic, non-gassing phosphating solution is improved by the addition thereto of a polymeric additive which is an addition copolymer of an unsaturated carboxylic acid and a selected ethylenic monomer.

3,837,929

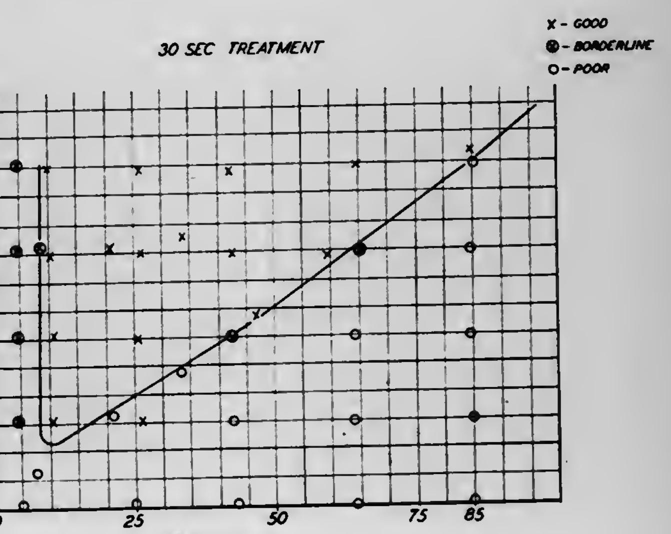
METHOD OF PRODUCING TARNISH RESISTANT COPPER AND COPPER ALLOYS AND PRODUCTS THEREOF

Elmer J. Caule, New Haven, Conn., assignor to Olin Corporation, New Haven, Conn.

Division of Ser. No. 67,943, Aug. 28, 1970, Pat. No. 3,716,427, which is a continuation-in-part of Ser. No. 59,684, July 30, 1970, Pat. No. 3,677,828. This application Oct. 6, 1972, Ser. No. 295,685

Int. Cl. C23f *7/12, 7/26*

U.S. Cl. 148—6.16 **10 Claims**



A method of producing a laminate having high bond strength and excellent resistance to acid undercutting comprising applying a phosphoric acid solution to copper or its alloys containing a dichromate, rinsing, drying and adhesively laminating to a plastic film. The instant case also teaches a method of producing a high tarnish resistant copper and copper alloy by so treating, as well as a flexible printed circuit characterized by high bond strength and the absence of acid undercutting.

3,837,930

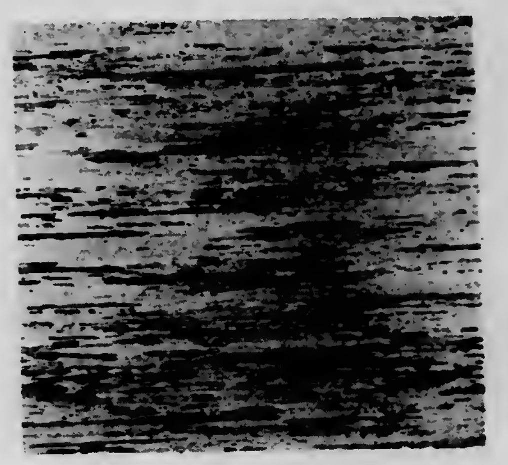
METHOD OF PRODUCING IRON-CHROMIUM-ALUMINUM ALLOYS WITH IMPROVED HIGH TEMPERATURE PROPERTIES

Robert Lacock Cairns, and John Stanwood Benjamin, both of Suffern, N.Y., assignors to The International Nickel Company, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 218,404, Jan. 17, 1972, abandoned. This application Jan. 22, 1973, Ser. No. 325,313

Int. Cl. B22f *3/18;* **C21d** *7/19*

U.S. Cl. 148—11.5 F **5 Claims**



A powder metallurgy product comprising iron and chromium, and/or aluminum and characterized by elongated grains that are stable at elevated temperatures.

A method of producing such a product, including mechanically alloying a suitable powder charge, consolidating the mechanically alloyed powder, working the consolidated product so as to achieve therein a reduction of at least about 10 percent; and, then, heating the worked product to produce coarse elongated grains therein.

The product produced according to the present invention exhibits good oxidation resistance and good room temperature and elevated temperature strength and ductility.

3,837,931
COMPOSITE IRON-BASE METAL PRODUCT

Tadashi Nemoto, Tokyo; Keiichi Kuniya, and Takeo Tamamura, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 29, 1971, Ser. No. 128,738

Claims priority, application Japan, Mar. 27, 1970, 45-25277

Int. Cl. C21d *1/00*

U.S. Cl. 148—12.4 **13 Claims**

A composite iron-base metal product comprising an iron-base metal in which a martensitic structure having a high mechanical strength is formed in a particular portion of the base metal in such a manner that the tensile strength and rupture strength in the direction of orientation of the martensitic structure are improved. The resulting composite product has a tensile strength which approximates the theoretical strength thereof.

3,837,932
FLUXES FOR USE IN BONDING PLATES OF STORAGE BATTERIES TO CONNECTING STRAPS

Lester Aronberg, Chicago, Ill., assignor to Lake Chemical Company, Chicago, Ill.

Filed Mar. 27, 1972, Ser. No. 238,609

Int. Cl. C23c *1/12*

U.S. Cl. 148—23 **8 Claims**

Fluxes for use in forming a bond between the lugs of the positive and negative plates, or grids, of a storage battery, and the terminal post-bearing connecting straps thereof, which, in their preferred form, comprise an aqueous suspension of an organic, substantially water-insoluble polycarboxylic acid such as adipic acid, and a water-soluble binder exemplified by polyvinylpyrrolidone.

3,837,933
HEAT TREATED MAGNETIC MATERIAL

Hakaru Masumoto, Sendai; Yuetsu Murakami, Miyagi, and Masakatsu Hinai, Natori, all of Japan, assignors to The Foundation: The Research Institute of Electric and Magnetic Alloys

Filed Mar. 7, 1972, Ser. No. 232,551

Claims priority, application Japan, Mar. 13, 1971, 46-13518; May 19, 1971, 46-33773; June 10, 1971, 46-40546

Int. Cl. C04b *35/00*

U.S. Cl. 148—31.55 **11 Claims**

Magnetic materials having high permeability such as initial permeability of 3,000 to 109,300 and maximum permeability of 5,000 to 461,000, high hardness of 150 to 359 high specific electric resistance, and excellent workability are produced by forming Ni-Fe-Nb alloy consisting of by weight 70 to 85.9 percent of Ni, 5 to 28 percent of Fe, 1 to 14 percent of Nb as main ingredients, and 0.01 to 10 percent of subingredients selected from the group consisting of by weight of 0 to 8 percent of Mo, 0 to 7 percent of Cr, 0 to 10 percent of W, 0 to 7 percent of V, 0 to 10 percent of Ta, 0 to 10 percent of Mn, 0 to 7 percent of Ge, 0 to 7 percent of Ti, 0 to 5 percent of Zr, 0 to 5 percent of Al, 0 to 5 percent of Si, 0 to 5 percent of Sn, 0 to 5 percent of Sb, 0 to 10 percent of Co and 0 to 10 percent of Cu and a small amount of impurities, the alloy being heated at a temperature more than 800°C in a non-oxidizing atmosphere or in vacuum for more than 1 minute to 100 hours corresponding to the composition and cooled to a room temperature from a temperature of more than the order-disorder transformation point of about 600°C at a suitable cooling speed of 100°C/second to 1°C/hour corresponding to the composition, whereby the degree of order is within 0.1 to 0.6 and a more excellent workability than Mo-Permalloy is obtained.

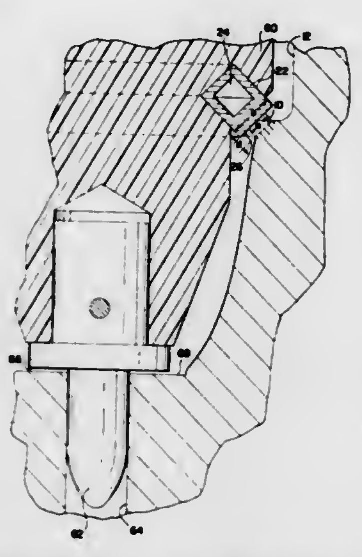
3,837,934
METHOD FOR INDUCTIVELY HEATING VALVE SEATS

George D. Pfaffmann, Farmington, and Michael R. Hammond, Detroit, both of Mich., assignors to Park-Ohio Industries, Inc., Cleveland, Ohio

Division of Ser. No. 151,494, June 9, 1971, Pat. No. 3,737,612. This application Sept. 8, 1972, Ser. No. 287,264

Int. Cl. C21d *1/10*

U.S. Cl. 148—146 **3 Claims**



An induction heating device for inductively heating the first of a pair of closely positioned conical valve seats in an internal combustion engine block which device comprises an inductor having a generally circular shape matching the first valve seat, means for positioning the inductor adjacent the valve seat and spaced only slightly therefrom, a radio frequency power source having a frequency of over 250 Kc, means including two spaced leads for connecting the power source to the inductor, means for starting the power source, and means for stopping the power source after a preselected time whereby the valve seat is hardened by quenching from conduction to the engine block itself.

3,837,935
SEMICONDUCTOR DEVICES AND METHOD OF MANUFACTURING THE SAME

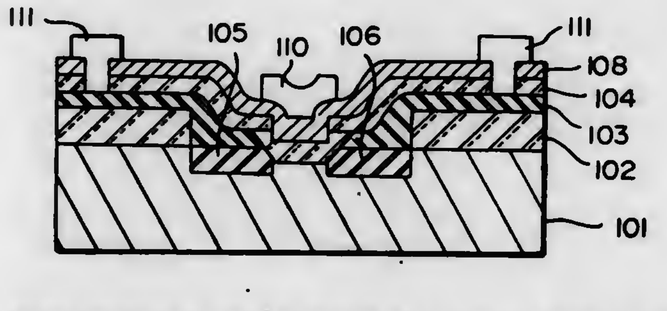
Kazuo Maeda, Chigaski, and Kazunari Shirai, Yokohama, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 25, 1972, Ser. No. 256,753

Claims priority, application Japan, May 28, 1971, 46-3674; Aug. 12, 1971, 46-61134

Int. Cl. H01l *7/34*

U.S. Cl. 148—187 **3 Claims**



A semiconductor device wherein a polycrystalline silicon layer, conductively in contact with a source region and a drain region and having impurities of the same conductivity type as that of said source region and said drain region, is the lead out electrode of said source region and said drain region. The method of forming said semiconductor devices is also disclosed.

3,837,936
PLANAR DIFFUSION METHOD

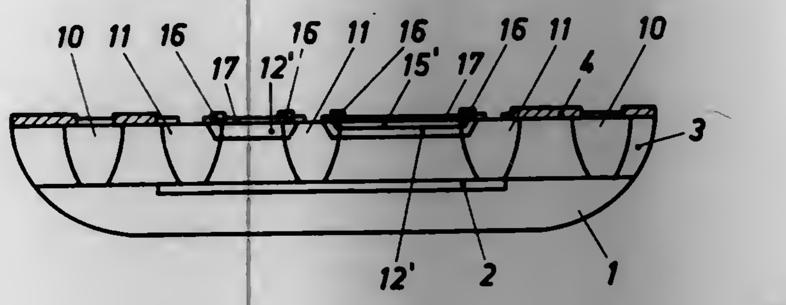
Wolfgang Kraft, Freiburg im Breisgau, Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Oct. 18, 1972, Ser. No. 298,724

Claims priority, application Germany, Nov. 20, 1971, 2157633

Int. Cl. H01l *7/44*

U.S. Cl. 148—187 **4 Claims**



This invention relates to a method of producing diffusion zones in integrated circuits. A master diffusion mask contains all openings for emitter, base and insulation diffusion. The openings in the master mask are closed or opened, depending on the diffusion step being performed, by means of a masking layer of a material which is easier to etch than the master mask.

3,837,937
EXPLOSIVE COMPOSITIONS WITH COATED GASEOUS ENCAPSULATIONS

Richard Fox, Hawthorn, Victoria, and Howard William Tankey, Box Hill, Victoria, both of Australia, assignors to ICI Australia Limited, Melbourne, Australia

Filed Nov. 29, 1971, Ser. No. 203,080

Claims priority, application Australia, Dec. 16, 1970, 3505/70

Int. Cl. C06b *19/00, 1/04, 11/00*

U.S. Cl. 149—4 **10 Claims**

An explosive composition containing an inorganic oxidizer salt, a water soluble fuel, a metallic water insoluble fuel, water and sensitizing particles which contain encapsulated gas. The particles contain an additional fuel component which may be located either on the surface of the particles or within the encapsulating material itself. Part of the gaseous component is capable of reacting with the fuel component of the encapsulating particle.

3,837,938
SOLID PROPELLANT CONTAINING FUEL-OXIDIZER COMPONENT PREPARED FROM FUSED OXIDIZERS

Vernon E. Haury, Santa Susana, and David R. V. Golding, Malibu, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Aug. 19, 1965, Ser. No. 482,325

Int. Cl. C06b *19/00, 21/00;* **C06d** *5/06*

U.S. Cl. 149—17 **1 Claim**

A novel method for making a solid propellant fuel-oxidizer comprising heating a mixture of at least two solid inorganic oxidizers to the melting point of said mixture, mixing into the molten mixture a solid particulate propellant fuel, cooling the just formed oxidizer-fuel mixture, grinding said cooled mixture and then incorporating the ground oxidizer-fuel mixture into a solid propellant binder.

3,837,939
SOLID COMPOSITE PROPELLANT COMPOSITIONS CONTAINING CARBOXY-TERMINATED POLYMERS

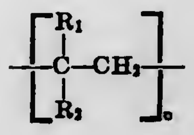
Toshio William Nakagawa, San Jose, and Thomas P. Rudy, Saratoga, both of Calif., assignors to United Aircraft Corporation, East Hartford, Conn.

Continuation-in-part of Ser. No. 375,648, June 16, 1964,. This application June 3, 1966, Ser. No. 554,966

Int. Cl. C06d *5/06*

U.S. Cl. 149—19 **16 Claims**

A composite solid propellant composition employing as the binder the reaction product of a crosslinking agent and a carboxy-terminated polymer having a backbone of recurring structural units having the general formula:



$$\left[-\overset{R_1}{\underset{R_2}{\overset{|}{\underset{|}{C}}}}-CH_2-\right]_n$$

wherein R_1 and R_2 are selected from the group consisting of hydrogen and lower alkyl groups and *n* is in the range of 4–250.

3,837,940
IGNITOR CONTAINING POLYMERIC NF_2-ADDUCTS

Lawrence Spenadel, Fanwood, and John C. Reed, Westfield, both of N.J., assignors to Esso Research and Engineering Company, Linden, N.J.

Filed Feb. 28, 1963, Ser. No. 262,292

Int. Cl. C06d *5/06*

U.S. Cl. 149—19.3 **4 Claims**

1. An ignitor composition consisting essentially of 40 to 70 wt. percent of a solid oxygen-oxidizer and a solid NF_2-containing polymer in which NF_2 groups attached to carbon atoms give the polymer an NF_2 content of 40 to 70 wt. percent NF_2, said solid oxygen-oxidizer making available oxygen for reaction with carbon constituents and forming N_2 gas.

3,837,941
REACTION OF BERYLLIUM ALKYL COMPOUNDS WITH MIXTURE OF B_2H_6 AND B_4H_{10}

Louis R. Grant, Jr., Los Angeles, and Ross I. Wagner, Woodland Hills, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Continuation-in-part of Ser. No. 690,704, Dec. 4, 1967, abandoned. This application June 26, 1969, Ser. No. 839,792

Int. Cl. C07f *5/02*

U.S. Cl. 149—22 **3 Claims**

Process for producing mobile liquid beryllium hydride compounds comprising reacting a mixture of B_4H_{10} and B_2H_6 with beryllium alkyl compounds.

3,837,942
LOW TEMPERATURE GAS GENERATING COMPOSITIONS AND METHODS

Vincent O. Catanzarite, Las Vegas, Nev., assignor to Specialty Products Development Corporation, Medina, Ohio

Continuation-in-part of Ser. No. 234,312, March 13, 1972, abandoned. This application Dec. 14, 1972, Ser. No. 314,916

Int. Cl. C06b *11/00*

U.S. Cl. 149—83 **33 Claims**

A pyrotechnic powder composition comprising a mixture of an oxidizer powder and an oxygen bearing metal organic compound powder is used for inflating a passenger restraint bag for an automobile. Metals preferred for the metal organic compound have a free energy of oxidation less than the free energy of oxidation of carbon monoxide. An exemplary composition comprises a mixture of anhydrous nickel formate and potassium chlorate. When these react, substantial volumes of oxygen, carbon dioxide and water vapor are released for inflating a passenger restraint bag. The burning rate of the powder composition may be increased by including up to about 20 percent of an enhancer distributed in the powder and having a burn rate substantially higher than the burn rate of the powder composition.

3,837,943

METHOD OF PRODUCING COMPOUND FABRICS

Siegfrid Ploch, Karl-Marx-Stadt; Kurt Klinger, Leutersdorf, and Joachim Reif, Karl-Marx-Stadt, all of Germany, assignors to Forschungsinstitut Fur Textiltechnolgie, Karl-Marx-Stadt, Germany

Filed Oct. 5, 1972, Ser. No. 295,309

Int. Cl. B32b *7/08*

U.S. Cl. 156—93 **3 Claims**

A method for producing a pile type fabric in which the pile or fleece is sewn on a base fabric with a stitching thread composed of materials having different thermal softening characteristics, so that one of the components bonds the thread to itself and to the base fabric. Another component may have heat shrinkable characteristics within the range of temperatures of the treatment.

3,837,944

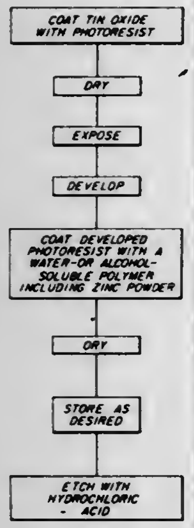
SELECTIVE ETCHING OF METAL OXIDES OF TIN OR INDIUM

Herbert S. Cole, Jr., Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Sept. 1, 1972, Ser. No. 285,601

Int. Cl. C23f *1/02*

U.S. Cl. 156—4 **11 Claims**


COAT TIN OXIDE WITH PHOTORESIST
DRY
EXPOSE
DEVELOP
COAT DEVELOPED PHOTORESIST WITH A WATER-OR ALCOHOL-SOLUBLE POLYMER INCLUDING ZINC POWDER
DRY
STORE AS DESIRED
ETCH WITH HYDROCHLORIC - ACID

Metal oxides such as tin oxide and indium oxide are selectively etched by coating the surface to be etched with photoresist, selectively exposing the photoresist in a desired pattern and developing the photoresist to remove the unexposed areas. In the case of tin oxide, for example, the unprotected tin oxide and remaining photoresist are then coated with a water-or-alcohol-soluble polymer including powdered zinc, for example. The polymer solution with the zinc dispersed therein is then dried in an oven to remove residual solvent, leaving a uniform, tenacious film of zinc dispersed in the polymer. The tin oxide is then etched in a hydrochloric acid solution. The hydrochloric acid reacts with the zinc to produce atomic hydrogen which reduces the tin oxide to tin, which in turn is etched with the hydrochloric acid, thereby producing an etched pattern in the tin oxide.

3,837,945

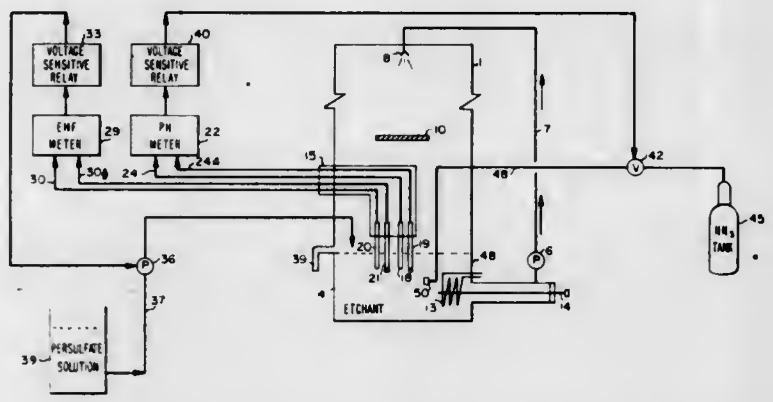
PROCESS OF ETCHING COPPER CIRCUITS WITH ALKALINE PERSULFATE AND COMPOSITIONS THEREFOR

John Shu-chi Chiang, Mercerville, N.J., assignor to FMC Corporation, New York, N.Y.

Filed Mar. 22, 1972, Ser. No. 236,936

Int. Cl. C23f *1/02*

U.S. Cl. 156—8 **9 Claims**



Copper circuits are etched with an ammoniacal aqueous solution of from about 0.4 mole/liter to limit of solubility of cupric amine sulfate maintained at a pH of 8–12 with ammonia, buffered with an ammonium salt and activated by a soluble peroxydisulfate whose concentration does not exceed about 0.4 moles/liter. Preferably, the cupric amine solution is used in a continuous process wherein automatic feed valves maintain ammonia concentration to provide a pH between 9.0 to 10.0 and peroxydisulfate concentration not in excess of 0.1 moles/liter. The feed valves are controlled by voltage sensitive relays. The output from a pH meter activates the relay for controlling ammonia feed while the EMF developed between a platinum and reference electrode immersed in the etchant, activates the relay for controlling peroxydisulfate feed.

The etchant composition exhibits low undercutting thereby rendering it especially suitable for fine line circuits and circuits resisted with noble metals such as gold/nickel.

3,837,946

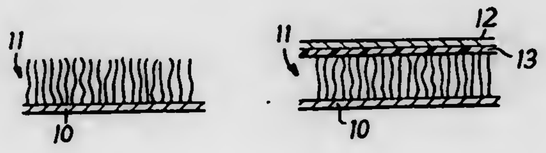
MANUFACTURE OF PILE FABRICS

Ronald Gribbin, Wells, Somerset, England, assignor to Clark, Son and Morland Limited, Glastonbury, Somerset and I.W.S. Nominee Company Limited, London, both of, England

Continuation of Ser. No. 793,050, Jan. 22, 1969, abandoned. This application Aug. 27, 1971, Ser. No. 175,752

Int. Cl. C14b *15/00*

U.S. Cl. 156—68 **11 Claims**



Semi-artificial pile fabrics, having a fibrous pile of high density and with the fibres orientated as in natural pelts, are produced by first bonding the tips of the pile fibres of a woolled, furred or haired animal pelt to a temporary backing, leaving the remainder of the pile unbonded, cutting the pile from the skin, and bonding the cut ends of the pile fibres to a permanent backing, whereafter the temporary backing is removed. The temporary backing is preferably attached to the tips of the fibres by a relatively weak bond, so that it can be removed from the finished pile fabric by simply stripping off. If the pile is cut at a location between the temporary backing and the hide of the pelt, two pile materials are simultaneously produced, one comprising the pile on the temporary backing ready for transfer to a permanent backing and the other comprising the residual pile on the original hide.

3,837,947

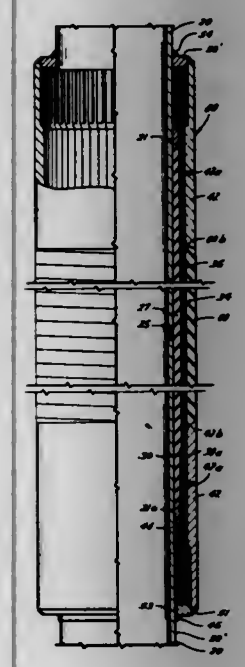
METHOD OF FORMING AN INFLATABLE MEMBER

Billy C. Malone, Houston, Tex., assignor to Lynes, Inc., Houston, Tex.

Filed May 1, 1969, Ser. No. 820,966

Int. Cl. E21b *33/127;* **B29c** *27/00*

U.S. Cl. 156—69 **18 Claims**



A method of forming or building up a reinforced inflatable member on a body wherein one end may be secured to the body with the other end movable relative to the body as the member is inflated, or wherein both ends of the inflatable member may be moved relative to the body as the member inflates. Also, the invention contemplates a relatively uncomplicated method of fabricating or forming an end anchorage for the ends of an inflatable member that is reinforced by a sheath within a minimum of space without sacrificing strength and which is able to withstand somewhat substantial stress or loads that may tend to try to pull out or shear the ends of the reinforced inflatable member.

3,837,948

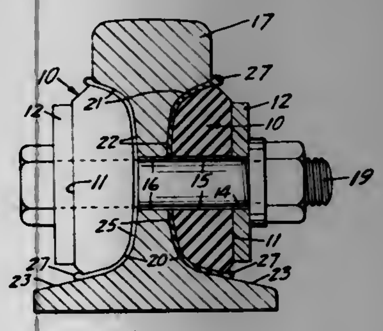
METHOD OF FORMING ADHESIVELY BONDED RAIL JOINT

Alfred Dwayne Nelson, Stillwater, and Garold L. Goken, Birchwood, both of Minn., assignors to Minnesota Mining & Manufacturing Company, St. Paul, Minn.

Filed May 22, 1972, Ser. No. 255,613

Int. Cl. B32b *31/20*

U.S. Cl. 156—71 **2 Claims**



Method of forming adhesively bonded rail joint which is quick to assemble and easy to dismantle and reassemble. The face of each joint bar of the rail joint has a layer of thermoplastic adhesive which upon moderate heating adheres strongly under moderate pressure to conforming surfaces of the rail ends. Because the thermoplastic adhesive does not cure, the joint bars are easily separated from the rails by reheating the adhesive and can be reapplied or used as part of a new rail joint.

3,837,949

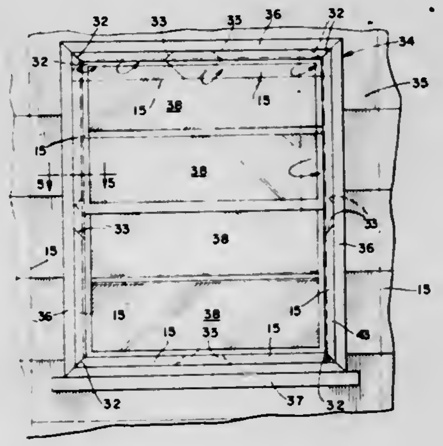
METHOD FOR PREPARING WINDOWS FOR SPRAY PAINTING

Albert Edmund Eckart, Jr., Westport, Conn., assignor to Sapolin Paints, Inc., New York, N.Y.

Division of Ser. No. 206,722, Dec. 10, 1971, Pat. No. 3,743,150. This application Dec. 13, 1972, Ser. No. 314,649

Int. Cl. E04f *19/08*

U.S. Cl. 156—71 **4 Claims**



In preparing standard house window trim for spray painting, strips of adhesive-coating masking paper are formed by the use of a miter cut attachment on a supply roll of masking paper. Swallowtail cuts are produced in one end of each strip. Two overlapping strips are utilized on each of the four sides of a window to completely cover and protect the storm sash channel structure. Additional masking material may be applied to the surrounding house siding and to the glass of the main window sashes.

3,837,950

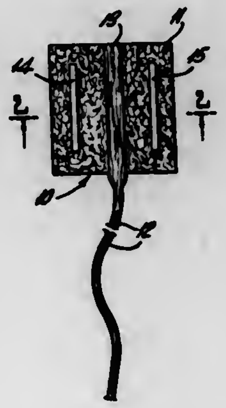
SURGICAL SPONGE

Harry G. Reimels, Braintree, Mass., assignor to Codman & Shurtleff, Inc.

Original application Feb. 17, 1971, Ser. No. 116,187, now Patent No. 3,736,935. Divided and this application Oct. 13, 1972, Ser. No. 297,583

Int. Cl. B32b *31/20*

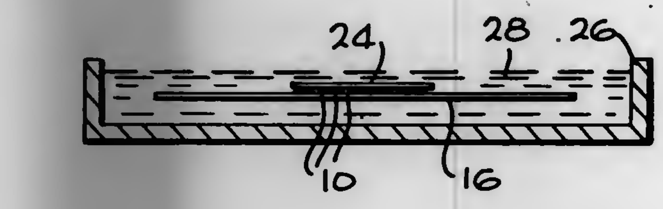
U.S. Cl. 156—73 **5 Claims**



A surgical sponge useful for delicate surgical procedures is made by providing a strip of nonwoven fibers which are securely bonded against delamination, and bonding a plastic retrieval thread to the surface of the strip by heat-softening a portion of the thread to cause it to flow partially into the surface of the strip. The resulting sponge may also have a band of radiopaque material bonded to its surface by heat-softening the plastic material of the band.

3,837,951
METHOD FOR PRODUCING COMPACT MAGNETIC CORE ARRAYS

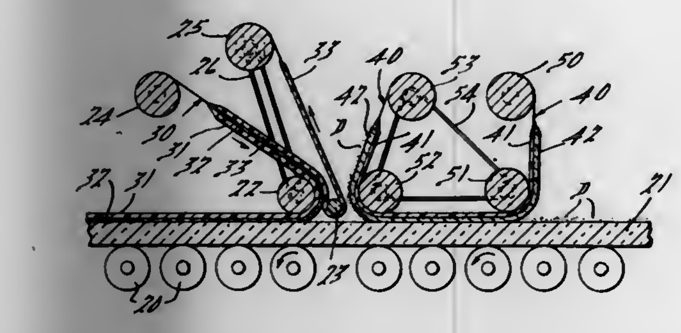
Niels Krag, Pacific Palisades, Calif., assignor to Electronic Memories and Magnetics Corporation, Los Angeles, Calif.
Filed Oct. 25, 1972, Ser. No. 300,790
Int. Cl. H01f *3/00, 41/02*
U.S. Cl. 156—85 **10 Claims**



A method for mounting small magnetic cores at close spacings, including coating a sheet of rubber with an adhesive, stretching the rubber sheet, pressing the rubber sheet against an array of magnetic cores that are held in a cavity plate at greater spacings than is desired in the final array, and separating the sheet from the cavity plate so the cores stick to the sheet. The stretched rubber sheet is then relaxed so the cores move close together, an adhesive-coated substrate is pressed against the array of cores, and the adhesive on the rubber sheet is dissolved away so the cores are held only on the substrate.

3,837,952
PROCESS AND APPARATUS FOR FORMING A GLASS AND FILM LAMINATE

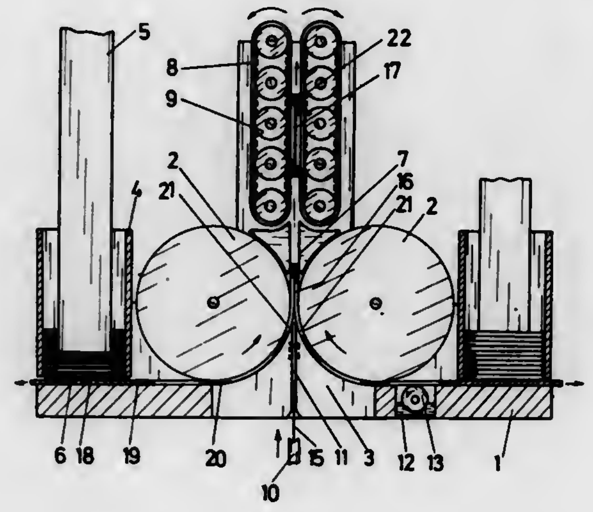
Edmund C. Mogford, 4287 Merwin Road, Lapeer, Mich. 48446
Continuation-in-part of application Ser. No. 345,643, Mar. 28, 1973. This application May 29, 1973, Ser. No. 364,928
Int. Cl. B32b *17/06, 17/10*
U.S. Cl. 156—99 **3 Claims**



Process and apparatus for laminating an adhesive coated laminate sheet having a removable protective sheet on a glass sheet with dust particles therebetween at a low commercially acceptable level, comprising, applying an adhesive coated dust particle collecting member to the glass sheet to adhere dust particles from the glass sheet to the adhesive coated member; removing the adhesive coated dust particle collecting member from the glass sheet with the dust particles previously on the glass sheet adhered to the adhesive coated dust particle collecting member; stripping the removable protective sheet from an adhesive coated laminate sheet adjacent the glass sheet and adjacent the removal of the adhesive coated dust particle collecting member from the glass sheet; and immediately applying the adhesive coated laminate sheet to the glass sheet.

3,837,953
METHOD AND DEVICE FOR THE MANUFACTURE OF SLIDE FRAMES

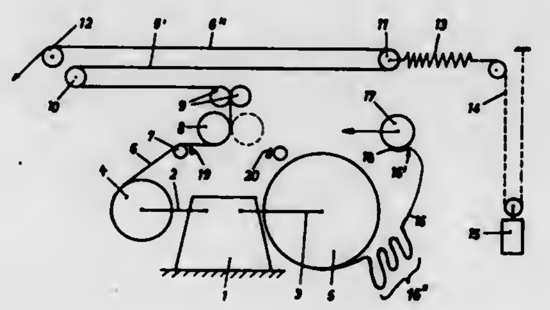
Peter Florjancic, St. Martinstrasse 12, D–81 Garmisch-Partenkirchen, Germany
Filed Sept. 18, 1972, Ser. No. 289,931
Claims priority, application Austria, Sept. 22, 1971, A 8,199/71
Int. Cl. B32b *31/00, 31/10*
U.S. Cl. 156—108 **9 Claims**



The method and apparatus for the manufacture of slide frames wherein the frames constitute mask members formed as separate elements from elastically deformable material. The mask members are arranged in spaced stacks and intermittently fed toward one another to where they are engaged by rotating drums that move them over guiding prisms and into overlapping engagement with one another. A slide is fed through one of the guiding prisms and between the overlapping mask members contemporaneous with the joining of said mask members by said drums.

3,837,954
PROCESS FOR CONNECTING EXPIRING FIRST WEB TO BEGINNING SECOND WEB

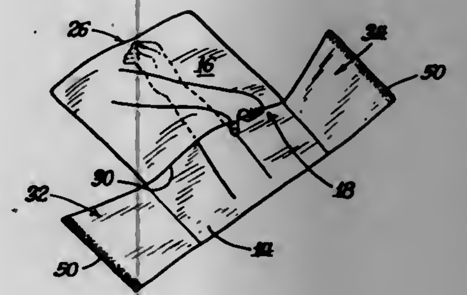
Gunter Nudinger, Heinrich Collin, and Hans Moosburger, Munich, Germany, assignors to Bayerische Berg-, Hutten- und Salzwerke AG, Munich, Germany
Filed June 16, 1972, Ser. No. 263,567
Claims priority, application Germany, June 16, 1971, P 21 29 903.6
Int. Cl. B65h *19/00*
U.S. Cl. 156—159 **6 Claims**



A process for connecting a first web of a web-shaped material unwinding from a first roll with the beginning of a second web of a web-shaped material unwinding from a second roll, the beginning of the second web being cemented to the unwinding first web by attachment of the beginning of the second web to a transfer element and then effecting a relative movement between the transfer element and the first web. More specifically, a cementing occurs of the beginning of the second web to the transfer element by means of an adhesive area applied thereto. Thereafter, this area is accelerated to a lineal speed corresponding to the lineal speed of withdrawal of the expiring first web and in the same direction so that the loose initial region of the second web is simultaneously pulled tighter. The beginning of the second web is cemented to the first web by another adhesive area applied to the beginning of the second web on the side opposite the first mentioned adhesive area. The beginning of the second web is pulled away from the transfer element and thereafter the expiring first web is cut behind the point of cementation with the beginning portion of the second web. The second roll is accelerated by the tension exerted by the first web after the beginning of the second web has been cemented to the expiring first web. A yielding occurs to tension overloads and sudden loads exerted on the webs and the points of cementation between the web during initial acceleration by reason of the fact that the web is conducted over a forced storage means which yields under increased tension on the path of the web to further processing stations.

3,837,955
METHOD OF MAKING A DISPOSABLE DIAPER HAVING AN INTEGRAL CONTAINER

Charles H. Schaar, Lake Zurich, Ill., assignor to Colgate-Palmolive Company
Original application Feb. 1, 1971, Ser. No. 111,188, now Patent No. 3,731,689. Divided and this application Oct. 12, 1972, Ser. No. 296,982
Int. Cl. B32b *31/02*
U.S. Cl. 156—211 **4 Claims**

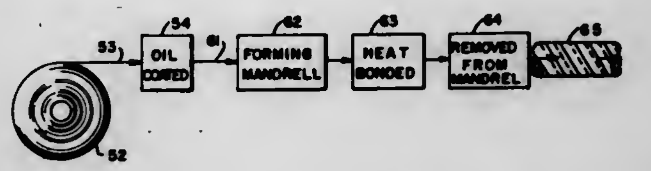


An improved self-containable disposable diaper wherein a portion of the disposal pouch is slit so as to form integral, oppositely extending wings, the wings preferably having means thereon for completing the attachment of the diaper to an infant. A method is provided for forming the improved diaper featuring folding, slitting and refolding the portion thereof which is to define the pouch and wings.

3,837,956
PREPARATION OF PLASTIC-METAL PRODUCTS INCLUDING LAMINATES, COMPOSITE TUBES AND THE LIKE

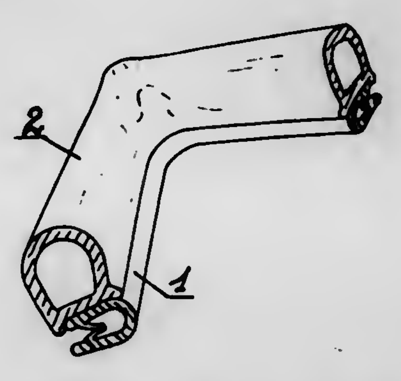
Ransome W. Erwin, Houston, Tex., assignor to Austral-Erwin Engineering Co., Houston, Tex.
Original application May 28, 1970, Ser. No. 41,375, now abandoned. Divided and this application Apr. 21, 1972, Ser. No. 246,220
Int. Cl. B29d *23/10*
U.S. Cl. 156—218 **17 Claims**

This invention relates to the provision of novel and economical ways of: (1) Heat bonding, solely with heat, plastics, particularly the fluorocarbon polymers and specifically the polymer hexafluoropropylenetetrafluoroethylene manufactured exclusively by E. I. du Pont de Nemours & Company and sold under the trade name of FEP, to metal surfaces, particularly flexible metal sheets and plates. (2) Heat bonding or adhesive cement bonding these same metal sheet-plastic laminates to other metal surfaces, particularly those of pipes and vessels. (3) Fabrication of composite tubes or sleeves, solely by heat bonding of seams of these composite sheets shaped into tubes or sleeves, said tubes or sleeves being useful alone as conduits for fluids or which may be heat or adhesive cement bonded to other metal pipes and vessels, as protective coats and liners, and method and means for installing said liners.



3,837,957
METHOD OF SHAPING A SEALING STRIP

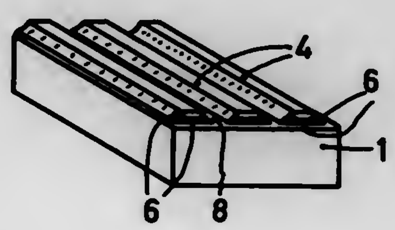
Francois Pierre Mesnel, Neuilly-sur-Seine, France, assignor to Etablissements Mesnel, Colombes, France
Filed Apr. 28, 1972, Ser. No. 248,731
Int. Cl. B29c *23/00, 27/00*
U.S. Cl. 156—221 **10 Claims**



In a method of shaping a sealing strip, which comprises a fixing section of plastics material and a sealing section of vulcanisable elastomeric material, to fit around a panel such as a vehicle door, the sealing section is only partially vulcanised after formation thereof and the sealing strip is constrained to a desired shape conforming to the panel and the strip heated to complete vulcanisation of the sealing section and to soften the plastics material of the fixing section so that the strip takes up and permanently retains the shape to which it has been constrained.

3,837,958
METHOD OF MANUFACTURING A GAS DISCHARGE PANEL

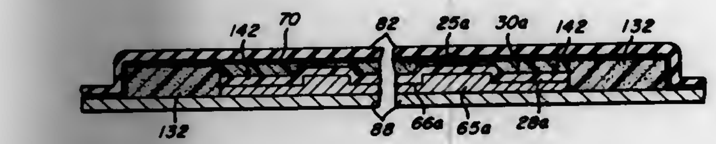
Johannes Van Esdonk, Godefridus Henricus Broers, Petrus Franciscus Antonius Haans, and Johannes Petrus Hornman, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed June 22, 1972, Ser. No. 265,328
Claims priority, application Netherlands, June 29, 1971, 7108935
Int. Cl. B32b *31/00*
U.S. Cl. 156—229 **7 Claims**



A gas discharge panel in which the conductors of the base plate and the upper plate are connected to said base plate and upper plate by means of an enamel.

3,837,959
METHOD OF MAKING FLEXIBLE MAGNETIC PRINTING PLATES

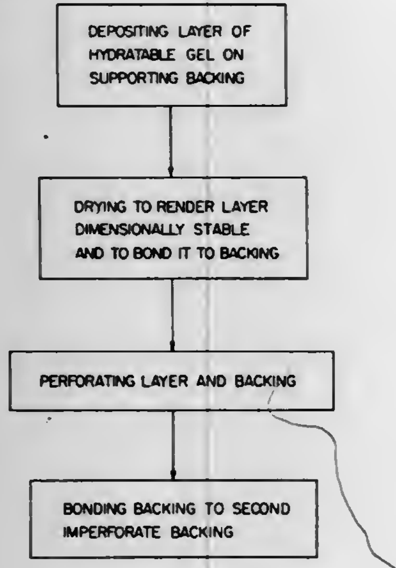
Homer L. Bishop, P.O. Box 35,
West Carrollton, Ohio 45449
Continuation-in-part of application Ser. No. 194,651, Nov. 1, 1971, now Defensive Publication No. T903,017. This application Sept. 21, 1972, Ser. No. 290,852
Int. Cl. B29c *19/00;* **B41c** *3/06*
U.S. Cl. 156—246 **7 Claims**



A flexible resilient printing plate adapted for use on a magnetic printing cylinder is formed by mixing a ferrous metal powder within a volume of liquid plastisol, casting the mixture onto a face layer of cured plastisol to form a base layer, and then heating the combined layers to cure the base layer and fuse it to the face layer to form a flexible multiple layer mold sheet. The base layer is shaved to provide the mold sheet with a substantially uniform thickness, and a porous fibrous impression mat is placed in contact with the face layer. The mat and mold sheet are heated and are placed within a diaphragm press with a porous cloth between the mold sheet and the diaphragm. The mold sheet is pressed into the mat to form a printing plate which is allowed to cool during the pressing operation. The mat and plate are magnetically retained on the bed of a shaver, and the base layer of the plate is shaved to produce a precise uniform caliper. After the printing plate is shaved and stripped from the porous mat, it is reheated until it relaxes. The reheated plate is placed on a drum having an outer diameter the same as the magnetic cylinder and is held in firm contact with the drum until the plate cools. The plate is also produced without the face layer of plastisol so that the metal powder is dispersed throughout the entire plate.

3,837,960
METHOD OF MAKING HYDRATABLE GEL SHEETS

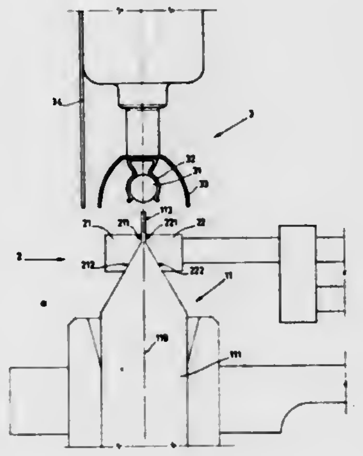
Donald W. Renn, Glen Cove, and Ronald D. Forget, Owls Head, Maine, assignors to Marine Colloids, Inc., Rockland, Maine
Filed June 9, 1972, Ser. No. 261,154
Int. Cl. B32b *31/00*
U.S. Cl. 156—253 **3 Claims**


DEPOSITING LAYER OF HYDRATABLE GEL ON SUPPORTING BACKING
DRYING TO RENDER LAYER DIMENSIONALLY STABLE AND TO BOND IT TO BACKING
PERFORATING LAYER AND BACKING
BONDING BACKING TO SECOND IMPERFORATE BACKING

Hydratable gel sheets for use in molecular diffusion processes are made by depositing a layer of hydrated gel material on a water-impervious supporting backing, drying the layer to render it dimensionally stable and to cause it to become bonded to the backing, perforating the layer and the backing in the dry state and then bonding the backing to a second imperforate backing.

3,837,961
METHOD AND APPARATUS FOR THE CLOSING BY TRANSVERSE WELDING OF FLEXIBLE TUBES MADE OF METAL-THERMOPLASTIC LAMINATE

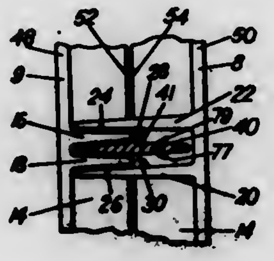
Jean-Marie Vouillemin, Ste.-Menehould, France, assignor to Tuboplast-France, Paris, France
Filed Mar. 19, 1973, Ser. No. 342,689
Claims priority, application France, Mar. 23, 1972, 7210240
Int. Cl. B29c *27/04;* **H05b** *9/02*
U.S. Cl. 156—272 **2 Claims**



Method and apparatus for closing by transverse welding of flexible tubes formed of a metal-thermoplastic laminate, in which the end of the flexible tube is gripped in a manner to create a transverse rectilinear closure zone, in which the zone is pre-heated by the application of external heat and welding is completed by induction heating.

3,837,962
METHOD OF ASSEMBLING HONEYCOMB STRUCTURES

James Joseph Ansell and Kenneth Gordon Payne, Bristol, England, assignors to Rolls Royce (Composite Materials) Limited, Bristol, England
Filed May 9, 1968, Ser. No. 734,842
Claims priority, application Great Britain, May 11, 1967, 22,001/67
Int. Cl. B32b *31/12*
U.S. Cl. 156—293 **5 Claims**



A lightweight, load-bearing honeycomb structure is formed by juxtaposing on a base pair of units each having projecting webs which overlap each other, applying within and between the overlapped webs a predetermined quantity of plastic adhesive, and inserting within the space a connecting member having a stem which presents bonding surfaces opposite bonding surfaces of the units to a degree sufficient to force the adhesive in the space between all abutting bonding surfaces of the interconnecting member and the units.

3,837,963
COMPOSITION AND PROCESS FOR SEALING SURFACES

Elliott Frauenglass, Newington, and Bruce D. Murray, East Hartford, Conn., assignors to Loctite Corporation, Newington, Conn.
No Drawing. Filed Oct. 18, 1971, Ser. No. 190,261
Int. Cl. C08f *3/64;* **C09j** *5/04*
U.S. Cl. 156—310 **14 Claims**

Two part sealant compositions for use on rigid surfaces are presented, which combine effective sealing capability with ease of disassembly. A pretreating composition containing a film forming substance and a polymerization catalyst is applied to the surfaces to be sealed, and serves to activate the hardenable sealant when applied and also to reduce adhesion of the sealant to the surfaces to aid in disassembly.

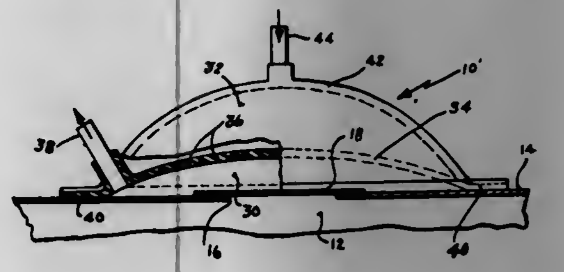
3,837,964
BENZOTRIAZOLE PRE-LAMINATION TREATMENT OF METAL SUBSTRATES

Joseph Bernard Cotton, Sutton Coldfield, and Peter Albert Mack and Raymond Price, Manchester, England, assignors to Imperial Chemical Industries Limited, London, and Imperial Metal Industries (Kynoch) Limited, Birmingham, England
No Drawing. Filed Jan. 17, 1972, Ser. No. 218,457
Claims priority, application Great Britain, Jan. 18, 1971, 2,279/71
Int. Cl. B32b *31/12;* **C09j** *5/02*
U.S. Cl. 156—331 **7 Claims**

Organic compounds, especially polymers, are bonded to copper, silver or cadmium surfaces by means of compounds containing a ligand group, especially a benzotriazole group, which will form a polymeric complex with the metal of the surface and a group reactive with the organic compound. The metal surface may be treated with the complex-forming compound before or during contact with the organic compound. The polymers may be prepared from polymer-forming components while in contact with the metal surface.

3,837,965
PORTABLE REPAIR APPARATUS

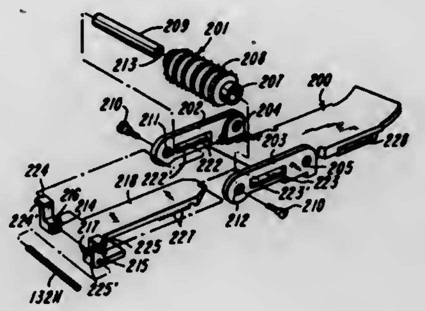
John Mahon, Huntington, and Stanley J. Richter, Blue Point, N.Y., assignors to the United States of America as represented by the Secretary of the Air Force
Filed Oct. 17, 1972, Ser. No. 298,209
Int. Cl. B32b *35/00*
U.S. Cl. 156—382 **2 Claims**



A portable repair apparatus having a pair of chambers separated by a flexible diaphragm having a heating element therein. One chamber has a connection to an evacuating means while the other chamber is connected to a pressure source. After mounting the repair apparatus over a patch on the damaged area of a surface, the creation of a vacuum in one chamber and the increase in pressure in the other chamber causes the flexible diaphragm to apply sufficient pressure to the patch in order to bond it to the damaged surface.

3,837,966
LABEL PRINTING AND APPLYING APPARATUS

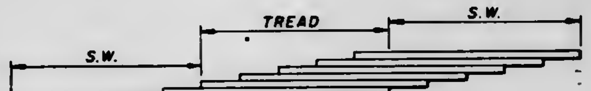
Eugene W. Finke, Miamisburg, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio
Filed Feb. 25, 1972, Ser. No. 229,383
Int. Cl. B32b *35/00*
U.S. Cl. 156—384 **16 Claims**



There is disclosed label printing and applying apparatus comprising a platen and cooperable printing means for printing successive pressure sensitive labels, a delaminator for delaminating the printed labels successively from the associated web of supporting material, and an applicator for applying the printed delaminated labels to merchandise. The positional relationship of the delaminator relative to the platen and to the applicator can be quickly and easily varied by means of a resilient locking arrangement. Also disclosed are various embodiments of the applicator in the form of roll structure which is capable of yielding to conform to irregularities in the surface to which the label is applied.

3,837,967
APPARATUS FOR THE APPLICATION OF A SINGLE STRIP TREAD TO A CARCASS

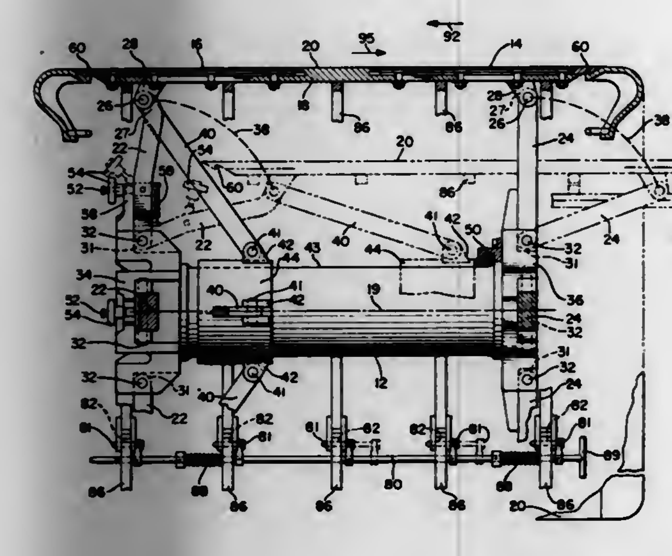
Lester M. Symons, Southfield, Mich., assignor to Uniroyal, Inc., New York, N.Y.
Original application Aug. 13, 1970, Ser. No. 63,407, now abandoned. Divided and this application Oct. 19, 1972, Ser. No. 298,919
Int. Cl. B29h *17/02, 17/08, 17/10*
U.S. Cl. 156—405 **4 Claims**



An apparatus for applying an endless single strip tread to the carcass of a tire in either toroidal or flat built unshaped form. An uncured rubber strip of tread material is applied to the tire carcass in substantially parallel, spaced, spiral convolutions by moving a movable conveyor assembly and the supply source for the tread material in a direction parallel to the axis of the tire carcass itself. The movement is in one direction only during application of the strip, and a constant step-off of the strip as it is applied to the tire carcass is obtained by control means which permit the speed of transverse travel of the conveyor assembly and the rotational speed of the tire carcass to be controlled according to a predetermined formula so that the tread is applied to the tire in a single pass of the movable conveyor and tread stock supply source. The apparatus also includes means for returning the conveyor assembly to its starting position automatically following completion of application of the strip to the tire. The apparatus also includes provision of a hump stock let-off device which can be utilized when a "valley" type tread contour is required. A stitcher is also utilized to stitch down the tread stock during the time that the device moves relatively of the tire body, and finally the method and apparatus is utilizable with any conventional tire-building machine or recapping machine, since the method and apparatus disclosed herein is utilizable either in applying a tread to a new tire carcass or in retreading a used tire.

3,837,968
TIRE BUILDING DRUM

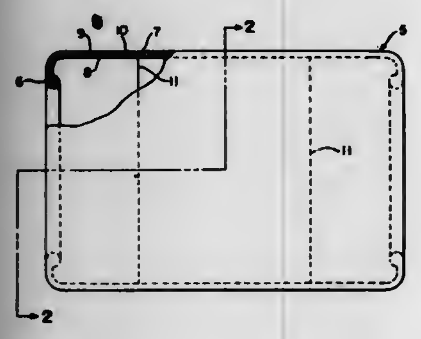
Theodore F. Marra, Barberton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Nov. 20, 1972, Ser. No. 308,063
Int. Cl. B29h *17/16*
U.S. Cl. 156—415 **25 Claims**



A tire building drum particularly adapted for massive tires such as those used in off-the-road construction equipment features four axially symmetrically collapsible segments each comprising a primary member and a pair of secondary members hinged about the longitudinal edges of the primary member to swing between positions cooperating to provide a continuous rigid cylindrical tire building surface and collapsed positions wherein the secondary members are swung beneath the respective primary members and wholly within the sector defined by the respective primary members.

3,837,969
METHOD OF MAKING A TIRE BUILDING SLEEVE AND SAID SLEEVE

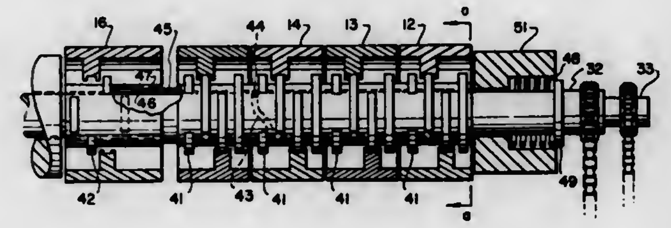
Stanley M. Mezynski, Mogadore, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Continuation of abandoned application Ser. No. 767,325, Oct. 14, 1968. This application Mar. 29, 1972, Ser. No. 239,121
Int. Cl. B29h *17/16*
U.S. Cl. 156—416 **5 Claims**



This invention relates to a method of making sleeves or bladders for tire building machines for building bias angle tires, bias belted tires or radial ply belted tires by building the core of the sleeve of natural rubber, high cis polybutadiene, high cis polyisoprene, acrylonitrile-butadiene and butadiene styrene, and covering the outside of the core and at least part of the inside thereof with a layer of polyurethane elastomer.

3,837,970
APPARATUS FOR PRODUCING CONTINUOUS LENGTHS OF REINFORCED PLASTIC PIPE

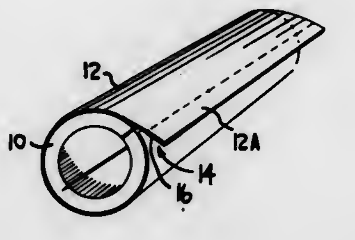
Joseph Medrano, Jr., 14804 Daley Lane, Woodbridge, Va. 22191
Filed Sept. 20, 1972, Ser. No. 290,601
Int. Cl. B31c *3/00*
U.S. Cl. 156—425 **6 Claims**



This invention is a method and apparatus for producing continuous lengths of reinforced plastic pipe from rolls of reinforced plastic tape wherein a special mandrel is employed. The pipe wall is built-up by winding tape about the mandrel and the wound piping is moved off the mandrel by means of a programmed axial movement of at least one mandrel section with a coordinated expansion and contraction of selected sections of the mandrel.

3,837,971
APPARATUS FOR WRAPPING MOLDED PIPE INSULATION

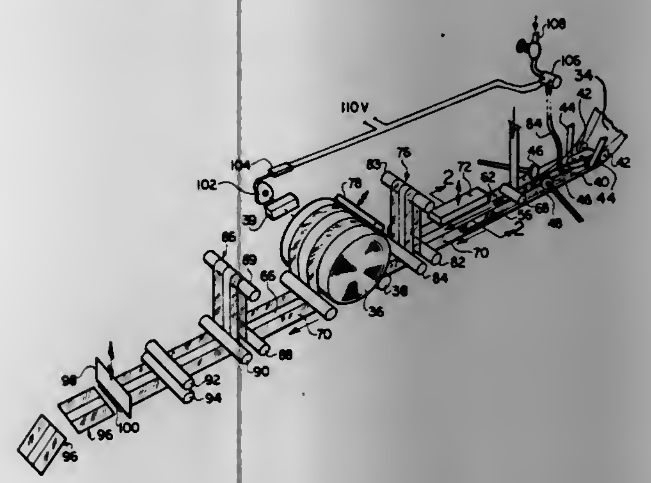
Carl A. Beck, Bala-Cynwyd, Pa., assignor to Certain-Teed Products Corporation, Valley Forge, Pa.
Application July 6, 1971, Ser. No. 159,776, now abandoned, which is a division of application Ser. No. 887,197, Dec. 22, 1969, now Patent No. 3,658,614. Divided and this application Jan. 22, 1973, Ser. No. 325,279
Int. Cl. B65c *9/06;* **B26d** *5/00;* **B65h** *81/00*
U.S. Cl. 156—447 **1 Claim**



Selected lengths of a first and second sheet material are advanced from their respective sources to a location and in such sequence where one of the materials is above a portion of the other. The upper material has an adhesive side opposed to the lower material. The selected lengths are severed simultaneously, which severing step also at least initially adheres the material together. Glue strips are placed on selected portions of the composite and registry is then made with a length of molded pipe insulation. The insulation is wrapped with the composite covering, the portion having the second strip being part of a flap for subsequent use in securing the insulation around the pipe.

3,837,972
PLASTIC BAG-MAKING MACHINE

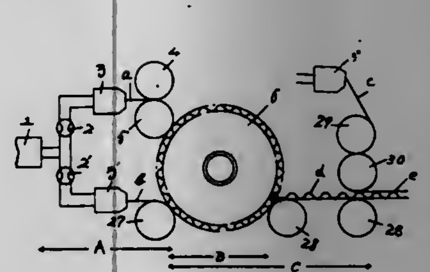
Samuel J. Schuster, 1099 Hillside St., Monterey Park, Calif. 91754
Filed Apr. 12, 1972, Ser. No. 243,393
Int. Cl. B29d *23/10;* **B30b** *15/34*
U.S. Cl. 156—466 **3 Claims**



An improved bag making machine is disclosed having a rotatable bag stock feed drum and employing a pressure heat seal means operatively associated with a plate mandrel about which the bag stock is formed. The plate mandrel includes an air conduit having an inlet port adapted to be intermittently connected to a supply of pressurized air in timed relation with the rotation of the feed drum. The air conduit further has an outlet port and the air intermittently discharging thereform urges the bag stock away from the plate mandrel preventing the bag stock from sticking to the mandrel. The machine also includes roller compensator means between the feed drum and the plate mandrel to adjust the relative positions of transverse and longitudinal pressure heat seals.

3,837,973
APPARATUS FOR CONTINUOUSLY PRODUCING CORRUGATED PLASTIC BOARD

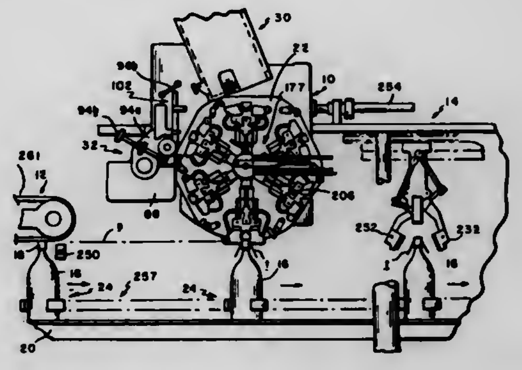
Hiroshi Asakura, Kanagawa-ken, and Keisuke Sakai, Masaru Koyama, and Hironori Mizuguchi, Kamakura, Japan, assignors to Toyo Kagaku Kabushiki Kaisha, also known as Toyo Chemical Co., Ltd., Kamakura, Japan
Filed July 7, 1972, Ser. No. 269,887
Int. Cl. B32b *31/00*
U.S. Cl. 156—470 **6 Claims**



A continuous plastic material shaping apparatus of the type in which a revolving drum having an undulating mold and suction orifices at its periphery against which a plastic material sheet to be shaped is brought to be fed and sucked by vacuum suction through the orifices connected with the interior of the drum which is kept under vacuum, the improvements being that on side edges of the periphery are provided flanges so arranged that the peripheral surface thereof may be on the same level as the convex crest of the undulations of the mold, with each flange having slot or groove therearound with orifices therein, through which orifices vacuum suction is effected. By means of the improved apparatus plastic materials to be shaped are sealingly retained on the peripheral surface of the mold and on the flanges so that a vacuum molding process may be carried out without vacuum leakage.

3,837,974
APPARATUS FOR ADHESIVELY APPLYING SEALING STRIPS TO CONTAINER CLOSURES TO PREVENT UNAUTHORIZED REMOVAL OF THE CLOSURES WITHOUT DETECTION

Sidney T. Carter, Shrewsbury, Mass., assignor to A-T-O Inc., Cleveland, Ohio
Original application Oct. 7, 1970, Ser. No. 78,652, now Patent No. 3,673,043. Divided and this application Mar. 27, 1972, Ser. No. 238,159
Int. Cl. B65c *3/20, 9/00*
U.S. Cl. 156—489 **34 Claims**

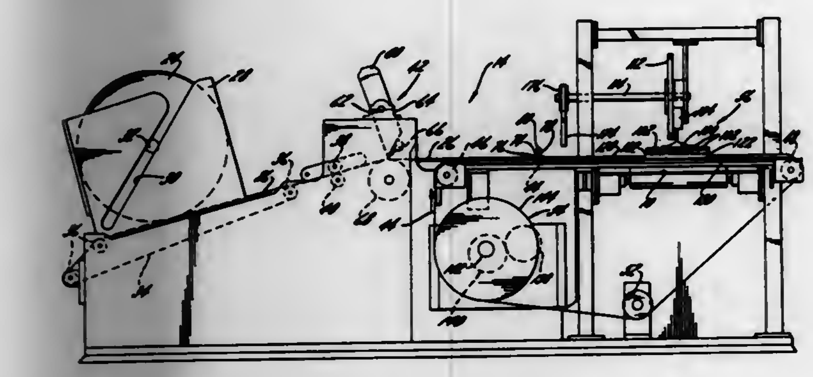


Apparatus for adhesively applying sealing strips, for example, tax stamps, to the closures at the tops of containers comprising a wheel rotatable about a horizontal axis which has on it at spaced intervals grippers for clamping the sealing strips at one end thereto and affixing assemblies for applying sealing strips to the closures following application of adhesive thereto. Peripherally of the wheel there are at the top, a magazine for holding sealing strips and a picker for taking sealing strips from the magazines and presenting them to the grippers on the wheel; at one side adhesive-applying means for applying adhesive to the sealing strips; and at the bottom a conveyor for moving containers in succession to the wheel for application of the sealing strips thereto. The affixing assemblies comprise holding members which take hold of the ends of the sealing strips while still held at one end by the gripper and a spotter. The holding members and spotter are movable radially on the wheel toward the tops of the containers and relative to each other after a sealing strip is pressed against the top of a container to wipe the portions of the sealing strip at each side of the closure downwardly against the sides while holding the ends away from the container so that the ends will not become attached to the shoulders of the container.

3,837,975
APPARATUS AND METHOD FOR FEEDING AND PLACING ELONGATED FLEXIBLE STRIP MATERIAL

Ronald P. Mandich, Green Bay, and David L. Middleton, Neenah, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.
Filed Feb. 22, 1972, Ser. No. 228,047
Int. Cl. B32b *31/00;* **B65c** *11/04*
U.S. Cl. 156—513 **6 Claims**

Apparatus for feeding and placing elongated flexible strip material on a generally transversely moving base sheet is disclosed. The apparatus transversely feeds elongated strip material, such as a thin, flexible belt for a surgical gown or the like, across the line of travel of the base sheet to which it is to be applied, separates the material into predetermined blanks and applies the length of the material to the base sheet. Since the length of the material may exceed the repeat length of the base sheet to which it is applied, provision is made for varying the speed of feeding to prevent interference with the trailing edges of the previously applied length of material.



3,837,976

APPARATUS FOR APPLICATION OF STIFFENING BANDS OR THE LIKE TO PIECES OF CLOTH

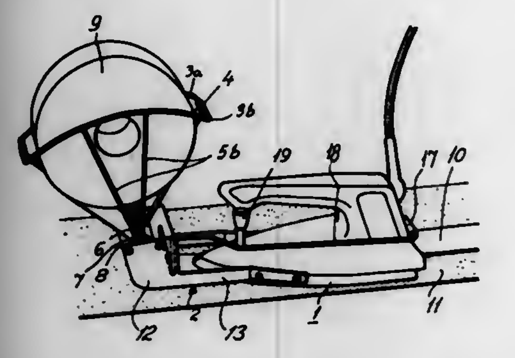
Mats I. Davidsson, 510 50 Dalsjofors, Sweden

Filed June 20, 1972, Ser. No. 264,440

Claims priority, application Sweden, June 21, 1971, 8,012/71; Germany, Oct. 14, 1971, P 21 51 124.0

Int. Cl. B32b *31/00*

U.S. Cl. 156—513 **5 Claims**



An apparatus for applying stiffening bands to pieces of cloth uses bands with a covering that sticks to the cloth material upon heating and consists of a bracket secured to a smoothing iron and holding the band, a guide to feed the band in a path down towards the piece of cloth and in a direction towards the rear of the iron and a feeding roll having sharp points adapted to pierce the band and penetrate into the cloth lying below in such a manner that the iron upon movement causes the feeding roll to rotate and thereby feeds the stiffening band.

3,837,977

ULTRASONIC PATTERN WELDING APPARATUS

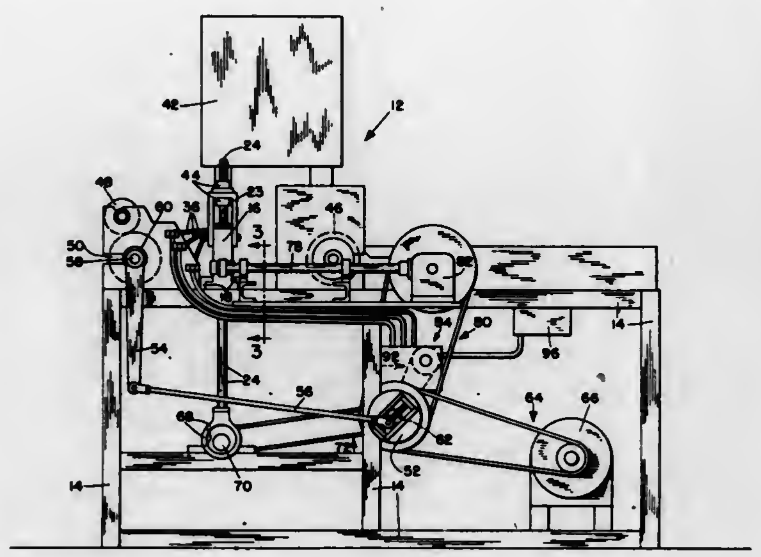
Edgar C. Rust, Jr., Williamstown, Mass., assignor to Crompton & Knowles Corporation, New York, N.Y.

Filed Sept. 15, 1972, Ser. No. 289,508

Int. Cl. B06b *3/00*

U.S. Cl. 156—580 **13 Claims**

Apparatus for ultrasonic welding of thermoplastic sheets wherein a plurality of spaced anvils cooperate with a vibration transmitting member to produce welds in the sheets in a predetermined pattern. The apparatus includes control means for selectively moving the anvils into cooperative position with the vibration transmitting member.



3,837,978

BARIUM ALUMINOSILICATE GLASS-CERAMICS

Robert A. Busdiecker, deceased, late of Woodville, Ohio, by Lucille I. Busdiecker, executrix, Woodville, Ohio, assignor to Owens-Illinois, Inc.

No Drawing. Filed Apr. 2, 1973, Ser. No. 347,389

Int. Cl. B44f *1/00;* **C03b** *29/00;* **C04b** *33/00*

U.S. Cl. 161—1 **9 Claims**

Disclosed are thermally crystallizable barium aluminosilicate glass compositions containing tin oxide as a nucleant for in-situ thermal crystallization to yield transparent, translucent and opaque glass-ceramic articles containing hexacelsian as the principal crystalline phase and having a coefficient of thermal expansion in the range of from about 50 to $170 \times 10^{-7}/°$ C. (0–300° C.).

3,837,979

VISIBLE IMMOBILIZED SPECIMENS AND METHOD OF PREPARING SUCH SPECIMENS

John H. Brown, Jr., and Bobby L. Atkins, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Dec. 11, 1969, Ser. No. 884,344, now Patent No. 3,638,709. Divided and this application Sept. 23, 1971, Ser. No. 183,231

Int. Cl. A01m *1/00, 3/00*

U.S. Cl. 161—18 **5 Claims**

A visible immobilized specimen suspended in a stable, continuous gel wherein the gel is a transparent adduct of a crosslinked vinyl polymer and a water-soluble aldehyde. Such immobilized specimen is prepared by providing an optically transparent container, introducing into the container a liquid phase containing a water-soluble vinyl monomer, a water-soluble aldehyde, a crosslinking agent and a free radical producing catalyst. A specimen is positioned in the liquid phase and held in position until the polymerization of the liquid phase produces sufficient gel strength to immobilize the specimen. The container is then sealed to prevent evaporation.

3,837,980

GRASS-LIKE PILE PRODUCT

Tadashi Nishimura, Kyoto, Yoshifumi Nakayama, Kusatsu, and Shigeji Yamashita, Kogacho-Ueno, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed June 8, 1973, Ser. No. 368,250

Claims priority, application Japan, June 14, 1972, 47/69,324

Int. Cl. A47g *35/00*

U.S. Cl. 161—21 **28 Claims**

Synthetic grass products of improved quality are made of thermoplastic monofilament ribbons having a cross section in which the ribbons are thickest at the center, and taper off toward both edges and which have a stem-like projection about its center on both sides of the tapered portion. The synthetic grass products are produced by conventional tufting, weaving, knitting, or flock-coating techniques and have resilient synthetic foam attached to the backing on the side opposite to the extending ribbons.

3,837,981

EPOXY TAPE

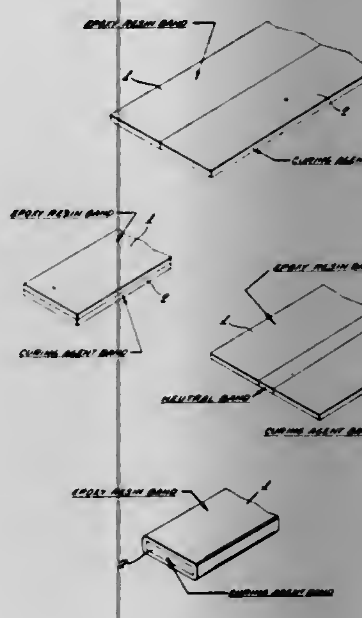
Theodore R. Flint, Jug Hollow Road, Valley Forge, Pa. 19481

Continuation-in-part of application Ser. No. 141,664, May 10, 1971, now Patent No. 3,708,379. This application Nov. 2, 1972, Ser. No. 303,146

The portion of the term of the patent subsequent to Jan. 2, 1990, has been disclaimed

Int. Cl. B32b *27/38;* **C09j** *5/08, 7/02*

U.S. Cl. 161—36 **5 Claims**



An epoxy tape useful as an adhesive sealant comprised of a first band of an uncured epoxy resin composition and a second band comprised of a composition capble of curing the epoxy resin. Kneading together of substantially equal lengths of opposed portions of the first and second bands results in an epoxy composition which is self-curing.

3,837,982

WIRE WOVEN FABRIC FOR PNEUMATIC TIRES

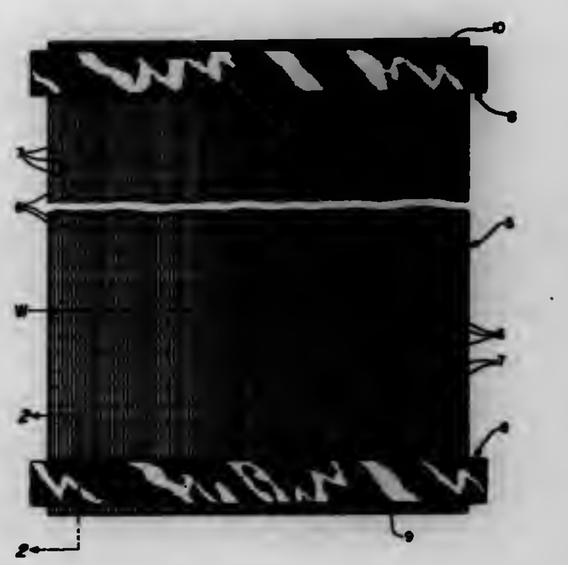
Samuel J. Di Paola, Burton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Original application Sept. 3, 1970, Ser. No. 69,195, now abandoned. Divided and this application May 22, 1972, Ser. No. 255,351

Int. Cl. B32b *7/00*.

U.S. Cl. 161—39 **17 Claims**

A fabric for reinforcing pneumatic tires conventionally woven from metal warp cords composed of individual wires or filaments having a diameter greater than .003 inches, and weft cords composed of non-metallic material. A tabby, preferably composed of square woven textile cord fabric, is cemented along the leading and trailing edges of the wire cord fabric for maintaining the width of the wire cord fabric uniform throughout its length.



3,837,983

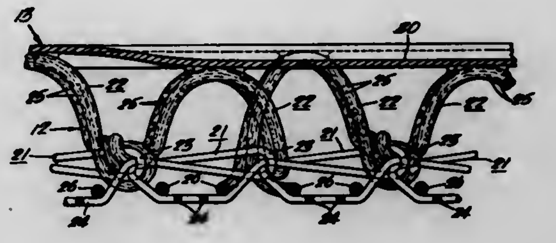
SIMULATED LEATHER FABRIC

Wolfgang A. Strahl, Souderton, and Donald S. Nichols, Doylestown, Pa., assignors to Koracorp Industries, Inc.

Continuation of abandoned application Ser. No. 802,755, Feb. 20, 1969. This application Apr. 20, 1971, Ser. No. 135,707

Int. Cl. B32b *5/02;* **D06r** *3/04*

U.S. Cl. 161—53 **10 Claims**



A simulated leather fabric which is characterized by a random grain appearance in which the fabric comprises a base structure having projections from at least one surface, for example, a tricot knit having at least two yarn systems, at least one of which comprises thermoplastic yarns capable of assuming a "set," and is knit with conventional yarn tension during the knitting operation. The other system is overfed during the knitting operation to provide projections in the nature of a looped pile on one surface of the fabric. The base fabric is tensioned and given a partial or temporary set to impart latent contractile forces thereto, and then is coated with a thin stabilized film of flexible material of uniform thickness on the surface containing the projections. The coating is bonded to the fabric and the coated fabric is then further treated while relaxed to activate the latent forces which thereupon develop a random grain appearance which simulates the appearance of natural leather.

3,837,984

THERMOSETTING ADHESIVE AND ARTICLES USING THE SAME

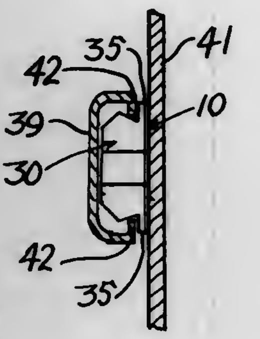
David P. Wagner, Elmhurst, and James E. Gugle, Crystal Lake, Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.

Filed Jan. 19, 1972, Ser. No. 219,046

Int. Cl. B32b *5/12*

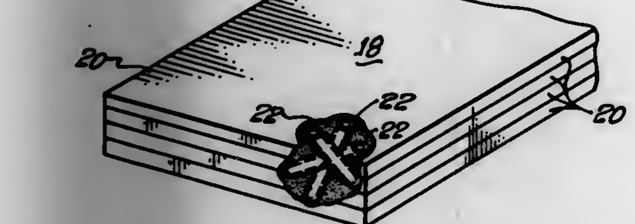
U.S. Cl. 161—53 **7 Claims**

Disclosed is a thermosetting adhesive which is formed of a nitrile phenolic and applied in slurry form onto a support layer of polyurethane and then dried. When heat is applied thereto the dried nitrile phenolic will soften to cause adhesion of the material to a surface to which it is applied. The nitrile phenolic is formed of a mixture of carboxy-modified NBR polymer, thermosetting phenolic resin, coumarone-indene resin, and sterically hindered phenol of the type octadecyl 3-(3′,5′-di-tert-butyl-4′-hydroxyphenyl) propionate. The nitrile phenolic and polyurethane support then form a thermosetting tape which can be secured to a clip or other fastener. The clips or fasteners utilizing the thermosetting adhesive can be firmly secured to the exterior painted surface of automobiles by the application of heat for a short period of time. Also the thermosetting adhesive tape can be applied to threaded fasteners for securing the same to wall surfaces such as metal or fiberglass for securing other articles thereto.



3,837,985
MULTI-DIRECTIONAL REINFORCED COMPOSITE AND METHOD OF MAKING THE SAME

Vance A. Chase, Poway, Calif., assignor to Whittaker Corporation
Filed Feb. 24, 1972, Ser. No. 228,929
Int. Cl. B32b *7/08*
U.S. Cl. 161—55 **16 Claims**



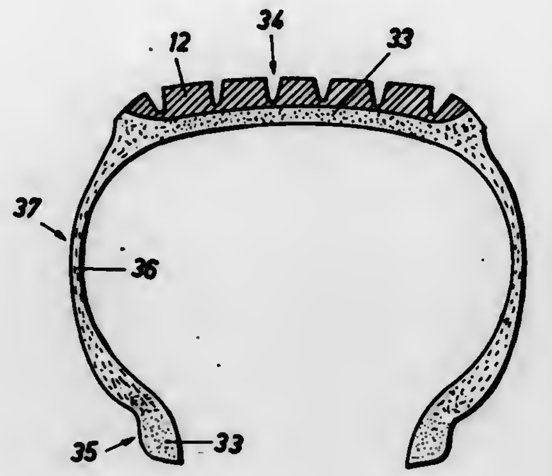
An improved composite is fabricated by laying up a thickness of fibers bearing an uncured resin matrix, driving a series of spaced cured resin impregnated reinforcing elements at least partially through the lay-up at an angle, and then fully curing the resulting composite to bond the reinforcing elements into the lay-up.

3,837,986
MOLDED ARTICLE FORMED OF FIBER REINFORCED MATERIAL

Werner Görter, Baden, Erich Kresta, Perchtoldsdorf, and Horst Stumpf, Baden, Austria, assignors to Semperit Aktiengesellschaft, Vienna, Austria
Filed July 30, 1971, Ser. No. 167,768
Claims priority, application Austria, Aug. 5, 1970, A 7,107/70
Int. Cl. B32b *5/12*
U.S. Cl. 161—59 **16 Claims**

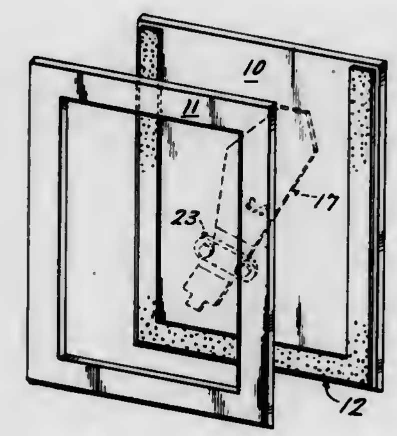
A molded article comprising an elastomeric material and essentially oriented fibers embedded in said elastomeric material. The molded article includes at least two sections containing such fibers, wherein said fibers of said sections possess respective orientation directions differing from one another.

There is also disclosed a method and apparatus for forming such molded articles wherein there is provided a hollow mold having a mold compartment, and means define at least one auxiliary compartment provided for said hollow mold. The hollow mold includes at least one mold section constructed to be movable to displace molding material containing the fibers and used for forming the article into a part of the hollow compartment of said mold which is initially free of molding material.



3,837,987
DOCUMENT HOLDER

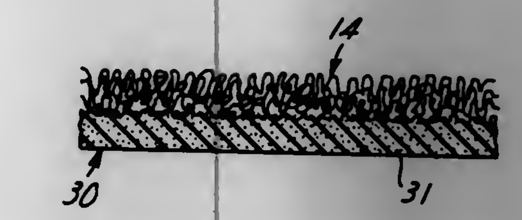
Michael J. Williams, Toledo, Frederick C. Blome, Maumee, and Otto W. Hueter, Toledo, Ohio, assignors to Gross Manufacturing Corporation, Toledo, Ohio
Filed Dec. 18, 1972, Ser. No. 315,925
Int. Cl. B44f *7/00*
U.S. Cl. 161—18 **7 Claims**



A document holder such as a photo mount having a rigid frame holder and a folding support is disclosed. The frame body includes a rigid back panel with a complementarily shaped frame over the front surface of the back panel with a spacer element therebetween to form a pocket for the document. The spacer element is a raised portion on the front face of the back panel which extends along three sides to provide a slot on the fourth side extending into the pocket. The spacer element is recessed inwardly from the sides of the adjacent frame and panel on all three sides and on its ends adjacent the fourth side to form a recess which has the external visual appearance of the slot. The folding foot is fabricated from a fatigue resistant thermoplastic and is secured to the back panel by a bridge piece fabricated from a thermoplastic material compatible with the back panel.

3,837,988
COMPOSITE MAT

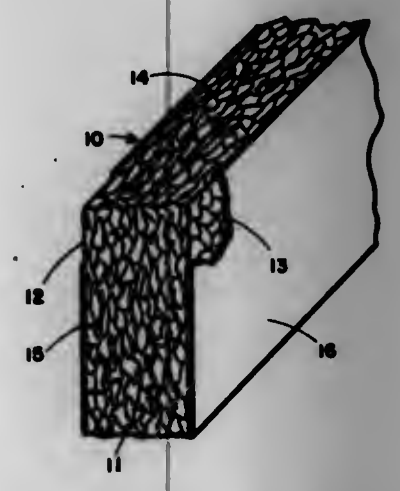
Donald E. Hennen, Cottage Grove, and Leroy I. Kusilek, River Falls, Wis., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of application Ser. No. 83,450, Oct. 23, 1970, which is a continuation-in-part of application Ser. No. 676,497, Oct. 19, 1967, now abandoned. This application Jan. 24, 1973, Ser. No. 326,552
Int. Cl. B32b *3/06, 3/26;* **D04h** *11/00*
U.S. Cl. 161—67 **10 Claims**



A resilient open lofty web of interengaged coarse continuous coiled filaments, with one major surface of the web being flattened, is integrated with a bonding resin to permanently bond the filaments together to form a tough, easily-cleaned mat material which is especially useful as carpeting in damp areas. The web may also be laminated to various sheet-like substrates such as plastic film, metal or plastic screens, synthetic foam layers, and the like, to provide a dimensionally stable mat material which is especially suited for use as a floor covering.

3,837,989
PANEL STRUCTURE HAVING AN INTERMEDIATE FILLER OF RANDOM ORIENTED, RESIN RIGIDIFIED PARTICLES OF CELLULOSIC MATERIAL

Wallace W. McCoy, 1471 Valane Drive, Glendale, Calif. 91208
Original application Mar. 2, 1970, Ser. No. 15,364, now Patent No. 3,664,076. Divided and this application Apr. 19, 1972, Ser. No. 245,547
Int. Cl. B32b *3/12, 5/07, 5/16;* **B31d** *3/02;* **E04b** *5/00*
U.S. Cl. 161—68 **6 Claims**

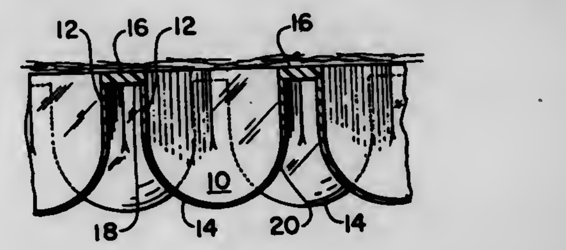


This disclosure involves a form of prefabricated structure such as commercial or industrial buildings, houses or enclosures employing an external skin bonded to an intermediate structural and insulating filler with an inner surface skin similarly bonded to the filler material. The external skins are preferably resin bonded glass fiber and the intermediate filler composes a random honeycomb structure made of cellulosic material, such as individual pieces of paper of random size each rigidified and bonded to adjacent pieces by a resinous binder which is compatible with the binder of the skins. The structure is shown in continuous panels and actually three dimensional structure configurations as well as discrete structural elements which may be used to replace comparable structural elements normally made of wood. Disclosed also are processes for continuous manufacture of structures employing the concept of this invention either in the factory or on site.

The same basic structure is shown in various configurations. Illustrated are a number of panel sections employing the same structure arrangement but different filler density whereby the load bearing strength of the panel may be controlled and its insulating properties varied as well. Structural strength can also be varied by changing the dimensions and concentrations of resin/Fiberglas of either or both external skin surfaces. Disclosed also are individual structural elements produced from waste paper material and resin bonded skins.

3,837,990
REINFORCED CUSHIONING MATERIAL

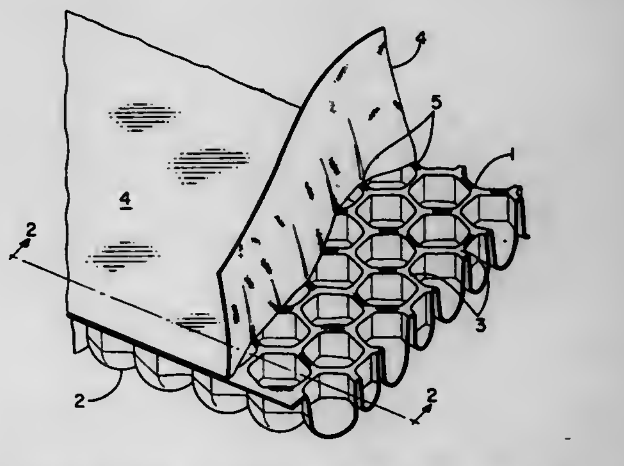
Richard L. McConnell, 421 Manderley Road 37660, and James E. Huffaker, 1117 Radcliffe Drive 37664, both of Kingsport, Tenn.
Continuation of abandoned application Ser. No. 47,851, June 19, 1970. This application Dec. 7, 1972, Ser. No. 313,005
Int. Cl. B32b *3/12*
U.S. Cl. 161—68 **6 Claims**



Molded thermoplastic sheet material useful in cushioning applications. The material is provided with a multiplicity of adjacent, closely spaced cellular protrusions extending from one side of the sheet material and an interconnected grid of land areas at the base of the cells. The cushioning material is reinforced with pervious material attached to and connecting the land areas so as to resist deformation.

3,837,991
PLASTIC CUSHIONING REINFORCED MATERIAL

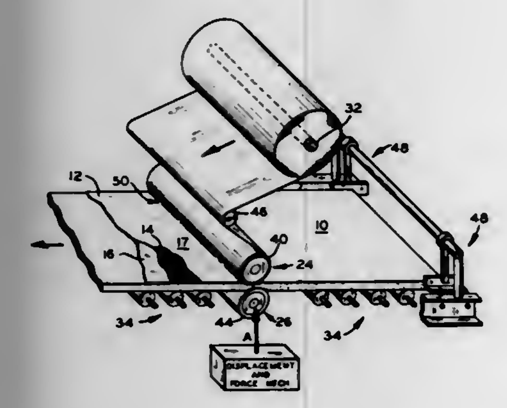
Ernest C. Evans, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Continuation of abandoned application Ser. No. 139,617, May 3, 1971. This application May 10, 1973, Ser. No. 358,904
Int. Cl. B32b *3/12*
U.S. Cl. 161—68 **4 Claims**



Multi-ply thermoplastic sheet cushioning material in which a first sheet has a plurality of closely spaced cellular protrusions extending from one side of the sheet and a grid of land areas on the second side of the sheet define openings of the protrusions; a second sheet extends on said grid closing over the protrusions and is secured to land areas of the grid in such manner as to reinforce the first sheet. The second sheet is so secured to the first as to provide for air flow communication between cellular protrusions.

3,837,992
LAMINATED ARTICLE

James Webster Sherman, Richmond, Ind., and Ronald Buxton Raab, Perrysburg, Ohio, assignors to Johns-Manville Corporation, New York, N.Y.
Filed Nov. 24, 1971, Ser. No. 201,895
Int. Cl. B32b *15/02*
U.S. Cl. 161—89 **1 Claim**



A faced substrate in which the facing is a composite sheet having its components bonded by a film adhesive which also bonds the facing to the substrate. The composite facing is formed by continuously advancing the component layers of the facing to a point of convergence where heat and pressure are applied to adhesively bond the layers with the film adhesive into a facing having the adhesive exposed at one face and subsequently applying the facing with an orientation presenting the exposed adhesive to a substrate to which it is to be applied. In a line process the facing and substrate are advanced to a point of convergence where heat and pressure are again applied to adhesively bond the facing to the substrate with the same film adhesive.

3,837,993
ADHESION OF TEXTILES TO RUBBER

Robert M. Shimmel, Southgate, Mich., assignor to Uniroyal, Inc., New York, N.Y.
No Drawing. Filed May 3, 1972, Ser. No. 249,853
Int. Cl. D03d *25/00*
U.S. Cl. 161—92 **10 Claims**

Incorporation of trimethylene trisulfone in rubber stock increases the adhesion to textiles.

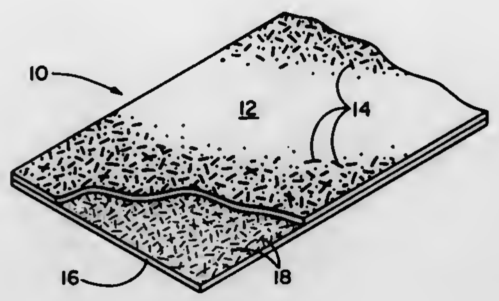
3,837,994
MANUFACTURE OF PERFECT BOUND BOOKS

Thomas P. Flanagan, Green Brook, and Irving I. Kaye, Murray Hill, N.J., assignors to National Starch & Chemical Corporation, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 724,267, Apr. 25, 1968. This application June 12, 1972, Ser. No. 261,916
Int. Cl. B32b *27/10, 31/04;* **B42c** *9/00*
U.S. Cl. 161—100 **12 Claims**

A method for the "perfect" binding of books wherein the hot melt adhesive composition which is utilized to bind the sheets thereof comprises a blend of (a) a block polymer of monovinyl aromatic hydrocarbons and conjugated dienes; (b) a tackifying resin; (c) a stabilizer; and (d) a wax diluent.

3,837,995
AUTOGENOUSLY BONDED COMPOSITE WEB

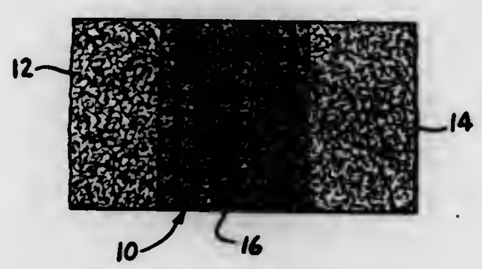
John G. Floden, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Apr. 24, 1972, Ser. No. 247,130
Int. Cl. B32b *5/02;* **D04h** *1/04*
U.S. Cl. 161—150 **10 Claims**



Autogenously bonded multi-ply nonwoven web including one or more layers of synthetic, thermoplastic polymeric microfibers and one or more layers of larger diameter natural fibers. Bonding is obtained between the layers of synthetic microfibers and the layers of natural fibers by contact without the need for supplemental bonding. The resulting composite webs are strong, conformable and possess other desirable properties depending upon the particular layer components utilized.

3,837,996
WATER REPELLENT NONWOVEN MATERIAL

Ralph V. Braun and Audrey J. Knauer, Neenah, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.
Filed Mar. 25, 1970, Ser. No. 22,458
Int. Cl. B32b *5/26, 5/12*
U.S. Cl. 161—156 **6 Claims**



Nonwoven laminates comprised of cellulose wadding in a basis weight amount of at least 15 lbs. and treated with a water repellent have increased water repellency when at least 9 lbs. of the wadding present have a low porosity. The laminates usually contain reinforcing means and optimum repellency is achieved when the laminating adhesive used to prepare the nonwovens has a low surfactant content.

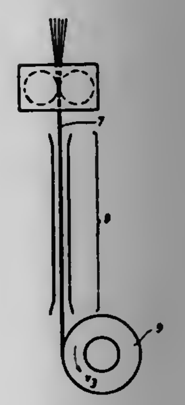
3,837,997
BORON NITRIDE PRODUCTS

James Economy, Buffalo, Ronald E. Highsmith, North Tonawanda, and John H. Mason, Clarence, N.Y., assignors to The Carborundum Company
No Drawing. Filed Mar. 16, 1971, Ser. No. 124,919
Int. Cl. B32b *5/16;* **B44d** *1/02;* **C01b** *21/06*
U.S. Cl. 161—170 **17 Claims**

A low-density product comprising boron nitride fibers bonded by boron nitride formed in situ is produced by heating a formed mass of boron nitride fibers that has been impregnated with boric acid solution to an elevated temperature in ammonia. The fibrous mass may be shaped before or after impregnation with the solution. Incorporation of a nitrogenous material in the solution gives improved results and the density may be increased, if desired, by the adidtion of fillers. Purity of the product is affected by the nitriding temperature employed.

3,837,998
STABLE BAND CONSISTING OF SIZED STAPLE FIBERS AND POSSESSING HIGH LENGTHWISE STABILITY

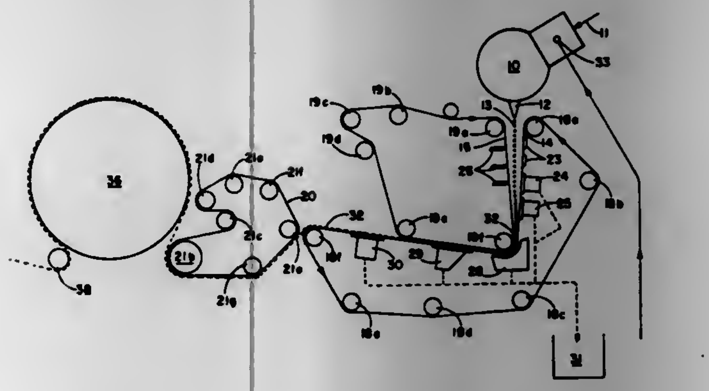
Werner Naegeli, Winterthur, Switzerland, assignor to Pavena AG, Basel, Switzerland
Original application Mar. 13, 1970, Ser. No. 19,243, now Patent No. 3,770,538. Divided and this application June 18, 1971, Ser. No. 154,569
Claims priority, application Switzerland, Mar. 21, 1969 4,361/69
Int. Cl. D04h *1/58*
U.S. Cl. 161—170 **2 Claims**



A stable band possessing high lengthwise stability wherein the elastic elongation of the stable band, compared to one in which binding occurred in a tension-free state, is several times smaller.

3,837,999
METHOD OF CONTROLLING THE ORIENTATION OF FIBERS IN A FOAM FORMED SHEET

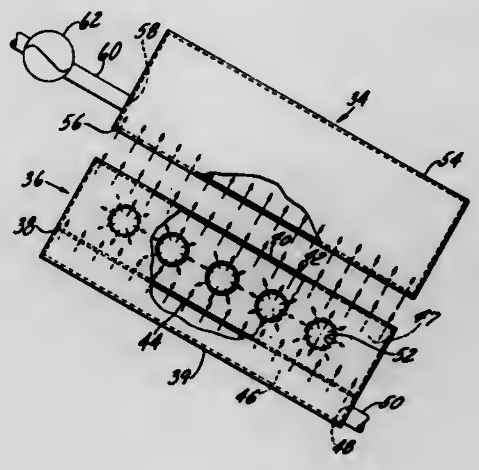
Raymond Chung, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Dec. 20, 1971, Ser. No. 209,749
Int. Cl. D21h *3/02*
U.S. Cl. 162—101 **2 Claims**



In the process of foam forming fibers into sheet material, the fibers are oriented to the degree desired by controlling the relative motion between foam segments. For random orientation, operation in the plug flow regime is preferred while operation in the yield flow regime results in increased fiber orientation in the direction of flow. The degree of fiber alignment can be controlled by varying the wetted perimeter of the nozzle from which the foam exits onto the carrier wire.

3,838,000
METHOD AND DEVICE FOR MOISTURIZING A WEB, INCLUDING AN AIR HEADER WITH PERFORATED WALLS

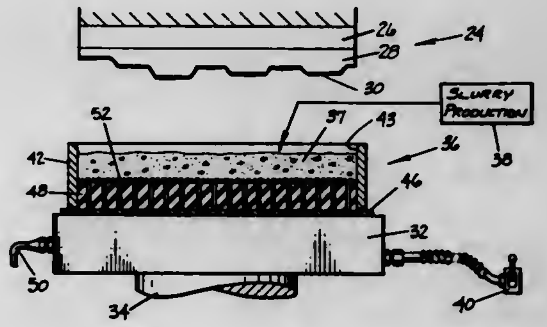
John C. Urbas, Dorval, Quebec, Canada, assignor to Midland-Ross Corporation, Cleveland, Ohio
Filed June 5, 1972, Ser. No. 259,794
Claims priority, application Canada, May 5, 1972, 141,416
Int. Cl. D21f *7/00*
U.S. Cl. 162—207 **4 Claims**



A system for uniformly dispersing a liquid medium, such as water, to a web. The web is continually conveyed between a header and a suction box. Within the header, two gases at different states and containing different relative amounts of the medium are mixed to produce a mist. This mist is then carried into and through the web by the action of the suction box.

3,838,001
ASSEMBLY FOR PRESS-FORMING SHEET MATERIAL

Norman Shirk Greiner, Somerville, and Norman Hannington, Piscataway, N.J., assignors to Johns-Manville Corporation, New York, N.Y.
Filed June 15, 1972, Ser. No. 263,059
Int. Cl. D21j *3/00*
U.S. Cl. 162—416 **3 Claims**

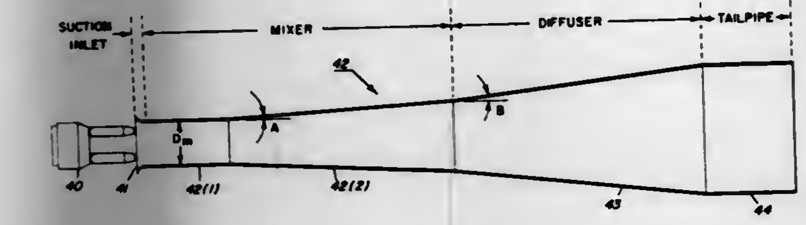


A method of and an assembly for press-forming sheet material such as, for example, asbestos-cement sheets displaying a predetermined deep textured design is disclosed herein. In carrying out the method, a slurry of the sheet material is placed in an open mold comprising part of a press assembly and on top of a resilient pad positioned within the mold. A texture plate fastened to the top die face of the press assembly is provided for applying forming pressure to the slurry so as to consolidate the latter into sheet material displaying the desired texture. During consolidation and in response to the forming pressure, the aforestated pad is deformed to provide substantially uniform density to the sheet material.

3,838,002
JET PUMP FOR NUCLEAR REACTOR

Douglas M. Gluntz, Campbell, George W. Fitzsimmons, Jr., San Jose, Siegbert Wolf, Sunnyvale, and Alvydas A. Kudirka, San Jose, Calif., assignors to General Electric Company

Filed July 21, 1972, Ser. No. 274,061
Int. Cl. F04f *5/46;* **G21c** *15/24;* **G21d** *1/04*
U.S. Cl. 176—65 **13 Claims**



A jet pump coolant circulation system for a nuclear reactor wherein the combination of multiple nozzles and a divergent mixer section provide increased efficiency in jet pumps of given length.

3,838,003
PROCESSES FOR THE CULTIVATION OF FUNGI

Pol Joseph Ghislain Lhoas, London, England, assignor to Beecham Group Limited, Brentford, Middlesex, England

No Drawing. Filed Jan. 12, 1973, Ser. No. 323,221
Int. Cl. C12k *7/00*
U.S. Cl. 195—1.1 **4 Claims**

Fungus infected with a double-stranded ribonucleic acid virus is prepared by contacting fungal cells of opposite mating types or opposite gametes with double-stranded ribonucleic acid virus particles of fungal origin to infect at least some of the resultant zygotes, with the virus particles and cultivating the infected zygotes to produce the virus infected fungus.

3,838,004
CALF DIARRHEA VIRUS VACCINE AND PROCESSES

Charles A. Mebus and Marvin J. Twiehaus, Lincoln, Nebr., assignors to Board of Regents of the University of Nebraska, Lincoln, Nebr.

No Drawing. Continuation-in-part of application Ser. No. 90,481, Nov. 17, 1970, which is a continuation-in-part of application Ser. No. 880,956, Nov. 28, 1969, both now abandoned. This application Nov. 10, 1971, Ser. No. 197,520
Int. Cl. C12k *7/00*
U.S. Cl. 195—1.3 **10 Claims**

Calf diarrhea virus vaccines are prepared by passaging calf diarrhea virus obtained from feces of infected calves in tissue culture, particularly bovine or swine tissue culture, from one to about two hundred and fifty times.

3,838,005
METHODS FOR THE FRACTIONATION OF AMYLOSES

Masashi Kurimoto and Mikihiko Yoshida, Okayama, Japan, assignors to Hayashibara Company, Okayama, Japan

No Drawing. Filed Aug. 18, 1971, Ser. No. 172,900
Claims priority, application Japan, Aug. 28, 1970, 45/75,374
Int. Cl. C13l *1/00, 1/06*
U.S. Cl. 195—31 R **8 Claims**

A solvent extraction process for fractionating an amylose powder having a range of D.P. values into a fraction having D.P. values above 50 and a fraction having D.P. values below 50. Solvents which may be used are warm water, an aqueous 3–6 carbon alkanol, aqueous acetone and an aqueous solution of a fatty acid.

3,838,006
PROCESS FOR PRODUCING HEAT-RESISTANT STARCH SYRUPS

Hiromi Hijiya and Mamoru Hirao, Okayama, Japan, assignors to Hayashibara Company, Okayama-shi, Okayama, Japan

Continuation-in-part of abandoned application Ser. No. 5,879, Jan. 26, 1970. This application Sept. 19, 1972, Ser. No. 290,375
Claims priority, application Japan, Jan. 24, 1969, 44/5,124
Int. Cl. C12b *1/00*
U.S. Cl. 195—31 R **8 Claims**

This invention provides a process for producing special starch syrups which are stable against heat, very sweet, and hard to crystallize, by subjecting starch to the action of an α-1,6-glucosidase such as isoamylase or pullulanase, in the course of manufacture of one of various starch syrups through the use of saccharogenic amylases such as α- or β-amylase, glucoamylase and/or the like, thereby extending the scope of activity of the α- or β-amylase and transforming the structures of the oligosaccharides and dextrins thus produced to straight-chain structures so as to obtain a starch syrup of a freely chosen composition and properties with the viscosity, flavor, and other attributes modified as desired, and then reducing the resulting syrup to sugar alcohols.

3,838,007
WATER-INSOLUBLE ENZYME COMPOSITION

Antoon Gerardus van Velzen, The Hague, Netherlands, assignor to Gist-Brocades N.V., Delft, Netherlands

No Drawing. Filed Sept. 20, 1972, Ser. No. 290,493
Claims priority, application Great Britain, Sept. 24, 1971, 44,730/71
Int. Cl. C07g *7/02;* **C12b** *1/00;* **C12d** *13/02*
U.S. Cl. 195—31 R **30 Claims**

A water insoluble enzyme preparation is prepared by a process involving the steps of suspending a non-proteolytic enzyme in an aqueous solution of gelling protein, combining the mixture obtained with an organic liquid poorly miscible or immiscible in water to produce a suspension having the protein in particulate form, treating the resulting suspension to effect gelation of the gelling protein and contacting the resultant gelled protein particles with a bi- or polyfunctional protein reagent to cross-link the molecules of the proteins present in the particles. The insoluble enzyme preparation can be used in column and bed reactors for enzymatic reactions such as for inversion of saccharose or hydrolysis of starch.

3,838,008
STEREOSELECTIVE PREPARATION OF L-DOPA AND L-M-TYROSINE AND NOVEL COMPOUNDS

Peter Bamberg, Enhorna, and Berndt Olof Harald Sjoberg, Sodertalje, Sweden, assignors to Astra Lakemedel Aktiebolag, Sodertalje, Sweden

No Drawing. Filed Jan. 15, 1971, Ser. No. 106,894
Claims priority, application Sweden, Jan. 19, 1970, 615/70; June 25, 1971, 8,835/70, 8,836/70
Int. Cl. C12d *1/00*
U.S. Cl. 195—29 **11 Claims**

A method is described for the stereoselective preparation of L-Dopa and L-m-tyrosine and novel compounds in which the hydroxy groups of L-Dopa or L-m-tyrosine are substituted. The reaction is characterized by the use of stereoselectivity active acylase prepared from *E. coli* which is used to treat a precursor of the desired compound.

3,838,009
PROCESS FOR PRODUCING DETERGENT RESISTING ALKALINE PROTEASE

Jyuichiro Fukumoto, Takarazuka, Takehiko Yamamoto, Amagasaki, and Daisuke Tsuru, Sakai, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd.

Continuation of abandoned application Ser. No. 864,452, Oct. 7, 1969. This application Aug. 16, 1972, Ser. No. 280,959
Claims priority, application Japan, Oct. 25, 1968, 43/78,189
Int. Cl. C12d *13/10*
U.S. Cl. 195—65 **1 Claim**

The process for producing alkaline protease which comprises culturing in a suitable medium a strain of *Bacillus subtilis,* which strain has the ability to grow in a nutrient medium in the presence of sodium lauryl sulfate, the presence of sodium lauryl sulfate is not required in the fermentation medium, however.

3,838,010
PHOTOMETRIC METHOD FOR DETERMINING LACTIC ACID DEHYDROGENASE OR GLUCOSE-6-PHOSPHATE DEHYDROGENASE

Frank E. Hammer, Skokie, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

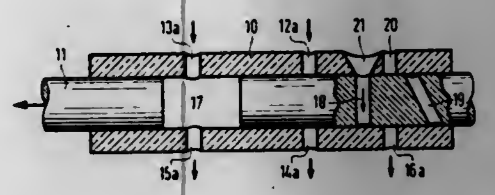
No Drawing. Continuation-in-part of abandoned application Ser. No. 838,664, July 2, 1969. This application Jan. 17, 1972, Ser. No. 218,477
Int. Cl. G01n *31/14*
U.S. Cl. 195—103.5 R **9 Claims**

An improved photometric method for the determination of reduced di- and tri-phosphopyridine nucleotides in an incubation mixture containing lactic acid dehydrogenase or glucose-6-phosphate dehydrogenase and the appropriate substrates therefor, comprising adjusting the pH of the reaction mixture to form about 10.0 to about 12.0, prior to the photometric determination, to stabilize the absorbance of the resulting solution when measured at about 340 mμ.

3,838,011
PROCESS AND APPARATUS FOR THE QUANTITATIVE DETERMINATION OF AN ENZYMATICALLY REACTIVE SUBSTANCE

Alexander Hagen and Hans Ulrich Bergmeyer, Tutzing, Upper Bavaria, Wolfgang Gruber, Garatshausen, and Klaus Beaucamp and Dieter Jaworek, Tutzing, Upper Bavaria, Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Germany

Filed June 12, 1972, Ser. No. 261,763
Claims priority, application Germany, June 18, 1971, P 21 30 308.2
Int. Cl. G01n *31/14*
U.S. Cl. 195—103.5 R **20 Claims**

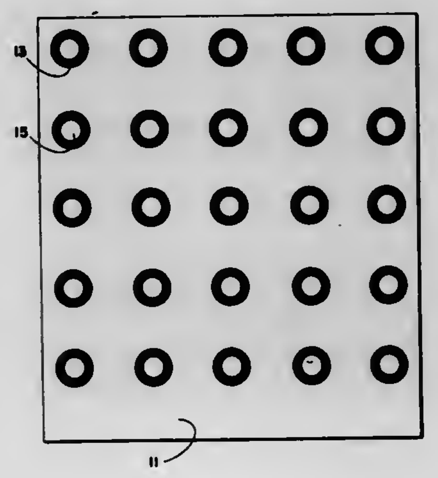


Enzymatically reactive substances contained in aqueous solutions are quantitatively determined by introducing a defined amount of a solution sample containing the substance to be determined and which is free of air bubbles, into a stream of buffer solution in a block-like fashion, wherein the buffer solution contains the reagents necessary for an enzymatic reaction with said substances and flows with constant velocity and wherein the introduction of the block sample does not substantially alter the velocity of flow, contacting the resulting stream with the appropriate enzyme and then passing the stream over a detector to indicate the amount of reaction having occurred, and relating readings from the detector to the amount of the substance to be determined contained in the sample.

3,838,012
MULTIPOINT TEST PAPER

Calvin E. Higgens and Wilbur L. Martin, Jr., Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Nov. 20, 1972, Ser. No. 308,077
Int. Cl. C12k *1/10;* **G01n** *31/00*
U.S. Cl. 195—127 **7 Claims**

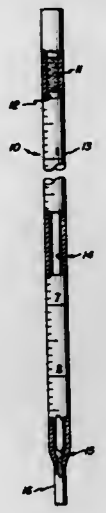


A test paper for conducting a plurality of laboratory analytical tests is formed from filter paper bearing a plurality of visible printings which circumscribe predetermined areas on the filter paper for receiving liquid test samples.

3,838,013
COMBINED SAMPLING AND BACTERIOLOGICAL CULTURING DEVICE

John A. Bergeron, Schenectady, N.Y., assignor to General Electric Company

Filed Apr. 1, 1971, Ser. No. 130,254
Int. Cl. C12k *1/10*
U.S. Cl. 195—139 **12 Claims**



Improved devices are described for combined sampling and culturing to enable a measure of the microorganism content of a liquid sample. The preferred structure is a long thin tube (e.g. a disposable sterile, transparent, preplugged serological pipette) having internal area thereof coated with a uniformly thick layer of culture medium.

3,838,014

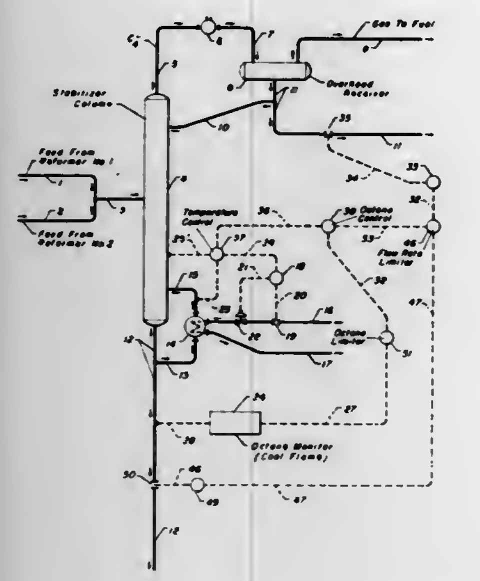
COMBINATION COLUMN REBOILER HEAT INPUT, OCTANE, OVERHEAD AND BOTTOMS CONTROL APPARATUS

Walter A. Bajek, Lombard, and James H. McLaughlin, La Grange, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed July 18, 1972, Ser. No. 272,916

Int. Cl. B01d *3/42*

U.S. Cl. 196—132 **18 Claims**



A process for the maximization of a gasoline bottoms stream from a stabilizer column. The control utilized is a combination of an on-stream octane monitor and bottoms and overhead flow rate limiting means which operate in combination to vary a set point temperature on a reboiler heat input control means. The control system is applicable to hydrocarbon processes and in particular to gasoline stabilization.

3,838,015

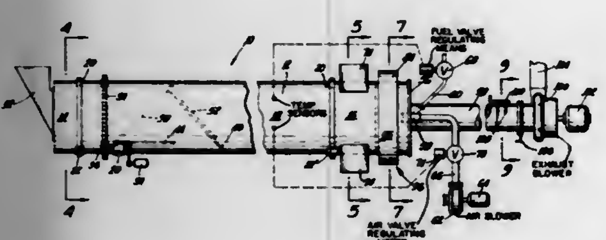
METHOD AND APPARATUS FOR PYROLYTIC DECOMPOSITION OF TRASH

Robert I. Buchbinder and Albert J. Buchbinder, West Covina, Calif., assignors to Devco Management Inc., New York, N.Y.

Continuation of abandoned application Ser. No. 73,116, Sept. 17, 1970. This application Sept. 20, 1972, Ser. No. 290,754

Int. Cl. C10b *49/06, 53/00*

U.S. Cl. 201—1 **16 Claims**



Industrial and municipal trash is fed into one end of a rotatably supported, elongated drum, which turns at a relatively slow rate of rotation, and the carbonized residue is discharged from the other end. Trapdoor arrangements at the entrance and exit ends allow material to be fed into and discharged from the drum as the latter revolves, without opening the interior of the drum to the atmosphere. Internal gas burners at one end of the drum are operated at the start of operations to heat up the drum and contents to high temperature, causing destructive distillation of carbonaceous material with resultant production of combustible gas. Fuel supply to the burners is then cut off and air is admitted through burners at a controlled rate to maintain combustion of gases within the interior of the drum to the extent required to sustain operating temperatures. Excess unburned gas is exhausted and cooled, and volatile liquids are condensed out.

3,838,016

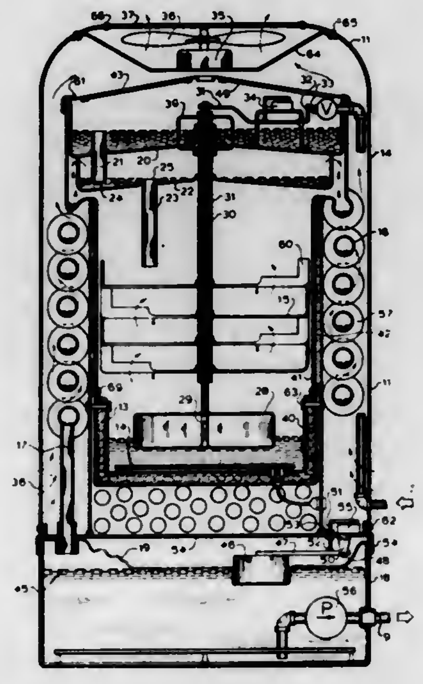
WATER STILL

Otto L. Powers, 231 Coronada Blvd., Titusville, Fla. 32780

Filed Mar. 29, 1972, Ser. No. 239,194

Int. Cl. B01d *3/00*

U.S. Cl. 202—83 **11 Claims**



A water still apparatus for producing distilled water is provided having the heating element for generating steam from water in a container and a condenser for condensing the steam into distilled water. The still has cascading baffles for water entering the still to pass over and for the steam to pass through, thereby preheating the entering water and removing heat from the steam. The still is automatically operated by utilizing a pair of floats for controlling the input of water and to cut off the still when the distilled water container is filled. The steam is prevented from escaping from the water inlet by having an overflow pipe feeding to below a water level on the next level of the input water path and a fan for cooling the condenser along with a heating element for maintaining the distilled water sterile are also provided as is means for making the still operate to humidify the surrounding air if desired.

3,838,017

REGENERATOR FOR COKE OVENS

Otto Messerschmidt, Bochum, Germany, assignor to Dr. C. Otto & Comp. G.m.b.H., Bochum, West Germany

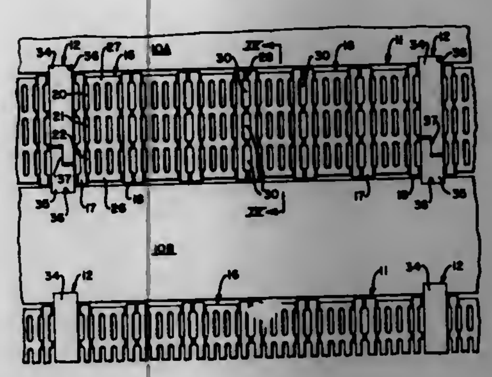
Filed Sept. 19, 1972, Ser. No. 290,361

Claims priority, application West Germany, Oct. 21, 1971, P 21 52 351.3

Int. Cl. C10b *1/06, 5/12*

U.S. Cl. 202—141 **5 Claims**

A vertical regenerator for a horizontal coke oven chamber. Columns of superimposed checkerbricks are arranged so that each brick extends longitudinally between spaced parallel walls of the regenerator. Along the longitudinal length of each checkerbrick, there extends a projection which passes into a complementary formed recess in a vertically adjacent brick.



3,838,018

PROCESS FOR ISOLATING FORMALDEHYDE FROM MIXTURES OF ACETIC ACID, FORMALDEHYDE AND WATER BY DISTILLATION WITH ADDED WATER

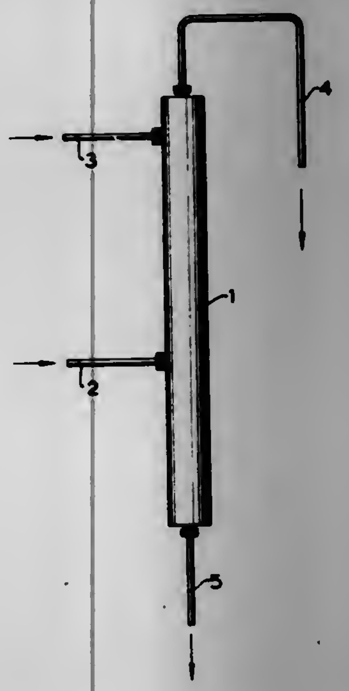
Klaus Gehrmann, Knapsack, Heinz Erpenbach, Surth, Heinz Handte, Erftstadt-Bliesheim, and Manfred Bredtmann, Elsdorf, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

Filed Sept. 8, 1972, Ser. No. 287,477

Claims priority, application Germany, Sept. 11, 1971, P 21 45 517.4

Int. Cl. B01d *3/34;* **C07c** *45/24, 51/44*

U.S. Cl. 203—92 **4 Claims**



Formaldehyde is isolated and pure acetic acid is recovered from mixtures containing substantially between 75 and 99 weight percent of acetic acid, between 0.5 and 15 weight percent of water and between 0.5 and 10 weight percent of formaldehyde. To this end, the mixture is distilled in a distilling column at atmospheric or reduced pressure at a reflux ratio between 0.5 and 2, and water flowing countercurrently with respect thereto, is simultaneously introduced near the head of the column. The water is used in a proportion substantially between 10 and 20 weight percent, based on the crude acid put through. Following condensation, an aqueous formaldehyde solution is removed near the head of the distilling column and acetic acid with a purity of at least 99 weight percent is obtained, in the column base portion.

3,838,019

INHIBITION OF POLYMER FORMATION DURING DISTILLATION OF CRUDE VINYL ACETATE

Wulf Schwerdtel, Cologne-Stammheim, Walter Kronig and Gerhard Scharfe, Leverkusen, and Wolfgang Swodenk, Odenthal-Globusch, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation of abandoned application Ser. No. 870,549, Nov. 5, 1969. This application Mar. 27, 1972, Ser. No. 238,643

Claims priority, application Germany, Nov. 8, 1968, P 18 07 738.8

Int. Cl. B01d *3/34;* **C07c** *67/06*

U.S. Cl. 203—8 **12 Claims**

In the purification of vinyl acetate by distillation, free oxygen, preferably diluted as with carbon dioxide, is introduced into the individual vinyl acetate distillation columns to ensure that oxygen is present throughout each distillation column whereby the formation of polymers in the distillation column is substantially avoided. It has proved to be of particular advantage to introduce small quantities of oxygen upwards into the boiler parts of the columns which are normally in the form of circulation evaporators, and it is preferred to use known polymerization inhibitors in conjunction with the oxygen treatment.

3,838,020

PROCESS FOR PURIFYING ALKYLENE OXIDES BY EXTRACTIVE DISTILLATION WITH A PLURAL SOLVENT MIXTURE

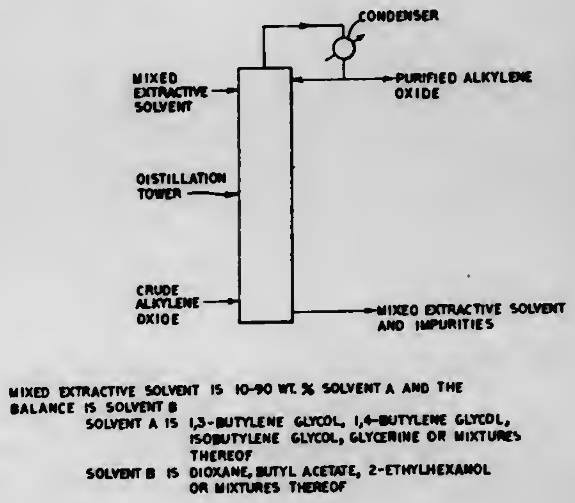
Osamu Kageyama, Manabu Kai, and Hirosi Yokoo, Ohimachi, Saitama, Japan, assignors to Daicel Ltd., Osaka, Japan

Filed Nov. 28, 1972, Ser. No. 310,089

Claims priority, application Japan, Dec. 3, 1971, 46/97,682

Int. Cl. B01d *3/40;* **C07d** *1/08*

U.S. Cl. 203—56 **9 Claims**


CONDENSER
MIXED EXTRACTIVE SOLVENT
PURIFIED ALKYLENE OXIDE
DISTILLATION TOWER
CRUDE ALKYLENE OXIDE
MIXED EXTRACTIVE SOLVENT AND IMPURITIES
MIXED EXTRACTIVE SOLVENT IS 10-90 WT. % SOLVENT A AND THE BALANCE IS SOLVENT B
SOLVENT A IS 1,3-BUTYLENE GLYCOL, 1,4-BUTYLENE GLYCOL, ISOBUTYLENE GLYCOL, GLYCERINE OR MIXTURES THEREOF
SOLVENT B IS DIOXANE, BUTYL ACETATE, 2-ETHYLHEXANOL OR MIXTURES THEREOF

Alkylene oxides having from 3 to 5 carbon atoms are purified by subjecting same to extractive distillation using at least one solvent (A) selected from the group consisting of 1,3-butylene glycol, 1,4-butylene glycol, isobutylene glycol and glycerine and at least one solvent (B) selected from the group consisting of dioxane, butyl acetate and 2-ethylhexanol.

3,838,021

METHOD AND APPARATUS FOR IN SITU CALIBRATION OF ELECTROCHEMICAL SENSORS

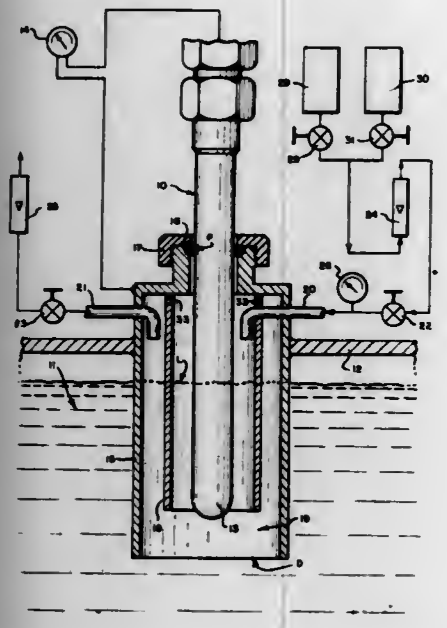
William Arbiter, Yonkers, N.Y., assignor to United Nuclear Corporation, Elmsford, N.Y.

Filed July 18, 1973, Ser. No. 380,381

Int. Cl. G01n *27/30, 27/46*

U.S. Cl. 204—1 T **6 Claims**

An electrochemical sensor that monitors the concentration of a particular foreign substance (e.g. hydrogen) in a fluid medium (e.g. a molten metal) by measuring the electrochemical activity of this substance in the fluid medium is calibrated without removing the sensor from the fluid medium. A shroud is provided that surrounds the portion of the sensor immersed in the fluid medium and that extends beyond the end thereof. An inert gas (e.g. helium) is introduced into the space between the sensor and the shroud to displace the fluid medium therefrom. The inert gas is then replaced with a calibrating gas containing a known amount of the particular substance being monitored, and the electrochemical activity of the substance in the calibrating gas is measured by the sensor. The calibrating gas is then replaced by a further quantity of the inert gas to flush the calibrating gas therefrom, and the fluid medium is then allowed to reenter the space between the sensor and the shroud. The electrochemical activity of the particular foreign substance in the fluid medium being monitored is then measured by the sensor, and this reading is compared with the reading obtained from the calibrating gas to provide an accurate indication of the concentration of the foreign substance in the fluid medium.



3,838,022

CHELATING/COMPLEXING DIP IN BRIGHT PLATING OF BRASS

Michael G. Bartolini, Southbury, and Edmund E. Horner, Watertown, Conn., assignors to MacDermid Incorporated, Waterbury, Conn.

No Drawing. Filed Nov. 9, 1972, Ser. No. 305,005

Int. Cl. C23b *5/62*

U.S. Cl. 204—32 R **8 Claims**

Process of nickel plating brass-type copper alloys. The conventional plating cycle steps of (1) soak clean, (2) electroclean (as a single or two separate step operation), (3) acid dip and (4) then electroplate, are modified by incorporating an additional step consisting in immersing the copper alloy substrate in an aqueous chelating/complexing solution after the soak clean but before the acid dip steps. The purpose is to eliminate visible irregularities in the nickel deposit, as well as to improve adhesion of the plate to the substrate. The preferred chelating/complexing materials in aqueous solution include the alkali metal salts of polycarboxylic acids, such as gluconic, tartaric, heptonic, oxalic and citric; the alkali metal salts of polyphosphoric acids; the alkali metal salts of lower alkyl-substituted amino acetic acids and hydroxy amino acids; and compatible combinations of such agents.

3,838,023

SEALING ANODIZED ALUMINUM

Wolfgang Friedemann, Neuss, and Hans Gunther Germscheld, Hosel, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany

No Drawing. Filed Dec. 5, 1972, Ser. No. 312,341

Claims priority, application Germany, Dec. 17, 1971, P 21 62 674.4

Int. Cl. C23b *9/02*

U.S. Cl. 204—35 N **6 Claims**

In the process for treating the surface of aluminum or an aluminum alloy which comprises subjecting said surface to an anodic oxidation and subsequently sealing with hot water or steam, the improvement which consists essentially of sealing said surface by applying an aqueous solution containing from 0.0005 to 0.05 gm. per liter of a hydroxy carboxylic acid selected from the group consisting of (A) citric acid, tartaric acid, gallic acid and saccharic acid, (B) a water soluble salt of said acids of (A), and (C) the mixtures thereof at a temperature ranging from 90° C. to the solution boiling point temperature and at a pH of from 5 to 6, to the anodic oxidized surface.

3,838,024

METHOD OF IMPROVING THE CORROSION RESISTANCE OF SUBSTRATES

Lowell W. Austin, Weirton, W. Va., Louis C. Beale, Jr., Grosse Ile, Mich., and Edwin J. Smith, Winterville, Ohio, assignors to National Steel Corporation

No Drawing. Continuation-in-part of abandoned application Ser. No. 822,739, May 7, 1969. This application May 31, 1972, Ser. No. 258,420

Int. Cl. C23b *5/06*

U.S. Cl. 204—41 **19 Claims**

The corrosion resistance of substrates having aluminum, nickel, iron-tin alloy and chromized metallic surfaces is increased markedly by electroplating thereon a thin coating of metallic chromium having a thickness of about 0.1–0.6 microinch. In a preferred variant, corrosion resistant ferrous metal substrates are provided by applying a composite protective coating which includes a synergistic combination of an aluminum, nickel, iron-tin alloy or chromized coating and about 0.1–0.6 microinch of electrodeposited metallic chromium as an overcoating. The corrosion resistance of the foregoing chromium coated substrates may be enhanced by electrochemically applying thereover a further coating which is a mixture of metallic chromium and chromium oxide. The metallic chromium electroplated and/or electrochemically treated substrates are excellent bases for protective organic coatings, and protective organic coatings may be applied thereto to further increase the corrosion resistance and/or for decorative purposes. The corrosion resistant substates prepared by the method of the invention are also provided.

3,838,025

METHOD AND ELECTROLYTE FOR PRODUCING A COPPER PLATED MICROSTRIP

Emil Toledo, Natick, Mass., Dennis R. Sprague, Tempe, Ariz., and Erick F. Mocanu, Maynard, Mass., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Oct. 5, 1972, Ser. No. 295,406

Int. Cl. C23b *5/20, 5/48*

U.S. Cl. 204—52 R **3 Claims**

A microstrip and method of making it, including a specially formulated copper-plating bath, are disclosed. The microstrips are fabricated by chrome-copper evaporation on substantially pure aluminum oxide substrates. After chrome-copper evaporation, a copper plating is applied, employing the new electroplating bath formulation.

3,838,026

ACIDIC ZINC ELECTROPLATING BATH

Reinhard Koch, Geinsheim, Germany, assignor to Elektro-Plating Patent Holding S.A., Luxemburg, Luxemburg

No Drawing. Filed May 2, 1972, Ser. No. 249,627

Claims priority, application Germany, May 10, 1971, P 21 23 109.4

Int. Cl. C23b *5/12, 5/46*

U.S. Cl. 204—55 R **6 Claims**

An acidic zinc electroplating bath yielding bright, dense and non-embrittling zinc deposits rapidly within a broad range of current density comprises one or more zinc salts corresponding to 80 to 200 g./l. of zinc, other conducting salts, usual lustering agents and, in addition, the reaction product of epichlorohydrin with one or more members of the group consisting of branched polyethylene imines and polypropylene imines and, if desired, linear or branched polyalkylene amines. Reaction products in which not more than 90%, preferably 20 to 60% of the amino groups of the polyethylene imines, polypropylene imines and polyalkylene amines respectively are reacted with epichlorohydrin are preferred.

3,838,027

α-(N-ACYL)-AMINO ACIDS AND A PROCESS FOR PREPARING SAME

Peder Bernhard Berntsson, Vastra Frolunda, and Jan Ornulf Gaarder and Bo Robert Lamm, Goteborg, Sweden, assignors to Aktiebolaget Astra, Sodertalje, Sweden

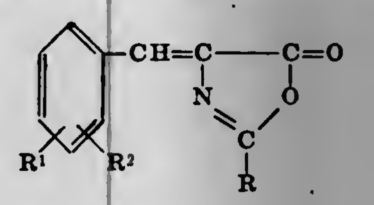
No Drawing. Filed Sept. 13, 1972, Ser. No. 288,691

Claims priority, application Sweden, Sept. 13, 1971, 11,582/71

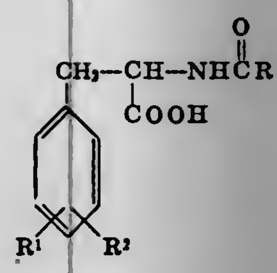
Int. Cl. C07b *29/06;* **C07c** *101/08*

U.S. Cl. 204—74 **3 Claims**

Electrochemical reduction of oxazolones of the formula



is used in the preparation of -(N-acyl)-amino acids of the formula



in which formula R is a straight or branched alkyl or cyclodialkyl having at most six carbon atoms or phenyl, and R^1 and R^2, which may be substituted in the 2, 3, 4, 5 or 6 position, are the same or different and are selected from the group consisting of hydrogen, alkyl, cyclodialkyl, and alkoxy each having at most six carbon atoms, halogen, hydroxy, and acyloxy, or wherein R^1 and R^2 together form a divalent radical —OR^3O— bound to the benzene nucleus in the 2–3 or 3–4 position, in which radical R^3 denotes an alkylene group having 1–3 carbon atoms. The α-(N-acyl)-amino acids obtained are useful as intermediates in the preparation of amino acids, such as L-dopa, p-chlorophenylalanine and tyrosine, having valuable known therapeutic properties.

3,838,028

SPUTTERING APPARATUS

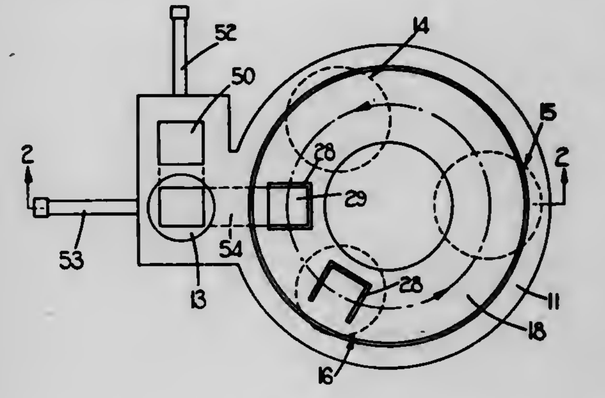
Victor Needham, Balsall Common, and Maurice Parramore, Birmingham, England, assignors to Lucas Aerospace Limited, Birmingham, England

Filed Dec. 29, 1972, Ser. No. 319,390

Claims priority, application Great Britain, Dec. 29, 1971, 60,501/71

Int. Cl. C23c *15/00*

U.S. Cl. 204—298 **17 Claims**



A sputtering apparatus has a chamber for containing an inert gas at low pressure. A bore having metal walls forms part of the chamber. The end of said bore is closed by a cathode which is insulated from the metal walls. A carrier positions objects to be sputtered adjacent an end of the bore remote from the cathode.

3,838,029

ISOMERIZATION OF VITAMIN A COMPOUNDS AND THEIR DERIVATIVES

Martin Fischer, Ellerstadt, Walter-Wielant Wiersdorff, Ludwigshafen, Axel Nuerrenbach, Gruenstadt, Dieter Horn, Heidelberg, and Franz Feichtmayr, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Mar. 6, 1973, Ser. No. 338,533

Claims priority, application Germany, Mar. 7, 1972, P 22 10 800.5

Int. Cl. C07g *13/00*

U.S. Cl. 204—159 **9 Claims**

The invention relates to the isomerization of cis-vitamin A compounds and their derivatives into the all-trans isomers by the action of light on sensitizers in the presence of the cis-isomers.

3,838,030

PROCESS FOR PREPARING OF POLYTETRAFLUOROETHYLENE RESIN WAX

Tsutomu Kagiya, Kyoto, and Miyuki Hagiwara, Takasaki, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

No Drawing. Filed Nov. 27, 1972, Ser. No. 309,812

Claims priority, application Japan, Jan. 20, 1971, 46/7,282; Nov. 30, 1971, 46/95,903

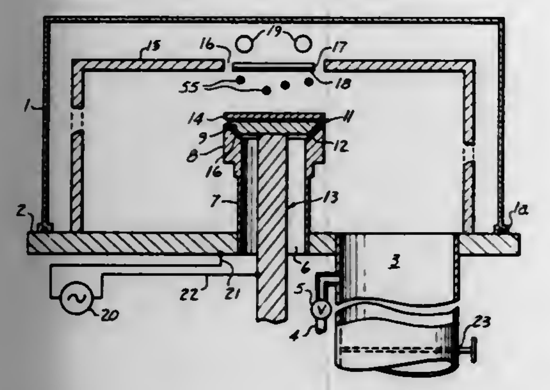
Int. Cl. B01j *1/10;* **C08f** *3/24, 3/26*

U.S. Cl. 204—159.14 **5 Claims**

A polytetrafluoroethylene resin wax is obtained by decomposing a polytetrafluoroethylene resin by means of an ionizing radiation in the presence of oxygen and hydrogen and/or a halogenated methane. The resulting wax is useful as lubricant, mold releasing agent and the like.

3,838,031
MEANS AND METHOD FOR DEPOSITING RECRYSTALLIZED FERROELECTRIC MATERIAL

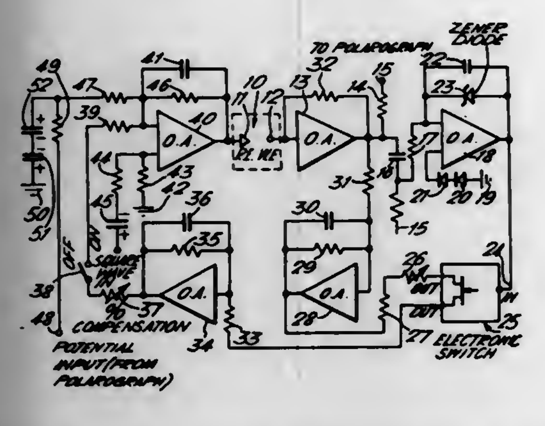
Alvin A. Snaper, 2800 Cameo Circle,
Las Vegas, Nev. 89107
Filed Sept. 15, 1972, Ser. No. 289,480
Int. Cl. C23c *15/00*
U.S. Cl. 204—192 8 Claims



Recrystallized ferroelectric material is deposited by sputtering on a heated substrate by applying radio-frequency voltage to a target holder supporting a target of ferroelectric material held in proximity to the substrate within a chamber which is evacuated except for the presence of a small amount of inert gas, and optionally with a small amount of oxygen. The radio-frequency voltage causes ions of the gas to strike the target material with such force as to break off molecules or atoms which bond themselves to the substrate. The target holder is provided with fluid coolant channels which protect the target from deterioration.

3,838,032
COMPENSATED POLAROGRAPH

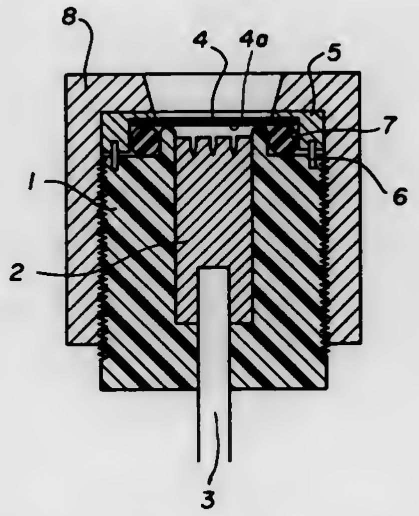
Chaim M. Yarnilsky, Haifa, Israel, assignor to Technion Research and Development Foundation Limited
Continuation-in-part of application Ser. No. 222,512, Feb. 1, 1972, which is a continuation of application Ser. No. 28,778, Apr. 15, 1970, both now abandoned. This application Mar. 24, 1972, Ser. No. 237,804
Int. Cl. G01n *27/48*
U.S. Cl. 204—195 R 12 Claims



A system for direct current polarographic analysis, an electrochemical technique used in analytical chemistry, includes a cell which contains the liquid to be analyzed. A reference (standard) electrode and a working (indicator) electrode in the cell are connected in an electronic circuit. The current-resistance potential drop across the cell is compensated by the circuit, which circuit includes integrative means and an electronic switch. The comparative closure time of the switch is determined by the cell resistance, which resistance, after integration, affects the voltage-sensitive gates of the electronic switch.

3,838,033
ENZYME ELECTRODE

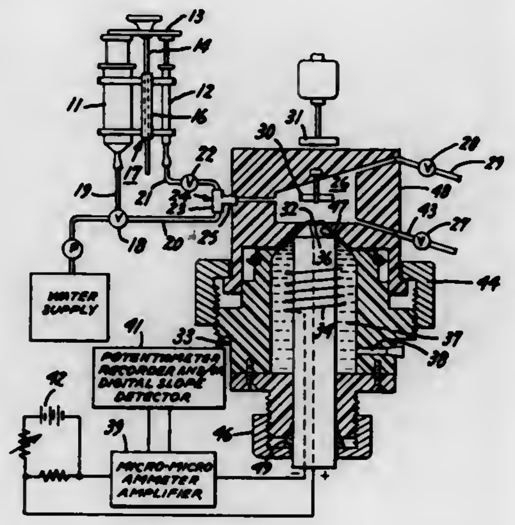
Wolfgang Mindt, Therwil, Philippe Racine, Munchenstein, and Peter Schlapfer, Therwil, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.
Filed Aug. 31, 1972, Ser. No. 285,765
Claims priority, application Switzerland, Sept. 9, 1971, 13,211/71
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 B 7 Claims



An enzyme electrode for determining the concentration of substances occurring in intermediate metabolism comprising an electrochemical sensor, a layer in contact with the sensor and containing an enzyme and an acceptor, and a semipermeable membrane covering the layer. In other embodiments, the acceptor is shown to be present either partially in undissolved form or in dissolved form contained in a layer of porous material.

3,838,034
APPARATUS FOR DETECTION OF CATALASE-CONTAINING BACTERIA

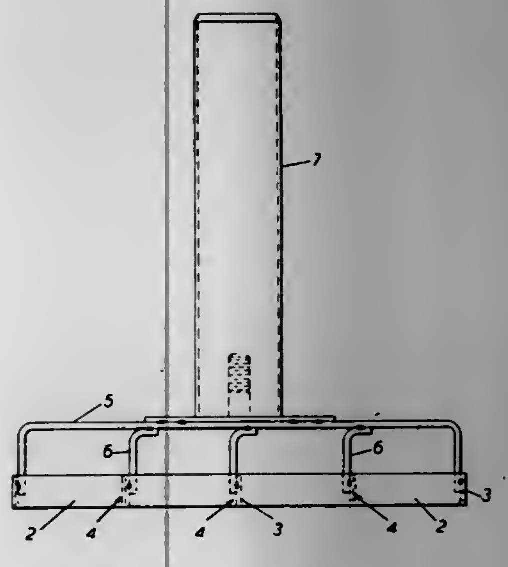
James N. Groves, Schenectady, N.Y., assignor to General Electric Company
Continuation-in-part of abandoned application Ser. No. 723,179, Apr. 22, 1968. This application Dec. 18, 1969, Ser. No. 886,283
Int. Cl. G01n *27/30, 27/46, 31/14*
U.S. Cl. 204—195 B 10 Claims


WATER SUPPLY
POTENTIOMETER RECORDER AND/OR DIGITAL SLOPE DETECTOR
MICRO-MICRO AMMETER AMPLIFIER

Sensitive, fast-response apparatus is described for the detection of the presence of (a) aerobic or facultatively anaerobic bacteria, (b) certain body cell breakdown products in body fluids or (c) unusual contamination of the ambient by aerobic bacteria. The method employed, which enables dynamic, continuous observation of catalyase-H_2O_2 reaction, is based upon measuring the incremental increase of oxygen partial pressure within a hydrogen peroxide solution. The inherent catalase content in such bacteria and in most animal cells promotes the rapid decomposition of hydrogen peroxide resulting in the liberation of oxygen. This measurement of oxygen partial pressure is made directly from the hydrogen peroxide solution by means of an oxygen permeable membrane polarographic cell equipped with a cathode configuration providing improved sensitivity. The presence of small numbers of bacteria or other catalase-containing cells may be quantitatively determined by conducting the catalase-H_2O_2 reaction in a very small reproducible reaction volume.

3,838,035
MERCURY CELL WITH COATED ANODE

Nicholas William James Pumphrey, Runcorn, Cheshire, England, assignor to Imperial Chemical Industries Limited, London, England
Filed Mar. 1, 1973, Ser. No. 337,204
Claims priority, application Great Britain, Mar. 9, 1972, 10,949/72
Int. Cl. B01k *3/06;* **C01b** *7/06*
U.S. Cl. 204—250 18 Claims



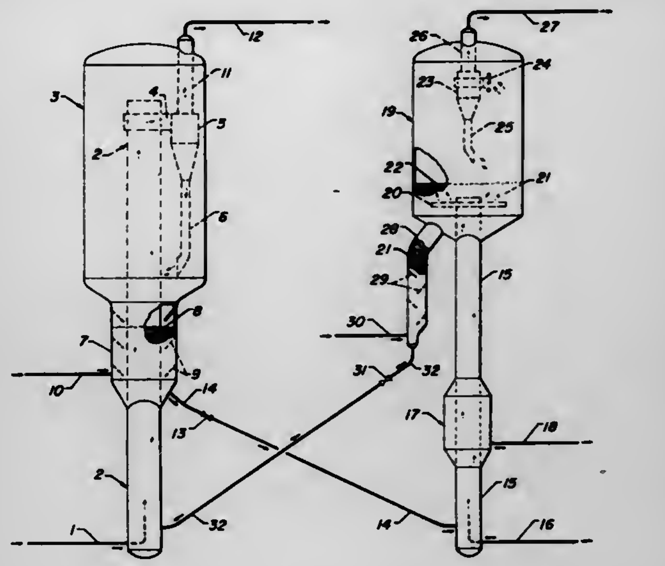
An anode for a mercury cell is provided with a perforated current distributor carrying on its upward facing surface an electro-catalytically active coating which is protected from contact by mercury, thereby reducing the incidence of short-circuiting in the cell.

3,838,036
FLUID CATALYTIC CRACKING PROCESS EMPLOYING A CATALYST HEATING ZONE

Laurence O. Stine, Western Springs, and Charles L. Hemler, Jr., Mount Prospect, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed Nov. 29, 1972, Ser. No. 310,501
Int. Cl. B01j *9/20, 11/68;* **C10g** *11/18*
U.S. Cl. 208—120 10 Claims

A fluidized catalytic cracking process in which a catalyst, which has contacted a feedstock in a reaction zone and has thereby become coke-contaminated, is withdrawn from the reaction zone, passed to a catalyst heating zone, and then passed to a regeneration zone wherein coke is oxidized and from which catalyst is recycled back to the reaction zone.

In the process of our invention a catalyst and operating conditions are purposefully employed such that the amount of coke produced and subsequently oxidized is less than that needed to satisfy the process heat requirements for the desired choice of operating conditions. Process heat requirements for the desired choice of operating conditions. Process heat requirements are met by passing the zone which is fired by fuel less valuable than feedstock hydrocarbons which would otherwise be converted to coke. Because of the reduced coke yield of this process, which is purposefully lower than that required to fulfill the selected process heat balance requirements, higher yields of more valuable products are realized.



3,838,037
HYDROCARBON CRACKING WITH AMORPHOUS INORGANIC GEL–VK3

David E. W. Vaughan, Ellicott City, Philip K. Maher, Baltimore, and Edwin W. Albers, Annapolis, Md., assignors to W. R. Grace & Co., New York, N.Y.
No Drawing. Original application May 28, 1971, Ser. No. 148,195, now Patent No. 3,755,345. Divided and this application Mar. 29, 1973, Ser. No. 345,914
Int. Cl. C10g *11/04*
U.S. Cl. 208—120 3 Claims

An amorphous high surface area inorganic gel, designated VK3, having the formula

$$0.9 \text{ to } 1.3\ K_2O:3 \text{ to } 8\ SiO_2:Al_2O_3:XH_2O$$

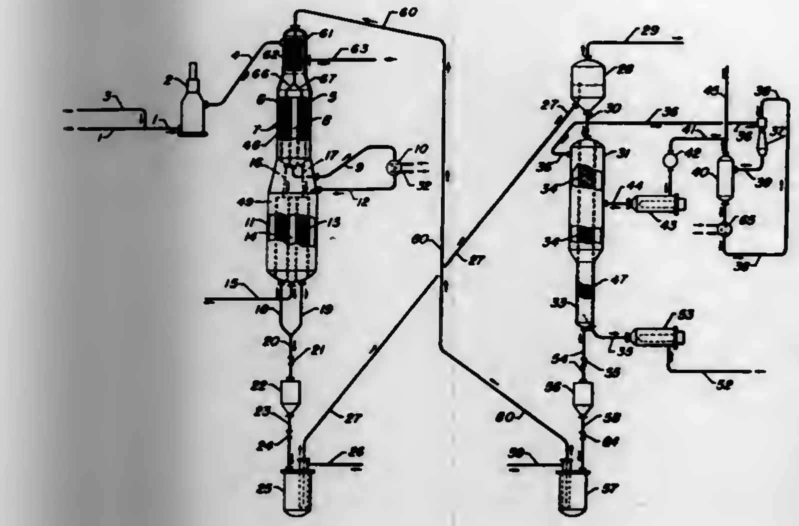
wherein X has a value of 0 to 20.

VK3 possesses a large proportion of its surface area in pores having diameters in the 14 to 50 A. range and finds utility as a hydrocarbon conversion catalyst and as an adsorbent for large organic molecules.

3,838,038
CONTINUOUS CONVERSION AND REGENERATION PROCESS

Arthur R. Greenwood, Niles, and Kenneth D. Vesely, Arlington Heights, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Continuation-in-part of application Ser. No. 207,869, Dec. 14, 1971, now Patent No. 3,725,249, which is a continuation-in-part of application Ser. No. 860,905, Sept. 25, 1969, now Patent No. 3,647,680. This application Sept. 28, 1972, Ser. No. 293,251
The portion of the term of the patent subsequent to Apr. 3, 1990, has been disclaimed
Int. Cl. C10g *13/02*
U.S. Cl. 208—108 16 Claims

A method of operating a continuous hydrocarbon process employing catalyst particles wherein catalyst activity is maintained at a predetermined level by continuous regeneration thereof without removal of any reactor from the processing streams. The method includes continuous reduction and sulfiding of the catalyst prior to contact with a reactant stream in one or more reactors in which a continuous or reasonably continuous input and output of catalyst is regulated. The sulfiding and reduction steps take place in an upper portion of a reaction zone so that those steps occur prior to catalyst being contacted with a reactant processing stream. The regeneration of the catalyst is continuous and includes a carbon burn-off and reduction and sulfiding step which allow the catalyst to be passed back into the reactor system thereby maintaining controlled catalyst activity within the reactor.



3,838,039

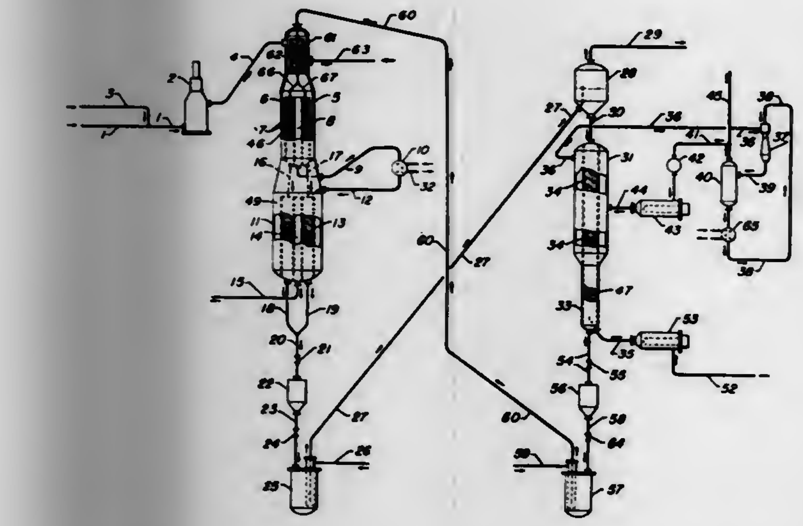
CONTINUOUS CONVERSION AND REGENERATION PROCESS

Kenneth D. Vesley, Arlington Heights, and Arthur R. Greenwood, Niles, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Continuation-in-part of application Ser. No. 207,869, Dec. 14, 1971, now Patent No. 3,725,249, which is a continuation-in-part of application Ser. No. 860,905, Sept. 25, 1969, now Patent No. 3,647,680. This application Sept. 28, 1972, Ser. No. 293,248

Int. Cl. C10g *13/02*

U.S. Cl. 208—108 **16 Claims**



A method of operating a continuous hydrocarbon process employing catalyst particles wherein catalyst activity is maintained at a predetermined level by continuous regeneration thereof without removal of any reactor from the processing streams. The method includes continuous sulfiding of the catalyst prior to contact with a reactant stream in one or more reactors in which a continuous or reasonably continuous input and output of catalyst is regulated. The sulfiding step takes place in an upper portion of a reaction zone so that sulfiding occurs prior to catalyst being contacted with a reactant processing stream. The regeneration of the catalyst is continuous and includes a carbon burn-off step.

3,838,040

HYDROCRACKING WITH ZEOLITE IN A SILICA-MAGNESIA MATRIX

John W. Ward, 19002 Gordon Lane, Yorba Linda, Calif. 92686

No Drawing. Continuation-in-part of abandoned application Ser. No. 191,123, Oct. 20, 1971. This application Dec. 17, 1971, Ser. No. 209,439

Int. Cl. C10g *13/02*

U.S. Cl. 208—111 **10 Claims**

Hydrocarbon conversion catalysts having improved physical characteristics as well as increased activity and selectivity containing crystalline zeolitic aluminosilicates and silica-magnesia are prepared by calcining intimate admixtures of the hydrogen precursor-stabilized hydrogen form of the zeolite and silica-magnesia at a temperature of at least about 600° F. sufficient to convert the hydrogen precursor to hydrogen ion. Compositions having particularly attractive hydrocarbon conversion properties contain alumina in addition to the zeolite and silica-magnesia.

3,838,041

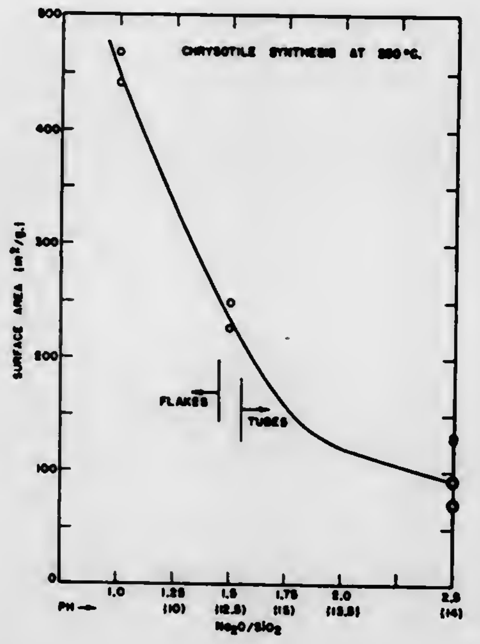
PROCESS FOR CRACKING HYDROCARBON FEEDS WITH CHRYSOTILE COMPOSITIONS

Willard H. Sawyer and Harry E. Robson, Baton Rouge, La., assignors to Esso Research and Engineering Company

Original application Aug 31, 1970, Ser. No. 68,213, now Patent No. 3,692,700. Divided and this application Mar. 9, 1972, Ser. No. 233,378

Int. Cl. C10g *11/04, 13/00*

U.S. Cl. 208—120 **27 Claims**



A process, and compositions of matter, for cracking hydrocarbon feeds, e.g., at temperatures ranging from about 400° C.–650° C. The feeds are cracked at cracking conditions by contact with catalysts selected from the groups consisting of (a) magnesium chrysotile, nickel chrysotile and cobalt chrysotile and (b) magnesium chrysotile, nickel chrysotile and cobalt chrysotile substituted by certain selected concentrations of aluminum. Flake forms of chrysotile are preferred, especially those of surface areas ranging from about 250 m.²/g.–500 m.²/g., and higher. Particularly useful catalysts are formed by incorporation of these materials in matrices which possess Bronsted acidity.

3,838,042

DEMETALLIZATION PROCESS USING IRON-CONTAINING CATALYSTS

Harold Beuther, Gibsonia, Sun W. Chun, Murrysville, and Angelo A. Montagna, Monroeville, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed Aug. 9, 1972, Ser. No. 279,041

Int. Cl. C10g *17/00*

U.S. Cl. 208—251 H **3 Claims**

A process for the demetallization of hydrocarbons by contacting with an iron-containing catalyst under hydrogenation conditions.

3,838,043

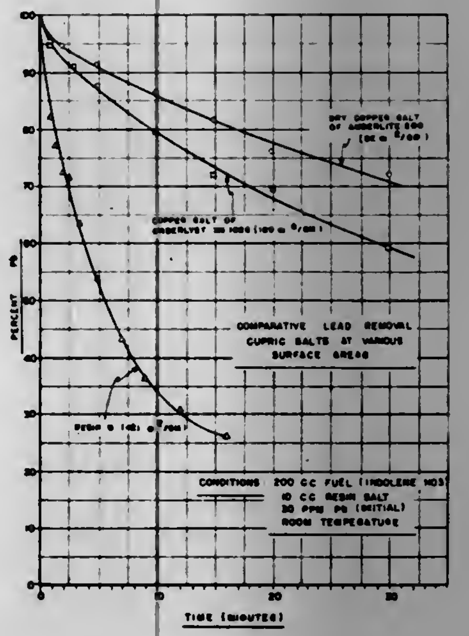
REMOVAL OF RESIDUAL ORGANOLEADS FROM ORGANIC LIQUIDS

Evan H. Crook, Cherry Hill, N.J., and Paul A. Kittle, Gardenville, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Sept. 5, 1972, Ser. No. 286,484

Int. Cl. C10g *17/00*

U.S. Cl. 208—251 R **24 Claims**



This invention relates to a system for abatement of air pollution as caused by lead compounds in the fuels of internal combustion engines. In another aspect, it relates to selectively removing organoalkyl lead compounds residually present in fuels prior to their carburetion by I.C. engines so as to minimize interference with catalytic muffler performance.

3,838,044

MAGNETIC FILTER AND METHOD OF FILTERING FERROMAGNETIC AND OTHER PARAMAGNETIC PARTICULATE CONTAMINANTS FROM FLUIDS

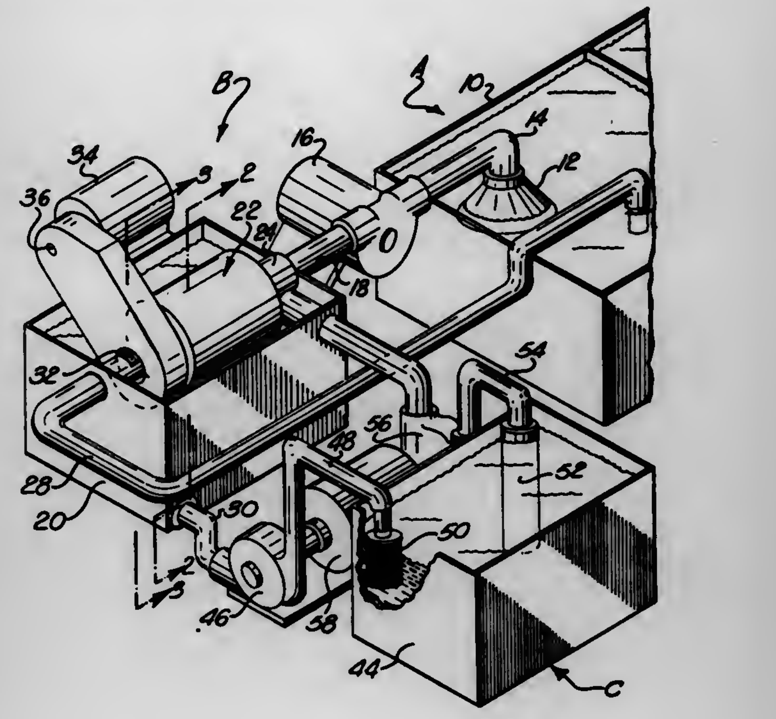
Steve J. Hengeli, 4075 Regal Ave., Brunswick, Ohio 44212

Filed Aug. 14, 1972, Ser. No. 280,252

Int. Cl. B01d *35/06*

U.S. Cl. 210—42 **12 Claims**

A magnetic filter for removing ferromagnetic and other paramagnetic particulate material from a fluid, having a rotatable toroid-shaped carrier with magnets disposed along the inner periphery of the toroid, a fluid passageway disposed near the inner periphery of the carrier having an opening permitting the transfer of ferromagnetic and other paramagnetic particulate material from the passageway to the inner peripheral surface of the magnet carrier. A second fluid passageway is disposed near another segment of the inner periphery of the carrier to receive ferromagnetic and other paramagnetic particulate material transferred to it from the carrier. A method of filtering is also disclosed.



3,838,045

TREATMENT OF AQUEOUS SUSPENSIONS OF ORGANIC WASTE MATERIALS

Eric J. Clayfield, Mickle Trafford, near Chester, England, assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed June 29, 1972, Ser. No. 267,281

Claims priority, application Great Britain, July 15, 1971, 33,216/71

Int. Cl. B01d *11/00*

U.S. Cl. 210—52 **9 Claims**

The separability of water from aqueous organic waste material suspensions is substantially improved by the addition of an acidified aqueous emulsion containing a mineral oil based liquid and an amino nitrogen or quaternary nitrogen-containing cationic surfactant.

3,838,046

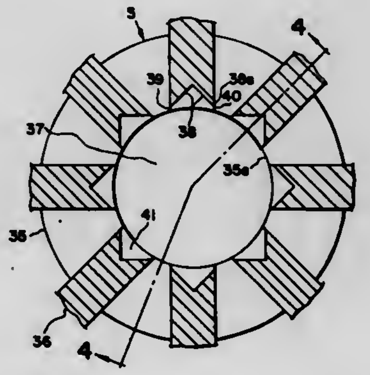
SCREENING DEVICE

Edwin J. Hunter, Riverside, Calif., assignor to The Toro Company, South Minneapolis, Minn.

Continuation of abandoned application Ser. No. 844,577, July 24, 1969. This application June 8, 1973, Ser. No. 368,310

Int. Cl. B01d *35/02*

U.S. Cl. 210—354 **2 Claims**



A pilot operated piston valve having a reciprocable valve element with a metering port extending therethrough, said port being supplied with fluid from the upstream side of the valve, a metering pin being provided in said port. The fluid is supplied to said port through a novel strainer or screening device consisting of a plurality of fins extending radially from a central channel or chamber defined by said fins which receives said pin, said fins having grooved inner faces opposite said metering pin through which metering fluid passes to said metering port, the sides of said fins being minutely spaced from said metering pin to provide a minute elongate straining orifice on each side of said groove in said fin through which the metering fluid is admitted to said grooves or channels and then to said metering port.

3,838,047
PROCESS FOR IMPROVING THE YIELD OF CLAY AND DRILLING MUDS PREPARED THEREFROM

John R. Le Blanc, Wilbraham, Mass., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed May 5, 1972, Ser. No. 250,734
The portion of the term of the patent subsequent to June 11, 1984, has been disclaimed
Int. Cl. C10m *3/22*
U.S. Cl. 252—8.5 A **7 Claims**

The present invention relates to a process for improving the yield of clay used in well drilling muds. The process comprises adding to the clay a beneficiating agent which is a mixture of a carboxylic acid polymer and a metal salt which mixture is water soluble at pH of less than 7.0 wherein the metal is selected from Groups IB, IIB, VIB, VIIB, and VIII of the Periodic Table and lead. Also disclosed herein is a process for drilling a well using the improved drilling muds prepared by the processes of the present invention.

3,838,048
POLYVINYLFLUORIDE BEARINGS

Thomas E. Hedge, Mentor, and Donald H. Wagner, Painesville, Ohio, assignors to Diamond Shamrock Corporation, Cleveland, Ohio
No Drawing. Continuation-in-part of abandoned application Ser. No. 737,382, June 17, 1968. This application May 13, 1971, Ser. No. 143,204
Int. Cl. C10m *7/28*
U.S. Cl. 252—12 **5 Claims**

An abrasion resistant, thermoplastic resinous composition is prepared by dispersing from about 1 to about 100 parts by weight of a solid lubricant in about 100 parts by weight of a vinyl fluoride homopolymer or copolymer of vinyl fluoride and vinyl acetate. Useful solid lubricants include polytetrafluoroethylene, fluorinated ethylene propylene, molybdenum disulfide and tungsten disulfide. The composition forms a dry, abrasion resistant, cohesive lubricant film on a substrate.

3,838,049
LUBRICATING COMPOSITIONS

Georges Jules Souillard, 7 Avenue Bel Air, and Frederic Francois Van Quaethoven, 42 Avenue de l'Esplanade, both of Wezembeek, Oppem, Belgium
No Drawing. Continuation-in-part of application Ser. No. 73,572, Sept. 18, 1970. This application Feb. 5, 1973, Ser. No. 329,902
Claims priority, application Belgium, Apr. 4, 1972, 115,914
The portion of the term of the patent subsequent to Aug. 21, 1990, has been disclaimed
Int. Cl. C10m *1/18, 1/46, 1/48*
U.S. Cl. 252—32.7 E **8 Claims**

Lubricating compositions for internal combustion engines with rotary pistons, which comprise: 90 to 95% by weight of a lubricating mixture containing 15 to 80% of polymer of an olefin containing 4 carbon atoms selected from the group consisting of hydrogenated and nonhydrogenated polyisobutylene, polybutylene and their mixtures, having a mean molecular weight of between 250 and 2000, and 85 to 20% of lubricating oil, 0.5 to 2.5% of anti-wear additive, with the remainder of the compositions being usual additives for 2-stroke and 4-stroke engines.

3,838,050
LUBRICANTS AND FUELS CONTAINING ESTER-CONTAINING COMPOSITIONS

Clark Ober Miller, Willoughby Hills, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio
No Drawing. Continuation-in-part of application Ser. No. 359,952, May 14, 1973, which is a continuation of abandoned application Ser. No. 152,426, June 11, 1971, which is a continuation of abandoned application Ser. No. 12,838, Feb. 19, 1970, which in turn is a continuation-in-part of abandoned application Ser. No. 823,990, May 12, 1969. This application June 11, 1973, Ser. No. 368,782
Int. Cl. C10m *1/24, 1/26*
U.S. Cl. 252—40.5 **17 Claims**

Ester-containing compositions prepared by reacting a high molecular weight carboxylic acid acylating agent with polyoxyalkylene alcohol demulsifiers for aqueous emulsions. The ester-containing compositions are useful as additives in normally liquid fuels and lubricants.

3,838,051
LUBRICANT HAVING THEREIN A METHYLENE OXYAROMATIC COMPOUND

Harry J. Andress, Jr., Pitman, N.J., assignor to Mobil Oil Company
No Drawing. Filed July 22, 1971, Ser. No. 165,378
Int. Cl. C10m *1/20*
U.S. Cl. 252—52 R **11 Claims**

Lubricant compositions comprising a lubricant and a stabilizing amount of a cyclic methylene oxyaromatic compound prepared from a dihalomethane and an alkylated polyhydroxybenzenoid compound.

3,838,052
LUBRICANTS AND FUELS CONTAINING ESTER-CONTAINING COMPOSITIONS

Clark Ober Miller, Willoughby Hills, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio
No Drawing. Continuation-in-part of application Ser. No. 360,207, May 14, 1973, which is a continuation of application Ser. No. 152,424, June 11, 1971, which is a division of application Ser. No. 12,838, Feb. 19, 1970, which in turn is a continuation-in-part of application Ser. No. 823,990, May 12, 1969, now abandoned. This application June 8, 1973, Ser. No. 368,382
Int. Cl. C10m *1/26*
U.S. Cl. 252—56 R **10 Claims**

Ester-containing compositions prepared by reacting a high molecular weight carboxylic acid acylating agent with polyoxyalkylene alcohol demulsifiers for aqueous emulsions. The ester-containing compositions are useful as additives in normally liquid fuels and lubricants.

3,838,053
METHOD OF GROWING RARE EARTH GARNET MATERIAL

Michael Kestigian, Stow, Mass., assignor to Sperry Rand Corporation
Filed Nov. 27, 1972, Ser. No. 309,862
Int. Cl. B01j *17/18*
U.S. Cl. 252—62.57 **5 Claims**

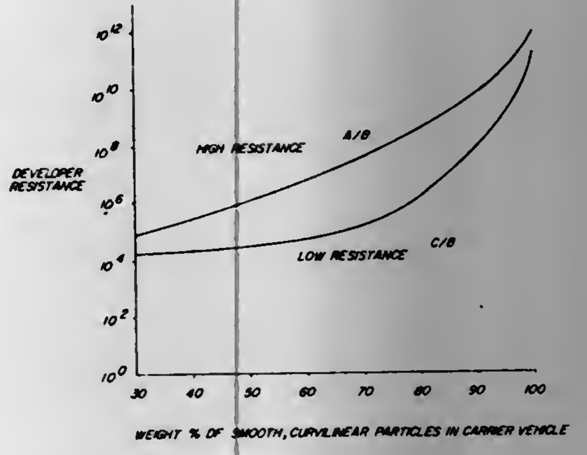
Magnetic domain logic elements employ new single crystal ferrimagnetic materials for the propagation of cylindric wall magnetic domains, materials of the

$$Gd_{2.32}Tb_{0.59}Eu_{0.09}Fe_5O_{12}$$

kind made by a novel seed crystal method which comprises pulling a seed crystal from a melt comprising the molten constituents and a barium carbonate-boron oxide flux.

3,838,054
ELECTROSTATIC DEVELOPER COMPOSITION CONTAINING BOTH ROUGH AND SMOOTH CARRIER PARTICLES

William Trachtenberg, Rochester, John M. McCabe, Pittsford, and George P. Kasper, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 21, 1972, Ser. No. 236,724
Int. Cl. G03g *9/02*
U.S. Cl. 252—62.1 **12 Claims**



This invention relates to a particulate carrier vehicle and a dry electrographic developer composition containing such a carrier vehicle. The particulate carrier vehicle described herein contains a mixture of rough-surfaced magnetically responsive particles, e.g., sponge iron powder and smooth-surfaced magnetically responsive particles, e.g., smooth, spherical iron particles.

3,838,055
HIGH IMPACT, ARC TRACK AND WEATHER RESISTANT HIGH VOLTAGE ELECTRICAL INSULATOR

William M. Rinehart, Centralia, Mo., assignor to A. B. Chance Company, Centralia, Mo.
No Drawing. Continuation-in-part of abandoned application Ser. No. 131,800, Apr. 6, 1971. This application Sept. 12, 1972, Ser. No. 288,413
Int. Cl. H01b *3/00*
U.S. Cl. 252—63.2 **17 Claims**

An arc track resistant, high impact, filler free polymeric high voltage electrical insulator which is antichalking under normal operating conditions and in its preferred form comprises an elongated body having integral, spaced skirts and cast from a composition including a 2,2-bis(p-hydroxyphenyl)propane-glycidyl ether polymer, a curing agent for the resin, from 15% to 65% by weight of an aliphatic polyglycidyl ether or ester, and from 0.01% to 3% by weight of an alkylidene bis, tris, or polyphenol. The resin composition is especially adapted to be molded over a supporting member of 2,2-bis(p-hydroxyphenyl) propane-glycidyl ether polymer reinforced with glass fibers. The resulting product has superior dielectric, mechanical and impact strength along with good electrical resistance and weatherability, and is capable of undergoing controlled erosion under high electrical load and temperature conditions before tracking can occur.

3,838,056
ELECTRICAL DEVICES CONTAINING DIELECTRIC FLUID

Gary A. Vincent, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed Nov. 2, 1972, Ser. No. 303,191
Int. Cl. H01b *31/46*
U.S. Cl. 252—64 **16 Claims**

Improved electrical devices, such as transformers and capacitors, containing monochloroalkylsiloxanes as dielectric fluids are disclosed.

3,838,057
TOILET BARS

Andrew Nicholas Morrison Barnes, Wallington, Wai Ming Chen, Ellesmere Port, Tudor Rickards, Upton, David Arthur Rosser, Wirral, and Ponnuswamy Thurairajan, Port Sunlight, England, assignors to Lever Brothers Company, New York, N.Y.
No Drawing. Continuation of application Ser. No. 60,781, July 30, 1970, which is a continuation-in-part of application Ser. No. 835,739, June 23, 1969, both now abandoned. This application July 3, 1972, Ser. No. 268,396
Claims priority, application Great Britain, June 25, 1968, 30,255/68; July 12, 1968, 33,361/68
Int. Cl. C11d *9/30*
U.S. Cl. 252—117 **25 Claims**

Toilet bars having improved after-wash feel properties comprise at least 15% by weight of polyethyleneoxide quaternary ammonium compounds. The latter must have at least three ethyleneoxide units in a chain and satisfy an expression relating the number of ethyleneoxide units to the number of carbon atoms and the number of quaternary nitrogen atoms.

3,838,058
STABILIZATION OF PERCHLOROETHYLENE

Norman L. Beckers, Chardon, Ohio, assignor to Diamond Shamrock Corporation, Cleveland, Ohio
No Drawing. Filed Nov. 17, 1972, Ser. No. 307,643
Int. Cl. B08b *5/00;* **C07c** *17/40;* **C23g** *5/02*
U.S. Cl. 252—171 **10 Claims**

Addition of one of the following chemical components to the stabilizer system used in perchloroethylene for vapor phase degreasing improves its stability:

(1) epibromohydrin
(2) epibromohydrin and allyl glycidyl ether
(3) epibromohydrin and N-ethyl morpholine
(4) epibromohydrin, allyl glycidyl ether and N-ethyl morpholine
(5) N-ethyl morpholine
(6) N-ethyl morpholine and allyl glycidyl ether.

3,838,059
LIQUID CRYSTAL COMPOSITION

Shi-Yin Wong, Santa Monica, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Feb. 22, 1972, Ser. No. 228,166
Int. Cl. G02f *1/16*
U.S. Cl. 252—299 **7 Claims**

The operational characteristics (fast responding) are improved for the electrical field induced dynamic scattering mode (DSM) in nematics, and for emulsion storage scattering (ESS) in nematic-cholesteric liquid crystals. For example, small amounts of Squarylium dye material or of tetracyano-p-benzoquinone are particularly favorable dopants. The improved longevity and fast rise and decay characteristics also pertain to application of my doped liquid crystal compositions in photoactivated liquid crystal cells as real time projection displays, stored-image projection displays, and real-time light values for non-coherent modulation of coherent light, including application to electro-optical projection, storage, and memory devices.

3,838,060
MAGNESIUM ALUMINATE GALLATE PHOSPHOR

Edward E. Kaduk, Lyndhurst, Ohio, assignor to General Electric Company
Continuation-in-part of abandoned application Ser. No. 194,449, Nov. 1, 1971. This application Sept. 18, 1972, Ser. No. 290,166
Int. Cl. C09k *1/36, 1/68*
U.S. Cl. 252—301.4 P **4 Claims**

Magnesium aluminate gallate phosphors activated by manganese are prepared containing a minor addition of stabilizer ion to avoid brightness loss when the phosphor is heated in the air. The stabilizer addition also permits major substitution of Al for Ga along with increased manganese activator content resulting in higher powder brightness at room temperature, greater ultraviolet absorption, and a desirable shift in spectral peak of emission response along with the better resistance to oxidation when heated in air. The phosphor is particularly useful in low pressure mercury lamps for reprographic applications.

3,838,061

METHOD OF PACKAGING OF RADIOACTIVE WASTES

Daniel Cuaz, Les Eymes, Paul Pottier, Manosque, and Daniel Thiery, St. Martin d'Heres, France, assignors to Commissariat a Energie Atomique, Paris, France

Filed Mar. 14, 1972, Ser. No. 234,631

Claims priority, application France, Mar. 16, 1971, 7109057

Int. Cl. C09k *3/00*
U.S. Cl. 252—301.1 W **3 Claims**

Radioactive wastes which have previously been converted to the state of dry powder are incorporated in a resin which is polymerizable at room temperature. The resin is then copolymerized with a monomer in order to obtain a solid which exhibits high leach resistance and long-term retention of radioactivity.

3,838,062

METHOD FOR THE PREPARATION OF CONCENTRATED ANION-DEFICIENT SALT SOLUTIONS

Johannes B. W. Kanij, Zevenaar, Arend J. Noothout, Oosterbeek, and Marie E. A. Hermans, Arnhem, Netherlands, assignors to Reactor Centrum Nederland, The Hague, Netherlands

No Drawing. Original application Jan. 15, 1971, Ser. No. 106,922, now abandoned. Divided and this application Aug. 24, 1972, Ser. No. 283,291

Int. Cl. C01g *43/00*
U.S. Cl. 252—301.1 R **2 Claims**

Concentrated anion-deficient salt solutions are prepared of the actinide oxides PuO_2, UO_2, UO_3 and U_3O_8 by dissolving one or more oxides in an aqueous solution of thorium nitrate at a concentration of 4 molar or greater and at a temperature of 60° C. or more. Anion-deficient salt solutions of actinide metals so produced are useful as starting materials for the manufacture of ceramic nuclear fuel particles by the sol-gel process.

3,838,063

NOVEL COMPOUNDS AND PIGMENT COMPOSITIONS EMBODYING SAME

Theodore H. Foss, Chicago, Ill., assignor to Lawter Chemicals, Inc.

No Drawing. Continuation of abandoned application Ser. No. 49,205, June 23, 1970. This application Mar. 9, 1972, Ser. No. 233,327

Int. Cl. C09k *1/02*
U.S. Cl. 252—301.2 R **4 Claims**

This invention is addressed to novel triazines including tetra-2,2,6,6-(2,4-diamino - s - triazino - 6 - ethyl)cyclohexanone, tetra - 2,2,5,5-(2,4-diamino-s-triazino-6-ethyl) cyclopentanone and 3,3-di(2,4-diamino - s - triazino - 6-ethyl)-2-propanone which can be formulated into pigment compositions by co-condensing the novel compounds of the invention with an aryl sulfonamide and an aldehyde to provide a new and improved resinous material for use in daylight fluorescent compositions having improved light stability.

3,838,064

PROCESS FOR DUST CONTROL

John W. Vogt, South Russell, and James E. Owen, South Euclid, Ohio, assignors to Kewanee Oil Company, Bryn Mawr, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 136,267, Apr. 21, 1971. This application Sept. 19, 1972, Ser. No. 287,578

Int. Cl. C09k *3/22*
U.S. Cl. 252—384 **9 Claims**

A method for controlling dust in a normally-high-dusting material which includes working the material with a minute amount, less than about 1% by weight of the material, or a finely divided fibrillatable polytetrafluoroethylene (hereinafter referred to as PTFE) to form a dry mixture with the material without changing the primary praticle size of the material, and continuing to work the mixture sufficiently so as to essentially negate the dusting of the material without appreciably changing it physical properties. Fine powder PTFE obtained by coagulation of a colloidal aqueous dispersion of the resin is used in the "dry" treatment of normally-high-dusting submicron and superfine material.

Again, the normally-high-dusting material may be mixed with the colloidal aqueous dispersion of the resin, in an amount insufficient to change the essentially dry character of the material and worked, as described herein, to negate dusting of the material.

Alternatively, the fine powder or the colloidal dispersion may be used to slurry the material in a "wet" treatment to facilitate the homogeneous dispersion of the resin; the solids content of the slurry may thereafter be worked in the wet state, preferably as a paste, or worked in an essentially dry state, with a masticating or kneading action, as before.

In another embodiment, for controlling dusting in a normally-high-dusting material, a method is disclosed which includes mixing the material with finely divided fibrillatable PTFE in an amount in the range from about .02 to about 3% by weight in the presence of a liquid processing aid, in which the material may or may not be soluble, and spray drying the solution or slurry so that upon separation of the liquid processing aid, a dry treated solid material is recovered, virtually indistinquishable from untreated material, but characterized by a substantially complete elimination of its normally-high-dusting nature.

Novel dustless compositions are formed by working a normally-high-dusting, submicron or superfine material with a fibrillatable PTFE resin in an amount from about 0.02 to about 1% by weight, based on total solids, until a visual indication of non-dusting is obtained. Even coarse, dusty materials up to about 100 Tyler mesh, which contain fines and superfines are rendered dustless. Dusty materials which include fines in the range from about 10μ to about 44μ or superfines up to about 10μ in size are particularly suitable for dedusting treatment.

3,838,065

STANDARD SOLUTION OF GLYCEROL

Werner Lippert, Seeshaupt, Erich Bernt, Munich, Wolfgang Gruber, Garatshausen, and Hans Ulrich Bergmeyer, Tutzing, Germany, assignors to Boehringer Mannheim GmbH, Germany

No Drawing. Filed Aug. 9, 1972, Ser. No. 279,116

Claims priority, application Germany, Sept. 10, 1971, P 21 45 346.3

Int. Cl. G01n *33/00*
U.S. Cl. 252—408 **3 Claims**

A stabilized glycerol standard solution, consisting essentially of glycerol in 0.02 to 0.2 N perchloric acid, is

advantageously used to provide a reference standard in analytical methods for the determination of glycerol.

3,838,066

METHOD FOR STABILIZING PYROPHORIC MATERIALS IN A CATALYST BED

Lyle M. Lovell, Portage, Ind., assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Oct. 1, 1971, Ser. No. 185,839

Int. Cl. B01j *11/04, 11/30, 11/76*
U.S. Cl. 252—419 **6 Claims**

The method comprises the sequential steps of (1) passing an inert gas through the catalyst bed at a bed temperature that is below the ignition temperature of coke and any additional non-pyrophoric material in the bed; and (2) adding a controlled amount of oxygen-containing gas to the inert gas to oxidize the pyrophoric material. Preferably, the method comprises an additional step of maintaining the oxygen partial pressure at about 0.3 to 1 atmosphere of oxygen for a time that is sufficient to eliminate any temperature rise that may occur in the bed when the amount of oxygen-containing gas is increased.

3,838,067

CATALYST AND USE THEREOF

Robert S. Barker, Bloomfield, N.J., assignor to Halcon International, Inc.

No Drawing. Continuation-in-part of application Ser. No. 76,249, Sept. 28, 1970, now Patent No. 3,759,840. This application Oct. 24, 1972, Ser. No. 300,026

Int. Cl. B01j *11/82*
U.S. Cl. 252—432 **3 Claims**

A catalyst useful for the oxidation of organic compounds, particularly vapor-phase oxidation of benzene with molecular oxygen to produce maleic anhydride, comprises the oxides of molybdenum, vanadium, phosphorus, sodium and boron in combination with an oxide of at least one metal of the group consisting of manganese, tin, tungsten and bismuth, and preferably also in combniation with an oxide of at least one member of the group consisting of iron, cobalt and nickel.

3,838,068

CATALYST FOR THE PRODUCTION OF CYANOPYRIDINES

Ferdinand Hagedorn, Cologne-Bucheim, Karlfried Wedemeyer, Cologne-Stammheim, Berhard Scherhag, Leverkusen, and Arnold Hausweiter, Dormagen, Germany, assignors to Bayer Aktiengesellschaft

No Drawing. Original application June 27, 1970, Ser. No. 837,305, now Patent No. 3,686,194. Divided and this application Jan. 19, 1972, Ser. No. 219,153

Int. Cl. B01j *11/82*
U.S. Cl. 252—437 **8 Claims**

An activated tin phosphate catalyst is prepared by reacting a tin compound with a phosphoric acid and activating the tin phosphate formed by adding thereto one or more compounds of metals from the group of molybdenum, bismuth, vanadium, iron and cobalt and thereafter heating the resulting mass. The tin phosphate catalyst contains in the range of 10 to 30 parts by weight of phosphorus and in the range of 30 to 50 parts by weight of tin per 100 parts by weight of tin phosphate. The activated tin phosphate catalyst contains from 1 to 10% by weight of the activating metals based on the weight of the tin phosphate.

3,838,069

CATALYST FOR USE IN PURIFICATION OF EXHAUST GAS CONTAINING CARBON MONOXIDE

Kazuhide Miyazaki, Tanashi, Michiaki Yamamoto, Fuchu, Shigehiko Kobayashi, Tokyo, and Toshiyuki Sakai, Funabashi, Japan, assignors to Mitsui Mining and Smelting Co., Ltd., Tokyo, Japan

No Drawing. Filed July 27, 1971, Ser. No. 166,558

Claims priority, application Japan, Sept. 29, 1970, 45/84,646; Oct. 14, 1970, 45/90,231

Int. Cl. B01j *11/06, 11/32*
U.S. Cl. 252—456 **6 Claims**

A catalyst consisting of manganese oxides and lead oxides or one consisting of manganese oxides and bismuth oxides is suitable for the oxidation and purification of exhaust gas containing carbon monoxide, and a catalyst consisting of the mixture of manganese oxides and lead oxides together with metals of such transition elements as copper, iron, cobalt, nickel, etc. or bismuth oxides or the like added thereto and a catalyst consisting of the mixture of manganese oxides and bismuth oxides together with oxides of such alkaline earth elements as magnesium, calcium or barium, oxides of such rare earth elements as yttrium, lanthanum, cerium or neodymium, oxides of aluminum or silicon, oxides of such transition metals as copper, iron, cobalt or nickel, or some transition metals such as copper, iron, cobalt, nickel, etc. added thereto are more suitable for the oxidation and purification of exhaust gas containing carbon monoxide.

3,838,070

STABILIZATION OF IRON CATALYSTS

William E. Thomas, Jr., Orange, Tex., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Apr. 21, 1972, Ser. No. 246,424

Int. Cl. B01j *11/22*
U.S. Cl. 252—472 **9 Claims**

A method of stabilizing an iron hydrogenation catalyst which exhibits pyrophoric behavior on exposure to an oxygen-containing gas which comprises treating the iron catalyst with an aqueous solution of a stabilizing agent of the group consisting of sorbitol, succinic acid and tetra-(hydroxyethyl)ethylenediamine. The stabilized catalyst can subsequently be washed substantially free of stabilizing agent and reactivated for hydrogenation by treating with hydrogen at an elevated temperature and pressure. Alternately the stabilized catalyst can be washed with substantially anhydrous ammonia and used directly for further hydrogenation of adiponitrile.

3,838,071

HIGH ADHESION SILVER-BASED METALLIZATIONS

Rajnikant Babubhai Amin, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 30, 1972, Ser. No. 268,054

Int. Cl. H01b *1/02*
U.S. Cl. 252—514 **16 Claims**

In silver and palladium/silver-based metallizations also containing inorganic binder for producing high adhesion conductors on dielectric substrates, improved metallizations for producing conductors of enhanced thermal aged adhesion, additionally comprising certain crystalline inorganic polynary oxides of copper, e.g., $Cu_2Al_2O_4$, Cu_3TiO_5, etc. Dielectric bodies having such conductors fired thereon.

3,838,072
MANUFACTURE OF FREE FLOWING PARTICULATE DETERGENT CONTAINING NONIONIC SURFACE ACTIVE COMPOUND

Frank R. Smith, Jr., North Plainfield, Walter A. Di Salvo, North Arlington, and Edward J. Kenney, Bernardsville, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Mar. 15, 1971, Ser. No. 124,111
Int. Cl. C11d *1/22, 1/83, 11/00*
U.S. Cl. 252—540 16 Claims

Particulate detergent compositions which are free-flowing and not tacky are made by spray drying an aqueous crutcher mix to produce base detergent beads containing synthetic anionic organic detergent and sodium silicate, usually with other builders and adjuvants, and spraying over the surfaces of the base particles, while in motion, from about 2 to 20% by weight of the detergent composition of droplets of a higher linear alkoxy poly-lower alkoxy lower alkanol nonionic compound in which the poly-lower alkoxy lower alkanol content of the nonionic compound is from 39 to 60% by weight. The nonionic compound, which has surface active properties, is usually applied as a warm or hot liquid onto freshly sprayed and still warm or hot detergent base beads. Preferably, the nonionic compound is sprayed onto the base beads together with a nonionic detergent which it aids in penetrating into the bead, thereby improving product flow characteristics and diminishing tackiness.

3,838,073
POLY(FLUOROALKOXYPHOSPHAZENE) HOMOPOLYMERS

Selwyn H. Rose, Beachwood, and Kennard A. Reynard, Mentor, Ohio, assignors to Horizons Incorporated, a Division of Horizons Research Incorporated

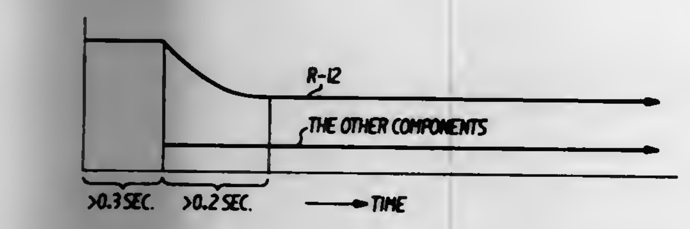
No Drawing. Filed Aug. 28, 1972, Ser. No. 284,200
Int. Cl. C08g *33/16, 33/02*
U.S. Cl. 260—2 P 8 Claims

Poly(fluoroalkoxyphosphazene) polymers in which each substituent bonded to the phosphorus atoms contains four to twelve carbon atoms are claimed. The polymers are prepared from poly(dichlorophosphazene) and a fluoroalkoxide salt. The polymers are plastics with exceptional solvent and chemical resistance and are useful as coatings and films.

3,838,074
PROCESS FOR PREPARING POLYURETHANE FOAM

Yoichi Hoshino, Tokyo, Kotaro Honda and Chihito Funayama, Yokohama, and Goro Tanaka, Yamato, Japan, assignors to Mitsubishi Chemical Industries Limited, Tokyo, Japan

Filed Jan. 5, 1973, Ser. No. 321,471
Claims priority, application Japan, Jan. 10, 1972, 47/5,107
Int. Cl. C08g *22/46*
U.S. Cl. 260—2.5 BD 8 Claims



A process for preparing a polyurethane foam by a frothing process by mixing a polyol, a polisocyanate, a primary foaming agent, a secondary foaming agent and a catalyst in a helix-mixer which comprises introducing a first component comprising a primary foaming agent to the helix-mixer and then introducing a second component to said mixer which second component comprises said polyol, polyisocyanate, secondary foaming agent and catalyst, wherein the initial ratio of the feed rate of said first component to that of said second component at the initiation of the supply of said second component is at least 1.5 times the normal ratio of the feed rate of said first component to the feed rate of said second component under normal operating conditions, and wherein said primary foaming agent is supplied to said mixer in a quantity as required by said initial ratio during said period preceding the introduction of said second component.

3,838,075
PROCESS FOR THE PRODUCTION OF HYDROPHILIC FOAM PLASTICS

Werner Dietrich, Helmut Reiff, Karlheinz Andres, and Johannes Niggemann, Cologne, and Ernst Roos, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Feb. 12, 1973, Ser. No. 331,936
Claims priority, application Germany, Feb. 17, 1972, P 22 07 361.6
Int. Cl. C08g *22/16, 22/44*
U.S. Cl. 260—2.5 AD 6 Claims

Hydrophilic polyurethane foams well-suited for use as substrate for the propagation and cultivation of plants are prepared by the isocyanate polyaddition process by reacting a polyisocyanate with compounds containing at least two hydrogen atoms reactive with —NCO groups wherein from about 5% to about 100% by weight based on the weight of active hydrogen containing compound of a betaine is incorporated in the reaction mixture, said betaine containing at least one group that is reactive with —NCO groups.

3,838,076
POLYURETHANE FOAMS FROM PARTIALLY AMINATED POLYETHER POLYOLS

Philip Hotchkiss Moss and Michael Cuscurida, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed Mar. 12, 1973, Ser. No. 339,988
Int. Cl. C08g *22/44, 22/14*
U.S. Cl. 260—2.5 AQ 5 Claims

Cellular polyurethane foams are prepared by reacting, in the presence of a blowing agent, an organic polyisocyanate and a polyoxyalkylene resin having a functionality of from 2 to 8 and an equivalent weight of from about 900 to about 2800. The terminal groups of the polyoxyalkylene resins are from 15 to about 55 amino groups, with the remaining functional groups being hydroxyl groups.

3,838,077
HYDROLYSIS PROCESS FOR POLYMER-MODIFIED CELLULOSE FIBERS

Henry Wilbert Hoftiezer, Rothschild, and August Henry Tilloson, Schofield, Wis., assignors to American Can Company, Greenwich, Conn.

No Drawing. Filed July 10, 1972, Ser. No. 270,324
Int. Cl. C08f *25/00, 27/14*
U.S. Cl. 260—17.4 GC 7 Claims

This invention relates to an improved procedure for carrying out an alkaline hydrolysis of polymeric nitriles graft polymerized on fibrous cellulose to obtain cellulose having chemically attached thereto alkali metal polycarboxylate salts in a form which may be readily dried and reduced to a fine powderous state which is readily redispersable in aqueous media. In a particular aspect thereof, the invention relates to an improved method for hydrolysis of polyacrylonitrile-grafted cellulose fibers which, on alkaline hydrolysis carried out by conventional procedures in relatively dilute caustic, are converted into a highly viscous suspension of the cellulose fibers having alkali metal polyacrylate grafted therein and thereon. This viscous material has been found to be extremely difficult to dry to a substantially water-free state, and it is to this problem that the present invention is directed.

3,838,078
ABIETATE MODIFIED POLYSULFIDE POLYMERS AS ADHESIVE ADDITIVES FOR LIQUID POLYSULFIDE POLYMER BASED ADHESIVE COMPOSITIONS

Jose L. Villa, Heightstown, N.J., assignor to Thiokol Corporation, Bristol, Pa.

No Drawing. Original application May 12, 1972, Ser. No. 252,646. Divided and this application July 6, 1973, Ser. No. 377,160
Int. Cl. C08c *9/18*
U.S. Cl. 260—24 2 Claims

Polysulfide and polyester polymers modified with abietic acid and polysulfide polymers modified with epoxy groups are effective as adhesive additives for liquid polysulfide polymer based compositions used as sealants or bonding agents on various substrates such as glass or aluminum.

3,838,079
PRESSURE SENSITIVE ADHESIVE COMPOSITION COMPRISING CARBOXYLATED POLYMER

Yujiro Kosaka, Masaru Uemura, Tokio Fujiki, and Mitsutaka Saito, Shin Nanyo-shi, Yamaguchi, Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Shin Nanyo-shi, Yamaguchi, Japan

No Drawing. Filed Sept. 29, 1971, Ser. No. 184,920
Claims priority, application Japan, Aug. 9, 1971, 46/59,628
The portion of the term of the patent subsequent to July 31, 1990, has been disclaimed
Int. Cl. C09j *3/26*
U.S. Cl. 260—27 5 Claims

A pressure sensitive adhesive composition is formed from 30 to 70% by weight, of a carboxylated polymer product obtained by copolymerizing maleic anhydride and an alkyl acrylate in contact with an ethylene vinyl acetate copolymer, and from 70 to 30%, by weight based on the total composition, of a tackifier and a viscosity reducing agent.

3,838,080
WAXY COMPOSITION FOR PREVENTING RUBBERY SUBSTANCE FROM OZONE DETERIORATION

Toshihiko Shinomura, 2847 Kamiyabe-cho, Totsuka-ku, Yokohama, Japan, and Hiroshi Uemura, 1635 Takagasaka, Machida, Japan

No Drawing. Filed Dec. 27, 1971, Ser. No. 212,635
Claims priority, application Japan, Dec. 28, 1970, 46/119,997
Int. Cl. C08f *45/52;* **C08h** *9/06*
U.S. Cl. 260—28.5 B 4 Claims

A waxy composition containing 40 percent or more by weight of normal chain hydrocarbons having from 34 to 40 carbon atoms, a method of utilizing said waxy composition for preventing rubbery substance from ozone deterioration, and a rubbery article thus prevented from ozone deterioration. The method comprises steps of mixing said waxy composition with raw rubber, subsequently vulcanizing the mixture, and leaving the vulcanized matter as it is for letting the waxy composition bloom on the surface of the matter. Results of some tests are disclosed.

3,838,081
TIRE CORD ADHESIVE

Jerald R. Harrell, Anestis L. Logothetis, and John J. Verbanc, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Application July 9, 1969, Ser. No. 840,511, now Patent No. 3,679,627, which is a continuation-in-part of abandoned application Ser. No. 764,328, Oct. 1, 1968. Divided and this application May 30, 1972, Ser. No. 257,667
Int. Cl. C08g *51/24*
U.S. Cl. 260—29.3 1 Claim

An adhesive composition hydroxylated alpha-olefin/non-conjugated diene polymer having hydroxylated side chains in admixture with a phenol-formaldehyde resin.

3,838,082
POLYTETRAFLUOROETHYLENE COATINGS CONTAINING WATER SOLUBLE POLYHYDROLYZABLE COMPOUND FOR GLASS FABRICS

David Allen Sauer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 146,837, May 25, 1971. This application May 15, 1972, Ser. No. 253,338
Int. Cl. C08f *45/24*
U.S. Cl. 260—29.6 F 9 Claims

Coated glass fabric of improved flex life is provided, the coating on the fabric comprising (a) unsintered polytetrafluoroethylene having a specific melt viscosity of at least 1×10^9 poises at 380° C. and (b) condensation product of polyhydrolyzable compound which is a silane or a compound of tetravalent titanium, zirconium, or tin. The coating can also contain a water repellent additive which prevents water from soaking into the fabric. The coating is present on the glass fabric either as a blend of (a) and (b) or as a basecoat of (b) and topcoat of (a) on the glass fabric. The blend coating can be obtained by applying a dispersion of (a) which contains (b) still in the polyhydrolyzable state, and optionally, the water repellent additive, to the fabric, followed by drying without sintering the polytetrafluoroethylene.

3,838,083
OIL- AND WATER-REPELLENT COMPOSITION OF PERFLUOROALKYL ACRYLATES OR METHACRYLATES

Hiroshi Ukihashi, Tokyo, and Kazusuke Kirimoto and Hiroaki Kojima, Yokohama, Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

No Drawing. Filed Sept. 8, 1972, Ser. No. 287,517
Int. Cl. C08f *15/40, 45/24*
U.S. Cl. 260—29.6 F 6 Claims

An improved oil- and water-repellent copolymer composition which comprises at least 25 weight percent of a fluoroalkyl monomer, 5–50 weight percent vinylchloride and a diester monomer having the formula:

$$R_1O_2C—CH=CH—CO_2R_2$$

wherein R_1 and R_2 may be the same or different and represent C_{1-18} alkyl groups.

3,838,084
SOLID WATER-SOLUBLE ADHESIVE COMPOSITION IN RELATIVE RIGID FORM COMPRISING ADHESIVE COMPONENT AND NOVEL ISETHIONIC ACID ESTER MATRIX BUILDER

Dwight D. Hutson, Rockville, and Charles A. Rader, Laurel, Md., assignors to The Gillette Company, Santa Monica, Calif.

No Drawing. Filed Sept. 8, 1972, Ser. No. 287,555
Int. Cl. C09j *3/12*
U.S. Cl. 260—29.6 Z 22 Claims

This invention relates to a coherent, self-sustaining adhesive composition which will resist slumping and change in form at temperatures up to as high as about 50° C. and being adapted to be readily spread upon paper-like surfaces to form an adhesive film thereon by being drawn thereover by light hand applied pressure without crumbling, the adhesive composition being a skeleton structure of interlocked elongated crystals of a matrix builder which is virtually water-insoluble, at room temperature, and is the salt of a compound having the formula $RCOO—R'—SO_3H$, where R is aliphatic having from 7 to 35 carbon atoms and R′ is lower alkylene, said skeleton structure forming a matrix for an aqueous medium containing a water-soluble synthetic resin adhesive. This invention also relates to a method for producing the adhesive composition described above which includes the step of forming a mixture of an aqueous solution of a water-soluble adhesive and a matrix builder, the formula of which is given above; heating the mixture to a temperature between that at which a significant amount of the matrix builder dissolves and the boiling point of the compositions; slowing mixing the composition to form a homogeneous slurry or paste without formation of a significant amount of air bubbles; cooling the composition to about a temperature at which the matrix builder is substantially insoluble in water; and curing the matrix builder at between said insolubility temperature and a temperature 15° C. lower than said insolubility temperature.

3,838,085
PIGMENTED ASBESTOS LATEX EMULSION PAINT COMPOSITION

John L. Myers, Lewiston, N.Y., and Richard W. Lasher, Palos Verdes Peninsula, and Russell D. James, La Mirada, Calif., assignors to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of abandoned application Ser. No. 34,796, May 5, 1970. This application Oct. 24, 1972, Ser. No. 300,193

Int. Cl. C08f *45/24*

U.S. Cl. 260—29.6 R **16 Claims**

Premium latex paints are disclosed exhibiting superior opacity and brightness characteristics, including dispersed and liberated short chrysotile asbestos fibers having anionic pigment particles electrostatically attached at discrete points along the length of the fibers.

3,838,086
ISOLATING RUBBERS

Hildegard Schnöring, Wuppertal-Elberfeld, Gottfried Pampus, Leverkusen, and Rudolf Mayer-Mader, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 26, 1973, Ser. No. 344,914

Claims priority, application Germany, Mar. 29, 1972, P 22 15 413.8

Int. Cl. C08b *21/32;* **C08c** *11/22, 11/36*

U.S. Cl. 260—30.6 R **8 Claims**

A process for isolating rubbers from their aqueous dispersions (latices) comprising adding methyl cellulose to an aqueous rubber dispersion in a quantity of from 0.1 to 10% by weight based on the rubber, and removing the water present.

3,838,087
RESIN MANUFACTURE

Dietrich Pirck, Reinbek, Gundolf Fuchs, Mellsen, and Gerhard Sachse, Hamburg, Germany, assignors to Deutsche Texaco Aktiengesellschaft, Hamburg, Germany

No Drawing. Filed July 14, 1972, Ser. No. 272,091

Claims priority, application Germany, July 26, 1971, P 21 37 239.4; Dec. 30, 1971, P 21 65 491.1

Int. Cl. C08f *41/12, 45/28*

U.S. Cl. 260—33.6 UA **9 Claims**

The present invention relates to a process for producing a lacquer resin component for baking varnishes wherein esterified-alkoxylated copolymers are produced in a sequential three stage process comprising copolymerizing vinyl aromatic hydrocarbon and maleic acid anhydride and sequentially half esterifying and alkoxylating the resultant copolymer. All three stages of the process are conducted in a continuous phase in the presence of a dispersing agent and a high boiling liquid hydrocarbon solvent medium, said hydrocarbon being preferably of a substantially non-aromatic nature, said dispersing agent being a copolymer of (1) esters formed from alpha, beta-unsaturated carboxylic acids and long chain aliphatic alcohols in the range of from C_{10} to C_{20} cadbons or mixtures thereof and (2) ethylenically unsaturated copolymerizable compounds.

3,838,088
WIRE ENAMEL BASED ON AMIDE-IMIDE-HYDANTOIN POLYMERS

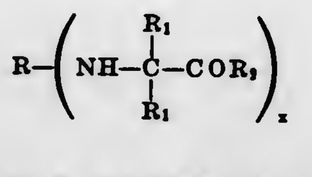
Edmund J. Zalewski, John L. Simonian, and John T. Keating, Schenectady, N.Y., assignors to Schenectady Chemicals, Inc., Schenectady, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 166,594, July 27, 1971. This application Feb. 9, 1973, Ser. No. 331,077

Int. Cl. C08g *51/34*

U.S. Cl. 260—33.4 P **25 Claims**

Amide-imide-hydantoin polymers are prepared from trimellitic anhydride, a diisocyanate and reacting the isocyanate terminated amide-imide with a glycine derivative of the formula



$$R\left(NH-\overset{R_1}{\underset{R_1}{C}}-COR_2\right)_x$$

where R is aromatic, R_1 are the same or different and are hydrogen or alkyl, R_2 is dialkylamino, alkoxy or aroxy and x is an integer from 2 to 4. A portion of the trimellitic anhydride can be replaced by a dicarboxylic acid, a dianhydride or a tribasic acid. The products are soluble in cresol type solvent.

3,838,089
SELF-EXTINGUISHING ORGANOPOLYSILOXANE COMPOSITION

Anthony Enrico Pepe, Hacienda Heights, Calif., assignor to Stauffer Chemical Company

No Drawing. Continuation of application Ser. No. 181,255, Sept. 16, 1971, which is a continuation of application Ser. No. 746,307, July 22, 1968, both now abandoned. This application Jan. 26, 1973, Ser. No. 326,918

Int. Cl. C08g *51/30*

U.S. Cl. 260—33.8 SB **10 Claims**

A self-extinguishing elastomeric organpolysiloxane composition comprising (1) a curable organopolysiloxane, (2) a halogenated organic compound containing at least 35 percent by weight of halogen, said halogenated compound being present in an amount to provide a composition having a halogen content of from 15 to 50 percent by weight based on the weight of organopolysiloxane, and (3) a metallic compound, wherein the cation of the metallic compound is selected from the group consisting of antimony, arsenic, and bismuth and the anion is selected from the class consisting of oxides, halides, and oxyhalides.

3,838,090
POLYMERS OF UNSATURATED HYDROCARBONS STABILIZED WITH RUTHENIUM TETROXIDE

Richard J. Dauksys, Bellbrook, Ohio

(49 Nuthatch Knob Road, Glastonbury, Conn. 06033)

No Drawing. Filed Apr. 2, 1973, Ser. No. 347,242

Int. Cl. C08f *45/56, 45/62;* **C08g** *45/56*

U.S. Cl. 260—45.75 R **3 Claims**

The ultraviolet light stability of polymers of unsaturated hydrocarbons is improved by immersing the polymers in a solution of ruthenium tetroxide in carbon tetrachloride. After exposure to ultraviolet light, the polymers so treated retain their mechanical properties to a substantial degree, and crazing or cracking of the polymers is virtually eliminated.

3,838,091
LAMINATED SAFETY GLASS AND INTERLAYER THEREFOR

Isawo Kanno, Kyoto, and Toshiyuki Takashima and Yoshiyuki Bokuda, Shiga-ken, Japan, assignors to Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed Mar. 27, 1972, Ser. No. 238,612

Claims priority, application Japan, Mar. 30, 1971, 46/19,491

Int. Cl. C08f *45/36*

U.S. Cl. 260—31.2 R **7 Claims**

An interlayer for laminated safety glass comprising (1) a mixture of a plasticized polyvinyl acetal resin with a specific norbornane compound or (2) a sheet of the plasticized polyvinyl acetal resin and a coating of the norbornane compound adhering thereto, and a laminated safety glass comprising at least two sheets of glass bonded together with said interlayer.

3,838,092
DUSTLESS COMPOSITIONS CONTAINING FIBEROUS POLYTETRAFLUOROETHYLENE

John W. Vogt, South Russell, and James E. Owen, South Euclid, Ohio, assignors to Kewanee Oil Company, Bryn Mawr, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 136,268, Apr. 21, 1971. This application Dec. 20, 1972, Ser. No. 316,872

Int. Cl. C08f *45/04*

U.S. Cl. 260—33.6 F **6 Claims**

A process for the control of dust generated by normally dusty solid particulate material smaller than 10 mesh in size, comprising mixing from about 0.02 to less than 1.0 percent, and preferably from about 0.02 to about 0.75 percent, by weight, fibrillatable polytetrafluoroethylene (hereinafter referred to as PTFE) with said material to form an intimate mixture and then working the mixture sufficiently at a temperature above 20° C., but below the transition point of said PTFE to form enough PTFE fibers to produce a weak, essentially dustless agglomerate from said dusty material.

A coherent, weak agglomerated dustless solid particulate mass lacking resistance to pressure of mechanical shock and simultaneously pliable and friable at ambient temperatures, yet visually distinguishable from the normally dusty material from which it is formed. The agglomerate is formed from a mixture of dusty discrete particles in the size range from less than about 1 micron to about 2000 microns, and fibrillatable PTFE in an amount from about 0.02, but less than 1 percent by weight, based on total solids, by working the mixture in a dry or relatively dry state with a working action in an unconfined zone at a temperature in excess of 20 C., but below the sintering temperature of PTFE, without changing the primary particles size range of the material.

3,838,093
METHOD AND COMPOSITION FOR IMPROVING ADHESION BETWEEN ADHESIVES AND POLYESTER OR THERMOPLASTIC SUBSTRATES

William J. Owston, Edinboro, Pa., assignor to Lord Corporation, Erie, Pa.

No Drawing. Filed Oct. 25, 1972, Ser. No. 300,818

Int. Cl. C08g *51/30, 51/28*

U.S. Cl. 260—33.8 UB **10 Claims**

The adhesion obtained between an adhesive of the class of polymerizable liquid ethylenically unsaturated compounds containing a single terminal $>C=CH_2$ group and a solid polyester or thermoplastic substrate is improved by treating the substrate with a solution of a partial urethane adduct prior to application of the adhesive. A solution of the partial urethane adduct is also described and claimed herein.

3,838,094
MOLDING COMPOSITION AND MOLDED PRODUCT

Christian R. Sporck, Santa Clara, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Apr. 23, 1973, Ser. No. 353,458

Int. Cl. C08g *51/04*

U.S. Cl. 260—37 EP **7 Claims**

Molding compositions for electrical devices such as integrated circuit devices, and resulting product. Molding compositions comprise epoxidized novolac prepolymer; novolac prepolymer as cross linking agent, catalyst (preferably an imidazole) which is free of ionic components likely to detract from insulating characteristics and a filler in the form of finely ground fused silica which has been surface treated to remove all or substantially all hydrophilic groups.

3,838,095
FOUNDRY SAND COATED WITH A BINDER CONTAINING NOVOLAC RESIN AND UREA COMPOUND

Calvin K. Johnson, Palos Heights, and Robert S. Craig, Hoffman Estates, Ill., assignors to CPC International Inc., Englewood Cliffs, N.J.

No Drawing. Filed Sept. 13, 1972, Ser. No. 288,605

Int. Cl. C08g *51/04*

U.S. Cl. 260—38 **13 Claims**

A resin coated sand consisting essentially of

- (a) particles of sand coated with from about 1% to 8%, by weight of the sand, of phenol-formaldehyde novolak resin;
- (b) a curing agent; and
- (c) from about 1% to about 5%, by weight of the phenol-formaldehyde novolak resin, of a urea compound.

The sands are especially useful for forming foundry cores and molds.

3,838,096
GLASS FIBER-REINFORCED PLASTICS AND PROCESS FOR PRODUCING THE SAME

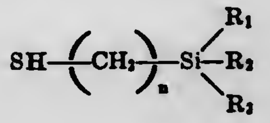
Takeshi Nagasawa, Katsumasa Kuroiwa, Kouichi Narita, Reiko Hashimoto, and Kohji Tamaki, Koriyama, Japan, assignors to Nitto Boseki Co., Ltd., Fukushima-shi, Japan

Filed Dec. 6, 1971, Ser. No. 205,129

Int. Cl. C08g *51/04*

U.S. Cl. 260—40 R **13 Claims**

A glass fiber-reinforced plastic which comprises a glass fiber, an unsaturated polyester resin and a novel reaction product of a polybutadiene having a 1,2-structure content of about 50 mole percent to substantially 100 mole percent with a mercapto-organosilane represented by the general formula,



wherein R_1, R_2 and R_3, which may be same or different, are individually a hydrolyzable group capable of reacting with glass fiber, selected, for example, from the group consisting of alkoxy groups, acetoxy groups and halogens; and n is an integer of 1 to 4, said reaction product being present at the interface between said glass fiber and said resin, and said resin being cured. In this plastic, the adhesion between the glass fiber and the unsaturated polyester resin is greatly improved, by the above-mentioned reaction product present at the interface between said two materials.

3,838,097

PROCESS FOR MAKING POLYETHERIMIDES AND PRODUCTS DERIVED THEREFROM

Joseph G. Wirth and Darrell R. Heath, Schenectady, N.Y., assignors to General Electric Company
No Drawing. Filed Sept. 1, 1971, Ser. No. 177,164
Int. Cl. C08g *20/32*
U.S. Cl. 260—49 **39 Claims**

Polyetherimides are prepared from the reaction of a bis(nitrophthalimide) with an alkali metal salt of a divalent carbocyclic aromatic radical in the presence of an appropriate solvent. The invention also covers the novel polyetherimides prepared in accordance with the above-described process.

3,838,098

MOLDABLE COMPOSITIONS BASED ON TRANS-1,4-POLYMERS OF ISOPRENE

Eric George Kent, Sarnia, Ontario, Canada, assignor to Polymer Corporation Limited, Sarnia, Ontario, Canada
No Drawing. Filed Oct. 26, 1972, Ser. No. 300,983
Claims priority, application Canada, Dec. 20, 1971, 130,461
Int. Cl. C08f *45/04*
U.S. Cl. 260—41.5 R **9 Claims**

Moldability of raw compounds based on trans-1,4 polymer of isoprene and hardness of cured molded articles made therefrom are improved by mixing therewith a crystalline copolymer of isoprene and acrylonitrile.

The compounds are suitable for the production of improved golf ball covers.

3,838,099

UV STABILIZING SYSTEM FOR POLYMERIC MATERIALS COMPRISING PHENYL BENZOATE AND NICKEL OR COBALT COMPLEXES OF PARTIALLY FLUORINATED BETA DIKETONE

Ronald D. Mathis, Taylors, S.C., assignor to Phillips Petroleum Company
No Drawing. Filed Sept. 5, 1972, Ser. No. 286,044
Int. Cl. C08f *45/58*
U.S. Cl. 260—45.75 N **12 Claims**

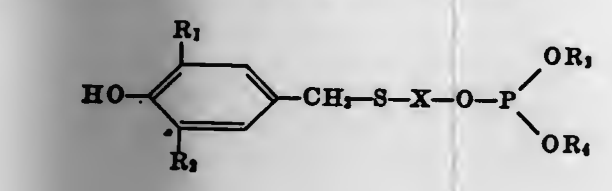
Ultraviolet light stabilizers for polymers comprising mixtures of hydroxy-substituted phenyl benzoates and metal complexes of partially fluorinated beta diketones are described. A preferred embodiment includes polyolefin compositions containing 2',4'-di-*t*-butylphenyl 3,5-di-*t*-butyl-4-hydroxybenzoates and a nickel complex of 1,1,1-trifluoro-7-methyl-1,4-octanedione.

3,838,100

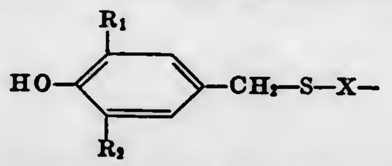
REACTION PRODUCTS OF PHENOL DERIVATIVES WITH PHOSPHOROUS COMPOUNDS AS STABILIZERS FOR POLYMERS

Heinz Eggensperger, Gadernheim uber Bensheim, Volker Franzen, Heidelberg, and Hans Stephen, Bensheim, Bergstrasse, Germany, assignors to Ciba-Geigy AG, Basel, Switzerland
No Drawing. Continuation of application Ser. No. 155,623, June 22, 1971, now Patent No. 3,784,650, which is a continuation-in-part of application Ser. No. 748,619, July 30, 1968, now Patent No. 3,655,833. This application Mar. 1, 1973, Ser. No. 336,966
Claims priority, application Germany, Aug. 12, 1967, P 16 43 880.5
Int. Cl. C08f *45/58*
U.S. Cl. 260—45.95 C **13 Claims**

Novel compounds having the formula



wherein R_1 is selected from the group consisting of hydrogen and alkyl radicals having 1 to 6 carbon atoms, R_2 is an alkyl radical having 1 to 6 carbon atoms, X is selected from the group consisting of alkylene radicals having 1 to 6 carbon atoms and carboxyl interrupted alkylene radicals having 1 to 6 carbon atoms, and R_3 and R_4 are selected from the group consisting of alkyl, aryl, alkaryl, arylalkyl, alkoxyalkyl, alkoxyaryl, aryloxyalkyl, chloroalkyl, chloroaryl, chloroalkaryl, chloroarylalkyl and



wherein R_1, and R_2 and X are as defined above and are useful as stabilizers for polymeric compositions.

3,838,101

REACTIONS BETWEEN AN ORGANIC DIIMIDE AND AN EPOXY RESIN WITH A CHROMIUM III TRICARBOXYLATE CATALYST

Roger B. Steele, Fair Oaks, Arthur Katzakian, Jr., and Joseph J. Scigliano, Sacramento, and Edward E. Hamel, Roseville, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.
No Drawing. Continuation-in-part of abandoned application Ser. No. 28,122, Apr. 13, 1970. This application Nov. 21, 1972, Ser. No. 308,611
Int. Cl. C08g *30/14*
U.S. Cl. 260—47 EN **18 Claims**

This patent discloses and claims the reaction of oxirane-containing compounds with primary cyclic imide-containing compounds, at temperatures of from about 0° C. to 225° C., in the presence of active chromium II tricarboxylate salts which have unoccupied coordination sites.

3,838,102

REMOVAL OF METALLIC CATALYST RESIDUE FROM POLYPHENYLENE ETHERS

James G. Bennett, Menands, and Glenn D. Cooper, Delmar, N.Y., assignors to General Electric Company
No Drawing. Filed Dec. 29, 1972, Ser. No. 319,160
Int. Cl. C08g *23/18*
U.S. Cl. 260—47 ET **20 Claims**

Metallic catalyst residues are removed from reaction solutions containing polyphenylene ethers produced by an oxidative coupling of a phenol in the presence of an oxygen-containing gas and a metal-amine complex catalyst. Removal of the metal component is effected by contacting the solution with a compound capable of selectively complexing with the metal to form a water soluble compound, removable by subsequent liquid-liquid extraction with an aqueous medium. The process is less expensive than prior art procedures, provides solutions which are more efficiently decolorized, and reduces the metallic residue content of the polyphenylene ether to levels lower than other commercially acceptable methods.

3,838,103

CURABLE ARALKYLENE/PHENOL RESINS AND THE PROCESS OF CURING SAID RESINS USING SALICYLIC ACID

Alfred Gerald Edwards, Stourport-on-Severn, England, assignor to Albright & Wilson Limited, Oldbury, near Birmingham, Warwickshire, England
No Drawing. Filed Sept. 5, 1972, Ser. No. 286,584
Claims priority, application Great Britain, July 9, 1971, 41,691/71
Int. Cl. C08g *37/06*
U.S. Cl. 260—52 **5 Claims**

The cure rate of xylok resins can be accelerated by admixing certain acids with the hexamine curing agent normally employed. Acids which have so far been found to be suitable include a variety of organic acids. Salicylic acid being particularly useful.

3,838,104

NOVEL OIL- AND WATER-REPELLENT COMPOSITION OF POLYMERS OF FLUOROALKYL MONOMERS AND DIACETONE ACRYLAMIDE OR DIACETONE METHACRYLAMIDE

Takao Hayashi and Hiroaki Kojima, Yokohama, Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan
No Drawing. Filed Sept. 21, 1972, Ser. No. 290,984
Int. Cl. C08f *3/62*
U.S. Cl. 260—63 HA **8 Claims**

An oil- and water-repellent composition which comprises an oil- and water-repellent copolymer prepared by copolymerizing at least 25 weight percent of a fluoroalkyl monomer and 0.2–20 weight percent of diacetoneacrylamide, diacetonemethacrylamide or alkylol derivatives of diacetoneacrylamide or diacetonemethacrylamide.

3,838,105

POLYURETHANE PREPARED FROM HYDROXY POLY(METHYLENE OXIDE), POLYESTER, AND GLYCOL AND HAVING IMPROVED HYDROLYTIC STABILITY

Armand Edward Brachman, Allentown, Pa., assignor to GAF Corporation, New York, N.Y.
No Drawing. Filed May 31, 1972, Ser. No. 258,160
Int. Cl. C08g *22/14*
U.S. Cl. 260—75 NP **6 Claims**

Polyurethanes having excellent hydrolytic stability and being especially adapted for injection molding are prepared by reacting a mixture of a hydroxyl terminated polyester having a molecular weight between 600 and 800 and a hydroxyl poly(alkylene oxide) having a molecular weight from about 800 to 2500 and an aliphatic glycol, said mixture having an average molecular weight of about 360 to about 470, with a diisocyanate in molar amounts substantially equal to the total moles of hydroxyl polyester, polyether and aliphatic glycol.

3,838,106

MANUFACTURE OF UNSATURATED POLYESTERS

Albert R. Shuki, Summit, and Dennis E. Smola, Cuyahoga, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio
No Drawing. Filed July 20, 1972, Ser. No. 273,473
Int. Cl. C08g *17/007*
U.S. Cl. 260—75 M **13 Claims**

This invention relates to a non-catalytic process for the manufacture of curable unsaturated polyesters comprising reacting (1) maleic anhydride with a polyhydric alcohol which may be a dihydric alcohol or a combination of a dihydric alcohol and a polyhydric alcohol containing three or more hydroxyl groups, and (2) further reacting the intermediate ester so-formed with an aromatic anhydride and an oxirane compound.

3,838,107

METHOD OF PREPARING CRYSTALLIZED POLYESTERS

Rene Lemaistre, Autreville, and Francois Juhasz, Chauny, France, assignors to Rhone-Progil, Courbevoie, France
No Drawing. Filed Sept. 17, 1973, Ser. No. 398,235
Claims priority, application France, Sept. 21, 1972, 7233438
Int. Cl. C08g *17/10*
U.S. Cl. 260—75 T **8 Claims**

The preparation of crystallized polyesters of polyethylene glycol fumarate, succinate and/or adipate, in which the ratio of adipic acid and succinic acid to fumaric acid is within the range of 0 to 25:75 in which the polyester has a molecular weight within the range of 1000 to 2000, comprising adding a substance capable of initiating crystallization of the polyester at a temperature within the range of 120° to 180° C. in a first step, holding the polyester at a temperature not less than 100° C. but below the temperature of the polyester in the first step while in the presence of polyester micro-crystals having a composition analogous to that of the polyester to be crystallized, and holding the polyester in a layer having a thickness within the range of 5 to 20 mm. for from 12 to 60 minutes at a temperature within the range of 50° to 70° C.

3,838,108

ISOCYANATE EXTENDED POLYMERS AND THE FORMATION OF BLOCK COPOLYMERS

William L. Hergenrother and Richard J. Ambrose, Akron, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio
No Drawing. Filed Jan. 19, 1972, Ser. No. 219,161
Int. Cl. C08g *22/00, 41/04*
U.S. Cl. 260—77.5 CR **86 Claims**

Polymers of anionically polymerized monomers are made with an organo alkali metal initiator and then reacted with either polyisocyanates or polyisothiocyanates which remove the alkali atoms and form a novel polymeric composition containing isocyanate or isothiocyanate terminated polymers. These polymers may then be reacted with compounds containing an isocyanate or an isothiocyanate reactive group. The isocyanate or isothiocyanate terminated polymers under anhydrous polymerization conditions may also be blocked with nylon forming monomers to form various nylon block copolymers. The isocyanate or isothiocyanate terminated polymers of the polymeric composition when reacted with urea forming monomers produce urea block copolymers. Reaction of the isocyanate or isothiocyanate terminated polymers with urethane forming monomers will produce urethane block copolymers. The isocyanate and isothiocyanate terminated polymers of the polymeric composition when reacted with imide forming monomers produce imide block copolymers.

3,838,109

HEAT AND FLAME RESISTANT POLYURETHANES

Michel A. Buisson and Gerard P. Repiquet, Martigues, France, assignors to Naphtachimie Societe Anonyme, Paris, France
No Drawing. Filed Oct. 16, 1972, Ser. No. 297,784
Claims priority, application France, Oct. 19, 1971, 7137415
Int. Cl. C08g *22/16, 3/00*
U.S. Cl. 260—77.5 AQ **6 Claims**

Heat resistant and flame resistant polyurethanes prepared by reacting organo polyisocyanates and polyhydroxyl compounds, the latter of which are produced by reaction of aliphatic ketone, formaldehyde and alkanol amine having a secondary or a primary amine function, and oxyalkylene polyhydroxyl compounds produced by condensation of alkylene oxides before reaction with the organo polyisocyanate.

3,838,110

INHERENTLY MOLD-RELEASABLE MOLD OR CASTING COMPOSITION

Jose L. Villa, Heightstown, N.J., assignor to Thiokol Chemical Corporation, Bristol, Pa.
No Drawing. Filed May 3, 1973, Ser. No. 356,976
Int. Cl. C08g *22/00*
U.S. Cl. 260—77.5 CR **13 Claims**

An inherently mold-releasable composition which may be used as either the casting composition or, in its cured state, the mold or as a mold liner is disclosed. No additional mold release agent is necessary when using the composition herein which is prepared from (a) hydroxyl or carboxyl-terminated polymers containing pendant 3-

perfluoroalkyl - 2 - iodopropyl or 2-perfluoroalkyl-1-iodoethyl groups, and (b) polyisocyanates or polyepoxides.

3,838,111

AMORPHOUS COPOLYAMIDE FROM BIS-(4-AMINOCYCLOHEXYL)METHANE, PHENYLINDANEDICARBOXYLIC ACID AND ALKANE DICARBOXYLIC ACID

Robert W. Campbell, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Dec. 21, 1971, Ser. No. 210,598

Int. Cl. C08g *20/20*

U.S. Cl. 260—78 R **8 Claims**

Substantially amorphous, optically clear polyamides are produced from a bis(4-aminocyclohexyl)methane or methyl derivative thereof and a phenylindanedicarboxylic acid or alkyl derivative thereof. Copolyamides having desirable processing properties are produced by polymerizing the above monomers and at least one straight chain dicarboxylic acid as an additional monomer. The resulting polymers are useful as fibers as well as molding resins.

3,838,112

POLYAMIDES CONTAINING N-LOWER ALKYL 1,2,3-TRIAZOLE-4,5-DICARBONYL GROUPS

Allan Cairncross, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 26, 1972, Ser. No. 318,506

Int. Cl. C08g *20/20*

U.S. Cl. 260—78 R **5 Claims**

Polyamides made by reacting 1-, and 2-lower alkyl-1,2,3-triazole-4,5-dicarbonyl halides with diamines which are useful for making fibers and films.

3,838,113

MALEIC ANHYDRIDE COPOLYMER

Robert Victor Smallman, Blackley, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed June 9, 1972, Ser. No. 261,393

Claims priority, application Great Britain, June 28, 1971, 30,263/71

Int. Cl. C08f *15/36*

U.S. Cl. 260—78.5 R **8 Claims**

1:1 Alternating copolymers of maleic anhydride and tetrahydrophthalic anhydride or a homologue thereof and a process for the manufacture of these copolymers. The products are soluble in water with hydrolysis and are useful as emulsifying agents, sizes, water-softening agents, metal ion chelating agents and in detergent compositions as soil-suspending or anti-redeposition agents and as builders.

3,838,114

IMIDE ADDITIVES FOR SULFUR VULCANIZABLE POLYMERS

John P. Lawrence, Stow, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed June 26, 1972, Ser. No. 266,008

Int. Cl. C08f *27/06;* **C08c** *11/60;* **C08d** *9/00*

U.S. Cl. 260—79.5 A **8 Claims**

Imides such as N-(morpholinothio)phthalimide are used to affect the vulcanization characteristics of sulfur vulcanizable polymers by increasing the state of vulcanization and/or improving scorch resistance and/or increasing the rate of vulcanization.

3,838,115

SILYL-NORBORNENE AND INTERPOLYMERS PREPARED OF SAME

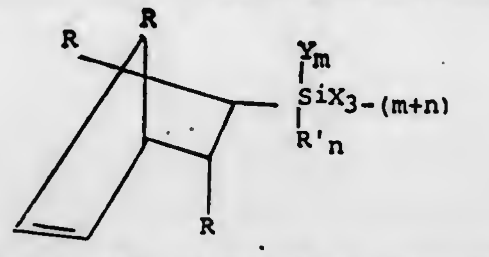
William C. Bond, Jr., Baton Rouge, La., assignor to Copolymer Rubber & Chemical Corporation

No Drawing. Continuation of abandoned application Ser. No. 112,069, Feb. 2, 1971. This application Jan. 29, 1973, Ser. No. 327,704

Int. Cl. C08f *17/00*

U.S. Cl. 260—80.71 **9 Claims**

An interpolymer formed by the addition polymerization of ethylene, at least one monoolefin having the general formula $CH_2=CH—R$, with or without a polyene and a silyl norbornene having the general formula



in which R is hydrogen, halogenated or unhalogenated alkyl, arylalkyl, alkenyl or 6- or 7-alkylidene group, R′ is an alkyl, aryl or alkenyl group, X is hydrogen and Y is halogen, and *n* and *m* is a number of from 0 to 2 such that the sum of *m* and *n* is never more than 2.

3,838,116

PROCESS FOR PREPARING 1,4-BENZODIAZEPINES

James Valentine Earley, Cedar Grove, Rodney Ian Fryer, North Caldwell, and Armin Walser, West Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Oct. 8, 1971, Ser. No. 187,840

Int. Cl. C07d *53/04*

U.S. Cl. 260—239 BD **4 Claims**

A process for preparing 1-substituted-1,4-benzodiazepines via the reduction of the corresponding 2-lower alkylthio benzodiazepines is disclosed. The products obtainable by this process are known compounds and are useful as sedatives, anticonvulsants and muscle relaxants.

3,838,117

1,4,5-BENZOTRIAZOCINE DERIVATIVES

Minoru Shindo, Tokyo, Morio Kakimoto, Yono, and Hiroyuki Nagano, Ageo, Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed Apr. 10, 1972, Ser. No. 242,824

Claims priority, application Japan, Apr. 8, 1971, 46/21,421, 46/21,422, 46/21,423, 46/21,428

Int. Cl. C07d *55/54*

U.S. Cl. 260—239.3 B **4 Claims**

1,4,5-benzotriazocine derivatives which possess an activity on the central nervous system are disclosed. The benzotriazocine derivatives are prepared by the reaction of a benzophenone derivative with a halogenoacetyl halide or the cyclization of a benzophenone derivative.

3,838,118

[(THIOXANTHENYL)PROPYL]-PIPERIDYL-BENZIMIDAZOLINONES

Willem Soudijn, Turnhout, Ineke van Wijngaarden, Beerse, and Paul Adriaan Jan Janssen, Vosselaar, Belgium, assignors to Janssen Pharmaceutica N.V.

No Drawing. Filed Feb. 20, 1973, Ser. No. 333,859

Int. Cl. C07d *29/28*

U.S. Cl. 260—240 TC **3 Claims**

The compounds, 1-{1-[3-(9-thioxanthenyl)propyl]-4-piperidyl}-2-benzimidazolinone and 1-{1-[3-(9-thioxanthenylidene)propyl] - 4 - piperidyl}-2-benzimidazolinone, useful as neuroleptic agents.

3,838,119

10a-PHENYL - 7a,10a - DIHYDROFURANO[2′,3′:4,5]THIAZOLO[2,3-c][1,2,4]BENZOTHIADIAZIN-9(8H)-ONE-5,5-DIOXIDE AND DERIVATIVES THEREOF

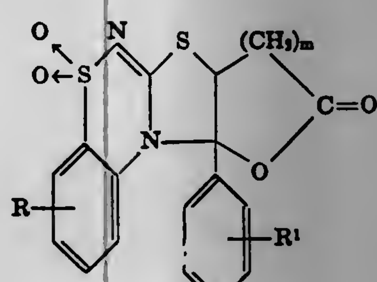
Peter H. L. Wei, Springfield, and Stanley C. Bel, Penn Valley, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Mar. 30, 1973, Ser. No. 346,494

Int. Cl. C07d *93/32*

U.S. Cl. 260—243 R **2 Claims**

Compounds of the formula:



wherein R and R^1 are, independently, hydrogen, lower alkyl, halogen, nitro, trifluoromethyl, or lower alkoxy; and *m* is 1 or 2; have CNS depressant activity.

3,838,120

1-ALKYL - 1H,4H - PYRIDO[2,3-d][1,3]OXAZINE-2,4-DIONES AND THEIR CONVERSION TO 1-ALKYL-1,4-DIHYDRO-4-OXO - 1,8 - NAPHTHYRIDINE-3-CARBOXYLIC ACIDS

Andrew W. Zalay, Albany, and Malcolm R. Bell, East Greenbush, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 312,825, Dec. 7, 1972. This application Mar. 29, 1973, Ser. No. 346,191

Int. Cl. C07d *31/36, 87/20*

U.S. Cl. 260—244 R **9 Claims**

$1-R_1-7-Q$ - 1H,4H - pyrido[2,3-d][1,3]oxazine - 2,4-dione (I) where R_1 is lower-alkyl and Q is lower-alkyl, lower-alkanoyloxymethyl, 4(or 3)-pyridyl or 4(or 3)-pyridyl having one or two lower-alkyl substituents; the preparation of I by heating $2-R_1NH-6-Q''$-nicotinic acid (V) with a lower-alkyl chloroformate or phosgene to prepare I where Q is Q″, which is like Q but excluding lower-alkanoyloxymethyl, or by converting I where Q is CH_3 to its 8-oxide and reacting the oxide with a lower-alkanoic acid anhydride to produce I where Q is lower-alkanoyloxymethyl; the conversion of I to lower-alkyl $1-R_1-2-R_2$ - 1,4 - dihydro - 4 - oxo-7-Q-1,8-naphthyridine-3-carboxylate (III) by reacting I with

$$R_2—C(=O)CH_2COOR,$$

where R_2 is H or CH_3 and R is lower-alkyl; and, the hydrolysis of III to produce $1-R_1-2-R_2$-1,4-dihydro-4-oxo-7-Q′ - 1,8 - naphthyridine - 3 - carboxylic acid (IV), where Q′ is like Q but having hydroxymethyl instead of lower-alkanoyloxymethyl. Also shown are: the hydrolysis of 1,2-dihydro-2-oxo-6-Q‴-nicotinonitrile (VII), where Q‴ is 4(or 3)-pyridyl or 4(or 3)-pyridyl having one or two lower-alkyl substituents, to produce 1,2-dihydro-2-oxo-6-Q‴-nicotinic acid (VIII); the halogenation of VIII to produce 2-halo-6-Q‴-nicotinic acid (VI′); and, the reaction of VI′ with R_1NH_2 to produce $2-R_1NH-6-Q'''$-nicotinic acid.

3,838,121

2-(AMINOALKYL-AMINO)-4-AMINO THIENO [3,2-d]PYRIMIDINES

Eberhard Woitun, Berthold Narr, and Wolfgang Schroter, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany

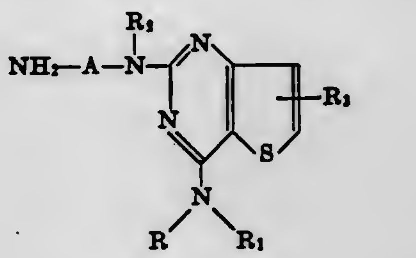
No Drawing. Filed Aug. 4, 1970, Ser. No. 60,933

Claims priority, application Germany, Aug. 8, 1969, P 19 40 572.2; July 2, 1970, P 20 32 686.7, P 20 32 687.8

Int. Cl. C07d *87/46*

U.S. Cl. 260—247.1 **10 Claims**

2-(aminoalkylamino)-thieno [3,2-d]pyrimidines of the formula



I

wherein R and R_1 may be the same or different and are selected from the group consisting of hydrogen and straight and branched alkyl of 1 to 6 carbon atoms and taken together with the nitrogen atom to which they are attached form a saturated 5 to 7 member heterocyclic ring which can optionally contain an oxygen or nitrogen heteroatom and may be substituted with alkyl of 1 to 6 carbon atoms or hydroxyl, R_2 is selected from the group consisting of hydrogen and straight and branched alkyl of 1 to 6 carbon atoms, R_3 is selected from the group consisting of methyl in the 6- or 7-position and hydrogen and A is a straight or branched alkylene of 2 to 10 carbon atoms and their non-toxic, pharmaceutically acceptable acid addition salts which possess cardiovascular and sedative activity and inhibit platelet aggregation, and processes for their preparation.

3,838,122

2-HETEROCYCLIC-1,3-BENZODIAZEPINES

John T. Suh, 3709 W. Scenic Drive 111 N., Mequon, Wis. 53092, and Richard A. Schnettler, 6234 W. Donges Lane, Brown Deer, Wis. 53223

No Drawing. Filed June 30, 1972, Ser. No. 268,128

Int. Cl. C07d *51/70, 53/04, 87/38.*

U.S. Cl. 260—247.5 B **8 Claims**

The 2-heterocyclic-1,3-benzodiazepines and their pharmaceutically acceptable acid addition salts are antihypertensive agents. Compounds disclosed are 2-morpholino-4,5-dihydro-7,8-dimethoxy-3H-1,3-benzodiazepine hydroiodide and 2-N-methylpiperazino - 4,5 - dihydro-3H-1,3-benzodiazepine hydroiodide.

3,838,123

DIBENZOCYCLOHEPTADIOXOLAN DERIVATIVES

René Viterbo, Paris, France, and Giovanni Brancaccio and Giulio Cesare Perri, Naples, Italy, assignors to Richardson Merrell S.p.A., Naples, Italy

No Drawing. Filed Jan. 26, 1972, Ser. No. 221,048

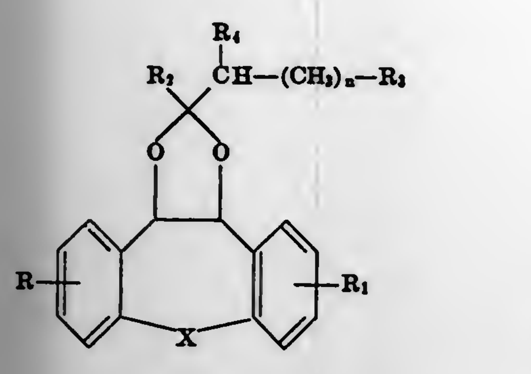
Claims priority, application Italy, Feb. 5, 1971, 48,220/71; Aug. 4, 1971, 52,112/71

Int. Cl. C07d *87/28*

U.S. Cl. 260—247.7 F **10 Claims**

New cis- and trans-3a,12b-dihydro-8H-dibenzo[3,4:6,7]cyclohepta[1,2-d]-1,3-dioxolan-8-one and cis- and trans-

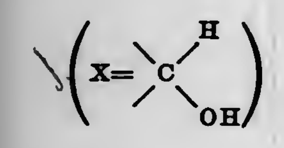
3a,12b-dihydro - 8H - dibenzo[3,4:6,7]cyclohepta[1,2-d]-1,3-dioxolan-8-ol having the following formula (I):



(I)

where X is >C=O or >CHOH; R and R_1 are each hydrogen; R_2 is hydrogen or alkyl; R_3 is dialkylamine, pyrrolidine, piperidine, C-alkylpiperidine, C-dialkylaminopiperidine, C-carbalkoxypiperidine, hexamethylenimine, azabicyclononane, morpholine, piperazine, N′-alkylpiperazine, N′-hydroxyalkylpiperazine, N′-phenylpiperazine, N′-benzylpiperazine, N′-carbalkoxypiperazine; R_4 is hydrogen, alkyl or phenyl; and *n* is a whole integer of from 0 to 2.

The ketocompound of formula I (X=>C=O) are prepared by reacting halocompounds with an amine. The hydroxycompounds of formula I



$$\left(X= \overset{H}{\underset{OH}{C}}\right)$$

are obtained by reacting the said ketocompound with an alkaline hydride.

The cis- and trans-3a,12b-dihydro-8H-dibenzo[3,4:6,7]cyclohepta[1,2-d]-1,3-dioxolan derivatives described in this invention are useful mainly as anti-inflammatory and anti-spastic agents.

3,838,124

DERIVATIVES OF ISOCYANURIC ACID AND PROCESSES FOR PREPARING THE SAME

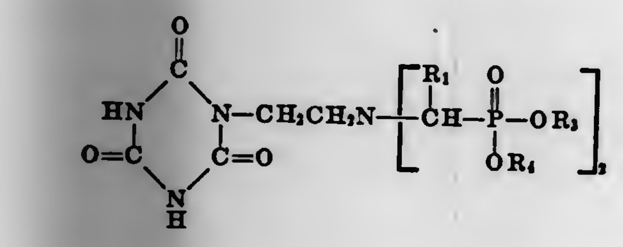
Edwin A. Matzner, St. Louis, and Robert S. Mitchell, Webster Groves, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of abandoned application Ser. No. 105,707, Jan. 11, 1971. This application Mar. 20, 1973, Ser. No. 343,076

Int. Cl. C07d ***55/38***

U.S. Cl. 260—248 NS **10 Claims**

Derivatives of isocyanuric acid of the general formula



wherein R_1 is hydrogen or lower organic radical, R_3 and R_4 are hydrogen, metal, ammonia or organic radicals. The compounds are useful as water treating agents.

3,838,125

6 - SUBSTITUTED - 5,6,7,8 - TETRAHYDRO-3-HYDRAZINO(SUBSTITUTED HYDRAZINO) PYRIDO(4,3-c)PYRIDAZINES

Erhard Schenker, Basel, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

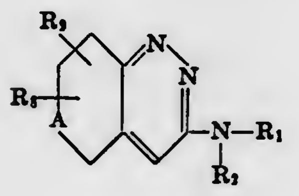
No Drawing. Filed May 8, 1972, Ser. No. 251,035

Claims priority, application Switzerland, May 11, 1971, 6,951/71, 6,952/71; May 26, 1971, 7,679/71, 7,683/71; May 28, 1971, 7,848/71, 7,849/71; Oct. 15, 1971, 15,120/71, 15,121/71

Int. Cl. C07d ***51/04***

U.S. Cl. 260—250 A **63 Claims**

This invention provides aminopyridazine derivatives of formula I,



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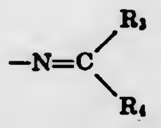
wherein

R_1 is amino, or an



$$-N=C\begin{matrix}R_3\\ \\ R_4\end{matrix}$$

group, wherein each of

R_3 and R_4 is alkyl of 1 to 4 carbon atoms, or

R_3 and R_4 together with the carbon atom to which they are bound, form a cycloalkylidene radical of 5 to 12 carbon atoms,

R_2 is hydrogen or methyl,

A is a $—(CH_2)_n—$ group, wherein

n is 0 or an integer from 1 to 7, or an $>N—CO—R_5$ group, wherein

R_5 is alkyl or alkenyl of 1 to 16 carbon atoms, cycloalkyl of 3 to 8 carbon atoms, 1-adamantyl, or a $—(CH_2)_m—R_6$ group, wherein

m is 0 or an integer from 1 to 4, and

R_6 is phenyl; phenyl monosubstituted by fluorine, chlorine, bromine, alkyl or alkoxy of 1 to 4 carbon atoms, alkylmercapto of 1 to 4 carbon atoms, or phenyl; phenyl substituted by two or three substituents of the group chlorine, alkyl or alkoxy of 1 to 4 carbon atoms; diphenylmethyl, the phenyl rings of which may be monosubstituted by fluorine, chlorine, bromine, alkyl or alkoxy of 1 to 4 carbon atoms; or naphthyl,

or an $—OR_7$ group, wherein

R_7 is alkyl or alkenyl of 1 to 4 carbon atoms, or phenyl, phenylalkyl or phenylalkenyl which may be monosubstituted on the phenyl ring by chlorine, alkyl or alkoxy of 1 to 4 carbon atoms, and in which the alkylene or alkenylene chain is of 1 to 4 carbon atoms,

and R_8 and R_9 are each hydrogen or alkyl of 1 to 4 carbon atoms,

and acid addition salts thereof,

The invention also provides processes for the production of said compounds.

Said compounds and pharmaceutically acceptable acid addition salts thereof are useful as antihypertensive agents.

3,838,126

BRONCHODILATING TETRAZOLO(1,5-c) QUINAZOLIN-5(6H)-ONES

Eugene R. Wagner, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 13, 1972, Ser. No. 297,466

Int. Cl. C07d ***51/46***

U.S. Cl. 260—256.4 F **9 Claims**

Tetrazoloquinazolinone compounds such as 8,9 - dichloro-tetrazolo(1,5 - c)quinazolin-5(6H)-one are prepared by the reaction of a 2-amino phenyltetrazole amine salt with phosgene. The compounds are useful as bronchodilator agents.

3,838,127

4-[4-(HYDROXYALKYL)-1-PIPERAZINO]-QUINAZOLINE BENZOATES

William R. Simpson, Mendham, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Oct. 19, 1972, Ser. No. 299,073

Int. Cl. C07d ***51/48***

U.S. Cl. 260—256.4 Q **7 Claims**

Disclosed are 4-[4-(hydroxyalkyl) - 1 - piperazino]-quinazoline benzoates, e.g., 4-[4-(2-hydroxyethyl)-1-piperazino]-2-methyl-6,7-dimethoxy-quinazoline 3′,4′,5′-trimethoxybenzoate. The compounds have pharmacological activities in animals and are useful, for example, as anti-anginal agents and/or as agents in the treatment of shock.

3,838,128

PROCESS FOR THE PREPARATION OF CERTAIN N-3 - SUBSTITUTED - 6-(TRICHLOROMETHYL) URACILS

Albert William Lutz, Montgomery Township, N.J., and Susan Hensen Trotto, Yardley, Pa., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Nov. 22, 1971, Ser. No. 201,187

Int. Cl. C07d ***51/30***

U.S. Cl. 260—260 **4 Claims**

This invention relates to novel 3-substituted-6-(trichloromethyl)uracils and a process for the preparation thereof. The compounds find utility as herbicides.

3,838,129

FUNGICIDAL PIPERAZINE DERIVATIVES

Max Pianka, St. Albans, England, assignor to Murphy Chemical Limited, St. Albans, Hertfordshire, England

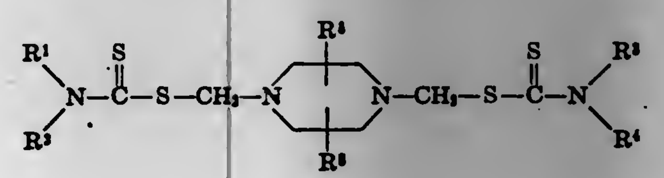
No Drawing. Filed Apr. 24, 1972, Ser. No. 246,665

Claims priority, application Great Britain, Apr. 28, 1971, 11,947/71

Int. Cl. C07d ***51/70***

U.S. Cl. 260—268 R **4 Claims**

Fungicidal compounds for the control of plant pathogenic fungi or for biocidal use have the formula:



wherein R^1, R^2, R^3 and R^4 are each independently selected from lower alkyl groups and R^5 and R^6 are independently selected from hydrogen atoms and lower alkyl groups.

3,838,130

N^{10}-OXIDES OF 1-NITRO-9-(DIALKYLAMINO-ALKYLAMINO)ACRIDINE

Andrzej Ledochowski, Gdansk, and Barbara Stefanska, Gdansk-Oliwa, Poland, assignors to Starogardzkie Zaklady Farmaceutyczne "Polfa," Starogard Gdanski, Poland

No Drawing. Original application Sept. 2, 1969, Ser. No. 854,608, now Patent No. 3,694,448, dated Sept. 26, 1972. Divided and this application Nov. 24, 1971, Ser. No. 201,946

Claims priority, application Poland, Aug. 31, 1968, P 128,855

Int. Cl. C07d ***37/24***

U.S. Cl. 260—279 A **2 Claims**

The N-oxides of 1-nitro-9-(dialkylaminoalkylamino)-acridine which are antitumor agents are produced by oxidizing the corresponding N^{10} or N^{ω} oxides.

3,838,131

DI(DIALKYLAMINO ALKOXY) PHENANTHRIDINES AS ANTIVIRAL AGENTS

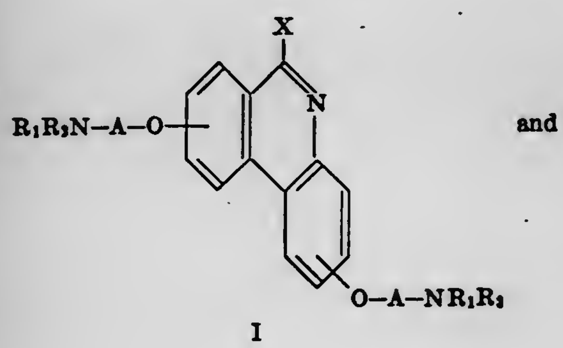
George J. Gauthier, Groton, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Apr. 3, 1972, Ser. No. 240,830

Int. Cl. C07d ***39/02***

U.S. Cl. 260—286 A **6 Claims**

Phenanthridines and phenanthridinones of the formulae



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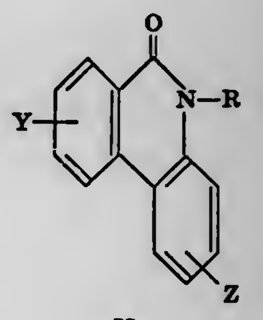
and



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and the pharmaceutically-acceptable acid addition salts thereof wherein X is chloro, bromo, hydroxy, alkoxy having from 1 to 6 carbon atoms, amino, monoalkylamino, dialkylamino wherein each of the alkyl groups has from 1 to 6 carbon atoms, and benzylamino; R is hydrogen, alkyl having from 1 to 6 carbon atoms, $—A—NR_1R_2$ wherein each of R_1 and R_2 is alkyl having from 1 to 6 carbon atoms and A is a divalent alkylene radical having from 2 to 6 carbon atoms; and each of Y and Z is hydrogen, and ω-dialkylaminoalkoxy wherein the alkyl and alkoxy groups have from 1 to 6 carbon atoms and from 2 to 6 carbon atoms, respectively; with the proviso that when R is hydrogen or alkyl, each of Y and Z is dialkylaminoalkoxy; useful as antiviral agents and/or interferon inducers and methods for their preparation.

3,838,132

1,4,7,10 - TETRAHYDRO - 1,7-DIOXOQUINO(8,7-h) QUINOLINE-3,9-DICARBOXYLATE COMPOUNDS

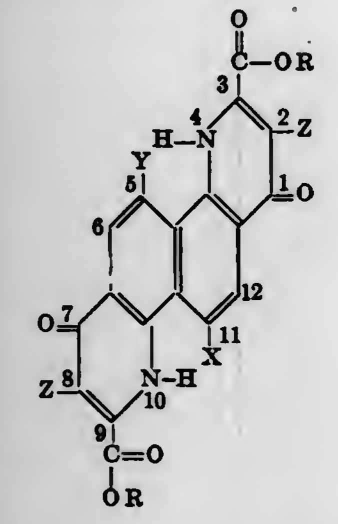
Charles M. Hall, 3835 Ruthin Road,
Kalamazoo, Mich. 49002

No Drawing. Filed Sept. 8, 1972, Ser. No. 287,425

Int. Cl. C07d *33/48*

U.S. Cl. 260—286 R **7 Claims**

Compounds of the formula



are useful in the prophylactic treatment of sensitized humans and animals for allergy and all anaphylactic reactions of a reagin or non-reagin mediated nature.

Compositions of these compounds formulated with pharmaceutical carriers and methods of using these compositions are also provided.

3,838,133

1,4,5,8,9,12-HEXAHYDRO - 4,8,12 - TRIOXOPYRIDO (2,3-f) (1,7) PHENANTHROLINE - 2,6,10-TRICARBOXYLATE COMPOUNDS

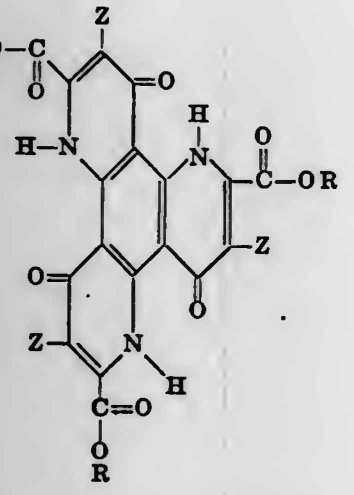
Charles M. Hall and Herbert G. Johnson, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Sept. 8, 1972, Ser. No. 287,426

Int. Cl. C07d *33/48*

U.S. Cl. 260—286 R **6 Claims**

Compounds of the formula



Ia

are useful in the propylactic treatment of sensitized humans and animals for allergy and all anaphylactic reactions of a reagin or non-reagin mediated nature.

Compositions of these compounds formulated with pharmaceutical carriers and methods of using these compositions are also provided.

3,838,134

PHENANTHRIDINONES AS ANTIVIRAL AGENTS

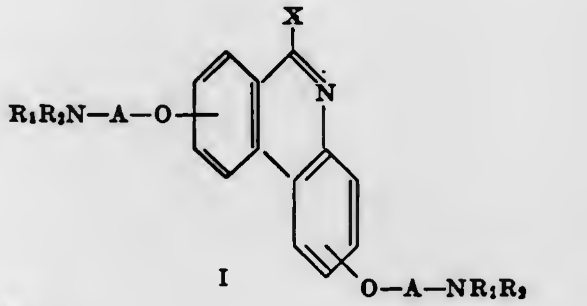
George J. Gauthier, Mystic, Conn.
(235 E. 42nd St., New York, N.Y. 10017)

No Drawing. Original application Apr. 3, 1972, Ser. No. 240,830. Divided and this application Jan. 7, 1974, Ser. No. 431,255

Int. Cl. C07d *39/02*

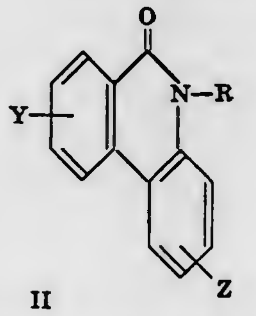
U.S. Cl. 260—286 A **8 Claims**

Phenanthridines and phenanthridinones of the formulae



I

and



II

and the pharmaceutically-acceptable acid addition salts thereof wherein X is chloro, bromo, hydroxy, alkoxy having from 1 to 6 carbon atoms, amino, monoalkylamino, dialkylamino wherein each of the alkyl groups has from 1 to 6 carbon atoms, and benzylamino; R is hydrogen, alkyl having from 1 to 6 carbon atoms, —A—NR_1R_2 wherein each of R_1 and R_2 is alkyl having from 1 to 6 carbon atoms and A is a divalent alkylene radical having from 2 to 6 carbon atoms; and each of Y and Z is hydrogen, and ω-dialkylaminoalkoxy wherein the alkyl and alkoxy groups have from 1 to 6 carbon atoms and from 2 to 6 carbon atoms, respectively; with the proviso that when R is hydrogen or alkyl, each of Y and Z is dialkylaminoalkoxy; useful as antiviral agents and/or interferon inducers and methods for their preparation.

3,838,135

OXIMO TETRACYCLIC INDOLES

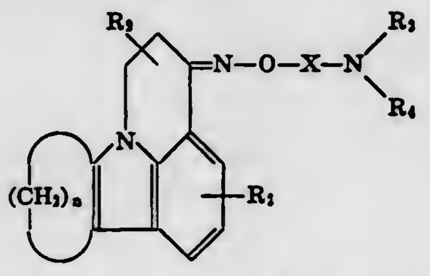
Ernest Magnien, Flushing, and Juta Cabillio, Bronx, N.Y., assignors to USV Pharmaceutical Corporation, Tuckahoe, N.Y.

No Drawing. Filed Oct. 18, 1972, Ser. No. 298,658

Int. Cl. C07d *33/50*

U.S. Cl. 260—288 R **10 Claims**

Compounds of the structure



wherein n is an integer from 4–6, R_1 is hydrogen, lower alkyl, lower alkoxy, or halogen, R_2 is hydrogen or lower alkyl, R_3 and R_4 are lower alkyl or cycloalkyl or taken together with the N to which they are attached, are pyrrolidino, piperidino, morpholino, or piperazino, have hypotensive activtiy.

3,838,136

PREPARATION OF 2-CHLORO-3-AMINOPYRIDINE

Artur Blank, Grayslake, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

No Drawing. Filed Jan. 16, 1973, Ser. No. 324,020

Int. Cl. C07d *31/42*

U.S. Cl. 260—296 R **4 Claims**

The present process is concerned with a simple and practical method for the preparation of 2-chloro-3-aminopyridine from 3-aminopyridine. The new method essentially consists in chlorinating the latter with gaseous chlorine at low temperatures in the presence of a catalyst.

3,838,137

BRANCHED ETHYLENE/DIENE COPOLYMER

Walter K. Tang, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 16, 1968, Ser. No. 705,888

Int. Cl. C08f *1/56, 15/40*

U.S. Cl. 260—80.78 **10 Claims**

An ethylene/diene copolymer having a Branching Factor of at least 1.1 is prepared by copolymerizing ethylene in a hydrocarbon solvent with a non-conjugated diene having a polymerization reactivity substantially lower than that of ethylene, in the presence of a regenerative coordination catalyst system comprising essentially a vanadium compound, an organoaluminum compound and a halogen-containing oxidant, at a 25–80% conversion of diene and a catalyst efficiency of at least twice that of the same polymerization mixture without an oxidant.

3,838,138

SHORT CYCLE, THERMALLY STABLE VINYL CHLORIDE-PROPYLENE COPOLYMERS

Michael Langsam, Allentown, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

No Drawing. Filed Nov. 16, 1972, Ser. No. 307,018

Int. Cl. C08f *1/60, 15/02*

U.S. Cl. 260—87.5 C **4 Claims**

Rigid vinyl chloride-propylene copolymers are prepared over shorter cycle periods by conducting the polymerization process in the presence of a t-butyl perneoalkanoate free-radical catalyst. The novel copolymers, possessing improved thermal stability, contain from about 90 to 99% by weight vinyl chloride, 1 to 10% by weight propylene, and are further characterized by an intrinsic viscosity of 0.5 to 1.5 dl./g. and a melt flow rate of at least 0.1 dg./min., providing resinous compositions which are particularly adaptable to molding and extrusion operations.

3,838,139

CONTINUOUS MASS STYRENE-TYPE MONOMER POLYMERIZATION PROCESS

George A. Latinen, deceased, by May V. Latinen, administratrix, Springfield, Mass., assignor to Monsanto Company, St. Louis, Mo.

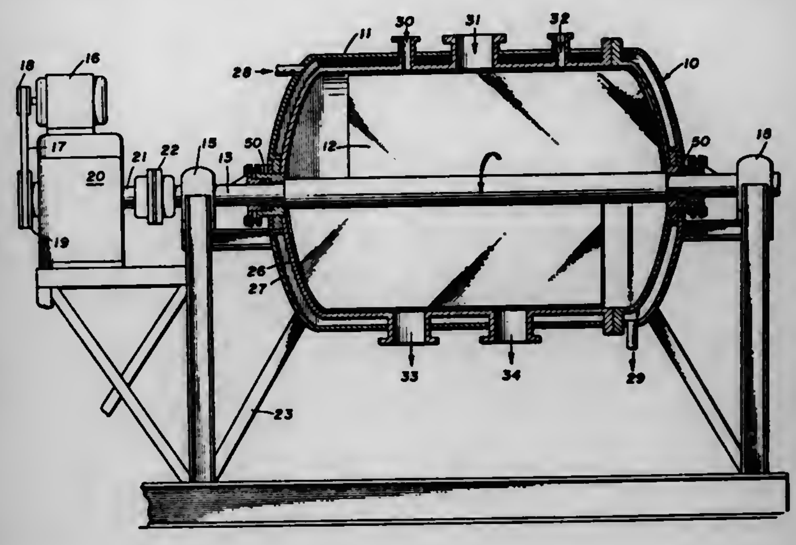
Filed Aug. 16, 1971, Ser. No. 172,148

The portion of the term of the patent subsequent to Aug. 7, 1990, has been disclaimed

Int. Cl. C08f *1/04, 7/04*

U.S. Cl. 260—88.2 C **4 Claims**

A continuous mass polymerization process for making polyalkenyl aromatic polymers having a substantially uniform number average molecular weight within the range of from about 20,000 to 100,000 and further having a dispersion index of from about 2.0 to 3.5. Such polymers reduce cycle times in injection molding machines. The process involves a specialized mixing technique during polymerization of monomer to polymer.



3,838,140

MOLECULAR WEIGHT REGULATION IN CHLOROPRENE POLYMERS

Rudolf Mayer-Mader, Cologne, and Jurgen Boldt, Opladen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 9, 1972, Ser. No. 305,134

Claims priority, application Germany, Nov. 13, 1971, P 21 56 452.3

Int. Cl. C08d *3/14;* **C08f** *1/80, 3/32*

U.S. Cl. 260—92.3 **4 Claims**

A process for polymerising a monomer composition of chloroprene and 0 to 50% by weight of one or more other copolymerisable monomers in aqueous emulsion on radical forming catalysts in the presence of a selected dialkoxyxanthate disulphide and a mixture of the polymer thus obtained with a benzene insoluble cross-linked chloroprene polymer.

3,838,141

BIODEGRADABLE EMULSIFIERS FOR POLYCHLOROPRENE

Nathan L. Turner, Houston, Tex., assignor to Petro-Tex Chemical Corporation, Houston, Tex.

No Drawing. Filed Mar. 7, 1972, Ser. No. 232,533

Int. Cl. C08f *1/13, 3/32*

U.S. Cl. 260—92.3 **10 Claims**

Use of alkali metal salts of sulfated and/or sulfonated oleic acid as emulsifying agents in chloroprene polymerization. These salts are biodegradable and replace the nonbiodegradable salts of the condensation product of naphthalene sulfonic acids and formaldehyde.

3,838,142

PROCEDURE FOR CORRECTING RADIAL FORCE VARIATIONS IN PNEUMATIC TIRES

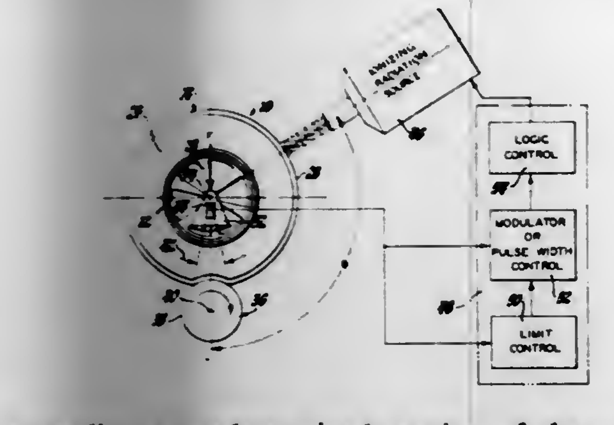
Peter A. Hochstein, Sterling Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 23, 1973, Ser. No. 353,234

Int. Cl. B29c *15/00, 17/07, 23/00;* **B29h** *5/02, 17/02*

U.S. Cl. 264—94 **5 Claims**

A procedure for correcting radial force variations in pneumatic tires of the type having a body portion of polymeric material defining a pair of circular sidewalls interconnected by a tread body, the procedure including the steps of rotating the inflated pneumatic tire while subjecting the latter to a normal operating load, continuously monitoring the magnitude of the reaction force resisting the applied load to determine the magnitude and location of the maximum reaction force, and subjecting selected sections of the tire sidewalls and/or tread body to ionizing radiation to increase the modulus of elasticity of the irradiated sections. The sections to be irradiated are those corresponding to instantaneous reaction force magnitudes not exceeding a predetermined portion of the maximum reaction force magnitude achieved through 360° of tire rotation.



3,838,143
PROCESSES FOR THE RECOVERY OF PROTEIN FROM WASTE EFFLUENTS USING REGENERATED CELLULOSE ION-EXCHANGE RESINS

Roy Arthur Grant, Poole, England, assignor to Tasman Vaccine Laboratories Limited, Upper Hutt, New Zealand

Continuation-in-part of abandoned application Ser. No. 161,110, July 9, 1971, which is a division of application Ser. No. 841,430, July 14, 1969, now Patent No. 3,697,419. This application July 3, 1972, Ser. No. 268,282

Claims priority, application New Zealand, July 15, 1968, 153,129

The portion of the term of the patent subsequent to Mar. 30, 1988, has been disclaimed

Int. Cl. A23g *1/16;* **C08h** *1/00*

U.S. Cl. 260—112 R **2 Claims**

A process is disclosed for recovering protein from waste effluents containing same using ion exchange methods. The preferred ion exchange resin is a cross linked regenerated cellulose matrix modified by the introduction of groups capable of cation exchange or groups capable of anion exchange.

3,838,144
PURIFICATION OF AUSTRALIA ANTIGEN BY ULTRACENTRIFUGATION

John Michael Leach, Deal, England, assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Aug. 21, 1972, Ser. No. 282,046

Claims priority, application Great Britain, Sept. 9, 1971, 42,017/71

Int. Cl. A61k *23/02, 27/00*

U.S. Cl. 260—112 R **5 Claims**

Australia antigen (hepatitis-associated antigen) for use in the production of antisera in animals is purified from samples of human plasma containing the antigen by isopycnic banding in a zonal centrifuge followed by rate zonal centrifugation.

3,838,145
DISAZO COMPOUNDS OF LOW WATER SOLUBILITY

Ruedi Altermatt, Hauptstrasse 35, Tecknau, Basel-Land, Switzerland

No Drawing. Filed July 2, 1969, Ser. No. 838,665

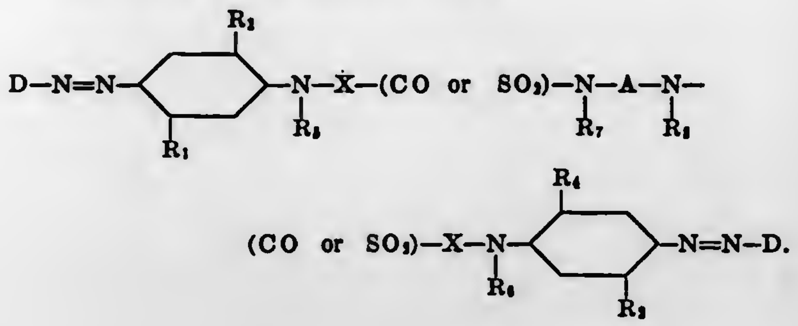
Claims priority, application Switzerland, July 16, 1968, 10,630/68

Int. Cl. C09b *33/06;* **D06p** *3/52, 3/60*

U.S. Cl. 260—184 **14 Claims**

This invention relates to disazo compounds of low water solubility which are excellent for dyeing and printing fibres and textiles consisting of synthetic or semi-synthetic, high molecular-weight organic substances of hydrophobic character. Such fibres include those of linear aromatic polyesters, cellulose diacetate, cellulose triacetate and polyamide. Resulting dyeings are fast, e.g., to thermofixation, sublimation, pleating, gas fumes, cross-dyeing, dry cleaning, chlorine and wet tests.

The dyes are of the general type of



3,838,146
CARDENOLIDE- AND BUFADIENOLIDE-3-[2′,3′-DIDESOXYGLYCOSIDES] AND PROCESS FOR THEIR PREPARATION

Ulrich Stache, Hofheim, Taunus, Werner Fritsch, Neuenhain, Taunus, Werner Haede, Hofheim, Taunus, Kurt Radscheit, Kelkheim, Taunus, and Ernst Lindner, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Aug. 10, 1970, Ser. No. 62,712

Claims priority, application Germany, Aug. 29, 1969, P 19 43 901.1, P 19 43 903.3

Int. Cl. C07c *173/00*

U.S. Cl. 260—210.5 **9 Claims**

Cardenolide- and bufadienolide - 3 - [2′,3′ - didesoxyglycosides] and corresponding compounds having an oxido group in the 2′,3′-position of the glycoside, and a process for making them starting from the corresponding 2′,3′-unsaturated compounds by reaction with organic percarboxylic acids or by catalytic hydrogenation. The compounds are useful for the treatment of cardiac insufficiency.

3,838,147
ADENOSINE DERIVATIVES

Rolf Pohlke, Rochus Jonas, Werner Mehrhof, Hans-Jochen Schliep, Karl Heinz Becker, Herbert Nowak, and Zdenek Simane, Darmstadt, Germany, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Germany

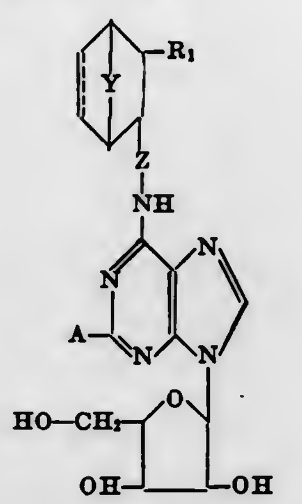
No Drawing. Filed Apr. 10, 1972, Ser. No. 242,741

Claims priority, application Germany, Apr. 10, 1971, P 21 17 577.9; Feb. 3, 1972, P 22 05 002.8

Int. Cl. C07d *51/54*

U.S. Cl. 260—211.5 R **44 Claims**

Compounds of the formula



wherein A is H, halogen, SR_2, OR_2, $N(R_2)_2$, $NH—N(R_2)_2$ or N_3; R_1 is CH_2OH, alkyl or cycloalkyl of up to 6 carbon atoms, $COOR_2$, furyl, tetrahydrofuryl, thienyl, a 5- or 6-membered saturated or unsaturated ring containing one or two nitrogen atoms, or unsubstituted phenyl or phenyl mono-, di- or polysubstituted by one or more of R_2, halogen, OR_2, $N(R_2)_2$, OAc, NHAc or nitro or monosubstituted by alkylenedioxy; R_2 is H or alkyl of up to 4 carbon atoms; Y is $(—CH_2)—_m$ wherein *m* is the integer 1, 2 or 3, Ac is the acyl radical of a carboxylic acid of up to 6 carbon atoms, and Z is $(—CH_2—)_n$ wherein *n* is the integer 0, 1 or 2; and the dotted line means a double bond can be present at that position of the molecule, and the therapeutically acceptable salts thereof possess valuable pharmacological properties. More specifically, they have a favourable influence on the transport of oxygen in the blood, i.e. they possess one or more activities selected from increasing the coronary blood flow, increasing the oxygen partial pressure in the coronary venous blood, and improving the circulation. Additionally, they are effective on the lipid metabolism, i.e. they possess one or more activities selected from inhibiting the lipolysis, lowering the level of fatty acids, the level of triglycerides and the level of cholesterol.

Accordingly, the compounds can be employed as pharmaceuticals. For example, they are effective in the endovascular pain model and thus may be used against the pain associated with angina pectoris. They may also be employed in the treatment of arteriosclerosis and hyperlipidemia of different origins. They are also useful as intermediates for the preparation of other drugs and/or other chemical compounds.

3,838,148
PROCESS FOR THE INDUSTRIAL PREPARATION OF DESOXYRIBONUCLEIC ACIDS OF HIGH MOLECULAR WEIGHT

Karl Christen, Niederurnen, Switzerland, assignor to Rephamac A.G., Niederurnen, Switzerland

No Drawing. Filed Apr. 11, 1972, Ser. No. 243,070

Claims priority, application Switzerland, Apr. 16, 1971, 5,598/71

Int. Cl. C07d *51/50*

U.S. Cl. 260—211.5 R **9 Claims**

A process for preparing highly polymerized desoxyribonucleic acids from fish milt and the like from which lipides have been removed and which has been treated with an alkali salt including the steps of treating with a solution of phenol in such quantity as to saturate the mass containing the nucleo-protein material to liberate DNA therefrom.

3,838,149
STARCH PHOSPHATE ESTERS

Martin M. Tessler, Edison, N.J., assignor to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Filed Mar. 28, 1973, Ser. No. 345,661

Int. Cl. C08b *19/04*

U.S. Cl. 260—233.5 **10 Claims**

A method for the preparation of starch phosphate esters is described wherein aqueous slurries or dispersions of a starch base are reacted with an N-phosphoryl-N′-alkyl or N-phosphoryl-N′-alkenyl or N-phosphoryl-N′-aralkyl substituted imidazole salt. The starch products may also be prepared by means of a dry procedure.

3,838,150
DISACCHARIDE POLYSULFATE ESTER HYDROXYALUMINUM ALLANTOINATE-ALUMINUM COMPLEX AND PROCESS FOR PREPARING SAME

Mamoru Sugiura, Konan, and Tadashi Kitamikado and Kazuo Kato, Nagoya, Japan, assignors to Maruko Seiyaku Kabushiki Kaisha, Nagoya-shi, Aichi-ken, Japan

Filed June 23, 1972, Ser. No. 265,519

Claims priority, application Japan, July 6, 1971, 46/49,270

Int. Cl. C07c *69/32*

U.S. Cl. 260—234 R **4 Claims**

Novel antiulcer agents, comprising a disaccharide polysulfate ester hydroxyaluminium allantoinate-aluminium complex is produced by the steps of: reacting an alkaline salt of a disaccharide polysulfate ester with chlorhydroxy aluminium allantoinate and thereafter reacting the resulting compound with aluminium hydroxychloride or aluminium dihydroxychloride.

3,838,151
CYCLOALKYLLACTAMIMIDES

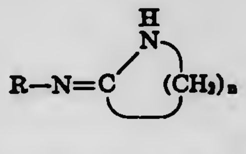
J. Martin Grisar, George P. Claxton, Thomas R. Blohm, and Edward McC. Roberts, Cincinnati, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

No Drawing. Filed Aug. 11, 1972, Ser. No. 280,049

Int. Cl. C07d *27/04, 29/28, 41/02*

U.S. Cl. 260—239 B **7 Claims**

Novel compounds of the following formula are useful as hypoglycemic and antiviral agents·



wherein R represents norbornyl or adamantanyl and *n* is an integer of from 3 to 11.

3,838,152
POLY α-AMINO PENICILLINS

Joseph P. Hou, Fort Worth, Tex., and John W. Poole, Norristown, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Oct. 7, 1971, Ser. No. 187,501

Int. Cl. C07d *99/16*

U.S. Cl. 260—239.1 **7 Claims**

High molecular weight dimers, trimers, tetramers of semi synthetic α-amino pencillins are described as being useful against gram-negative and gram-positive infections. The products described herein are absorbed slowly in the body and hence provide longer lasting anti-microbial effect.

3,838,153
6-[α-(GUANYLUREIDOALKANOYLAMINO) ARACYLAMINO]PENICILLANIC ACIDS

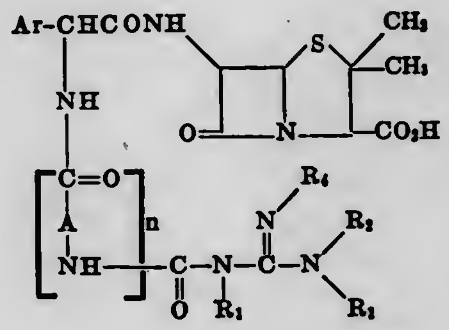
Ernest S. Hamanaka, Groton, and David S. Patton, North Stonington, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Filed May 16, 1972, Ser. No. 253,856

Int. Cl. C07d *99/16*

U.S. Cl. 260—239.1 **11 Claims**

Compounds of the formula



wherein Ar is phenyl, 4-hydroxyphenyl, 2-thienyl or 3-thienyl; A is alkylene of 1 to 4 carbon atoms or alkylidene of 2 to 4 carbon atoms; *n* is an integer of 1 to 3; R_1, R_2, R_3 and R_4 considered separately are each hydrogen or alkyl of 1 to 4 carbon atoms, R_1 and R_4 considered together are alkylene of 2 to 4 carbon atoms; R_2 and R_4 considered together are alkylene of 2 to 4 carbon atoms; and R_2 and R_3 considered together are alkylene of 4 to 5 carbon atoms as broad spectrum antibiotics.

3,838,154

2,6-DIAMINO-3,5-DINITROPYRIDINES AND DERIVATIVES THEREOF

Arthur H. Gerber, Cleveland, Ohio, assignor to Horizons Incorporated, a Division of Horizons Research Incorporated

No Drawing. Original application Nov. 23, 1970, Ser. No. 92,154, now Patent No. 3,740,410, dated June 19, 1973. Divided and this application Jan. 17, 1973, Ser. No. 324,282

Int. Cl. C07d *31/48*

U.S. Cl. 260—294.8 F **4 Claims**

Processes for the preparation of 2,6-diamino-3,5-dinitropyridine from 2,6-diaminopyridine and catalytic reduction of this dinitropyridine to 2,3,5,6-tetraaminopyridine free base and acid salts thereof, and processes for preparing polymers from said pyridines.

3,838,155

N-ARYL 5-(OR 6-) METHYLPYRID-2-ONES

Patrick J. McNulty, Wyndmoor, Horst O. Bayer, Levittown, and Michael C. Seidel, Chalfont, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Aug. 17, 1972, Ser. No. 281,358

Int. Cl. C07d *31/36*

U.S. Cl. 260—295.5 R **10 Claims**

Novel compounds belonging to the class of 1-aryl-3-carboxy-methylpyrid-2-one. These compounds possess biological activity and in particular are plant growth regulators.

3,838,156

CERTAIN 2-SUBSTITUTED-6-(3 OR 4-PYRIDYL)-NICOTINIC ACID DERIVATIVES

R. Pauline Brundage, Schodack, and George Y. Lesher, Rensselaer, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

No Drawing. Filed Mar. 29, 1973, Ser. No. 346,190

Int. Cl. C07d *31/36*

U.S. Cl. 260—295.5 R **3 Claims**

Intermediate 2-R_1NH-6-Q‴-nicotinic acid (V′), where R_1 is lower-alkyl and Q‴ is 4(or 3)-pyridyl or 4(or 3)-pyridyl having one or two lower-alkyl substituents, is prepared in the three steps of: hydrolyzing 1,2-dihydro-2-oxo-6-Q‴-nicotinonitrile (VII) to produce 1,2-dihydro-2-oxo-6-Q‴-nicotinic acid (VIII); halogenating VIII to produce 2-halo-6-Q‴-nicotinic acid (VI′); and, reacting VI′ with R_1NH_2 to produce V′. Also shown are the steps of: reacting 2-halo-6-Q″-nicotinic acid (VI), where Q″ is as Q‴ and also lower-alkyl, to produce 2-R_1NH-6-Q″-nicotinic acid (V); heating V with a lower-alkyl chloroformate or phosgene to produce 1-R_1-7-Q″-1H,4H-pyrido-[2,3-d][1,3]oxazine-2,4-dione (I′); converting I′ where Q″ is CH_3 to its 8-oxide and reacting the 8-oxide with a lower-alkanoic acid anhydride to produce I where 7-CH_3 is converted to 7-(lower-alkanoyloxymethyl); reacting 1 - R_1 - 7-Q-1H,4H-pyrido[2,3-d][1,3]oxazine-2,4-dione, where Q is as Q″ and also lower-alkanoyloxymethyl, with R_2-C(=O)CH_2COOR, where R_2 is H or CH_3 and R is lower-alkyl, to produce lower-alkyl 1-R_1-1,4-dihydro-2-R_2-4-oxo-7-Q-1,8-naphthyridine-3-carboxylate (III); and, hydrolyzing III to obtain 1-R_1-1,4-dihydro-2-R_2-4-oxo-7-Q′-1,8-naphthyridine-3-carboxylic acid (IV), where Q′ is like Q but having hydroxymethyl in place of lower-alkanoyloxymethyl.

3,838,157

PROCESS FOR PRODUCING BIPYRIDYLS

Roy Dennis Bowden, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Original application Mar. 6, 1969, Ser. No. 804,993, now Patent No. 3,651,071, dated Mar. 21, 1972. Divided and this application Aug. 24, 1971, Ser. No. 174,519

Claims priority, application Great Britain, Mar. 18, 1968, 13,008/68; May 29, 1968, 25,773/68; Dec. 20, 1968, 60,714/68, 60,715/68, 60,716/68; Jan. 2, 1969, 246/69

Int. Cl. C07d *31/42*

U.S. Cl. 260—296 D **11 Claims**

The invention is concerned with a process of producing bipyridyls by oxidizing a substituted pyridine with molecular oxygen in the vapor phase at 250° C. to 450° C.

3,838,158

DIALKYLAMINO ETHERS OF BENZOPYRANOPYRIDINES

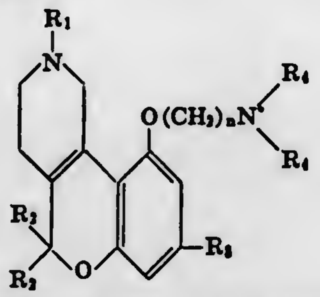
Harry George Pars, Lexington, and Raj Kumar Razdan, Belmont, Mass., assignors to Sharps Associates, Cambridge, Mass.

No Drawing. Filed May 8, 1972, Ser. No. 251,731

Int. Cl. C07d *31/42*

U.S. Cl. 260—296 H **6 Claims**

Dialkylamino ethers of benzopyranopyridines represented by the formula



wherein R_1 is hydrogen, loweralkyl, loweralkanoyl, cycloalkylloweralkyl, cycloalkylloweralkanoyl, loweralkenyl, loweralkynyl, haloloweralkenyl, phenylloweralkyl, phenylloweralkenyl or phenylloweralkynyl; R_2 is loweralkyl; R_3 is C_1–C_9 alkyl or cycloalkylloweralkyl; *n* is an integer from 1 to 6; and R_4 is hydrogen or loweralkyl; and the pharmaceutically acceptable acid addition salts thereof.

3,838,159

SUBSTITUTED AMINOHALOPYRIDINES

Howard Johnston, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 90,442, Nov. 13, 1970, which is a continuation-in-part of application Ser. No. 880,422, Nov. 26, 1969, which in turn is a continuation-in-part of application Ser. No. 807,979, Mar. 17, 1969, all now abandoned. This application Dec. 7, 1972, Ser. No. 313,187

Int. Cl. C07d *31/42*

U.S. Cl. 260—296 R **10 Claims**

Disclosed as novel compounds are amino and halo substituted pyridines which are further substituted with trichloromethyl or dichloromethyl groups. The compounds have utility as pesticides and find particular usage as fungicides, bactericides, insecticides and plant growth stimulants.

3,838,160

DYE PENETRANT METHOD AND COMPOSITION

Orlando G. Molina, Westminster, Calif., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

No Drawing. Continuation-in-part of application Ser. No. 68,475, Aug. 31, 1970, which is a continuation of application Ser. No. 655,752, July 25, 1967, both now abandoned. This application Jan. 24, 1972, Ser. No. 220,414

Int. Cl. C09k *1/02;* **G01n** *21/16*

U.S. Cl. 252—301.2 P **4 Claims**

A dye penetrant composition adapted to enter minute surface defects when applied over a workpiece surface, which consists essentially of an organic dye, preferably a fluorescent dye, in a lactam solvent, particularly N-methyl-2-pyrrolidone, and providing improved clarity and definition when inspected under suitable, e.g. fluorescent, light.

3,838,161

PROCESS FOR THE PRODUCTION OF ISOTHIAZOLYL COMPOUNDS

Srinivasachari Rajappa, Bombay, India, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

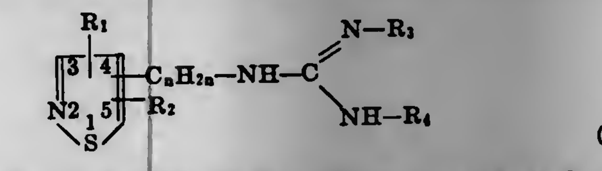
No Drawing. Filed July 11, 1972, Ser. No. 270,754

Claims priority, application Switzerland, July 15, 1971, 10,413/71

Int. Cl. C07d *91/12*

U.S. Cl. 260—302 A **7 Claims**

Substituted isothiazolyl-alkyl-guanidines of the formula



(I)

their tautomeric forms and acid addition salts thereof are potent myocardial catecholamine depletors as well as hypotensive and antihypertensive agent.

3,838,162

3-LOWER ALKYL-5-[o-(ω-AMINO-ALKOXY)-PHENOXYMETHYL]-ISOXAZOLES AND SALTS THEREOF

Roland Maier and Erich Muller, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany

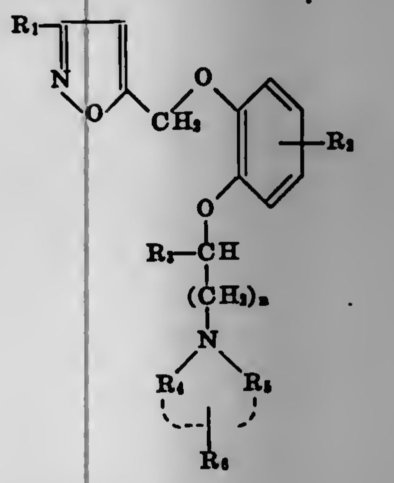
No Drawing. Filed Sept. 10, 1971, Ser. No. 179,522

Claims priority, application Germany, Sept. 11, 1970, P 20 45 050.4; June 16, 1971, P 21 29 803.3

Int. Cl. C07d *85/22*

U.S. Cl. 260—307 H **7 Claims**

Compounds of the formula



wherein

R_1 is alkyl of 1 to 3 carbon atoms,
R_2 is hydrogen, halogen or straight or branched alkyl of 1 to 4 carbon atoms,
R_3 is hydrogen or methyl,
R_4 and R_5, which may be identical to or different from each other, are each hydrogen, straight or branched alkyl of 1 to 6 carbon atoms or, together with each other and the nitrogen atom to which they are attached, morpholino, piperazino, pyrrolidino or piperidino,
R_6 is hydrogen or methyl, and
n is an integer from 1 to 3, inclusive,

and non-toxic, pharmacologically acceptable acid addition salts thereof; the compounds as well as their salts are useful as hypotensives and sedatives.

3,838,163

SUBSTITUTED ISOXAZOLE DERIVATIVES AS STEROID INTERMEDIATES

Gabriel Saucy, Essex Fells, and John William Scott, Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Nov. 22, 1968, Ser. No. 778,314, now Patent No. 3,700,661, dated Oct. 24, 1972. Divided and this application Oct. 16, 1972, Ser. No. 298,036

Int. Cl. C07d *85/22*

U.S. Cl. 260—307 H **6 Claims**

The novel intermediates and processes of this invention provide a new synthetic route for the preparation of pharmaceutically valuable 19-nor-steroids. Further, the intermediates and processes of the invention provide a novel route for the preparation of pharmaceutically valuable estrones. The present invention provides a facile total synthesis of 13β-alkyl-C/D-*trans*-steroidal materials. The desirable result is obtained via a unique asymmetric induction followed by subsequent stereo-specific reaction steps. As a precursor to the steroidal Ring A, a 3,5-disubstituted-4-isoxazolylmethylene group is employed in this synthesis.

3,838,164

CROSSLINKING MONOMERS CONTAINING THE 1 - AZA - 3,7 - DIOXABICYCLO[3.3.0]OCTANE STRUCTURE

Richard J. Himics, Lake Hiawatha, N.J., assignor to Sun Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 44,534, June 8, 1970, now Patent No. 3,759,942. This application Nov. 15, 1972, Ser. No. 306,541

Int. Cl. C07d *85/26*

U.S. Cl. 260—307 F **4 Claims**

Derivatives of 1-aza-5-hydroxymethyl-3,7-dioxabicyclo [3.3.0] octane are radiation-curable and suitable for use in printing inks, coating compositions, adhesives, and the like.

3,838,165

POLYFLUOROUREAS

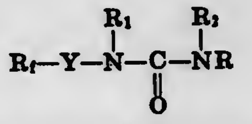
Walter Blochl, Karlsruhe, Germany, assignor to FMC Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 830,849, June 5, 1969. This application July 10, 1972, Ser. No. 270,208

Int. Cl. C07d *49/30*

U.S. Cl. 260—309.7 **3 Claims**

Hydroxymethylated derivatives of polyfluoroalkylureas are useful for imparting oil, water and crease resistance to fibrous substrates. The polyfluoroalkylureas have the formula:



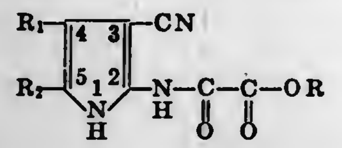
$$R_f\text{—}Y\text{—}\underset{}{\overset{R_1}{\overset{|}{N}}}\text{—}\underset{\underset{O}{\|}}{C}\text{—}\overset{R_2}{\overset{|}{N}}R$$

wherein R_f is n-perfluoroalkyl group of 4–16 carbon atoms; Y is an alkylene bridge optionally interrupted with —O—, —S—, —SO—, —SO_2—, —SO_2NR′—, —CONR′—, —C(O)O—, and —NR′— wherein R′ represents hydrogen, lower alkyl and -ureido; R_1 and R_2 are each hydrogen, lower alkyl or taken together can complete an imidozolidone or pyrimidone ring and R is hydrogen, lower alkyl, or R_f—Y—, it being provided that at least one urea nitrogen atom has hydrogen bonded thereto and it being further provided that the number of carbon atoms in Y is 2–12 for the non-interrupted bridge and 2–60 for the interrupted bridge.

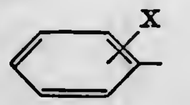
3,838,166
LOWER ALKYL(3-CYANO-PYRROL-2-YL) OXAMATES

Charles De Witt Blanton, Jr., 130 Broomsedge Trail, Athens, Ga. 30601, and Herbert G. Johnson, 3727 Middlebury Drive, Kalamazoo, Mich. 49007
No Drawing. Filed Sept. 27, 1972, Ser. No. 292,652
Int. Cl. C07d *27/22*
U.S. Cl. 260—326.2 **4 Claims**

This invention relates to novel compounds of the formula



wherein R is lower alkyl of 1 through 6 carbon atoms, R_1 is selected from the group consisting of lower alkyl or 1 through 6 carbon atoms,



wherein X is selected from the group consisting of hydrogen, fluorine, chlorine, bromine, methoxy, and methyl, and R_2 is selected from the group consisting of hydrogen and lower alkyl of 1 through 6 carbon atoms. The new products of Formula I are useful as anti-allergenics.

3,838,167
PROCESS FOR PREPARING INDOLES

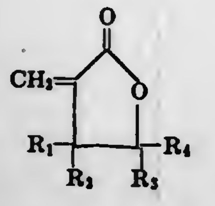
Charles D. Jones, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Filed Aug. 1, 1972, Ser. No. 277,018
Int. Cl. C07d *27/56*
U.S. Cl. 260—326.16 **8 Claims**

An indole is produced by reacting an N-sulfonylated *o*-aminophenyl carbonyl compound, specifically an N-sulfonylated *o*-aminophenyl ketone or an N-sulfonylated *o*-aminobenzaldehyde, with an α-haloketone or an α-haloester to produce an N,N-disubstituted sulfonamide, ring-closing and dehydrating the resulting N,N-disubstituted sulfonamide to produce an N-sulfonyl indole, and cleaving the N-sulfonyl group from the N-sulfonyl indole to obtain a 1-unsubstituted indole product.

3,838,168
α-METHYLENATION OF γ-BUTYROLACTONES

William L. Parker, North Brunswick, N.J., and Francis Johnson, Newton Lower Falls, Mass., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation of abandoned application Ser. No. 878,901, Nov. 21, 1969. This application Sept. 26, 1972, Ser. No. 292,291
Int. Cl. C07d *5/06*
U.S. Cl. 260—326.36 **10 Claims**

A process for making α-methylenated γ-butyrolactones having the formula



wherein R_1–R_4 are hydrogen or inert, substantially non-interfering organic groups, comprises reacting the corresponding α-carboxy-γ-butyolactone with formaldehyde in an acidic medium, and preferably in the presence of a dialkylamine catalyst. In example, α-carboxy-γ-phenyl-γ-butyrolactone was reacted with formaldehyde in the presence of diethylamine and in a glacial acetic acid/sodium acetate reaction medium to give the corresponding α-methylenated product.

3,838,169
3-ALKOXY-THIANAPHTHENE-2-CARBOXAMIDES

Michel Leon Thominet, Paris, France, assignor to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France, Paris, France
No Drawing. Continuation-in-part of application Ser. No. 140,605, May 5, 1971, now Patent No. 3,745,175, dated July 10, 1973, which is a continuation-in-part of abandoned application Ser. No. 845,509, July 28, 1969. This application Apr. 5, 1973, Ser. No. 348,297
Claims priority, application France, July 29, 1968, 161,060; Oct. 28, 1968, 171,684
Int. Cl. C07d *63/18*
U.S. Cl. 260—330.5 **8 Claims**

The 3-alkoxy-thianaphthene-2-carboxamides of this invention are effective for the treatment of mammals afflicted with emesis. When administered to dogs in dosages of 250 μg./kg., compounds of this invention give 100% protection against vomiting normally induced by subcutaneous administration of apomorphine. The compounds of this invention also favorably modify behavior distubances in mammals.

3,838,170
ISOCHROMANONES

William J. Houlihan, Mountain Lakes, and Jeffrey Nadelson, Lake Parsippany, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Continuation-in-part of abandoned application Ser. No. 76,294, Sept. 28, 1970. This application Sept. 1, 1972, Ser. No. 285,748
Int. Cl. C07d *7/26*
U.S. Cl. 260—343.2 R **2 Claims**

Spiro phthalan-3-ones and spiro isochroman-1-ones, e.g. 2′ - dimethylaminomethyl-3′,4′-dihydrospiro[isochroman-3,1′(2′H)-naphthalene]-1-one, are prepared by cyclizing corresponding N-alkyl benzamides and N-alkyl toluamides. The compounds are useful as diuretic, anti-hypertensive and analgesic agents.

3,838,171
DIHYDROISOCOUMARINS

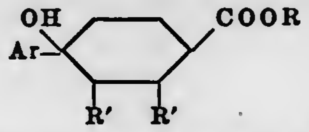
Peter Michael Scott and Wilhelmina van Walbeek, Ottawa, Ontario, Canada, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada
Filed Oct. 30, 1972, Ser. No. 301,757
Int. Cl. C07d *7/26*
U.S. Cl. 260—343.2 R **4 Claims**

The present invention relates to novel dihydroisocoumarins having antibiotic activity and are inter alia effective in inhibiting the growth of certain micro-organisms particularly certain species of dermatophytes and inhibiting the germination of certain species of fungi. The invention also relates to a microbiological method for the production of such dihydroisocoumarins.

3,838,172
ARYL SUBSTITUTED-HYDROXY SUBSTITUTED CYCLOHEXANECARBOXYLIC ACIDS

George Karmas, Bound Brook, N.J., assignor to Ortho Pharmaceutical Corporation
No Drawing. Original application Aug. 22, 1967, Ser. No. 662,295, now Patent No. 3,567,770. Divided and this application Sept. 23, 1970, Ser. No. 74,858
Int. Cl. C07d *7/04*
U.S. Cl. 260—345.7 **4 Claims**

Hydroxyacids and hydroxyesters of the formula:



wherein R is hydrogen or lower alkyl, R′ is lower alkyl and Ar is substituted aryl, are intermediates in the preparation of 2-lower alkyl-3-lower alkyl-4-aryl-cyclohexenecarboxylic acids and esters which are active agents for the suppression of animal reproduction.

3,838,173
2-NITRO-5 OR 6 OR 7-METHOXY BENZOFURAN

Rene R. Royer, Pierre G. Demerseman, and Loic J. Rene, Paris, and Raymond E. Cavier, Villejuif, Val de Marne, France, assignors to Agence Nationale de Valorisation de la Recherche, Paris-Defense Courbevoie, Hauts de Seine, France
No Drawing. Filed June 28, 1971, Ser. No. 157,643
Claims priority, application France, June 29, 1970, 7023984
Int. Cl. C07d *5/42*
U.S. Cl. 260—346.2 R **4 Claims**

2-Nitrobenzofurans, made by interaction of salicylic aldehydes and halogeno-nitro-methane, have useful therapeutic properties as antimicrobial agents.

3,838,174
3-PHENYL-3-ORTHO AMINO PHENYL-PHTHALANOLS

William J. Houlihan, Mountain Lakes, and Jeffrey Nadelson, Lake Parsippany, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Continuation-in-part of abandoned application Ser. No. 224,603, Feb. 8, 1972. This application Oct. 18, 1972, Ser. No. 298,601
Int. Cl. C07d *5/34*
U.S. Cl. 260—346.2 R **8 Claims**

Phthalanols disubstituted in the 3-position, e.g. 3-(4-chlorophenyl) - 3 - (2-dimethylaminomethyl phenyl)-1-methyl-1-phthalanol, prepared by alkylating corresponding phthalides, are useful as anti-inflammatory agents.

3,838,175
PROCESS FOR THE PRODUCTION OF HARDENABLE CYCLOALIPHATIC GLYCIDYL ETHERS

Clau Berther, Chur, Grisons, Manfred Wenzler, Ems, Grisons, and Hans-Joachim Schultze and Manfred Hoppe, Chur, Grisons, Switzerland, assignors to Inventa A.G. fur Forschung und Patentverwertung, Zurich, Switzerland
No Drawing. Filed Feb. 1, 1971, Ser. No. 111,740
Claims priority, application Switzerland, Feb. 6, 1970, 1,711/70
Int. Cl. C07d *1/04, 1/18*
U.S. Cl. 260—348 R **1 Claim**

An epihalohydrin is reacted with a mixture of isomeric cyclododecanediols in the presence of a Lewis acid. The reaction product is dehydrohalogenated with alkali. The dehydrohalogenated reaction product, when hardened, suprisingly shows superior arc and surface leakage current strength as compared with conventional hardened epoxy resins. The mixture of isomeric cyclododecanediols preferable has a diol content of 95–100% by weight.

3,838,176
EPOXY SUBSTITUTED 2,4-DIENETHIOATES

Clive A. Henrick and John B. Siddall, Palo Alto, Calif., assignors to Zoecon Corporation, Palo Alto, Calif.
No Drawing. Original application Feb. 16, 1971, Ser. No. 115,725, now Patent No. 3,706,733. Divided and this application Aug. 18, 1972, Ser. No. 281,885
Int. Cl. C07d *1/22*
U.S. Cl. 260—348 A **8 Claims**

Polyunsaturated aliphatic hydrocarbon thiolesters, nitriles, amines, halides, alcohols and derivatives thereof, synthesis thereof, for the control of arthropods.

3,838,177
SUBSTITUTED 9,10-DIHYDROANTHRACENES

Arthur D. Sill, Cincinnati, Ohio, assignor to Richardson-Merrell Inc., New York, N.Y.
No Drawing. Filed Dec. 21, 1972, Ser. No. 317,129
Int. Cl. C07c *93/06*
U.S. Cl. 260—351 **4 Claims**

Novel 9,10-alkylidene-2,6 and 2,7-bis basic ethers of 9,10-dihydroanthracene, their preparation and use for the prevention and inhibition of viral infections are disclosed.

3,838,178
2-ALKYL-SUBSTITUTED-1,2,3,4-TETRAHYDRO-ANTHRAQUINONES

Lawrence Graham Vaughan, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed June 20, 1972, Ser. No. 264,577
Int. Cl. C07c *49/68*
U.S. Cl. 260—369 **8 Claims**

2 - alkyl - substituted - 1,2,3,4, - tetrahydroanthraquinones are provided which may also be alkyl substituted in the 6- and/or 7-position. These compounds are provided by condensing a naphthoquinone with an alkyl-substituted butadiene, catalytically hydrogenating the adduct, then oxidizing the resulting hexahydro compound to the desired tetrahydroanthraquinone. Alternatively, the condensation product may be oxidized with a cupric compound or with air plus a weak base, and this compound catalytically hydrogenated and then oxidized to the corresponding tetrahydroanthraquinone. The compounds of this invention exhibit superior solubility in solvents commonly used in the cyclic process for manufacturing H_2O_2 and thus enhance H_2O_2 production.

3,838,179
PROCESS FOR MANUFACTURING ALCOHOLS BY OXIDATION OF SATURATED HYDROCARBONS CONTAINING FROM 5 TO 8 CARBON ATOMS PER MOLECULE

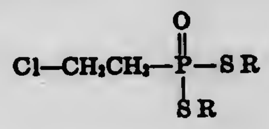
Jacob Alagy, La Celle-Saint-Cloud, Christian Busson, Rueil-Malmaison, and Bernard Cha, Chatou, France, assignors to Institut Francais du Petrole, des Carburants et Lubrifiants, Rueil-Malmaison, France
No Drawing. Filed May 16, 1967, Ser. No. 638,719
Claims priority, application France, May 25, 1966, 62,988; Jan. 18, 1967, 91,680
Int. Cl. C07c *29/12, 45/02*
U.S. Cl. 260—586 AB **6 Claims**

The present disclosure is directed to a process for converting saturated hydrocarbons containing from 5 to 8 carbon atoms in the molecule to corresponding alcohols and ketones of the same number of carbon atoms which comprises contacting said hydrocarbons in the liquid phase with an oxidizing gas in the presence of a boron compound, said oxidizing gas being introduced at a temperature between about 100 to 220° C., hydrolysing the reaction product and separating the obtained alcohols and ketones, said oxidizing gas containing a mixture of air and a vapor of the hydrocarbon to be oxidized which has been preliminary preheated to a temperature of about 140 to 190° C.

3,838,180
2-CHLOROETHYL PHOSPHONODITHIOATE ESTERS

David I. Randall and Robert W. Wynn, Easton, Pa., assignors to GAF Corporation, New York, N.Y.
No Drawing. Filed Nov. 10, 1969, Ser. No. 875,574
Int. Cl. A01n *9/36;* **C07f** *9/40*
U.S. Cl. 260—961 **8 Claims**

2-Chloroethyl phosphonodithioate esters, useful as plant growth regulators for increased fruiting are of the following formula:



$$\mathrm{Cl{-}CH_2CH_2{-}}\underset{\mathrm{SR}}{\overset{\mathrm{O}}{\overset{\|}{\mathrm{P}}}}\mathrm{{-}SR}$$

wherein R is an alkyl group of 1 to 2 carbon atoms, halo-substituted alkyl of 1 to 2 carbon atoms, aryl of 6 to 12 carbon atoms, halo-substituted aryl of 6 to 12 carbon atoms or aralkyl. The compounds are produced by the reaction of a 2-chloroethyl phosphonyl halide with a mercaptan of the formula RSH in the presence of an acid acceptor.

3,838,181

PROCESS FOR THE PREPARATION OF ALKYL SUBSTITUTED RESORCINOLS

Arnold Brossi, Verona, and Antonino Focella and Sidney Teitel, Clifton, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Jan. 22, 1969, Ser. No. 793,191, now Patent No. 3,790,636. Divided and this application Sept. 16, 1971, Ser. No. 181,254

Int. Cl. C07c *39/08*

U.S. Cl. 260—625 **1 Claim**

Preparation of 5-alkyl substituted resorcinols such as olivetol from aliphatic aldehydes and intermediates in this process.

3,838,182

HYDROLYSIS OF ARYL HALIDES WITH METAL PHOSPHATES

William L. Kehl and Raymond J. Rennard, Jr., Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 103,003, Dec. 30, 1970, now Patent No. 3,752,878. This application Feb. 25, 1971, Ser. No. 118,940

Int. Cl. C07c *37/02*

U.S. Cl. 260—629 **28 Claims**

Aryl halides, such as chloroxylene, are hydrolyzed to the corresponding ring hydroxylated aryl compounds, such as xylenol, by contacting the aryl halides and steam with a rare earth metal phosphate catalyst, such as lanthanum phosphate, cerium phosphate and neodymium phosphate. A method of preparing the rare earth metal phosphate is also disclosed. The addition of small amounts of copper greatly improves the activity of the rare earth metal phosphate or yttrium phosphate for the hydrolysis reaction.

3,838,183

SYNTHESIS OF 2-METHYL-3-BUTEN-2-OL

Pius Anton Wehrli, North Caldwell, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed June 9, 1971, Ser. No. 151,557

Int. Cl. C07c *33/02, 29/28*

U.S. Cl. 260—640 **3 Claims**

A process for producing 2-methyl-3-buten-2-ol by reacting isoprene with a hydrohalide and then with an aqueous base and then distilling the aqueous mixture in the presence of excess base to maintain the reaction mixture during distillation at a pH of at least 4.

3,838,184

PROCESS FOR PRODUCING FUEL AND BREEDER BODIES FOR A NUCLEAR REACTOR

Ernö Gyarmati and Hubertus Nickel, Julich, Germany, assignors to Kernforschungsanlage Julich GmbH, Julich, Germany

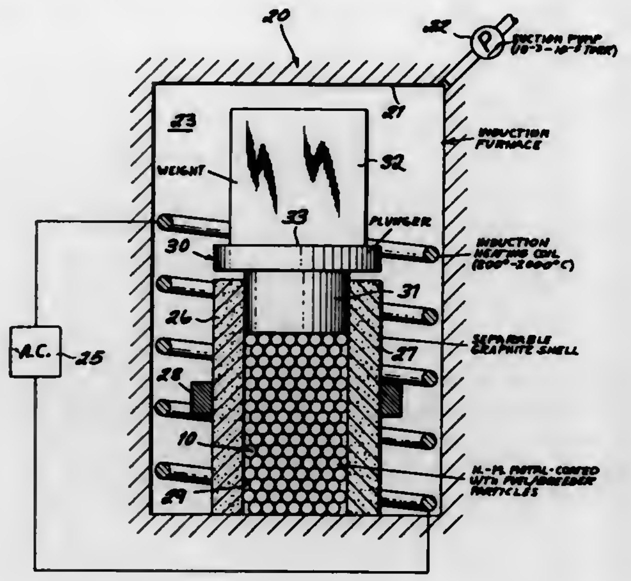
Filed Dec. 1, 1970, Ser. No. 94,115

Claims priority, application Germany, Dec. 3, 1969, P 19 60 531.3

Int. Cl. G21c *3/04, 3/28*

U.S. Cl. 264—5 **1 Claim**

Metal-coated or metal-sheathed fuel or breeder cores form particles which are piled and, under a vacuum of 10^{-3} to 10^{-5} torr and at a temperature of 800°–2000° C., are sintered under a mechanical pressure of several 100 ponds/cm.^{2}. Such configurations are composite bodies, which are fuel elements or parts of fuel elements respectively. The metal covering of the particles has a high melting point and may be molybdenum, zirconium, vanadium or niobium and, at each fusion interface, diffuses with the metal of the neighboring shell. The interstices between the sintered particles form coolant channels.


20
32
SUCTION PUMP (10^{-3}–10^{-5} TORR)
23
21
INDUCTION FURNACE
WEIGHT
32
33
PLUNGER
30
INDUCTION HEATING COIL (800°-2000°C)
31
26
A.C.
25
SEPARABLE GRAPHITE SHELL
27
28
10
H.-M. METAL-COATED WITH FUEL/BREEDER PARTICLES
29

3,838,185

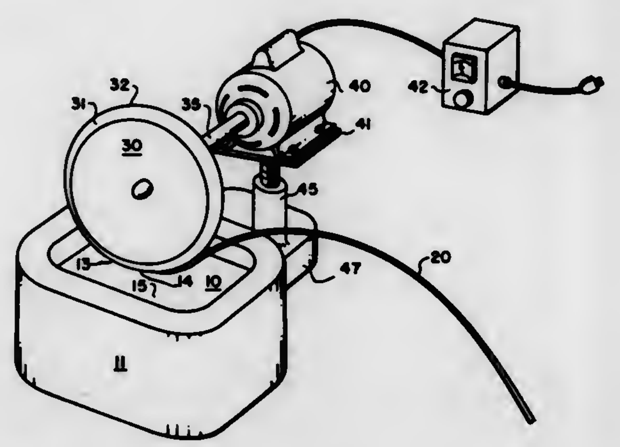
FORMATION OF FILAMENTS DIRECTLY FROM MOLTEN MATERIAL

Robert E. Maringer, Worthington, Ohio, Alfred Rudnick, Tel Aviv, Israel, and Carroll E. Mobley, Columbus, Ohio, assignors to Battelle Development Corporation, Columbus, Ohio

Continuation-in-part of abandoned application Ser. No. 147,390, May 27, 1971. This application May 10, 1972, Ser. No. 251,985

Int. Cl. B01j *2/02*

U.S. Cl. 264—8 **19 Claims**



A method for producing continuous or controlled length discontinuous products having a small cross-sectional area such as filaments or wire directly from a pool-like source of molten metal or a molten inorganic compound having a surface tension and viscosity similar to that of a molten metal consisting of forming such products by the application of a rotating disk-shaped member to the surface of the pool or molten material so as to form the material into the desired shape by extracting a filamentary form of material from the supply of molten material. The final shape of the product is determined by the physical shape of the member, the temperature and material composition of the melt as well as the velocity of the member in contact with the melt. The invention does not rely on any type of orifice or the mechanical removal of the product from the moving member.

3,838,186

WAX TREATMENT OF PARTICULATE MATERIAL

Leslie Jasper Ahrens, Durban, Natal, Republic of South Africa, assignor to Process Wax and Resin Products (Proprietary) Limited, Jacobs, Natal, Republic of South Africa

No Drawing. Filed Apr. 26, 1972, Ser. No. 247,708

Claims priority, application Republic of South Africa, Apr. 29, 1971, 71/2,773

Int. Cl. B29c *23/00;* **C08f** *45/52*

U.S. Cl. 264—12 **2 Claims**

The invention relates to wax compositions particularly for the wax treatment of particulate wood and other fibrous products, comprising a fibrillated mass, the fibres of which have a plurality of free-ended strands, prepared by blowing a wax composition containing a wax and polyolefin.

3,838,187

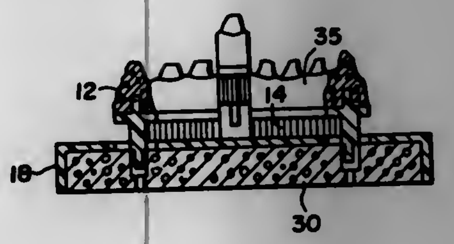
DENTAL MODEL CONSTRUCTION METHOD

John M. Thomas, Webster, N.Y., assignor to Thomas Technadent Products, Inc., Rochester, N.Y.

Continuation-in-part of application Ser. No. 88,913, Nov. 12, 1970, which is a division of application Ser. No. 696,301, Jan. 8, 1969, both now abandoned, which in turn is a continuation-in-part of application Ser. No. 784,539, Dec. 9, 1968, now Patent No. 3,581,398. This application Apr. 26, 1972, Ser. No. 247,547

Int. Cl. A61c *13/00*

U.S. Cl. 264—17 **8 Claims**



A dental model is made by forming a keying matrix to closely fit a corrugated surface of an arch-shaped key which is then inserted into a casting of a dental model. After the casting has set to bond the model to the key, the keyed model is cut to separate various teeth of the model desired, and the parts of the model are inserted and removed from the matrix as desired for working on the model.

3,838,188

VACUUM BAKED COMPOSITE MOLDED CARBONACEOUS ELECTRODES

William F. Farrell, Jr., Williamsville, N.Y., assignor to The Carborundum Company, Niagara Falls, N.Y.

No Drawing. Filed June 29, 1972, Ser. No. 267,274

Int. Cl. C01b *31/00*

U.S. Cl. 264—29 **12 Claims**

Composite molded carbonaceous EDM electrodes consisting essentially of 60–100 parts of at least partially graphitized carbon particles, up to 40 parts ungraphitized carbon particles, and 5–25 parts carbonized cured phenol-aldehyde novolac resin matrix bonding together the graphitized and ungraphitized carbon particles, are made by (1) coating the particles with a phenol-aldehyde novolac resin; (2) molding the coated particles into a resin-bonded composite body; and (3) baking the resin-bonded composite body to carbonize the bonding matrix, in an oxygen-free environment which has been flushed to remove traces of oxygen. The finished electrodes are, as compared to similar EDM electrodes baked in a nitrogen atmosphere, surprisingly superior in their performance during machining, as particularly characterized by a lack of localized arcing during machining. The electrodes are also characterized by their apparent freedom from surface oxidation; their surface hardness; and unchanged or increased average surface hardness during baking, rather than the decreased average surface hardness during baking which is characteristic of minute surface oxidation of the electrodes.

ERRATUM

For Class 264—94 see:
Patent No. 3,838,142

3,838,189

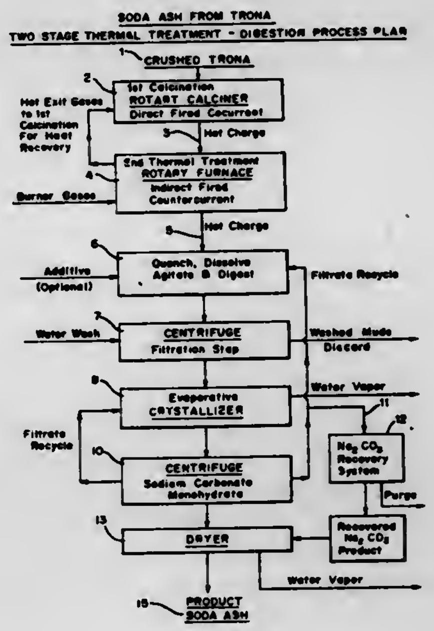
TWO-STAGE PROCESS FOR PRODUCING SODA ASH FROM TRONA

Peter Sopchak, Liverpool, and Joel P. Guptill, Syracuse, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Sept. 13, 1972, Ser. No. 288,855

Int. Cl. C01d *7/00, 7/22, 7/30*

U.S. Cl. 423—184 **4 Claims**


SODA ASH FROM TRONA
TWO STAGE THERMAL TREATMENT - DIGESTION PROCESS PLAN
1
CRUSHED TRONA
2
1st Calcination ROTARY CALCINER Direct Fired Cocurrent
Hot Exit Gases to 1st Calcination For Heat Recovery
3
Hot Charge
2nd Thermal Treatment ROTARY FURNACE Indirect Fired Countercurrent
4
Burner Gases
5
Hot Charge
6
Quench, Dissolve Agitate & Digest
Additive (Optional)
Filtrate Recycle
7
CENTRIFUGE Filtration Step
Water Wash
Washed Muds Discard
8
Evaporative CRYSTALLIZER
Water Vapor
11
12
Na_2CO_3 Recovery System
Filtrate Recycle
10
CENTRIFUGE Sodium Carbonate Monohydrate
Purge
13
DRYER
Recovered Na_2CO_3 Product
Water Vapor
15
PRODUCT SODA ASH

Two step calcination process for preparing sodium carbonate from trona, comprising a low temperature calcination to convert the contained sesquicarbonate to sodium carbonate, followed by a high temperature roasting step of short duration to eliminate contained organic matter while minimizing solubilization of contained silica.

3,838,190

PROCESS FOR THE REMOVAL OF MERCURY FROM GASES

Lutz Georg Birke, Oslo, Aksel Jebens, Hosle, Ivar Eystein, Ruyter, Oslo, and Froystein Dyvik, Odda, Norway, assignors to Det Norske Zinkkompani A/S, Odda, Norway

No Drawing. Filed Jan. 10, 1972, Ser. No. 216,807

Claims priority, application Norway, Jan. 14, 1971, 133/71

Int. Cl. B01d *53/34*

U.S. Cl. 423—210 **4 Claims**

Removal of mercury from gases, in particular gases from combustion or roasting, is achieved by washing the gases with sulphuric acid of at least 50% having a temperature of 60 to 180° C. The washing acid and the gases contain chlorine or chlorine compounds or both chlorine and chlorine compounds in such an amount that the atomic ratio Cl/Hg is at least 1:1. Practically all mercury and other mercury compounds are converted to mercury chlorides which are separated by condensation in a succeeding cooling of the gas.

3,838,191

CONTINUOUS PROCESS FOR SCRUBBING SO_2 FROM A GAS STREAM CONTAINING SO_2 AND O_2

Peter Urban, Northbrook, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Continuation-in-part of application Ser. No. 226,018, Feb. 14, 1972, which is a continuation-in-part of application Ser. No. 9,968, Feb. 9, 1970, now Patent No. 3,644,087, dated Feb. 22, 1972. This application Mar. 12, 1973, Ser. No. 340,425

Int. Cl. C01b *17/00*

U.S. Cl. 423—242 **22 Claims**

An input gas stream containing SO_2 and O_2 is continuously treated in order to remove a substantial portion of the SO_2 therefrom by the steps of: (a) scrubbing the input gas stream with an aqueous absorbent containing an alkaline reagent and a first reducing agent to produce a treated gas stream and a rich absorbent containing a mixture of sulfite and thiosulfate compounds; (b) treating at least a portion of the resulting rich absorbent stream with a second reducing agent at conditions selected to convert substantially all of the remaining sulfite compound contained therein to the corresponding thiosulfate compound; (c) reacting at least a portion of the resulting thiosulfate-rich water stream with carbon monoxide at reduction conditions selected to produce the corresponding sulfide compound; (d) stripping hydrogen sulfide from at least a portion of the resulting sulfide-rich solution to form a regenerated aqueous absorbent stream; and, thereafter, (e) passing at least a portion of the regenerated absorbent stream to the SO_2-scrubbing step. The principal utility of this SO_2-scrubbing process is associated with the problem of continuously removing a sulfur dioxide contaminant from flue or stack gas streams containing SO_2 and O_2 such as are typically produced in modern electrical power generating stations in order to abate a serious pollution problem and to enable the safe, nonpolluting burning of high sulfur fuels.

3,838,192

PRODUCTION OF ALKALI METAL POLYSILICATES

Orlando L. Bertorelli and Robert K. Mays, Havre de Grace, and Lloyd E. Williams, Bel Air, Md., and Howard F. Zimmerman, Jr., Athens, Tenn., assignors to J. M. Huber Corporation, Locust, N.J.

Filed Oct. 28, 1971, Ser. No. 193,485

Int. Cl. C01b *33/32*

U.S. Cl. 423—334 **1 Claim**

A method for producing alkali metal polysilicates and their use as builders in detergents is disclosed. The polysilicates are produced by hydrothermally reacting, under certain controlled conditions, an aqueous dispersion of finely-divided silica and an alkali metal hydroxide. The synthesized reaction mixture is then spray dried and the solid product fractured, pulverized and agitated in a rotating drum to form a product having particularly advantageous properties. The products of the invention can be used in adhesives, in the production of silica gel, in textiles and the like. However, their use as builders in detergents and in combination with known anionic, nonionic and amphoteric surface active compounds (surfactants) is disclosed and claimed.

3,838,193

METHOD OF TREATING NITROGEN OXIDE GENERATING SUBSTANCES BY COMBUSTION

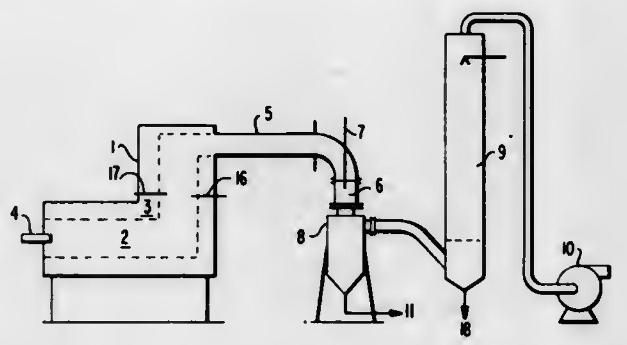
Yoshiaki Kajitani, Ibaragi, and Hayami Ito and Susumu Mitsuda, Kobe, Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe-shi, Hyogo, Japan

Filed Mar. 13, 1972, Ser. No. 234,155

Claims priority, application Japan, Mar. 13, 1971, 46/13,851

Int. Cl. C01b *21/00, 21/24*

U.S. Cl. 423—351 **8 Claims**



A method of treating nitrogen oxide generating substances by combustion in a reducing flame atmosphere which has the steps of introducing the substance which generates nitrogen oxide by combustion, such as ammonia, hydrogen cyanide or other nitrogen containing gases or a mixture of these gases, into a high temperature reducing flame produced by the combustion of fuel gas containing hydrogen, carbon monoxide, a gaseous hydrocarbon and mixtures thereof, with a primary air supplied in an amount below the amount of air theoretically required for combustion of the fuel gas whereby the generated nitrogen oxides are reduced to nitrogen in the high temperature reducing flame, and if required supplying a third air to the relatively high temperature portion out of the flame thereby burning any unburned components.

3,838,194

PROCESS FOR MAKING HEXAGONAL MACROCRYSTALS OF ALUMINUM HYDRIDE

Paul F. Reigler, Midland, and Lz F. Lamoria, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Mar. 22, 1967, Ser. No. 627,247

Int. Cl. C01b *6/00*

U.S. Cl. 423—645 **3 Claims**

An improvement in a process for preparing large crystals of substantially non-ether solvated, crystalline aluminum hydride by heating an aluminum hydride source material in an ether containing solution. The present improvement comprises employing a slurry of aluminum hydride n-propyl etherate as the aluminum source material thereby providing the unexpected advantages of not having to distill ether from the reaction mass or to maintain an elevated pressure on the system as required in the process as practiced heretofore.

3,838,195

PROCESS FOR MAKING CRYSTALLINE, NON-SOLVATED ALUMINUM HYDRIDE

Paul F. Reigler and Reinhold Hellmann, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 23, 1967, Ser. No. 678,486

Int. Cl. C01b *6/00*

U.S. Cl. 423—645 **4 Claims**

An improved process for preparing macrocrystalline, substantially non-ether solvated aluminum hydride wherein an ethereal aluminum hydride reactant solution is introduced into a crystallizing liquid having a boiling point higher than that of the ether but below 80° C. and the resulting conversion liquid is maintained at a predetermined boiling point with the ether volume being controlled to a maximum of 8% of the liquid whereupon non-solvated aluminum hydride crystals nucleate and grow therein.

3,838,196

METHOD OF TREATING ARTERIOSCLEROSIS

James B. Mercer, Lenexa, Kans., assignor to James B. Mercer, Lenexa, Kans., and Neil B. Purdy, Wauconda, Ill.

No Drawing. Filed Sept. 25, 1972, Ser. No. 291,563

Int. Cl. A61k *27/00*

U.S. Cl. 424—319 **1 Claim**

A treatment for aberrant calcium related deposits in animal tissues, including arteriosclerosis, comprises the oral administration of EDTA concurrently with monitoring for depletion of metabolic trace metals, and replacement of the trace metals as indicated.

3,838,197

AMINO DERIVATIVES OF TETRASUBSTITUTED BENZENE COMPOUNDS

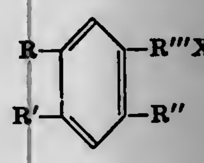
John J. Merianos, Jersey City, and Phillip Adams, Murray Hill, N.J., assignors to Millmaster Onyx Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 130,783, Apr. 2, 1971. This application Sept. 25, 1972, Ser. No. 291,824

Int. Cl. A01n *9/24*

U.S. Cl. 424—330 **2 Claims**

Antimicrobial 1,2,4,5-tetrasubstituted benzenes having the structure:



wherein R and R' may be methyl, or a halogen when R''' is —CH_2—; or R and R', taken together, may be methylene dioxy; R'' may be methyl or nitro; R''' may be absent or may be —CH_2— or —CH=; and X is the residue of a substituted amino or a polyamino radical.

3,838,198

CONDITIONING RAW WASTE INPUT FOR DIGESTION BY THERMOPHILIC AEROBIC MICROORGANISMS

Winthrop D. Bellamy, Schenectady, and Ananda M. Chakrabarty, Latham, N.Y., assignors to General Electric Company

Filed Mar. 1, 1972, Ser. No. 230,668

Int. Cl. A23k *1/00*

U.S. Cl. 426—53 **6 Claims**

Animal waste, particularly excrement from ruminants, to be subjected to degradation by thermophilic aerobic microorganisms is subjected to pretreatment in which the raw waste is mixed with waste liquor (from the reacted waste mixture leaving the thermophilic aerobic growth chamber) and is heated to a temperature in the range of from about 75° C. to about 85° C. This pretreatment is of particular advantage when the thermophilic organisms employed for the digestion are productive of soluble (detached) extra-cellular enzymes that will degrade cellulose.

3,838,199

PROCESS FOR RECOVERING FEED PRODUCTS FROM ANIMAL WASTE

Warren B. Coe, Simsbury, and Arthur K. Davenport, North Granby, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed May 8, 1972, Ser. No. 251,491

Int. Cl. A23k *1/00*

U.S. Cl. 426—55 **4 Claims**

By thermophilic anaerobic fermentation, the excretion and excrement from animals is recycled into an animal feed ingredient and a fuel gas which gas is utilized to power the various components of the system and is characterized as being self-sustaining.

ELECTRICAL

3,838,200

METHOD FOR ELECTROSLAG REMELTING WITH SLAG INTRODUCTION AND EQUALIZED PLURAL ELECTRODE REMELTING

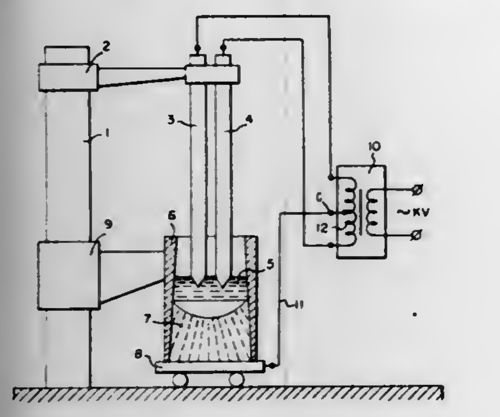
Boris Evgenievich Paton; Vladimir Konstantinovich Lebedev; Boris Izrailevich Medovar; Jury Vadimovich Latash; Oleg Petrovich Bondarenko; Vitaly Mikhailovich Baglai; Mikhail Nikolaevich Sidorenko, all of Kiev; Semen Abramovich Leibenzon; Gary Petrovich Kaganovsky, both of Zaporozhie; Andrei Pavlovich Altgauzen, Moscow; Leonid Evgenievich Nikolsky, Moscow; Zoya Alexandrovna Gorynina, Moscow; Ljudmila Andreevna Safronova, Moscow; Leonid Savvich Katsevich, Moscow; Lev Avramovich Volokhonsky, Moscow; Alexandr Alexandrovich Nikulin, Moscow; Vladimir Dmitrievich Artemiev, Moscow; Vladimir Mikhailovich Edemsky, Moskovskaya, and Georgy Alexandrovich Voronin, Moscow, all of U.S.S.R., assignors to Institut Elektrosvarki I.M.E.O. Patona, Kiev, U.S.S.R.

Division of Ser. No. 87,044, Nov. 5, 1970, abandoned, which is a continuation-in-part of Ser. No. 76,205, Sept. 28, 1970, Pat. No. 3,709,283, which is a continuation of Ser. No. 676,873, Oct. 20, 1967, abandoned. This application Oct. 19, 1972, Ser. No. 298,949

Claims priority, application U.S.S.R., Dec. 24, 1966, 1118607; Dec. 24, 1966, 1118608. The portion of the term of this patent subsequent to Jan. 9, 1990, has been disclaimed.

Int. Cl. H05b *3/60*

U.S. Cl. 13—9 **19 Claims**



In an electroslag remelting installation, a pair of consumable electrodes are immersed into a molten slag bath contained in a mold, which can be cooled by various arrangements of cooling liquid. The molten slag is introduced into the mold through a passage through the lower portion of the mold. AC electrical power is applied between the electrodes to cause current flow through the electrodes and through the molten slag bath and part of the molten metal pool, thereby heating and causing the electrodes to melt to form an ingot. As the electrodes melt, they are simultaneously fed together into the slag bath. A conductor, connected between the bottom plate of the mold and either a center tap on the secondary winding of the transformer supplying AC power to the electrodes or to a center tap on a choke coil connected in parallel with the secondary winding, provides an equalizing circuit which automatically adjusts the melting of the electrodes to keep them at equal immersion depths in the slag bath. Electrical lines and connectors are grouped in close arrangement and in parallel paths where possible to avoid inductance losses.

3,838,201

FREQUENCY SIMULATOR FOR EW TRAINING DEVICE

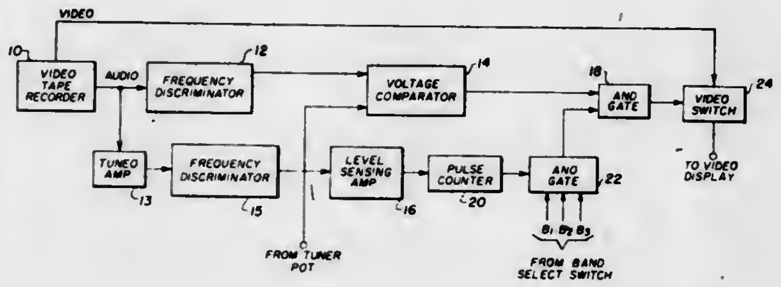
Bobby C. Appling, 207 Stephora Ave., Covina, Calif. 91724

Filed June 25, 1973, Ser. No. 373,074

Int. Cl. G09b *9/00*

U.S. Cl. 35—10.4 **4 Claims**

Frequency simulator apparatus for use with passive, electronic warfare (EW) training devices to render more effective and realistic signal recognition training of operators. A video switching network is connected between the output of a video tape recorder and the video circuits of a passive EW receiver set. Prerecorded radar video signals will not be displayed on the receiver set until the operator selects at the receiver set the proper frequency band and tunes the receiver to the proper frequency within that band to thereby actuate the switching network with a voltage indicating that the proper band has been selected and another voltage indicating that the proper frequency has been tuned to.



3,838,202

DEVICE FOR IMPARTING TO A MUSICAL TONE A TONE COLOR VARIED WITH TIME

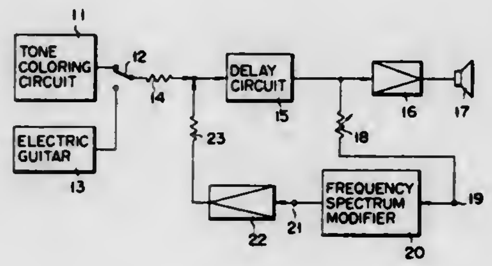
Akira Nakada, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-ken, Japan

Filed Sept. 17, 1973, Ser. No. 397,747

Claims priority, application Japan, Sept. 19, 1972, 47-93856; Sept. 19, 1972, 47-93863

Int. Cl. G10h *1/02*

U.S. Cl. 84—1.24 **21 Claims**



A device comprises a variable delay circuit for delaying a musical tone signal; means for varying a delay time of the variable delay circuit; a frequency spectrum modifier to which an output signal from the delay circuit is applied; and a feedback loop for feeding an output of the frequency spectrum modifier back to the input side of the variable delay circuit; whereby a musical tone signal to which is applied a tone color varied with time is obtained from the output side of the variable delay circuit.

3,838,203

INSERTABLE ELECTRICAL TERMINATION MOUNTING

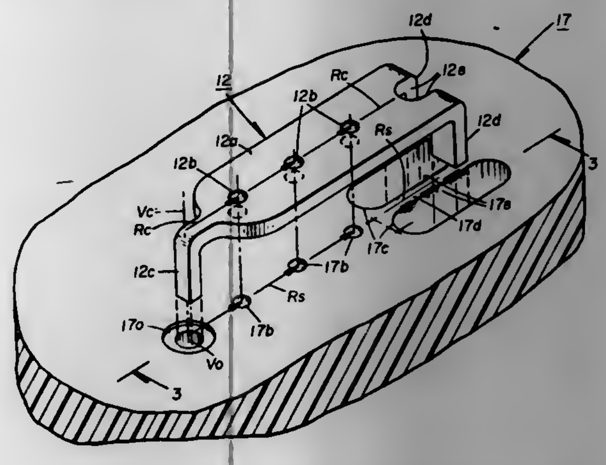
James D. Brandlein, and Max E. Potter, both of Indianapolis, Ind., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed July 3, 1973, Ser. No. 376,257

Int. Cl. H05k *1/02*

U.S. Cl. 174—68.5 **11 Claims**

A substrate and an electrical termination mounting in the form of a connector strap are constructed so that the strap can be accurately pressed into position on the substrate to establish a circuit path thereon without deformation of the strap, so as to locate preformed electrical termination-receiving apertures in the strap and the substrate in axial alignment. Initially, axes of first securing elements on the connector strap and the substrate are aligned to locate the apertures in the strap radially with respect to the aligned axes, and second securing elements on the strap and the substrate are aligned to locate the apertures in the strap circumferentially about the aligned axes, thereby aligning respective ones of the apertures in the strap and the substrate. The strap then is pressed into a secured position on one side of the substrate, after which conductor wires or component leads may be inserted through respective aligned apertures in the strap and the substrate from the opposite side of the substrate, and soldered to the strap.



3,838,204

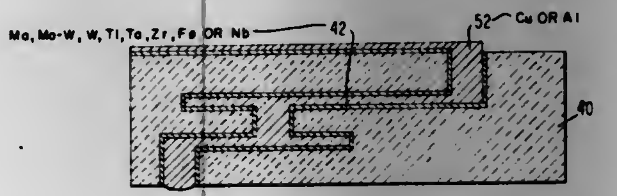
MULTILAYER CIRCUITS

Junghi Ahn, Wappingers Falls; Bernard Schwartz, Poughkeepsie, and David L. Wilcox, Hopewell Junction, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 538,770, March 30, 1966, abandoned. This application Aug. 6, 1969, Ser. No. 850,324

Int. Cl. H05k *1/02, 3/24*

U.S. Cl. 174—68.5 **3 Claims**



Multilevel ceramic high conductivity circuit structures are formed by depositing a metallizing media on surfaces of green ceramic sheets, including on walls of holes which extend through the sheets. The metallizing media includes metals and compounds which convert to a metal during firing. The sheets are stacked in registry, laminated into a monolithic structure and heated in a reducing atmosphere to sinter the ceramic to a dense body, and simultaneously fire the metallizing media to form an adherent metal capillary within the body. A high conductivity, low melting point conductor fills the capillary thereby forming a highly conductive circuit member within the multilevel ceramic structure.

3,838,205

ELECTRICALLY CONDUCTIVE PIPE COUPLING GASKET

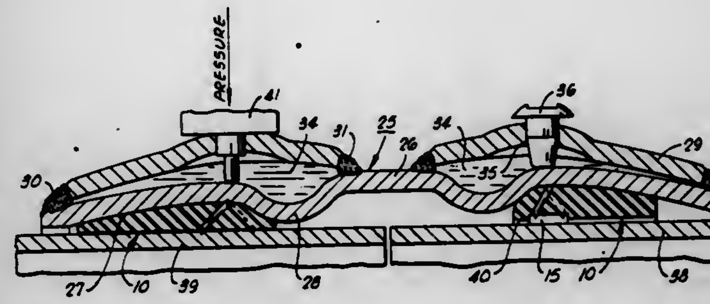
George D. Kish, Bradford, Pa., assignor to Dresser Industries, Inc., Dallas, Tex.

Continuation of Ser. No. 866,128, Oct. 9, 1969, abandoned, which is a continuation of Ser. No. 634,714, April 28, 1967, abandoned. This application July 9, 1970, Ser. No. 56,178

Int. Cl. H02g *15/08*

U.S. Cl. 174—84 S **8 Claims**

A gasket member formed as an annular ring to be employed in conjunction with a pipe coupling device. The ring is comprised of a dielectric elastomeric material and includes a distribution of embedded electrically conductive pins which protrude through opposite surfaces of the annular to establish electrical continuity between the coupled pipe and the coupling member.



3,838,206

WIRE CONNECTOR FOR TWO ELECTRIC WIRES, WHICH MAY POSSIBLE BE CONNECTED TO ELECTRIC DETONATORS

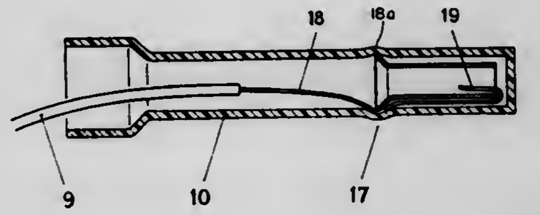
Kjell Eklund, Orebro, Sweden, assignor to Nitro Nobel AB, Gyttorp, Sweden

Filed Apr. 23, 1973, Ser. No. 353,489

Claims priority, application Sweden, May 12, 1972, 6276/72

Int. Cl. H01r *7/06*

U.S. Cl. 174—87 **6 Claims**



There is disclosed a connector for conductively connecting the stripped ends of two insulated conductor wires without requiring the use of tools or insulation material such as insulation tape. The connector comprises an outer sleeve into which is fitted a shorter inner sleeve. The stripped end of one of the conductors is inserted between the inner sleeve and the outer sleeve and secured to the inner sleeve. The inner sleeve is secured against axial displacement within the outer sleeve and rotation relative thereto. The stripped end of the second conductor is inserted into the inner sleeve and the stripped ends of both conductors are of a length such that they protrude from the inner sleeve into the outer sleeve. These protruding end portions are joined by helically twisting the wire ends by axially rotating the sleeve assembly while holding the conductor wires protruding from the outer sleeve.

3,838,207

ELECTRICAL INSULATING MEMBER SUCH AS A DISTRIBUTOR CAP

Wolfgang Anselment, and Walter Holl, both of Stuttgart, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

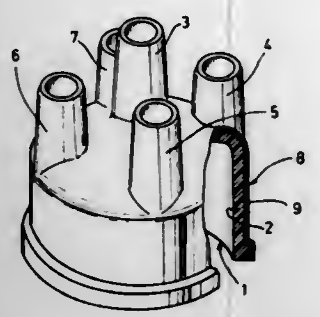
Filed Sept. 11, 1973, Ser. No. 396,193

Claims priority, application Germany, Sept. 12, 1972, 2244583

Int. Cl. H01r *39/60;* H01h *19/06;* H01b *17/60*

U.S. Cl. 174—138 F **15 Claims**

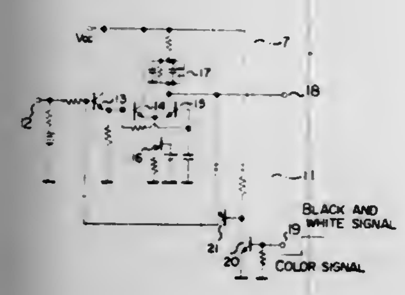
A hollow insulating member has a wall which consists of two layers, one of which at least partly surrounds the other. One of these layers is composed of an electrically insulating substance whereas the other of these layers is composed of a thermally insulating foam material. Air is entrapped in the foam material, and may also be entrapped in an air gap between the two layers.



3,838,208
CIRCUIT FOR REDUCING WHITE BALANCE VARIATIONS

Yoshihiro Fujiwara, Hirakata, and Norio Meki, Takatsuki, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 27, 1972, Ser. No. 318,768
Claims priority, application Japan, Dec. 28, 1971, 47-100
Int. Cl. H04n *9/12*
U.S. Cl. 178—5.4 BT **4 Claims**



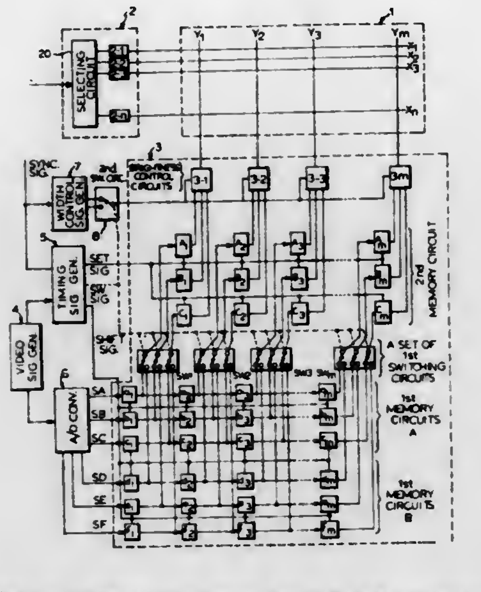
A color television receiver having a generator for generating a reference signal by means of ringing for applying this reference signal to a demodulator for the demodulation of a chrominance signal. In the receiver, an oscillator oscillating substantially at a frequency of 3.58 MHz is provided so as to apply its output to the demodulator during reception of a monochromatic television signal, thereby preventing undesirable variations of the white balance depending on the reception of a color television signal or monochromatic television signal irrespective of fluctuations of the characteristics of elements constituting the demodulator.

3,838,209
SCANNING APPARATUS FOR A MATRIX DISPLAY PANEL

Mitsuharu Tsuchiya, Osaka; Teruo Sato, Kyoto; Hitoshi Takeda, Yamatokoriyama, and Masami Yoshiyama, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed June 5, 1973, Ser. No. 367,184
Claims priority, application Japan, June 8, 1972, 47-57493; June 20, 1972, 47-62204; June 20, 1972, 47-62212; Sept. 20, 1972, 47-94771
Int. Cl. H04n *5/70*
U.S. Cl. 178—7.3 D **5 Claims**

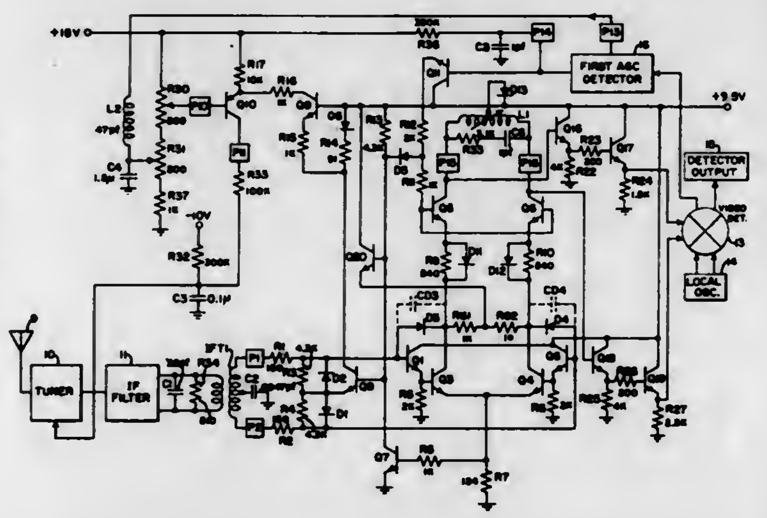
A scanning apparatus for a matrix display panel having a plurality of picture elements at the intersections of X- and Y-line conductors. The scanning apparatus has an X-line driving circuit, Y-line driving circuit, a video signal generator, a timing signal generator, a width control signal generator, a second switching circuit and an analog-to-digital converter. The Y-line driving circuit has a plurality of sets of first memory circuits, a set of second memory circuits, a set of first switching circuits, and a set of brightness control circuits. The scanning apparatus is capable of reproducing moving images having many steps of gray scale from coded video signals having relatively few bits by digital circuits and is also capable of finely controlling the brightness by the efficient use of a horizontal sweep retrace period of the video signals with simplified circuits.



3,838,210
AUTOMATIC GAIN CONTROL SYSTEM AND AMPLIFIER OF CONTROLLABLE GAIN

William Peil, North Syracuse, N.Y., assignor to General Electric Corporation, Syracuse, N.Y.

Filed Oct. 1, 1973, Ser. No. 402,073
Int. Cl. H04n *5/52*
U.S. Cl. 178—7.3 R **9 Claims**

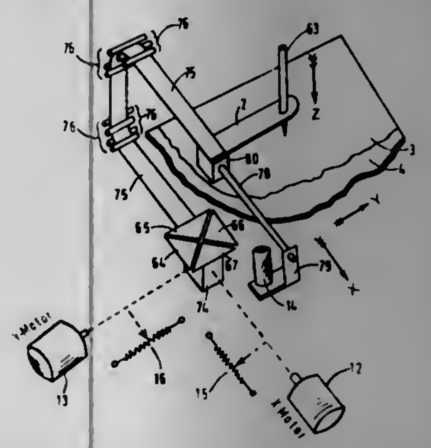


An automatic gain control system incorporating a novel amplifier of controllable gain is described. The amplifier is d.c. coupled throughout and capable of wideband operation. It employs a cascoded differential transistor amplifier for producing the principal voltage gain supplemented by input and output emitter followers. Gain control is achieved by the application of gain control potentials to the bases of the upper rank transistors. Gain reduction is produced first in the upper rank by the controlled degeneration produced by a pair of nonlinear impedances in series with the emitter leads of the upper rank transistors, and sequentially in the lower rank transistors by the controlled degeneration produced by two pairs of nonlinear impedances coupled in a degenerative feedback path about the lower rank transistors and in the input circuit to a pair of input emitter followers. In addition, the amplifier produces an indication of gain control action which, when the amplifier is used as an intermediate frequency amplifier of a television system, permits one to derive a second gain control signal, which after thresholding may be used for further gain reduction in the tuner. The amplifier is adapted for integrated circuit fabrication.

3,838,211
TEACHING SYSTEM AND DEVICES

Constantinos J. Joannou, 2008 Dorval Ave., Ottawa, Ontario, Canada

Filed Jan. 4, 1973, Ser. No. 320,851
Claims priority, application Canada, Jan. 10, 1972, 132,033
Int. Cl. G08c *21/00*; G09b *5/04*; G11b *31/00*
U.S. Cl. 178—18 **9 Claims**

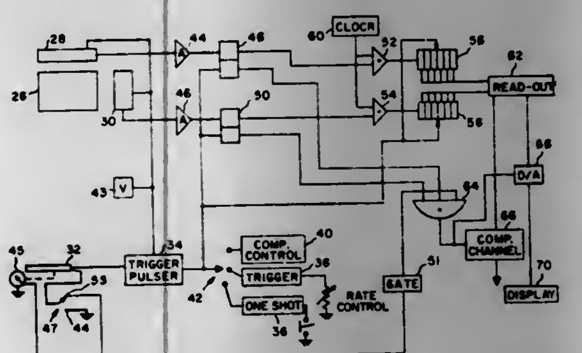


In teaching certain subjects, it is necessary to communicate with the students using drawings as well as voice. Well known devices such as film, video tape and television have been used to automate the teaching process. Such devices, however, are expensive and difficult to use, especially by the teacher. This invention provides a system and devices used to implement the system, which enable automation of the teaching process, and which are relatively inexpensive and easy to use by both the teacher and student. Specifically, the invention pertains to an automated teaching system where a lecture consisting of voice and drawings or sketches and figures can be recorded on magnetic tape by means of an *x–y* record-reproduce device. The lecture, once recorded, may be duplicated many times and distributed among many students who can reproduce the recorded lecture on similar devices. The graphic information is reproduced on standard ordinary sheets of paper which the students may keep for later reference.

3,838,212
GRAPHICAL DATA DEVICE

Albert L. Whetstone, Southport, Conn.; Samuel Fine, New City, N.Y.; William Banks, Fairfield, and Stanley C. Phillips, Trumbull, both of Conn., assignors to Amperex Electronic Corporation, Hicksville, Long Island, N.Y.

Filed July 11, 1969, Ser. No. 841,058
Int. Cl. G08c *21/00*
U.S. Cl. 179—18 **12 Claims**

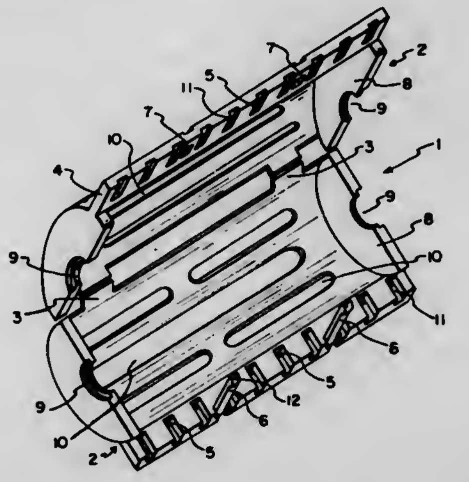


A graphical data device employing a stylus moving over an area to be digitized and utilizing a fast rise time sound energy shock wave, generated by a spark at the location of the stylus and propagated through the air for providing coordinate information as to the instantaneous position of the spark. Receiver devices are positioned along X and Y coordinates and respond to the leading edge of the air propagated shock wave front to provide an elapsed time indication from the moment of spark generation to the moment of shock wave reception. In a further embodiment, a three dimensional configuration is employed, utilizing a three coordinate receiver.

3,838,213
CASE FOR ELECTRICAL COMPONENTS

Thomas Georgopulos, and Maurice D. McCormick, both of Chicago, Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Aug. 30, 1973, Ser. No. 393,266
Int. Cl. H01f *17/08, 15/02*
U.S. Cl. 178—46 **9 Claims**

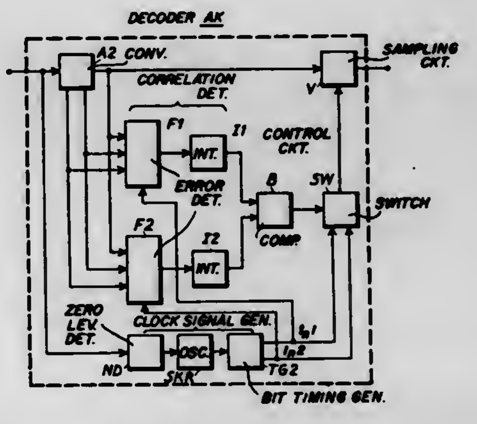


An insulating case for electrical components is disclosed, the case being principally composed of a pair of complementary sections which are hinged along one edge. Each of the sections includes a rib for holding a plurality of terminal means and the sections are provided with latch and catch means for releasably latching the sections in a closed position.

3,838,214
SYNCHRONIZATION METHOD AND AN ARRANGEMENT FOR RECOVERY OF BINARY SIGNALS

Kurt Bertil Reinhold Lind, Vastra Frolunda, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

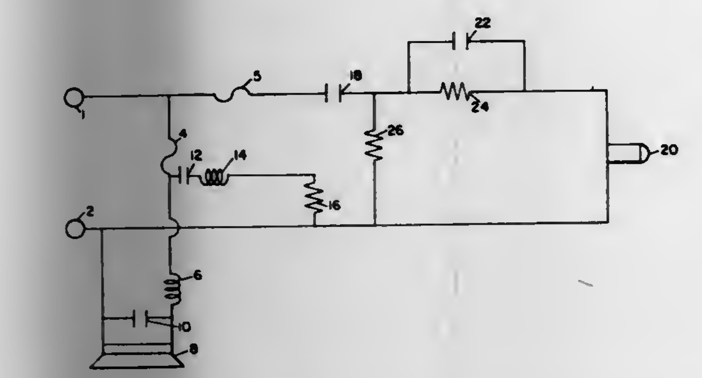
Filed Nov. 22, 1972, Ser. No. 308,810
Claims priority, application Sweden, Dec. 6, 1971, 15633/71
Int. Cl. H04l *7/00*
U.S. Cl. 178—69.5 R **6 Claims**



A synchronization method and arrangement for recovery, at the receiver side of an information transmission equipment, of bit timing information during the transmission of a binary signal which at the transmitter side of the equipment is converted into a multilevel signal with correlative properties. From such multilevel signal, a binary signal conforming with the original binary signal is reconstructed at the receiver side. Bit timing information for sampling purposes at the receiver side is obtained by detection of the times at which the multilevel signal reaches and/or leaves at least one specific level.

3,838,215
SPEAKERS AND CROSSOVER CIRCUIT

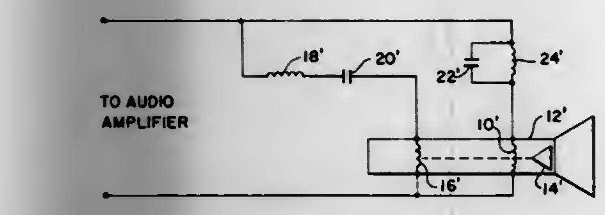
Edward N. Haynes, Jr., 1020 Ohio St., Lawrence, Kans. 66044
Filed Apr. 23, 1973, Ser. No. 349,531
Int. Cl. H04r *3/14*
U.S. Cl. 179—1 D **12 Claims**



A basic woofer, tweeter and crossover circuit apparatus is provided for directing lower frequencies to the woofer and higher frequencies to the tweeter with good circuit impedance constancy and with good woofer and tweeter frequency response characteristics. In a modification of the basic circuit an additional circuit is added to boost lower tweeter frequency signals to the tweeter and to further attenuate mid-range tweeter frequency signals to the tweeter. Also provided is a woofer, mid-range tweeter, high-range tweeter and crossover circuit apparatus for directing lower frequencies to the woofer, mid-range frequencies to the mid-range tweeter and high range frequencies to the high-range tweeter with good circuit impedance constancy and with good woofer, mid-range tweeter and high-range tweeter frequency response characteristics.

3,838,216
DEVICE TO EFFECTIVELY ELIMINATE THE MOTION INDUCED BACK EMF IN A LOUDSPEAKER SYSTEM IN THE REGION OF FUNDAMENTAL ACOUSTIC RESONANCE

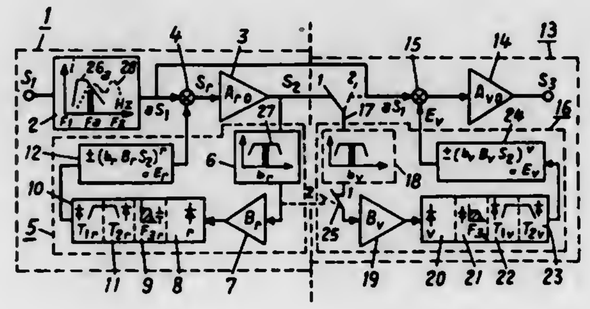
William H. Watkins, 1244 Caribbean Dr., Kingsport, Tenn. 37660
Continuation of Ser. No. 228,547, Feb. 23, 1972, abandoned. This application June 14, 1973, Ser. No. 370,046
Int. Cl. H04r *9/00*
U.S. Cl. 179—1 A **11 Claims**



A loudspeaker system is provided wherein a circuit, including a second voice coil and a series LC resonant circuit, is connected in parallel with the conventional voice coil. The impedance of the second voice coil is lower than that of the conventional coil and the resonant circuit is designed to resonate at the fundamental acoustical resonant frequency of the speaker cone so that a low impedance path for audio amplifier drive current is provided in the region of resonance. The second coil is ineffective at frequencies off resonance and by proper choice of the impedance of this coil, the speaker response at resonance can be matched to that off resonance. A parallel LC resonant circuit connected in series with the conventional coil is designed to effectively remove this coil at resonance and hence eliminate the effect of the back e.m.f. generated thereby.

3,838,217
AMPLITUDE REGULATOR MEANS FOR SEPARATING FREQUENCY VARIATIONS AND AMPLITUDE VARIATIONS OF ELECTRICAL SIGNALS

Jean Albert Dreyfus, 5, Avenue de la Grenade, Geneva, Switzerland
Filed Mar. 1, 1971, Ser. No. 122,612
Claims priority, application Switzerland, Mar. 4, 1970, 3056/70; Sept. 22, 1970, 13922/70
Int. Cl. H04r *3/00*
U.S. Cl. 179—1 A **9 Claims**



Amplitude regulator for electrical signals connected to filter means, comprising an amplifier, the gain of which can be varied by a loop chain incorporating a loop amplifier, a rectifier and a low-pass filter.

The amplitude regulator can comprise a first amplifier the gain of which can be varied in the reverse direction (feedback) by a first loop chain, and a second amplifier the gain of which can be varied in the forward direction (feed forward) by a second loop chain, the output signal of the first amplifier being connected to the input of the loop chain of the second amplifier and further the input signal of the first amplifier becoming the input signal of the second amplifier. Such a "-double loop amplitude regulator" allows to separate the spectrum information (frequency variations) from the dynamics variation (amplitude variation).

The filter means and the electrical parameters may be selected in such a way:

that a fundamental frequency of an input signal can be extracted;

that further the spectrum components of an input signal can be equalized;

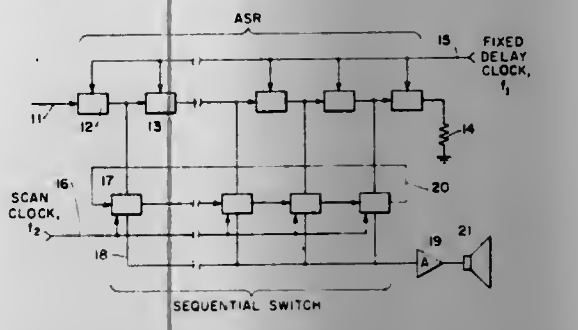
that further the build-up and the decaying time constants of the loop chain signal can be regulated independently from another;

that further the boundaries of the filter means can be moved in response to the variations of the frequency components of said input signals.

3,838,218
BIFREQUENCY CONTROLLED ANALOG SHIFT REGISTER SPEECH PROCESSOR

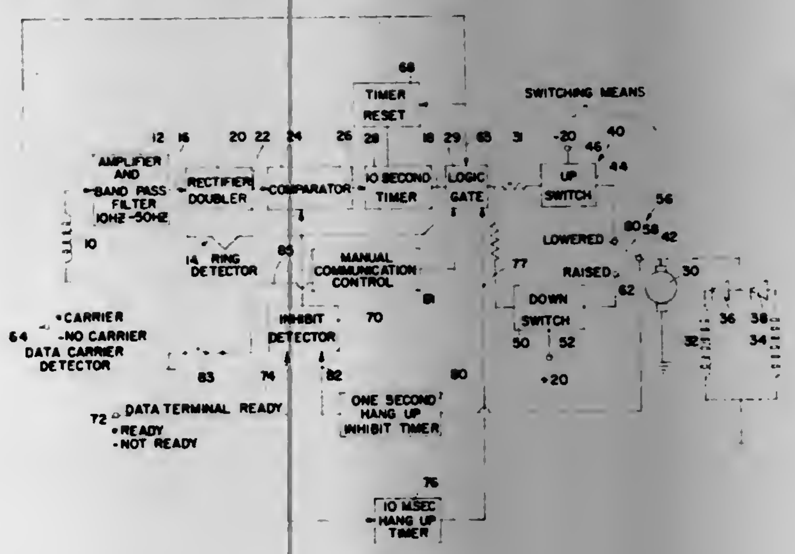
Charles E. Pfund, West Newton, Mass., assignor to Cambridge Research and Development Group, Westport, Conn.
Filed Mar. 7, 1972, Ser. No. 232,495
Int. Cl. G10l *1/00*
U.S. Cl. 179—1 SA **1 Claim**

A processor for recorded speech and other sounds uses an analog shift register operating at one clock frequency to propogate speech signals through the register while a second clock frequency is used to sequentially shift signal values from each stage of the shift register to a common output where they are combined to operate an audio reproducer. The relative frequencies of the two clocks determines the frequency transformation ratio between the input and output signals.



3,838,219
AUTOMATIC TELEPHONE ANSWERING DEVICE FOR USE WITH A DATA MODEM

Edwin E. Mason, Rockbridge, Ohio, assignor to MI , Inc., Columbus, Ohio
Filed Dec. 26, 1972, Ser. No. 318,523
Int. Cl. H04m *11/06*
U.S. Cl. 179—2 DP **9 Claims**

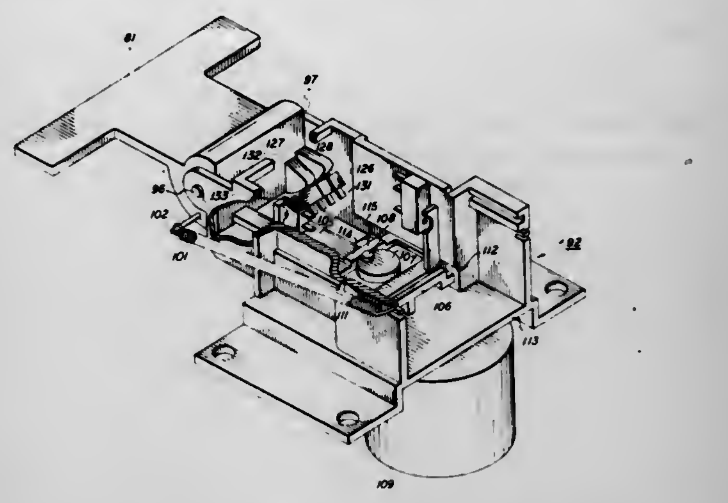


A device physically mounted on a telephone base and extending onto the handset cradle of the base while the handset is mounted in an acoustic data coupler. The device automatically answers a ringing telephone by sensing the ring and effecting the raising of the handset cradle switch buttons. A transmitted carrier is detected by an associated modem and maintains the telephone in an off hook condition until communication is ended or until the condition of the data terminal no longer permits reception of data.

3,838,220
CONTROLLER FOR AUTOMATICALLY ANSWERING AND DISCONNECTING CALLS TO AND FROM TELEPHONE INTERFACED FACSIMILE TERMINALS

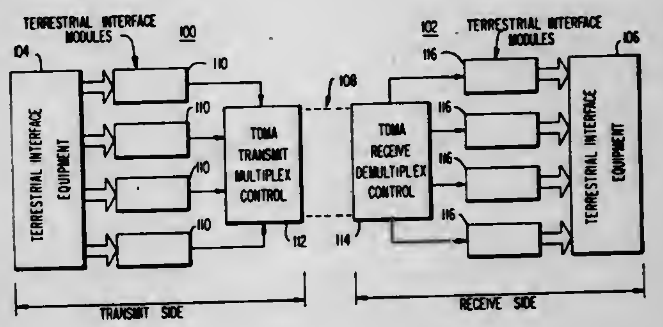
John F. Gormly, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Feb. 28, 1973, Ser. No. 336,596
Int. Cl. H04m *11/08*
U.S. Cl. 179—3 **12 Claims**

A controller for automatically answering and disconnecting calls to and from telephone interfaced facsimile terminals is compatible with conventional installations of ordinary telephone sets. The controller comprises an actuator arm for mechanically operating the cradle switch of an associated telephone set, a driver for the actuator arm, and a control circuit for the driver. If desired, the controller may be overriden by disengaging the actuator arm from the driver. Otherwise, however, the actuator arm is moved away from and toward the cradle switch by the driver in response to control signals supplied by the control circuit. To that end, incoming calls to be answered are sensed by inductively detecting any ringing voltage applied to the telephone set, and incoming or outgoing calls to be disconnected are sensed by a "time out" operation which is initiated whenever the associated facsimile unit stops while the telephone set is "off-hook."



3,838,221
TDMA SATELLITE COMMUNICATIONS SYSTEM HAVING SPECIAL REFERENCE BURSTS

William G. Schmidt, Rockville; Ova G. Gabbard, Germantown, both of Md.; John M. Husted, Vienna, Va.; Wilfrid G. Maillet, Oxon Hill, Md., and Kunishi Nosaka, Tokyo, Japan, assignors to Communications Satellite Corporation, Washington, D.C., by said Schmidt, Gabbard, Husted and Maillet and Kokusai Denshin Denwa Co., Ltd., Tokyo, Japan, by said Nosaka
Filed Aug. 11, 1971, Ser. No. 170,796
Int. Cl. H04j *3/06*
U.S. Cl. 179—15 BS **4 Claims**


TERRESTRIAL INTERFACE MODULES
100
102
104
106
108
110
112
114
116
TERRESTRIAL INTERFACE EQUIPMENT
TDMA TRANSMIT MULTIPLEX CONTROL
TDMA RECEIVE DEMULTIPLEX CONTROL
TRANSMIT SIDE
RECEIVE SIDE

In a satellite transponder communications system operating in a time division multiple access mode, each earth station transmits data in a burst format. All bursts within a single transponder frame are synchronized to a special reference burst which contains no data communications. A single earth station sends out the reference burst as well as its normal burst, and in the case of multi transponders and multi transponder frames, the single reference station sends out all of the reference bursts for the various transponder frames. Data to be transmitted may be received in many different forms and included within the same burst because of the modular arrangement of the earth stations. Individual terrestrial interface modules receive data in various forms, convert the data into bit form which is compatible with the TDMA system, store the converted bit stream and hold the compressed block of data until a multiplexer requests the block of data for inclusion into the earth station's transmitted burst. The arrangement of blocks of data within a burst and the timing and duration of a burst is controlled by digital words stored in a memory. Complete reordering of burst times and the arrangement of blocks of data within a burst is accomplished by changing the words stored in the memory. A comparable system on the receive side of the earth station extracts blocks of data in selected bursts for conveyance to selected terrestrial interface modules.

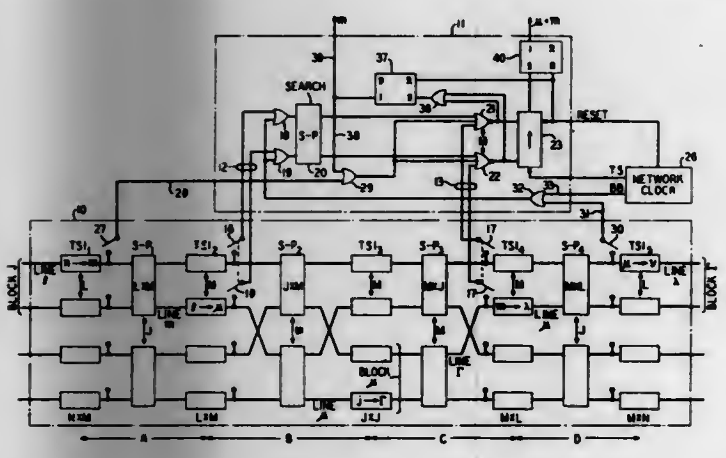
3,838,222
PATHFINDING LOGIC FOR MULTISTAGE TIME DIVISION MULTIPLEX SWITCHING NETWORK

Roy Stephen Krupp, Rumson, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Mar. 6, 1973, Ser. No. 338,567

Int. Cl. H04j *3/00*

U.S. Cl. 179—15 AQ **19 Claims**



Pathfinding logic is described for a time division multiplex switching network of the type which includes alternate stages of time slot interchangers and mass series-parallel converters. Multiple network blocks are included in each stage of the network, and these blocks are cross-connected by grid networks at several different stages in order to provide complete access for each network input highway to any of the network output highways with a relatively low blocking probability. Logic circuits are provided for NORing time slot busy-bit signals of calling block output lines which correspond to called block input lines. The results of the NOR function comprise signals that identify a calling block output line number and time slot number which uniquely define an available time-space path between a calling highway and time slot and a called highway and time slot which are to be placed into communication with one another.

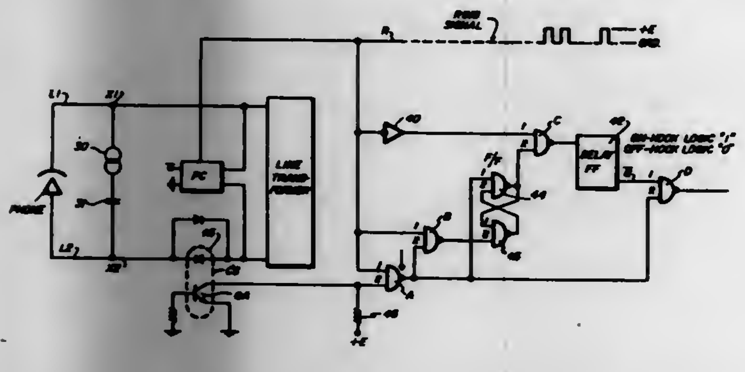
3,838,223
RING TRIP AND DIAL PULSE DETECTION CIRCUIT

David Q. Lee, Chicago, and Donald W. McLaughlin, Bolingbrook, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Oct. 1, 1973, Ser. No. 402,513

Int. Cl. H04m *3/02*

U.S. Cl. 179—18 FA **6 Claims**



A ring trip and dial pulse detection circuit for use in a private automatic branch exchange (PABX) of the type wherein a pole change ring circuit controls the polarity of the output to the telephone handset. The dial pulse detector portion of the arrangement is optically coupled to the remaining portion of the arrangement, so that it is electrically isolated to minimize interface problems and circuits to a register or controller.

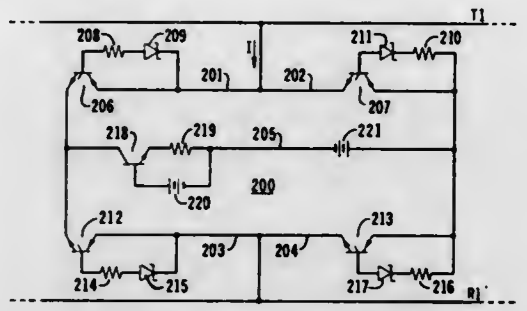
3,838,224
ELECTRONIC TELEPHONE TRUNK CIRCUIT

Lee Wise Richards, 1N231 Woods Ave., Wheaton, Ill. 60187

Filed May 17, 1973, Ser. No. 361,188

Int. Cl. H04m *7/00;* **H04q** *1/52*

U.S. Cl. 179—18 AH **15 Claims**



A telephone system outgoing trunk circuit comprising a bridge network connected between the tip and ring conductors to present a bilateral direct current path at the same time presenting a high impedance to alternating current. The common crossarm of the bridge network includes a current limiter circuit, to the operating characteristics of which hysteresis is added by including a voltage opposing the voltage biasing the limiter circuit. The two voltages are provided by capacitors connected in the network conducting paths alternately charged by applied current pulses via transformer windings connected through diodes across the capacitors. Supervision, that is, the detection of the direction of direct current through the network, is accomplished by sensing the relative current magnitudes in the transformer primary windings. The trunk circuit provides a high AC impedance and low DC impedance and isolation while eliminating previously required relay contacts and a bulky inductor.

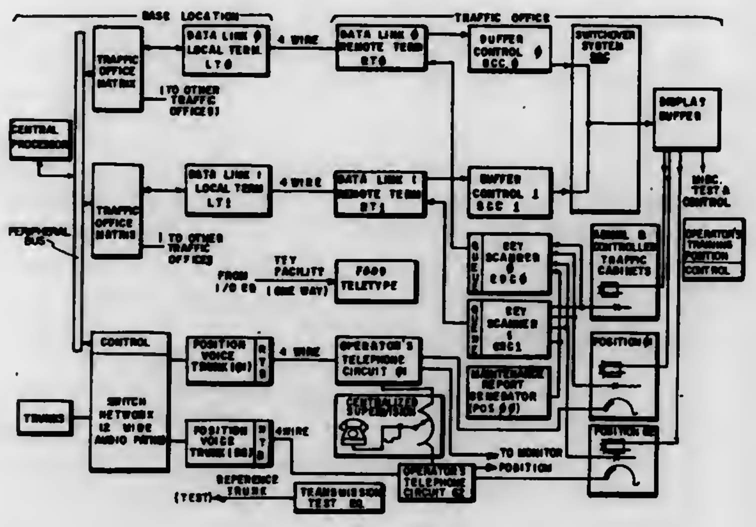
3,838,225
TSPS KEY SCANNER

Anthony Limberg, Potters Bar; William R. Wedmore, Glen Ellyn, and John S. Young, Addison, all of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Sept. 10, 1973, Ser. No. 395,896

Int. Cl. H04q *11/00;* **H04m** *3/62*

U.S. Cl. 179—27 FF **15 Claims**



The keys of telephone toll service positions have contacts to supply a 3-out-of-9 code on a nine-wire bus. The scanner has multiplex circuits to interrogate the position busses sequentially. There are two bistable devices individual to each position, and two common bistable devices to remember the status from cycle to cycle so that a key must be closed for two cycles to generate a valid message, and another message is not generated until after the key is opened. For some keys an "indication on release" message is generated when the key is opened, under control of the bistable devices. There are seven buffer registers into which messages are loaded in sequence, and which are unloaded in sequence for transmission to a central processor. A key interpreter checks for three or more bits out of nine, all zeros, all ones indicating an unequipped position, or a code common to keys requiring indication or release.

3,838,226
AUTOMATIC TELEPHONE EXCHANGE SYSTEM WITH TIME DIVISION MULTIPLEX CONTROL

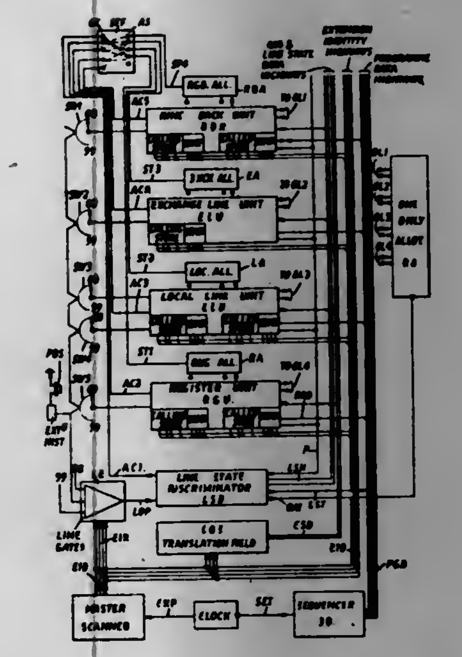
Bloomfield James Warman, Milan, Italy; John Ford Evans, Pembury, England; Stephen Sidney Walker; John Hugh McPherson, both of Walderslade, England, and Alan Sutton, Dartford, England, assignors to GTE International Incorporated, New York, N.Y.

Filed Dec. 21, 1972, Ser. No. 317,312

Claims priority, application Great Britain, Mar. 20, 1972, 13031/72

Int. Cl. H04q *11/04*

U.S. Cl. 179—18 J **19 Claims**



A data processing system, particularly for use in private automatic branch exchanges, in which a number of functionally different groups of service units, such as register units, local line units and main office trunk units, are connected, by means of TDM operated highways, with each other and with common units such as a master scanner, a line state discriminator, a class-of-service translator and a sequencer. There are switches for providing speech paths between the individual service units and the subscriber lines. Independently therefrom each service unit has at least one store for storing the address of a subscriber line and a comparator for detecting coincidence between a line address generated by the scanner and one contained in the store. The combination of all the stores thus provides a composite memory storing the addresses of all lines served by the exchange and capable of being interrogated by its data processing logic on a time-division-multiplex basis. In this fashion the size of the memory can be directly related to the size of the exchange as determined by the number of individual service units.

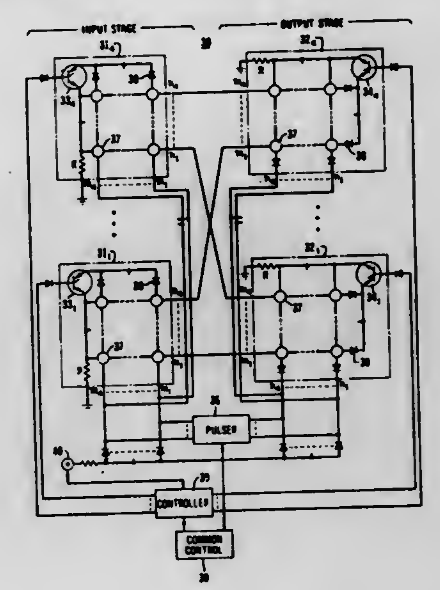
3,838,227
SWITCHING NETWORK CONTROL CIRCUIT

Daniel Danielsen, Wheaton, Ill., assignor to Bell Telephone Laboratories, Murray Hill, N.J.

Filed June 11, 1973, Ser. No. 368,613

Int. Cl. H04m *3/00*

U.S. Cl. 179—18 GF **15 Claims**



In one selection arrangement for a differentially wound ferreed network, a PNPN transistor gate is employed to select particular switches of a network grid. In the past, the gates have been serially enabled to define a pulse path. Here an individual path to ground for selection control currents is provided through a resistor connected in the cathode circuit of the transistor. Enabling of a selected transistor is made independent of a preceding or succeeding transistor in the pulse path and the integrity of said path may be advantageously verified by monitoring the magnitudes of the control and path sensing currents supplied to the selected transistors.

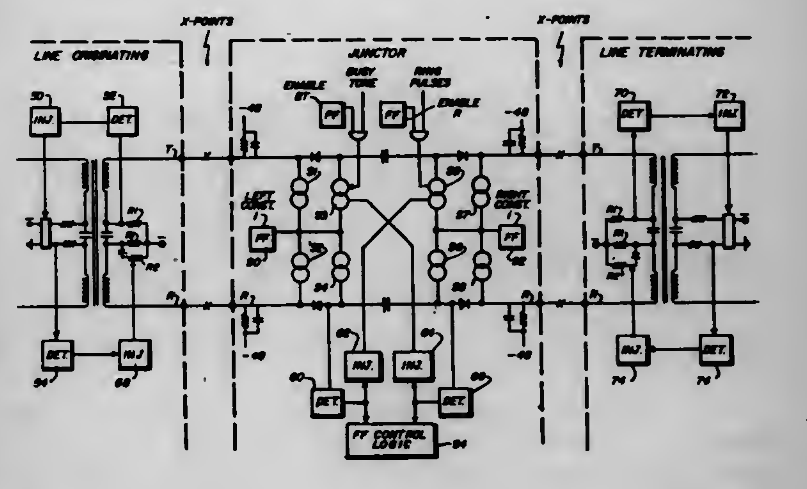
3,838,228
JUNCTOR DISCONNECT DETECTION CIRCUIT

David Q. Lee, Chicago, and Donald W. McLaughlin, Bolingbrook, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Oct. 1, 1973, Ser. No. 402,529

Int. Cl. H04m *3/00*

U.S. Cl. 179—18 H **6 Claims**

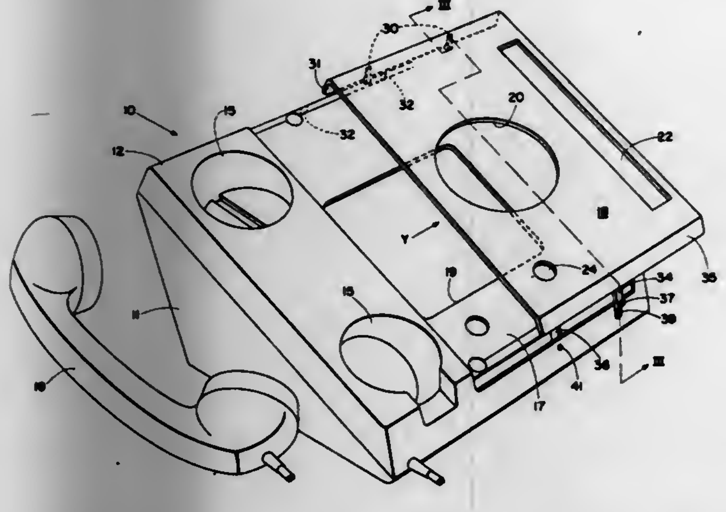


This invention relates to an electronic private automatic branch exchange which is a two wire system using junctors as a means of connecting two line circuits together via a solid state matrix. The system operation is such that the junctor must control the release function, once the final connection is established. This disclosed junctor disconnect detection circuit provides for a dual path release control, as a result of the junctor seeing a disconnect from either line circuit, or a forced release by the systems controller.

3,838,229
TELEPHONE SETS AND REMOVABLE COVERS THEREFORE

Ronald Joseph Morrell; Bev William Gumb; Graham Sterling Laing, and Frederick Thomas Cogan, all of London, Ontario, Canada, assignors to Bell-Northern Research Ltd., Ottawa, Ontario, Canada

Filed Apr. 16, 1973, Ser. No. 351,468
Int. Cl. H04m *1/02, 1/23*
U.S. Cl. 179—100 D **4 Claims**

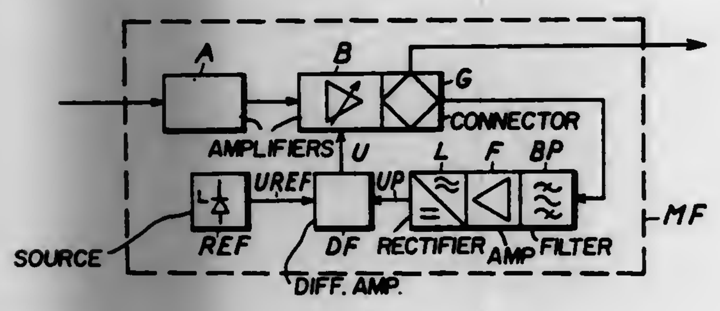


A removable cover for a telephone unit, which clips into place and is quickly and easily removed by service personnel. A variety of dial forms and other aperture arrangements can be accommodated merely by changing the cover. The main unit housing can be formed to accept all dial and other variations so that a single unit suffices for all variations. This reduces stock holdings and is more economic. Colour variation is also readily provided.

3,838,230
COAXIAL CABLE TRANSMISSION LINE

Knut Goran Bohman, Ty~~reso, and~~ Andre Dudnik, Bandhagen, both of Sweden, assignors to Telefon aktiebolaget L. M. Ericsson, Stockholm, Sweden

Filed Sept. 13, 1972, Ser. No. 288,875
Claims priority, application Sweden, Sept. 20, 1971, 11890/71
Int. Cl. H04b *3/58*
U.S. Cl. 179—170 A **1 Claim**

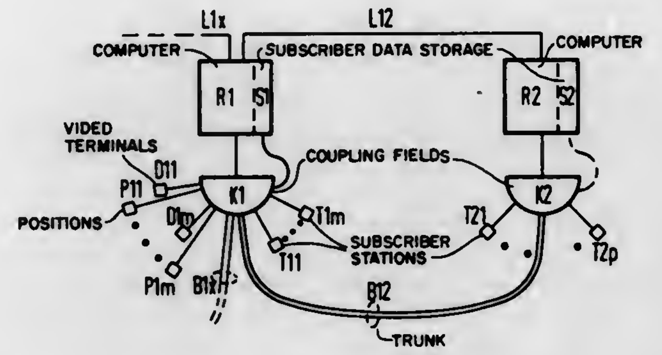


A coaxial cable transmission line for comparatively high frequencies comprises coaxial cables and intermediate repeaters. Each repeater consists of two separate amplifier units connected in cascade, one having a linear frequency characteristic with a positive slope by which the linearity coefficient is adjustable. The other unit has an amplification as a function of the frequency consisting of two terms one of which is a constant and the other is increasing proportionally to the square root of the frequency. The value of the constant of proportionality is automatically adjustable by means of a pilot signal to such a value that nominal signal level is achieved at the output of the repeater in case of attenuation variations of the cable connected to the input.

3,838,231
METHOD OF PERFORMING SERVICE PROCEDURES IN A COMPUTER CONTROLLED TELECOMMUNICATION SWITCHING CENTER

Robert Fritz, Munich, Werner Simon, Darmstadt, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Oct. 24, 1972, Ser. No. 300,325
Claims priority, application Germany, Oct. 27, 1971, 2153623
Int. Cl. H04m *3/00*
U.S. Cl. 179—175.2 R **5 Claims**

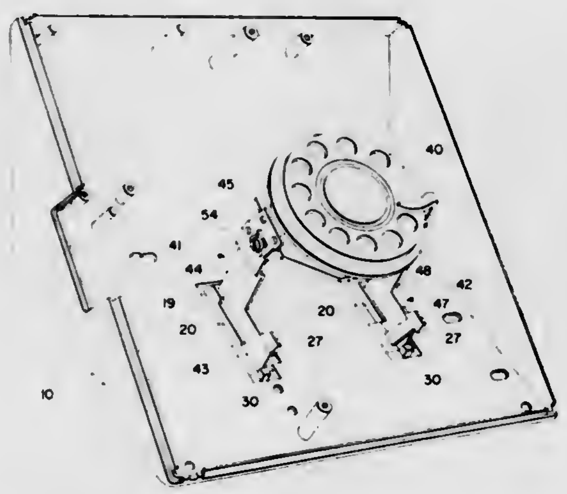


A method of operation for a computer controlled telecommunication switching system is described. In particular the method provides a mode of operation by which positions of a testing station are connected. Calls leading to a position of the testing station cause the identity of the calling subscriber station to be ascertained. The call number, so obtained, is used to address and retrieve subscriber test data from a subscriber data storage. This data is displayed on a video data terminal associated with the testing station position to which the aforementioned call is connected.

3,838,232
MOUNTING FOR TELEPHONE DIALS

Graham Sterling Laing; Ronald Joseh Morrell, and Bev William Gumb, all of London, Ontario, Canada, assignors to Bell-Northern Research Ltd., Ottawa, Ontario, by said Laing and Northern Electric Company Limited, Montreal, Quebec, both of, Canada, by said Morrell and Gumb

Filed May 9, 1973, Ser. No. 358,494
Int. Cl. H04m *1/02*
U.S. Cl. 179—178 **7 Claims**

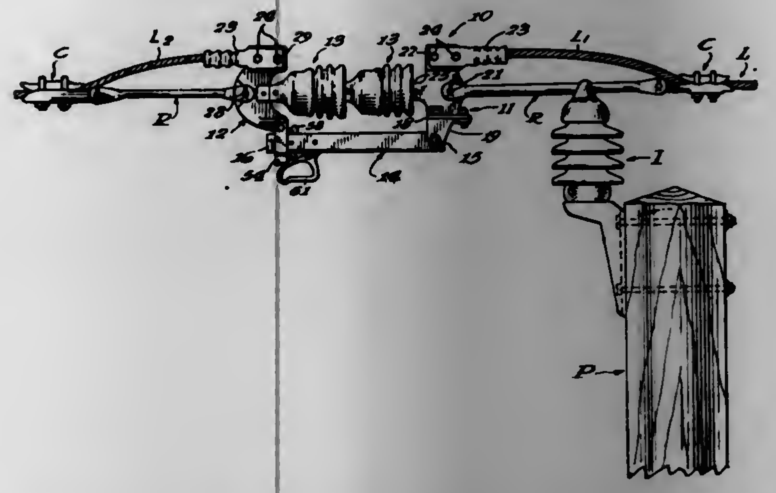


A telephone dial is quickly and easily mounted in a housing by brackets which clip into supports forming part of the housing. The brackets are assembled to the dial before mounting — permitting easier assembly and closer positioning of items in the housing. The dial is readily removed for servicing or replacement. As a further feature the brackets form an opposed pair and by changing over assembly positions, dials of different widths can be accommodated.

3,838,233
ELECTRIC CIRCUIT DISCONNECT MEANS FOR A POWER TRANSMISSION LINE

Ronald P. Bridges, c/o Bridge Electric, Inc., 2451 Wisconsin St., Downers Grove, Ill. 60515

Continuation of Ser. No. 282,180, Aug. 21, 1972, abandoned. This application Sept. 27, 1973, Ser. No. 401,338
Int. Cl. H01h *31/00*
U.S. Cl. 200—48 R **7 Claims**

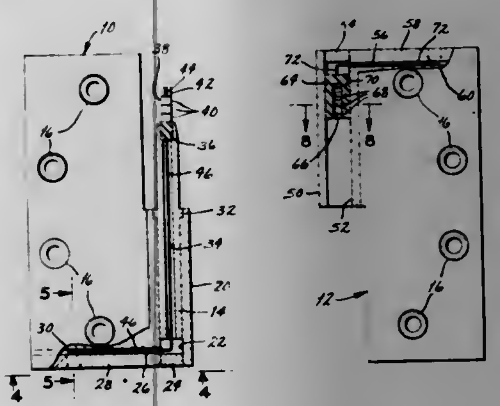


An electric circuit disconnect switch for a power transmission line has a series of cap and pin strain insulators threadedly connected to one another, and threadedly connected to the ends of the series are an electrically conductive hinge terminal bracket and an electrically conductive jaw terminal bracket, each of which is adapted to be electrically connected into a power transmission line. A bridging blade is pivoted on the hinge terminal bracket for separable connection with the jaw terminal bracket.

3,838,234
HINGE THROUGH WHICH AN ELECTRICAL CIRCUIT IS COMPLETED WITH MEANS TO INTERRUPT THE CIRCUIT

Francis C. Peterson, Affton, Md., assignor to C. Hager & Sons Hinge Manufacturing Company, St. Louis, Mo.

Filed July 2, 1973, Ser. No. 375,788
Int. Cl. H01h *3/16*
U.S. Cl. 200—61.7 **16 Claims**

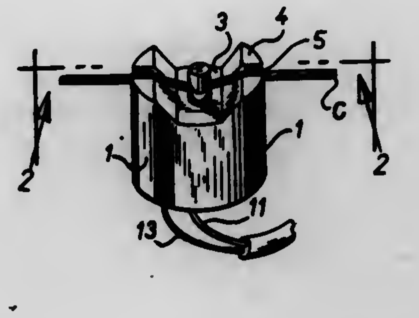


A hinge has leaves provided with aligned knuckles through which a hinge pin extends. The pin is anchored to the knuckle of one of the leaves and carries a dielectric contact spindle on which slip rings are mounted. The knuckle of the other leaf has a dielectric receptacle provided with contact blades which engage the slip rings. The engaged contact blades and slip rings complete electrical circuits through the hinge, but do not interfere with disassembly of the hinge. One slip ring is split so that the circuit through it is interrupted when the hinge reaches a prescribed position. Wires extend from the slip rings and contact blades through the hinge knuckles and also through grooves milled into the end edges of the leaves, and are thereby completely concealed.

3,838,235
CABLE TENSION RESPONSIVE SWITCH

Jean St. Germain, St. John, Quebec, Canada, assignor to Andre H. Baron, East Montreal, Canada

Filed Apr. 16, 1973, Ser. No. 351,533
Int. Cl. B65h *25/14, 25/22*
U.S. Cl. 200—61.18 **4 Claims**

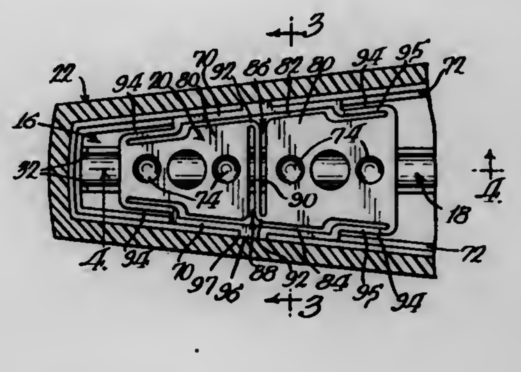


An electrical switch which is responsive to cable tensioning. The switch is directly suspended from a cable, such as the brake cable of a motorcycle, snowmobile or other vehicle. A plunger is hooked to the cable between two portions of the switch housing abutting the cable; a spring urges the plunger to kink the cable when tension is released; tensioning of the cables moves the plunger out of its normal position, thereby operating the electrical contact associated with the plunger. The electrical switch not only eliminates securing the switch housing to a fixed part but also does not require any further adjustment when the brake is adjusted.

3,838,236
ACTUATING MEANS FOR WARNING DEVICES

Walter A. Wolf; Wallace A. Gebhardt, and Prentice R. Corn, all of Logansport, Ind., assignors to Switches Incorporated, Logansport, Ind.

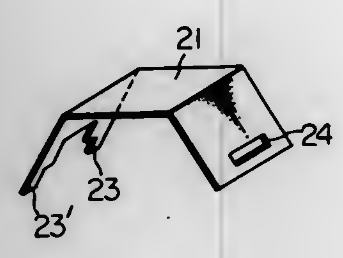
Filed May 23, 1973, Ser. No. 363,084
Int. Cl. H01h *9/00*
U.S. Cl. 200—61.56 **9 Claims**



The invention disclosed herein relates to an actuating means for a warning device such as a horn for an automobile. The actuating means includes an actuator that is supported at opposite sides on a base and overlying an elongated recess which supports a switch consisting of first and second elongated strips that are electrically insulated from each other by a resilient non-conductive member. The actuator has a plurality of longitudinally spaced projections extending towards the switch and slits dividing the actuator into a plurality of flaps so that application of a force to any point on the flaps will cause deflection of the actuator to produce engagement between the elongated strips.

3,838,237
LIGHT LOAD TYPE PUSH BUTTON SWITCH

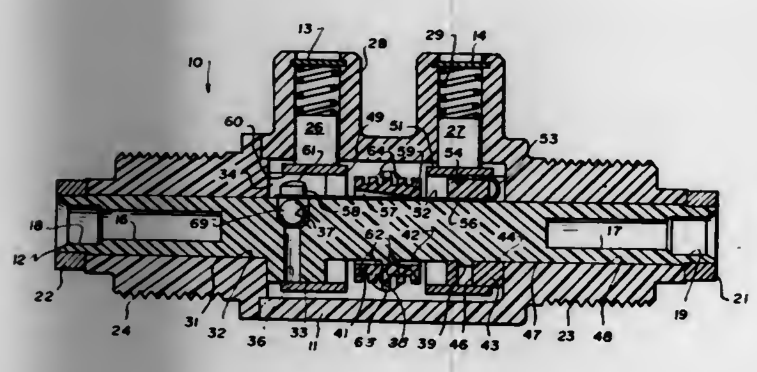
Hideoki Hoshioka, Osaka, Japan, assignor to Matsushita Electric Works, Ltd., Osaka, Japan
Filed Apr. 26, 1973, Ser. No. 354,699
Claims priority, application Japan, Apr. 28, 1972, 47-50407; June 22, 1972, 47-74213
Int. Cl. H01h *13/36*
U.S. Cl. 200—67 DA **5 Claims**



A light load type push-button switch comprises an actuator inserted at one end of movable-contact fixing section between fixed contacts opposing each other as secured to a housing and engaged at the other end of push-button contacting section to a push-button, said push-button contacting section having a spring section extending therefrom toward the movable contact fixing section, a supporting metal member as a common terminal and fixed to the housing so as to substantially transverse the actuator at a substantially intermediate position thereof, said spring section of the actuator being fixed to the supporting metal member at the free end of the movable-contact fixing section side, and a turning spring member, or toggle spring, engaged to the actuator for biasing the push-button contacting section thereof toward the push button.

3,838,238
CENTRIFUGAL SWITCH

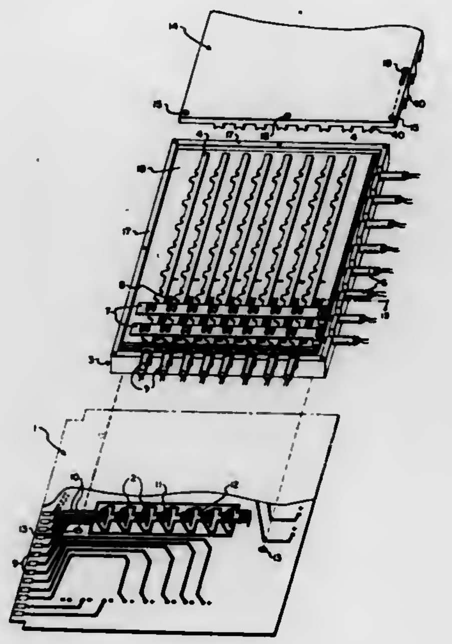
Bayne B. Tomlinson, Decatur, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.
Filed Sept. 17, 1973, Ser. No. 398,261
Int. Cl. H01h *35/10*
U.S. Cl. 200—80 B **12 Claims**



A centrifugal switch including a normally open embodiment and a normally closed embodiment; in either embodiment weighted portions of a spring or inertia members may be used for selecting a speed range in which the switch becomes operative. Either embodiment includes an elongated spring wherein the effective length of the spring is subject to adjustment for more precisely selecting the rotational speed at which the switch becomes operative.

3,838,239
MATRIX SWITCH WITH IMPROVED ACTUATOR TRANSLATING ARRANGEMENT

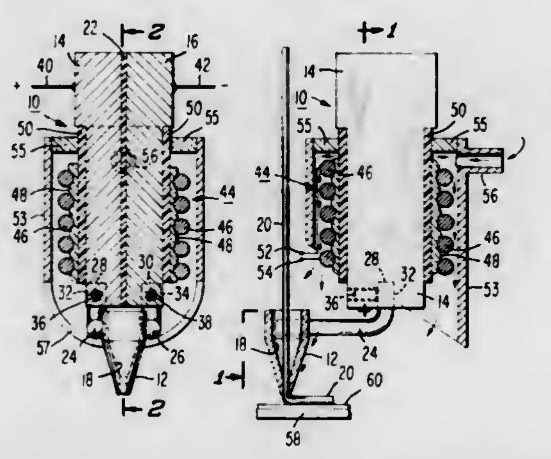
John Maruscak, and George McRae Hendry, both of Brockville, Ontario, Canada, assignors to GTE Automatic Laboratories Incorporated, Northlake, Ill.
Filed July 18, 1973, Ser. No. 380,430
Int. Cl. H01h *63/33*
U.S. Cl. 200—175 **5 Claims**



An open contact matrix is disclosed having a printed wiring card as one of the basic elements thereof; the printed wiring card includes a plurality of fixed contacts and a corresponding plurality of movable contacts extending from the wiring card. A frame is provided for supporting an array of operating members, which are solenoid driven, for selectively moving an actuator above predetermined sets of movable contacts to close them on to their corresponding fixed contacts.

3,838,240
BONDING TOOL AND METHOD OF BONDING THEREWITH

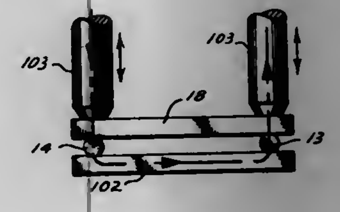
Robert Lindsey Schelhorn, Cinnaminson, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Apr. 4, 1973, Ser. No. 347,674
Int. Cl. B23k *19/00;* **H05b** *1/00*
U.S. Cl. 219—85 **11 Claims**



A thermocompression bonding tool is heated by a combination of conductive and resistive heating means. Firstly, a bonding tip of the tool is heated by conduction with heat provided by a heating coil disposed around electrodes that are adapted to conduct electric current to the bonding tip. Secondly, the bonding tip is heated resistively by current supplied to it through the electrodes. A non-oxidizing inert gas is heated by being passed over the heating coil and is directed onto the bonding tip to prevent oxidation of the bonding tip. The heated gas is also directed onto any workpiece brought adjacent to the bonding tip for bonding thereby, whereby to heat the bonding site so that a cold workpiece need not be preheated before being thermocompression bonded.

3,838,241
MATRIX FABRICATION

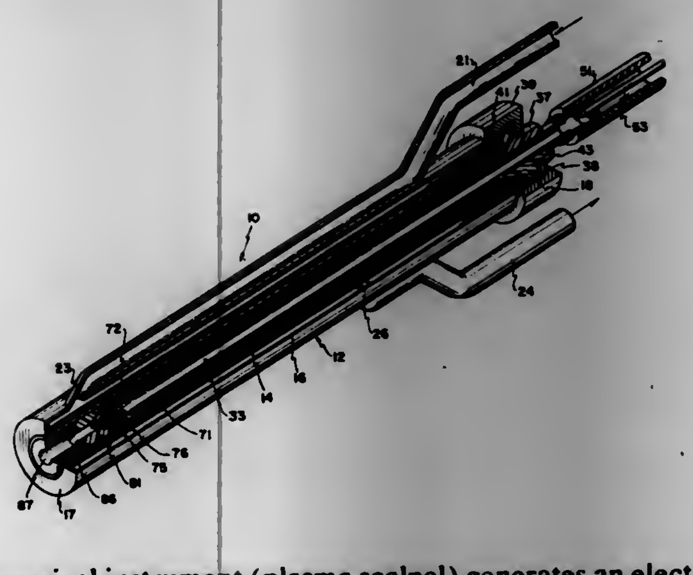
Victor P. Weismann, 430 Prospect Cir., South Pasadena, Calif. 91030
Filed Mar. 22, 1972, Ser. No. 236,875
Int. Cl. B23k *9/12, 11/30;* **B21f** *15/08*
U.S. Cl. 219—56 **23 Claims**



In the manufacture of a modular building panel having a three-dimensional welded wire matrix, the matrix is comprised of a plurality of essentially identical truss-like matrix subunits which are assembled in a machine which includes means for periodically adjusting for the adverse effects of tolerance accumulation so that the matrix subunits may be fabricated in an essentially continuous array in which each subunit has a length within predetermined tolerance limits. A plurality of strips of prefabricated truss units are introduced in synchronism into a matrix fabrication unit which is insensitive to the particular machine upon which matrix subunits were fabricated. In the matrix fabrication machine, a welding station is provided for each subunit of the matrix and includes coaxially aligned first and second electrodes movable toward and away from each other along their common axis, and a central electrode. The central electrode has a welding position in which the central electrode intersects the common axis of the adjacent first and second electrodes to serve as a conductive anvil for the first and second electrodes. The central electrode at each station also has a retracted position spaced from the common axis of the adjacent first and second electrodes to accommodate movement of material to be welded, including the aforesaid matrix subunits, into place between the first and second electrodes.

3,838,242
SURGICAL INSTRUMENT EMPLOYING ELECTRICALLY NEUTRAL, D.C. INDUCED COLD PLASMA

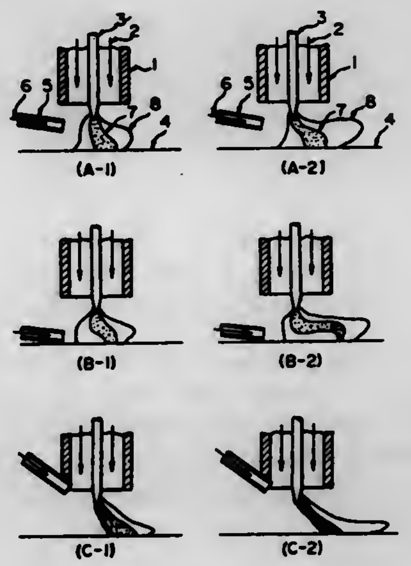
Robert G. Goucher, Salt Lake City, Utah, assignor to Hogle-Kearns International, Salt Lake City, Utah
Filed May 25, 1972, Ser. No. 256,714
Int. Cl. B23k *9/04*
U.S. Cl. 219—121 P **11 Claims**



A surgical instrument (plasma scalpel) generates an electric field plasma in a carrier gas for cutting and/or cauterizing tissue. The instrument includes a tubular conductor for carrying both current and gas to an anode. The gas flows from the tubular conductor, around the surface of an anode, and thence through an annular cathode. The electric field between the anode and cathode excites the gas to a plasma state, and the excited gas then flows in a directed stream through the cathode and out the end of the instrument. The tubular conductor is surrounded by a cooling jacket which concomitantly serves as an electrical conductor to the cathode. A dielectric sheath may be provided over the cooling jacket. This sheath may be overlaid with a conductive skin connected to earth ground to prevent an excessive electric charge from accumulating thereon. The conductive skin is preferably grounded through a circuit breaking device to cut off all power to the instrument if the potential of the skin differs greatly from the potential of the cathode.

3,838,243
METHOD AND APPARATUS FOR CONTROLLING ARC IN GAS SHIELD ARC WELDING

Michio Inagaki, and Akira Okada, both of Tokyo, Japan, assignors to National Research Institute for Metals, Tokyo, Japan
Filed Dec. 29, 1972, Ser. No. 319,732
Int. Cl. B23k *9/00*
U.S. Cl. 219—122 **10 Claims**



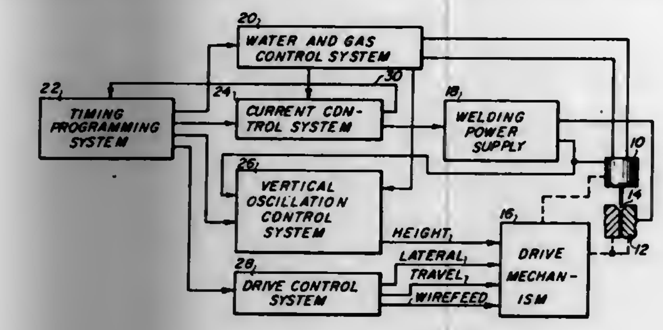
In a gas shield arc welding, a stream of a control gas is blown against the end of an electrode generating arc to deflect the arc in the direction of the control gas jet stream. An arc-generating position of a joint to be welded is controlled by changing the momentum and/or direction of the control gas jet stream.

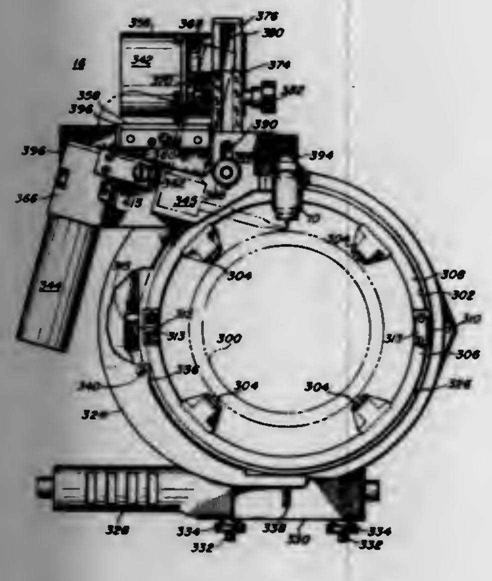
3,838,244
ELECTRICAL SYSTEM FOR AUTOMATIC ARC WELDING

Petros T. Petrides, Stonington; Russell J. Nickerson, Mystic; Rodney R. Cordeiro, Stonington, all of Conn., and James S. Dodson, Jr., East Freedom, Pa., assignors to General Dynamics Corporation, New York, N.Y.
Continuation of Ser. No. 804,724, Oct. 29, 1968, abandoned. This application Apr. 22, 1971, Ser. No. 136,503
Int. Cl. B23k *9/10*
U.S. Cl. 219—131 F **5 Claims**

A process and system for welding of the tungsten inert gas (TIG) type is described. A welding torch is mounted on a mechanism which provides for motion of the torch with respect to the work (a pipe being welded) in three different directions. Movement in each direction is electronically controlled so as to obtain preset magnitudes of oscillation of the torch, both vertically and laterally with respect to the work.

The vertical oscillation is provided by following the pulsating arc current in accordance with a preselected control function.





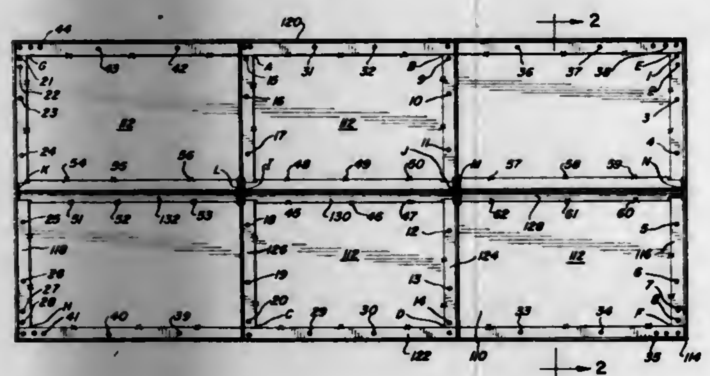
In addition, the system and process provides for control of substantially all of the parameters affecting the formation of the weld in order to produce improved weldments.

3,838,245
FLUSH-FACE ELEVATOR DOOR

James M. Jecmen, Brookfield; John J. Jecmen, Riverside; Robert Riley, Burbank, and James W. Smith, Hinsdale, all of Ill., assignors to Harris Preble Company, Cicero, Ill.

Filed Dec. 18, 1972, Ser. No. 316,261
Int. Cl. B23k *9/00*

U.S. Cl. 219—137 **9 Claims**



A flush-face freight elevator door is produced by welding a face plate, at least about 0.090 inches thick, to the members of a frame in the disclosed order, thereby producing a door substantially free of distortion or "oil-canning."

3,838,246
FLUX-CORED ELECTRODE

Arkady Efimovich Asnis, Bulvar Lesi Ukrainki, 2, kv. 5; Yury Yakovelevich Gretsky, ulitsa Semashko, 21, kv. 116, and Vladislav Alexandrovich Metlitsky, ulitsa Khorevaya, 31, kv. 6, all of Kiev, U.S.S.R.

Filed Sept. 8, 1972, Ser. No. 287,360
Int. Cl. B23k *35/22*

U.S. Cl. 219—146 **2 Claims**

A flux-cored electrode for welding and surfacing cast iron, with a steel casing filled with a pulverized charge or mixture amounting to 65–80 percent by weight of total electrode weight of the following composition (percent by weight of the total electrode weight):

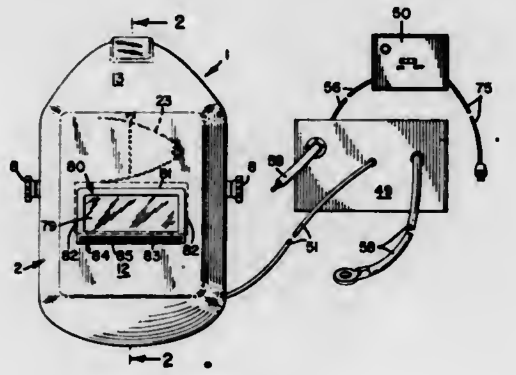
graphite	5–12
ferrosilicon	0.1–6.0
iron powder	0.01–20.00
complex modifier	0.5–6.0
flux-forming agent	0.1–3.0

3,838,247
WELDING HELMET

John F. Finger; William C. Jackson, and Merle E. Pochop, all of Beresford, S. Dak., assignors to Sioux Steam Cleaner Corporation, Beresford, S. Dak.

Filed Mar. 25, 1974, Ser. No. 454,218
Int. Cl. B23k *37/00*

U.S. Cl. 219—146 **11 Claims**



A light reducing viewing shield, or dark glass, mounted in the hood of a welding helmet for movements toward and away from an operative position in register with a viewing opening in the hood. Mechanism in the hood is operative to move the shield between its operative and inoperative positions responsive to movement of a welding electrode respectively into and out of welding engagement with a workpiece. Control circuitry including a time-delay mechanism insures against the movement of the shield away from its operative position until the welding arc is extinguished; and further insures that the welding arc is extinguished by shutting off the welding current when the hood of the helmet is pivotally moved, relative to the head-engaging harness, away from a position in front of the operator's eyes.

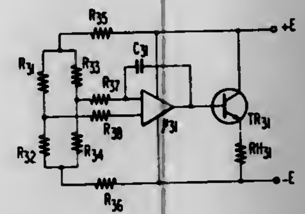
3,838,248
TEMPERATURE CONTROL DEVICE FOR THERMOSTATIC OVEN

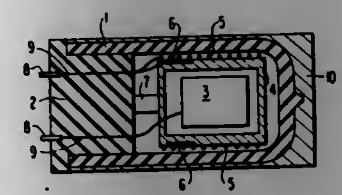
Hisashi Uchida, and Takeshige Hamatsuki, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo-to, Japan

Filed Sept. 6, 1973, Ser. No. 394,873
Claims priority, application Japan, Sept. 7, 1972, 47-90212
Int. Cl. H05b *1/00*

U.S. Cl. 219—210 **3 Claims**

A temperature control device for a thermostatic oven or the like is provided with an input temperature-sensitive, resistive bridge network. Any imbalance voltage in the bride network is integrated by an electronic integrator to provide an output intergrated voltage. The output integrated voltage is amplified by a power amplifier which supplies the heater element in the





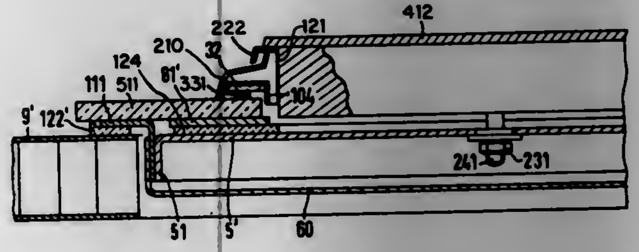
oven. The effect of the arrangement is such as to minimize the offset voltage in the feedback loop with the result that changes in the ambient temperature and power supply voltage have less effect on the operation of the device.

3,838,249
COOKING TRAY

Heinrich Detterbeck, Traunreut, Germany, assignor to Siemens-Electrogerate GMBH, Berlin and Munich, Germany

Filed Apr. 21, 1972, Ser. No. 246,243
Int. Cl. H05b *3/68*

U.S. Cl. 219—460 **10 Claims**



A cooking tray is disclosed in which a carrier of tempered glass is mounted on a support surface between the support surface and the heating element. The carrier is insulated to protect it from the heat of the heating element by thermal sealing means comprising in one embodiment an intermediate ring surrounding the heating element having a layer of insulation attached to the intermediate ring. Moisture seals are also provided between the carrier and the heating element to prevent moisture from entering between the carrier and the heating element.

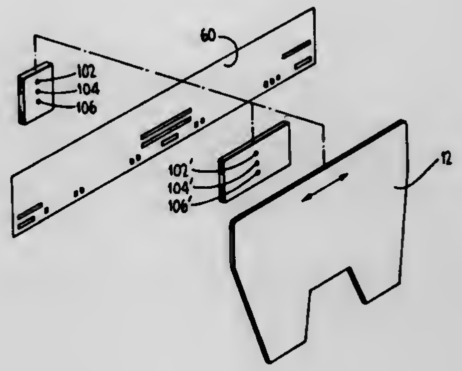
Various alternative embodiments illustrating the concept of utilizing the carrier of tempered glass with an intermediate ring, heat insulation and moisture sealing means to permit the combination of various heating elements with a carrier of tempered glass are disclosed.

3,838,250
CONTROL FOR A MATRIX PRINTING ASSEMBLY

Hartley M. Naas, Concord; Julian C. Sutherland, and Dale D. Nesbitt, both of Berkeley, all of Calif., assignors to The Singer Company, New York, N.Y.

Filed Jan. 5, 1973, Ser. No. 321,177
Int. Cl. B41j *21/18*

U.S. Cl. 235—61.9 R **15 Claims**



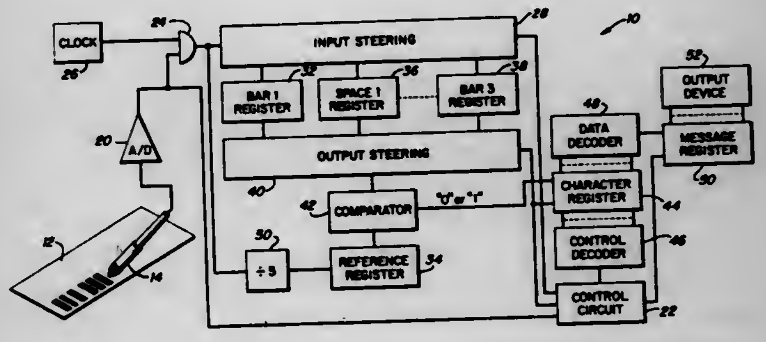
A control for a matrix printing assembly to determine the character and spacing thereof in a data terminal comprising the combination of a mechanical linear strobe and an electronic timing circuit accurately controlling and positioning the stroke of each rod or stylus of the matrix printer.

3,838,251
METHOD OF INTERPRETING A CODED RECORD

Carlos B. Herrin, Bellbrook, Ohio, assignor to Monarch Marking Systems Inc., Dayton, Ohio

Filed June 29, 1971, Ser. No. 157,870
Int. Cl. G06k *7/14, 19/06, 9/10;* **G01n** *21/30*

U.S. Cl. 235—61.11 E **8 Claims**



A machine readable, binary coded record or label includes alternating bars and spaces of different reflectivity in which the widths of the bars and spaces are assigned one of two values representing a binary "1" or a binary "0." The widths of the bars and spaces forming a complete code are individually determined, and the average width of these same bars and spaces is also determined. This average width is then compared with the actual widths of the individual bars and spaces to determine the "1" and "0" significance of the bars and spaces. In this manner, the establishment of a virtual reference width formed by the averaging of the individual bar and space widths renders record interpretation substantially independent of reading speed or apparent bar and space width.

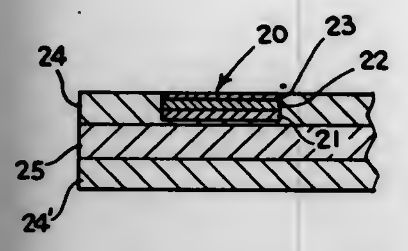
3,838,252
PROTECTIVE COATINGS FOR MAGNETICALLY CODABLE CREDIT CARD

John E. Hynes, Danbury, and Joseph F. Braca, Huntington, both of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

Continuation-in-part of Ser. No. 16,118, July 9, 1971, Pat. No. 3,626,214. This application Feb. 22, 1972, Ser. No. 227,960

Int. Cl. G06k *19/06*

U.S. Cl. 235—61.12 M **6 Claims**



The magnetically encoded stripe of a plastic credit card is protected from abrasion and wear by precisely coating the stripe in a manner which does not adversely affect the readability of the magnetically encoded stripe. The coating is a vinyl polymer such as polyvinylchloride applied in a thickness of about 0.1 mills. The polymer is suspended or dissolved in a carrier liquid which is a substantial non-solvent for the material of the magnetic stripe on which it is applied. The magnetic stripe is pre-coated and then applied to the credit card.

3,838,253
ELECTROMAGNETIC COUNTER

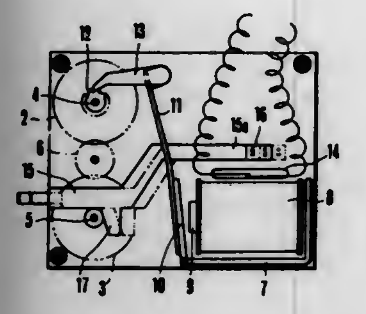
Noriyoshi Sanada, Urawa City, Japan, assignor to Tamura Electric Works, Ltd., Tokyo, Japan

Filed June 14, 1972, Ser. No. 262,481

Claims priority, application Japan, June 29, 1971, 46-55860

Int. Cl. H03k *23/03*

U.S. Cl. 235—92 C **1 Claim**



In an electromagnetic counter of the type including an electric coil responsive to a signal to be counted, a counter operated by the coil, a holding contact which is closed when the coil is energized and adapted to hold itself closed and any related circuit in the operating condition, and means for resetting the counter and opening the holding contact, the holding contact is comprised by a magnetic switch disposed to be operated by the coil and the reset means comprises a permanent magnet which is normally positioned with respect to the magnetic switch such that the magnetic flux generated by the permanent magnet is not sufficient to close the magnetic switch but sufficient to hold the magnetic switch in the closed state once it has been closed by the coil.

3,838,254
EXTENSOMETER WITH UPDATING AT INTERVALS INDEPENDENT OF STRIP SPEED

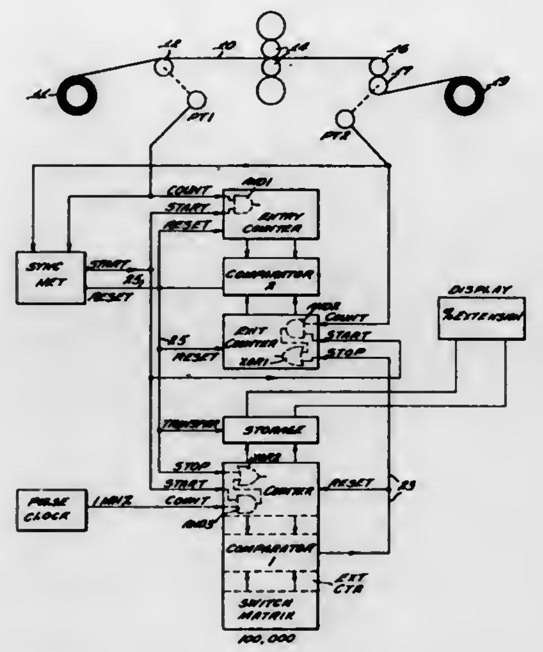
Allan C. Halter, Milwaukee, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Sept. 27, 1972, Ser. No. 292,793

Int. Cl. B21c *51/00*

U.S. Cl. 235—92 DN **15 Claims**

A steel strip engages entry and exit rolls in passing through a rolling mill, pulses from entry and exit pulse tachometers driven by the entry and exit rolls are accumulated in entry and exit counters respectively, and the amount of extension of the strip is determined by repeatedly accumulating in a presettable extension measuring counter the pulses from a pulse clock, stopping the exit counter and resetting the extension measuring counter to zero after the preset number of pulses have been accumulated, continuing to accumulate pulses in the entry and extension measuring counters, and upon coincidence of counts stored in the entry and exit counters, reading out the number of clock pulses accumulated in the extension measuring counter in the period between stopping of the exit counter and coincidence of counts in the entry and exit counters as an indication of the percent extension of the strip.



3,838,255
APPARATUS FOR COUNTING A STACK OF SHEETS

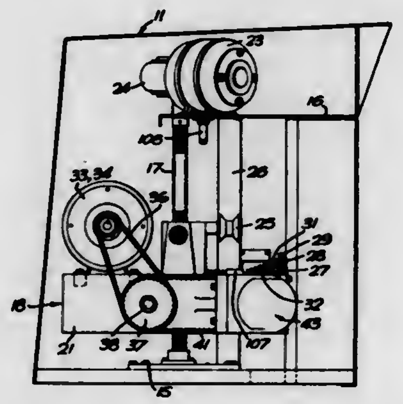
Gordon Stanley Dutton, Harwich, England, assignor to Vacuumatic Limited, Harwick, England

Filed Nov. 19, 1973, Ser. No. 417,123

Claims priority, application Great Britain, Nov. 24, 1972, 54393/72

Int. Cl. G06m *9/00*

U.S. Cl. 235—92 SB **10 Claims**



There is disclosed an apparatus, for counting a stack of sheets, of the kind (hereinafter referred to as "the kind described") comprising a counting head which in use is traversed along a corner of the stack, the head having a suction blade provided with a suction orifice for insertion in the corner of the stack, which blade is oscillatable about a horizontal axis to separate a corner of a sheet in the stack adhered by suction to one side of the blade from the next sheet, and a wiping pin movable in an elongate orbit around the blade to transfer the corner of the sheet from the said one side of the blade to the opposite side thereof, and means to count the number of transfer operations effected, wherein there are provided means for positively precluding further operation of the apparatus when a predetermined number of sheets has

been counted, which means comprise an interrupting blade movable between an inoperative position, and an operative position in which the interrupting blade covers the suction orifice in the suction blade to prevent the blade adhering to another sheet.

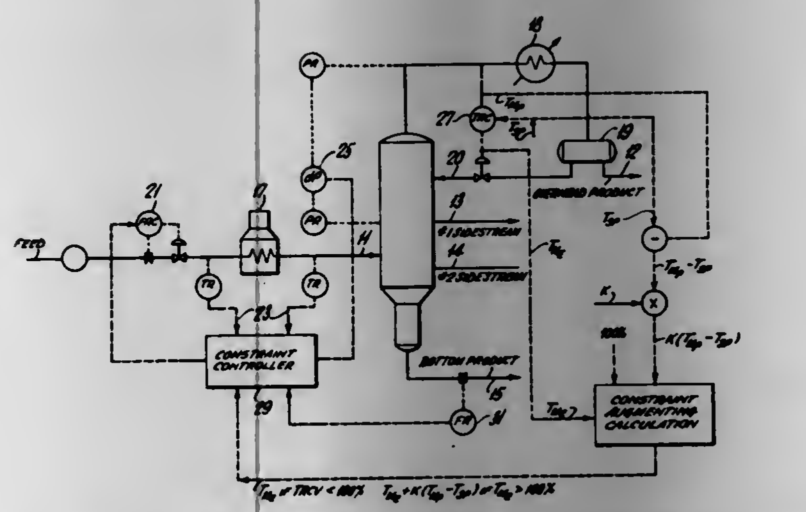
3,838,256
CONSTRAINT CONTROL FOR PROCESSES WITH EQUIPMENT LIMITATIONS

Henry A. Mosler, Morristown, N.J., assignor to Esso Research and Engineering Company, Linden, N.J.

Filed Dec. 3, 1973, Ser. No. 421,034

Int. Cl. G06f *15/46;* **G05d** *21/02*

U.S. Cl. 235—150.1 **2 Claims**



In a constraint control system which automatically optimizes the performance of a process unit by continuously scanning important operating variables, measuring the deviation of those variables from their preselected target values, identifying the instant limiting variable, and adjusting a predetermined manipulated variable to bring the limiting variable to its target value, when one of the operating variables exceeds its target value and is an equipment limitation, the error signal is augmented to indicate the true extent of the deviation which must be corrected in order to bring that variable back to its target value.

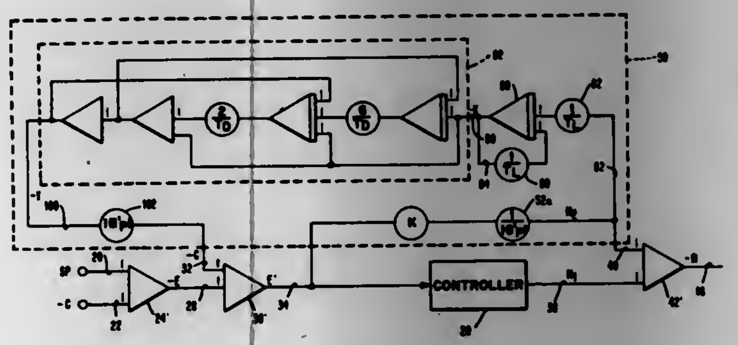
3,838,257
CONTROL SYSTEM FOR MINIMIZING BOTH THE CONTROL ERROR AND THE INTEGRAL OF THE CONTROL ERROR

Charles W. Ross, Hatboro, Pa., assignor to Leeds & Northrup Company, North Wales, Pa.

Filed Nov. 6, 1972, Ser. No. 304,029

Int. Cl. G05b *11/42*

U.S. Cl. 235—151.1 **7 Claims**



A standard feedback control system is supplemented by a modification of the manipulated variable in proportion to the product of the error and the reciprocal of the absolute value of the process gain. That supplementary control, which minimizes the integral of the control error in a minimum time, is prevented from affecting the feedback control response by a modification of the error so that changes in the controlled variable resulting from the supplementary control will not affect the effective error input to the feedback controller. This compensation of the error is produced by using a process model responsive to the supplementary control for modifying the error signal.

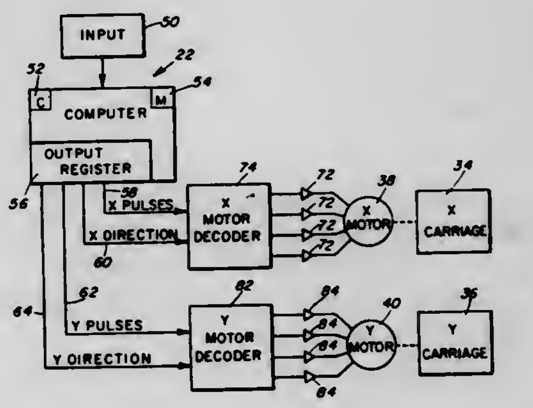
3,838,258
STEP MOTOR CONTROL SYSTEM

David J. Logan, Glastonbury, Conn., assignor to The Gerber Scientific Instrument Company, South Windsor, Conn.

Continuation of Ser. No. 10,216, Feb. 10, 1970, abandoned. This application Feb. 18, 1972, Ser. No. 227,686

Int. Cl. G05b *19/40;* **G06f** *15/46*

U.S. Cl. 235—151.11 **9 Claims**



A control system for a step motor includes a computer which controls the energization of the step motor in response to input information supplied thereto. The step motor is connected directly to the output register of the computer so that the computer has complete control of each increment of motion of the step motor, the motor increments being produced by the computer program without the aid of an external clock or feedback signals from the step motor or the part driven thereby. In order to match the stepping rate of the step motor to the higher rate at which the computer is able to generate incremental motion producing changes in the output word appearing in the output register, the computer program includes at least one wait loop which is performed following each change in the output word to provide a predetermined delay preceding the appearance of the next word change and to control the velocity of the motor. In operating the motor between two end points wait loops of different duration may be used during the starting and stopping phases in order to match the acceleration and deceleration loads imposed on the motor to its available torque at various different speeds.

3,838,259
CIRCUIT ARRANGEMENT FOR GENERATING PSEUDO RANDOM NUMBERS

Dieter Kortenhaus, Bingen, Germany, assignor to NSM Apparatebau GmbH Kommanditgesellschaft, Bingen/Rhine, Germany

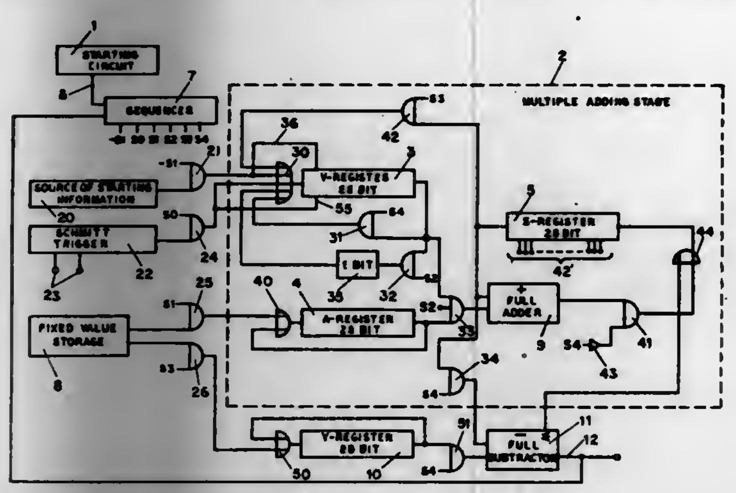
Filed Apr. 5, 1973, Ser. No. 348,221

Claims priority, application Germany, Apr. 7, 1972, 2216633

Int. Cl. G06f *7/00*

U.S. Cl. 235—152 **11 Claims**

A circuit for generating pseudo random numbers includes an adder stage having a multiplier connected for serial bit multiple addition. The adder stage is controlled by a sequence switch. The adder stage includes a first register connected to receive a preceding random number, a second register having a constant number, means connected for the serial addition of the outputs of the first and second registers, and a sum register connected to receive the results of the multiple addition. The output of the sum register is connected to the input of the first register under control of the sequence switch. An additional



register may be provided, in addition to serial subtractor means for combining the outputs of the sum register and the additional register.

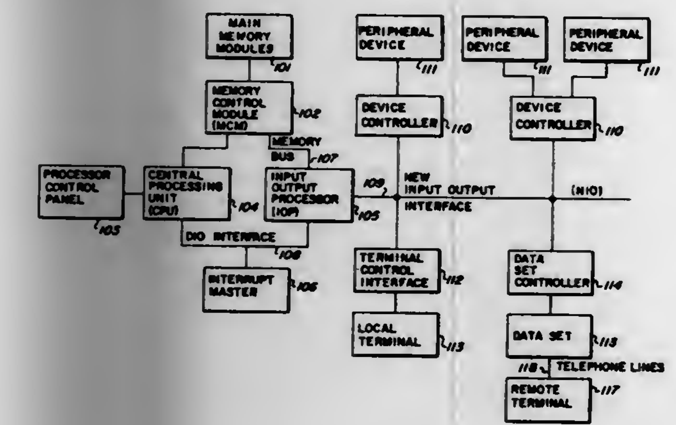
3,838,260
MICROPROGRAMMABLE CONTROL MEMORY DIAGNOSTIC SYSTEM

Frank M. Nelson, Sherman Oaks, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 22, 1973, Ser. No. 325,479

Int. Cl. G06f *11/04*

U.S. Cl. 235—153 AK **10 Claims**



Periodically operating test microprograms and fault detection circuits for a data processing system containing a microprogrammable control memory are disclosed. Said fault detection is performed concurrently with normal data processing in a time-shared fashion. Also disclosed are means for storing fault information and the status of said system at the time of fault detection, and a terminal coupled to the system by communication lines for enabling the execution of software diagnostics and the read out of all stored fault information.

3,838,261
INTERRUPT CONTROL CIRCUIT FOR CENTRAL PROCESSOR OF DIGITAL COMMUNICATION SYSTEM

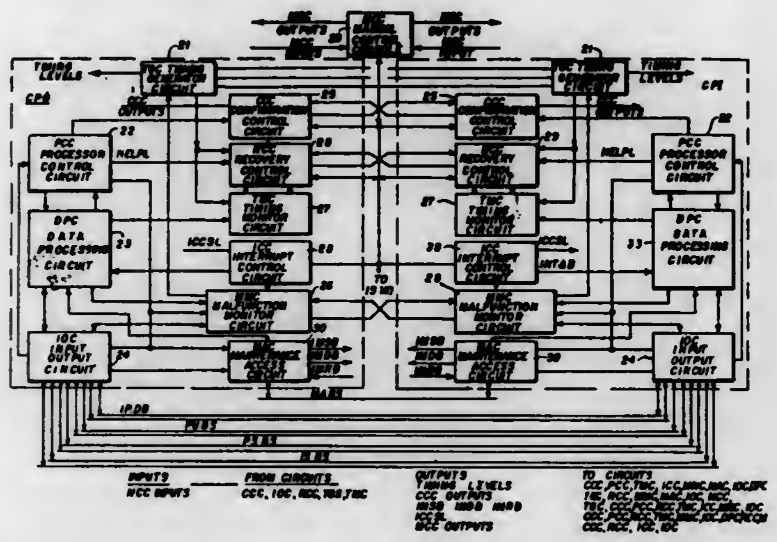
Verner K. Rice, Wheaton; John J. Mele, Chicago, and Rolfe E. Buhrke, La Grange Park, all of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Sept. 14, 1973, Ser. No. 397,458

Int. Cl. H04m *3/24, 3/10;* **G06f** *15/16*

U.S. Cl. 235—153 AE **8 Claims**

The control and maintenance complex of a TSPS telephone system is provided with duplicate copies of a programmable central data processor, instruction storage, process storage and peripheral units which interface with the telephone network. When a fault is detected, the system enters a recovery phase to try to obtain a fault-free combination. Recovery programs have priority over call processing programs. An interrupt control circuit (ICC) is present in each central processor; and the ICC in the active central processor, upon fault detection by the central processor, controls the execution of maintenance interrupts. The ICC establishes priority of recovery programs, inhibits the call for recovery programs of lesser priority than the one being executed, and generates an Interrupt Control Circuit Sequence Level signal which performs many functions in the other circuits of the central processor, including those necessary to call and run a recovery program without losing data when the interrupt occurs.



3,838,262
FOUR-QUADRANT MULTIPLIER CIRCUIT

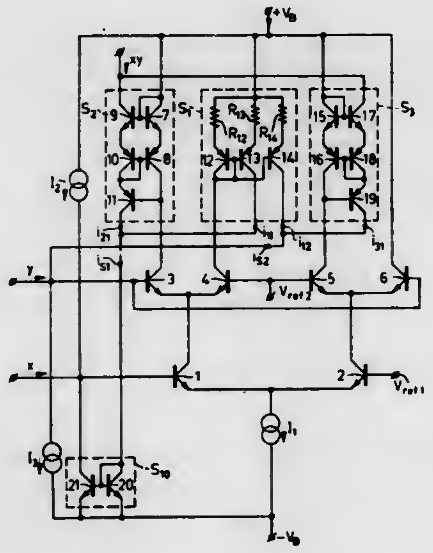
Rudy Johan van de Plassche, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed July 25, 1973, Ser. No. 382,591

Claims priority, application Netherlands, Aug. 3, 1972, 7210633

Int. Cl. G06g *7/16*

U.S. Cl. 235—194 **11 Claims**



A four-quadrant multiplier circuit, constituted in a known manner by three differential stages, one stage of which receives the x-signal and supplies the current for the two other stages, which receive the y-signal in parallel. From the output currents of these two last-mentioned differential stages such sum currents are formed with the aid of multiple current mirrors that these currents are suitable to be applied to the two inputs of the circuit as negative-feedback currents. By also applying the input signals as currents an effective negative feedback system is obtained.

3,838,263
ANALOG FUNCTION GENERATOR WITH MAGNETIC CARRIER

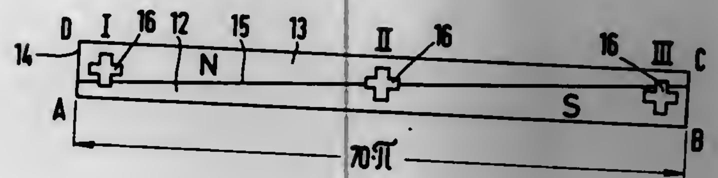
Jochen Haeusler, Nurnberg-Laufamholz; Wolfgang Wagnerberger, and Michael Appiah, both of Nurnberg, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Nov. 22, 1972, Ser. No. 308,779

Claims priority, application Germany, Nov. 22, 1971, 2157801

Int. Cl. G06g *7/26*

U.S. Cl. 235—197 **5 Claims**



An analog function generator is disclosed and has a magnetic carrier made up of at least two magnetic parts extending over a predetermined range. The magnetic parts have respective, mutually opposing polarities and develop a composite magnetic field composed of component magnetic induction fields corresponding to these polarities. The magnetic parts conjointly define a common boundary interface between each other. A galvanomagnetic device such as a Hall generator is disposed in the composite magnetic field. The magnetic carrier and the galvanomagnetic device are mounted so as to effect a relative motion with respect to each other and the interface is inclined with respect to the direction of this motion; this causes the component magnetic fields to act upon the galvanomagnetic device in respective varying intensities as the device and the carrier move relative to each other in the direction of the relative motion whereby the device provides an output signal having a polarity and magnitude dependent upon the position of the device with respect to the carrier.

3,838,264
APPARATUS FOR, AND METHOD OF, CHECKING THE CONTENTS OF A COMPUTER STORE

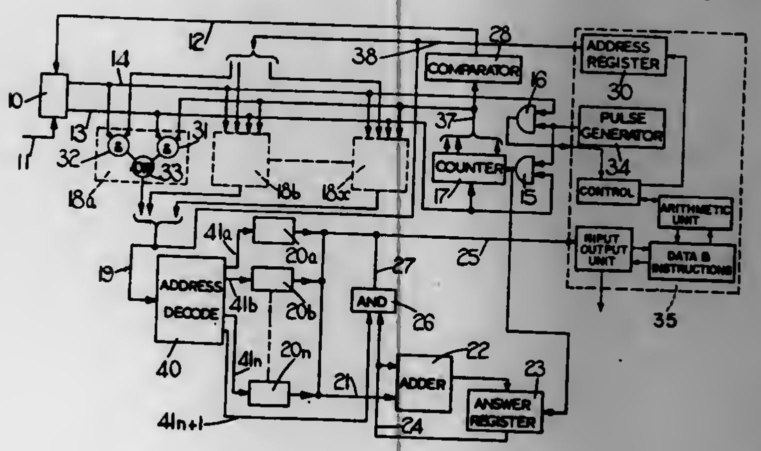
Paul Manwaring Maker, 429 Brook Ln., Birmingham, England

Continuation-in-part of Ser. No. 201,554, Nov. 23, 1971, abandoned. This application Feb. 20, 1973, Ser. No. 333,503

Claims priority, application Great Britain, Nov. 25, 1970, 56017/70

Int. Cl. G11c *29/00*

U.S. Cl. 235—153 AM **10 Claims**



An apparatus for checking the contents of a store of a computer which is normally under control of a train of timing pulses, and in which the store is normally controlled by an address register in the computer, comprises a switching arrangement responsive to a command signal to remove the pulses from the remainder of the computer then automatically being returned to control of the pulses and the sum being retained for comparison with a known quantity.

3,838,265
APPARATUSES FOR ILLUMINATING AN OPERATING ZONE WHICH IS OBSERVED BY MEANS OF AN OBSERVATION MIRROR

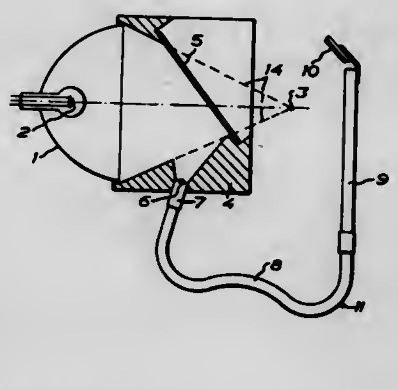
Ake Persson, Sollentuna, and Folke Hedstrom, Stockholm, both of Sweden, assignors to SWE-PE-DENT AB, Handelsvagen, Danderyd, Sweden

No Drawing. Filed Nov. 9, 1973, Ser. No. 414,391

Claims priority, application Sweden, Nov. 17, 1972, 15037/72

Int. Cl. F21

U.S. Cl. 240—1 LP **4 Claims**



An apparatus for illuminating an operating zone which is observed by means of an observation mirror of the type having a stem, includes a light-generating device from which the light is transmitted to the operating zone over a light conductor and reflecting means separate from the observation mirror. The light-generating means comprises a light source which is positioned in one focal point of a cold-light reflector which is part of an ellipsoid. A planar cold-light mirror is provided between said focal point and the other focal point of the ellipsoid and makes an angle with the axis of the ellipsoid such that the visible light is reflected toward a secondary focal point positioned outside the maximum focusing cone of the reflector, one end of the light conductor being disposed at the secondary focal point. The other end of the light conductor cooperates with the reflecting means the surface of which makes an angle with the longitudinal direction of the stem of the observation mirror such that the light coming from the reflecting means strikes the operating zone. The latter angle is so selected in relation to the angle of the observation mirror to the longitudinal direction of the stem that the operating area becomes visible in the observation mirror.

3,838,266
ILLUMINATED PRODUCT DISPLAY FIXTURE

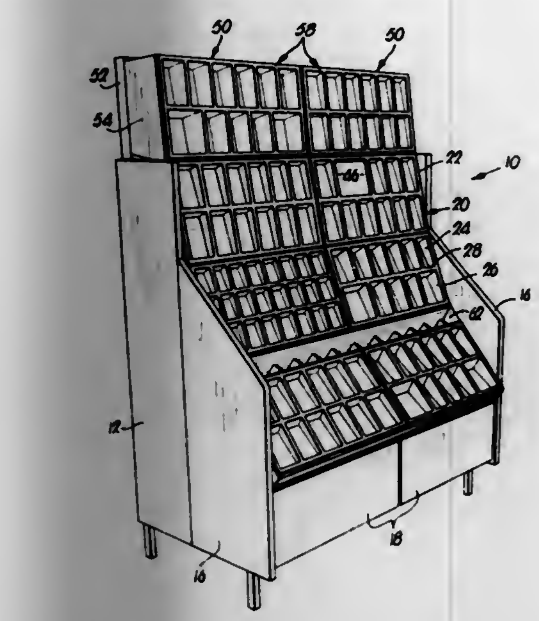
Isaac Jonathan, Kansas City, Mo., assignor to Hallmark Cards, Incorporated, Kansas City, Mo.

Filed May 17, 1973, Ser. No. 361,141

Int. Cl. F21v *33/00*

U.S. Cl. 240—2 AD **20 Claims**

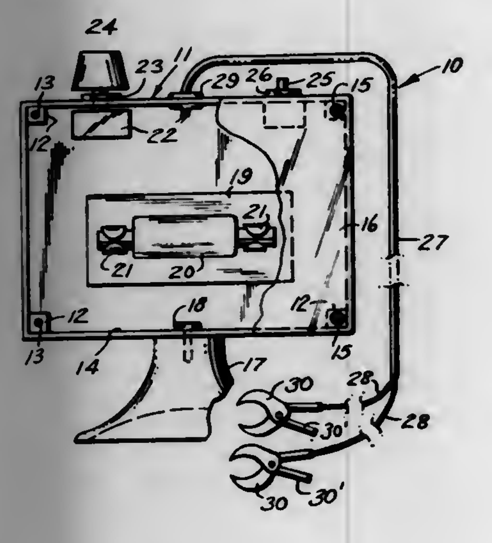
An illuminated product display fixture provided with a housing having an upright opening therein for receiving a plurality of removable, preformed, interchangeable, translucent, tray-like synthetic resin modules each having a series of article receiving pockets or niches therein. Articles displayed in individual pockets are illuminated around the entire perimeter thereof by provision of an elongated light source in the housing loacted between the modules and a paraboloidal reflector which serves to assure relatively uniform light distribution through the side walls of each pocket. Preferably, opaque, rearwardly facing reflectorized material on the back wall of



each pocket enhances light distribution in the housing and prevents visual observation of hot spots when articles are deflected from one or more pockets.

3,838,267
NIGHT FISHING LIGHT

Larry A. Eggers, and Walter A. Eggers, both of 1330 E. Atlantic, both of Springfield, Mo. 65803
Filed Mar. 23, 1973, Ser. No. 344,134
Int. Cl. F21v *33/00;* **B60g** *1/26;* **F21l** *7/00*
U.S. Cl. 240—6.4 F **1 Claim**

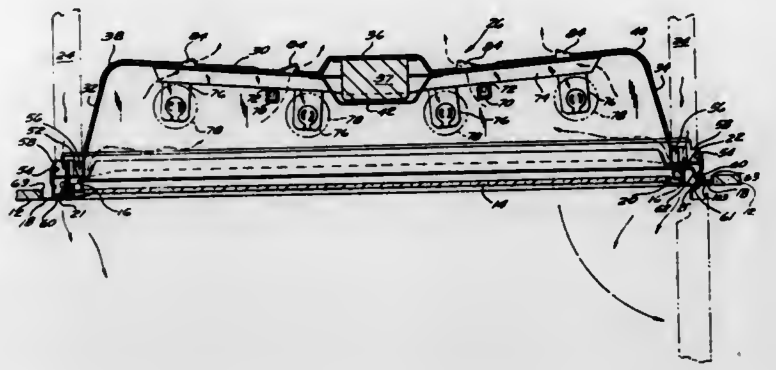


A light for night fishing, consisting primarily of a suction cup mounted on a plastic box having a removable lens secured to the open end from which light is emitted from a snapably releasable bulb, the device including a brightness control, an on and off switch, and insulated battery clips for securement to the boat's power supply or to an automobile battery.

3,838,268
FLUORESCENT FIXTURE

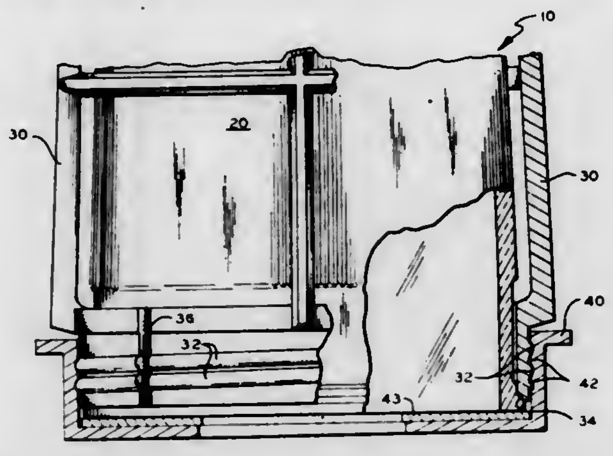
William C. Fabbri, Billerica, Mass., assignor to Keene Corporation, New York, N.Y.
Filed Aug. 29, 1973, Ser. No. 392,805
Int. Cl. F21v *33/50;* **F24f** *13/02*
U.S. Cl. 240—9 A **6 Claims**

An improved fluorescent lighting fixture is provided. The fixture includes a one-piece troffer having a pair of integral side walls extending downwardly from a top portion. Each side wall includes a substantially horizontal shelf containing air vent openings therein. The troffer further includes duct retaining means formed integral with the side walls and adapted to hold air ducts in position to communicate with the air vents. In addition, the troffer includes a first set of latch and hinge pin engaging means adapted to secure a first cover frame in a position so as not to obstruct the air vents and a second set of latch and hinge pin engaging means adapted to secure a second cover frame in a position so as to completely block the vents.



3,838,269
GLOBE AND GLOBE GUARD FOR A LIGHTING FIXTURE

Andris Bogdanovs, Liverpool, N.Y., assignor to Crouse-Hinds Company, Syracuse, N.Y.
Filed Feb. 5, 1974, Ser. No. 428,545
Int. Cl. F21u *15/02*
U.S. Cl. 240—102 R **2 Claims**



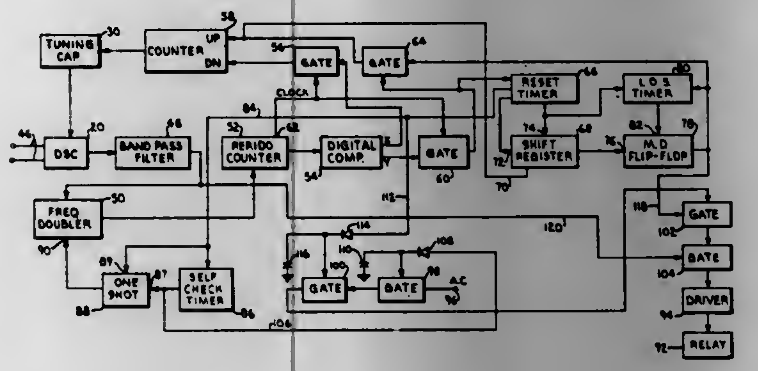
A retaining structure for a grid-type globe guard for a lighting fixture, consisting of a internally threaded mounting ring and an externally threaded split guard surrounding a frangible globe, the globe having a beveled flange and the split guard having a chamfered surface which coacts with the bevel to expand the threads into a seizing engagement with the threaded mounting ring as the guard is screwed into place to affix the globe.

3,838,270
DIGITAL MOTION DETECTOR

Forrest H. Ballinger, Grain Valley; Wilfred L. Farnham, Jr., Kansas City, and Robert E. Heggestad, Blue Springs, all of Mo., assignors to Harmon Industries, Inc., Grain Valley, Mo.
Filed Sept. 24, 1973, Ser. No. 399,969
Int. Cl. B61l *1/06*
U.S. Cl. 246—130 **25 Claims**

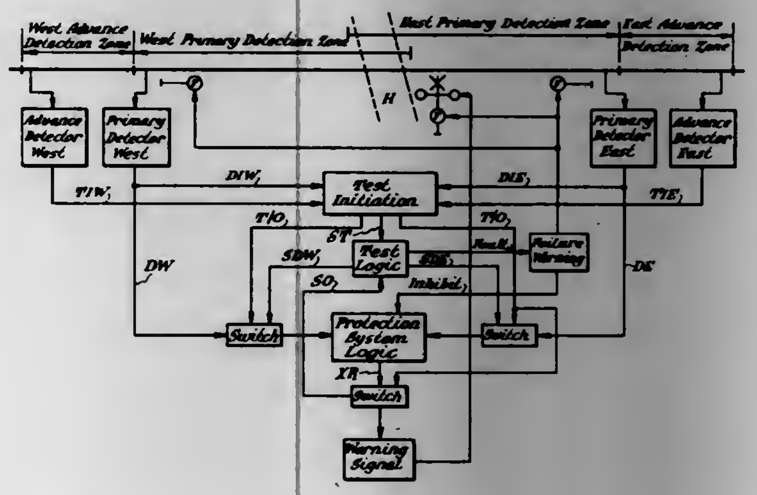
A railroad train moving along an approach to a grade crossing (or other location of interest) is detected by apparatus that is responsive to the change in effective track inductance caused by the moving shunt. The tank circuit of an oscillator is connected to the track at the crossing and has an incrementally variable capacitor bank capable of compensating for the decrease in inductance that occurs as the train closes on the crossing, as well as slow inductance variations resulting from changing environmental conditions. The frequency of the oscillator output signal is continuously monitored, and correction pulses are produced when the signal

frequency deviates from a preselected normal frequency. A digital control arrangement responds to each correction pulse and varies the compensating capacitance in increments to return the signal to the normal frequency. Motion detection circuitry also receives the correction pulses and activates the crossing warning system when the spacing between successive pulses corresponds to a predetermined repetition rate indicating that a train is approaching. Accordingly, under normal operating conditions, the oscillator frequency is held constant within a narrow range of deviation even when a train is approaching, but the rate of tank capacitance increase required to compensate for the continuous and rapid change in track inductance when a train is approaching is detected. The system also recognizes instantaneous changes such as would be caused by an artificial shunt or a broken rail, and distinguishes these from a moving train.



3,838,271
FAILURE DETECTION FOR HIGHWAY GRADE CROSSING SIGNAL SYSTEMS

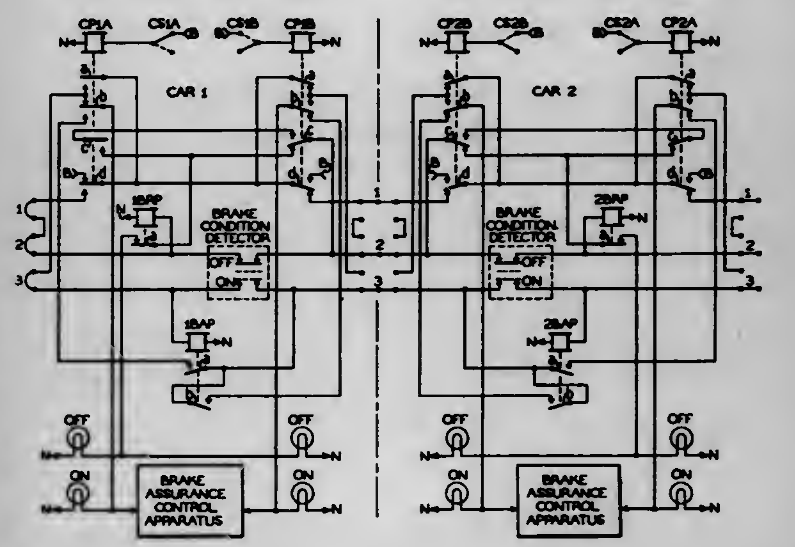
David A. Ackard, Claridge, and Donald E. Stark, Penn Hills Township, Allegheny County, both of Pa., assignors to Westinghouse Air Brake Company, Swissvale, Pa.
Filed Jan. 5, 1973, Ser. No. 321,132
Int. Cl. B61d *1/02*
U.S. Cl. 246—125 **5 Claims**



An advance train detector for each direction of travel is added to a conventional two-direction, overlap highway crossing protection system. Detection of a train, prior to its occupancy of the primary approach warning section, by an advance detector actuates a test logic means to drive the conventional crossing protection control logic through an operational sequence simulating the passage of a train. The test logic monitors the warning signal outputs from the conventional protection logic during this simulated train passage to assure that a proper, safe warning operation is possible for the approaching train. Failure to detect proper warning signal outputs activates a failure warning indication and inhibits response by the crossing logic to occupancy of the approach warning sections by the train.

3,838,272
BRAKING CONDITION INDICATOR FOR RAPID TRANSIT TRAINS

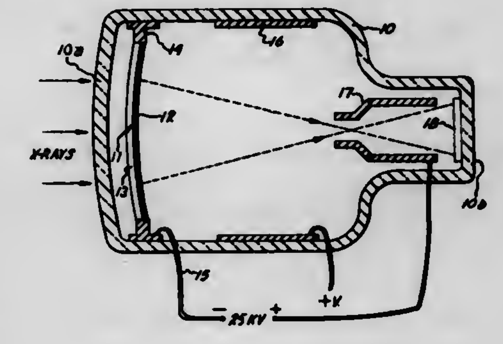
Ivor H. Bull, London, England, assignor to Westinghouse Brake & Signal Co., Ltd., Chippenham, Wiltshire, England
Filed Nov. 14, 1973, Ser. No. 415,613
Claims priority, application Great Britain, Nov. 17, 1972, 53163/72
Int. Cl. B61l *3/10*
U.S. Cl. 246—169 R **9 Claims**



A signal is transmitted from the lead car control position, when activated, through a train line channel completed over circuit connectors within the automatic couplers between cars and over contacts closed when other car control positions are inactive. This signal is returned by loop connectors in the rear coupler over one of two other train line channels, each including between car coupler circuit connectors and controlled on each car by a brake condition detector which completes one or the other circuit only when that car brakes are released (OFF) or applied (ON), respectively. OFF and ON registry relays on each car respond to a received signal to control indicators at the associated control locations which, at the lead position, display corresponding brake condition indications to guide the train operator. Brake assurance registry apparatus on the lead car, associated with an ATO system, also receives the brakes ON indication for registry as a brake assurance signal for the speed control apparatus.

3,838,273
X-RAY IMAGE INTENSIFIER INPUT

Dominic A. Cusano, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed May 30, 1972, Ser. No. 257,538
Int. Cl. H01j *31/50*
U.S. Cl. 250—213 VT **6 Claims**

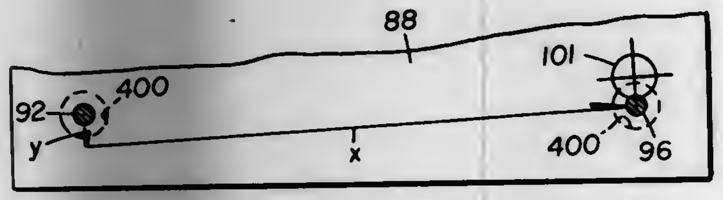


A barrier layer of an electrically conductive material such as indium oxide (In_2O_3), optically transparent to x-ray phosphor luminescence, is disposed between the phosphor layer and photocathode film of an x-ray image intensifier tube to provide sufficient electrical sheet conductance relative to the photocathode film. The barrier layer provides electron replenishment to the photocathode at all points of electron emission therefrom to thereby reduce potential drop laterally across the photocathode from the ring electrode to the center of the photocathode, and also minimizes surface irregularities on the phosphor layer to thereby significantly reduce electron-optic image distortion in the image intensifier tube.

3,838,274
ELECTRO-OPTICAL ARTICLE POSITIONING SYSTEM

Edward R. Doubek, Jr., Brookfield; John J. Kennedy, Riverside, and Donald K. Sandmore, Oak Lawn, all of Ill., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Mar. 30, 1973, Ser. No. 346,559
Int. Cl. G01j *1/20*
U.S. Cl. 250—201 **12 Claims**



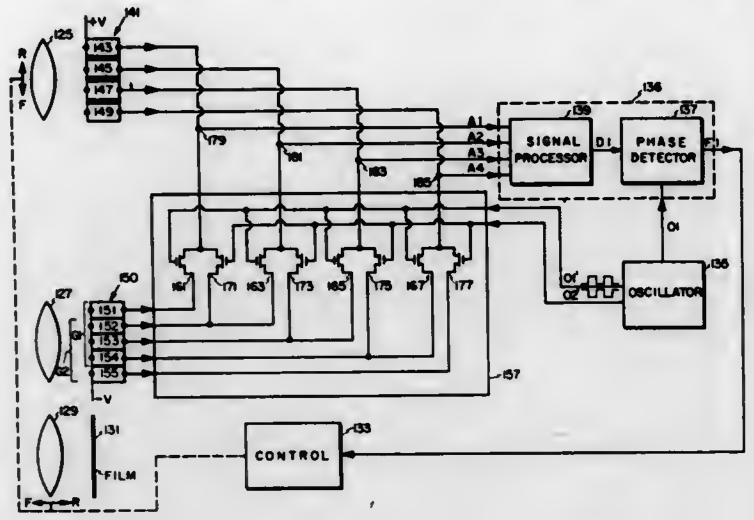
An article having first and second reference marks on a surface thereof is carried on a table adapted for movement in *x*, *y* and *θ* directions. To position the article in a preselected translational and rotary orientation with respect to first and second coordinate axes, a tv camera provides on a screen of a tv monitor an image of the surface of the article which encompasses both the first reference mark and a first coordinate point. Photodetectors on the screen of the monitor detect the position of the first reference mark with respect to the first coordinate point and generate signals for actuating the table for movement in the *x* and *y* directions to position the first reference mark at the first coordinate point. The table is then translated a linear distance equal to the linear distance between the reference marks to position the first reference mark at a second coordinate point. The tv camera then provides on the screen of the monitor an image which encompasses both the second reference mark and the first coordinate point, and the photodetectors generate signals to actuate the table for *θ* movement to rotate the article about the second coordinate point to position the second reference mark at the first coordinate point. The invention finds utility in positioning a substrate for receiving integrated circuit chips at predetermined locations thereon.

3,838,275
DETECTING APPARATUS FOR DETERMINING WHEN IMAGE IS IN FOCUS

Norman L. Stauffer, Englewood, Colo., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed July 18, 1973, Ser. No. 380,377
Int. Cl. G01j *1/36*
U.S. Cl. 250—204 **7 Claims**

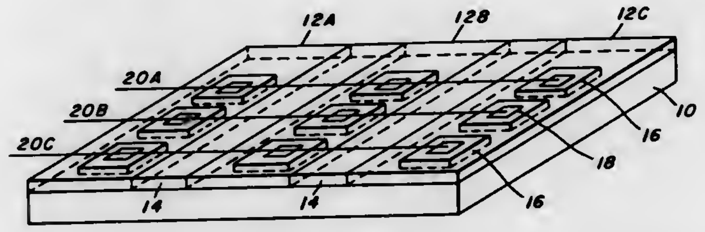
A focus detecting system includes first and second lens devices for forming first and second auxiliary images of an object on first and second detector devices, respectively. Each detector device includes a plurality of linearly displaced light responsive elements. One of the lens devices is movable with respect to its associated detector device to shift the light distribution pattern of the corresponding auxiliary image in the direction of linear displacement of the light responsive elements. The movable lens device is so coupled to a movable objective lens, which focusses a principal image of the object on a light sensitive film, that when the principal image is in focus, the light distribution ppatterns of the first and second images will be correspondingly positioned with respect to the first and second detector devices, respectively. A reference signal of a predetermined frequency controls a switching circuit to compare the electrical signals from the light responsive elements in the first detector device, alternately, at the predetermined frequency of the reference signal, with electrical signals provided by first and second predetermined groups of the light responsive elements in the second detector array. Signals are thereby provided which are processed and phase-detected to provide an output signal representative of the direction that the objective lens is displaced from a focus position at which the principal image is in sharpest focus.



3,838,276
PHOTOTRANSISTOR ARRAY HAVING REDUCED CROSSTALK

William G. Mend, Catonsville, and Robert C. Treude, Severn, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 29, 1973, Ser. No. 375,208
Int. Cl. H01l *15/00*
U.S. Cl. 250—211 J **4 Claims**



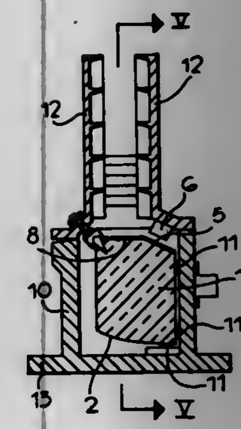
A phototransistor array having an improved modulation transfer function (i.e., sensitivity) and reduced crosstalk over prior art devices of this type. This is accomplished by connecting one element of each transistor, usually the emitter, to metalizations which extend between base regions in rows of phototransistors in the array, the metalizations being connected to the emitter regions through stub sections which cover and block a minimal portion of the base regions which are exposed to light. This improves the modulation transfer function or sensitivity of the array. At the same time, since the metallizations extending along the rows of phototransistors cover and block light from the spaces between base regions, crosstalk is reduced.

3,838,277
OPTICAL SENSOR WITH LINEAR PARABOLIC MIRROR

Bodo Morgenstern, and Bert Soderholm, both of Santhorst, Netherlands, assignors to Organisation Europeenne de Recherches Spatiales, Neuilly-sur-Seine, France

Filed June 14, 1973, Ser. No. 370,030
Claims priority, application Belgium, June 28, 1972, 119239
Int. Cl. H01j *3/14*
U.S. Cl. 250—216 **3 Claims**

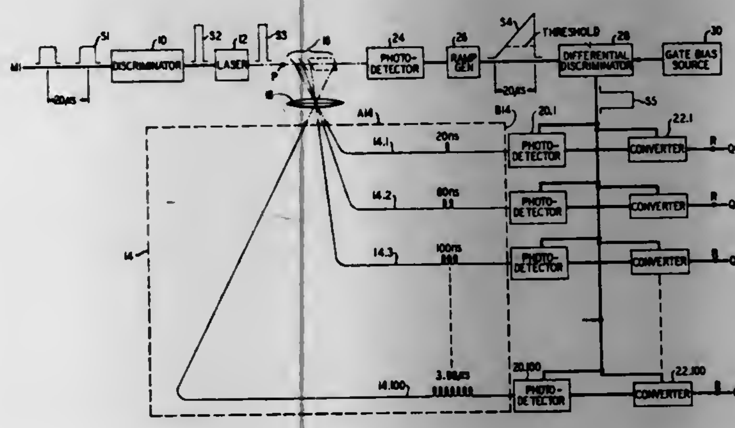
A fan beam optical sensor comprising a linear parabolic mirror, an elongated block element of transparent material having a first entrance face for the incident light and a second face opposite to the first face and onto which is fixed said linear parabolic mirror with the reflecting surface thereof in contact with said second face. The block element further has a third longitudinal face opposite to the reflecting surface of said linear parabolic mirror, a layer of opaque material deposited onto said third longitudinal face with a longitudinal slit formed therein, said slit being located on the focal line of said linear parabolic mirror. One or more detector means are disposed along said longitudinal slit to sense the reflected light energy from the linear parabolic mirror through said slit and to convert it into electrical signals. The entrance face can be covered with a shadowing mask of opaque material, said mask having a longitudinal aperture formed therein, said aperture having an increasing width from the middle of its length to both ends thereof.



3,838,278
OPTICAL SWITCHING NETWORK UTILIZING ORGAN ARRAYS OF OPTICAL FIBERS

Michel Albert Duguay, and John Kirtland Galt, both of Summit, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sept. 28, 1973, Ser. No. 401,633
Int. Cl. G02b *5/14*; **H04b** *9/00*
U.S. Cl. 250—227 **11 Claims**

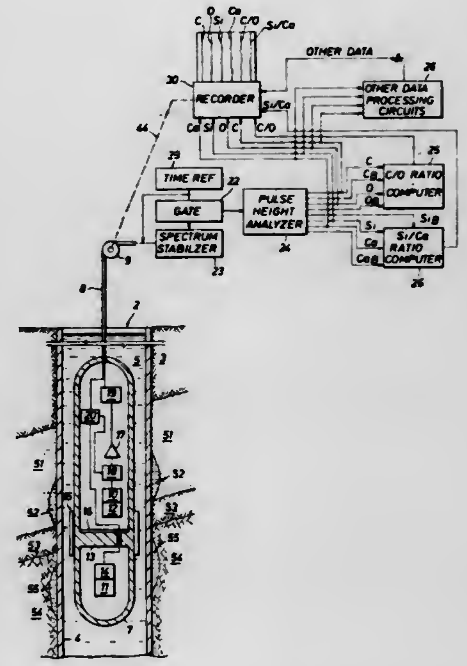


In a hybrid opto-electronic switching system, electronic information pulses appearing on an input signal path are used to drive a laser which generates corresponding optical information pulses. Each of the optical information pulses is divided into a plurality *n* of optical sub-pulses each of which is coupled through lens means to separate ones of a plurality *n* of optical fibers in an organ array; i.e., an array of optical fibers in parallel with one another and cut to different lengths. Gating means, normally in an off-state, is interposed between the outputs of the fibers and *n* output electronic signal paths (e.g., subscriber lines). Because the fibers of the organ array introduce different transit time delays, the plurality of optical sub-pulses arrive at the gating means at different times. A control unit is utilized to connect the m^{th} output signal path to the input signal path by driving the gating means into an on-state at a time when the optical sub-pulse on the m^{th} fiber reaches the gating means. Also described are systems for connecting any one of *m* input signal paths to any one of *n* output signal paths. These systems can also be used in optical communications systems as well as in electronic systems.

3,838,279
DETERMINATION OF BOREHOLE WASHOUT BY USE OF INELASTIC NEUTRON SCATTERING GAMMA RAY MEASUREMENTS

Ward E. Schultz, and Harry D. Smith, Jr., both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

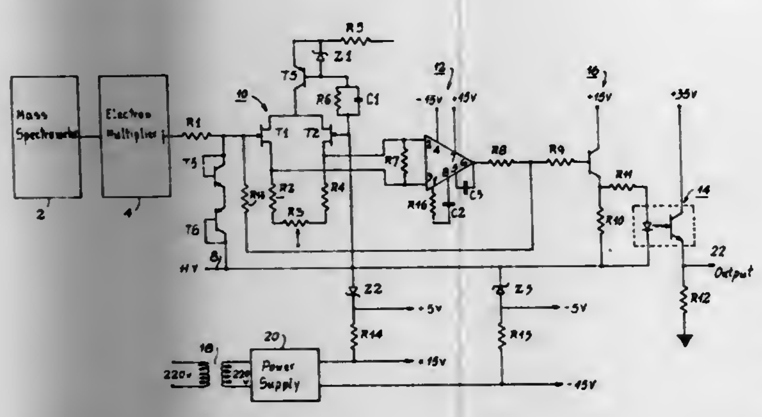
Filed Apr. 3, 1973, Ser. No. 347,518
Int. Cl. G01v *5/00*
U.S. Cl. 250—270 **5 Claims**



An illustrative embodiment of the invention provides a method for locating zones of borehole washout behind the casing in a cased well borehole. The formations in the vicinity of the borehole are repetitively irradiated with short duration bursts of fast neutrons. Gamma rays produced by the inelastic scattering of the fast neutrons are observed in at least four different energy regions in the gamma ray spectrum and are corrected for any lingering thermal neutron capture gamma ray background. The four energy regions include inelastic scattering gamma rays from carbon, oxygen, silicon and calcium. A first output signal related to the porosity (hydrogen index) is derived by summing the inelastic gamma rays in all four energy regions. Second and third output signals are formed by taking the carbon/oxygen and silicon/calcium ratio signals. The three output signals are then combined according to predetermined empirically derived relationships to produce an estimate of the location of zones of borehole washout behind the casing.

3,838,280
AMPLIFIER AND QUADRUPOLE MASS SPECTROMETER UTILIZING SAME

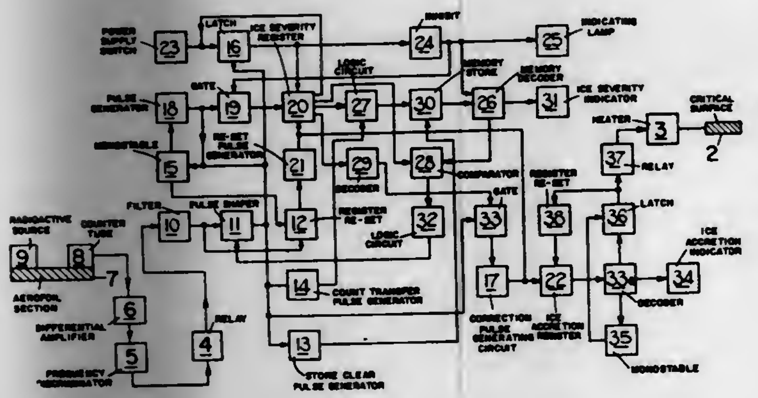
Fritz S. Klein, Meonot Wolfson A, and Jehuda Yinon, 47 Menucha Venachla, both of Rehovot, Israel
Filed Feb. 16, 1973, Ser. No. 333,099
Claims priority, application Israel, Feb. 25, 1972, 38837
Int. Cl. H01j ***39/34***
U.S. Cl. 250—292 **3 Claims**



The negative ion output of a quadrupole mass spectrometer utilizes an amplifier system including an electron multiplier a differential amplifier, an operational amplifier, an emitter follower, and a photoisolator connected to receive the output of the emitter follower.

3,838,281
AIRCRAFT ICE DETECTION EQUIPMENT WITH CORRECTION FOR SEVERE CONDITIONS

Michael Gordon Ellis Dean, Luton; John Raymond Keen, Kempston, and Geoffrey Edgington, Godalming, all of England, assignors to Lucas Aerospace Limited, Birmingham, England
Filed Apr. 11, 1973, Ser. No. 350,137
Claims priority, application Great Britain, Apr. 26, 1972, 19272/72
Int. Cl. G01n ***23/06***
U.S. Cl. 250—308 **4 Claims**

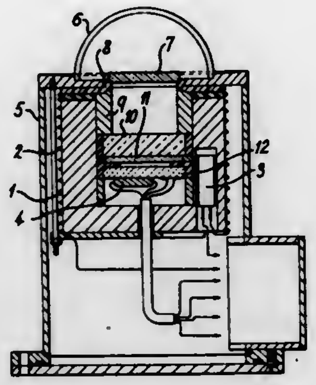


Ice detection equipment comprises electrical circuit means for effecting a count of a number of electrical pulses means for modifying the count depending upon the rate of production of the pulses.

3,838,282
SENSORS

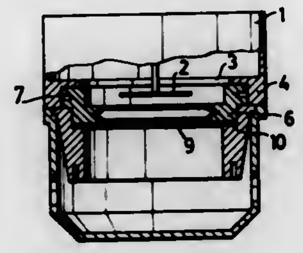
Philip Brian Harris, St. Albans, England, assignor to National Research Development Corporation, London, England
Filed Apr. 19, 1973, Ser. No. 352,691
Claims priority, application Great Britain, Apr. 25, 1972, 17511/72
Int. Cl. G01t ***1/00***
U.S. Cl. 250—372 **7 Claims**

The invention concerns a sensor for measuring ultra-violet radiation over long periods. Interference filters remove unwanted radiation and a phosphor selected from zinc cadmium sulphide activated by copper and having a hexagonal crystal structure or strontium chlorosilicate activated by divalent europium with the phosphor matrix having an orthorhombic crystal structure, which converts the transmitted ultra-violet into radiation acceptable to a selenium photovoltaic cell.



3,838,283
IONIZATION SMOKE DETECTOR

Ingvar Andersson, Bandhagen, Sweden, assignor to Bevaknings AB Securitas, Stockholm-Hammarby, Sweden
Filed Oct. 18, 1972, Ser. No. 298,750
Claims priority, application Sweden, Oct. 20, 1971, 13304/71
Int. Cl. G01n ***23/00***
U.S. Cl. 250—381 **5 Claims**

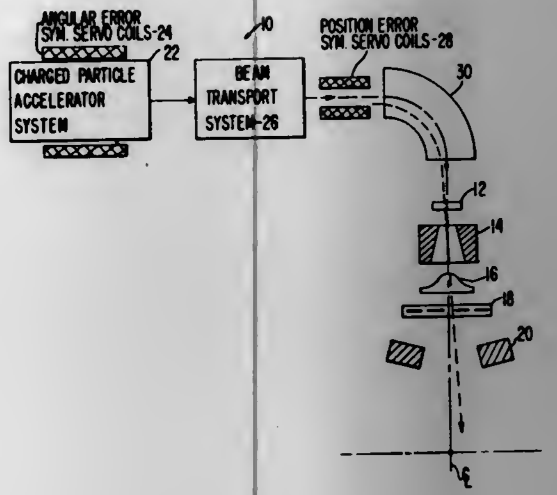


An ionization smoke detector having an open and a closed chamber which are interconnected by a thin metallic membrane, constituting a common electrode. The membrane is urged against the periphery of an opening between the chambers by means provided on a removable cover defining the open chamber. A single source of radiation is provided in the closed chamber.

3,838,284
LINEAR PARTICLE ACCELERATOR SYSTEM HAVING IMPROVED BEAM ALIGNMENT AND METHOD OF OPERATION

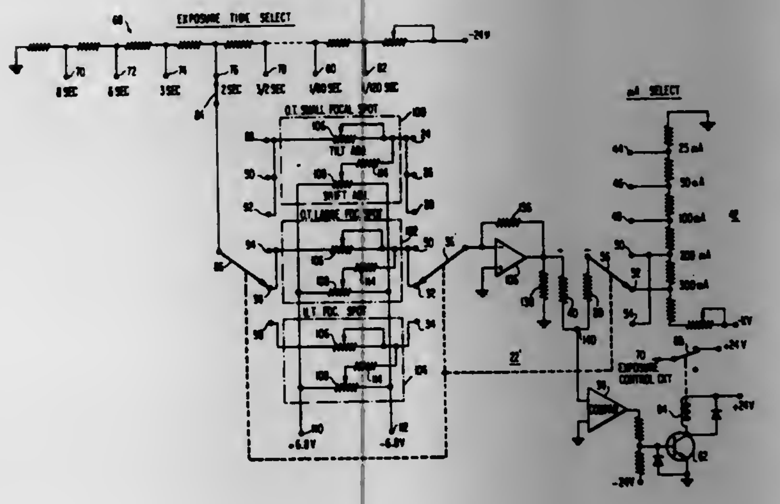
Raymond D. McIntyre, and Craig S. Nunan, both of Los Altos Hills, Calif., assignors to Varian Associates, Palo Alto, Calif.
Filed Feb. 26, 1973, Ser. No. 335,634
Int. Cl. G01t ***1/18***
U.S. Cl. 250—385 **25 Claims**

A linear particle accelerator having detection apparatus for detecting the presence of and correcting for beam misalignment. The linear accelerator includes a charged particle accelerator system and deflection coils for changing both the positional and angular displacement of a charged particle beam. A target is disposed in the particle beam path for emitting X-rays upon being struck by the charged particles. The photon field pattern developed by the target takes the form of a forward-peaked lobe configuration extending from the target. An arrangement of radiation responsive electrodes is disposed in the radiation field for developing electrical signals responsive to changes in the lobe pattern. The signals developed by the radiation responsive electrodes are applied to differential servo circuitry for applying signals to the deflection coils to correct for both positional and axial misalignment of the particle beam.


ANGULAR ERROR SYN. SERVO COILS-24
CHARGED PARTICLE ACCELERATOR SYSTEM
BEAM TRANSPORT SYSTEM-26
POSITION ERROR SYN. SERVO COILS-28
10
22
30
12
14
16
18
20

3,838,285
X-RAY TUBE ANODE PROTECTIVE CIRCUIT

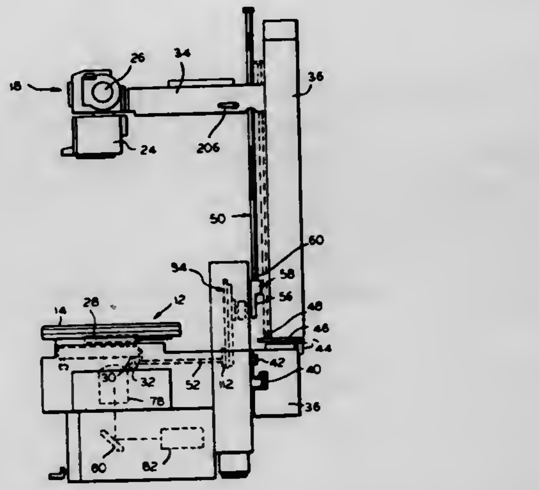
Melvin P. Siedband, Madison, Wis.; Jack L. James, Westminister, and Ambalal T. Patel, Baltimore, both of Md., assignors to CGR Medical Corporation, Baltimore, Md.
Filed May 10, 1973, Ser. No. 358,869
Int. Cl. H05g ***1/28***
U.S. Cl. 250—413 **10 Claims**



An X-ray tube protective circuit wherein the selected exposure time and X-ray tube power are compared prior to operation to determine whether or not a condition exists which exceeds the anode rating of the tube and thereafter prevents operation in the event that such condition does exists while permitting an X-ray exposure for a safe condition. The protective circuit utilizes a single empirically derived anode "rating chart" curve which is representative of a generalized or standard X-ray tube rating chart curve. This empirical curve is generated by a series connected string of resistors connected to the exposure time select switch. This curve is then tilted and/or offset for selected operating modes in order to substantially conform to the acual rating curve for the respective various focal spot sizes and anode speeds of the particular X-ray tube in use.

3,838,286
X-RAY TABLE WITH SELF-STORING TOMOGRAPHIC COUPLING BAR

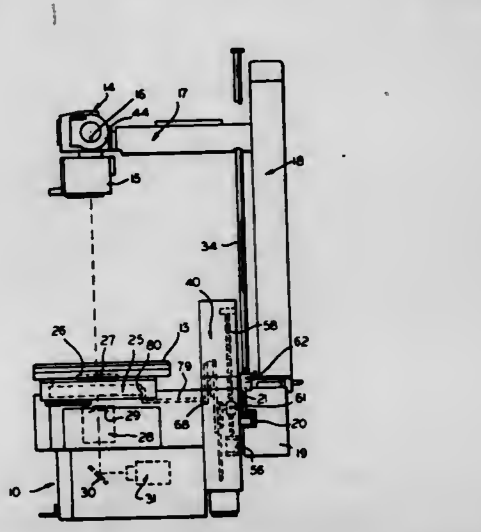
John F. Prendergast, Franklin; Ralph K. Chrapkowski, St. Francis, and George R. Lang, New Berlin, all of Wis., assignors to General Electric Comapny, Schenectady, N.Y.
Filed Nov. 16, 1973, Ser. No. 416,590
Int. Cl. G01n ***23/00***
U.S. Cl. 250—445 **10 Claims**



An X-ray tube is mounted over an X-ray table on a horizontally extending shaft means which enables the X-ray tube to be angulated as it is translated longitudinally of the X-ray table top for tomographic and angular radiographic procedures. A clamping mechanism is provided for connecting the coupling bar to the rotational axis of the X-ray tube so that the bar may be engaged selectively positively or slidably or may be completely disconnected. The coupling bar is detachable from the tomographic fulcrum assembly and when it is completely separated from the tube rotational mechanism, the coupling bar may be re-engaged with a stationary pin in a storage position.

3,838,287
FLUOROSCOPIC LOCALIZATION SYSTEM FOR ANGULAR RADIOGRAPHY

David M. Barrett, Brookfield, and Ralph K. Chrapkowski, St. Francis, both of Wis., assignors to General Electric Company, Schenectady, N.Y.
Filed Nov. 7, 1973, Ser. No. 413,442
Int. Cl. G01n ***23/00***
U.S. Cl. 250—445 **4 Claims**



A diagnostic x-ray table has a film cassette supported on a Bucky carriage beneath the table top. A fluoroscopic image tube is fixedly located below the Bucky carriage. An x-ray tube is mounted above the table top for being translated and angulated correspondingly for providing oblique view radiographs. For tomographic procedures and for oblique radiographs a fulcrum bar couples the x-ray tube to the Bucky carriage, so the central ray of the x-ray beam always coincides with the center of the film. The pivot axis of the fulcrum bar is vertically adjustable so it may extend laterally through any selected layer of a patient reposed on the table top, through the plane of a film in the cassette and through the plane of the sensitive surface of the image intensifier tube. During angular radiography, the fulcrum axis can be located in the plane of the image tube wherein automatic means are provided for shifting the Bucky in the same direction as the x-ray tube so that the area being radiographed corresponds with the image viewed by means of the image tube.

3,838,288
METHOD FOR THE REMELT TREATMENT OF WORKPIECES AND THE LIKE

Heinz Stolz, Otterfing, and Johannes Koy, Germering, both of Germany, assignors to Steigewald Strahltechnik G.m.b.H., Munich, Germany

Filed Feb. 22, 1973, Ser. No. 334,775

Claims priority, application Germany, Feb. 26, 1972, 2209147

Int. Cl. H01j *37/00*

U.S. Cl. 250—492 **[illegible] Claims**

A method for the remelt treatment of workpieces, machine parts and the like comprises the application of energy by means of a controlled energy beam to the remelt region in two successive steps to avoid formation of pores. In the first remelting step, the material within the remelt region is melted and allowed to solidify, and is then again remelted in a second step in which the impingement of energy is controlled to remelt only the region of material previously remelted and solidified.

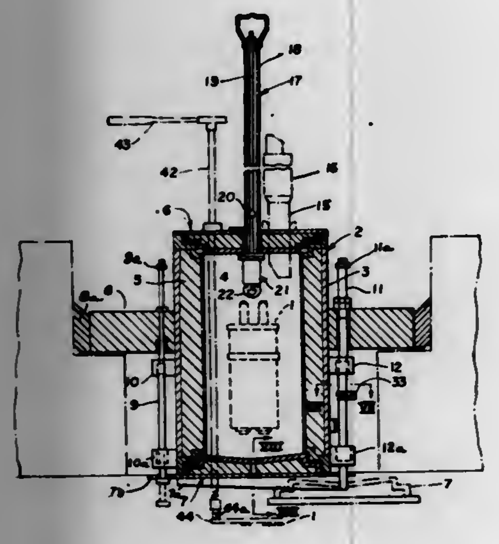
3,838,289
RADIOACTIVE WASTE FILTER REMOVAL SYSTEM

Donald P. White, Reading, Pa., assignor to Gilbert Associates, Inc., Reading, Pa.

Filed Aug. 29, 1972, Ser. No. 284,672

Int. Cl. G21f *1/00*

U.S. Cl. 250—506 **8 Claims**



A radioactive waste filter cartridge removal apparatus comprising a shielding cask having removable top and bottom lids and a support collar integrally secured to the outer wall of the cask for support on a shouldered and shimmed support. Two lowering assemblies comprising rods extending vertically through said support collar at diametrically opposite sides of the cask are provided for effecting lowering movements of the bottom lid. One of said rods has its lower end welded to the peripheral portion of the bottom lid whereby such lid may be rotated about the axis of the rod and thus clear the bottom opening of the cask to permit vertical downward movement of the filter cartridge through such opening. A grappling tool and viewer are mounted on the top lid.

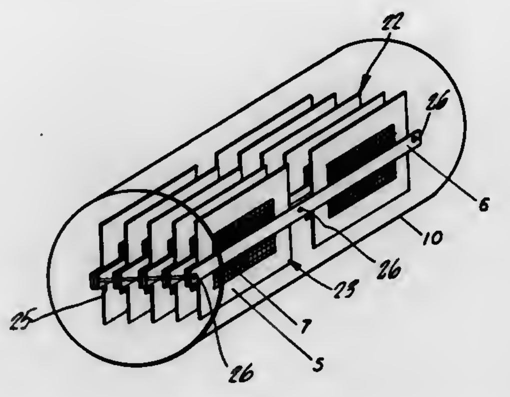
3,838,290
OZONE GENERATING MEANS

Gary V. Crooks, 1702 Olive St., Santa Barbara, Calif. 93101

Continuation-in-part of Ser. No. 154,514, June 18, 1971, abandoned. This application Dec. 29, 1972, Ser. No. 319,220

Int. Cl. C01b *13/12*

U.S. Cl. 250—532 **6 Claims**



An ozone generator producing silent electric discharges uses wire mesh electrodes between which a dielectric sheet is maintained sandwiched by individual bus bars contacting a corresponding wire mesh electrode. A plurality of such assemblies mounted in spaced relationship to each other for the flow of air therebetween is disposed within a cylindrical chamber through which air for ozonizing and cooling is circulated.

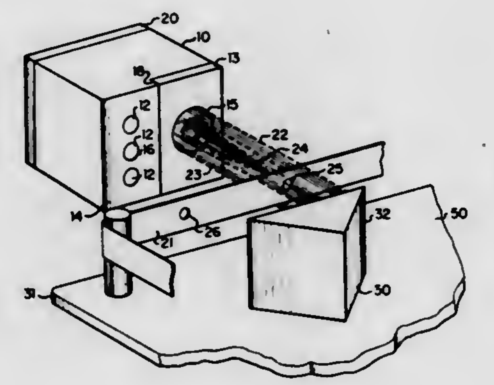
3,838,291
DETECTOR INDICATING AVAILABILITY AND POSITION OF TAPE

Andre F. Marion, and George N. Kaposhilin, both of Palo Alto, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed May 17, 1973, Ser. No. 361,357

Int. Cl. G08c *9/06*

U.S. Cl. 250—571 **10 Claims**



A tape detector operates inside an information recording and retrieving system structure. In the detector, a lense-equipped light source located inside a housing produces three beams of light which, after crossing above, below, and through an ordinary commercial recording tape, pass through an optical prism where they are deflected back toward the light source housing. On their return, the light beams again cross above, below, and through the tape and then converge on the surfaces of three photodetectors arranged in a vertical line in the same housing as and adjacent to the light source. Signals from the photodetectors indicate the following: the upper photodetectors signal whether the tape is available for recording, the middle one signals a particular position of the tape such as the beginning or the end of the tape, and the lower one signals the presence or absence of a tape cartridge within the system structure.

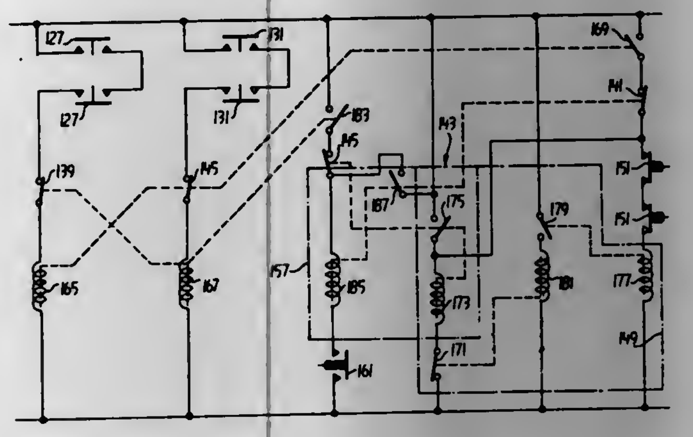
3,838,292
TAPERED OBJECT ATTITUDE SENSING AND TURNING SYSTEM

Robert Roy Sullivan, P.O. Box 236, Fowler, Colo. 81039

Filed May 10, 1973, Ser. No. 358,903

Int. Cl. B65g *47/24*

U.S. Cl. 307—112 **7 Claims**



A tapered object attitude sensing and turning system is described wherein a sensor assembly includes a detector head comprising a butt-end and a tapered-end pivotal feeler arms for making contact with the same side of each tapered object passing the detector head. The feeler arms have freedom of movement such that contact with tapered objects causes them to pivot outwardly. In addition, a mechanical linkage between the feeler arms causes the tapered-end feeler arm to pivot in response to pivoting of the butt-end pivot arm, but at a faster angular rate than the butt-end feeler arm. A butt-end sensor switch is actuated in response to pivoting of the butt-end feeler arm and a tapered-end sensor switch is actuated in response to pivoting of the tapered-end feeler arm which is caused by tapered objects. Two structural embodiments of the detecting head are described.

The sensing and turning system also includes a sensing circuit which comprises storage circuits for storing signals produced by actuation of the butt-end and tapered-end switches. In addition, the circuit includes clearing switches which are actuated by the tapered objects. The clearing switches are arranged so that the storage circuits only store the signals derived from the butt-end and tapered-end switches while detected tapered objects actuate these switches.

A turning system is located immediately following the clearing switches and is actuated in response to tapered objects passing the clearing switches. The turning system includes a gate for sweeping a tapered end of a tapered object off a main conveyor onto a side conveyor which conveys at a different speed than the main conveyor.

3,838,293
THREE CLOCK PHASE, FOUR TRANSISTOR PER STAGE SHIFT REGISTER

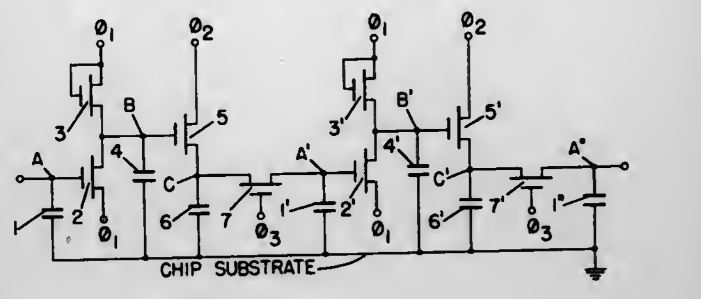
Rajendra B. Shah, Escondido, Calif., assignor to The National Cash Register Company, Dayton, Ohio

Filed Oct. 11, 1973, Ser. No. 405,676

Int. Cl. H03k *23/24, 25/02*

U.S. Cl. 307—221 D **3 Claims**

In order to achieve increased packing density, a simplified ratioless shift register stage is provided which utilizes only four transistors per stage and requires only three clock signals. A stage input signal is clocked through a transistor dynamic inverter with a ϕ_1 clock signal. The information is then coupled through a single transistor inverter with a ϕ_2 clock signal which is present concurrently with and also extends beyond ϕ_1. After the termination of ϕ_2 the information is coupled to a stage output point through a single transistor switch actuated by a ϕ_3 clock signal.



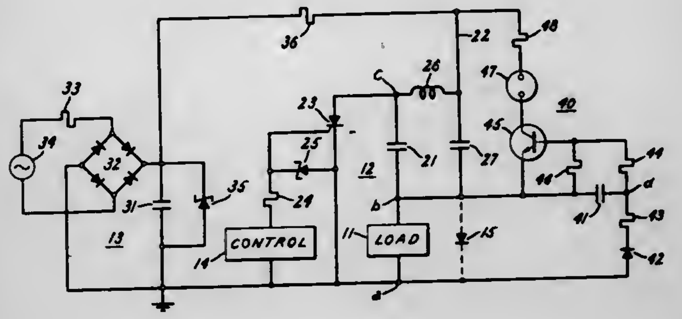
3,838,294
MONITOR FOR REPETITIVE PULSE FORMING CIRCUIT

Bernard D. Leete, Newtown Square, Pa., assignor to General Electric Company, Philadelphia, Pa.

Filed Sept. 27, 1973, Ser. No. 401,486

Int. Cl. G08b *21/00*

U.S. Cl. 307—233 **12 Claims**



For monitoring the operation of a circuit that periodically supplies pulses of electric current to a connected load, a capacitor is connected in parallel with the load so as to be periodically charged to a voltage of appreciable magnitude. During the intermittent intervals between pulses, the capacitor partially discharges through a discharge circuit having a relatively long time constant. Voltage will therefore be continuously present on the capacitor so long as the operating frequency of the pulse forming circuit does not fall substantially below normal, and means responsive to this voltage provides an indication that the circuit is functioning properly.

3,838,295
RATIOLESS MOS SENSE AMPLIFIER

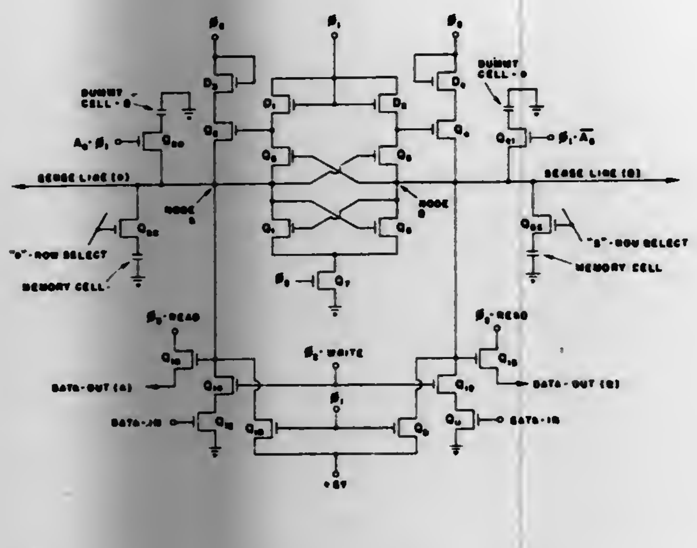
Edward Lindell, Long Beach, Calif., assignor to Lockheed Electronics Company, Inc., Plainfield, N.J.

Filed Feb. 5, 1973, Ser. No. 329,644

Int. Cl. H03k *5/00*

U.S. Cl. 307—238 **6 Claims**

A sense amplifier for sensing stored information in a memory system particularly of the integrated circuit type wherein a cross-coupled symmetrical sense amplifier is operated to provide ratioless operation. The invention further utilizes a cross-coupled discriminator to provide improved signal detection which, in conjunction with the ratioless differential amplifier with gated conditional feedback, provides a significant reduction in power, higher operating speed and a reduction in required chip area since minimum geometry devices may be utilized.



3,838,296

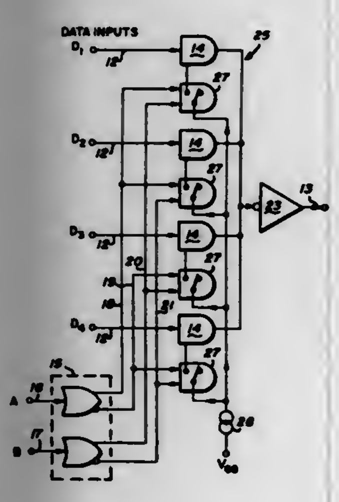
EMITTER COUPLED LOGIC TRANSISTOR CIRCUIT

Eric S. McLeod, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clare, Calif.

Filed Oct. 29, 1973, Ser. No. 410,609

Int. Cl. H03k *17/00*

U.S. Cl. 307—243 4 Claims



In an emitter coupled logic transistor circuit, a plurality of data gates are arranged for multiplexing input data onto a common output means in response to a coded multiplex signal which selects respective data gates sequentially. A common current source is connected to respective ones of said data gates via the intermediary of respective current switch gates, such current switch gates being responsive to the decoded input select command signals for selectively energizing respective ones of said data gates, whereby power consumed by the multiplex circuit is minimized since only a selected data gate is powered up at any given time.

3,838,297

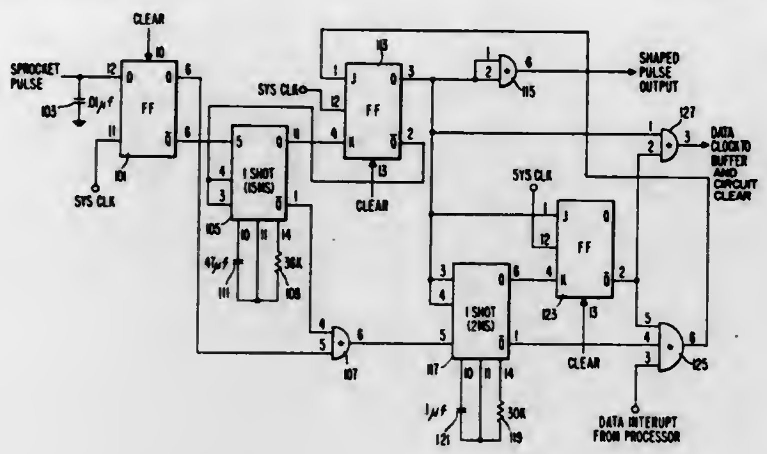
PULSE SHAPING CIRCUIT

Eugene E. Bardo, Levittown, and Franklin T. Schroeder, Exton, both of Pa., assignors to Burroughs Corporation, Detroit, Mich.

Filed June 14, 1973, Ser. No. 369,983

Int. Cl. H03k *5/00*

U.S. Cl. 307—268 9 Claims


CLEAR
SPROCKET PULSE
SYS CLK
FF
1 SHOT
SHAPED PULSE OUTPUT
DATA CLOCKED TO BUFFER AND CIRCUIT CLEAR
DATA INTERUPT FROM PROCESSOR

A latching one shot actuated flip-flop switch circuit is provided for transforming a distorted asynchronous pulse into a clean clock-synchronous pulse. Circuit time constants and logic interlocks predetermine the minimum duration of the output pulse.

3,838,298

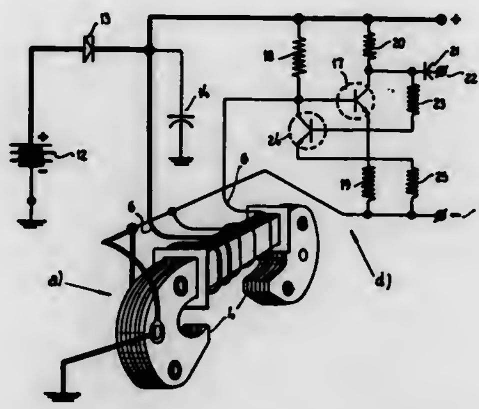
ELECTRONIC MAGNETO

Fuasto Orlando Torres, Peru 89, Piso 2, Buenos Aires, Argentina

Filed Feb. 9, 1973, Ser. No. 331,032

Int. Cl. H01v *5/00*

U.S. Cl. 307—309 3 Claims



It comprises an electromagnetic device and an additional electronic circuit capable of amplifying the electric pulses supplied by said electromagnetic device, which consists of a horseshoe shaped and symmetric core, integrated by two curved sectors alternately butt junction stacked, riveted plates, which, at their free ends, provides in each case polar pole pieces opposing each other; with a coil located in the central body of the core, comprising a primary winding and a secondary winding, adequately insulated between each other, and with inidividual output terminals, to which is connected th electronic circuit referred to, which, in turn, consists of a first transistor and a second transistor interconnected between each other in the following way: the base of the first transistor is connected to the collector of the second transistor, by means of a resistor; another resistor interconnects the positive power supply line to the collector of this second transistor, while the collector of the first transistor is interconnected to the base of the second transistor, and also ties into the battery positive line by means of another resistor and to the secondary winding of the electromagnetic device, whereas the emitter of the latter is connected to the negative power supply line by

means of another resistor, at the same time. The collector of the second transistor is tied by means of a capacitor, to an output terminal, being moreover, connected to the positive 12-volts battery line and to the primary winding of the electromagnetic device, a rectifier diode and a capacitor, while another resistor is connected between the emitter of the second transistor and negative power supply line.

3,838,299

SYSTEM FOR GENERATING PERIODICAL MECHANICAL VIBRATIONS

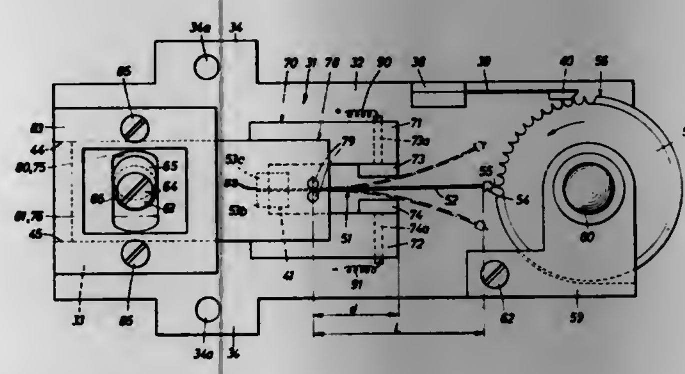
Franz Elkuch, Schellenberg, Liechtenstein, assignor to Etablissement Procor, Vaduz, Liechtenstein

Continuation-in-part of Ser. No. 209,142, Dec. 17, 1971, , which is a division of Ser. No. 863,056, Oct. 2, 1969, Pat. No. 3,641,373. This application Aug. 27, 1973, Ser. No. 391,999

Claims priority, application Great Britain, Feb. 1, 1973, 5129/73

Int. Cl. H02n *1/00*

U.S. Cl. 310—6 7 Claims



A simplified swing system producing mechanical vibratory movements by means of electric energy and dispensing with any active elements execpt for any energy source. Three electrodes are arranged to constitute a mechanical oscillating arrangement, one electrode of which is a resilient vibrating reed capable of oscillating by flexing and swinging toward and away from the other electrodes, a charge compensation occurring when the vibrating reed electrode approaches either one of the other two electrodes closely enough within an electric field established therebetween. In the position of rest, said electrodes are sufficiently spaced from each other but aligned face to face. When said vibrating reed is vibrated, it acts, via a movement-converting body fixed at its free vibrating end, upon a cog-wheel advanced by one tooth for each period of oscillating movement of said vibrating reed. Control means adjust the frequency of said vibrating reed and are arranged in such a way that the requirements for isochronism are met in any frequency-adjusting position of said control means.

3,838,300

BRUSH HOLDER FOR PORTABLE HAND TOOLS

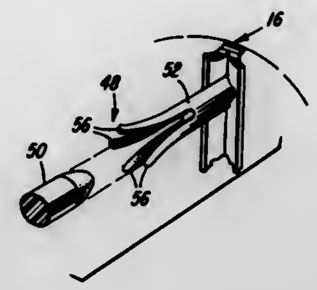
William Harvey O'Connor, III, Fayetteville, N.C., assignor to The Black and Decker Manufacturing Company, Towson, Md.

Filed Aug. 27, 1973, Ser. No. 391,531

Int. Cl. H01r *39/40*

U.S. Cl. 310—239 6 Claims

An electrically operated portable tool including a housing enclosing a motor including a stationary field and a rotatable armature. The housing includes a rear bridge supporting one end of an armature shaft and including open slots for receiving brush holders, the latter holding carbon brushes engaging a commutator which is part of the armature. The brush holders are retained in place by a holder which is integral with a rear butt section of the housing, thereby eliminating separate brush assembly retention screws and preventing accidental dislodgment of the brush assemblies as well as orienting and maintaining the brush assemblies in their assembled operative positions.



3,838,301

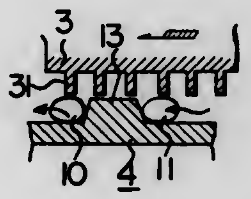
ELECTRIC MACHINE WITH FLYWHEEL-FAN

Kazuyoshi Moriyama, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 9, 1973, Ser. No. 331,075

Int. Cl. H02k *9/00, 9/06*

U.S. Cl. 310—60 6 Claims



In an electric machine having a flywheel, such as a clutch motor, blades are integrally formed on one main surface of the flywheel, and a fan casing is formed in the end bracket of the machine, which casing has perforations for air inhalation and exhalation, so that the machine may be provided with the function of a blower without making any substantial change in its structure.

3,838,302

ROTARY RECTIFIER ARRANGEMENT FOR THE EXCITATION OF SYNCHRONOUS MACHINES

Erich Dreissigacker, and Kurt Jager, both of Mannheim, Germany, assignors to BBC Brown Boveri & Company Limited, Baden, Switzerland

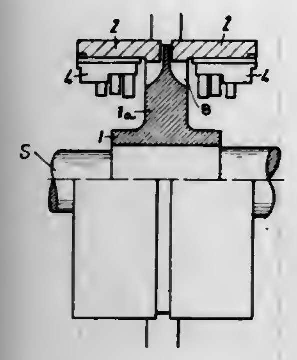
Filed Dec. 8, 1972, Ser. No. 313,412

Claims priority, application Germany, Dec. 10, 1971, 2161577

Int. Cl. H02k *11/00*

U.S. Cl. 310—68 D 10 Claims

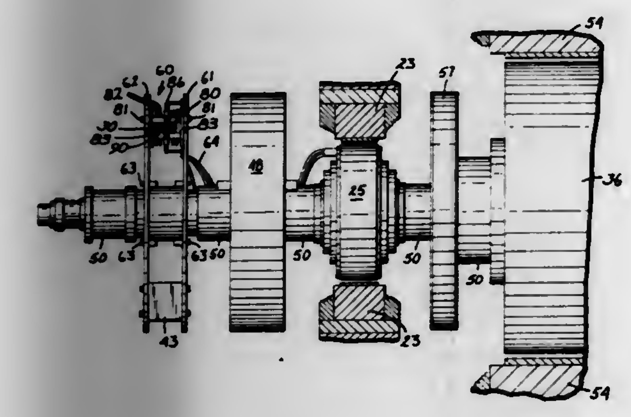
A rotary rectifier arrangement for excitation of the inductor of a synchronous electrical machine in which the a.c. output from the armature of an exciter coupled to the shaft of the synchronous machine is rectified and fed to the rotary inductor component of the machine. The rectifiers are supported so as to rotate with the exciter armature by means of a composite collar structure including an integrally formed hub and radially extending part mounted on the exciter shaft and a pair of cylindrical carrier rings extending axially in opposite



directions from the radial part of the collar structure and which are shrunk onto the radial part, the rectifiers being made up into separate assemblies which are distributed around, and secured to the under side of, the carrier rings.

3,838,303
MOUNTING APPARATUS FOR DISC-TYPE SEMICONDUCTORS

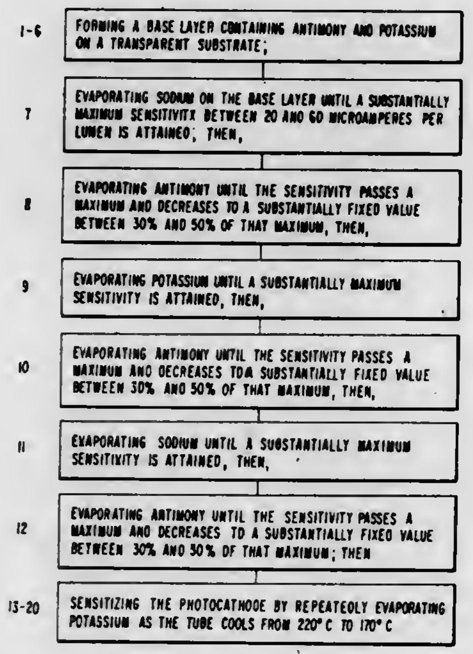
Richard G. Ernst, Anoka, Minn., assignor to Electric Machinery Mfg., Minneapolis, Minn.
Filed Mar. 21, 1973, Ser. No. 343,427
Int. Cl. H02k *11/00*
U.S. Cl. 310—68 D **9 Claims**



An improved semiconductor mounting apparatus for mounting high power disc-type packaged semiconductors for operative use on rotating members of electric machines. A first heat sink mounting member is rigidly mounted for rotation with a rotating member of the machine. A second heat sink mounting member is movably clamped to the first balanced sink member and aligned therewith to sandwich a disc-type semiconductor therebetween. The mounting clamp includes spring washers for enabling a predetermined clamping force to be applied to the semiconductor electrodes. The second heat sink, in response to centrifugal force, applies a controlled contact pressure to the semiconductor electrodes that varies with the rotational speed of the motor and equals the desired mounting pressure at the synchronous speed of the motor. In an alternate embodiment, the first and second heat sink members are pre-clamped to the semiconductor at the desired contact mounting pressure. A counterweight apparatus, responsive to centrifugal force, balances the centrifugal force effect upon the second heat sink member during rotation to maintain a constant mounting pressure upon the semiconductor electrodes regardless of the rotational speed of the motor.

3,838,304
METHOD OF MAKING A BIALKALI PHOTOCATHODE WITH IMPROVED SENSITIVITY AND HIGH TEMPERATURE OPERATING CHARACTERISTICS

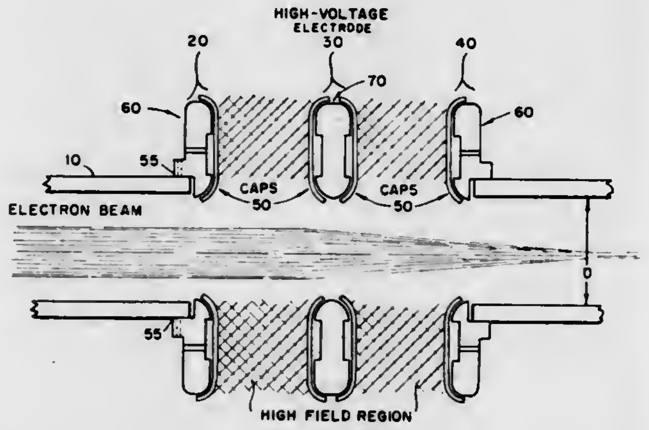
Arthur Frederick McDonie, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.
Filed July 12, 1973, Ser. No. 378,517
Int. Cl. H01j *39/00*
U.S. Cl. 313—94 **10 Claims**


1-6 FORMING A BASE LAYER CONTAINING ANTIMONY AND POTASSIUM ON A TRANSPARENT SUBSTRATE;
7 EVAPORATING SODIUM ON THE BASE LAYER UNTIL A SUBSTANTIALLY MAXIMUM SENSITIVITX BETWEEN 20 AND 60 MICROAMPERES PER LUMEN IS ATTAINED; THEN,
8 EVAPORATING ANTIMONT UNTIL THE SENSITIVITY PASSES A MAXIMUM AND DECREASES TO A SUBSTANTIALLY FIXED VALUE BETWEEN 30% AND 50% OF THAT MAXIMUM, THEN,
9 EVAPORATING POTASSIUM UNTIL A SUBSTANTIALLY MAXIMUM SENSITIVITY IS ATTAINED, THEN,
10 EVAPORATING ANTIMONY UNTIL THE SENSITIVITY PASSES A MAXIMUM AND DECREASES TOA SUBSTANTIALLY FIXED VALUE BETWEEN 30% AND 50% OF THAT MAXIMUM, THEN,
11 EVAPORATING SODIUM UNTIL A SUBSTANTIALLY MAXIMUM SENSITIVITY IS ATTAINED, THEN,
12 EVAPORATING ANTIMONY UNTIL THE SENSITIVITY PASSES A MAXIMUM AND DECREASES TO A SUBSTANTIALLY FIXED VALUE BETWEEN 30% AND 50% OF THAT MAXIMUM; THEN
13-20 SENSITIZING THE PHOTOCATHODE BY REPEATEDLY EVAPORATING POTASSIUM AS THE TUBE COOLS FROM 220° C TO 170° C

A bialkali photocathode is made by a series of alternate evaporations of antimony, sodium and potassium. The disclosure includes a photocathode made by the method described.

3,838,305
REPLACEABLE ELECTRODE SURFACES FOR HIGH FIELD ELECTROSTATIC LENSES

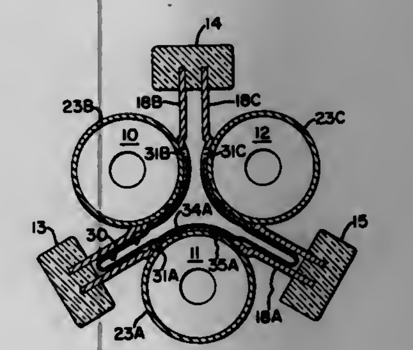
Robert L. Seliger, Agoura, and Wayne P. Fleming, Newbury Park, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Aug. 24, 1973, Ser. No. 391,414
Int. Cl. H01j *1/00*
U.S. Cl. 313—237 **8 Claims**



A two-piece electrode assembly consists of a permanent mounting fixture and a replaceable, polished electrode surface that snaps on the mounting fixture. When this electrode surface in an electrostatic lens becomes pitted, it can easily be snapped off and a new surface snapped on without need for realignment.

3,838,306
ELECTRON GUN ASSEMBLY WITH FLEXIBLE ELECTRICAL INTERCONNECTION FOR CORRESPONDING ELECTRODES AND METHOD OF FABRICATING SAME

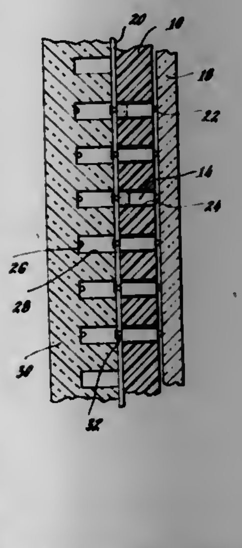
Leonard W. Jenne, Jr., Baldwinsville, N.Y., assignor to General Electric Company, Syracuse, N.Y.
Filed Nov. 23, 1973, Ser. No. 418,684
Int. Cl. H01j *29/50, 29/02*
U.S. Cl. 313—409 **15 Claims**



Corresponding electrodes in each respective electron gun of a triple electron gun color television picture tube are interconnected by welding so as to electrically couple a light metallic ribbon tab to each such corresponding electrode prior to glassing. This allows glassing without need for disturbing gun alignment by making welded connections after glassing. Weld burrs and sharp corners are thereby spaced at sufficient distance from the tube neck to reduce likelihood of arcing therefrom to the neck.

3,838,307
COLOR PLASMA DISPLAY

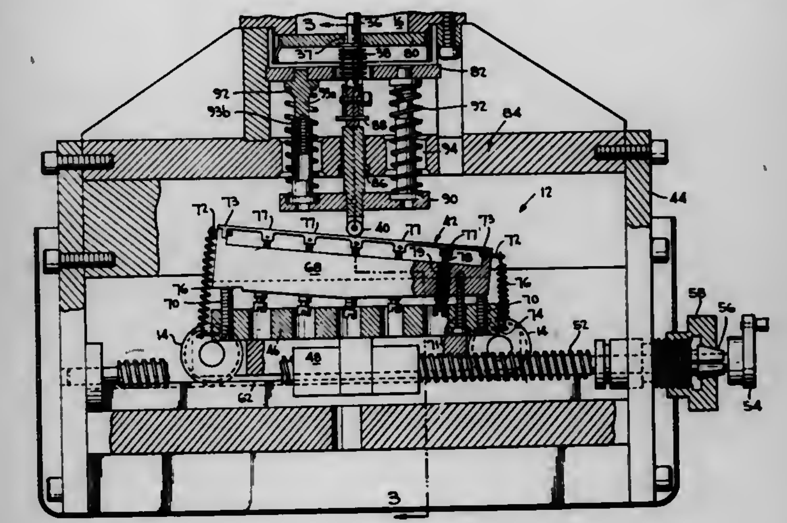
James Vincent Masi, Monroe, Conn., assignor to Bunker Ramo Corporation, Oak Brook, Ill.
Filed Aug. 14, 1972, Ser. No. 280,513
Int. Cl. H01j *61/44*
U.S. Cl. 313—486 **7 Claims**



This invention relates to a plasma display device adapted for generating a display in a color other than the characteristic color of the plasma gas utilized. At least one surface of each cell cavity of the device is formed at least in part of a multiphoton down-conversion phosphor (an anti-Stokes phosphor). For one embodiment of the invention the phosphor is coated on the walls of the cavity. For another embodiment of the invention, the cavity is formed as an opening through a member of an insulating material positioned between a pair of insulating plates, the plates forming the ends of the cavity, and the phosphor is incorporated into the material of at least one of the plates at least in the region thereof forming the end of the cavity.

3,838,308
GANG-TUNED MULTICAVITY MICROWAVE TUBE

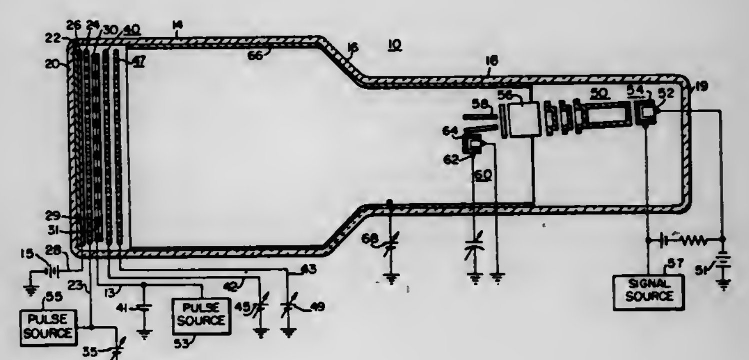
George K. Merdinian, Los Altos, and Yosuke M. Mizuhara, Palo Alto, both of Calif., assignors to Varian Associates, Palo Alto, Calif.
Filed Nov. 5, 1973, Ser. No. 413,013
Int. Cl. H01j *25/10*
U.S. Cl. 315—5.47 **7 Claims**



A continuously tunable multicavity klystron and gang tuning apparatus therefor includes a separate tuning element in association with each klystron cavity resonator for setting the respective cavity resonant frequencies. A carriage which is translated in a generally straight line path in response to the rotation of a single tuning shaft carries a plurality of elongated deformable metal bands. These bands are variable pitch cams that are followed by cam followers coupled to the tuning elements for each of cavity resonators. Each deformable band is supported on the carriage at several discrete points along the band length, and adjustment screws are provided for setting the band height and consequent tuning element contour. Such adjustment compensates for the nonlinear tuning characteristic of the cavity resonators in order to thereby obtain a resultant substantially linear cavity resonant frequency versus tuning shaft rotation characteristic. Because of the deformable nature of the bands, a smooth and continuous cam surface is formed between these discrete points.

3,838,309
DIRECT VIEW STORAGE TUBE HAVING A LATERAL FIELD NEUTRALIZING ELECTRODE ADJACENT THE STORAGE GRID

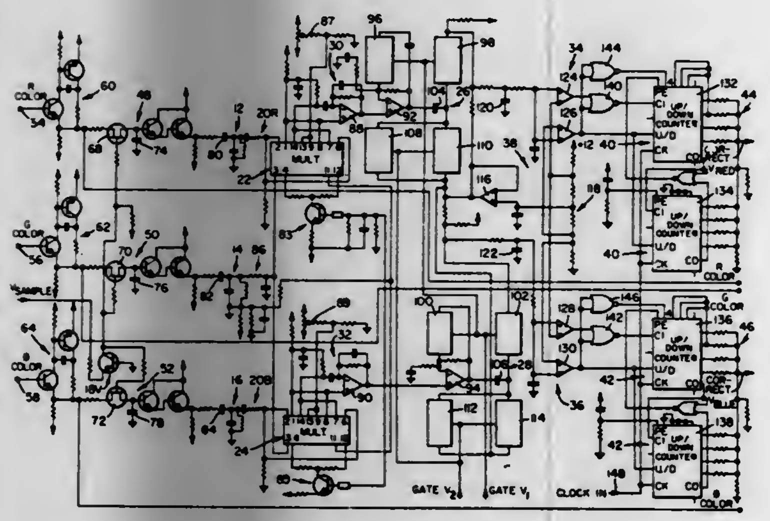
Jon W. Ogland, Glen Burnie, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed June 16, 1972, Ser. No. 263,561
Int. Cl. H01j *29/41*
U.S. Cl. 315—12 **9 Claims**



A transmission type direct storage tube in which a lateral field neutralizer electrode is positioned adjacent the transmission storage electrode to confine the lateral effects of charge on the storage electrode to individual mesh openings in the storage electrode and prevent interaction with neighboring mesh openings.

3,838,310
AUTO CENTERING FOR MULTIPLE TUBE TELEVISION COLOR CAMERAS

George R. Varian, Palo Alto, Calif., assignor to Ampex Corporation, Redwood City, Calif.
Filed Mar. 23, 1973, Ser. No. 344,215
Int. Cl. H01j *29/70*
U.S. Cl. 315—13 R **14 Claims**

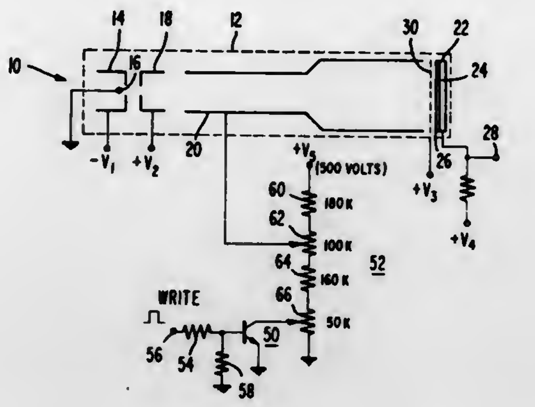


An automatic centering system is provided for multiple tube color cameras utilizing a plurality of channels of electronics, wherein at least one channel generates a signal which is the first derivative of either the red, green or blue color video signal introduced into the channels from a video color camera. In one embodiment of the centering circuit, the red and blue color signals are introduced to respective channels of the system, and each are multiplied by the first derivative of the green color signal. The resulting pair of centering signals are integrated to provide error signals which represent the amount and direction of any mis-centering between the green component image and the red and/or blue component images respectively. In another embodiment of the centering circuits, the first derivatives of the red and blue signals are each multiplied by the green color signal. The resulting pair of centering signals are integrated to provide error signals which represent the amount and direction of any mis-centering between the green and red and/or blue component images. Either of the embodiments may be used to correct vertical and/or horizontal mis-centering. In either embodiment, any mis-centering in either the vertical or horizontal direction is used to control up/down counter means, whereby a corresponding analog correction signal is supplied, via digital-to-analog means, to the scanning apparatus of the respective camera tubes.

3,838,311
STORAGE TUBE FOCUS CONTROL

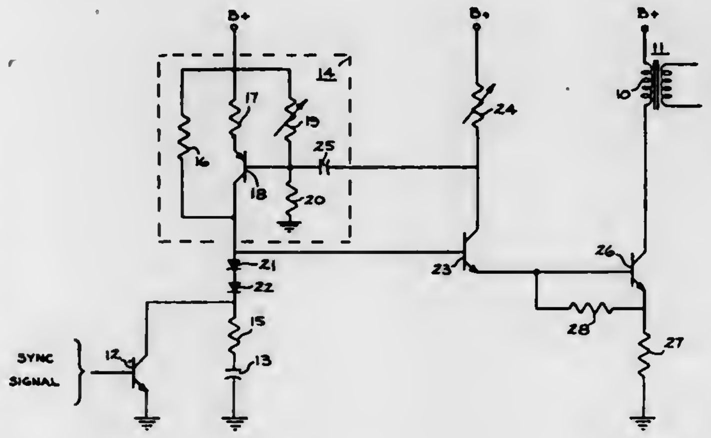
Denis Peter Dorsey, Levittown, Pa., and William E. Rodda, Trenton, N.J., assignors to RCA Corporation, New York, N.Y.
Filed Mar. 1, 1973, Ser. No. 337,011
Claims priority, application Great Britain, Apr. 24, 1972, 19019/72
Int. Cl. H01j *29/70*
U.S. Cl. 315—12 **5 Claims**

That loss of resolution which results in the image recorded in a storage tube when writing with high voltages which cause secondary emission can be minimized, in accordance with the invention, by reducing the bias voltage on its focus electrode when the storage tube is changed from its "READ" to its "-WRITE" mode of operation.



3,838,312
NON-LINEAR DEFLECTION DRIVE CIRCUIT

John D. Jordan, Chesapeake, Va., assignor to General Electric Company, Portsmouth, Va.
Filed Aug. 31, 1971, Ser. No. 176,470
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 TD **12 Claims**



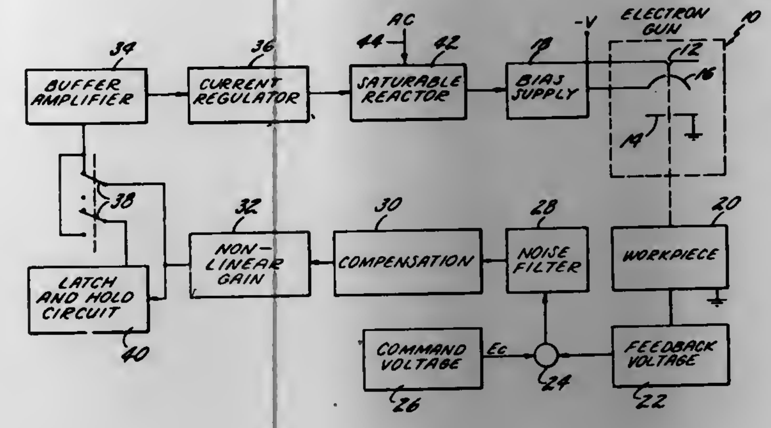
A drive stage for controlling a cathode ray tube deflection circuit. Current output is regulated as a function of voltage appearing across a sweep capacitor. A pair of charging paths are provided for charging the sweep capacitor. A first path is passive and couples the capacitor directly to a source of bias potential, while the second path includes an electron discharge device which modulates the conductivity of the second circuit as a function of drive current. Current from the second path adds increasingly to that from the first path to accelerate the rate at which the sweep capacitor is charged.

3,838,313
BEAM CURRENT REGULATOR FOR ELECTRON BEAM MACHINES

Harry B. Anderson, South Windsor, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed May 21, 1973, Ser. No. 362,152
Int. Cl. G05f *1/00*; H05b *37/02*
U.S. Cl. 315—291 **4 Claims**

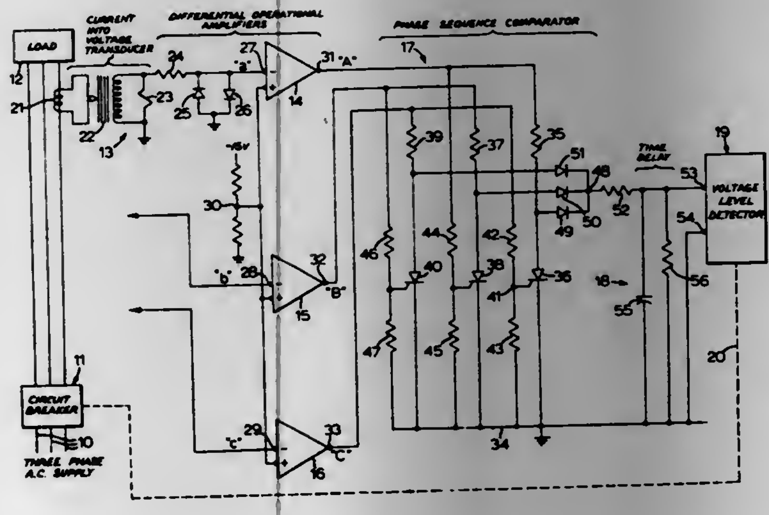
In an electron beam machine for welding or cuting a workpiece, the current produced by the electron gun is regulated by a beam regulating system to maintain a programmed value. A feedback voltage proportional to beam current is compared with a commanded voltage proportional to desired beam current, any difference therebetween in the form of an error voltage being used to vary the bias voltage of the electron gun and modify the beam current. A novel saturable reactor circuit permits the bias voltage which is at a high potential to be

varied by a DC current which varies about ground level. A novel latch and hold circuit permits the beam current regulator to be bypassed when the electron gun filament is "-peaked". A novel current adder circuit permits the automatic programming of multi-level beam currents.



3,838,314
DETECTOR FOR REVERSE AND OPEN PHASE IN A THREE PHASE CIRCUIT

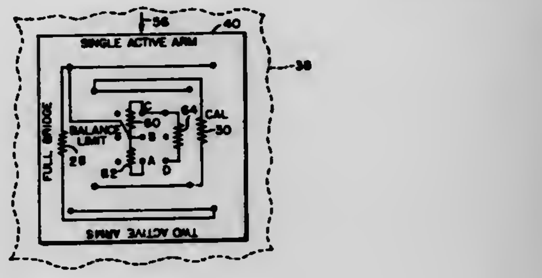
David Richard Boothman, Ennismore, Ontario, and David Walter Nutt, Peterborough, Ontario, both of Canada, assignors to Canadian General Electric Company, Limited, Toronto, Canada
Filed May 21, 1973, Ser. No. 362,049
Claims priority, application Canada, Oct. 11, 1972, 153622
Int. Cl. H02h *3/26*
U.S. Cl. 317—48 **8 Claims**

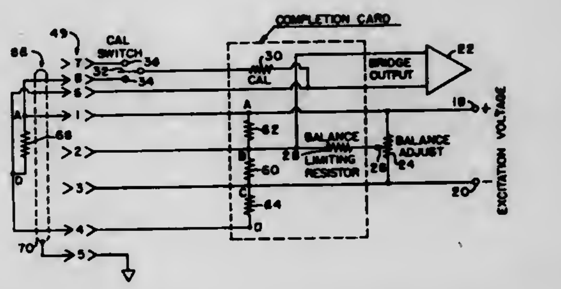


According to the invention a transducer coupled to a three phase AC supply for a load provides three trains overlapping voltage waveforms displaced 120° in time and of phase sequence following the supply sequence. A waveform converter converts these voltage waveforms into three trains of square waveforms of the same repetition rate, substantially the same duration, and displaced 120° in time but overlapping in duration. The square waveforms are then impressed on a wye circuit configuration consisting of a resistor and a gate controlled semiconductor connected in series and to the wye point in that order for each leg. Each semiconductor is gated on upon its anode going positive by another waveform which is of gating polarity and overlaps the positive going anode waveform. During normal three phase operation of the load, the positive voltages on the anodes of the semiconductor are substantially zero. During reversal or loss of phase of the load, these voltages are no longer zero and are detected by a detector circuit which signals the presence of the fault.

3,838,315
UNIVERSAL BRIDGE COMPLETION CIRCUIT FOR SELECTIVELY CONNECTING RESISTORS FOR INCLUSION IN A BRIDGE CIRCUIT

James B. Wilbourn, Huntsville, Ala., assignor to Avco Corporation, Huntsville, Ala.
Filed Oct. 1, 1973, Ser. No. 402,070
Int. Cl. H02b *1/04*; H05k *1/14*
U.S. Cl. 317—99 **11 Claims**

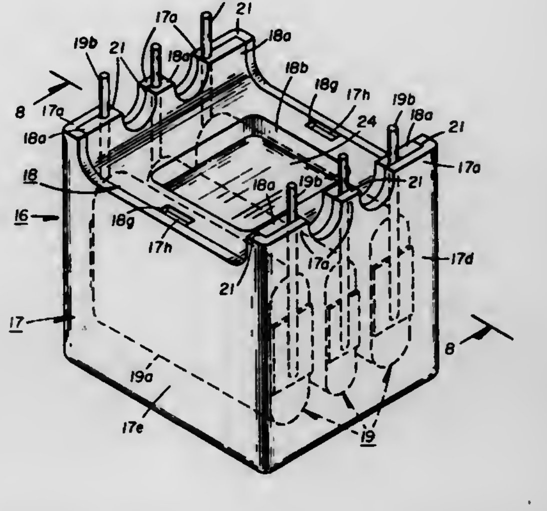




A mechanism is provided in which an impedance bridge circuit may be completed by using any of three combinations of bridge impedances in combination with external resistive devices. The mechanism comprises two circuit boards having complementary connectors symmetrically positioned so that the orientation of the boards can be rotated. The mechanism, in combination with external resistive devices, allows the formation of a complete four-arm impedance bridge by rotating the circuit boards 90, 180 or 270°.

3,838,316
ENCAPSULATED ELECTRICAL COMPONENT ASSEMBLY AND METHOD OF FABRICATION

Donald R. Brown; John W. Linsley, Jr., both of Downers Grove, and Robert F. Porod, Cicero, all of Ill., assignors to Western Electric Company, New York, N.Y.
Filed Oct. 9, 1973, Ser. No. 404,821
Int. Cl. H05k *5/06*
U.S. Cl. 317—101 R **14 Claims**

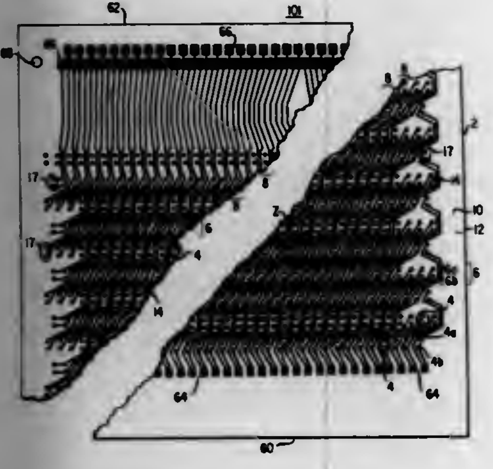


An encapsulated assembly of electrical components, such as capacitors, which can be mounted on a printed circuit board in straddling relationship to other components, includes an open mouth plastic shell and a plastic frame, each having opposed projecting standoff sections are provided with grooves for receiving leads extending from electrical components assembled within the shell. Encapsulating liquid is introduced into the shell through an opening in the frame to submerge the bodies of the components and until the liquid wets the inner surface of the frame and flows by capillary action upward in passageways defined by the grooves in the frame and the standoff sections of the shell, to secure the leads in the passageways and to bond the frame to the shell. The encapsulating liquid also flows by capillary action upward between the side walls of the shell and the periphery of the frame to bond the frame to the shell, with the upper peripheral edges of the frame preferably depressed with respect to adjacent edges of the shell to prevent excess flow of the liquid over the sides of the shell.

3,838,317
CROSS CONNECT SWITCH

James Christopher Coyne, New Providence, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 12, 1973, Ser. No. 378,579
Int. Cl. H05k *5/00*
U.S. Cl. 317—119 **19 Claims**



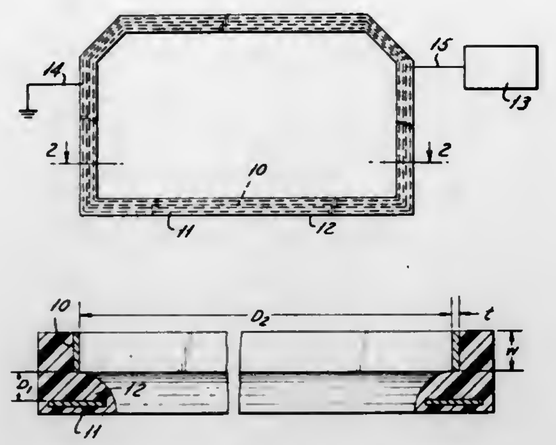
A cross connect switch utilizes diagonal conductors on a printed circuit board which wrap around the edges of the board or are fed through the board to provide two conductor segments on the two sides. These conductor segments interconnect pins in respective pin rows on the board so that each conductor is connected to pins which are adjacent pins connected to every other conductor on the board. Thus any conductors on the board can be cross connected by shorting appropriate pin pairs by a short connector. All conductors can be accessed along two edges of the board.

3,838,318
ANTENNA ASSEMBLY FOR A CAPACITANCE-RESPONSIVE SAFETY DEVICE

Robert Theodore Schmidt, Port Huron, and John Daniel Mulka, Warren, both of Mich., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 2, 1973, Ser. No. 347,213
Int. Cl. H01g *7/00*
U.S. Cl. 317—246 **5 Claims**

An antenna assembly for a capacitance-responsive personnel safety device consists of an antenna formed by bending a ribbon of flat metal into a loop capable of defining a continuous capacitance field, the bending taking place across the width of the ribbon; a shield of the flat metal substantially coextensive with the antenna loop positioned in spaced relation with respect to the loop, the surface plane of the shield being perpendicular to the surface plane of the antenna rib-

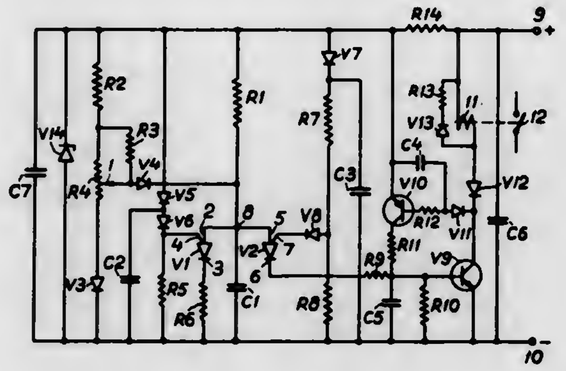


bon; and a dielectric material such as an organic polymer embedding the antenna and shield and maintaining the spaced relation thereof.

3,838,319
TIME LAG RELAY WITH A SHORT RECOVERY TIME

Gudmar Hammarlund, and Arne Johansson, both of Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Nov. 12, 1973, Ser. No. 414,879
Claims priority, application Sweden, Nov. 10, 1972, 14572/72
Int. Cl. H01h *47/18*
U.S. Cl. 317—141 S **5 Claims**



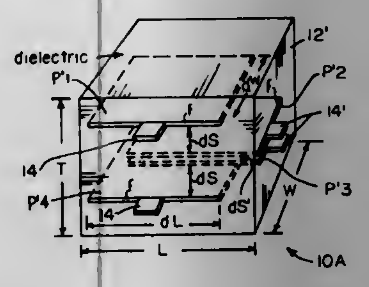
An arrangement for achieving a short recovery time in a time lag relay, composed of static components in which the delay is determined by the charging time of a capacitor, includes two programmable unijunction transistors with the anode-cathode path in parallel with the capacitor and the control electrodes connected each to one voltage divider between the poles of the feeding voltage source. The voltage dividers are so designed and the control electrodes so connected to their voltage dividers that, during the charging of the capacitor, the voltage on the control electrode of the first transistor is higher than the voltage on the control electrode of the second transistor. If the charging process is interrupted before the relay has operated, the voltage on the control electrode of the first transistor falls more quickly than the voltage on the control electrode of the second transistor.

3,838,320
MULTIPLE LAYER CAPACITORS

Samuel J. Klein, Dix Hills, N.Y., assignor to American Technical Ceramics, a Division of Phase Industries, Inc., Huntington Station, N.Y.

Filed Jan. 4, 1974, Ser. No. 430,706
Int. Cl. H01g *3/07*
U.S. Cl. 317—261 **12 Claims**

A multiple layer capacitor for use at high frequencies has a plurality of conductive plates or electrodes embedded in spaced parallel disposition in a dielectric block. The capacitor has increased current handling capacity, higher Q and lower internal series resistance than conventional capacitors of the same size and capacitance due to arrangement of plates

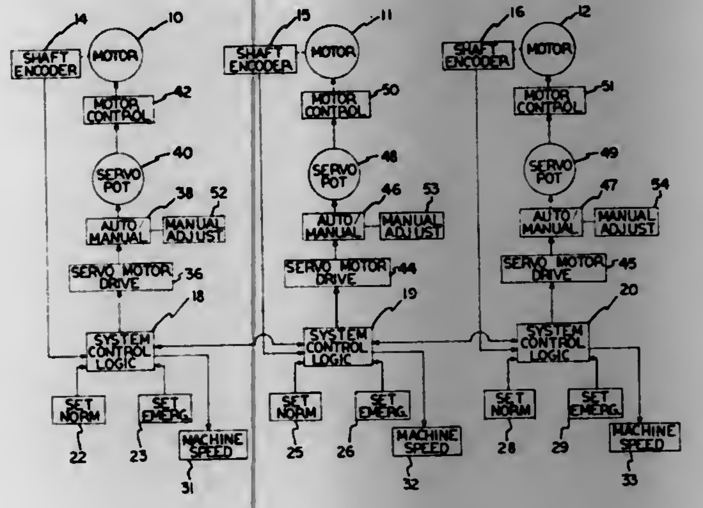


between end plates as one or more closely spaced pairs. The spacing between plates of each pair is negligibly small as compared with the spacing between the pairs of plates and the end plates, and each of the pair of plates is connected to the same terminal.

3,838,321
SPEED CONTROL SYSTEM

David A. Damm, Toledo, and Gerald F. Scherf, Holland, both of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Oct. 24, 1973, Ser. No. 409,257
Int. Cl. H02p *5/46, 5/00*
U.S. Cl. 318—66 **41 Claims**



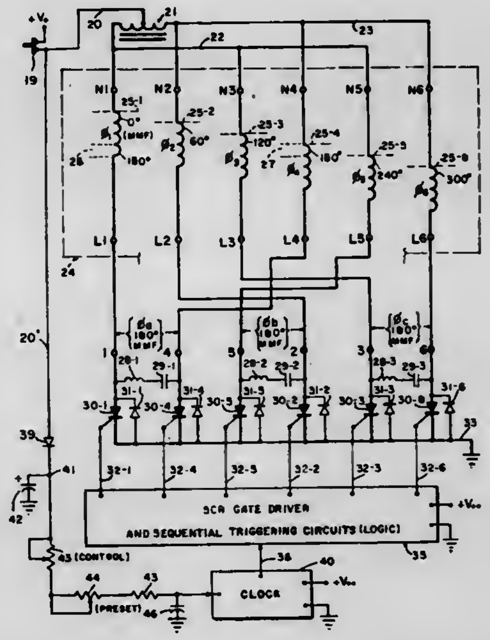
A motor speed control for a plurality of machines operating in parallel. In the inspection of glass containers, a group of containers are split into individual lines, three for example. Each line is fed to a separate inspection machine where identical inspection functions are performed. This invention is a control system for the electric motor drives of the inspection machines. The speed of all of the machines is monitored, and whenever any machine stops or falls below a minimum speed, the remaining machines are automatically increased in speed to an emergency speed. The remaining machines can operate fast enough to inspect all of the glass containers, which, under these circumstances, are divided into only two lines instead of three.

3,838,322
INDUCTION MOTOR SYSTEM WITH CONSTANT HORSEPOWER

Jack E. Greenwell, Reno, Nev., assignor to Lear Motor Corporation, Reno, Nev.

Division of Ser. No. 144,897, Mav 19, 1971. Pat. No. 3,753,062. This application Jan. 31, 1973, Ser. No. 328,062
Int. Cl. H02p *5/40*
U.S. Cl. 318—225 R **10 Claims**

An electric induction motor/control system that provides the desirable high starting torque and wide speed characteristics of direct current motors. The stator of the induction motor has two specially interrelated winding sets per phase. The motor windings are supplied with unidirectional current pulses from silicon controlled rectifiers that are programmed to provide advantageous modes of operation for the motor. The unique relation and interaction between the motor windings hereof and the associated electronic circuitry results in high power factor, good efficiency, and self-clearing SCR commutation action. The preferred motors use a squirrel cage rotor with no commutator, brushes, or slip rings. The complementary stator winding arrangements are not voltage limited,

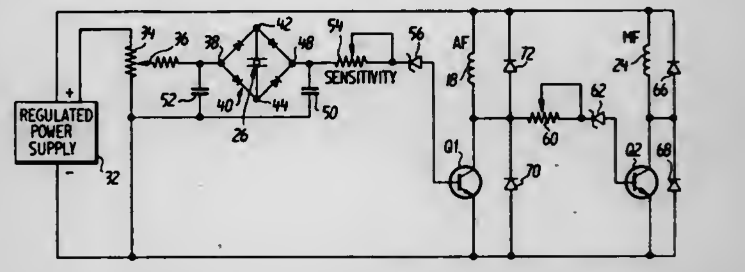


and thereby permit the construction of large power motor systems. Practical motor ratings are from fractional to over 500 horsepower, at speeds ranging from 600 to 40,000 rpm, and higher. The electronic control sections for even the high horsepower motors are operated at low voltage and with few watts. Control circuitry is provided that can operate the motor systems: (a) at constant output torque over a wide speed range; (b) at constant horsepower over a selected speed range; (c) with traction output characteristics similar to that of series motors; (d) at constant speed; (e) and with direct speed reversal in any of these modes. These motor systems require little maintenance, and may be hermetically sealed.

3,838,323
EDDY CURRENT DYNAMOMETER SPEED CONTROL CIRCUIT AND METHOD

Harold E. Anderson, Los Angeles, Calif., assignor to McCulloch Corporation, Los Angeles, Calif.

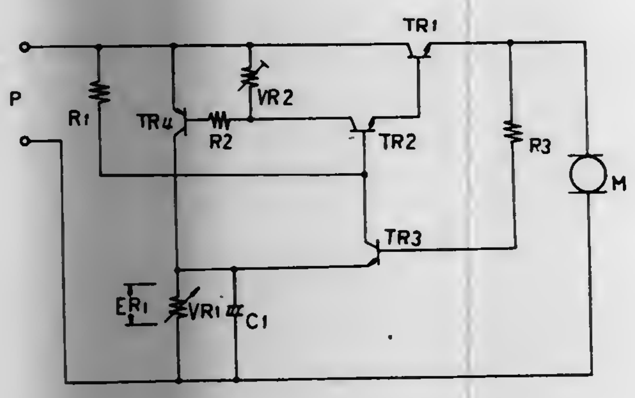
Filed Feb. 5, 1973, Ser. No. 329,400
Int. Cl. H02k *49/00;* **H02p** *15/00*
U.S. Cl. 318—302 **12 Claims**



An eddy current dynamometer speed control circuit includes transistors connected in series with the motor field coil and the absorbing field coil to control the current in the coils in a continuously variable manner to effect changes between a braking mode and a motoring mode responsively to dynamometer speed changes. The speed control circuit utilizes a regulated voltage onto which is impressed a tachometer signal having an amplitude related to the speed of the dynamometer input/output shaft. Control voltages for the transistors are applied through Zener diodes each of which function as a threshold circuit to control the initial acceleration of the input/output shaft of the dynamometer and for causing a full motoring field to be applied responsively to abnormally large speed drops for quick recovery. A current sharing transistor circuit is also disclosed.

3,838,324
SYSTEM FOR CONTROLLING THE ROTATIONAL SPEED OF A MICROMOTOR FOR USE IN MEDICAL INSTRUMENTS

Yoshiaki Watanabe, Kyoto, Japan, assignor to Kabushiki Kaisha Morita Seisakusho, Kyoto, Japan
Filed Jan. 2, 1972, Ser. No. 303,128
Claims priority, application Japan, Nov. 9, 1971, 46-104806
Int. Cl. H02p *5/16*
U.S. Cl. 318—331 **6 Claims**

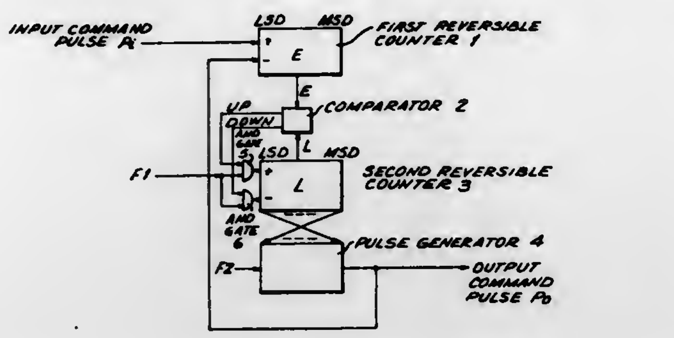


A system for controlling the rotational speed of a micromotor for use in medical instruments such as a dental handpiece comprises a first transistor connected in series between said motor and a source of electric energy; a second transistor Darlington-connected to said first transistor; a third transistor through which part of the base current of said second transistor flows; circuit means for supplying to said third transistor a base current from the terminal voltage of said motor; a fourth transistor to which part of the current flowing through said second transistor is applied as a base current; and a variable resistor through which both the current caused by the source voltage to flow through said fourth transistor and the current flowing through said third transistor flow, said variable resistor providing a reference voltage for setting the rotational speed of said motor to a predetermined value.

3,838,325
MOTOR SPEED ACCELERATION-DECELERATION CONTROL CIRCUIT

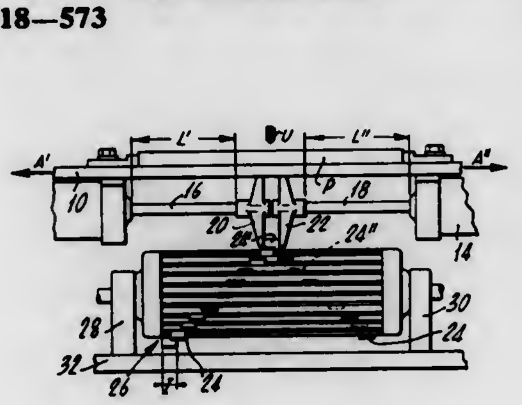
Kengo Kobayashi, No. 2937, Sugao, Tama-ku, Kawasaki-shi, and Mitsuo Manabe, No. 3-17-17, Minamimachi, Kichijoji, Musashino-shi, both of Japan
Filed Aug. 30, 1973, Ser. No. 393,048
Int. Cl. H02p *5/16*
U.S. Cl. 318—415 **12 Claims**

A motor speed acceleration-deceleration control circuit capable of controlling by smoothing pulse trains the accelerating and decelerating characteristics of the pulse trains in any mode of exponential, linear and/or changing from linear to exponential and simultaneously capable of exponentially controlling the accelerating characteristic and linearly controlling the decelerating characteristic comprises a first reversible counter which accumulates the command pulses. A second reversible counter reversibly counts pulses having a constant frequency. The reversible counting depends upon the output of a comparator which compares the contents in the first reversible counter with the contents of the second reversible counter. A pulse generator produces output pulses having a repetition frequency proportional to the contents of the second reversible counter. The output pulses are fed back negatively to the subtraction input of the first reversible counter.



3,838,326
MECHANICAL-HYDRAULIC INTERLOCKED DIGITAL CONTROLLED POSITIONING APPARATUS

Beniamino Ferri, Via Rovani, 6, Monza, Italy
Filed Apr. 19, 1972, Ser. No. 245,569
Claims priority, application Italy, Apr. 21, 1971, 23450/71
Int. Cl. G05b *19/24*
U.S. Cl. 318—573 **13 Claims**

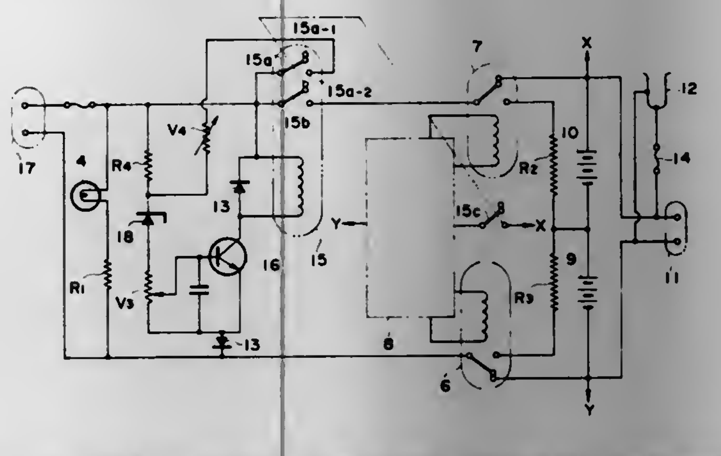


Method and apparatus for positioning a workpiece in a plurality of locations relative to a tool, in which a digitally controlled, rotatable indexing drum carrying axially spaced index projections about the periphery thereof is mounted to a frame and positioned such that a preselected one of the projections may be rotatably interposed between a pair of opposed extendible pushers mounted on a carriage movable relative to the frame. The drum is sequentially rotatably positioned in accordance with the preselected program, with the pushers actuated after each separate movement of the drum to shift the workpiece into the various desired positions relative to the tool.

3,838,327
BATTERY POWERED EQUIPMENT

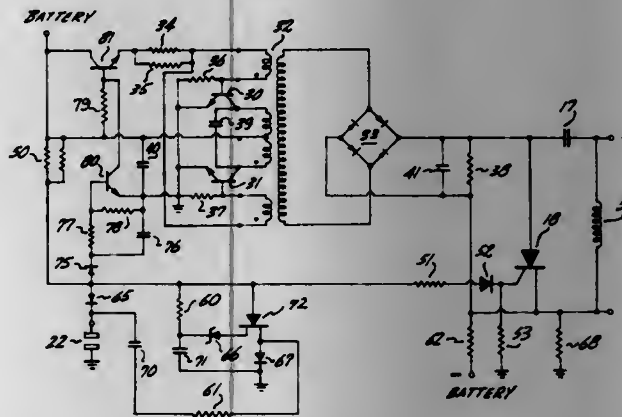
Sachio Uemichi; Kazuto Miyauchi, and Susumu Nakao, all of Takatsuki, Japan, assignors to Yuasa Battery Company Limited, Takatsuki City, Osaka Prefecture, Japan
Continuation of Ser. No. 185,686, Oct. 1, 1971, abandoned.
This application Aug. 20, 1973, Ser. No. 389,812
Int. Cl. H02j *7/00*
U.S. Cl. 320—2 **2 Claims**

Portable battery powered equipment capable of being charged from an automobile accessory terminal, such as a cigarette lighter jack, is provided with a main relay to open and close the self-contained charging circuit which is designed to be switched ON at a preset voltage. A circuit includes a switching member and a resistor connected in series to one another and connected in parallel with the coil of a main relay. Variable resistors are connected in parallel with or disconnected with the resistor depending on the ON-OFF operation of the main relay. The charging operates such that an electric current flowing to the coil of the main relay is controlled to effect the OFF operation of the main relay when the battery cannot be substantially charged from an alternator or other external AC source.



3,838,328
CAPACITIVE DISCHARGE IGNITION SYSTEM

Wilson T. Lundy, 14901 28th Ave. S.W., Burien, Wash. 98166
Filed Mar. 19, 1973, Ser. No. 342,467
Int. Cl. H02m *3/28*
U.S. Cl. 321—2 **10 Claims**

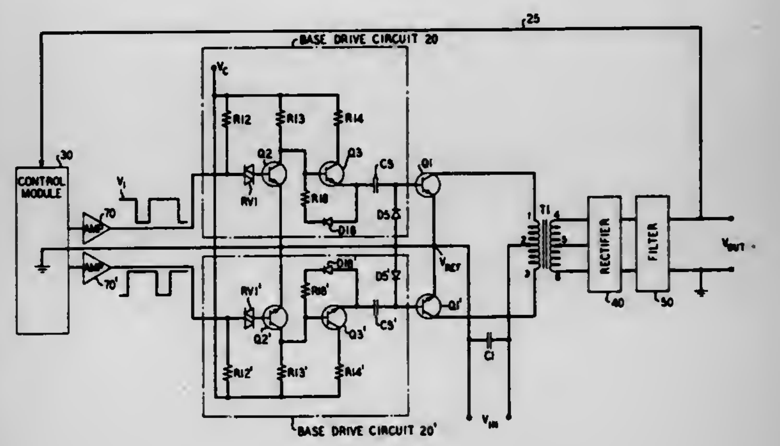


A capacitive discharge ignition system utilizing a silicone controlled rectifier to control the application of capacitively stored energy to the primary of an ignition coil. This energy, which is supplied by a DC-to-DC convertor network, is initially stored in a capacitor. The capacitor is then discharged through the primary ignition coil circuit at predetermined times under the control of the SCR. The SCR conduction state is positively controlled, allowing for multiple energy exchange cycles to occur if desired. The DC-to-DC convertor is turned off during the time that the SCR is conducting.

3,838,329
POWER SUPPLY CIRCUIT

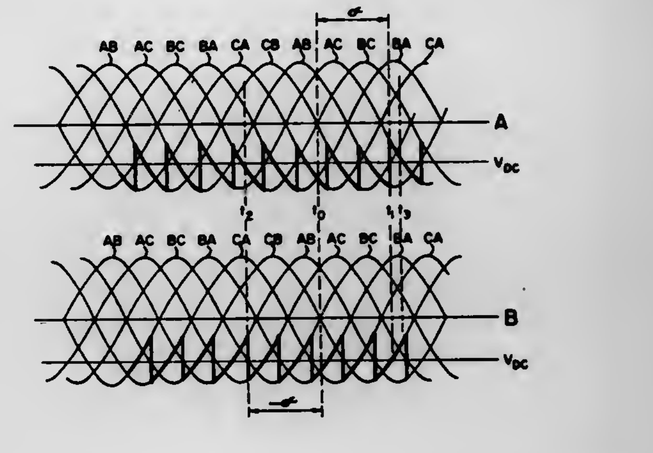
Robert Wilson Michelet, Madison; Stephen Vincent Natale, New Providence, and David Edward Phillips, Hawthorne, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed May 21, 1973, Ser. No. 362,400
Int. Cl. H02m *3/32*
U.S. Cl. 321—2 **23 Claims**

In a power supply circuit, such as a converter or a switching regulator, forward and reverse drive current is alternately applied to the base of a power switching transistor by a base drive circuit which alternately drives the power transistor into and out of saturation. The forward drive current flows through a current switch and then a capacitor which is connected in series with the base of the power transistor. The forward drive current charges the capacitor and at the same time saturates the power transistor. In order to cut off the power transistor, and to reduce charge storage effects therein, a reverse drive current path is also provided which includes the capacitor, a second switch which, in one embodiment, controls the current switch, and a pair of diodes which bypass the power transistor and the current switch during the flow of reverse current. As long as the power transistor has excess charge stored in its base region, its emitter-base junction behaves as if it were forward biased and the reverse current will flow through the emitter-base junction of the power transistor. However, once the excess charge in the power transistor is depleted, its base-emitter junction becomes reverse biased and the discharge path is closed instead through the diodes. In another embodiment, the second switch located in the reverse drive path is controlled by the current switch located in the forward drive path rather than conversely.



3,838,330
ARRANGEMENT AND METHOD FOR CONVERTING ELECTRICAL POWER WITHOUT EXTERNAL SUPPLY OF REACTIVE POWER REQUIREMENTS

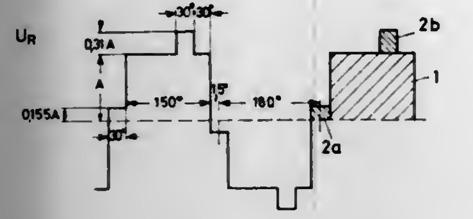
John Rosa, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Apr. 13, 1973, Ser. No. 351,057
Int. Cl. H02m *7/00*
U.S. Cl. 321—5 **15 Claims**



In a system utlizing a naturally commutated converter to convert AC power to DC power (or to convert DC power to AC power), a force commutated converter is placed in parallel with the naturally commutated converter. The input power factor of the force commutated converter is set to compensate for the reactive power required by the naturally commutated converter. The input power factor of the force commutated converter is equal but of opposite sign with respect to the input power factor to the naturally commutated converter, which has an inherently lagging input power factor.

3,838,331
THREE-PHASE INVERTER

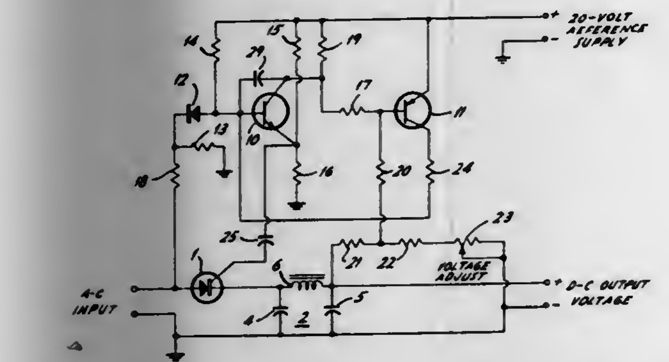
Arne Jensen, Sonderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark
Filed Feb. 2, 1973, Ser. No. 329,104
Claims priority, application Germany, Feb. 19, 1972, 2207811
Int. Cl. H02m *1/12, 7/52*
U.S. Cl. 321—9 R **9 Claims**



A three-phase inverter for producing a stepped voltage approximating to a sinusoidal form, and largely free of odd harmonics, wherein, for the purpose of producing each phase voltage a basic and two additional rectangular impulses are summed, the basic impulse being shortened in relation to a half-wave and occupying substantially the entire amplitude-time area of the phase voltage, and the additional impulses having a considerably smaller amplitude and shorter duration than the basic impulse. One of the additional impulses procedes and the other is superimposed on a basic impulse of the same polarity.

3,838,332
LINE CONNECTED SCR REGULATOR

Albert Hopengarten, Lafayette Hill, Pa., assignor to Philco-Ford Corportion, Blue Bell, Pa.
Filed July 30, 1973, Ser. No. 384,116
Int. Cl. G05f *1/56*
U.S. Cl. 321—18 **6 Claims**

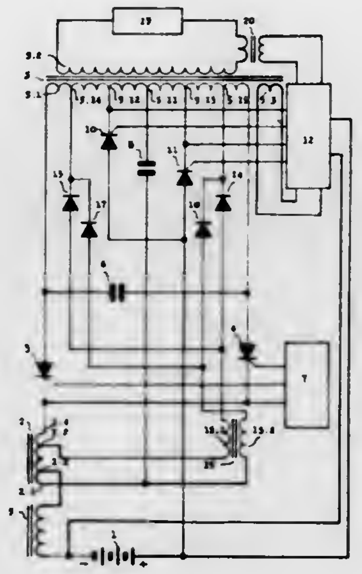


A line connected d-c power supply uses an SCR to act as a rectifier and to provide regulation for power line and load variations. The SCR is fired by means of a pulse that is delayed by a suitable value with respect to the a-c input. The delay is such that the SCR fires in the interval of shortly ahead of the input peak to a point before the zero crossing. The SCR firing angle is varied so as to keep the rectified d-c output voltage constant. A Miller integrator circuit is used to provide the delay function and a bistable latching circuit is used to generate the SCR firing pulse. The delay period is made a function of the difference between the d-c output voltage and a reference voltage.

3,838,333
STABILIZED INVERTER

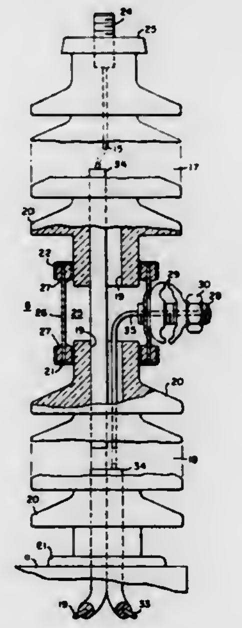
Walter Bernhard Guggi, Im Boden 265, 8172 Niederglatt, Switzerland
Filed May 21, 1973, Ser. No. 362,312
Claims priority, application Switzerland, May 31, 1972, 8007/72; May 30, 1972, 8006/72; Sept. 13, 1972, 13648/72
Int. Cl. H02m *7/48*
U.S. Cl. 321—45 R **6 Claims**

A stabilized inverter apparatus, capable of transforming direct current into alternating current, and particularly sine-like alternating current with low harmonic content, by means of trigger controlled current valves in conjunction with a double-tuned electrical LC-circuit means with a common capacitor, by feeding direct current from a source thereof through a tuning inductor and current valves, applying chopped direct current with alternating polarities across the terminals of the primary winding of the transformer, which primary winding has a capacitor connected in parallel herewith. The capacitor is in resonance with the reflected inductance of the tuning inductor, the magnitude of reflected inductance of said transformer winding being close to resonance with said capacitor, whereby energy may be drawn from said transformer by connecting a load to a winding thereof.



3,838,334
ELECTRICAL DEVICE WITH TWO-TERMINAL BUSHING

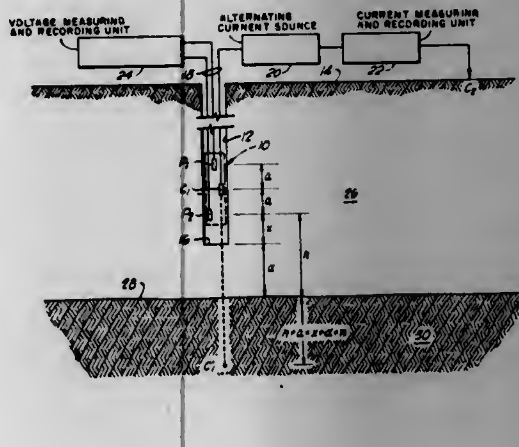
Gene L. Miller; James J. McNally, and Robert D. McClain, all of Bloomington, Ind., assignors to Westinghouse Electric Corportion, Pittsburgh, Pa.
Filed Mar. 29, 1971, Ser. No. 128,730
Int. Cl. H01b *17/26*
U.S. Cl. 323—93 **7 Claims**



An electrical device having a sealed casing with at least one two-terminal bushing in which two leads are brought out through a single bushing to separate isolated terminal devices. The invention is particularly suitable for three-phase capacitor units with an isolated neutral terminal.

3,838,335
METHOD AND APPARATUS FOR DETERMINING THE PRESENCE OF AND DEPTH TO A HORIZONTAL ELECTRICAL RESISTIVITY CONTRAST BENEATH THE EARTH SURFACE

Dale E. Miller, Ponca City, Okla., assignor to Continental Oil Company, Ponca, Okla.
Filed Feb. 23, 1973, Ser. No. 335,436
Int. Cl. G01v *3/18*
U.S. Cl. 324—10 **8 Claims**

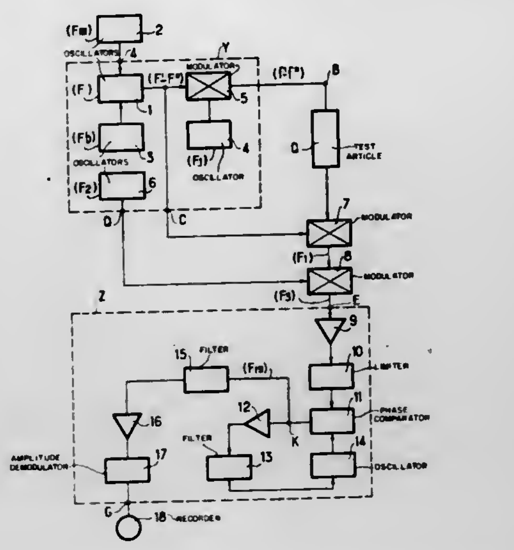

VOLTAGE MEASURING AND RECORDING UNIT
ALTERNATING CURRENT SOURCE
CURRENT MEASURING AND RECORDING UNIT

Method and apparatus for determining the presence of and depth to a horizontal electrical resistivity contrast lying beneath the bottom of a borehole. The apparatus comprises a surface generator for applying a low frequency sinusoidal current between a long downhole current electrode unit and a distant surface current electrode. The apparatus further includes a voltage-measuring device for recording the resulting potential difference between two long downhole potential electrode units. The centers of the two long downhole potential electrode units are equally spaced several hundred feet above and below the long downhole current electrode unit, respectively. The exact spacing is chosen according to the desired depth of investigation. Another aspect of the apparatus is that the length of each downhole current and potential electrode unit is made equal to about one-tenth the chosen vertical electrode spacing. The method includes measuring the amplitude of the potential difference measured between the two long downhole potential electrode units and displaying in a log-log plot the potential difference over the low frequency sinusoidal current versus the difference of the electrode array above the bottom of the borehole and determining therefrom the distance from the bottom of the borehole to the level of electrical resistivity contrast.

3,838,336
APPARATUS FOR MEASURING THE GROUP PROPAGATION TIME IN A QUADRIPOLE

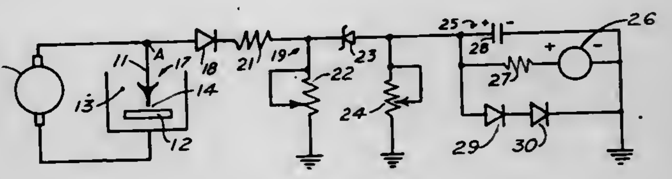
Claude Aillet, Lannion, France, assignor to Societe Lannionnaise D'Electronique Sle-Citerel, Lannion, France
Filed Apr. 9, 1973, Ser. No. 349,631
Claims priority, application France, Apr. 7, 1972, 72.12356
Int. Cl. G01r *27/00*
U.S. Cl. 324—57 R **4 Claims**

Apparatus for measuring the group propagation time in a quadripole in dependence on the drivation of the phase curve with respect to the pulsation, this derivation being carried out automatically by sweeping the carrier frequency between limits in combination with a frequency modulation of the carrier frequency.



3,838,337
PULSE UTILIZATION INDICATION CIRCUIT

Joseph F. Halbleib, Neshanic Station, N.J., assignor to John B. Sowell, Ardmore, Pa., a part interest
Filed July 12, 1973, Ser. No. 378,406
Int. Cl. G01n *27/00*; **B23k** *9/10*
U.S. Cl. 324—71 R **13 Claims**

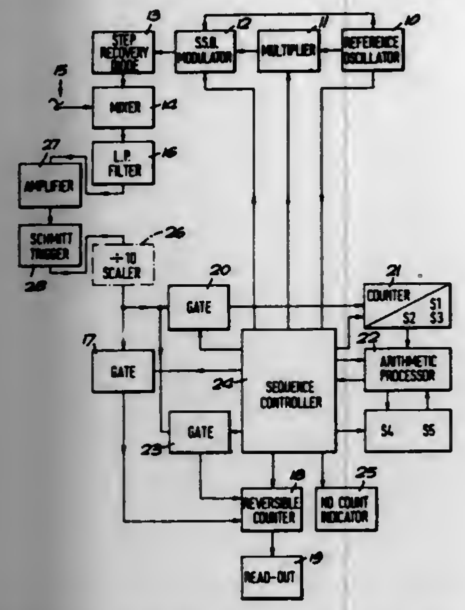


A circuit for indicating the percentage utilization of pulses being applied to a utilization device which includes means for sensing the voltage levels which occur during pulse utilization and non-utilization and means for indicating the proportional number of pulses being utilized.

3,838,338
FREQUENCY MEASUREMENTS

Khalil Ibrahim Khoury, Bodmin, England, assignor to Flann Microwave Instruments Limited, Bodmin, Cornwall, England
Filed Oct. 9, 1973, Ser. No. 404,206
Int. Cl. G01r *23/14*
U.S. Cl. 324—79 D **20 Claims**

This invention relates to a method of and an apparatus for automatically measuring the frequency of an input signal, particularly where the frequency of the signal to be measured lies above the upper limit of direct-counting frequency counters. The input signal to be measured is mixed simultaneously with a first reference signal and a number of consecutive harmonics thereof. A lowest beat frequency is extracted from the resulting beat frequencies. In order to obtain a value for the number of the nearest harmonic and to determine whether the input signal lies above or below this nearest harmonic, the first reference signal is increased and decreased by a known increment to obtain respective further lowest beat frequencies. The set of lowest beat frequencies is processed to compute the value of the frequency of the input signal. There are regions midway between adjacent harmonics where input signals cannot be measured, and thus to provide a continuous measurement range including these regions and also to provide a check on a measurement obtained with respect to the first reference signal, a further reference signal is used instead of the first reference signal and the measurement procedure is performed with another set of lowest beat frequencies. If required, further reference signals may be used to extend the measurement range.



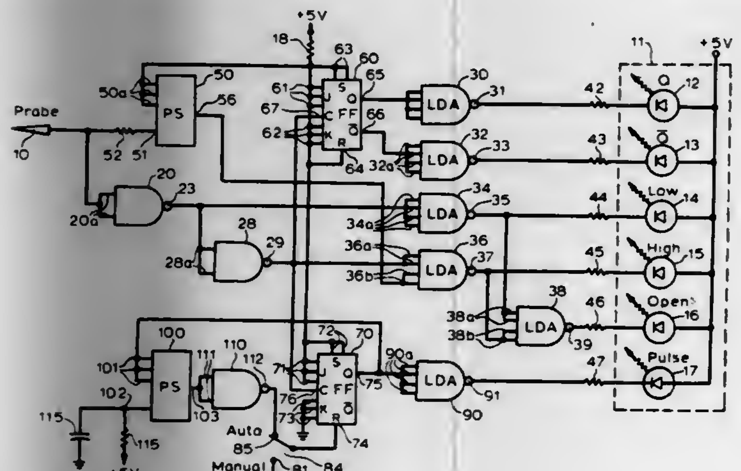
3,838,339
LOGIC TEST PROBE AND INDICATOR CIRCUIT

William F. Brandt, Des Plaines, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake Ill.

Filed Aug. 17, 1973, Ser. No. 389,417

Int. Cl. G01r *19/16, 31/02*

U.S. Cl. 324—133 **10 Claims**



A test circuit for detecting low, high and open voltage levels, and dynamically changing voltage levels in a digital circuit includes a display panel and a probe provided with a plurality of indicators for signalling each of the possible level conditions sensed by the probe. The circuit also includes a current detecting circuit for providing an unambiguous indication when an open level is present. A pair of indicators provide information of the presence of dynamically changing levels while low and high level indicators provide information by way of duty cycles of the shape of the dynamic wave-form. An indicator is also provided for giving a sustained indication when an unexpected level change takes place and includes means for automatically resetting itself.

3,838,340
DIRECT READING WATTMETER FOR MEASURING THE TRUE WATTS POWER CONSUMPTION OF AN A.C. CIRCUIT

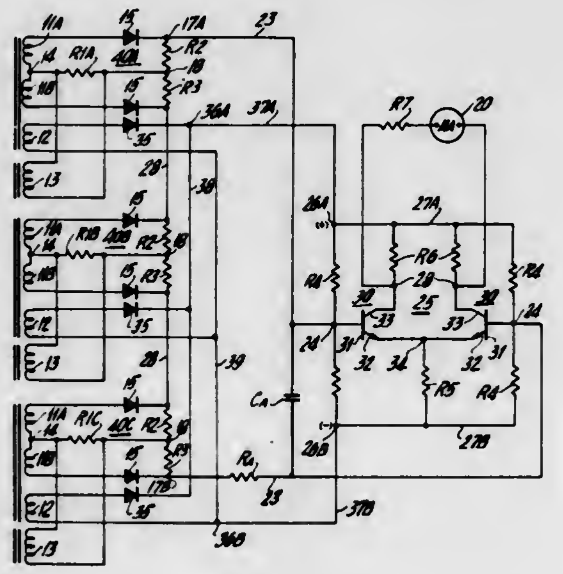
Raymond H. Legatti, 1567 Alexander Rd., Clearwater, Fla. 33516

Filed June 11, 1973, Ser. No. 369,060

Int. Cl. G01r *21/00, 29/16*

U.S. Cl. 324—142 **10 Claims**

The wattmeter includes a potential transformer having a primary winding connected across a phase of an a.c. circuit and having a first center-tapped secondary winding and a second secondary winding. The first secondary winding is included in a full wave rectifying bridge further including a pair of series-connected bridge resistors connected across the terminals of the first secondary winding, diodes, and a terminal resistor of a current transformer in the associated phase. The terminal resistor is connected between the center tap of the first secondary winding and the junction point of the bridge resistors, and constitutes the diagonal of the bridge circuit. A differential amplifier has an input connected across the series-connected bridge resistors, and an indicating meter is connected across the output of the differential amplifier. A second secondary winding of the potential transformer is connected, through a diode or diodes, to the differential amplifier to provide a d.c. operating voltage across the amplifier. When used in a polyphase a.c. circuit, respective full wave rectifying bridge circuits are provided for each phase, and all of the pairs of series-connected bridge resistors are connected in series with each other. In this case, the input of the differential amplifier is connected across all of the series-connected bridge resistors. The differential amplifier includes a pair of transistors and associated circuitry, with the input circuit being connected to the bases of the two transistors and the indicating meter being connected between the two outputs of the transistors.



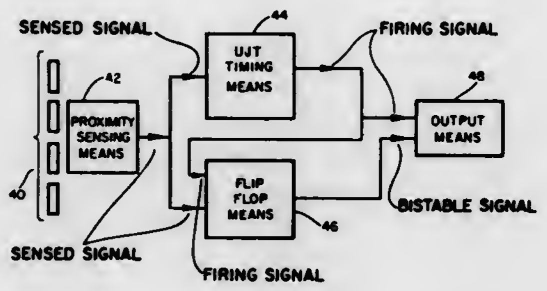
3,838,341
UNDERSPEED/OVERSPEED DETECTOR

Donald Joseph Gaines, Lena, Ill., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed Jan. 2, 1973, Ser. No. 319,972

Int. Cl. G01p *3/56*

U.S. Cl. 324—161 **3 Claims**



A detection system for determining unacceptable deviations from a desired spacing pattern in the passage of articles past a station.

3,838,342
A SWITCHED FREQUENCY COMMUNICATIONS SYSTEM WITH AUTOMATIC PHASE AND AMPLITUDE COMPENSATION

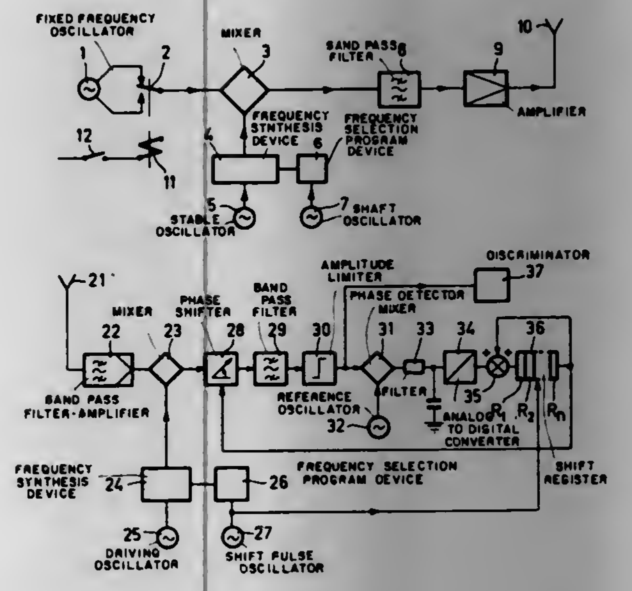
Bengt Harry Bjorkman, Skalby, Sweden, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 22, 1970, Ser. No. 100,684

Claims priority, application Switzerland, Dec. 23, 1969, 17909/69

Int. Cl. H04k *1/04*

U.S. Cl. 325—32 **4 Claims**



A communications device consisting of a transmitter that produces a phase modulated signal that is switched to a plurality of different frequencies according to a preselected program, and a receiver that mixes the received signal with a sequence of frequencies equal to the transmitted frequencies plus or minus a fixed intermediate frequency. In order to compensate for the different phase shifts produced by the interaction of the different transmitted frequencies with various fixed obstructions the phase of the intermediate frequency in the receiver corresponding to each transmitted frequency is measured, compared with a fixed phase reference oscillator and stored. The stored phase information relating to each transmitted frequency is used to control a phase shifter in the receiver during subsequent transmissions of the corresponding frequency, thereby completing a phase correction control loop. A similar comparison, storage, and control feedback loop is used in conjunction with an AVC amplifier in order to individually control the amplitude of each received frequency.

3,838,343
BROADBAND CABLE COMMUNICATIONS SYSTEM

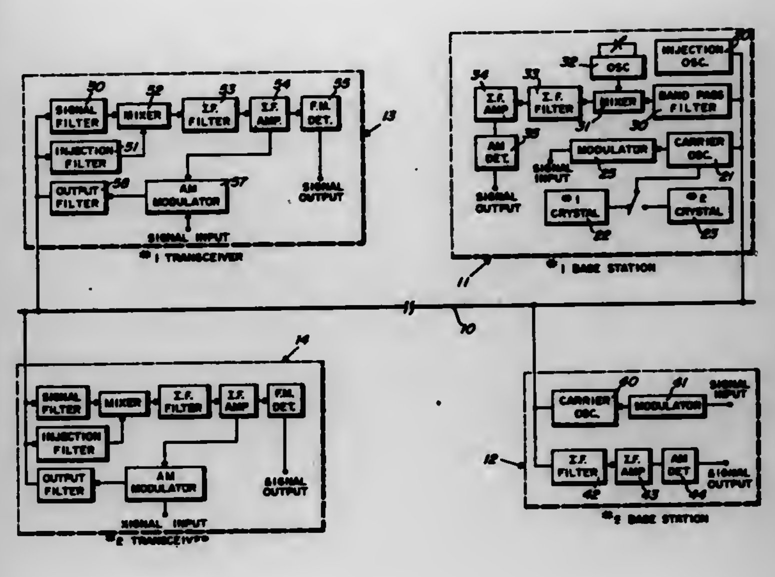
Richard Yactor, Des Plaines, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 15, 1973, Ser. No. 341,425

Int. Cl. H04b *3/02*

U.S. Cl. 325—58 **9 Claims**

Continuously operating injection and carrier oscillators attached to a broadband cable with means for data modulating the carrier oscillator and a transmitter/receiver attached to the cable remotely from the carrier oscillator and including means for picking off the carrier frequency and means for picking off the injection frequency and mixing the two to provide an IF signal which may be demodulated to retrieve the data or modulated by data and transmitted back along the cable for two-way communications.



3,838,344
FREQUENCY MULTIPLYING CIRCUIT

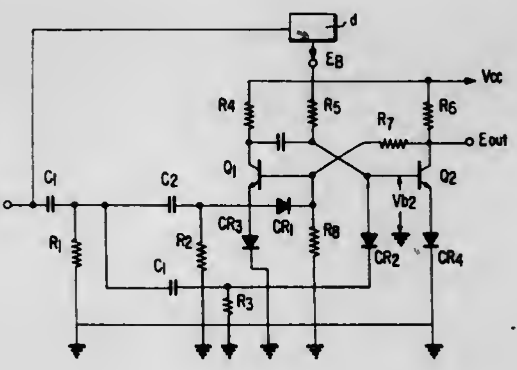
Kenji Tanimoto, Tokyo, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Dec. 20, 1972, Ser. No. 316,753

Claims priority, application Japan, Dec. 23, 1971, 46-104092

Int. Cl. H03b *19/00*

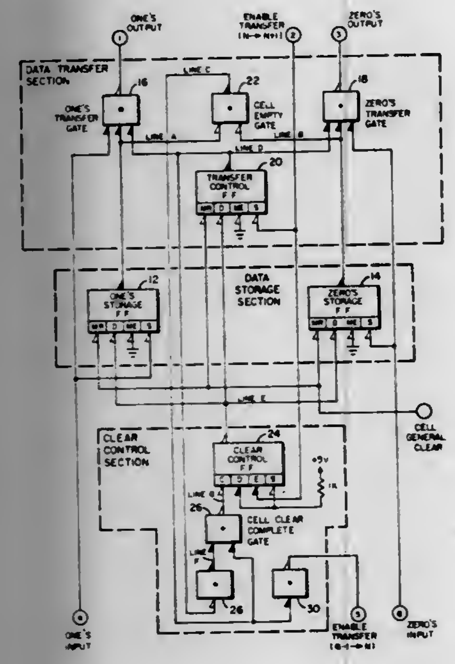
U.S. Cl. 328—20 **10 Claims**



Frequency multiplying circuitry comprising monostable multivibrator means responsive to a pulse train for multiplying the frequency thereof; frequency demodulating means responsive to the pulse train for developing a control voltage, the magnitude of which is proportional to the frequency of the pulse train; and means for applying the control voltage to the monostable multivibrator for varying the length of time it remains in its unstable state; whereby the length of time the multivibrator remains in its unstable state is inversely proportional to the frequency of the pulse train.

3,838,345
ASYNCHRONOUS SHIFT CELL

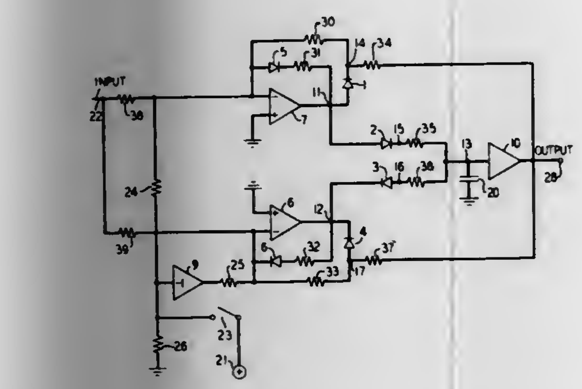
David T. Schneider, Hatfield, Pa., assignor to Sperry Rand Corporation, Blue Bell, Pa.
Filed May 25, 1973, Ser. No. 363,909
Int. Cl. G11c *19/00*
U.S. Cl. 328—37 **4 Claims**



There is disclosed herein a new internal cell construction wherein a plurality of such cells may be connected in series for use in an asynchronous binary shift register.

3,838,346
BIPOLAR SAMPLE AND HOLD CIRCUIT WITH LOW-PASS FILTERING

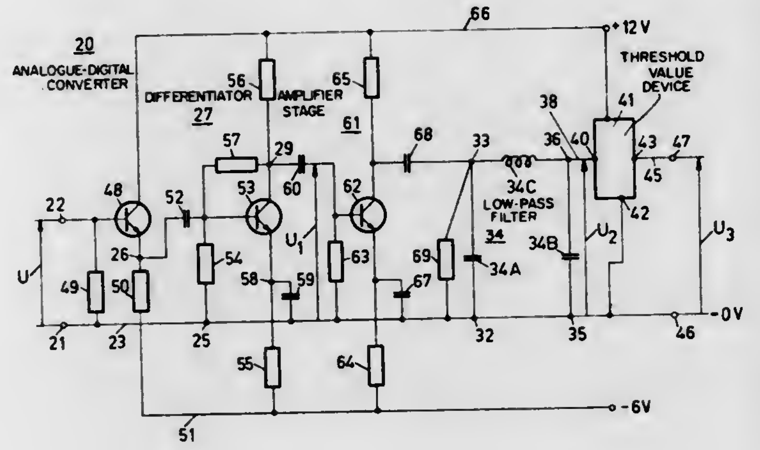
Donald Clyde Cox, New Shrewsbury, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Nov. 1, 1973, Ser. No. 411,630
Int. Cl. H03k *17/00*
U.S. Cl. 328—151 **10 Claims**



A sample and hold circuit is disclosed which is directly responsive to a bipolar signal without the necessity for d.c. offset. The circuit is designed to be readily integrated and therefore contains neither inductors nor transformers. Leakage of a holding capacitor is blocked during a hold pulse by four reverse-biased diodes and a high input impedance device. When the circuit is tracking and the slope of the input signal is positive, a specified two of the four diodes are conducting and the other two are nonconducting. When the slope of the input signal is negative, the specified two diodes are nonconducting and the other two diodes are conducting. Low-pass filtering is incorporated into the circuit by a resistive arrangement in association with the holding capacitor.

3,838,347
APPARATUS FOR TRANSFORMING A DETERIORATED INPUT SIGNAL INTO A BINARY SIGNAL

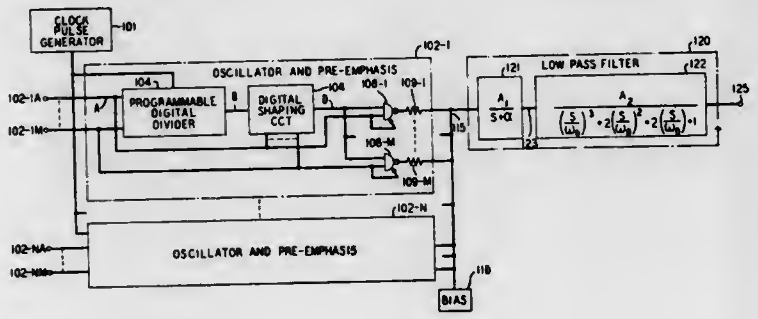
Hermann Lauffer, Hombrechtikon, Switzerland, assignor to Zellweger AG, Uster, Switzerland
Filed Jan. 27, 1972, Ser. No. 221,241
Claims priority, application Switzerland, Mar. 24, 1971, 4407/71
Int. Cl. H03k *5/08*
U.S. Cl. 328—164 **8 Claims**



A method of, and apparatus for, converting an analogue signal into a binary signal wherein the analogue signal is differentiated as a function of time, and a second analogue signal which is proportional to the derivative or first differential quotient as a function of time of the first analogue signal is formed from the differentiated signal. The second analogue signal is compared both with a positive as well as with a negative threshold value, and during the time of exceeding the positive threshold value until exceeding the negative threshold value there is formed a first type of binary signal and during the remaining time a second type of binary signal. If desired, the first and second analogue signals may be amplified.

3,838,348
DIGITAL MULTIFREQUENCY SIGNAL GENERATOR

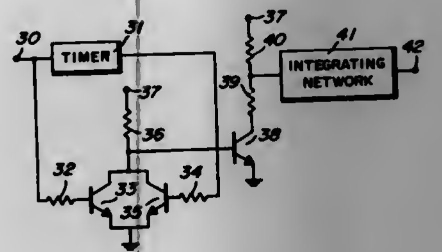
David August Pezzutti, Eatontown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed June 25, 1973, Ser. No. 373,426
Int. Cl. H03b *1/04*
U.S. Cl. 328—167 **16 Claims**



Tone signals are generated at selected frequencies by employing a programmable digital divider in conjunction with a low-pass filter. Transient signal components are minimized by selectively shaping and biasing the divider output. Pre-emphasis of the divider output amplitude at the frequencies of interest allows use of simplified filter arrangement.

3,838,349
BAND LIMITED FM DETECTOR

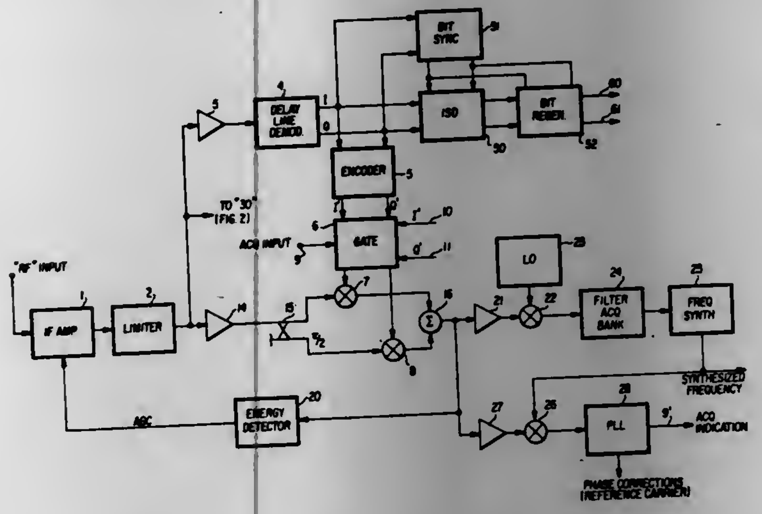
Douglas W. Nickerson, Hoffman Estates, Ill., assignor to Motorola, Inc., Chicago, Ill.
Filed June 1, 1973, Ser. No. 365,920
Int. Cl. H03c *3/02, 3/18*
U.S. Cl. 329—103 **5 Claims**



The output IF signal of an FM receiver is coupled to a coincidence gate, including a pair of transistors having common connected collectors and emitters, and also used to actuate a timer which provides a positive output pulse for each positive going excursion of the FM signal. The timer output is coupled to a second input of the coincidence gate and the gate provides an output when both of the applied signals are low. This signal is then applied to an inverter to provide a signal which has a relatively high duty cycle and which, after passing through a low pass filter, varies in direct proportion to the frequency of the IF signal.

3,838,350
DIFFERENTIAL ENCODED QUADRIPHASE DEMODULATOR

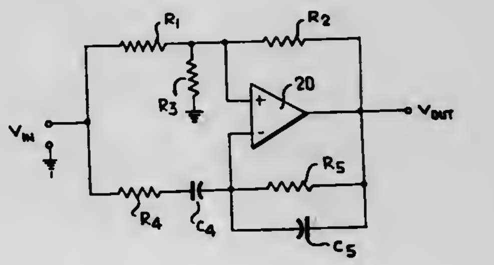
Walter Ewanus, Ellicott City, and Donald B. McKone, Glen Burnie, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Aug. 4, 1972, Ser. No. 277,933
Int. Cl. H04l *27/22*
U.S. Cl. 329—104 **19 Claims**



Coherent demodulation of differentially encoded quadriphase modulation is accomplished using initially a nonoptimum passive delay line detector to derive a carrier component. The output of the delay line demodulator, comprising I and Q channel data of less than desirable error performance, is differentially encoded for correlation with the original quadriphase modulation resulting in reconstruction of the suppressed carrier frequency. The reconstructed carrier is supplied to a filter bank and frequency synthesizer for generating a synthesized carrier frequency. The synthesized frequency and the reconstructed carrier are supplied to a phase-lock loop which generates phase correction signals. The synthesized frequency is mixed with the original modulation and the resulting signal is supplied to coherent phase detectors, the latter also receiving the phase correction signals from the phase-lock-loop, and serving to optimally demodulate the quadriphase components, yielding I and Q data channels. Efficiency of demodulation is improved further by employing the phase detector acquired I and Q data for reconstruction of the carrier frequency, instead of the initial delay line demodulator source. Matched filter components, comprising bit synchronization and bit regeneration circuitry process the demodulator outputs and contribute accordingly to requirements for minimum error demodulation. Another measure of improved demodulation performance is afforded by weighted comparison of the redundant I and Q channels of data of the delay line demodulator and the coherent phase detectors.

3,838,351
ACTIVE NOTCH FILTER AND DUAL MODE FILTER/OSCILLATOR

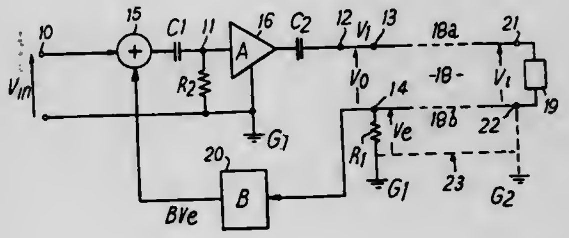
Norris C. Hekimian, Rockville, Md., assignor to Hekimian Laboratories, Inc., Rockville, Md.
Continuation-in-part of Ser. No. 178,108, Sept. 7, 1971, abandoned. This application July 13, 1973, Ser. No. 378,888
Int. Cl. H03f *3/68*
U.S. Cl. 330—104 **9 Claims**



A high-Q active notch filter includes only one operational amplifier employing resistive positive feedback and reactive negative feedback. The positive feedback resistance can be selectively changed to convert the notch filter to an oscillator operating at the notch frequency.

3,838,352
LINE OUTPUT CIRCUITS

Ray Milton Dolby, and Bjorn Erik Edvardsen, both of London, England, assignors to Dolby Laboratories, Inc., New York, N.Y.
Filed June 25, 1973, Ser. No. 373,165
Claims priority, application Great Britain, June 29, 1972, 30541/72
Int. Cl. H03f *1/26*
U.S. Cl. 330—105 **12 Claims**

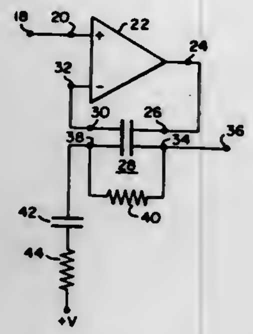


A line, noise-cancelling output circuit is created without the use of a transformer by detecting the error voltage between the voltages at the input and output ends of the line driven from the circuit. The error voltage is applied to the line output circuit amplifier to establish a positive feedback loop of gain equal to a slightly greater than unity. The error voltage can be derived across a resistor connected between the earthy output terminal of the line output circuit and ground.

3,838,353
AMPLIFIER WITH FAILSAFE PREDERTERMINED GAIN

Thomas C. Matty, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 15, 1973, Ser. No. 388,519
Int. Cl. H03f *1/36*
U.S. Cl. 330—107 **4 Claims**

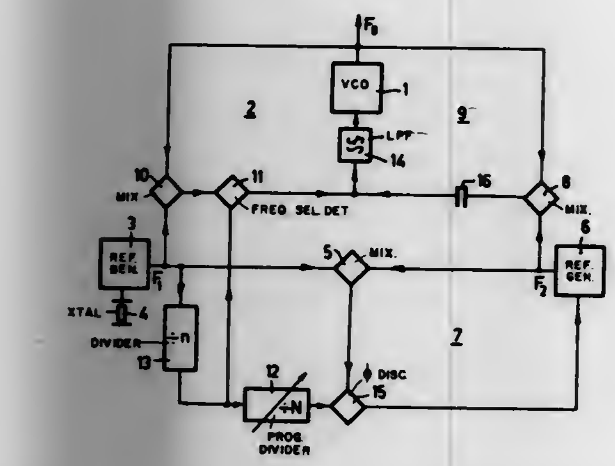


An amplifier in which the feedback impedance includes a four terminal capacitor, and in which the input impedance is connected to a source of operating potential. The use of a four terminal capacitor as a feedback element compensates for the failure mode of the amplifier in which the opening of the feedback element results in infinite AC gain of the amplifier. The connection of the signal input impedance to a source of operating potential compensates for the failure mode of the amplifier in which the input impedance shorts, which normally results in infinite AC gain of the amplifier.

3,838,354
FREQUENCY SYNTHESIZER HAVING THREE CONTROL LOOPS

Eduard Herman Hugenholtz, Toronto, Ontario, Canada, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 232,119, March 6, 1972, abandoned.
This application July 30, 1973, Ser. No. 383,896
Claims priority, application Canada, Apr. 23, 1971, 111140
Int. Cl. H03b *3/04*
U.S. Cl. 331—4 **8 Claims**

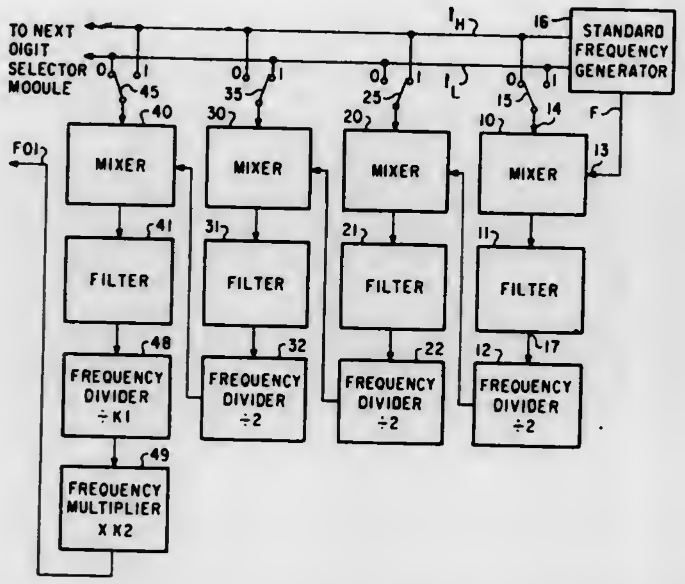


A frequency synthesizer has a voltage-controlled oscillator whose output frequency is locked with the aid of a first control loop in relationship to a harmonic of the output signal from a first reference pulse generator. A second reference pulse generator is part of a second control loop which stabilizes the frequencies of the output signals from said first and second reference pulse generators with respect to each other on an adjustable constant difference frequency. A third control loop disturbs the locking of the oscillator when it is locked to a frequency which is not a harmonic of the output signal from said second reference pulse generator.

3,838,355
BINARY CODED DIGITAL FREQUENCY SYNTHESIS

Robert J. Papaieck, Colts Neck, N.J., assignor to Cutler Hammer, Inc., Milwaukee, Wis.

Filed July 23, 1973, Ser. No. 381,980
Int. Cl. H03b *21/02*
U.S. Cl. 331—39 **6 Claims**



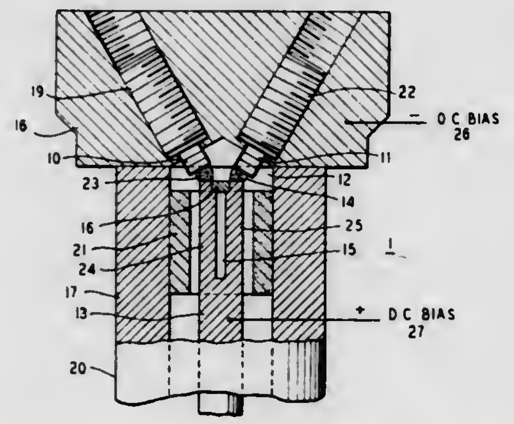
Any one of a group of discrete frequencies, each offset from a starting frequency by a respective number of predetermined fixed frequency intervals, is generated selectively using only two driving frequencies, chosen in a sequence according to a binary coded representation of the number corresponding to the selected frequency.

The synthesis is readily adaptable to various numerical radices, and to any number of digital orders by an iterative technique realizable with a cascade arrangement of identical modules.

3,838,356
PARALLEL CONNECTED DIODE DEVICE WITH SUPPRESSION OF ASYMMETRIC MODES

Reinhard Heinrich Knerr, Orefield, and Clarence Burke Swan, Lower Macungie Township, Lehigh County, both of Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 31, 1973, Ser. No. 384,379
Int. Cl. H03b *7/14*; H03f *3/10*
U.S. Cl. 331—56 **7 Claims**

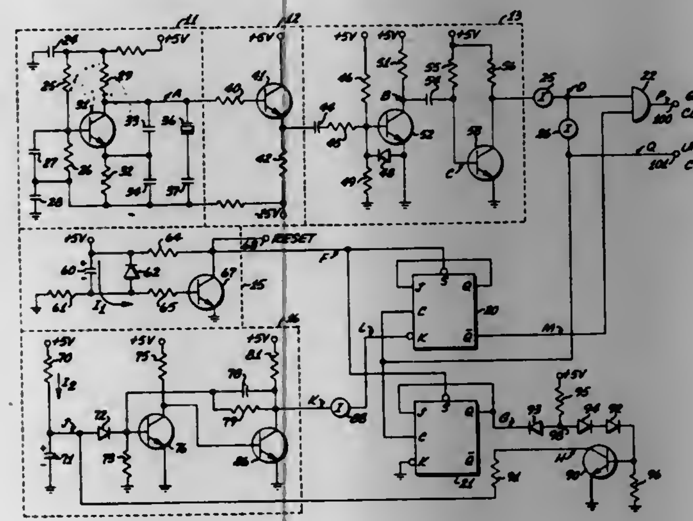


When a plurality of negative resistance packaged diodes are connected in electrical parallel and placed in a single resonant cavity, undesired asymmetric modes of oscillation result unless the diodes act cooperatively as a unit. Slots are positioned to open into the cavity and resistive elements are placed in the vicinity of the slot opening to suppress electric field energy associated with these asymmetric modes. Alternatively, lossy magnetic material, such as ferrite, can be placed in the slots to absorb magnetic field energy associated with the assymmetric modes, thereby suppressing these modes.

3,838,357
APPARATUS FOR USING START-UP OF A CRYSTAL OSCILLATOR TO SYNCHRONIZE POWER TURN-ON IN VARIOUS PORTIONS OF A SYSTEM

Robert P. Billeg, Jr., Oklahoma City, Okla., assignor to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Oct. 25, 1973, Ser. No. 409,532
Int. Cl. H03k *17/26*
U.S. Cl. 331—74 **4 Claims**

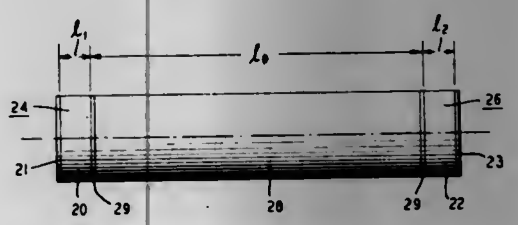


A pair of timing circuits, a pair of flip-flops, a crystal oscillator and a logic circuit provide a first group of signals while oscillations are building up and a second group of signals after oscillations have built up in the crystal oscillator. The timing circuits provide initializing signals for a computer processor when electrical power is initially turned on. The timing circuits also provide a minimum time delay between application of electrical power to the oscillator and the development of the second group of signals. The oscillator provides timing pulses or master clock pulses for the computer processor after the oscillator has stabilized.

3,838,358
LASER ARRANGEMENTS INCLUDING CATADIOPTRIC ELEMENTS MADE FROM GRADED-INDEX OPTICAL FIBERS

Johannes Cornelis Vanderleeden, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 30, 1973, Ser. No. 355,968
Int. Cl. H01s *3/08*
U.S. Cl. 331—94.5 **2 Claims**

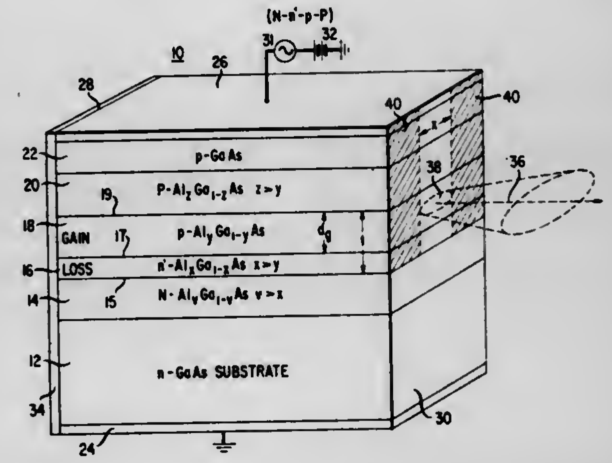


A catadioptric element (which is equivalent in effect to a spherical mirror) is made by depositing a high-reflectivity coating on one of the flat ends of a cylindrical segment of a graded-index optical fiber. All of the usual laser configurations requiring cavity-defining spherical mirrors can be constructed by using one or two such segments.

3,838,359
GAIN ASYMMETRY IN HETEROSTRUCTURE JUNCTION LASERS OPERATING IN A FUNDAMENTAL TRANSVERSE MODE

Basil Wahid Hakki, Summit, N.J., and Cherng-Jia Hwang, Palo Alto, Calif., assignors to Bell Telephone Laboratories, Murray Hill, N.J.

Filed Nov. 23, 1973, Ser. No. 418,572
Int. Cl. H01f *3/00*
U.S. Cl. 331—94.5 H **20 Claims**

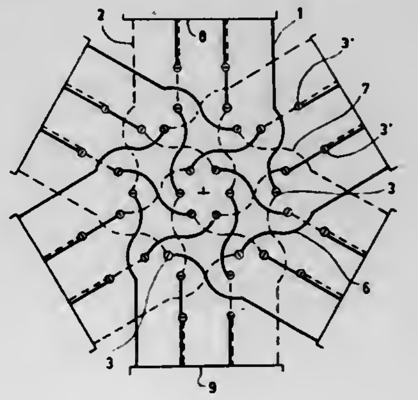


Fundamental transverse mode, high power pulsed operation is achieved in a double heterostructure junction laser which includes a third junction located within the waveguide so as to define a lossy region and a gain region, the latter being preferably twice as thick as the former. The invention is characterized in that (1) the third junction is a heterojunction which provides a barrier of at least 2kT approximately in order to reduce minority carrier injection into the lossy region, but not so high as to introduce a change in refractive index large enough to excite a higher order mode in the gain region (2) the majority carrier concentration in the lossy region is equal to or greater than the electron concentration in the gain region under lasing conditions, (3) at least one of the three heterojunctions is a p-n heterojunction, and (4) the thickness of d_g of the gain region satisfies the condition $\delta n\, d_g^2 < 9\lambda^2/32n$ in order that a first order mode is not excited in the gain region, where δn is the refractive index step at the third heterojunction, λ is the free space wavelength of the laser, and n is the refractive index of the gain region.

3,838,360
JUNCTION CIRCULATOR HAVING CURVED CONDUCTORS ON OPPOSITE SIDES OF PRINTED CIRCUIT BOARD

Friedrich Potzl, Rellingen, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 17, 1973, Ser. No. 397,663
Claims priority, application Germany, Oct. 6, 1972, 2249179
Int. Cl. H01p *1/32*
U.S. Cl. 333—1.1 **4 Claims**

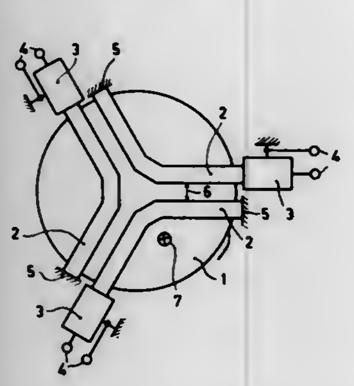


A circulator, comprising conductors which are provided between opposite connection terminals on an insulated plate.

The conductors are situated partly on one side of the plate and partly on the other side of the plate, the parts being interconnected through passages in the plate and having a non-linear shape so as to provide a higher conductor density per unit of surface area of the plate.

3,838,361
STRIP-LINE CIRCULATOR FOR THE FREQUENCY RANGE FROM 10 TO 1,000 MHz

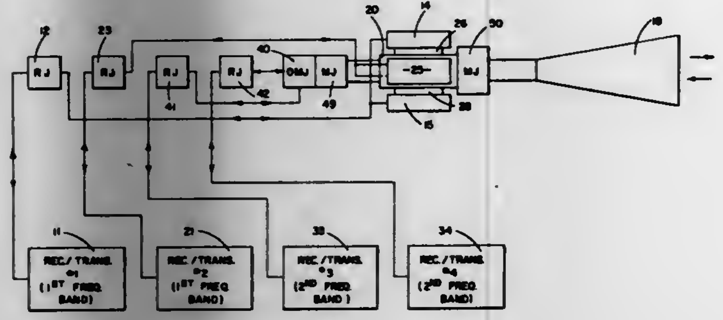
Friedrich Potzl, Rellingen, Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Sept. 14, 1973, Ser. No. 397,611
Claims priority, application Germany, Oct. 6, 1972, 2249180
Int. Cl. H01p *1/32*
U.S. Cl. 333—1.1 **3 Claims**



The strip-line circulator comprises three coplanar conductors bent about 120° and symmetrically arranged in a spaced relationship from one another about a common central area on a gyromagnetic coupling disc.

3,838,362
DIPLEXING COUPLER FOR MICROWAVE SYSTEM

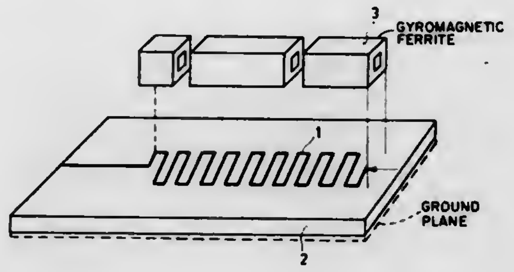
Louis A. Kurtz, Woodland Hills, Calif., assignor to Emerson Electric Co., St. Louis, Mo.
Filed June 29, 1973, Ser. No. 374,981
Int. Cl. H01p *1/06, 1/16, 5/12*
U.S. Cl. 333—9 **12 Claims**


12
23
RJ
RJ
RJ
RJ
40
OMJ
MJ
20
14
26
30
MJ
18
41
42
49
28
15
11
REC./TRANS. #1 (1ST FREQ. BAND)
21
REC./TRANS. #2 (1ST FREQ. BAND)
33
REC./TRANS. #3 (2ND FREQ. BAND)
34
REC./TRANS. #4 (2ND FREQ. BAND)

A coupler is described for coupling two microwave transmitters or receivers in one frequency band and two microwave receivers or transmitters in a second frequency band to a common central wave guide. The device provides high isolation between the four ports. Energy in a first band of frequencies is coupled to feed wave guides which are dimensioned to transmit this first band of frequencies. These feed wave guides are arranged to handle a pair of separate channels for the first band of frequencies, the signals in one of the channels having the same frequencies but a polarization which is orthogonal to that of the signals of the other channel. A pair of channels in the second band of frequencies, the signals in one channel having the same frequencies but a polarization orthogonal to that in the other channel, may be fed directly to the central wave guide. A branch wave guide is interposed between each of the feed wave guides and the central wave guide for coupling the energy in the first band of frequencies to the central waveguide, the branch wave guides being dimensioned to operate as a cutoff filter at the second band of frequencies (thus preventing such signals from entering the feed wave guides) and a high pass filter at the first band of frequencies.

3,838,363
PLANAR PHASE SHIFTER FOR USE IN THE MICROWAVE RANGE

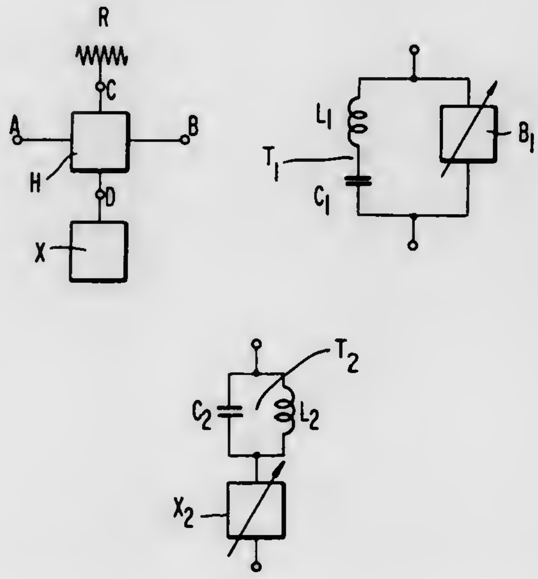
Wolfram Schilz, Norderstedt, Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Filed May 29, 1973, Ser. No. 364,521
Claims priority, application Germany, June 19, 1972, 2229668
Int. Cl. H01p *1/32*
U.S. Cl. 333—24.1 **3 Claims**



A planar phase shifter for use in the microwave range which comprises a meander-like microstrip conductor which is provided on a non-magnetic ferrite substrate, and a gyromagnetic body being provided at a distance from the microstrip conductor to reduce attenuation of the microwave due to losses in the gyromagnetic material.

3,838,364
VARIABLE DELAY EQUALIZER COMPRISING HYBRID NETWORK TERMINATED BY TUNED AND VARIABLE REACTANCE CIRCUITS

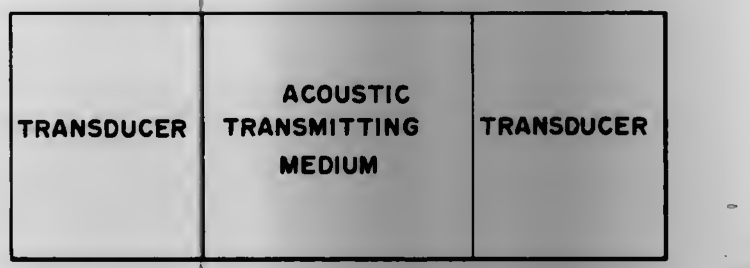
Teruhisa Kurokawa, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
Filed Dec. 20, 1973, Ser. No. 426,754
Claims priority, application Japan, Dec. 23, 1972, 47-1016
Int. Cl. H03h *7/14;* H04b *3/04*
U.S. Cl. 333—28 R **6 Claims**



A delay equalizer for equalizing the relative delays of a band of frequencies without altering the absolute delay of a center frequency. The delay equalizer includes a hybrid circuit having input, output and two side branches. One of the side branches is terminated in its characteristic impedance. The other is terminated by a circuit which consists of a tuned LC circuit and a variable reactance circuit. Variation in the reactance of the variable reactance circuit alters the delays of all frequencies except the resonant frequency of the tuned circuit.

3,838,365
ACOUSTIC DEVICES USING AMORPHOUS METAL ALLOYS

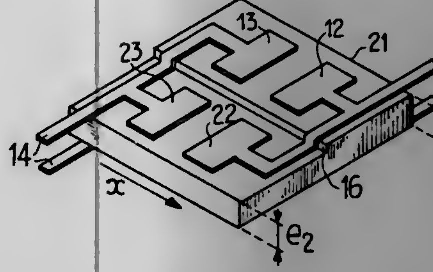
Michel Dutoit, Parsippany, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
Filed Feb. 5, 1973, Ser. No. 329,935
Int. Cl. H03h *9/30;* H01v *7/02*
U.S. Cl. 333—30 R **12 Claims**



Amorphous metal alloys are employed in acoustic devices dependent upon the properties of low acoustic velocity and low attenuation. Such devices include wire, strip and bulk delay lines.

3,838,366
MONOLITHIC ELECTRO-MECHANICAL FILTERS

Gerard J. Coussot, Paris, France, assignor to Thomson-CSF, Paris, France
Filed May 18, 1973, Ser. No. 361,617
Claims priority, application France, May 24, 1972, 72.18485
Int. Cl. H03h *9/26;* H01v *7/00*
U.S. Cl. 333—72 **6 Claims**

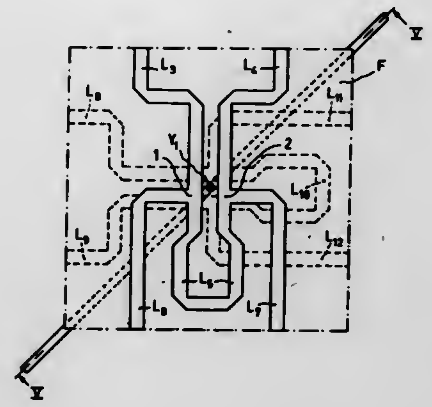


The present invention relates to monolithic electromechanical filters comprising coupled resonators obtained by the deposition of electrodes upon a piezoelectric wafer. In accordance with the present invention, there is provided an electro-mechanical filter wherein the coupled resonators in two collateral transmission paths, have mutually different resonance frequencies; a step being provided in the wafer, between said transmission paths.

3,838,367
MICROSTRIP FILTER COMPRISING A FERROMAGNETIC RESONANT BODY

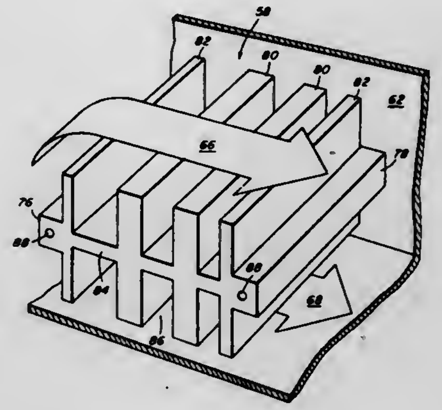
Hans Bex, Aachen, Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 23, 1973, Ser. No. 408,512
Claims priority, application Netherlands, Nov. 4, 1972, 7214941
Int. Cl. H01p *1/20*
U.S. Cl. 333—73 S **1 Claim**

A YIG crystal filter, notably for use in mixing circuits, by means of which, in addition to a frequency separation, a separation of even and odd waves on a double line can be realized. According to the invention, the transmission properties are substantially improved by interconnecting points of the double line at the area of the YIG crystal by means of a transmission line having a length of one half wavelength related to the magnetic resonant frequency of the YIG crystal.



3,838,368
WAVEGUIDE FILTER FOR MICROWAVE HEATING APPARATUS

Richard Ironfield, Williamsburg, Iowa, assignor to Amana Refrigeration, Inc., Amana, Iowa
Division of Ser. No. 262,396, June 13, 1972. This application May 10, 1973, Ser. No. 359,031
Int. Cl. H01p *1/20*
U.S. Cl. 333—73 W **8 Claims**

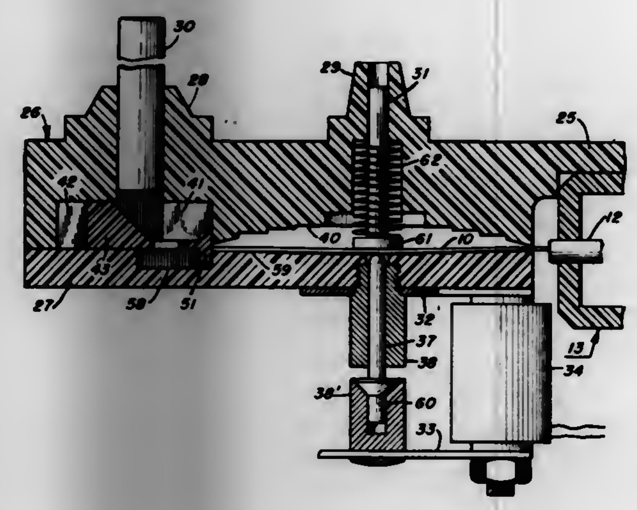


A low pass filter is provided for rectangular waveguide of the type employed for launching electromagnetic energy in microwave ovens. The filter substantially rejects the transmission of harmonic frequencies of the fundamental generator operating frequency as well as adjacent energy oscillation modes. The structure described has a corrugated configuration with ribs defining alternate cavities and constrictions having cutoff frequency characteristics. Uniform and nonuniform spacing as well as dissilimar sections are discussed. The structure is electrically isolated from the broad waveguide walls to define two propagation paths for the electromagnetic energy. Lightweight conductive materials are suggested. The interrelationships of the alternating rib members provide a series of open and short circuit admittances which are analyzed to determine the desired electrical cutoff frequencies. Identical rib structure is defined on opposing sides of a reference plane extending along the longitudinal axis of the waveguide. Transforming means are utilized for impedance matching.

3,838,369

OVERLOAD RELAY

Fredric D. Fogle, Mendham, N.J., assignor to Q.V.S. Inc., East Orange, N.J.
Filed Nov. 28, 1973, Ser. No. 419,682
Int. Cl. H01h *5/20*
U.S. Cl. 335—188 **8 Claims**

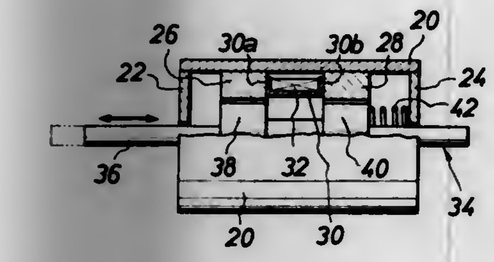


An overload relay including a switch actuated by a metal reed which is prestressed into an initial bowed configuration and normally maintained under axial pressure, said reed snapping into a reversely-bowed configuration upon the application of a relatively small force applied intermediate the ends thereof.

3,838,370

SOLENOID MAGNET

Toshio Ueno, and Yuzuru Konakawa, both of Tokyo, Japan, assignors to Kabushiki Kaisha Akuto Giken, Tokyo, Japan
Filed Aug. 30, 1973, Ser. No. 393,041
Claims priority, application Japan, Sept. 2, 1972, 47-88147
Int. Cl. H01f *7/08*
U.S. Cl. 335—255 **10 Claims**



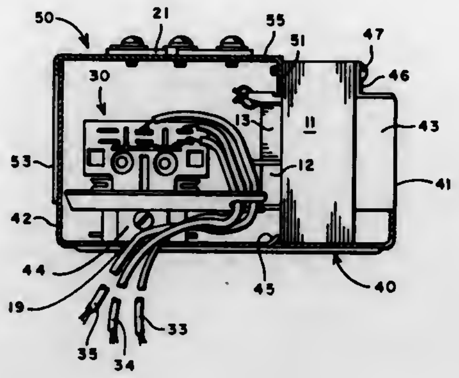
The armature of an electromagnet moves axially in two coaxial, annular pole pieces axially separated by the coil of the magnet when the coil is energized. In another electromagnet, radially projecting pole pieces of a rotor may be aligned simultaneously with corresponding pole pieces equiangularly spaced on the stator against the restraint of a return spring when the stator pole pieces are excited by an energized coil.

3,838,371

MOUNTING ASSEMBLY FOR A TRANSFORMER AND RELAY CONTROL DEVICE

Merton J. Willette, Edina, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Feb. 14, 1974, Ser. No. 442,980
Int. Cl. H01f *7/00*
U.S. Cl. 335—278 **9 Claims**

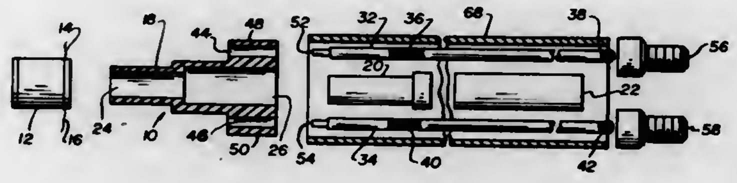
A simplified and cost reduced mounting plate and cover are provided for a transformer and relay normally used in the heating and cooling control industry. A mounting plate with an integral end bell for the transformer mounts the transformer and relay so that a second member can be placed over a portion of the transformer and the relay to form a complete housing or enclosure.



3,838,372

MAGNETIC PICKUP ASSEMBLY

Algis Damijonaitis, Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Continuation of Ser. No. 193,838, Oct. 29, 1971, abandoned.
This application Oct. 15, 1973, Ser. No. 406,589
Int. Cl. H01f *27/28*
U.S. Cl. 336—110 **6 Claims**



A magnetic pickup assembly includes a one-piece mounting member having a bobbin portion with a coil thereon and a support portion with a pair of apertures having conducting rods extending therethrough. The bobbin portion further has a bore therethrough which receives a magnetic pole piece which extends through the coil. The support portion of the mounting member has a counterbore which receives a magnet; said magnet is inserted through the counterbore and held in engagement with the pole piece.

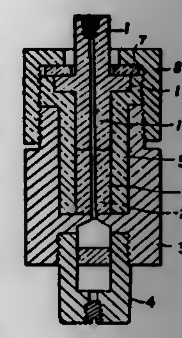
3,838,373

SELF-RECOVERING CURRENT LIMITER

Takeo Inoue; Takashi Shirazawa, both of Kobe; Tadashi Nakazaki, Sanda, and Goro Okamoto, Itami, all of Japan, assignors to Mitsubishi-Denki Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 210,772, Dec. 22, 1971, abandoned.
This application Nov. 30, 1973, Ser. No. 420,593
Claims priority, application Japan, Dec. 25, 1970, 45-125607
Int. Cl. H01h *85/06*
U.S. Cl. 337—21 **11 Claims**

A self-recovering current limiter of the character wherein a circuit breaking condition is provided by vaporizing a current limiting material when a short circuiting or fault current occurs, and being self-restorative to a conductive condition by liquefying the current limiting material after the passage of a specific period of time. Essentially, the self-recovering current limiter comprises a heat resistant and alkali-metal resistant insulator made of beryllia porcelain, alumina porcelain or the like having a channel holding a self-recovering current limiting material which has high impedance in its vapor condition and high conductivity in an orginal liquid condition, an outer tube made of stainless steel or brass surrounding the insulator, and an insulating material packed between the outer tube and the insulator at a temperature higher than that at which it becomes softened.

The insulating material has a coefficient of linear expansion which is higher than that of the insulator below its softening point, and is the same or lower than that of the outer tube.

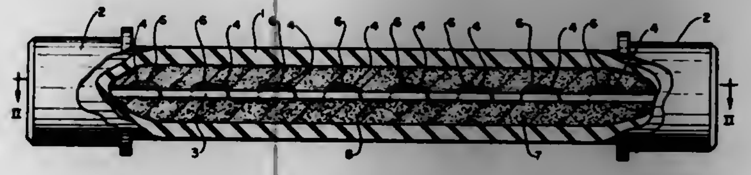


Preferably, the insulating material is made of synthetic mica powder and glassy powder comprising potassium oxide (K_2O), sodium oxide (Na_20), lithium oxide (Li_2O), barium oxide (BaO) or boric anhydride (B_2O_3) as the main component and a small amount of lead oxide (PbO) and silica (SiO_2).

3,838,374

LOW CURRENT-CARRYING CAPACITY TIME LAG FUSE

Edward J. Knapp, Jr., Newbury, Mass., assignor to The Chase-Shawmut Company, Newburyport, Mass.
Filed Jan. 21, 1974, Ser. No. 435,253
Int. Cl. H01h *85/14*
U.S. Cl. 337—163 **4 Claims**

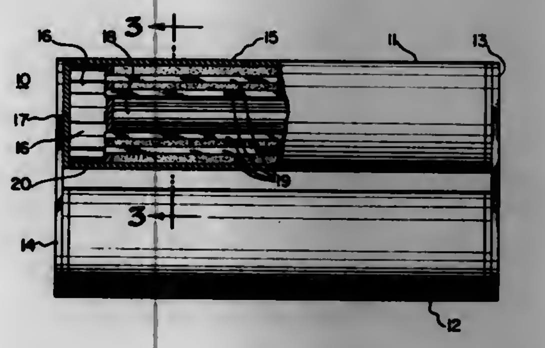


An electric current-limiting fuse includes a fusible element in the form of a wire and means arranged along the wire which perform the dual function of producing significant time lags when the fuse is carrying overload currents, and of producing highly effective series multibreaks when the fuse is subjected to major fault currents.

3,838,375

CURRENT LIMITING FUSE

Gerhard Frind, Albany; Michael Owen, Latham, both of N.Y., and Ben Lee Damsky, Philadelphia, Pa., assignors to General Electric Company, Schenectady, N.Y.
Filed Jan. 29, 1973, Ser. No. 327,744
Int. Cl. H01h *85/18*
U.S. Cl. 337—276 **10 Claims**

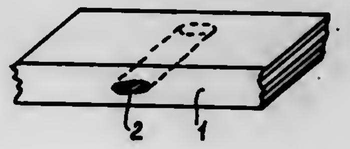


Cartridge type current limiting fuses contain a fusible element within an appropriate cartridge connected to electrically conducting terminals at respective ends thereof. The fusible element is surrounded by a packed particulate mass of high resistivity high dielectric strength arc-constricting media which surrounds the fusible elements and is bound into a self-supporting rigid but porous mass by an inorganic binder which maintains good electrical and mechanical characteristics at temperatures to which the bound particulate mass is subjected to during operation of the fuse to interrupt an electrical current.

3,838,376

ELECTRIC FUSES

Olav Norholm, Herlev, Denmark, assignor to Aktieselskabet Laur. Knudsen Elektricitets Selskab, Copenhagen, Denmark
Filed Feb. 2, 1973, Ser. No. 329,197
Claims priority, application Denmark, Feb. 4, 1972, 497/72
Int. Cl. H01h *85/04*
U.S. Cl. 337—296 **4 Claims**

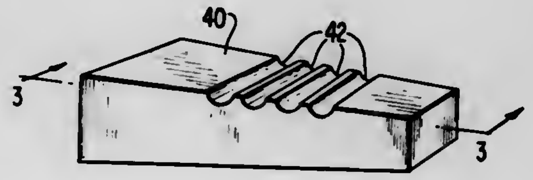


In an electric fuse a fuse element of metal surrounds at least partly another material which has its boiling point near the fusing point of the fuse element. In one embodiment the fuse element consists of aluminium and the surrounded material consists of cadmium.

3,838,377

DEVICE FOR CONTROLLING A KILN SHUT-OFF MECHANISM

Milan Vukovich, Jr., Galena, Ohio, assignor to The Edward Orton, Jr. Ceramic Foundation, Columbus, Ohio
Filed Jan. 12, 1970, Ser. No. 2,310
Int. Cl. H01h *37/76*
U.S. Cl. 337—416 **5 Claims**



A device for controlling a mechanism which is adapted to interrupt the electrical heating circuit of a kiln; the mechanism being of the type which includes a pivotally mounted rod having the inner end thereof extending into a kiln and being operative upon downward movement of said inner end to interrupt the electrical heating circuit of the kiln. The device is a fusible pryometric member adapted to be held in the path of downward movement of the inner rod end to prevent such movement until the interior of the kiln has been exposed to a predetermined amount of heating. The member has means, such as a uniform transverse cross-section or a notch in which the inner rod end is engageable, to accurately regulate the amount of heating required to cause deformation of the member.

3,838,378
VOLTAGE-NONLINEAR RESISTORS

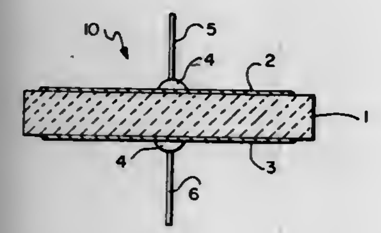
Michio Matsuoka; Yoshikazu Kobayashi; Gen Itakura, and Takeshi Masuyama, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed July 26, 1973, Ser. No. 382,645

Claims priority, application Japan, July 26, 1972, 47-75326; July 26, 1972, 47-75327; July 26, 1972, 47-75328; July 26, 1972, 47-75329; July 26, 1972, 47-75330; July 26, 1972, 47-75331; July 26, 1972, 47-75332

Int. Cl. H01c *7/10*

U.S. Cl. 338—20 **6 Claims**



The invention relates to voltage-nonlinear resistors having nonohmic resistance due to the bulk thereof and more particularly to varistors, are suitable for use as elements of lightning arresters, comprising zinc oxide, bismuth oxide, antimony oxide and cerium fluoride.

3,838,379
PRESSURE TRANSDUCER FOR LIQUIDS OR GASES

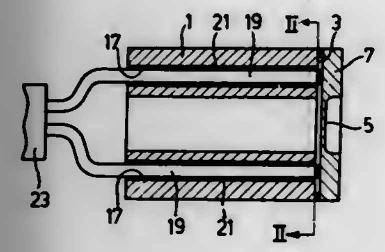
Antonius Cornelis Maria Gieles; Petrus Franciscus Antonius Haans, and Johannes Van Esdonk, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 8, 1973, Ser. No. 321,789

Claims priority, application Netherlands, Jan. 12, 1972, 7200438

Int. Cl. H01c *13/00*

U.S. Cl. 338—42 **5 Claims**



A pressure transducer comprising a tubular support which is closed on one end by a semiconductor device for converting mechanical stresses into electrical signals.

Current supply conductors for the semiconductor device extend through ducts in the tube wall. These current supply conductors preferably consist of cemented metal wires.

3,838,380
CONNECTOR ASSEMBLY

Alfred Otto Hugo Stieler, Heilbronn/Neckar, Germany, assignor to Bunker Ramo Corporation, Oak Brook, Ill.

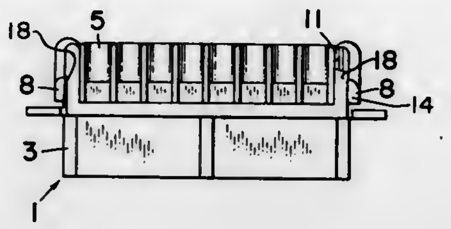
Filed Mar. 31, 1972, Ser. No. 239,955

Claims priority, application Germany, Apr. 20, 1971, 2119060

Int. Cl. H01r *3/06*

U.S. Cl. 339—14 R **8 Claims**

Connector assembly for use in joining electrical parts comprises a contact body adapted to house and support electrical contacts coupled to a frame which encloses a portion of the body. The housing and frame form a connector assembly which can be either a male portion or a female portion of a plug-in type connector. A locking clamp engages mating surfaces on the body and on the frame to hold the body and frame together. A shielding contact is trapped between the frame and the locking clamp.



3,838,381
SAFETY OUTLET AND PLUG DEVICE

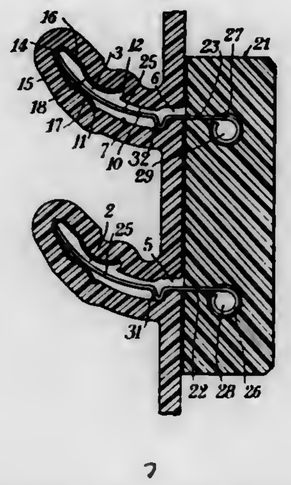
Philippe De Villemeur, Maisons Alfort, France, assignor to Etablissements A. Gregoire et L. Barilleau, Maisons Alfort, France

Continuation of Ser. No. 125,777, March 18, 1971, Pat. No. 3,777,300. This application June 28, 1973, Ser. No. 374,357

Claims priority, application France, Mar. 19, 1970, 70.9881

Int. Cl. H01r *9/00*

U.S. Cl. 339—21 R **2 Claims**



This safety current outlet and plug device is preferably of the continuous type, i.e. constituting a kind of skirting-board along a wall or the like. The electric contact between the prongs of the cap, plug or connector and the electric conductors of the current outlet is obtained by causing the elastic deformation of the prongs consisting to this end of a very flexible conducting and elastic metal blade of very reduced thickness, for instance of the order of 0.1 to 0.3 millimeter, of which the front portion is adapted to engage a rigid surface of the female member which produces a substantial deformation of said blade which is sufficient for ensuring a satisfactory and reliable electric contact between said blade and an electric conductor inserted in said current outlet.

Thus, a current outlet may be obtained wherein any direct access to anyone of its conductors is positively prevented when using a rigid member, so that a safety current outlet is obtained.

3,838,382
RETENTION SYSTEM FOR ELECTRICAL CONTACTS

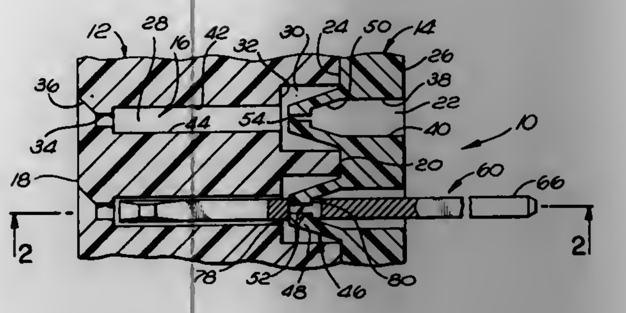
Joseph Sugar, Los Angeles, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed July 13, 1973, Ser. No. 378,885

Int. Cl. H01r *13/40*

U.S. Cl. 339—59 R **17 Claims**

A retention system for a rear insert-rear release tuning fork-type socket contact or pin contact having a flat stamped body section with a rectangular opening formed therein. The insulator for the contact is formed with a passage having a pair of integral laterally resilient retention elements on opposite sides thereof. These elements are spread apart when the contact is inserted into the passage and contract into the opening in the contact when the latter is aligned therewith to secure the contact in the passage. An extraction tool inserted through the rear of the insulator passage serves to spread the retention elements apart, thus allowing the contact to be removed rearwardly from the passage.



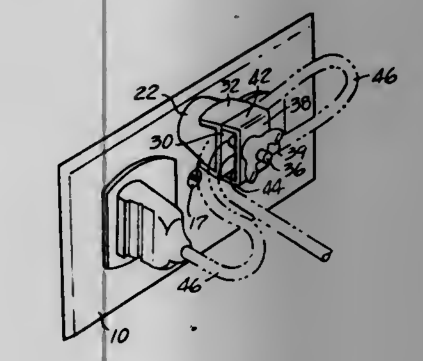
3,838,383
DEVICE FOR PREVENTING DISENGAGEMENT OF ELECTRICAL CORD FROM WALL OUTLET

Raymond Francis Wilbur, 3329 Quesada Dr., San Jose, Calif. 95122, and Alva Leroy Powell, P.O. Box 2, South San Francisco, Calif. 94080

Filed June 7, 1973, Ser. No. 367,851

Int. Cl. H01r *13/54*

U.S. Cl. 339—75 P **6 Claims**



A device for preventing accidental disengagement of an electrical cord from an electrical wall outlet has means for releasably securing same to an electrical cord in a locked position thereto. The device also has means for releasably locking same to an electrical wall outlet while permitting disengagement therefrom if a force is supplied thereto which would damage either the cord or the wall outlet.

3,838,384
PROTECTED ELECTRODE LEAD FOR USE IN A CORROSIVE ENVIRONMENT

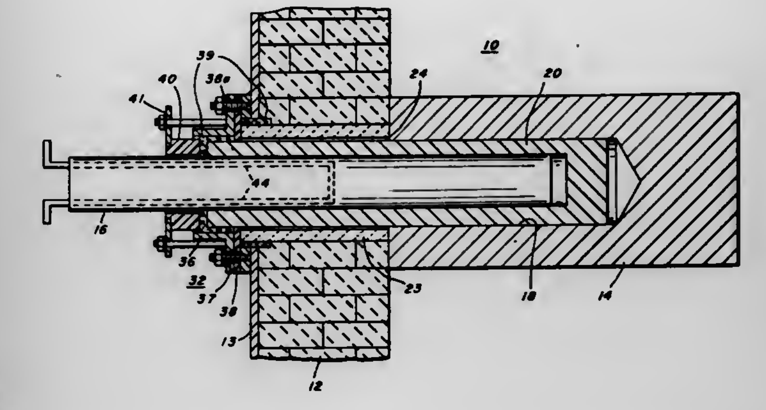
Stanley C. Jacobs, Lower Burrell, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Division of Ser. No. 178,283, Sept. 7, 1971, Pat. No. 3,745,107. This application Dec. 26, 1972, Ser. No. 318,236

Int. Cl. B01k *3/02;* **H01r** *3/02, 13/00*

U.S. Cl. 339—112 **4 Claims**

An electrode assembly for use in an electrolytic cell having a corrosive environment comprising high temperature chlorine gas and a bath of aluminum chloride dissolved in one or more salts. The assembly comprises an electrode disposed within the cell, at least one electrical current conducting lead made of material susceptible to corrosive attack by the environment extending into the electrode, and a fluid impervious, electrically conductive sleeve disposed around the lead along at least the length thereof extending through a wall of the cell, and in contact with the electrode. The fluid impervious sleeve is effective to prevent contact of approaching corrosive constituents with the lead.



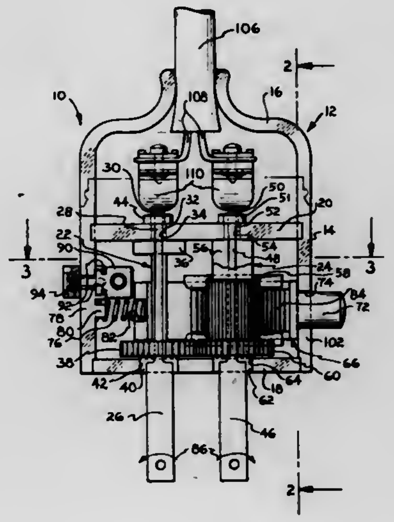
3,838,385
SAFETY PLUG

Jack W. Bloomingdale, 1A Donald St., Harrisburg, Pa. 17055

Filed Nov. 24, 1972, Ser. No. 309,349

Int. Cl. H01r *33/06*

U.S. Cl. 339—196 A **7 Claims**



An electrical safety plug with rotatable male blades. When inserted in a female socket, the blades are biased for rotation about their longitudinal axis so that when the plug is withdrawn the blades rotate and then lock in a position making it impossible to reinsert the plug in the socket.

3,838,386
BATTERY TERMINAL CLAMP

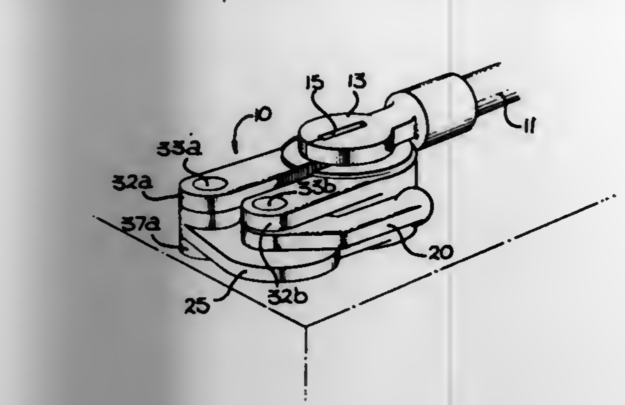
Armand N. Chartrain, Agoura, and Carl W. Newell, Glendale, both of Calif., assignors to Korrosion-Clean-Klamp Co., Van Nuys, Calif.

Filed Sept. 25, 1972, Ser. No. 291,654

Int. Cl. H01r *7/06*

U.S. Cl. 339—226 **3 Claims**

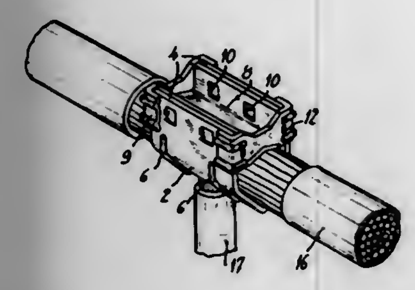
A battery terminal clamp which may be manually clamped or removed from a battery terminal post or from a connector engaging a battery terminal post is disclosed. The portion of the clamp which receives the post includes two pairs of spaced apart arms with a stud disposed between each pair of arms. A camming means operates between the studs to clamp the battery post.



3,838,387

WIRING CONNECTOR

Jacques Grillet, 4 Place Bir Hakeim, Grenoble, France
Filed Aug. 3, 1972, Ser. No. 277,660
Claims priority, application France, Aug. 30, 1971, 7132054
Int. Cl. H01r *7/06*
U.S. Cl. 339—244 UC **10 Claims**



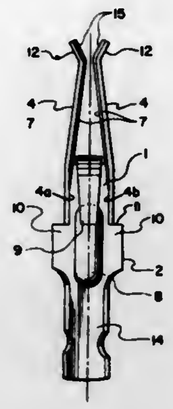
A wire connecting device for various electrical appliances comprises essentially a U-shaped strap and a shallower U-shaped clamping member adapted to fit into the strap so as to clamp the wires between the bottoms of these elements. Windows are formed in the side walls of said clamping member for retaining by setting the adjacent wings of the strap. End distance-pieces may complete if desired the clamping member to which they are secured to caulking. The strap wings have a length sufficient to project somewhat above the top edges of the clamping member so that they can be pulled while the clamping member is pressed against the wires, whereafter the excess metal of said wings is cut off by using the top edges of the clamping members as counter-blades.

3,838,388

FURCATE CONTACT

Gerhard Bauerle, Willsbach, and Oswald Hubner, Neuenstadt, both of Germany, assignors to Bunker Ramo Corporation, Oak Brook, Ill.
Filed May 23, 1973, Ser. No. 362,913
Claims priority, application Germany, May 31, 1972, 2226561
Int. Cl. H01r *13/12*
U.S. Cl. 339—258 R **2 Claims**

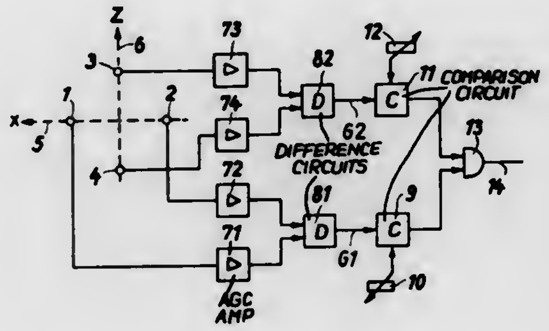
A furcate contact with at least two resilient contact arms. The contact has a body portion supporting the contact arms which converse toward one another adjacent the tip of the contact. Each contact arm is concavely arched perpendicular to its longitudinal axis and toward the opposite contact arm, the arched portion extending over essentially the entire length of each contact arm. In a preferred embodiment of the invention, each contact arm is divided into two arched contact fingers, each of the fingers being concavely arched perpendicular to its longitudinal axis and toward the opposite finger.



3,838,389

SPACE MONITORING GRADIENT SYSTEM

Claus-Peter Buddruss; Arnim Cronjaeger, both of Bremen, and Karl-Friedrich Triebold, Bremen-Osterholz, all of Germany, assignors to Fried. Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany
Filed Aug. 8, 1973, Ser. No. 386,732
Claims priority, application Germany, Aug. 16, 1972, 2240041
Int. Cl. G01s *3/80*
U.S. Cl. 340—6 R **9 Claims**

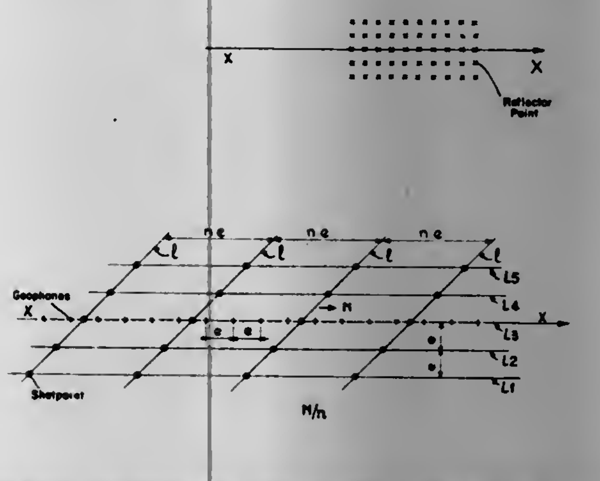


A space monitoring gradient system including at least a plurality of transducers arranged to produce at least two pairs of transducers with the spacing of the transducer of each pair being less than one wavelength of the received signals produced by a noise source at the highest receivable frequency. The axes of the two pairs of transducers are perpendicular to one another with the axis of one pair being parallel to the ground and the axis of the other pair being perpendicular to the ground. A separate automatic gain control (AGC) amplifier is connected in series with the output of each of the transducers, and first and second difference circuits are provided for forming respective gradient voltage signals from the outputs from the respective AGC amplifiers of each pair of transducers. A first comparator compares the gradient voltage signal at the output of the first difference circuit, which is associated with a pair of transducers parallel to the ground, with a first settable comparison voltage and produces an "L" signal at its output whenever the output of the first difference circuit is equal to or less than the first comparison voltage. A second comparator compares the gradient voltage signal at the output of the second difference circuit with a second settable difference voltage and produces an "L" signal output whenever the output of the second difference circuit is greater than the second comparison voltage. The outputs of the first and second comparators are fed to an AND gate which produces an "L" signal at its output when an "L" signal is present at each of its inputs.

3,838,390

NEW OPERATIONAL DISPOSITION FOR OBTAINING THREE-DIMENSIONAL SEISMIC INFORMATION

Dominique Michon, Paris, France, assignor to Compagnie Generale de Geophysique, Paris, France
Filed Nov. 7, 1972, Ser. No. 304,561
Claims priority, application France, Nov. 8, 1971, 71.39918; Feb. 8, 1972, 72.04100
Int. Cl. G01v *1/16, 1/20*
U.S. Cl. 340—15.5 MC **10 Claims**

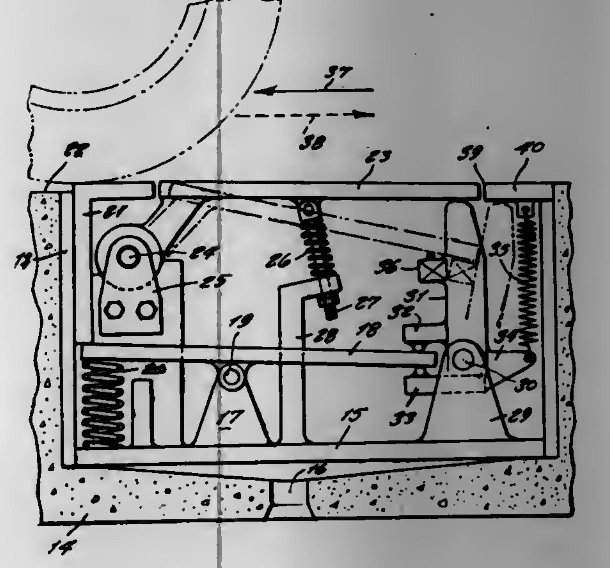


In a seismic prospecting operational disposition for obtaining three-dimensional seismic information, pickups and shotpoints are distributed in correspondence with a two-dimensional grid of reflector-points, each reflector-point giving rise to a plurality of elementary paths passing through a shotpoint, reflector-point and pickup, permitting mixing of the elementary traces to form a common depth-point stack.

3,838,391

ROADWAY SAFETY TRAP

Leonard H. Mintz, 24340 Miles Rd., Cleveland, Ohio 44128
Filed Mar. 23, 1973, Ser. No. 344,152
Int. Cl. G08g *1/02*
U.S. Cl. 340—39 **1 Claim**

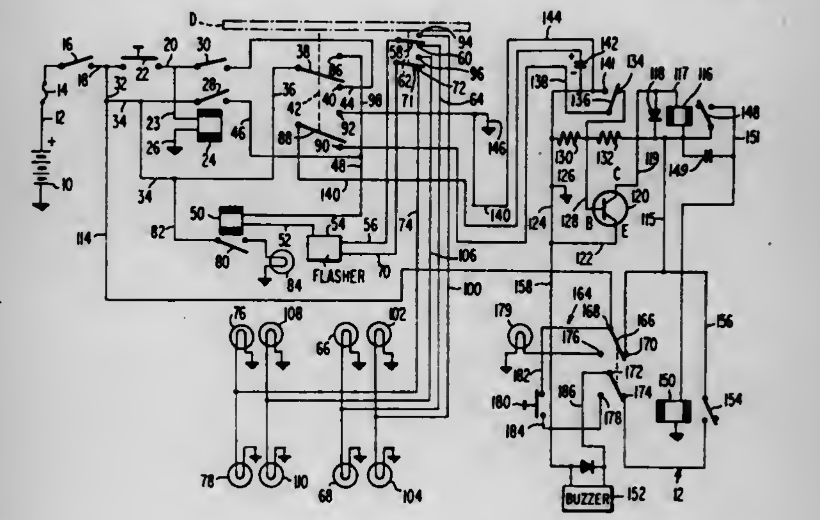


A travel-resisting device mounted in an exit ramp of a throughway, expressway or other road, and which is designed to prevent automobiles to enter and move in wrong direction lanes; the device consisting of two or three separate units each of which includes a downwardly tiltable platform so that when rode across in a wrong direction will cause the dropped wheels to abut hard against a fixed ledge so to resist and hold back further forward travel, the device also activating signal devices such as lights or bells to alert and warn other motorists and alert the careless drivers, and a last of the units having a toothed or sharp knife-like edge on the ledge so to puncture the tires as a final step to stop the vehicle and prevent a serious accident on the high speed right-of-way.

3,838,392

AUDIBLE WARNING SYSTEM FOR SCHOOL BUSES

John E. Lockwood, Hamilton Square; Herbert S. Spair, Robbinsville, and Richard A. Spair, Sr., Hamilton Square, all of N.J., assignors to Richard A. Spair, Sr.; John E. Lockwood, both of Hamilton Square and Herbert S. Spair, Robbinsville, all of, N.J., part interest to each
Filed July 5, 1973, Ser. No. 376,698
Int. Cl. B60q *5/00, 1/26*
U.S. Cl. 340—75 **4 Claims**



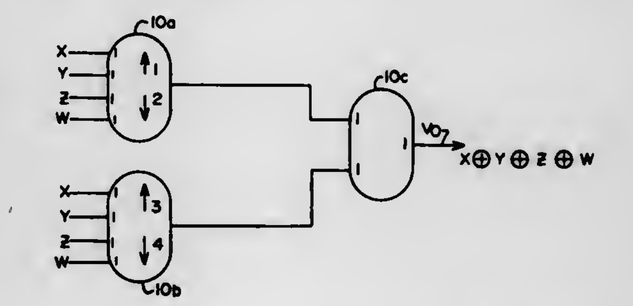
Combined with an already known electrical circuit used in school buses to activate flashing yellow and red lights, the present invention provides an audible warning to children who have alighted from the bus. The audible warning system is automatically activated in response to closing of the door of the bus preparatory to movement of the bus away from the stop, sounding a clearly audible warning, preferably at the front and rear of the bus, for a time period sufficient to warn the children away from the bus until it is safely on its way, and has put enough distance between the bus and the children to prevent their injury. The system employs a transistorized circuit in which power supplied to a buzzer or other audible alarm device is controlled by one or more transistors, in association with a capacitor.

As the school bus nears a bus stop, the operator activates a yellow warning light system, which changes automatically to a red light warning system while the bus is stopped. Upon opening of the school bus door, the capacitor is short-circuited and discharged, in a circuit configuration that withholds current from the audible alarm device. On closing of the door, the capacitor prevents the transistor from conducting during the time required to charge the capacitor, and in this predetermined time period the buzzer or other alarm device is caused to operate in response to rendering the transistor non-conductive while the capacitor is again being charged.

3,838,393

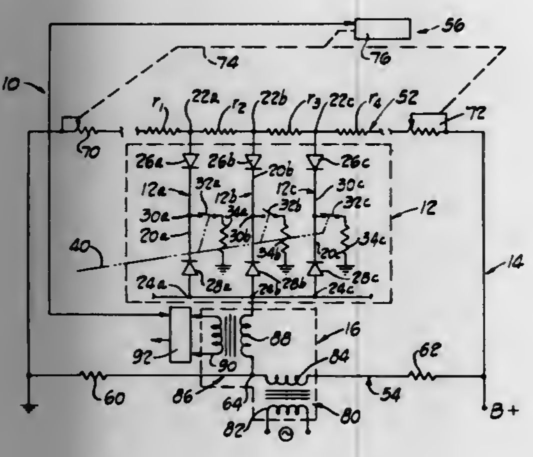
THRESHOLD LOGIC GATE

Tich T. Dao, Cupertino, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.
Filed Dec. 17, 1973, Ser. No. 425,217
Int. Cl. G06f *11/10;* **H03k** *19/08, 19/42*
U.S. Cl. 340—146.1 AG **6 Claims**



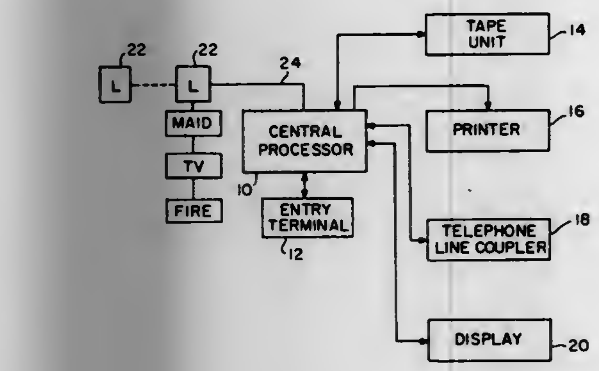
A threshold logic gate is utilized for parity checking by providing two double threshold detectors responsive to logic levels provided by a level shifter which shifts the logical voltage levels produced by a differential amplifier which sums the four inputs.

3,838,394
TRANSMISSION SYSTEM
Dante J. Sandoval, 6412 Pear Ave., Cleveland, Ohio 44102
Filed Sept. 4, 1973, Ser. No. 393,965
Int. Cl. H04q ***3/00***
U.S. Cl. 340—147 R **20 Claims**



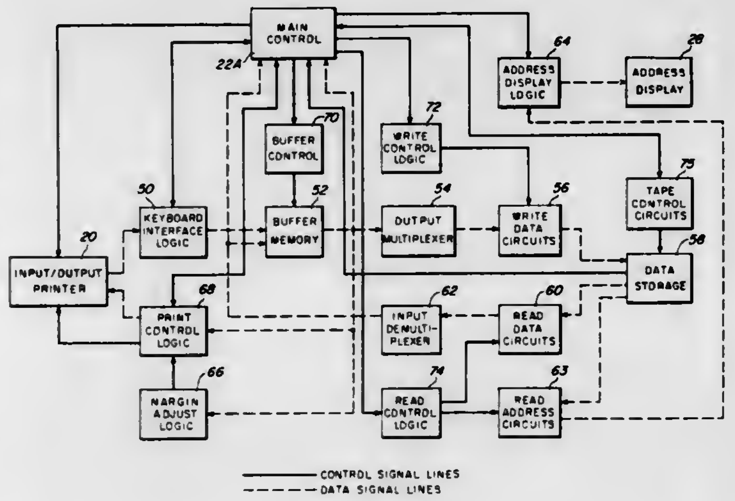
The invention contemplates systems for transmitting signals or the like via selected ones of a number of separate paths by establishing a null across a selected path location to enable the path effective to transmit a signal. One disclosed embodiment of the invention is a binary memory storage unit. Another disclosed embodiment is an electrical intercommunication system. Still another disclosed embodiment features an adjustable iris.

3,838,395
ELECTRONIC VARIABLE COMBINATION LOCK AND MONITORING SYSTEM
Francis John Suttill, Jr., West Collingswood; John M. Holt, Cherry Hill, and Robert H. Ray, Cinnaminson, all of N.J., assignors to Commplex, Inc., Philadelphia, Pa.
Filed Dec. 4, 1972, Ser. No. 312,067
Int. Cl. H04q ***5/16***
U.S. Cl. 340—149 A **26 Claims**



A variable combination electronic lock is provided in which the combination may be varied electronically. The lock is provided with means for receiving a key having a combination. The combination of the key is detected and the detected combination is checked or compared with the combination assigned to the lock. If the combination on the inserted key is identical to the assigned combination, a lock release means of the lock is enabled. In one preferred use, a plurality of locks is provided with each lock being assigned an address. All of the locks may be connected to an electronic processor by means of a single system cable. The electronic processor stores a combination for each of the locks. Each of the plurality of locks is addressed in sequence, and the combination of the key, if any, inserted into the key receiving means of the lock is transmitted to the electronic processor for comparison with the combination stored. In addition, other information indicative of predetermined conditions at the location of each lock, such as the existence of excessive heat due to a fire, may be transmitted to the electronic processor. If the combination transmitted to the electronic processor from a particular location agrees with the stored combination, a lock enable signal is transmitted over the system cable with the address of the particular lock thereby enabling or opening that lock.

3,838,396
DATA PROCESSOR (INCLUDING EDITING AND REVISION) WITH BUFFER MEMORY
Peter G. Martin, Arlington, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass.
Filed May 18, 1972, Ser. No. 254,725
Int. Cl. G11c ***9/00;*** **G06f** ***7/22***
U.S. Cl. 340—172.5 **11 Claims**

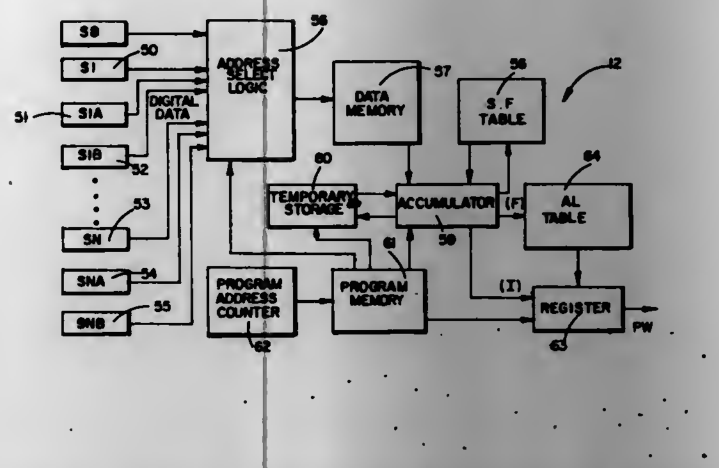


A word-processing system based on an input/output printer and mass storage recorder/player for data storage. The system employs a multiple-character main shift register for a buffer memory and a pair of single-character subsidiary shift registers connected in series to the output of the buffer memory. The input of the main register is connectable to the output of the second of the subsidiary registers, or to the output of the printer or to the output of the recorder/player. The output of the main register is connectable to the input of either the printer or the recorder/player.

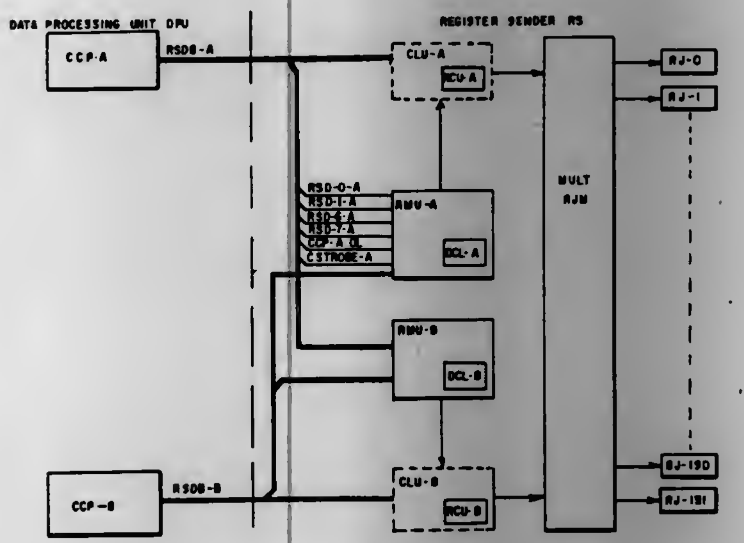
The system is operative in several modes wherein data can be readily inserted or deleted into or from the data already stored in the main register according as the registers are clocked to transfer information between them and the printer and player/recorder.

3,838,397
FUEL INJECTION PULSE WIDTH COMPUTER
George A. Watson, Tustin, and Glen R. Griffith, Westminster, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.
Filed Apr. 25, 1973, Ser. No. 354,294
Int. Cl. G05b ***15/00;*** **F02b** ***3/00***
U.S. Cl. 340—172.5 **20 Claims**

A real time, digital computer is used to calculate a pulse width, for example, for fuel injection systems. The computer uses data from environmental sensors, data stored internally in fixed memories and an instruction program stored internally in a further fixed memory to calculate the pulse width. In fuel injection systems, the pulse width determines the length of time a fuel injector is operative during each engine cycle.

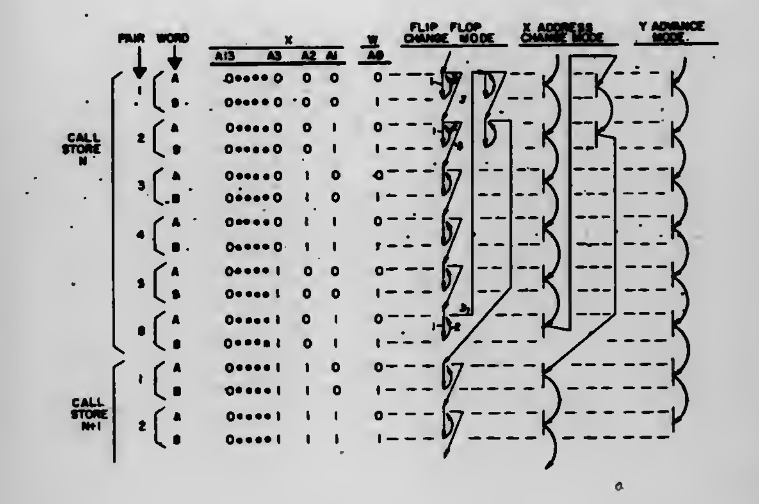


3,838,398
MAINTENANCE CONTROL ARRANGEMENT EMPLOYING DATA LINES FOR TRANSMITTING CONTROL SIGNALS TO EFFECT MAINTENANCE FUNCTIONS
James P. Caputo, Elmwood Park, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed June 15, 1973, Ser. No. 370,277
Int. Cl. G06f ***11/00***
U.S. Cl. 340—172.5 **7 Claims**



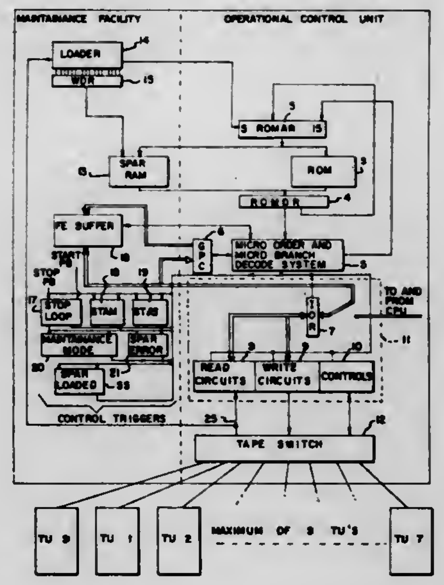
A maintenance control arrangement for use with a communication switching system having a central processor and a register sender interconnected by a data bus includes a maintenance circuit having direct control latch circuits and gate circuits operable when enabled to provide control signals for controlling apparatus associated with the register sender. A register sender memory stores direct control data bits which indicate which of the direct control latch and gate circuits are to be enabled and a control pulse directive transmitted over the data bus from the central processor to the maintenance circuit effects the generation of enabling signals which upon coincidence with direct control data bits read out of the register sender memory cause selective ones of the direct control latch and gate circuits to be enabled.

3,838,399
EVEN/ODD REPEAT ADDRESS COUNTER
Rafael A. Sanabria, Elmhurst, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Sept. 21, 1973, Ser. No. 399,672
Int. Cl. G06f ***7/385, 13/00***
U.S. Cl. 340—172.5 **5 Claims**



An address counter which advances 12 consecutive counts, jumps back 12 counts, advances forward 4 consecutive counts, jumps forward 8 counts, and then repeats the same process in a cyclic fashion.

3,838,400
MAINTENANCE FACILITY FOR A MAGNETIC TAPE SUBSYSTEM
James Edward Meadows; Larry Ray Horsman, and Anthony Louis Carpentier, all of Boulder, Colo., assignors to Storage Technology Corporation, Boulder, Colo.
Division of Ser. No. 257,078, May 26, 1972, Pat. No. 3,798,614. This application Nov. 12, 1973, Ser. No. 415,114
Int. Cl. G06f ***3/02, 13/00***
U.S. Cl. 340—172.5 **3 Claims**



A control unit for a magnetic tape subsystem of a data processing system includes a maintenance facility. This maintenance facility permits the exercise of the magnetic tape subsystem for diagnostic and maintenance purposes. The control unit is of the microprogram type, in which a control memory contains micro orders which control the operation of the magnetic tape units. The maintenance facility exercises the tape subsystem in two different manners—with the Input/Output command language of the CPU or with the micro order language of the control unit. This can be performed while the magnetic tape subsystem is switched offline to the CPU, or time-multiplexed with the operational usage of the magnetic tape subsyste by the CPU.

The control unit includes a random access memory connected in parallel with the control memory. In the diagnostic mode, micro orders are transferred from a magnetic tape unit to the random access memory. Then, sequences of these micro orders are performed in the same way that micro orders stored in the control memory are otherwise executed in order to perform diagnostic testing.

The data path transferring the micro orders from the magnetic tape unit to the random access memory is a simple one which bypasses the normal circuits which might otherwise introduce errors into the diagnostic micro orders. Amplitude sensors, which are otherwise used for error detection and correction, are connected to majority circuits which produce outputs when the amplitude sensors indicate that a majority of the data tracks are written with a "1." In this manner, very reliable micro orders are obtained for performance of the diagnostic testing function.

The maintenance facility provides full micro order control over a Field Engineer Buffer. Data and commands are loaded into a fetched from any buffer position under manual switch control or microprogram control.

3,838,401
STORAGE MEDIUM, METHOD FOR RECORDING INFORMATION THEREON, AND APPARATUS FOR RETRIEVING THE INFORMATION THEREFROM

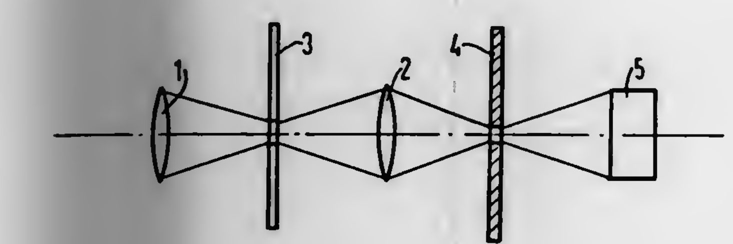
Peter Graf, Muenchen, and Dieter Roess, Planegg, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed June 21, 1971, Ser. No. 154,799

Claims priority, application Germany, June 25, 1970, P 20 31 515.5

Int. Cl. G11c *13/04*, *11/46*

U.S. Cl. 340—173 LM **1 Claim**



A storage medium, method for recording information on the medium and apparatus for retrieving the information in which the information is stored as an alteration in the storage medium which alteration causes a phase modulation of a beam of light used in retrieving the information. For example the alteration may be either an internal alterations, either a cross linked molecules of a plastic storage medium, or the bleaching of the exposed photographic materials to produce light transmitting silver salts having a different index of refraction than the unexposed portions, or the formation of a surface relief to cause a phase modulation of a laser beam projected through the medium or reflected thereby. The formation of the surface reliefs can be accomplished by plastically deforming the surface of the medium, by fusing, by locally evaporating portions of the surface of the medium, or by local etching. Apparatuses for retrieving the information can include either filters or phase shifters which change a phase modulated beam of light into intensity modulated or amplitude modulated beam of light.

3,838,402
FILM STRIP READ-OUT APPARATUS WITH MOVABLE OPTICAL ELEMENT

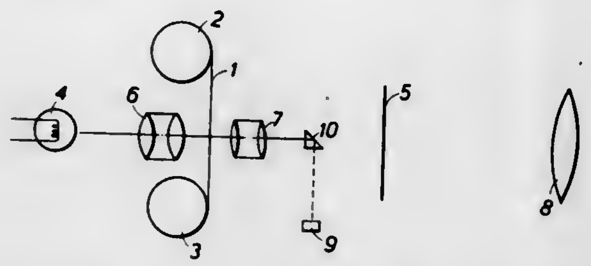
Christopher Arthur James Gracie, Edinburgh, Scotland, assignor to Ferranti Limited, Hollinwood, Lancashire, England

Filed July 14, 1972, Ser. No. 271,781

Claims priority, application Great Britain, July 20, 1971, 34030/71

Int. Cl. G11c *13/04*

U.S. Cl. 340—173 LM **12 Claims**



Information storage apparatus has display information stored on a length of film and displayed by passing light from a source through the film and onto a viewing screen. The film also carries encoded digital information which is read out by modifying the optical system so that light from the source passing through the film is directed onto a plurality of light-sensitive devices.

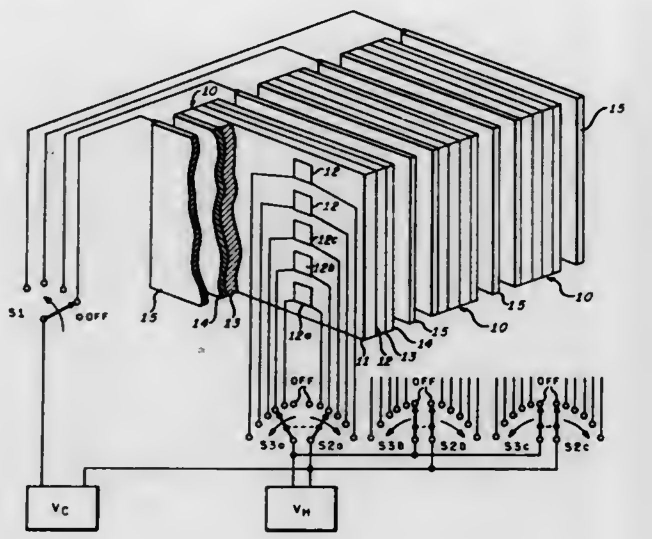
3,838,403
STACKED PHOTOPLASTIC DATA STORAGE SYSTEM

William T. Maloney, Sudbury, and Donald H. McMahon, Carlisle, both of Mass., assignors to Sperry Rand Corporation, New York, N.Y.

Filed Mar. 30, 1973, Ser. No. 346,503

Int. Cl. G11c *13/04*, *11/42*

U.S. Cl. 340—173 TP **14 Claims**



An electro-optical data storage system and method of operation thereof comprising the means and steps, respectively, for selectively recording and reading data stored in any of a plurality of tandemly disposed photoplastic plates. Data is recorded on each plate by uniformly charging a selected plate, exposing the selected plate to a data beam which modulates the charge to produce a charge pattern representative of the data, briefly heating the plate to a softened condition to develop the charge pattern as a deformation image on the photoplastic surface, and converting the deformation image to a latent image by briefly reheating the plate to a greater degree than used for developing the deformation image. The data stored in any plate is read out by uniformly recharging and again reheating a selected plate to reconstitute the latent image as a deformation image which modulates a beam propagating through the plate so that the stored data is imparted to the beam for readout.

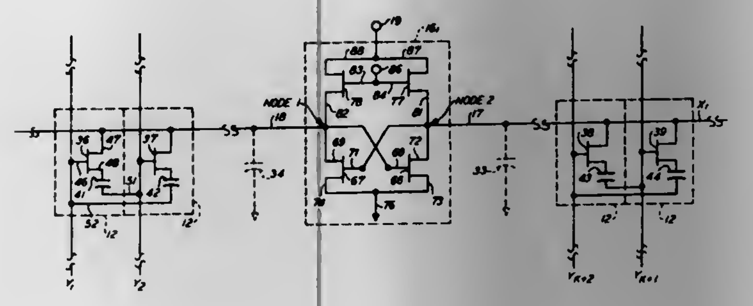
3,838,404
RANDOM ACCESS MEMORY SYSTEM AND CELL

Richard H. Heeren, Palatine, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed May 17, 1973, Ser. No. 361,377

Int. Cl. G11c *13/00*

U.S. Cl. 340—173 DR **50 Claims**



In an array of memory cells having the cells in each column coupled together by one of a plurality of address buses, the ground reference potential for each cell is provided by coupling a storage capacitor in each cell to an adjacent address bus. Since only one address bus is addressed at any selected time, the adjacent address buses remain at ground potential so that coupling of the storage capacitors in each addressed cell to the adjacent, grounded address buses supplies the required reference ground for each addressed cell. Refreshing, or restoring of the charges on the storage capacitor in each memory cell is accomplished by a plurality of sense-refresh amplifiers. Each sense-refresh amplifier can be coupled to a selected cell capacitor in a row of memory cells, and includes a first pair of MOSFET devices cross-coupled in a flip-flop configuration. In one embodiment, single phase clock signals are applied to the first pair of MOSFET's through an ON biased second pair of MOSFET's. The clock signals thus applied synchronize the read, write, and refresh functions of the memory. Alternatively, single phase clock signals can be applied to a third pair of MOSFET's coupled in parallel with the first pair, or a clock pulse can be used to short a pair of circuit nodes during an initial time period to bring a pair of load capacitances to a desired, low initial potential. Data signals are applied to and read-out from only one side of the sense-refresh amplifier, and the sense-refresh amplifier also serves to invert the data stored in memory cells on the opposite side, and to re-invert the data on read out.

3,838,405
NON-VOLATILE DIODE CROSS POINT MEMORY ARRAY

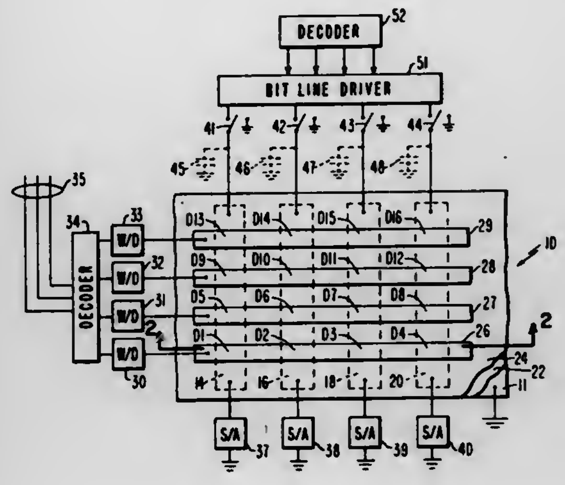
Patrick C. Arnett, Putnam Valley, and Joseph J. Chang, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 3, 1973, Ser. No. 402,956

Int. Cl. G11c *11/40*

U.S. Cl. 340—173 R **12 Claims**

A dense memory array in which every cross point of two insulated orthogonal sets of lines define a non-volatile memory device is described. Each device utilizes voltage and storage charge to control breakdown characteristics of a PN junction. Basically, the array comprises insulated metallic word lines orthogonal to bit line diffusions in a semiconductor body. The insulation between the word lines and the bit lines has dual charge states and can store charges. Biasing of the word and bit lines causes charges to be injected into the insulation to affect the surface field of the body and thus change the breakdown voltage of the diffusion with respect to the semiconductor body. Both the read and write operations involve voltage breakdown of the PN junction between the diffused bit line and the body. During the write operation, an avalanche breakdown of the junction is caused to occur and charge carriers are injected into the overlying insulator. The charge carriers so injected remain localized in the insulator immediately above the junction and therefore do not disturb the information on adjacent bit lines. To erase, a voltage is applied to cause the injected carriers to be driven out of the insulation into the substrate. Reading consists of sensing the breakdown voltage of the selected bit.



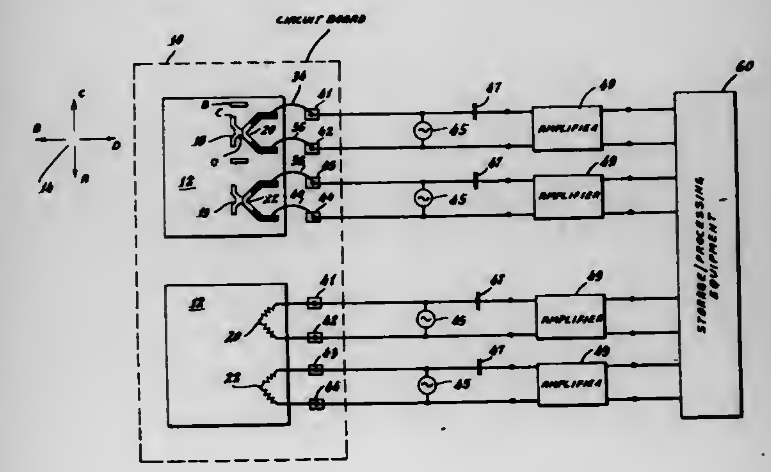
3,838,406
MAGNETO-RESISTIVE MAGNETIC DOMAIN DETECTOR

Leonard D. Cohen, Brooklyn, N.Y.; Brian A. Shortt, and Michael J. Urban, both of Framingham, Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Mar. 23, 1973, Ser. No. 344,376

Int. Cl. G11c *11/14*

U.S. Cl. 340—174 EB **9 Claims**



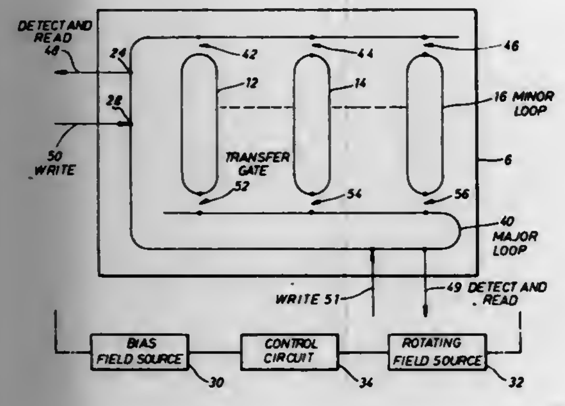
A cylindrical magnetic domain detector is formed of a pair of series coupled magneto-resistive elements which are disposed in magnetic coupling relationship with a cylindrical magnetic domain memory position, each detector element in quadrature arrangement can be piecewise distributed in sections of arbitrary length. An undesirable signal due to the rotating magnetic field generates an extraneous signal in the respective elements which differ in phase by 180°. The arrangement of these elements results in suppressing these extraneous signals at the output of the detector.

3,838,407

BUBBLE MEMORY ORGANIZATION WITH TWO PORT MAJOR/MINOR LOOP TRANSFER

Jan Egil Juliussen, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 28, 1973, Ser. No. 429,260
Int. Cl. G11c *11/14, 19/00*
U.S. Cl. 340—174 TF **27 Claims**



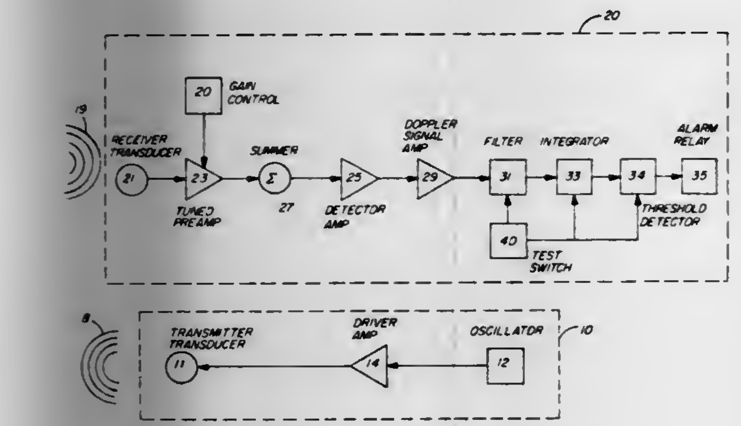
A magnetic bubble organization including a major loop which does not close on itself, but which does pass each of the minor loops in the same order to provide two locations in each minor loop for bubble transfer. Preferably, the two transfer locations on each minor loop are symmetrically located and the transfer mechanism can be one-way transfer gates. This permits transfer out of a minor loop into the major loop at one of the two gates for the minor loop and out of the major loop into the minor loop at the other of the two gates for the minor loop.

3,838,408

ENVIRONMENTAL TEST SWITCH FOR INTRUDER DETECTION SYSTEMS

Richard LaVerne McMaster, Rochester, N.Y., assignor to Detection Systems, Inc., Fairport, N.Y.

Filed Feb. 9, 1973, Ser. No. 331,202
Int. Cl. G08b *29/00*
U.S. Cl. 340—214 **3 Claims**



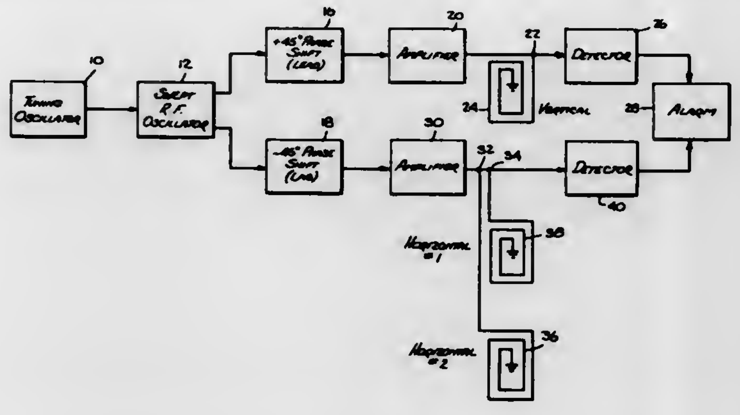
A method and apparatus for optimizing the sensitivity of intruder and fire detection systems for a predesired margin of safety against false alarming. The apparatus comprises means for selectively increasing the system sensitivity by a calibrated amount above an optimum operating level, and means for adjusting the selectively increased system sensitivity, to a level at which the system just responds (or just fails to respond) to the background noise level. Thus, when the sensitivity is returned to its normal operating level, a built-in margin of safety is provided against false alarming from noise signals.

3,838,409

FIELD STRENGTH UNIFORMITY CONTROL SYSTEM FOR ARTICLE THEFT DETECTION SYSTEM

Arthur J. Minasy, Woodbury, and Ronald Pruzick, Commack, both of N.Y., assignors to Knogo Corporation, Westbury, N.Y.

Filed Apr. 13, 1973, Ser. No. 351,018
Int. Cl. G08b *13/24*
U.S. Cl. 340—258 C **19 Claims**



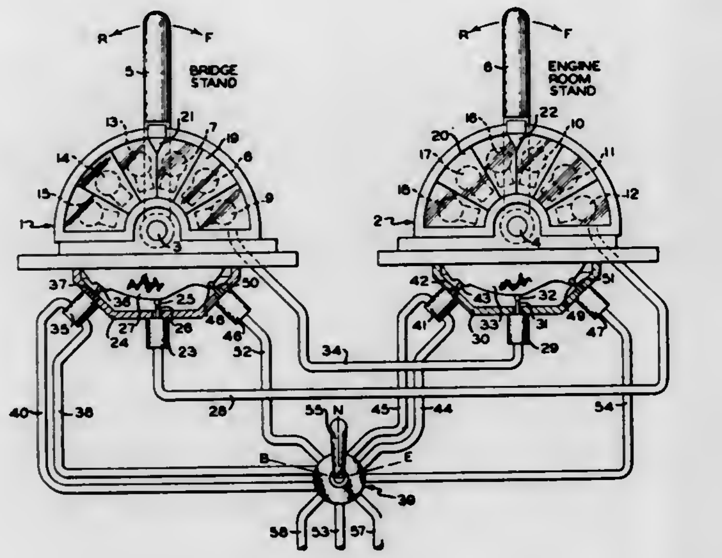
An electromagnetic interrogation field in a theft detection system is made effectively more uniform by energizing different antenna windings lying in different planes at the same frequency but at different phases so that the resulting field pattern rotates in the vicinity of the antenna windings.

3,838,410

MULTI-STATION ENGINE CONTROL SYSTEM

Wilhelm Georg Bachmann, Am Lienkamp 9, 3001 Godshorn; Ehrenfried G. Scheffel, Bernhard-Ahlers-Str. 14, 282 Bremen-Aumund; Klaus J. Weissenfels, Stockenerweg 30, 3011 Letter, and Hermann Ziehe, Okerstr. 18, 3301 Watenbuttle, all of Germany

Continuation of Ser. No. 41,380, May 28, 1970, abandoned. This application Jan. 17, 1973, Ser. No. 324,523
Int. Cl. H04g *1/18*
U.S. Cl. 340—286 R **6 Claims**



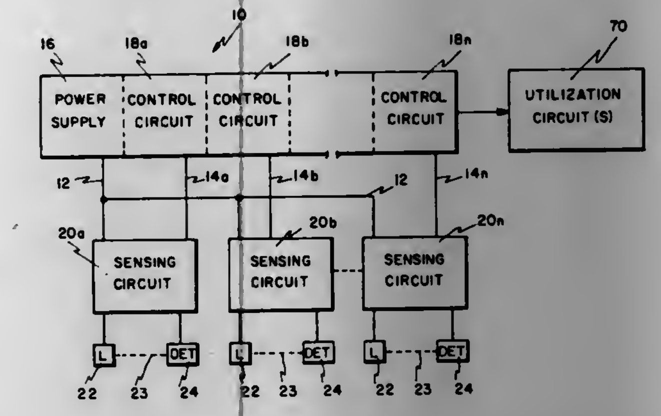
Remote control apparatus for ship engines and the like comprising a plurality of manually operable control devices each remotely situated from the others at respective stations and each having means for transmitting and receiving, simultaneously to and from all the other stations, a command signal initiated at any one of the stations, said apparatus being further characterized by means for selectively cutting out or activating certain ones of the control devices so that operation of the ship's engines can be effected only by a control signal initiated from the control device at the station thus activated, though the command signal is initiated at one of the other stations and transmitted to the activated control device.

3,838,411

DETECTION SYSTEM

Clayton H. Vander Meer, Wyoming, Mich., assignor to Rapistan Incorporated, Grand Rapids, Mich.

Filed Jan. 2, 1973, Ser. No. 320,512
Int. Cl. H04m *11/04*
U.S. Cl. 340—310 R **14 Claims**



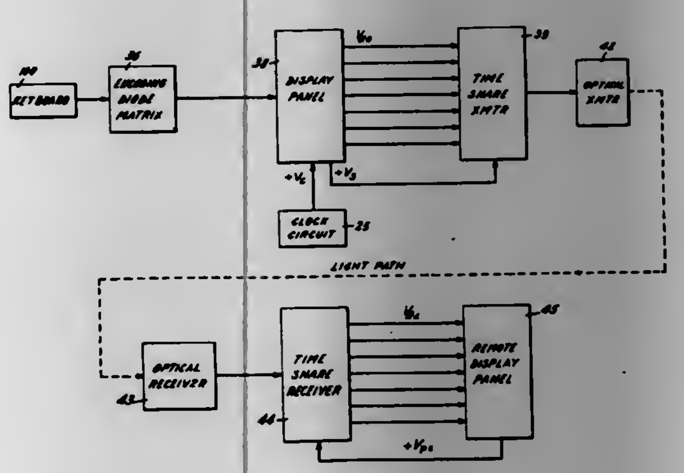
A system for detecting objects or predetermined conditions at remote locations employs a control circuit coupled to a remote sensor circuit by two conductors to supply power to the sensor circuit during the positive half of each cycle. During the negative half of the cycle of operation, the remote sensor circuit develops an output signal indicating the presence or absence of an object or other detected condition and applies the signal to the control circuit via the same two conductors. The control circuit responds to the signal from the sensor circuit to provide an output signal for actuating a control related to the detected condition.

3,838,412

OPTICAL LINK FOR ILLUMINATED TRAVELING MESSAGE DISPLAY SIGN SYSTEM

Clifford M. Jones, Waynesboro, Va., and John D. Harnden, Jr., Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 99,192, Dec. 17, 1970, Pat. No. 3,727,185, which is a division of Ser. No. 778,218, Nov. 22, 1968, Pat. No. 3,590,508, which is a division of Ser. No. 449,177, April 19, 1965, Pat. No. 3,432,846. This application Sept. 5, 1972, Ser. No. 286,360
Int. Cl. G08b *5/36*
U.S. Cl. 340—334 **5 Claims**



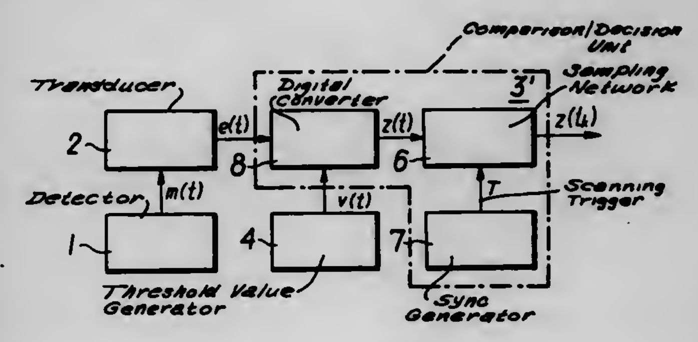
An optical link between display panels of an illuminated traveling message display sign system includes a time-share transmitter having an optical transmitter connected to the output thereof and an optical receiver located remote from the optical transmitter and a time-share receiver connected to the output thereof. The optical transmitter includes a light emitting diode and the optical receiver includes a photoelectric device for detecting the optical output of the optical transmitter and converting the detected output into serial electrical pulse form. The time-share receiver converts the output of the optical receiver to data in parallel electrical pulse form.

3,838,413

CIRCUIT ARRANGEMENT FOR ANALOG-TO-DIGITAL CONVERSION OF MAGNITUDES OR SIGNALS IN ELECTRICAL FORM

Wolfgang Wehrmann, Vienna, Austria, assignor to Norma Messtechnik Gesellschaft m.b.H., Vienna, Austria

Filed July 31, 1972, Ser. No. 276,385
Claims priority, application Austria, Aug. 3, 1971, 6780/71
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 AD **15 Claims**



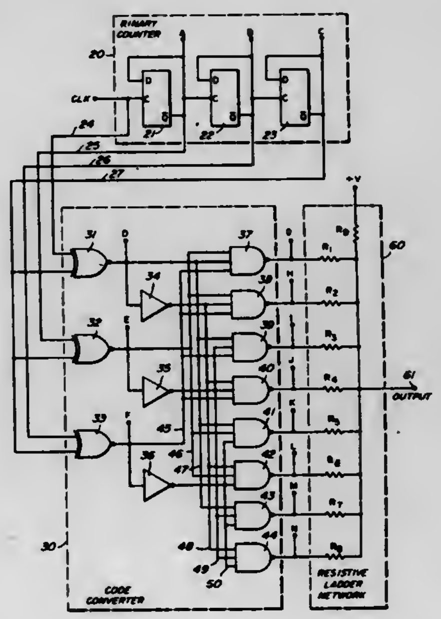
Apparatus for converting analog electrical signals to a digital electrical signal wherein the statistical probability of a predetermined state for the digital output signal is a predetermined function of the analog input signals to provide digital signals having improved transmission capabilities. A continuously varying threshold electrical signal having a predetermined statistical distribution of amplitudes is compared to the analog input signal and the result of such a comparison is used to produce and control the digital output signal such that the statistical probability of a given digital state is a predetermined function of the analog input corresponding to the predetermined statistical distribution of amplitudes of the continuously varying threshold signal.

3,838,414

DIGITAL WAVE SYNTHESIZER

Michael F. Wiles, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Aug. 3, 1972, Ser. No. 277,713
Int. Cl. H03k *13/04*
U.S. Cl. 340—347 DA **3 Claims**



A digital wave synthesizer provides an output waveform of frequency *f* in response to an input of periodic pulses from a clock source at a frequency of $2^n f$. The periodic pulses are received by a simple binary counter of n stages which provides n outputs, each from one stage, in a time sequence in accordance with the count of the counter. A code converter receives each of the n outputs from the counter and also the periodic pulses, combines them and provides 2^n unique output signals. An output circuit comprised of a resistive ladder network receives the 2^n output signals and provides 2^n voltage signals at predetermined levels which, in sequential occurrence, produce the symmetrical waveform output.

3,838,415

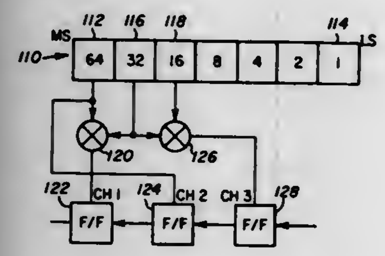
DATA MODEM APPARATUS

William J. Melvin, Costa Mesa, Calif., assignor to Collins Radio Company, Dallas, Tex.

Division of Ser. No. 187,675, Oct. 8, 1971, Pat. No. 3,764,743. This application May 16, 1973, Ser. No. 360,710

Int. Cl. G06f *5/00*

U.S. Cl. 340—347 DD **1 Claim**



Apparatus for and the method of providing three channel, eight phase data modulation and demodulation whereby the system may be used for either two or three channels with no detrimental effects in either mode of operation due to the additional circuitry. The invention discloses additional apparatus for connection to a conventional two channel, four phase system to produce a three channel, eight phase system. The coding of the eight phase system modifies the basic phase change of a two channel, four phase system by ±22.5° depending upon the inclusive OR result of the first two channels as compared to the binary logic level of the third channel.

3,838,416

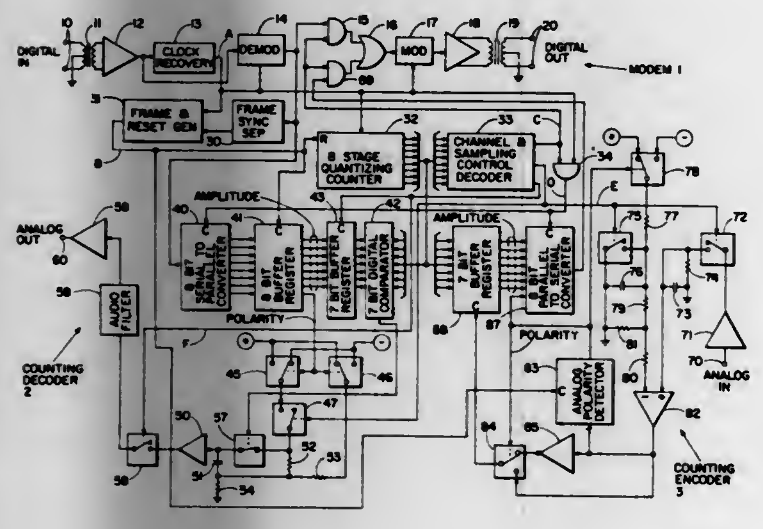
DIGITAL/ANALOG SUBTERMINAL

Anthony Kevin Dale Brown, Ottawa, Ontario, Canada, assignor to Northern Electric Company, Limited, Montreal, Quebec, Canada

Filed July 2, 1973, Ser. No. 375,836

Int. Cl. H03k *13/20*

U.S. Cl. 340—347 DA **3 Claims**



A digital/analog subterminal in a digital transmission system in which the total number of quantizing levels of the analog signal is less than the total number of digits per frame so that the quantizing control signal can be derived directly from the recovered digital clock signal without the necessity fo: separately controlled quantizing control generators.

3,838,417

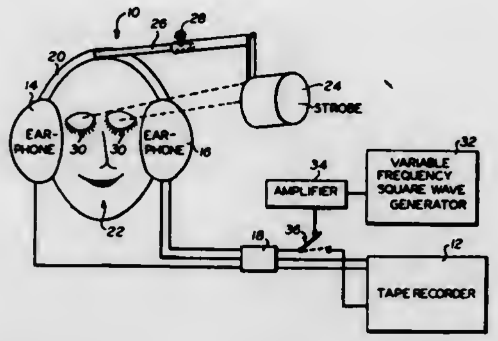
VISUAL COLOR RESPONSE APPARATUS

Seymour Charas, 230 Jay St. N.E., Brooklyn, N.Y. 11201

Filed Nov. 2, 1972, Ser. No. 303,014

Int. Cl. G08b *5/38*

U.S. Cl. 340—366 B **11 Claims**



An apparatus for producing a visual color response in an observer includes a flashing stoboscopic light and a means for controlling the flashing frequency of this light so as to provide a light signal having a predetermined flashing frequency substantially within the range of at least 1 to 16 cycles per second for producing at least a selected predetermined color within the visible light spectrum as the visual color response, the color being dependent on the flashing frequency, a different color being produced at a different flashing frequency. Means, such as a tape recorder in conjunction with a headset to which the strobe can be attached, are also provided for substantially simultaneously producing an audio response in the observer correlated with the visual response. The flashing frequency is preferably controlled independently of the audio signal, such as music, although subjectively correlated to the mood of the music.

3,838,418

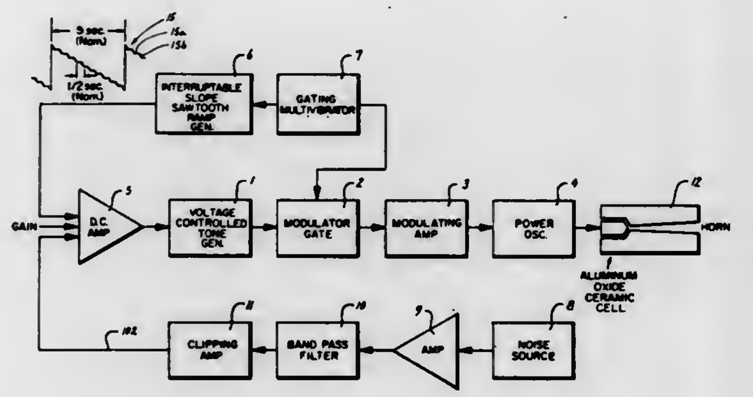
PEST CONTROL APPARATUS AND METHOD

Craig T. Brown, Corona, Calif., assignor to Mildred Miller, Beverly Hills, Calif.

Filed June 26, 1972, Ser. No. 266,058

Int. Cl. G08b *3/00*

U.S. Cl. 340—384 E **7 Claims**



A pest control apparatus and method for dispersing pests, e.g., rodents, from a designated area by the transmission into the area of high intensity ultrasonic sound waves having a primary frequency varying as a function of time and frequency modulating the sound waves with a secondary vibrato. The apparatus additionally provides periodic bursts of such ultrasonic power affording transducer rest periods maximizing the power handling capability of the transducer during "on" periods.

3,838,419

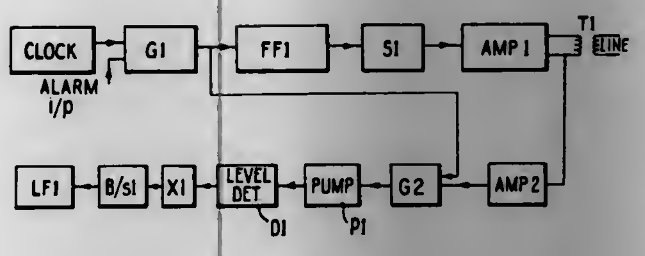
SECURITY ALARM SYSTEM WITH FAULT INDICATION

David J. McSorley, Twickenham, and Jaye De Croos, Banstead, both of England, assignors to Alarm Equipment Supplies Limited, Twickenham, Middlesex, England

Filed Apr. 17, 1973, Ser. No. 351,881

Int. Cl. G08b *29/00*

U.S. Cl. 340—409 **4 Claims**



A data signalling system includes a transponder at each end of a transmission line, a first of the transponders including means for transmitting an intermittent signal to the second transponder and the second transponder including means responsive to the termination of an incoming signal from the first transponder for transmitting a corresponding answer signal back to the first transponder in the gap before the next incoming signal. The two transponders therefore form a closed loop line monitoring system in which a genuine line fault is detected by the absence of an incoming signal at both ends of the line. The system is particularly useful in security alarm systems.

3,838,420

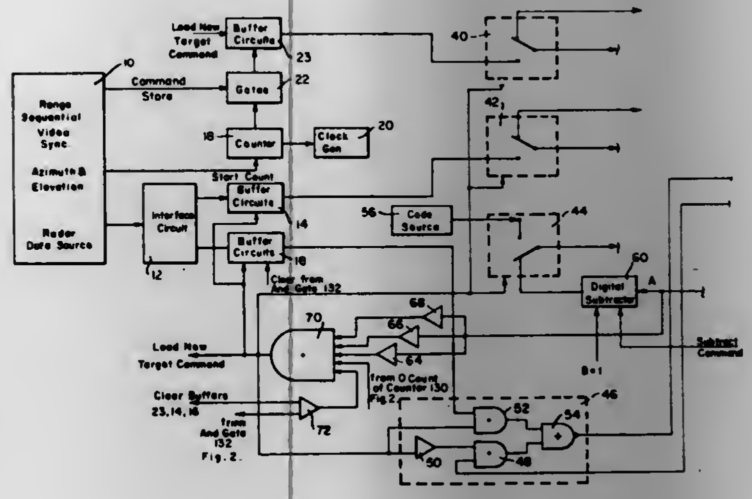
COORDINATE STORE DIGITAL SCAN CONVERTER

James L. Heard; William C. Hoffman, both of Torrance; Eugene W. Opittek, Tustin, and Gerald Wolfson, Los Angeles, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Aug. 29, 1972, Ser. No. 285,285

Int. Cl. G01s *7/04*

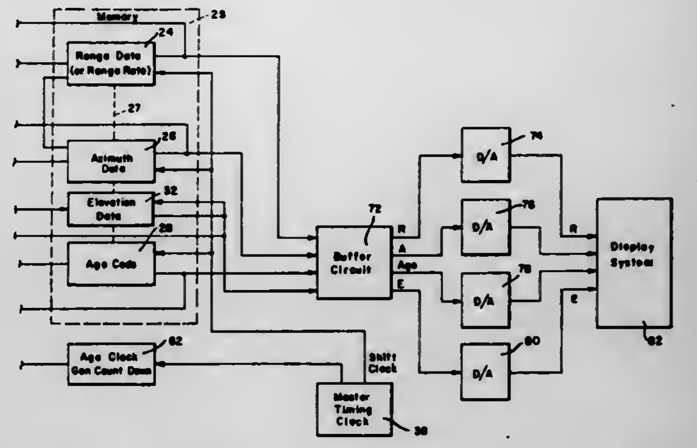
U.S. Cl. 343—5 SC **7 Claims**



A radar processor encodes the data associated with target hits. This digital data is entered into a small circulating memory together with an age code. The age code is decremented at a predetermined rate. The digital data while being transferred between the output and the input of the memory is also applied to a suitable display system. The age code determines the brightness of the display.

When the age code has decreased below a predetermined level, this is sensed and new target hit data is entered into the location occupied by the target hit data associated with the minimum age code.

To minimize the size of the memory required, new target hit data either from the same radar processor or another source, if desired, is compared with all of the target hit data in the memory, and if correlation is established, then the new target hit data is not entered into memory, but the old target hit data has its age updated and a record of correlation is made.



3,838,421

AIRPORT RUNWAY SURVEILLANCE SYSTEM WITH MEANS FOR DETERMINING TOUCH-DOWN DISPERSION

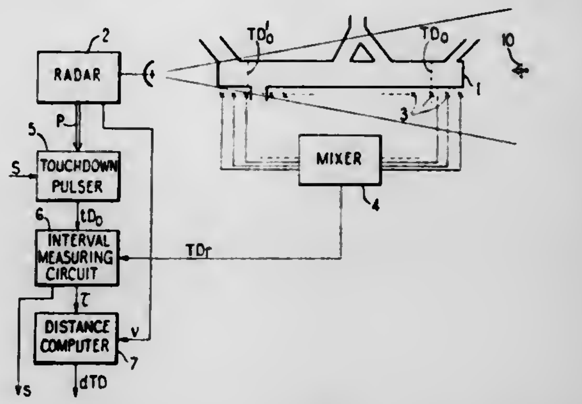
Henri M. J. Dasse-Hartaut, Reuil Malmaison, and Marc J. T. Schneider, Saint Cloud, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Sept. 19, 1973, Ser. No. 398,702

Claims priority, application France, Oct. 5, 1972, 72.35299

Int. Cl. G01s *9/02*

U.S. Cl. 343—5 LS **6 Claims**



A device for determining the dispersion (range difference) between actual aircraft landing touch-down and the theoretical touch-down point. Radar range pulse information is compared with a sonic pickup pulse from a vibration transducer which detects wheel contact with the airport surface. In one embodiment, the comparison is made in the relatively slow time base of actual aircraft movement and in an alternative embodiment, the comparison is made in the radar time base, the sonic pulse being used as an enabling pulse in the latter instance.

3,838,422

RADAR ADAPTIVE VIDEO PROCESSOR

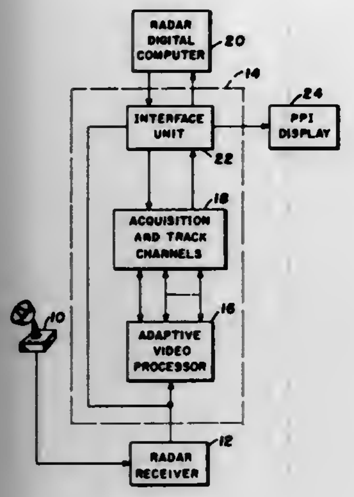
John L. MacArthur, and Barry E. Raff, both of Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 20, 1973, Ser. No. 399,030

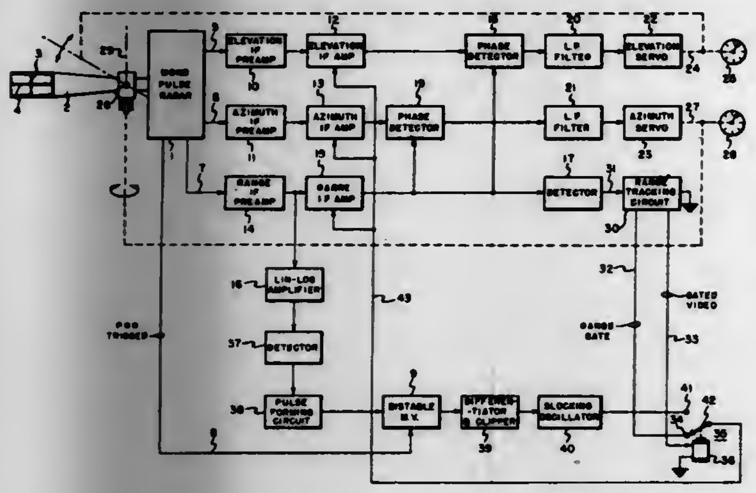
Int. Cl. G01s *9/02*

U.S. Cl. 343—7 A **14 Claims**

Adaptive thresholding is provided to enhance target detections in the presence of clutter. A closed loop feedback system functions to maintain an average constant false alarm probability within three range intervals. Radar video signals are sampled, then compared with a thresholding signal comprised of a constant plus the feedback signal. Average constant false alarm probability is maintained by forcing the signal to a constant duty factor by use of pulse stretching. The feedback signal is filtered over the range intervals to adjust for range variations in clutter density.

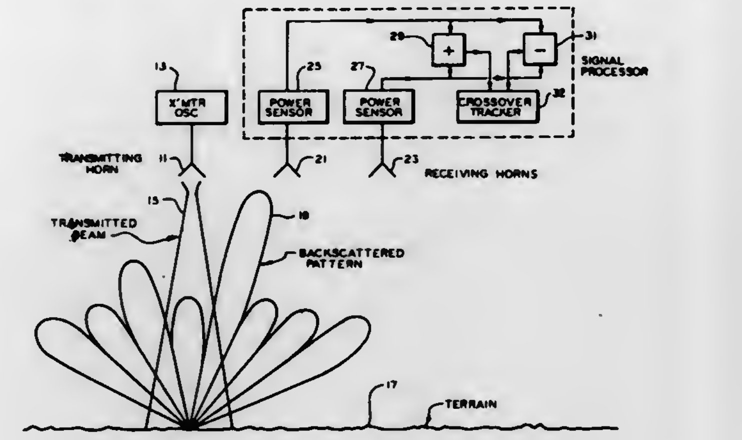


3,838,423
ANTI-JAMMING CIRCUIT FOR ANGLE TRACKING RADARS
Paul L. Di Matteo, Levittown, N.Y., assignor to Sperry Rand Corporation, New York, N.Y.
Filed Oct. 15, 1958, Ser. No. 767,479
Int. Cl. G01s *9/16, 9/22*
U.S. Cl. 343—7.3 **4 Claims**



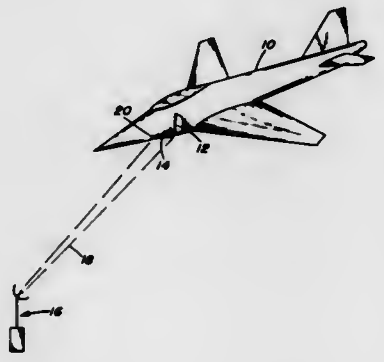
In a pulsed radar signal tracking receiver, first, second and third means for tracking received signals in the respective polar coordinates of range, elevation and azimuth, said second and third means for tracking being adapted to be actuated solely during the occurrence of a control signal, said first means for tracking in range producing a first output pulse positionable in range and a second output pulse upon the coincidence of said first output pulse and received signal, means resettable at the radar pulse repetition rate for deriving an auxiliary pulse in response to the first signal received during each radar pulse repetition interval, switching means for selectively applying when actuated said first output pulse as said control signal to said second and third means and for selectively applying when deactuated said auxiliary pulse as said control signal to said second and third means, and means for applying said second output pulse to said switching means for actuating said switching means.

3,838,424
MICROWAVE INTERFERENCE PATTERN SENSOR
Lester I. Goldfischer, New Rochelle, N.Y., assignor to The Singer Company, Little Falls, N.J.
Filed Feb. 20, 1973, Ser. No. 334,011
Int. Cl. G01s *9/44*
U.S. Cl. 343—8 **12 Claims**



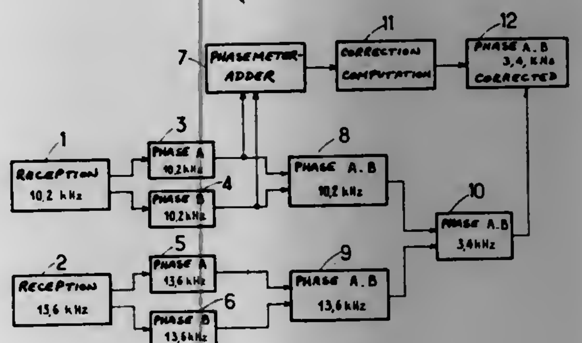
A velocity sensing device in which a single radiating horn illuminates a spot on the ground from which power is back scattered to at least a pair of spaced receiving antennas which measure the time required for the back scattered radar speckle pattern developed by the radiation from the horn to traverse the distance between two receiving antennas by determining the frequency at which there is equal power in the sum and difference outputs of a quadratic detector coupled to each antenna, which time is proportional to velocity. Also shown is an arrangement having three antennas which permits measuring velocity in two directions.

3,838,425
DESIGN FOR REDUCING RADAR CROSS SECTION OF ENGINE INLETS
Kichio Ishimitsu, Mercer Island; John D. Kelly, Seattle; Douglas S. Miller, Belle View, and Gordon A. Taylor, Seattle, all of Wash., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Mar. 28, 1973, Ser. No. 345,617
Int. Cl. B64d *33/02;* **H01q** *17/00;* **H04k** *3/00*
U.S. Cl. 343—18 A **4 Claims**



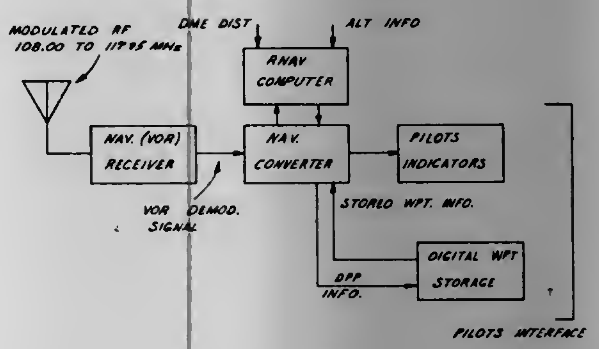
A radar-absorbing shield for aircraft engines of the type having inlet cavities comprising a geometrically shaped piece of radar-absorbing material which is movably attached to the fuselage of the aircraft near the engine inlet. The shield can be moved under and in front of the inlet to shield the cavity from waves from surface radar, or it can be moved so that it is flush with the fuselage when high maneuverability is required. A shield may be placed near each engine on the aircraft.

3,838,426
ELECTRONIC AMBIGUITY-REMOVAL DEVICE FOR PHASE MEASUREMENT RADIONAVIGATION SYSTEMS, MORE PARTICULARLY FOR THE OMEGA SYSTEM
Jean Calves, Nantes, and Rene Gounon, Mauves/Loire, both of France, assignors to Societe D'Etude, Recherches Et Constructions Electroniques Sercel, Carguefou, France
Filed Jan. 30, 1973, Ser. No. 327,975
Claims priority, application France, Mar. 23, 1972, 72.10168
Int. Cl. G01s *1/30*
U.S. Cl. 343—105 R **9 Claims**



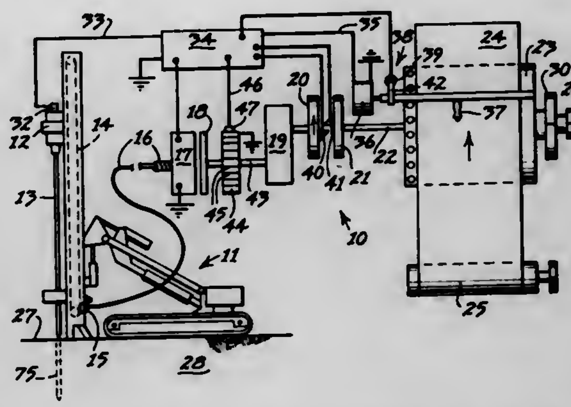
An OMEGA phase-measurement radionavigation system includes an ambiguity-removal device, in which a correction signal for correcting velocity differences at different frequencies is added to a differential phase signal representing the phase factor of a sub-multiple of the basic frequency. Each corrected signal thus obtained has subtracted from it a compensation signal equal to the whole-number differential channel immediately below it, and the resultant of the subtraction visually displayed on an indicator.

3,838,427
METHOD AND APPARATUS FOR DIGITALLY INDICATING DIRECT PRESENT POSITION
Edward J. King, Jr., Shawnee Mission; Kenneth R. Ganther, Jr., Lenexa, and Ronald Eugene Grillot, Olathe, all of Kans., assignors to King Radio Corporation, Olathe, Kans.
Filed July 3, 1972, Ser. No. 268,561
Int. Cl. G01s *1/44*
U.S. Cl. 343—106 R **4 Claims**



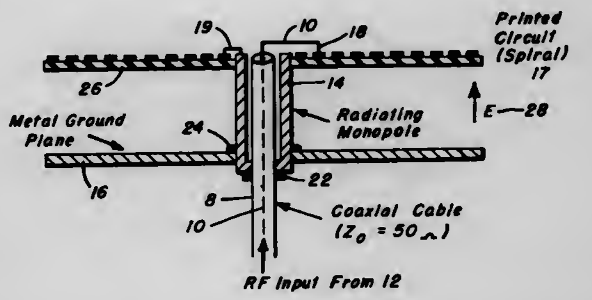
A method and apparatus for assisting in the navigation of aircraft using VOR or area navigation (RNAV) information has a digital readout operating in conjunction with a course deviation indicator (CDI) otherwise known as a D-bar. A keyboard is provided to enable the pilot to digitally enter course selection numbers for either VOR or RNAV problems. The subject method and apparatus permits the pilot to merely push a button to immediately compute the required course to center the CDI D-bar and to automatically insert the computed number into the VOR or RNAV system.

3,838,428
SOIL IMPEDANCE LOG
Robert W. Benson, and Robert G. Reed, both of Nashville, Tenn., assignors to Harold R. Beaver, Hendersonville, Tenn.
Filed Oct. 1, 1973, Ser. No. 402,116
Int. Cl. G01n *3/32;* **G01d** *5/244*
U.S. Cl. 346—33 R **10 Claims**



A soil impedance log operatively connected to a track drill, including a transducer for sensing the number of hammer blows upon the drill rod, an electrical system for processing, accumulating and periodically counting the hammer signals for each successive uniform depth of penetration, and recording means operatively connected to the track drill for visually indicating the comparison of the number of hammer blows per unit depth of penetration with the total depth of penetration.

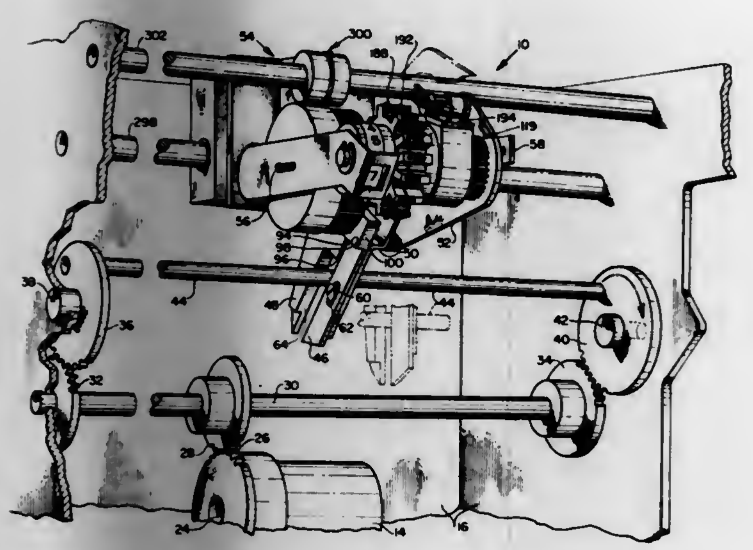
3,838,429
MINIATURIZED TRANSMISSION LINE TOP LOADED MONOPOLE ANTENNA
Frank Reggia, Bethesda, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Aug. 3, 1973, Ser. No. 385,382
Int. Cl. H01q *9/00*
U.S. Cl. 343—750 **5 Claims**



A miniaturized antenna having high radiation efficiency consists essentially of an open circuit transmission line top-loading a short monopole over a metal ground plane. The currents in the two sides of the transmission line, being oppositely directed, tend to cancel each other's effect in the distant field. Thus, only the short vertical monopole contributes to the distant field radiation. The omnidirectional monopole is a constant current radiating element operating at near RF ground potential (high current, low impedance).

3,838,430
PRINTING APPARATUS FOR MULTIPLE-POINT RECORDER WITH SELECTABLE NUMBER PRINTING
Charles J. Digney, Holland, Pa., assignor to Honeywell Inc., Minneapolis, Minn.
Continuation of Ser. No. 215,476, Jan. 5, 1972, abandoned. This application Mar. 29, 1973, Ser. No. 346,136
Int. Cl. G01d *15/20, 9/34*
U.S. Cl. 346—61 **16 Claims**

An improved print mechanism for a plural-function recorder having a single record receiver includes a continuously orbiting rod and a plurality of print wheels each of which has a plurality of marking elements on the periphery thereof. The orbiting rod operates successively and repetitively to effect joint step-by-step angular synchronous adjustments of said print wheels to bring each of said marking elements, in turn, into a position for marking said record receiver. The orbiting rod also actuates said print wheels, when so adjusted, into and out of firm marking engagement with said record receiver. Recording in different modes selectively may be effected by a manual adjustment which permits relative axial displacement of said print wheels and thereby printing by one only or both of said print wheels continuously, or by one continuously and the other intermittently.



3,838,431
APPARATUS FOR THERMALLY RECORDING CHARACTER PATTERNS

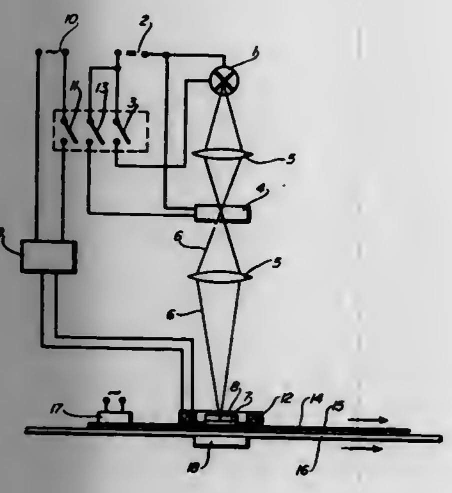
Horst Germer, Am Schwarzen Berge 38, 3300 Braunschweig, Germany

Filed Apr. 12, 1973, Ser. No. 350,389

Claims priority, application Germany, Apr. 18, 1972, 2218640

Int. Cl. G03g *17/00*

U.S. Cl. 346—76 R **8 Claims**



Apparatus is disclosed for recording light images by exposure of a photoconductor thereto to render charge carriers therein mobile, subjecting the mobile charge carriers to a high frequency magnetic field to thereby effect induction heating of the photoconductor where exposed, and utilizing the heat generated in the photoconductor to act on a contacting heat sensitive recording substance.

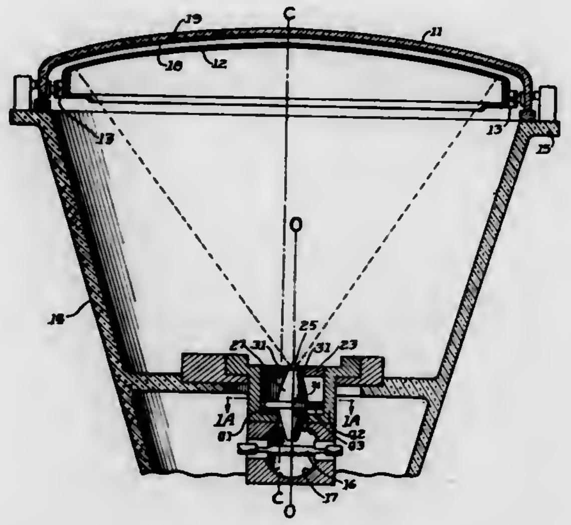
3,838,432
LIGHTHOUSE EXPOSURE SYSTEM PROVIDING CORRECTED RADIANT ENERGY DISTRIBUTION

Yong S. Park, Hanover Park, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed July 2, 1973, Ser. No. 375,587

Int. Cl. G03b *27/00*

U.S. Cl. 354—1 **10 Claims**



A lighthouse exposure system for more uniformly exposing photosensitive material on a television picture tube face panel. The usual lighthouse problems of (i) over-intense radiation along the face panel parallel to the elongated arc lamp and, (ii) corner-to-corner intensity differential associated with lighthouse light source offset, are both overcome. The intensity contour correcting lenses or shaders (or the like) which are usually disposed between the effective point of light emanation and the face panel are rendered unnecessary. The system employs a light collimator which channels, by means of internal reflection, light from an elongated arc lamp to a collimator tip from which light is then emitted toward the face panel. The surface of the collimator is altered in a predetermined manner so as to interrupt the surface boundary reflection usually occurring therefrom. In a preferred embodiment, the collimator has two frosted areas disposed opposingly and near the tip, with the frosted areas being aligned with the elongated arc lamp.

3,838,433
ELECTRIC SHUTTER FOR A CAMERA

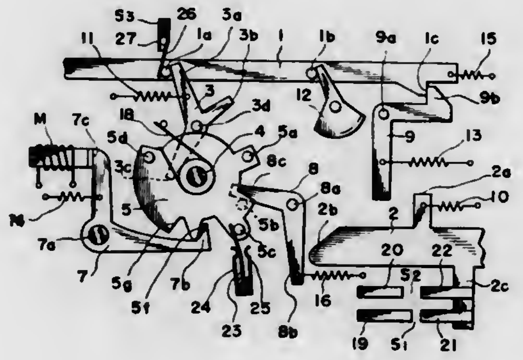
Toshinori Imura, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 54,130, July 13, 1970, abandoned. This application Jan. 29, 1973, Ser. No. 327,856

Claims priority, application Japan, July 15, 1969, 44-55834

Int. Cl. G03b *7/08*

U.S. Cl. 354—29 **8 Claims**



The present invention relates to an electric shutter for a camera, in which the aperture of the lens is controlled by a programmed operation so as to change along with the time by means of a set of sectors. more particularly, the invention relates to an electric shutter for a camera in which the aperture is opened along with the time until the diaphragm is fully opened. When the necessary exposure time is less than the exposure time corresponding to the fully opened aperture then the aperture is opened along with the time only up to a restricted aperture size and continues the exposure at such restricted aperture.

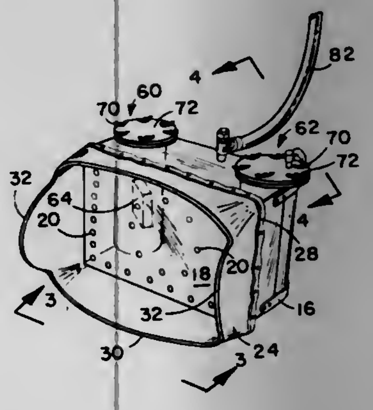
3,838,434
UNDERWATER CAMERA HOUSING

David Michael Hughes, and David S. Fridge, both of Houston, Tex., assignors to Oceaneering International, Inc., Houston, Tex.

Filed June 18, 1973, Ser. No. 371,064

Int. Cl. G03b *17/08*

U.S. Cl. 354—64 **5 Claims**



An underwater camera housing having a casing for the receipt of a camera with a closure plate to seal the camera in the casing. The casing has suitable camera operating external levers and handles for operating the camera within the casing from outside thereof.

The casing is affixed to the housing which has a diffuser plate in displaced relationship from where the camera casing is attached thereto. Interiorly of the housing are a pair of lighting capsules to light the area which is to be photographed. Extending from the housing is a shroud in the form of a flexible material for placement of the housing and shroud in close juxtaposition to an object to be photographed so that clear water or an optically clear fluid can be pumped into the housing and diffused through the diffuser plate to the shroud. This serves to maintain a clear area in front of the camera for purposes of flushing out murky water and maintaining a proper view of the object to be photographed. The clear water provided to the housing can be from any particular surface source and led through a pipe to the housing.

3,838,435
AUTOMATIC IDENTIFICATION AND MAGNIFICATION MARKING SYSTEM FOR MICROGRAPHS

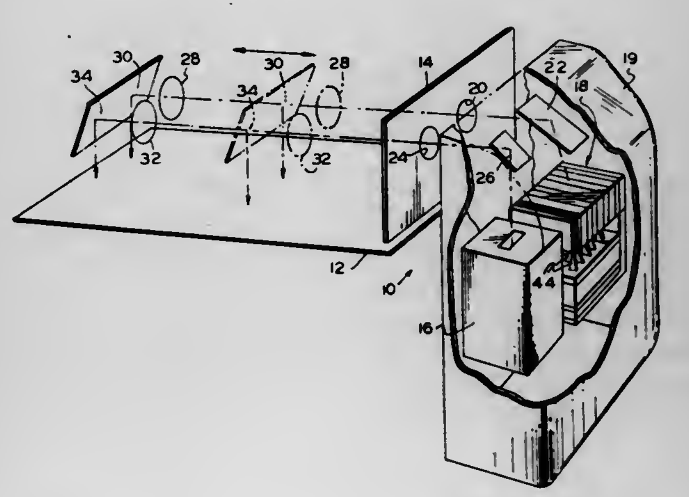
Herbert J. Mepham, Beaverton, and Gertrude F. Rempfer, Forest Grove, both of Oreg., assignors to Elektros, Inc., Tigard, Oreg.

Filed Aug. 11, 1972, Ser. No. 279,827

Int. Cl. G03b *17/24*

U.S. Cl. 354—109 **14 Claims**

Apparatus for use primarily in an electron microscope for automatically marking a serial number and variable magnification indicia on the photographic plate record produced by the microscope. The system comprises two different image generators, one an electromechanical serial number counter and the other a micron marker generator for generating the magnification indicia. The separate images generated by each of the two generators are transmitted by parallel lens and mirror apparatus to the photographic plate of the microscope and recorded thereon simultaneously with the specimen image. Each of the parallel optical transmitting systems has a fixed objective lens and mirror set which receives the image from a respective generator and a projector lens and mirror set which is movable to enable it to project the image onto photographic plates of different sizes. Each such optical transmitting system



is constructed so as to preserve the size and focus of the images projected from the two generators regardless of the position of the projector lens and mirror. The two image generators comprise a conventional serial number counter and an unconventional magnification indicia generator, the latter comprising an arrangement of bulbs and light transmitting rods which form a variable "micron marker" scale display consisting of two spaced parallel lines and a numeral or numerals indicating the scale distance between the lines in microns. The selective illumination of the proper bulbs and light transmitting rods for a particular display is accomplished automatically through an electrical circuit controlled by the magnification adjustment of the microscope.

3,838,436
OPENING DEVICE FOR AN ELECTRONIC SHUTTER

Masuo Ogihara, and Masanori Watanabe, both of Chiba, Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

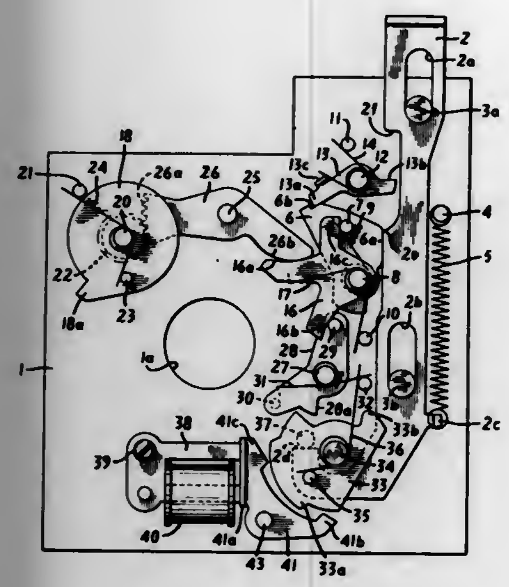
Filed May 29, 1973, Ser. No. 364,236

Claims priority, application Japan, May 26, 1972, 47-52308

Int. Cl. G03b *9/08*

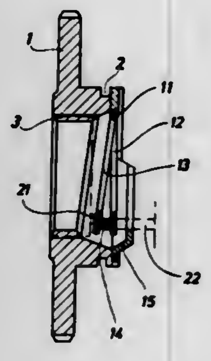
U.S. Cl. 354—259 **4 Claims**

A camera having an electronic shutter has an opening device for opening the shutter and a closing device for closing the shutter after the elapse of a predetermined time to effect an exposure. The opening device comprises a rotatable wheel having a gear connected thereto, a pivotable gear sector in mesh with the gear, a turnable opening lever in camming contact with the gear sector, and a spring system biasing the opening lever in such a manner to obtain opening of the shutter at a predetermined opening speed. The spring system consists of a first biasing spring cooperating with the wheel and acting through the gear and gear sector to bias the opening lever in a direction to oppose the shutter opening and a second biasing spring urges the opening lever in a direction to effect opening of the shutter with a force greater than that exerted by the first biasing spring to obtain opening of the shutter at the predetermined opening speed.



3,838,437
PHOTOGRAPHIC LENS ADAPTER RING FOR INTERCHANGEABLE LENSES

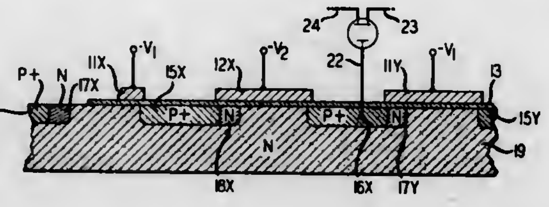
Heinz Hamm, Braunschweig, Germany, assignor to Rollei-Werke Franke & Heidecke, Braunschweig, Germany
Filed May 23, 1973, Ser. No. 363,269
Claims priority, application Germany, June 21, 1972, 2230199; Jan. 5, 1972, 7300295
Int. Cl. G03b *9/02*
U.S. Cl. 354—270 **5 Claims**



An adapter ring to enable interchangeable photographic lenses to be used with a camera somewhat different from the one for which they were specifically designed, and especially to enable operating parts within the lens unit to be operated from the control parts within the camera body, notwithstanding some differences. The adapter ring, in addition to serving as a mount to hold the interchangeable lens unit in position, contains a transmission ring structure which receives motion from the operating rod in the camera body (movable parallel to the optical axis) and transmits such motion to the operating rod in the lens unit, even though the operating rods may not be in exact axial alignment with each other. The transmission ring structure is resilient in an axial direction, so that the transmission rod in the camera body may move through its full range of movement even though the transmission rod in the lens unit may have a more limited range of movement.

3,838,438
DETECTION, INVERSION, AND REGENERATION IN CHARGE TRANSFER APPARATUS

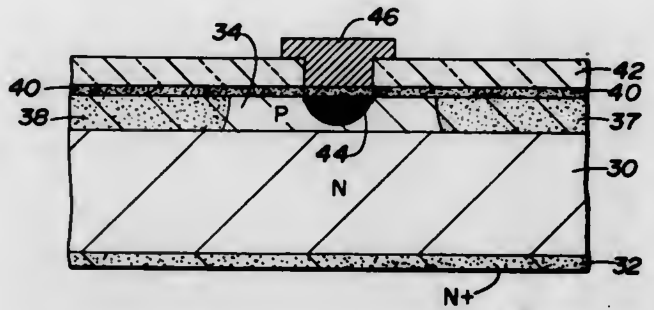
Donald Jack Silversmith, Morristown, and Robert Joseph Strain, Plainfield, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.
Filed Mar. 2, 1973, Ser. No. 337,669
Int. Cl. H01l *11/00, 15/00*
U.S. Cl. 357—24 **11 Claims**



Improved means are described for detecting and regenerating information in charge transfer apparatus. In those types of such apparatus having means associated with each electrode for producing thereunder asymmetric potential wells, detection is accomplished by disposing a heavily doped zone under a gap between a pair of successive electrodes and extending that heavily doped zone outside the information channel and passively connecting that extended zone to the gate of an IGFET. In a particular regenerator embodiment, an IGFET diode is included in series with the source-drain circuit of an IGFET to improve control over the launching of the regenerated signal.

3,838,439
PHOTOTRANSISTOR HAVING A BURIED BASE

James R. Biard, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 20,708, March 18, 1970. This application Nov. 15, 1972, Ser. No. 306,763
Int. Cl. H01l *15/00*
U.S. Cl. 357—30 **9 Claims**



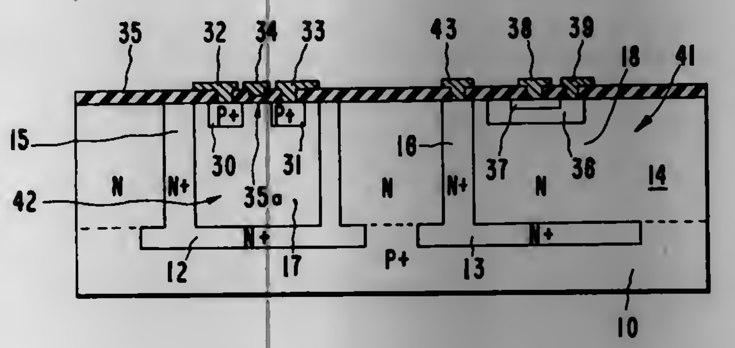
A photosensitive semiconductor device is disclosed which includes a substrate of N-type semiconductor material, with an area or P-type semiconductor material being embedded a preselected distance beneath the surface of the substrate. An electrical contact is connected to the substrate adjacent the central region of the area of P-type material. The central region of the P-type material provides phototransistor operational characteristics, while the junction formed between the N-type and P-type semiconductor materials provides photodiode operational characteristics.

3,838,440
A MONOLITHIC MOS/BIPOLAR INTEGRATED CIRCUIT STRUCTURE

Terence P. McCaffrey, Mountain View, and Paul R. Gray, Orinda, both of Calif., assignors to Fairchild Camera and Instrument Corporation, Mountain View, Calif.
Filed Oct. 6, 1972, Ser. No. 295,764
Int. Cl. H01l *19/00*
U.S. Cl. 357—43 **5 Claims**

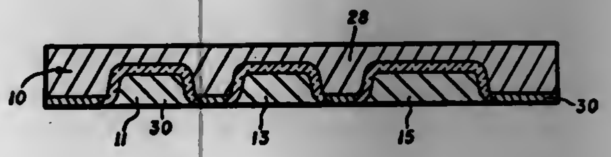
A monolithic integrated circuit structure comprises a wafer of semiconductor material including a semiconductor sub-

strate having an epitaxial layer of semiconductor material thereon, a first region and a second region both of a first conductivity type extending downward from a first surface of said wafer at least partially into said epitaxial layer, said first region being surrounded on all sides except said first surface by a semiconductor material of said first conductivity type of lower resistivity than the first region itself and said second region being partly surrounded by semiconductor material of said first conductivity type of lower resistivity than said second region itself, a semiconductor device of a first type formed in the first region of semiconductor material and a semiconductor device of a second type formed in the second region of semiconductor material, and a lifetime-reducing impurity located in said second region of semiconductor material whereby the switching speed of the semiconductor device of the second type in said second region is improved without substantially changing the characteristics of the semiconductor device of the first type in said first region. Typically the semiconductor device of the first type comprises an MOS device having source and drain regions and the semiconductor device of the second type comprises a bipolar transistor. The switching speed of the bipolar transistor is changed due to the fact that the second region in which the bipolar transistor is formed is not completely surrounded by the semiconductor material of said first conductivity type of lower resistivity than the second region itself.



3,838,441
SEMICONDUCTOR DEVICE ISOLATION USING SILICON CARBIDE

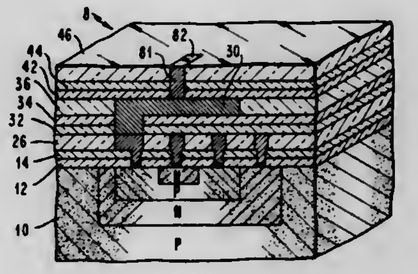
Kenneth E. Bean, Richardson; Paul S. Gleim, and Walter R. Runyan, both of Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Division of Ser. No. 791,836, Dec. 4, 1968, abandoned. This application June 12, 1970, Ser. No. 57,851
Int. Cl. H01l *19/00*
U.S. Cl. 357—49 **3 Claims**



A modified semiconductor substrate structure has been developed for use in the fabrication of multiphase monolithic integrated microcircuits characterized by dielectric isolation, i.e., circuits wherein the active and/or passive components are electrically isolated from one another by virtue of their distribution in an array of monocrystalline semiconductor pockets surrounded by dielectric material. Silicon carbide is shown to be a particular by good dielectric for such use, either alone or in combination with prior dielectrics.

3,838,442
SEMICONDUCTOR STRUCTURE HAVING METALLIZATION INLAID IN INSULATING LAYERS AND METHOD FOR MAKING SAME

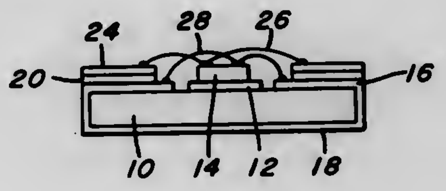
Charles B. Humphreys, Pleasant Valley, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 28,891, April 15, 1970, abandoned. This application June 9, 1972, Ser. No. 261,348
Int. Cl. H01l *29/34*
U.S. Cl. 357—54 **5 Claims**



In a semiconductor structure with multiple levels of metallization on the surface, each metallization pattern is inlaid in trenches formed in an insulating layer. The surface of the metallization is flush with or somewhat lower than the surface of its associated insulating layer. In a preferred embodiment, the different etching characteristics of glass and silicon nitride are utilized to form the trenches in the glass layer. The glass comprises the insulating layer and the nitride forms the bottom of the trench.

3,838,443
MICROWAVE POWER TRANSISTOR CHIP CARRIER

David G. Laighton, Linthicum Heights, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation of Ser. No. 192,851, Oct. 27, 1971, abandoned. This application Mar. 15, 1973, Ser. No. 341,638
Int. Cl. H01l *3/00, 5/00*
U.S. Cl. 357—84 **4 Claims**

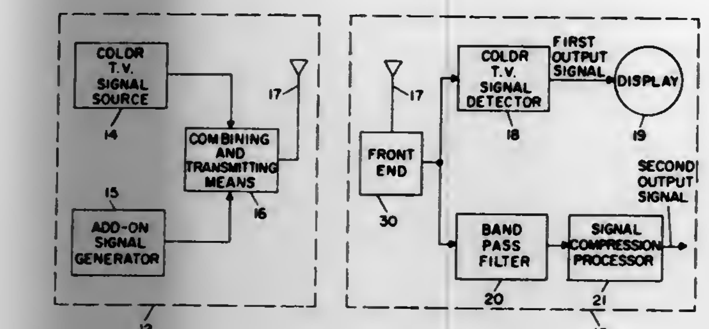


A low-cost mounting assembly for a microwave power transistor chip used in hybrid circuits, which minimizes package parasitics while allowing adequate heat transfer from the transistor chip to a heat sink formed from insulating material. The assembly can be formed entirely by silk screen techniques which materially reduces its cost.

3,838,444
SYSTEM FOR TRANSMITTING AUXILIARY INFORMATION IN LOW ENERGY DENSITY PORTION OF COLOR TV SPECTRUM

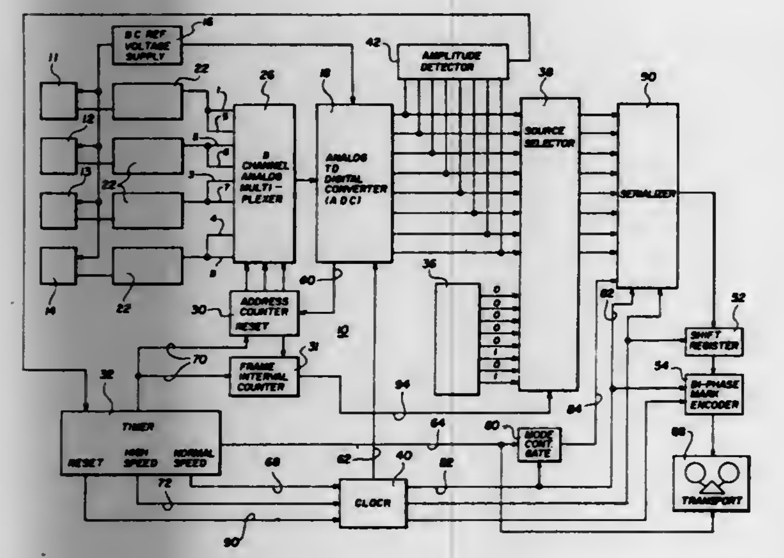
Bernard D. Loughlin, Centerport, and Charles E. Page, Westbury, both of N.Y., assignors to Hazeltine Research, Inc., Chicago, Ill.
Filed Oct. 30, 1972, Ser. No. 302,330
Int. Cl. H04n *7/08*
U.S. Cl. 178—5.2 R **9 Claims**

Described is a system for compatibly transmitting and receiving both a color TV signal and an add-on signal within the frequency band normally occupied by the TV signal alone. This system utilizes a high frequency-time product signal containing add-on information and having frequency components which are located in a low energy portion of the TV signal. Interference between the add-on and TV signals is minimized due to the noise-like characteristics of the high frequency-time product add-on signal and to the particular location of the add-on signal in the TV frequency band thus allowing accurate and reliable transmission of both the add-on and TV signals.



3,838,445
EVENT RECORDING SYSTEM

Frederick B. Cupp, and Gary Van Camp, Rochester, both of N.Y., assignors to EDMAC Associates Inc., Rochester, N.Y.
Continuation-in-part of Ser. No. 140,356, May 5, 1971, abandoned. This application May 29, 1973, Ser. No. 364,606
Int. Cl. G11b *5/02*
U.S. Cl. 360—18 **3 Claims**

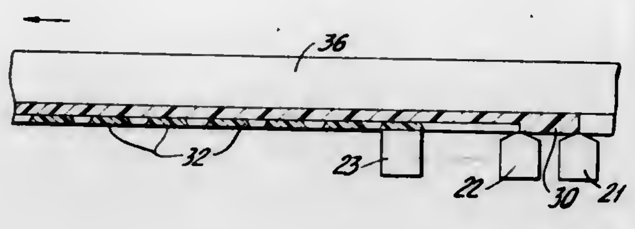


Apparatus is disclosed wherein analog signals produced by a plurality of sensors are multiplexed and applied to an analog to digital converter wherein each analog signal is converted to a digital word signal. The apparatus further includes circuitry which is responsive to the digital word signals when any one of such signals represents the amplitude of an analog signal above a selected value for causing a tape transport mechanism to be energized.

3,838,446
MULTI LAYER MAGNETIC RECORDING TECHNIQUE

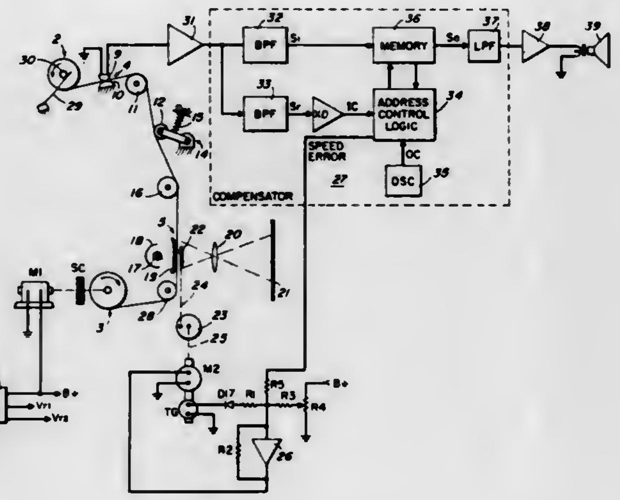
Hiroaki Otsuka, Tokyo; Norihisa Manabe, Saitama, and Tatsuo Konishi, Tokyo, all of Japan, assignors to Nippon Hoso Kyokai and Nippon Electric Company, both of Tokyo, Japan
Filed Nov. 8, 1972, Ser. No. 304,891
Claims priority, application Japan, Nov. 12, 1971, 46-90779
Int. Cl. G11b *5/02;* **H04n** *5/78*
U.S. Cl. 360—19 **7 Claims**

According to this multi-layer recording technique, a relatively low-frequency signal track is recorded on a magnetic tape in the direction of the tape's motion. A relatively shallow portion of the first recorded track along the surface of the magnetic tape is erased, and a plurality of second relatively high-frequency signal tracks that traverse the first track are recorded. The first track may contain audio information while the second track contains video information.



3,838,447
ANALOG INFORMATION STORAGE AND RETRIEVAL SYSTEM

William R. Wray, Brookline, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Oct. 2, 1972, Ser. No. 294,317
Int. Cl. G11b *5/00;* **G06f** *13/00*
U.S. Cl. 360—26 **13 Claims**



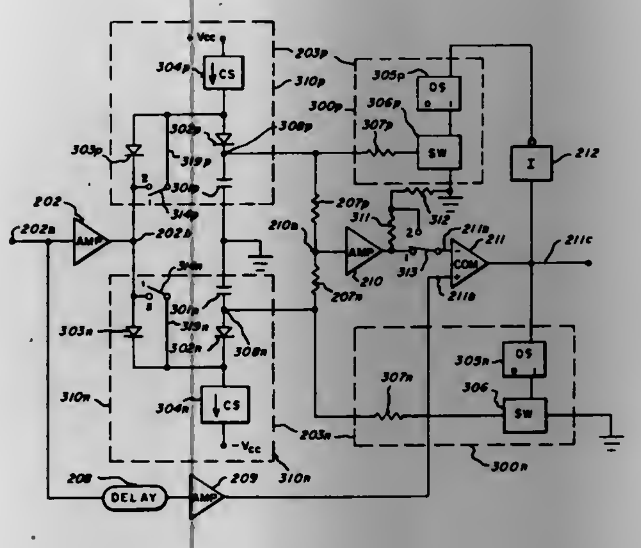
An information storage and retrieval system in which an information signal is recorded on a record medium simultaneously with a pilot reference signal. A reproducing system is provided in which samples of the recorded information are read from the record into an analog storage register at a rate determined by the reproduced pilot signal, and read out of the analog storage register at a fixed rate to compensate for differences in the speeds at which the information is stored on, and retrieved from, the record.

3,838,448
COMPENSATED BASELINE CIRCUIT

Lawrence Garde, Minneapolis, and Rolland R. Ritter, St. Paul, both of Minn., assignors to Control Data Corporation, Minneapolis, Minn.
Filed Feb. 7, 1973, Ser. No. 330,370
Int. Cl. G11b *5/44*
U.S. Cl. 360—45 **44 Claims**

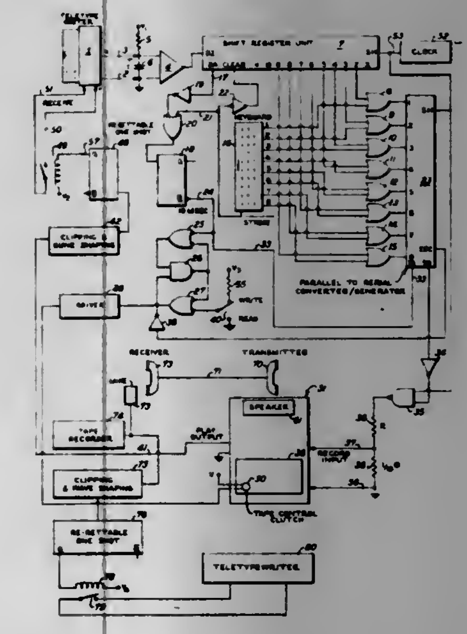
Apparatus and method for decreasing decoding errors in data encoding of the type where the relative time of occurrence of successive peaks determines the data content, and the errors result from peak shift caused by pulse crowding. In a preferred embodiment, the data signal is differentiated and delayed, and a baseline signal generator provides a compensated baseline signal having a value equal to the arithmetic mean of the immediately adjacent positive and negative signal

peaks of the differentiated data signal, and the decoded signal has a first value after the delayed differentiated data signal crosses the compensated baseline in a positive direction and a second value after the compensated baseline signal is crossed by the delayed differentiated data signal in the opposite direction.



3,838,449
METHOD AND SYSTEM FOR DIGITAL RECORDING

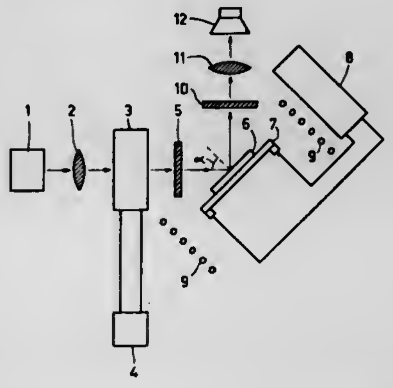
John C. Sims, Jr., Dusbury, Mass., assignor to New England Research Associates, Inc., Bedford, Mass.
Filed Mar. 13, 1973, Ser. No. 340,782
Int. Cl. G11b *15/20, 27/34, 31/00*
U.S. Cl. 360—52 **20 Claims**



A method and system for digital character-by-character or incremental recording in which the spaces of the data signals are recorded instead of the marks to prevent a velocity modulated signal from being recorded in the interrecord gaps. The signal recorded is a pulse carrier signal which is generated in correspondence with the spaces of the data signal. An environmental water monitoring apparatus for character-by-character recording of a digital word indicative of analog measurements taken by a plurality of sensors which are periodically monitored.

3,838,450
THERMOMAGNETIC RECORDING AND MAGNETO-OPTIC READING OF A MEDIUM HAVING BISMUTH IONS IN A GARNET STRUCTURE

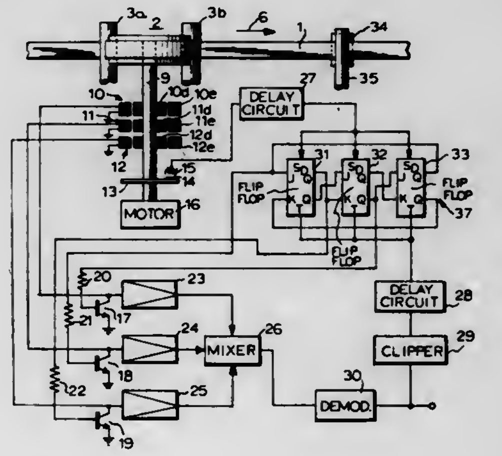
Piet Frans Bongers; Stefan Wittekoek, and Theo Johan August Popma, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Jan. 5, 1973, Ser. No. 321,331
Claims priority, application Netherlands, Jan. 8, 1972, 7200296; Oct. 7, 1972, 7213622
Int. Cl. G01d *15/10, 15/12*
U.S. Cl. 360—59 **6 Claims**



A device for the thermomagnetic recording and magneto-optical reading of data by means of the Kerr effect, in which the magnetisable recording medium consists of a monocrystalline or polycrystalline material having a garnet structure in which bismuth ions are present in dodecahedral sites and trivalent iron ions are present in tetrahedral sites. An example of a material having such a composition is $Bi_y{}^{3+}Z_{3-y}{}^{3+}Fe_3{}^{3+}O_{12}{}^{2-}$, wherein Z is a rare earth ion.

3,838,451
MAGNETIC TAPE REPRODUCING SYSTEM HAVING SECONDARY SHORTING OF A ROTARY TRANSFORMER FOR HEAD SWITCHING

Mineo Mino, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed June 15, 1973, Ser. No. 370,452
Int. Cl. H04n *5/78;* **G11b** *5/52*
U.S. Cl. 360—64 **4 Claims**



A magnetic video tape recorder has a plurality of rotary heads, transistor switching circuits are connected to secondary windings of rotary transformers which are coupled to each of the rotary heads so as to short the secondary winding when a control signal is applied to the base thereof. The control signal serves to control the operation of the transistor switching circuits in such a way that only one complete field signal at a time from among the head output signals is supplied to succeeding reproducing circuits, so that there is reproduced a still or a slow-motion picture.

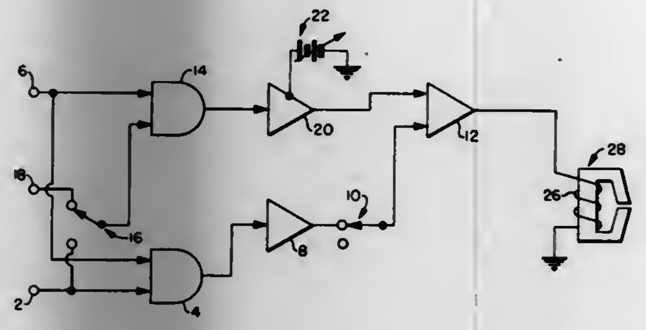
3,838,452

RECORDING AMPLIFIER FOR BIAS-TYPE MAGNETIC RECORDING

William G. Royce, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 7, 1972, Ser. No. 313,108
Int. Cl. G11b *5/44*

U.S. Cl. 360—66 **2 Claims**



A bias-type recording system using bias and data input signals which are amplified separately and applied to a signal summing amplifier which isolates the bias signal from the data signal by cancelling the bias signal collector current in a pair of transistor energized by the data and bias signals in a Class C mode of operation while allowing the data signal to vary the average collector current which appears as an output signal for application to a magnetic recording head.

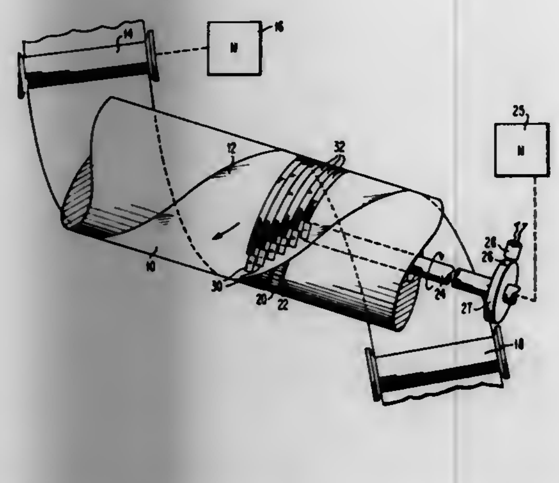
3,838,453

TRACK FOLLOWING SYSTEM FOR MAGNETIC TAPE RECORDER

Walter S. Buslik, and Dale H. Pennington, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 18, 1972, Ser. No. 254,669
Int. Cl. G11b *21/04, 21/10*

U.S. Cl. 179—100.2 T **14 Claims**



A helical or transverse track tape recorder used for data recording and readback utilizes a scanning magnetic head that follows recorded data tracks precisely. The tape has prerecorded pairs of servo reference signals of opposite characterization that are located adjacent to the beginning of each data track, the pairs of reference signals straddling the center line drawn through and extending from each track. A servo system responsive to the sensed position of the scanning head relative to the paired reference signals compensates for any displacement of the data tracks relative to the scan path of the head. Read after write during the same scan period is also accomplished.

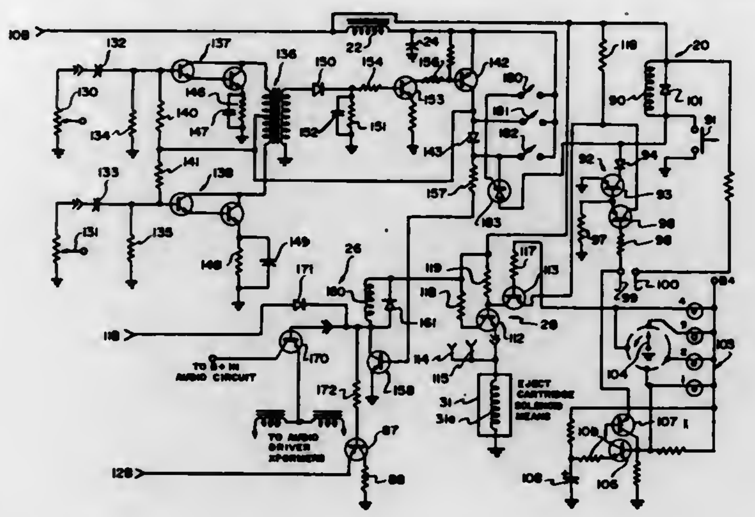
3,838,454

TAPE PLAYER CARTRIDGE CONTROL CIRCUIT

William B. Huber, Park Forest, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Division of Ser. No. 80,263, Oct. 13, 1970, abandoned. This application Oct. 5, 1972, Ser. No. 295,151
Int. Cl. G11b *5/00*

U.S. Cl. 360—71 **5 Claims**



A tape player cartridge control system includes a speed control for operating the drive motor which transports the tape within a cartridge at a fixed speed, and includes circuit means to effect a fast forward condition of the tape under selected conditions when it is desired to advance the tape quickly to the next prerecorded selection on the tape. The speed control utilizes square waves from a one-shot multivibrator and square waves from an amplifier stage, and both square wave signals are applied out-of-phase to a matrix. When both square wave signals are of the same frequency, the output of the matrix is zero and the motor will run at a preset constant speed. The control system also includes an ejector circuit which automatically ejects the tape cartridge in accordance with an AND logic arrangement that occurs when the tape head is in the last track condition and the end-of-travel of the tape in the cartridge is sensed by a pair of contacts.

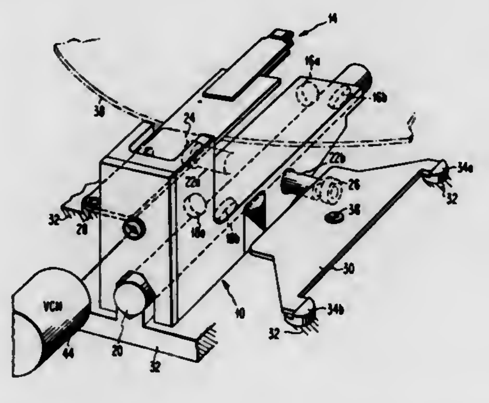
3,838,455

HEAD CARRIAGE ASSEMBLY FOR MAGNETIC DISK STORAGE APPARATUS

Cecil Percy Barnard, Los Gatos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 5, 1973, Ser. No. 338,119
Int. Cl. G11b *5/52*

U.S. Cl. 360—78 **9 Claims**



A carriage assembly, useful in magnetic disk apparatus that employs movable accessing head assemblies, includes a channel-shaped body having paired angularly disposed bearings which ride on a cylindrical guide support rod. A high degree of stability is achieved by a sprung way that provides preload forces at one side of the carriage, and a fixed way at the other side of the carriage.

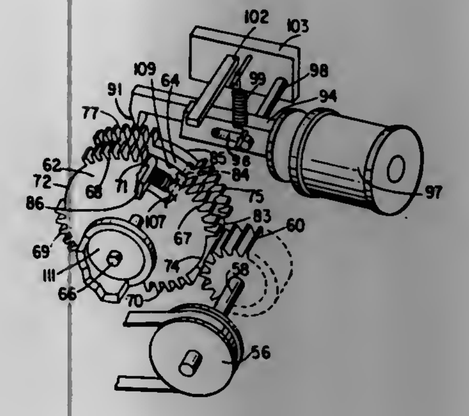
3,838,456

TAPE HEAD INDEXING AND SHIFTING APPARATUS

Thomas C. Cayton, Jr., Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Division of Ser. No. 186,160, Oct. 4, 1971, Pat. No. 3,781,018. This application May 14, 1973, Ser. No. 359,654
Int. Cl. G11b *21/08, 23/04*

U.S. Cl. 360—78 **8 Claims**



Apparatus utilizing the capstan flywheel of a multitrack tape recorder and/or reproducer to power apparatus for shifting the transducer head from one tape track to another, including gear means linking the flywheel to the cam which shifts the position of the transducer head, and a solenoid activated at the end of a tape track, causes engagement of the gear linkage, and means for automatically disengaging the shifting apparatus after the transducer head has been shifted and readying the same for future shifting.

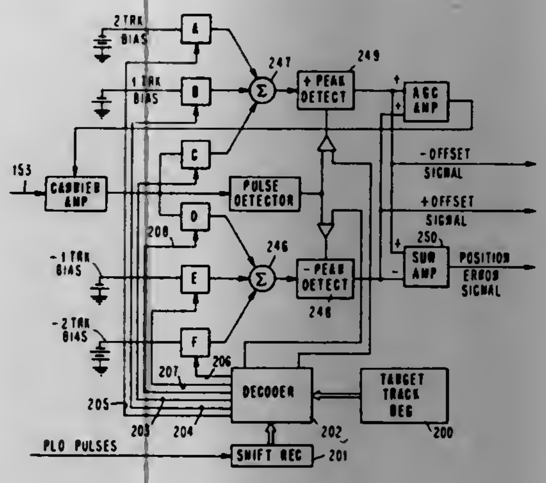
3,838,457

TRACK SEEKING AND FOLLOWING SERVO SYSTEM

Ronald S. Palmer, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed July 5, 1973, Ser. No. 376,775
Int. Cl. G11b *5/48*

U.S. Cl. 360—78 **6 Claims**



In a magnetic disk recording device, a track following system for detecting servo signals to distinguish one track from another within a repeating group of tracks and to add a biasing signal to said detected signal whenever the transducing head is located more than one-half track from the target track. Means for producing a position error signal of linear slope over the group number of tracks is disclosed enabling the electrical offsetting of the transducing head up to one-half the group number of tracks by modifying the position error signal. Seeking means are provided to rapidly move the transducing head toward the target track from a position more than plus or minus one-half the group number of tracks and means are provided for counting the group number and the track number within the group.

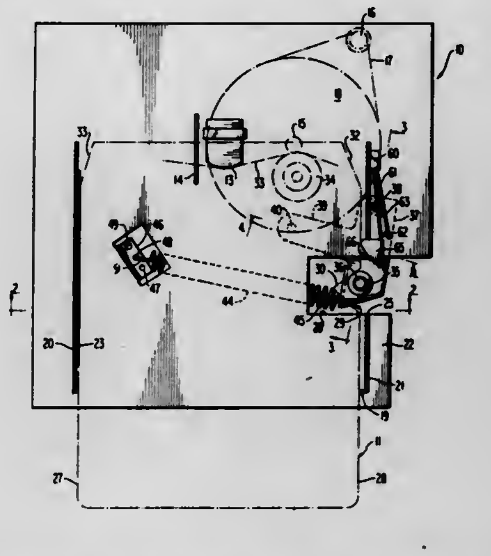
3,838,458

MAGNETIC TAPE REPRODUCING APPARATUS

Makoto Nakagome, and Shohgo Takeuchi, both of Kawagoe, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed June 7, 1972, Ser. No. 260,634
Int. Cl. G11b *5/00*

U.S. Cl. 360—93 **6 Claims**



A retention means for holding a tape cartridge in the play position in a tape player is mounted on a pivoted plate and is urged into engagement with a recess in the side of the cartridge by an elongated helical coil spring of low spring constant. A motor actuation switch is operated by the cartridge during insertion at a point in advance of the play position, so that the tape drive capstan has accelerated to operating speed when the cartridge arrives at the play position.

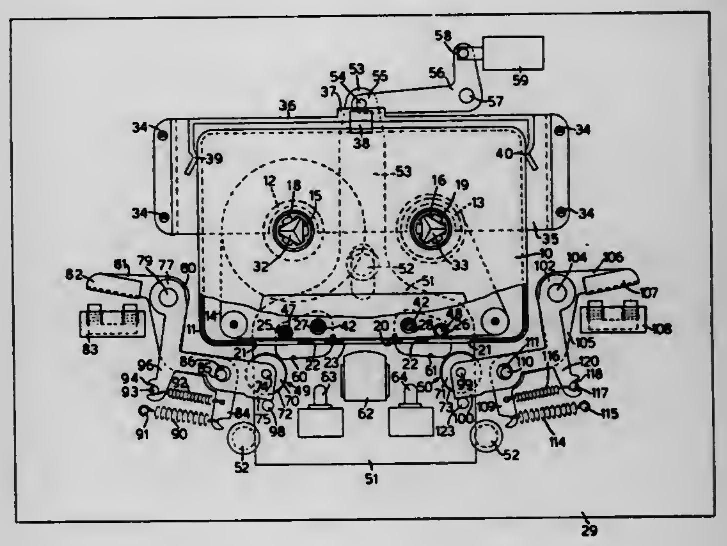
3,838,459

APPARATUS FOR RECORDING AND/OR PLAYING BACK A MAGNETIC TAPE CONTAINED IN A CASSETTE

Giuseppe Bettini, Ivrea, and Carlo Romano, Dora, both of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

Filed Jan. 26, 1972, Ser. No. 220,992
Claims priority, application Italy, Jan. 28, 1974, 67277/71
Int. Cl. G11b *15/26*

U.S. Cl. 360—96 **9 Claims**

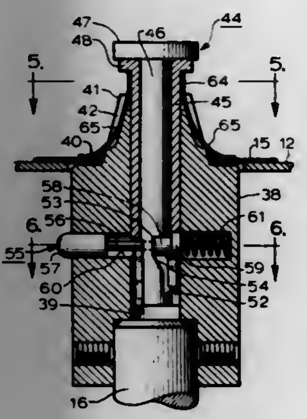


The apparatus is used for recording and/or playing back a magnetic tape contained in a cassette provided with locating holes extending through its thickness and with apertures disposed along at least one of its edges through which the exposed tape can be engaged by the elements entraining the tape and by a transducer. The apparatus comprises a supporting chassis on which are mounted the entraining elements, the transducer and means adapted to locate the tape cassette on the chassis by acting on the outer faces of the cassette and on the locating holes. The entraining elements consist of a first and a second pair of rollers, each pair comprising a driving and a driven roller, each pair acting selectively to transport the tape forward and backward respectively. The apparatus further comprises an actuating device adapted to move both the driven rollers simultaneously into the proximity of the respective driving rollers and to move the transducer into contact with the tape, and a selectively actuable mechanism for bringing the selected driven roller into pressure contact with the respective driving roller. Means are also provided for imparting a rotary movement to the selected driving roller after it has been engaged by the corresponding driven roller.

3,838,460
VIDEO DISK LATCHING HUB ASSEMBLY

David S. Stewart, Palatine, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed July 2, 1973, Ser. No. 375,586
Int. Cl. G11b *5/82, 17/00, 25/04*
U.S. Cl. 360—99 **10 Claims**

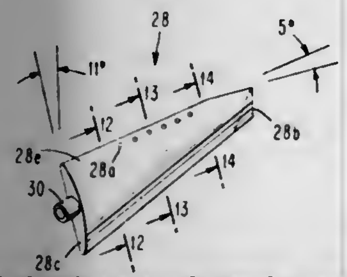


Apparatus for releasably securing a video disc for playback includes a hub having an axial bore and means for supporting and indexing the disc. A post is journalled within the hub bore for axial displacement between an elevated quiescent position and a depressed actuated position. The post includes a detent which is engageable by a latch to releasably captivate the post when it is displaced to its actuated position. A biasing arrangement, in the form of multiple spring fingers, is coupled to the post and engageable with an indexed disc when the post is displaced to its actuated position to secure the disc upon the hub. The spring fingers also serve to return the post to its quiescent position when the latch and detent are disengaged.

3,838,461
AERODYNAMIC PARTITIONING MECHANISM FOR RANDOM ACCESS MEMORY WITH FLEXIBLE ROTATING DISCS

Raymond A. Barbeau; Bernard W. McGinnis, and James A. Weidenhammer, all of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 2, 1973, Ser. No. 375,987
Int. Cl. G11b *15/00*
U.S. Cl. 360—99 **10 Claims**

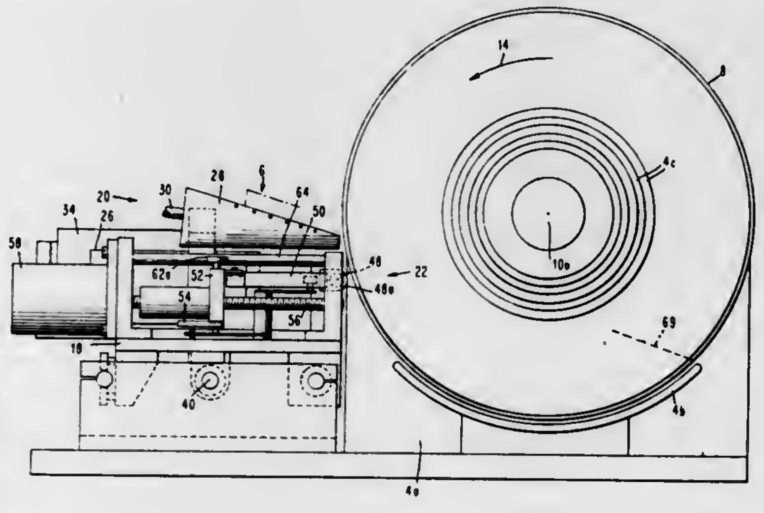


A blade with distinctive aerodynamic contours partitions the rotational path of a laminar configuration of continuously rotating flexible magnetic disc foils at randomly selected disc interface positions. The blade thrusts deeply into the pack with distinctively skewed motion gradually and progressively distorting the rotational path of the encountered random segment of discs. Air circulating under slight pressure through passages in the blade into the interface opening formed by the blade operates to suppress fluttering of the discs in the complementary (undeformed) segment.

3,838,462
PARTITIONABLE DISC MEMORY WITH FLEXIBLE DISCS AND CONFORMALLY SUSPENDED HEAD

Raymond A. Barbeau; Bernard W. McGinnis, both of Poughkeepsie; Anthony W. Orlando, Highland, and James A. Weidenhammer, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 2, 1973, Ser. No. 375,989
Int. Cl. G11b *15/00*
U.S. Cl. 360—99 **13 Claims**

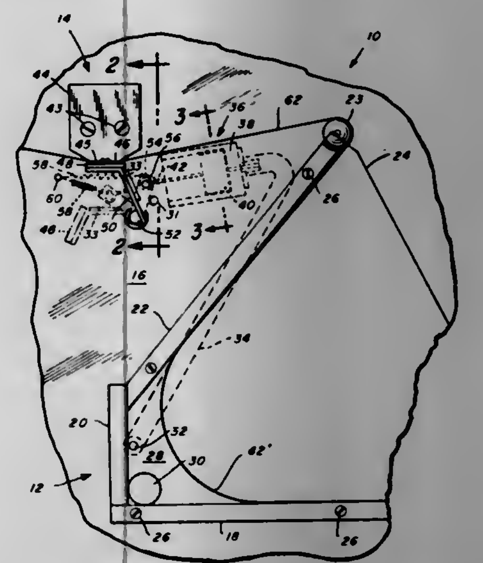


Normally confined record surfaces of ultra-thin continuously rotating flexible magnetic record discs (nominal thickness 0.0017 inches), arranged in a laminar configuration of several hundred aggregately deformable discs, are accessed by aerodynamically stabilized flexure. The rotational path is partitioned by an axially translated airfoil blade at axial interface positions between randomly selected discs, and a semirigidly suspended contoured head is positioned independently of the partitioning blade in compliant relation to the surface of revolution traced by a disc surface at the interface. That surface conforms intimately to the convex head contour, separated from the head only by a very thin hydrodynamically generated air film. The arrangement thus provides high lineal density of bit recording. Tendency of the partitioned discs to flutter during the partitioning action and thereby potentially interfere with or delay positioning of the head, is counteracted by specific design features of the disclosed partitioning and stabilizing assemblies. The conformal position of the head is established at a peripheral zone of the interface record surface and glides radially to a selected track position of the record without interruption of the conformal relation. The aggregate assembly is characterized by volumetric efficiency (recording bit densities in excess of 10^{10} bits in a volume of 250 cubic inches) and access efficiency (1 sec). Plural partitioning and transducing mechanisms can be associated with a single pack; either as stand-by redundant elements or to provide access to record surfaces on opposite sides of partition interfaces. Plural packs are aggregatable on a common spindle or on separate spindles.

3,838,463
AUTOMATIC FLUX SHIELD ENGAGEMENT MECHANISM

Floyd R. Ysbrand, Tulsa, Okla., assignor to Telex Computer Products, Inc., Tulsa, Okla.

Filed Jan. 7, 1972, Ser. No. 216,092
Int. Cl. G11b *5/48, 21/24*
U.S. Cl. 360—128 **5 Claims**



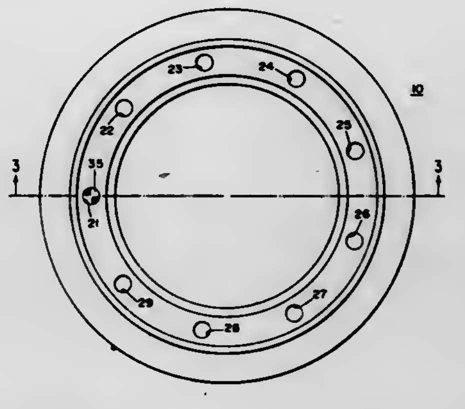
This invention relates to improvements in magnetic tape transport mechanisms and provides an automatic means for engaging a flux shield to the back of the magnetic tape while it is in contact with the magnetic head assembly. An engagement mechanism is mounted for movement of the shield between two positions, a first position in which the shield is adjacent the back of the magnetic tape and a second position in which the flux shield is removed from the vicinity of the magnetic tape. A vacuum actuator is used to control the position of the flux shield. The actuator is responsive to the low pressure in the vacuum pocket of a vacuum column. When vacuum is applied to the vacuum column and tape is drawn into the column, the lowered pressure within the vacuum pocket is communicated by conduit means to the actuator, which moves to a first position where it moves the flux shield to its first position. When the vacuum is removed, the actuator moves the flux shield to its second position.

3,838,464
RETAINING RING FOR MAGNETIC DISC PACK ASSEMBLY

Daniel C. Doyle, Nashua, N.H., assignor to Nashua Corporation, Nashua, N.H.

Filed Oct. 24, 1972, Ser. No. 300,160
Int. Cl. G11b *25/00*
U.S. Cl. 360—137 **5 Claims**

An improved annular retaining ring in a rotating disc pack assembly of a magnetic disc memory system. A plurality of cavities for counterbalance weights are provided in a uniform angular distribution about the center point of the retaining ring. The cavities are inset from the outer boundary in a top surface of the retaining ring so that all spatial points within the cavities are a lesser distance from the center of the ring than any point included in the outer boundary of the top surface.

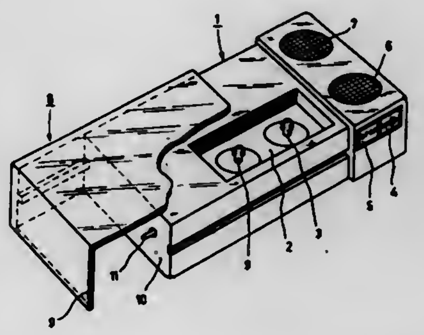


Counterbalance weights are inserted in the appropriate ones of the cavities to offset otherwise present unbalanced moments about the axis of rotation and minimize dynamic instability in the rotating disc pack assembly.

3,838,465
RECORDING AND/OR PLAYBACK APPARATUS WITH BATTERY INDICATION CONTROLLED BY COVER POSITION

Karl Fischer, and Anton Muller, both of Vienna, Austria, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 16, 1973, Ser. No. 360,772
Claims priority, application Germany, May 25, 1972, 7219613
Int. Cl. G11b *5/00;* **H01m** *31/04;* **G01n** *27/42*
U.S. Cl. 360—137 **2 Claims**

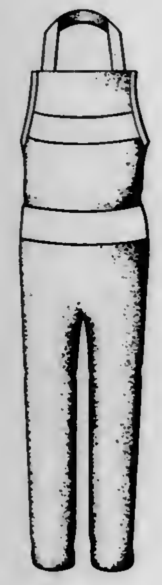


A recording and/or playback apparatus for battery operation having an indicator for battery voltage testing, which can be switched on and off by means of a switching element comprising a sensor which is actuated by means of a movable cover for a cassette compartment, the indicator being switched on, or being switched to stand by and subsequently switched on by operating one of the controls of the apparatus, when the cover is in the opened position.

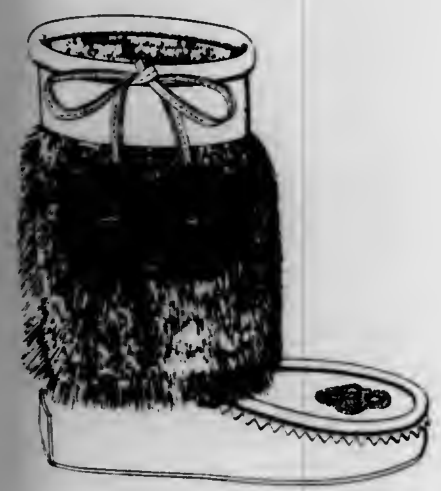
DESIGNS

SEPTEMBER 24, 1974

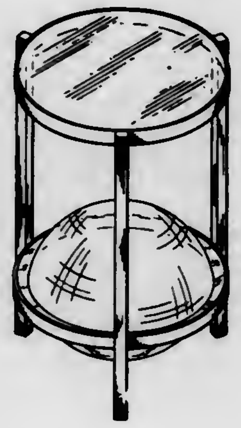
232,875
SAFETY OVERALL
Leonard Gregory Johnson, San Rafael, Calif., assignor to Safe-T-All Corporation
Filed Feb. 9, 1972, Ser. No. 225,024
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—29



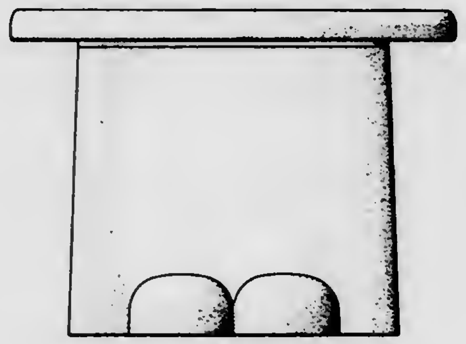
232,876
BOOT
David Cupples and Eleanor Cupples, both of 823 Broadway Ave., Saskatoon, Saskatchewan, Canada
Filed June 1, 1972, Ser. No. 258,929
Claims priority, application Canada Dec. 2, 1971
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—272



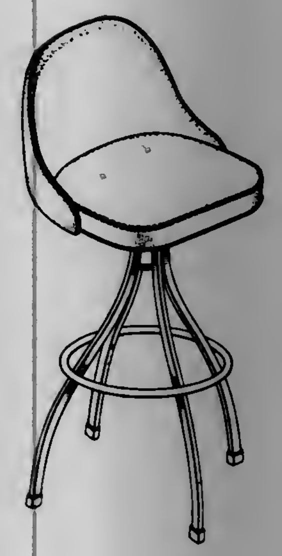
232,877
COMBINED TABLE AND TERRARIUM
Lynn H. Kephart, 2109 Skylark St., Arlington, Tex. 76010
Filed July 3, 1972, Ser. No. 268,283
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—3



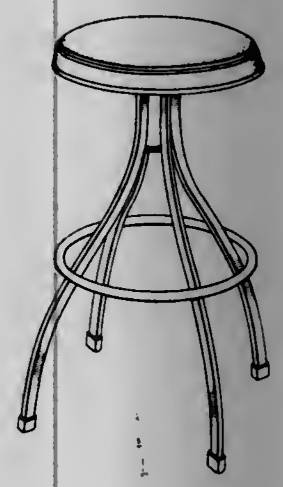
232,878
CHILD'S TABLE
Jerrold J. Krumholz, West Orange, Herbert H. V. Reisgen, Westfield, and George C. Kress, Union, N.J., assignors to Kusan, Inc., Nashville, Tenn.
Filed Mar. 30, 1973, Ser. No. 346,665
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—5



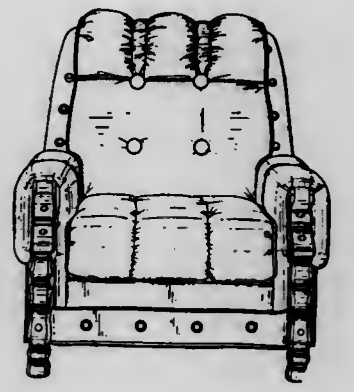
232,879
STOOL
Clair A. Samhammer, Orange, Calif., assignor to Samsonite Corporation, Denver, Colo.
Filed Jan. 12, 1973, Ser. No. 323,054
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—35



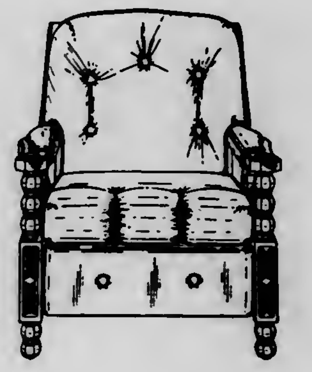
232,880
STOOL
Clair A. Samhammer, Orange, Calif., assignor to Samsonite Corporation, Denver, Colo.
Filed Jan. 12, 1973, Ser. No. 323,053
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—35

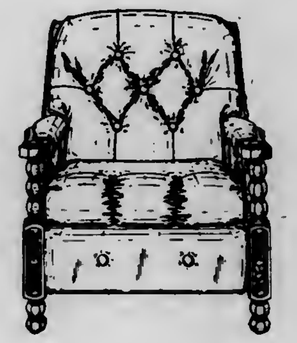


232,881
CHAIR
Stapleton Long, 1629 Christmas Drive, Morristown, Tenn. 37814
Filed Feb. 20, 1973, Ser. No. 334,147
Term of patent 3½ years
Int. Cl. D6—*01*
U.S. Cl. D6—37



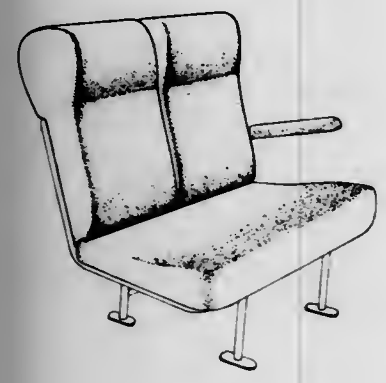
232,882
CHAIR
Stapleton Long, 1629 Christmas Drive, Morristown, Tenn. 37814
Filed Feb. 20, 1973, Ser. No. 334,146
Term of patent 3½ years
Int. Cl. D6—*01*
U.S. Cl. D6—39





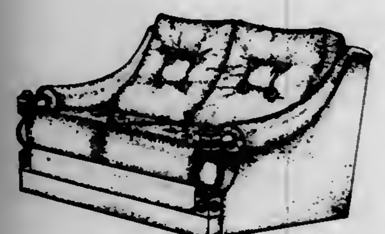
232,883
SEAT

Basil Louis Macnab, 178 Bell St.,
Ingersoll, Ontario, Canada
Filed Aug. 15, 1972, Ser. No. 280,860
Claims priority, application Canada July 4, 1972
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—48



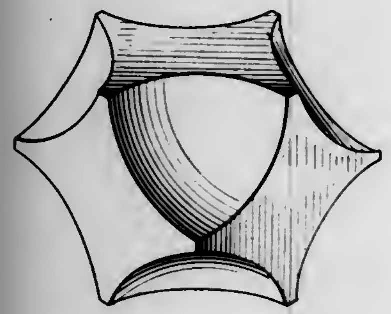
232,884
SEAT

Howard I. Niederman, 3757 S. Ashland Ave.,
Chicago, Ill. 60609
Filed Aug. 23, 1972, Ser. No. 283,187
Term of patent 3½ years
Int. Cl. D6—*01*
U.S. Cl. D6—63



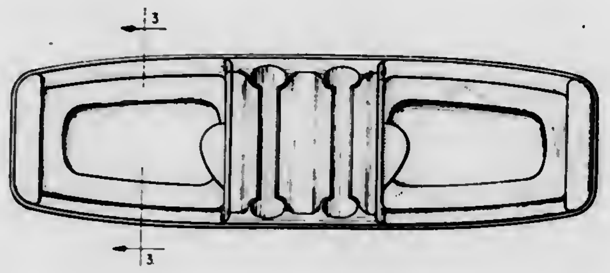
232,885
BOOKEND

Jerry L. Cramer, Watchung, N.J., assignor to
Texasgulf, Inc.
Filed Aug. 14, 1972, Ser. No. 280,676
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—106



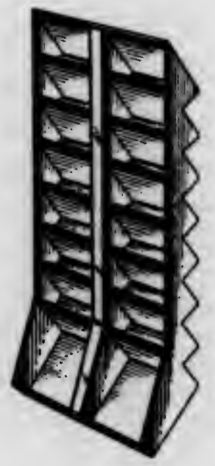
232,886
COMBINED SKI AND SKI POLE RACK

Robert J. Borraccio, 7720 Stenton Ave.,
Philadelphia, Pa. 19118
Filed June 21, 1972, Ser. No. 264,709
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—114



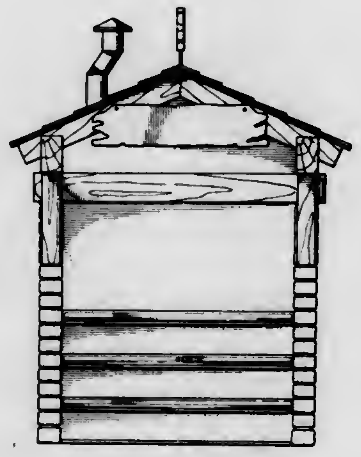
232,887
STAMP CASE

Takaji Funahashi, 1, 2-chome, Kitatakajo-mochi, Nishi-
ku, Nagoya-shi, Aichi-ken, Japan
Filed Jan. 30, 1973, Ser. No. 328,141
Claims priority, application Japan Aug. 31, 1972
Term of patent 14 years
Int. Cl. D20—*02;* D6—*99*
U.S. Cl. D6—130



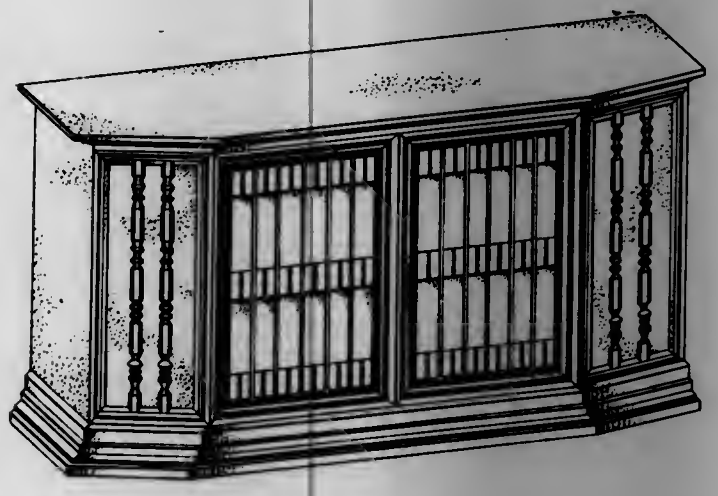
232,888
DISPLAY STAND

Delmer D. McCommon, Newport Beach, Calif., assignor
to Packers Bar M Meat Co., Los Angeles, Calif.
Filed Nov. 13, 1972, Ser. No. 305,703
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—153



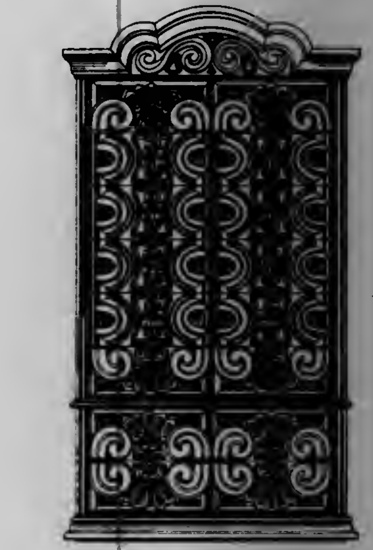
232,889
CABINET

Robert Levine, Roslyn, N.Y., assignor to Capehart
Corporation, New York, N.Y.
Filed May 31, 1972, Ser. No. 258,475
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—154



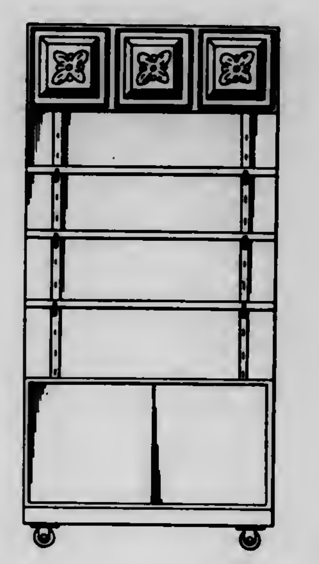
232,890
LINGERIE CHEST OR SIMILAR ARTICLE

Huey T. Keller, High Point, N.C., assignor to Gillespie
Furniture Company, Los Angeles, Calif.
Filed Dec. 15, 1972, Ser. No. 315,596
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—154



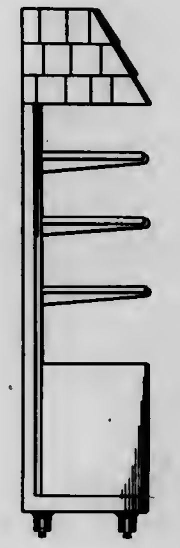
232,891
DISPLAY FIXTURE

Edwin C. Parrotte, Coral Gables, Fla., assignor to
Golf, Inc., Miami Springs, Fla.
Filed June 14, 1971, Ser. No. 152,932
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—186



232,892
DISPLAY FIXTURE

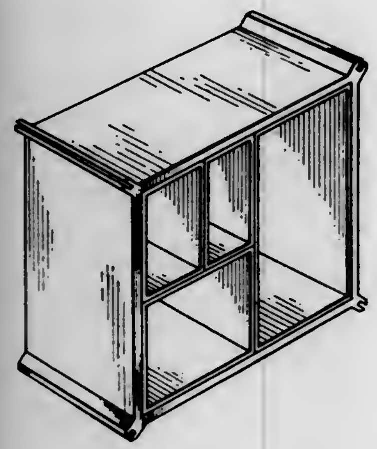
Edwin C. Parrotte, Coral Gables, Fla., assignor to
Golf, Inc., Miami Springs, Fla.
Filed June 14, 1971, Ser. No. 153,131
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—186

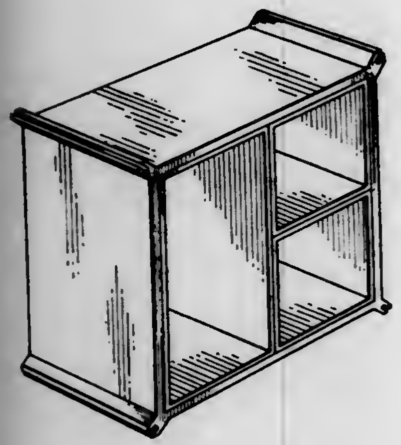


232,893

SHELF MODULE

Billy Moretini, Chicago, Ill., assignor to International Design Corporation, Chicago, Ill.
Original design application Nov. 10, 1971, Ser. No. 197,643, now abandoned. Divided and this application May 30, 1973, Ser. No. 365,160
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—189

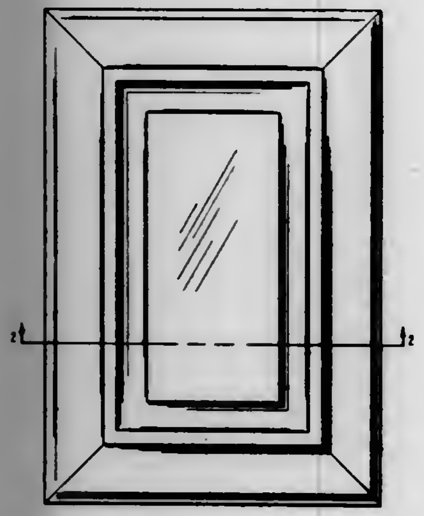




232,894

CABINET DOOR

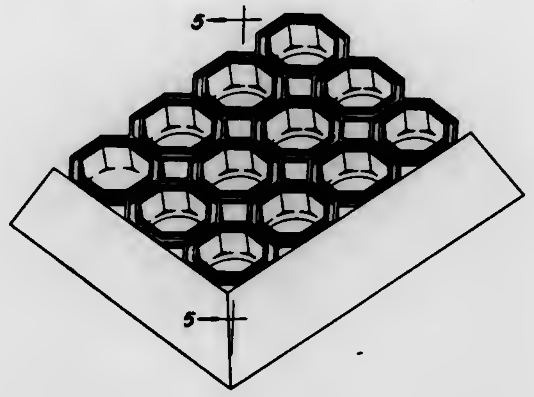
Warren A. Dillen, Louisville, Ky., assignor to H. J. Scheirich Company
Filed Sept. 6, 1972, Ser. No. 286,665
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—192



232,895

RUBBER MAT

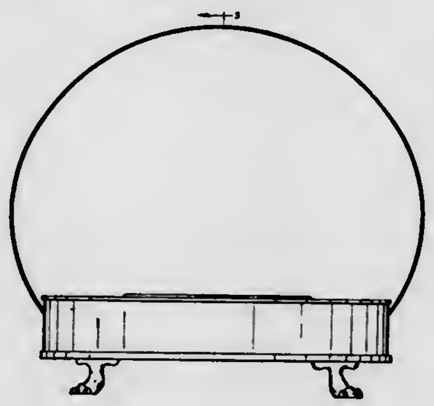
Arthur Bell, 12 Rogers Drive, Stoughton, Mass. 02072
Filed Aug. 3, 1972, Ser. No. 277,744
Term of patent 14 years
Int. Cl. D6—*11*
U.S. Cl. D6—209



232,896

TRAY FOR SUGAR CUBES AND CREAMER

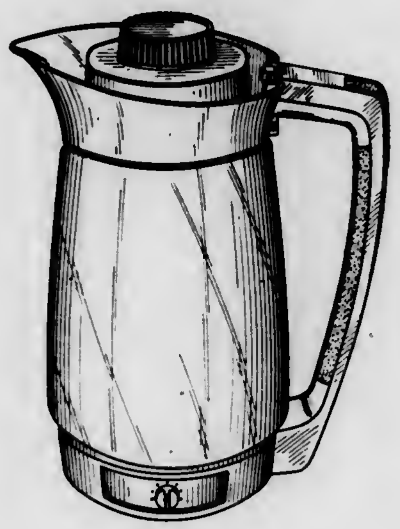
Marguerite H. Entler, 2096 Charnelton St., Eugene, Oreg. 97405
Filed Jan. 17, 1973, Ser. No. 324,500
Term of patent 7 years
Int. Cl. D7—*99*
U.S. Cl. D7—58



232,897

ELECTRIC PERCOLATOR

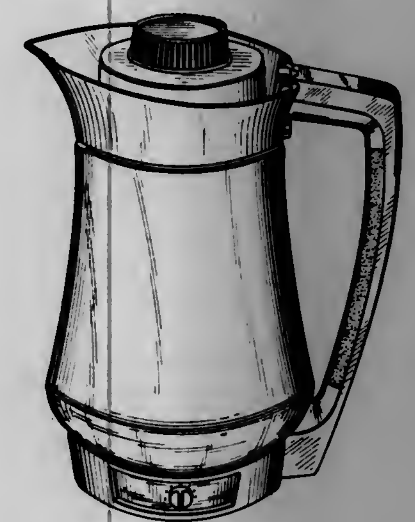
Ronald B. Kemnitzer, Lisle, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed Jan. 29, 1973, Ser. No. 327,364
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—62



232,898

ELECTRIC PERCOLATOR

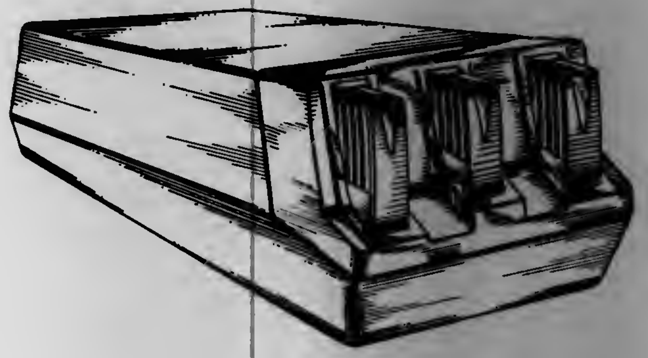
Bernard B. Bluestein, Des Plaines, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed Jan. 29, 1973, Ser. No. 327,365
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—62



232,899

COMBINED SCABBARD AND KNIFE SHARPENER

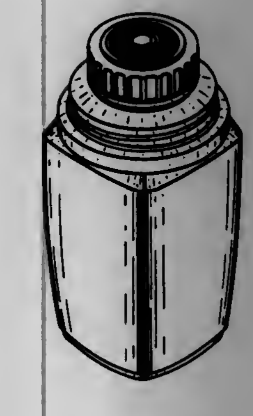
Peter K. Bayly, Melbourne, Victoria, Australia, assignor to Wiltshire Cutlery Company Proprietary Limited, Tottenham, Victoria, Australia
Filed Apr. 24, 1972, Ser. No. 247,239
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—74



232,900

INSULATED BOTTLE

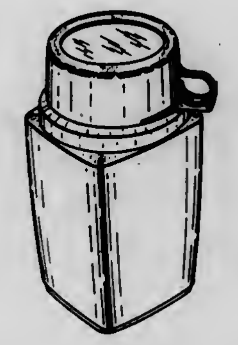
Vernon D. Bell, Westerly, R.I., and Charles L. Seltz, Ann Arbor, Mich., assignors to King-Seeley Thermos Co.
Filed Apr. 20, 1973, Ser. No. 352,942
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—77



232,901

INSULATED BOTTLE WITH ATTACHED CUP

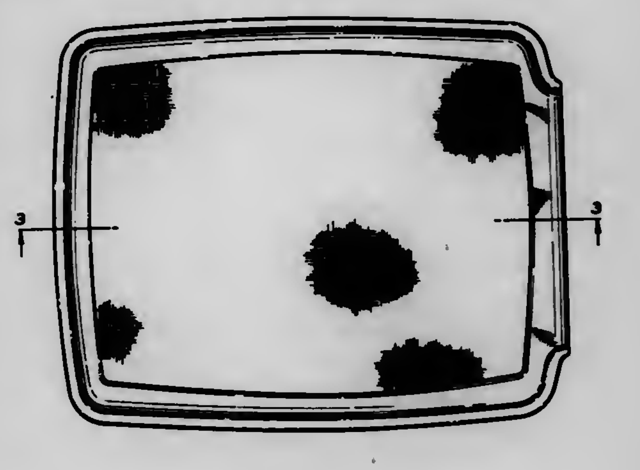
Vernon D. Bell, Westerly, R.I., and Charles L. Seltz, Ann Arbor, Mich., assignors to King-Seeley Thermos Co.
Filed Apr. 20, 1973, Ser. No. 352,943
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—77



232,902

DRAINER TRAY

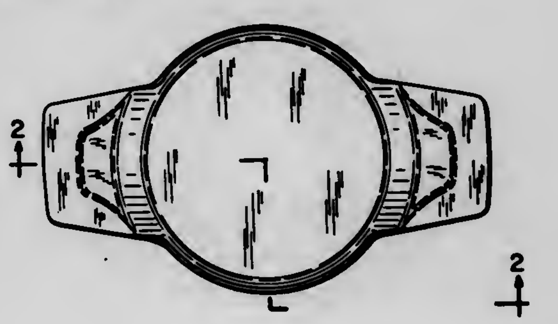
Charles F. Molzen, Yardley, Pa., assignor to Rubbermaid Sales Corp., Wooster, Ohio
Filed Nov. 1, 1972, Ser. No. 302,645
Term of patent 7 years
Int. Cl. D7—*99*
U.S. Cl. D7—188

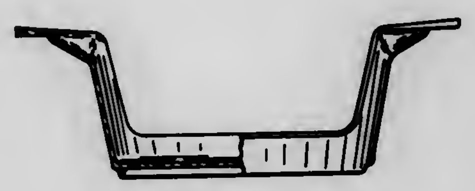


232,903

SUPPORTING CRADLE FOR A SERVING DISH OR THE LIKE

Glenn B. Beckman, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Mar. 19, 1973, Ser. No. 342,761
Term of patent 14 years
Int. Cl. D7—*01, 06*
U.S. Cl. D7—130

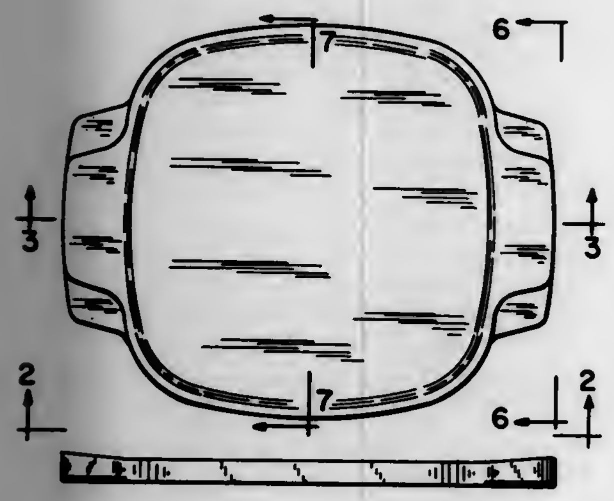




232,904
REMOVABLE COVER FOR CULINARY VESSELS

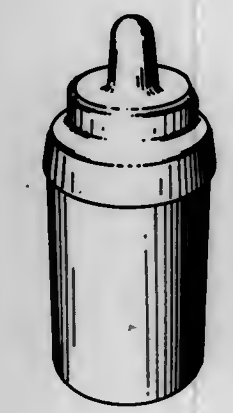
Richard W. Gregor, Corning, and J. Roger Joy, Horseheads, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Apr. 13, 1973, Ser. No. 351,017
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—131



232,905
BABY HAMPER

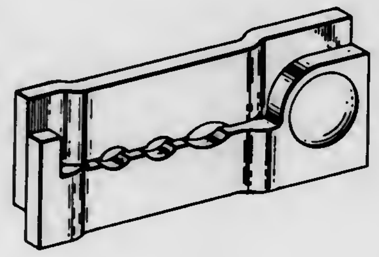
Jerrold H. Bailenson, 12883 Maison Ladue,
St. Louis, Mo. 63141
Filed Aug. 28, 1972, Ser. No. 283,905
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D7—163



232,906
CRIMPING TOOL

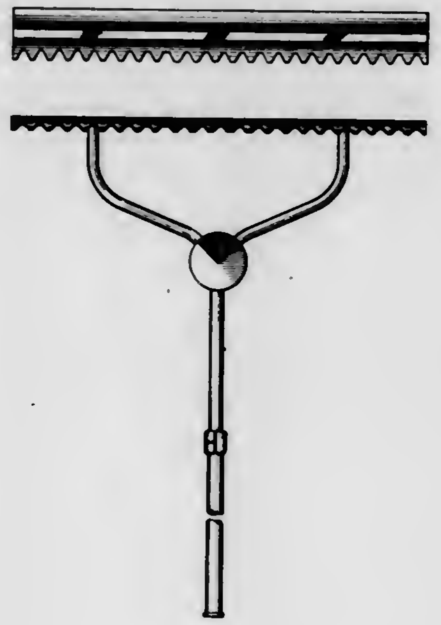
Gustaf Rudolph Lawson, Willingboro, N.J., assignor to AMP Incorporated, Harrisburg, Pa.

Filed June 8, 1972, Ser. No. 261,139
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—51



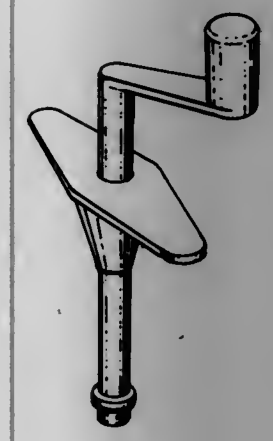
232,907
RAKE

Conrad A. Yankee, 103 Seaview Ave.,
West Haven, Conn. 06516
Filed July 23, 1973, Ser. No. 381,371
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—13



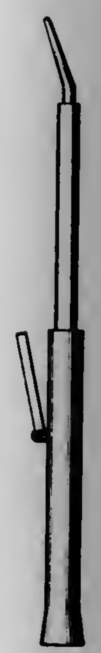
232,908
VALVE RESEATER

Martin Nathan Kaplan, 11610 Cantlay St.,
North Hollywood, Calif. 91605
Filed May 19, 1972, Ser. No. 255,307
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—59



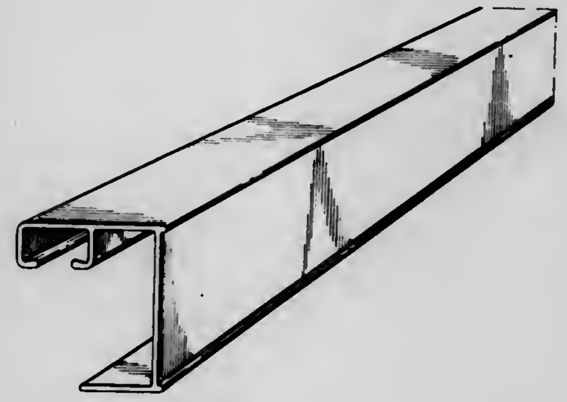
232,909
TELESCOPIC LEVERING TOOL FOR WINCHES AND CHAIN BINDERS

Robert R. Zeemin, Box 807, Albany, Oreg. 97321
Filed May 5, 1972, Ser. No. 250,861
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—88



232,910
TRACK RAIL FOR CURTAINS AND THE LIKE

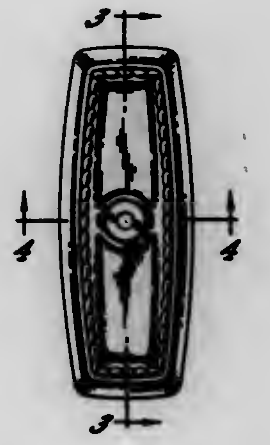
Jean-Pierre Duperrex, 44 Rue des Moulins,
Yverdon, Switzerland
Filed Feb. 5, 1973, Ser. No. 329,317
Claims priority, application Switzerland Aug. 4, 1972
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—208



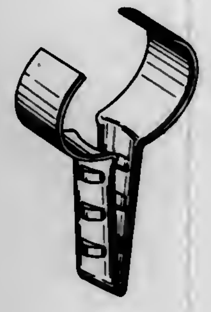
232,911
ESCUTCHEON PLATE

Raymond U. H. Tegner, Lodi, Wis., assignor to Amerock Corporation, Rockford, Ill.

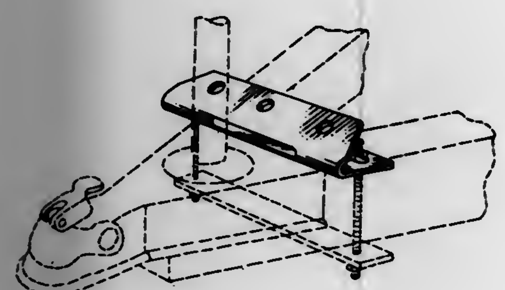
Filed Nov. 10, 1972, Ser. No. 305,325
Term of patent 14 years
Int. Cl. D8—*09*
U.S. Cl. D8—179



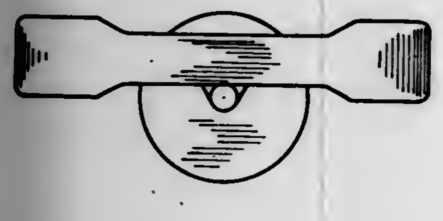
232,912
CABLE FASTENER
Torvald A. S. Hagelberg, Sparvstigen 6,
S-435 00 Molnlycke, Sweden
Filed Apr. 23, 1973, Ser. No. 353,518
Claims priority, application Sweden Oct. 23, 1972
Term of patent 7 years
Int. Cl. D8—*08*
U.S. Cl. D8—230



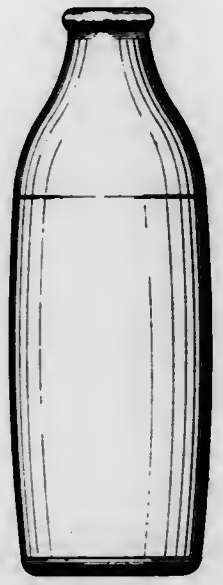
232,913
BRACKET FOR TRAILER SWAY CONTROL DEVICE
William L. Rendessy, 8028 N. 14th Place,
Phoenix, Ariz. 85020
Filed June 12, 1973, Ser. No. 369,262
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—236



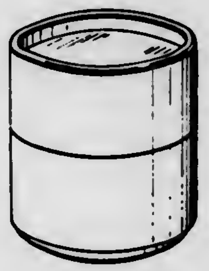
232,914
CHAIN ROLLER LINK
Vernon G. Kessler, 6747 Nebraska Ave.,
Omaha, Nebr. 68104
Filed May 15, 1972, Ser. No. 253,695
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D8—261



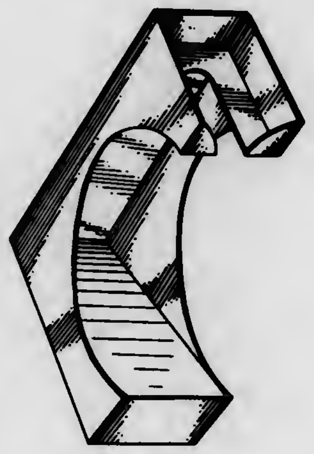
232,915
BOTTLE
Kurt Becker, Obernkirchen, Germany, assignor to
Hermann Heye, Obernkirchen, Germany
Filed Aug. 28, 1970, Ser. No. 24,746
Claims priority, application Germany Mar. 6, 1970
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—135



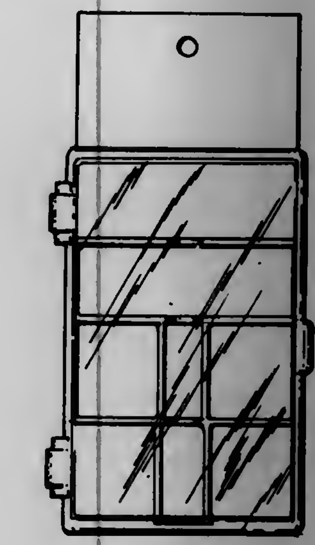
232,916
JAR OR THE LIKE
Franco Bettonica, Milan, Italy, assignor to
Perlier S.p.A., Milan, Italy
Filed May 30, 1972, Ser. No. 258,198
Claims priority, application Italy Mar. 22, 1972
Term of patent 7 years
Int. Cl. D9—*01*
U.S. Cl. D9—164



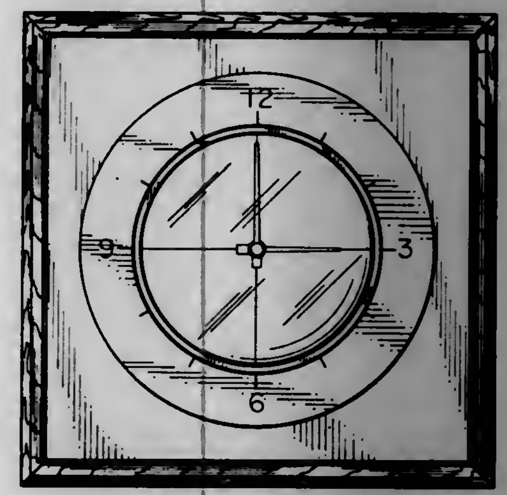
232,917
RAZOR HOLDER
William T. Vincent, 12 Gabriel Drive,
Bryans Road, Md. 20616
Filed May 22, 1972, Ser. No. 255,937
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—186



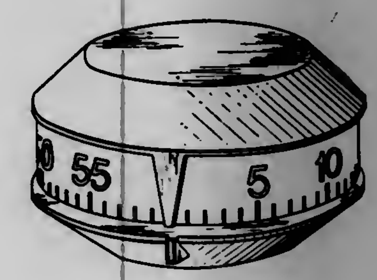
232,918
COMBINED PACKAGING AND DISPLAY CONTAINER
Martin Nathan Kaplan, 11610 Cantlay St.,
North Hollywood, Calif. 91605
Filed May 19, 1972, Ser. No. 255,308
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—191



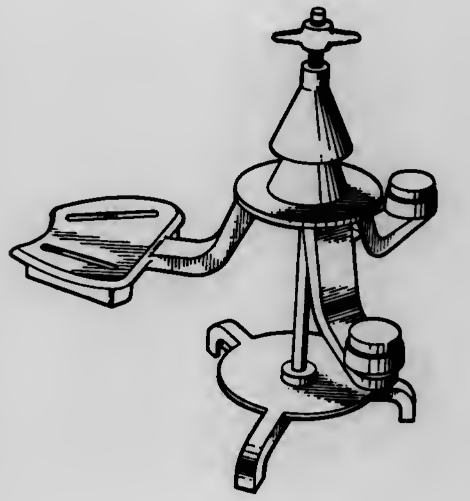
232,919
WALL CLOCK
John Cuccio, Westport, Conn., assignor to
Sybron Corporation, Rochester, N.Y.
Filed Nov. 15, 1971, Ser. No. 199,076
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—25



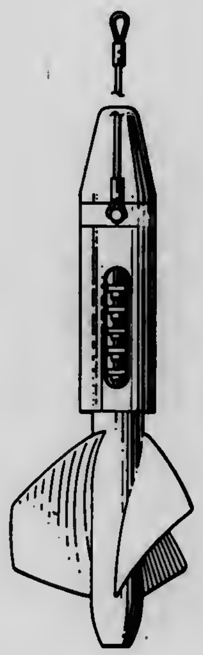
232,920
TIMER
Raoul E. Rodriguez, Denver, Colo., assignor to International Register Company, Spring Grove, Ill.
Filed Dec. 11, 1972, Ser. No. 313,975
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—40



232,921
WHEEL BALANCING UNIT
Andrew J. Saulnier, 10820 Woodfair Road,
Fairfax Station, Va. 22039
Filed Apr. 28, 1972, Ser. No. 248,782
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—82



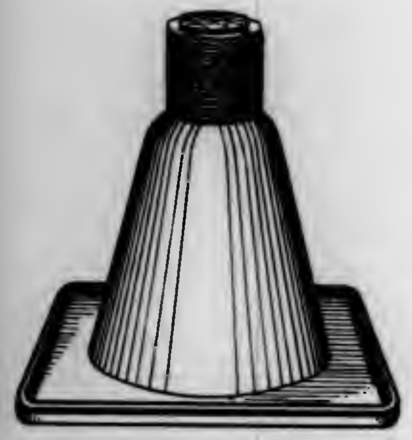
232,922
FLOW METER
Shale J. Niskin, 9400 SW. 63rd Court,
Miami, Fla. 33156
Filed Mar. 29, 1972, Ser. No. 239,404
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—96



232,923

ELECTRIC HIGHWAY EMERGENCY BEACON

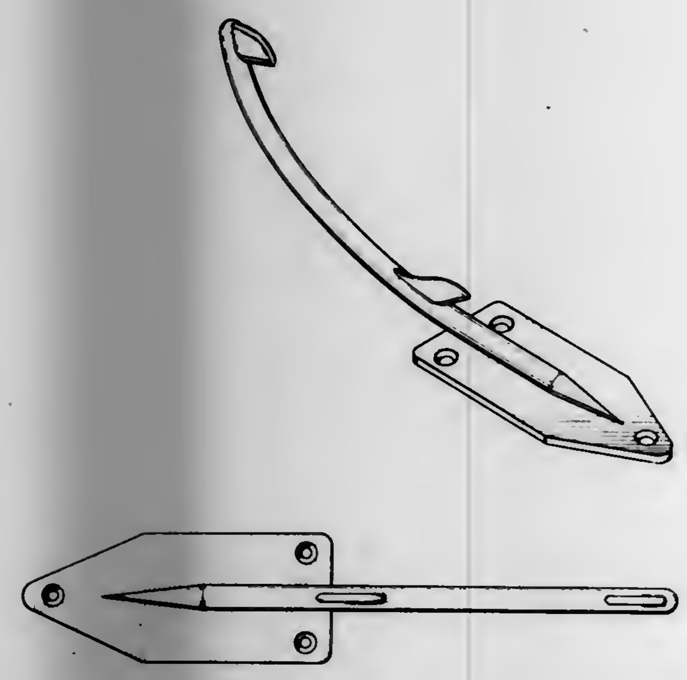
John K. Lawlor, 2080 E. Grand,
Escondido, Calif. 92027
Filed Nov. 7, 1972, Ser. No. 304,364
Term of patent 14 years
Int. Cl. D29—*02*
U.S. Cl. D10—114



232,924

VEHICULAR SAFETY DEVICE OR THE LIKE

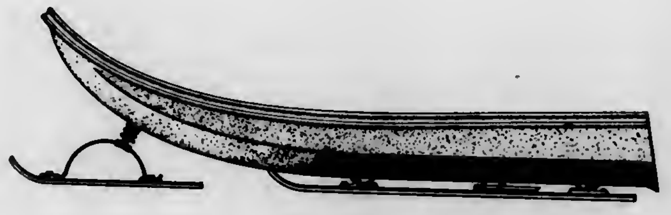
Kenneth D. Kramb, Portage, and Walter J. Isabell, Kalamazoo, Mich., assignors to K.I.C. Incorporated, Kalamazoo, Mich.
Filed Nov. 10, 1972, Ser. No. 305,366
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—7



232,925

SLED WITH SKI ATTACHMENTS

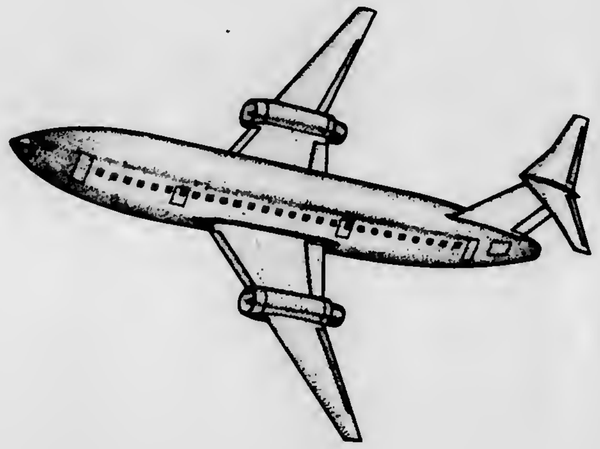
Richard W. Turner, 1786 Tubbs St.,
Thousand Oaks, Calif. 91360
Filed July 14, 1972, Ser. No. 271,734
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D12—9



232,926

AIRCRAFT

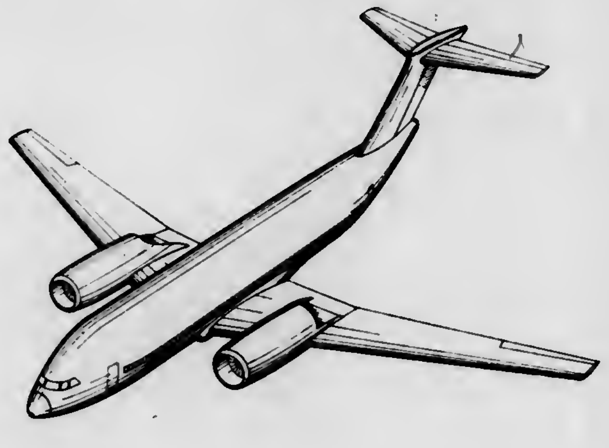
Lawrence Bernard Rellis, 10460 SW. 163rd St.,
Miami, Fla. 33157
Filed Mar. 20, 1972, Ser. No. 236,577
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D12—80



232,927

TWIN ENGINE-OVER-WING AIRPLANE

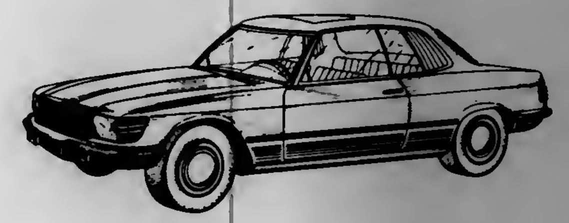
David G. Blattner, Mercer Island, and Robert H. Drinnon, Kent, Wash., and Stefano P. Ruocco, Chiavari, Italy, assignors to The Boeing Company, Seattle, Wash.
Filed Jan. 22, 1973, Ser. No. 325,286
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—80



232,928

AUTOMOBILE

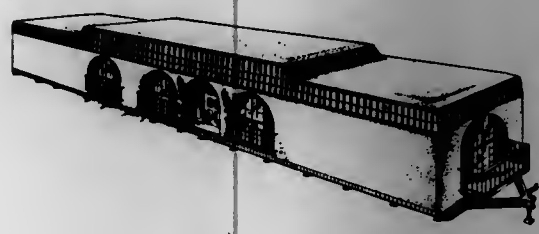
Karl Wilfert, Gerlingen-Waldstadt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany
Filed Mar. 10, 1972, Ser. No. 233,844
Claims priority, application Germany Sept. 10, 1971
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—92



232,929

MOBILE HOME

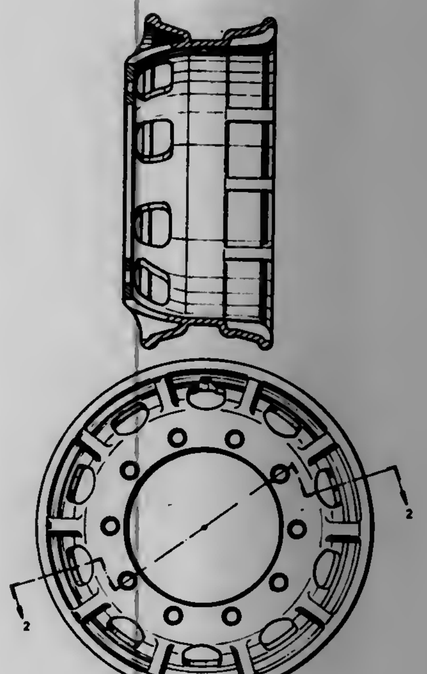
Leo F. Dufrechou, 4033 Veterans Blvd.,
Metairie, La. 70005
Filed May 29, 1973, Ser. No. 364,549
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D12—103



232,930

WHEEL

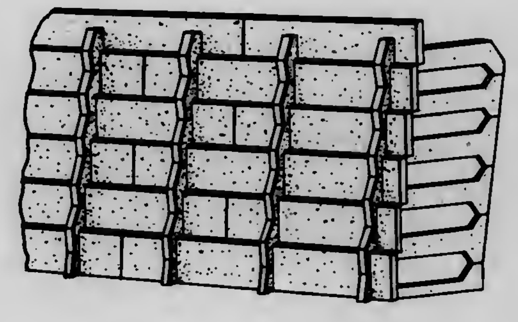
Michael Frederick Edwards, Wolverhampton, England, assignor to GKN Sankey Limited, Bilston, England
Filed Apr. 23, 1973, Ser. No. 353,239
Claims priority, application Great Britain Oct. 28, 1972
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—209



232,931

RETAINING WALL

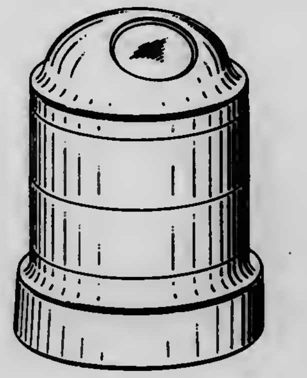
Bertram H. Hirsch, 4949 Paradise Drive,
Tiburon, Calif. 94920
Filed Oct. 20, 1971, Ser. No. 191,145
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D13—1 H



232,932

COMPARTMENTED RECEPTACLE DEVICE

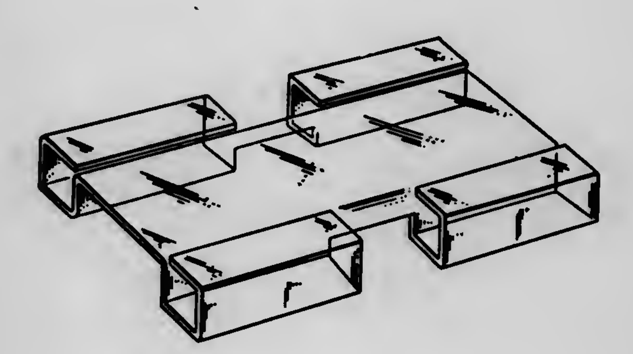
Alwin John Stahel II, New Brighton, Minn., assignor to The Holes-Webway Co., St. Cloud, Minn.
Filed Jan. 8, 1973, Ser. No. 321,763
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—75



232,933

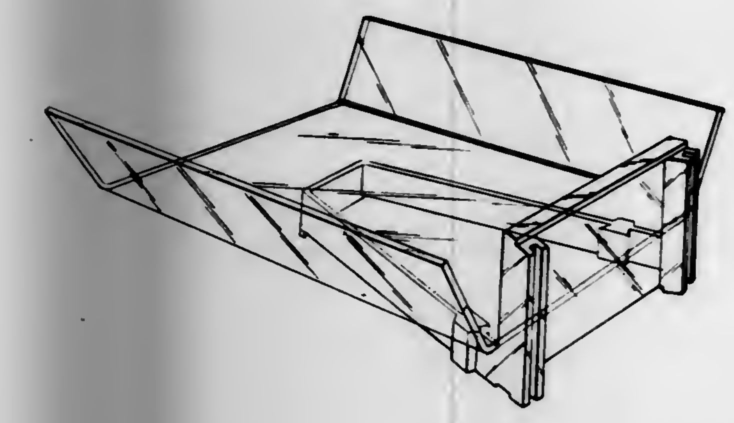
MAP HOLDER

Michel Pages, Dorchester Apts., 226 W. Rittenhouse Square, Philadelphia, Pa. 19103
Filed Jan. 26, 1972, Ser. No. 221,117
Term of patent 14 years
Int. Cl. D19—*99*
U.S. Cl. D19—89



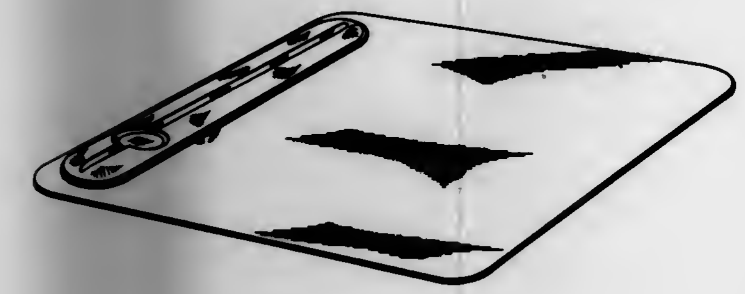
232,934
LETTER TRAY

Gordon Perry, Bayside, N.Y., assignor to Oxford Pendaflex Corporation, Garden City, N.Y.
Filed Sept. 28, 1972, Ser. No. 295,980
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—92



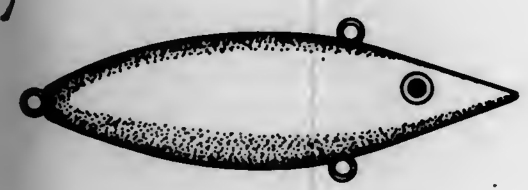
232,935
DESK PAD

Alwin John Stabel II, New Brighton, Minn., assignor to The Holes-Webway Co., St. Cloud, Minn.
Filed Jan. 10, 1973, Ser. No. 322,508
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—95



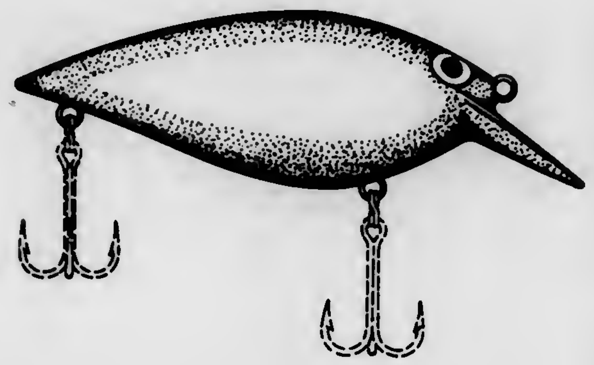
232,936
FISHING LURE

William D. Storm, Norman, Okla., assignor to Storm Plastics, Inc., Norman, Okla.
Filed Apr. 23, 1973, Ser. No. 353,434
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—28



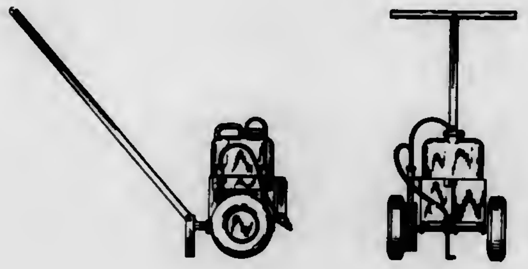
232,937
FISHING LURE

William D. Storm, Norman, Okla., assignor to Storm Plastics, Inc., Norman, Okla.
Filed May 8, 1973, Ser. No. 358,292
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—28



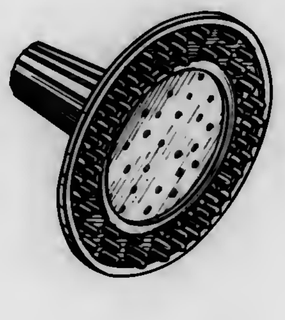
232,938
LIQUID SPRAYER

Mark A. Hettich, Dousman, and Charles P. Linskens, Delafield, Wis., assignors to Farm Better Service, Inc., Dousman, Wis.
Filed Nov. 20, 1972, Ser. No. 308,193
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—18



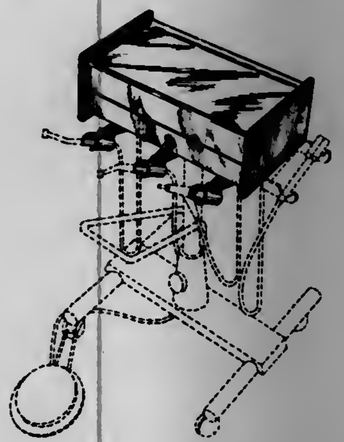
232,939
SPRAY HEAD

Leon M. Levy, Chicago, Ill., assignor to Selfix, Inc.
Filed Oct. 24, 1972, Ser. No. 301,213
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—35



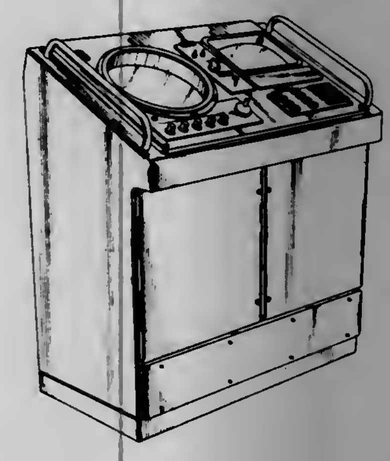
232,940
DENTAL ACCESSORY TABLE TOP

Beri N. Atkinson, Arvada, Colo., assignor to Teledyne, Inc., Los Angeles, Calif.
Filed Jan. 2, 1973, Ser. No. 320,269
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—1 B



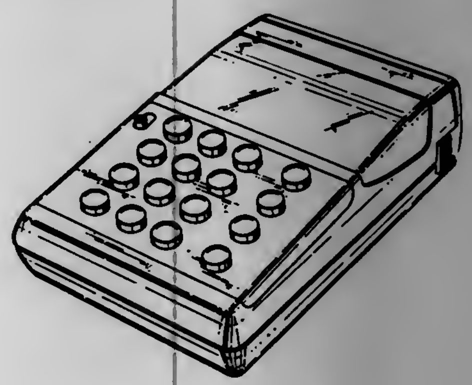
232,941
MARINE RADAR DATA PLOTTER

Myron F. Davis, Jr., Boca Raton, Fla., Walter Furlani, Poughkeepsie, N.Y., and Bernard N. Sassen, Pompano Beach, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 24, 1973, Ser. No. 400,447
Term of patent 14 years
Int. Cl. D14—*02, 03*
U.S. Cl. D26—5 C



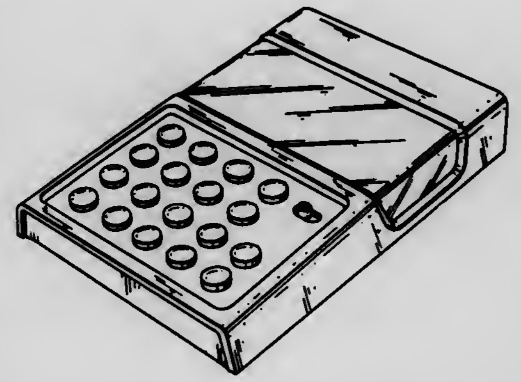
232,942
CALCULATING MACHINE

Hisashi Maeda, Nagaokakyo, Japan, assignor to Omron Tateisi Electronics Co.
Filed June 5, 1973, Ser. No. 367,189
Claims priority, application Japan Feb. 1, 1973
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C



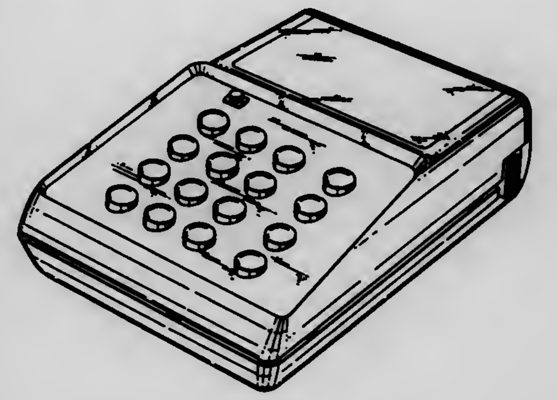
232,943
CALCULATING MACHINE

Hisashi Maeda, Nagaokakyo, Japan, assignor to Omron Tateisi Electronics Co.
Filed June 5, 1973, Ser. No. 367,188
Claims priority, application Japan Dec. 6, 1972
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C



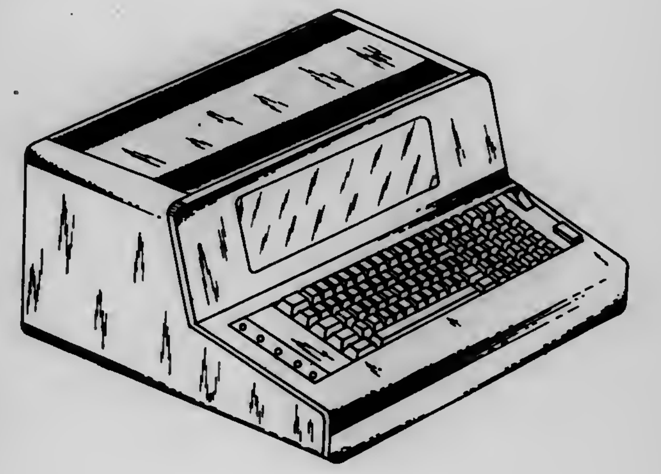
232,944
CALCULATING MACHINE

Hisashi Maeda, Nagaokakyo, and Hironori Yoshikawa, Osaka, Japan, assignors to Omron Tateisi Electronics Co., Ukyo-ku, Japan
Filed June 5, 1973, Ser. No. 367,350
Claims priority, application Japan Dec. 6, 1972
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C



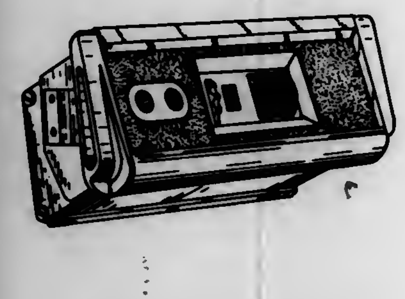
232,945
TELLER STATION

Ronald I. Conway, Port Ewen, Robert V. Jones, Kingston, and David L. Schaum, Woodstock, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 14, 1973, Ser. No. 370,178
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C



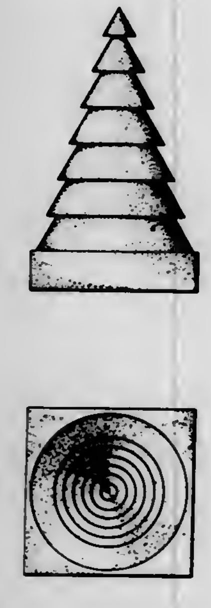
232,946
PASSENGER CONTROL BOX

Alan French, Warwick, R.I., and Joseph Machado, Attleboro, Mass., assignors to Avid Corporation, East Providence, R.I.
Filed May 14, 1973, Ser. No. 360,116
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13 R



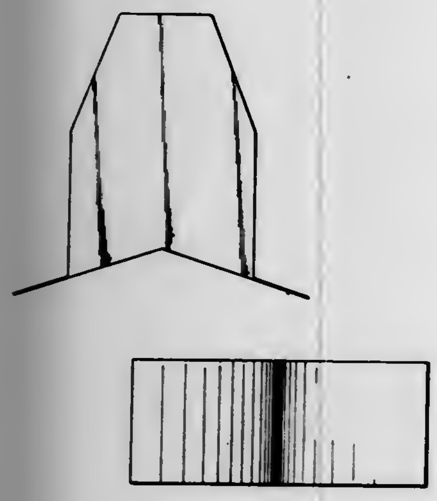
232,947
MINIATURE DECORATIVE TREE

William Christiansen, Jr., Palmetto, Fla., assignor to Snow Foam Products, Inc., El Monte, Calif.
Filed Sept. 21, 1972, Ser. No. 292,481
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D29—1 A



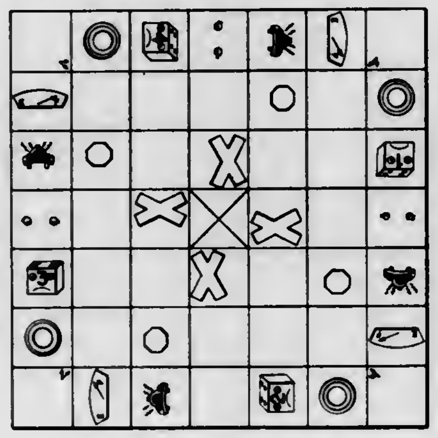
232,948
DOG EAR GROOMING HOLDER

Robert C. Morris P.O. Box 196, Bargersville, Ind. 46106
Filed Jan. 16, 1973, Ser. No. 324,152
Term of patent 14 years
Int. Cl. D30—*99*
U.S. Cl. D30—40



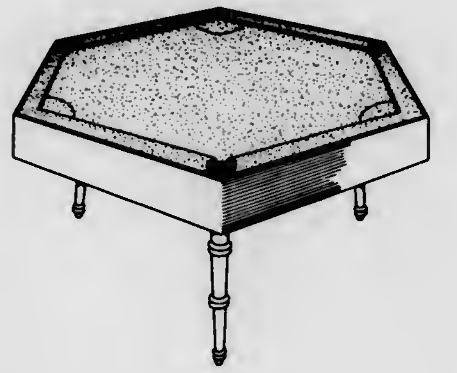
232,949
GAME BOARD

Paul K. Murphy, 9501 Corbin Ave., Northridge, Calif. 91324
Filed Apr. 21, 1971, Ser. No. 136,308
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 SS



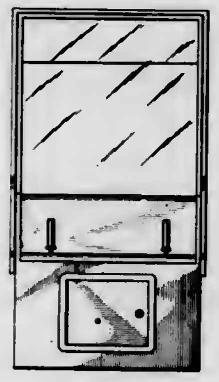
232,950
HEXAGONAL BILLIARD-TYPE TABLE

Frank James Casey, 11 Talofa Ave., East Ringwood, Victoria, 3135, Australia
Filed Sept. 5, 1972, Ser. No. 286,254
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—3



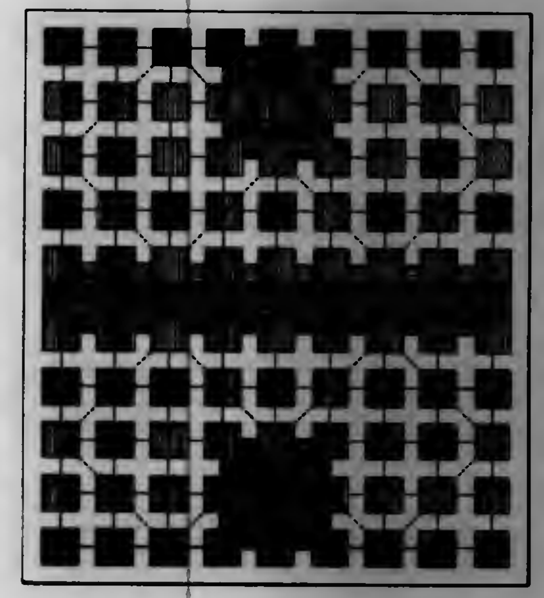
232,951
MANUALLY CONTROLLED REFLECTIVE PIN-BALL GAME CABINET

Ronald D. Halliburton, Miami, Fla., assignor to Allied Leisure Industries, Inc., Hialeah, Fla.
Filed Feb. 17, 1972, Ser. No. 227,341
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 JJ



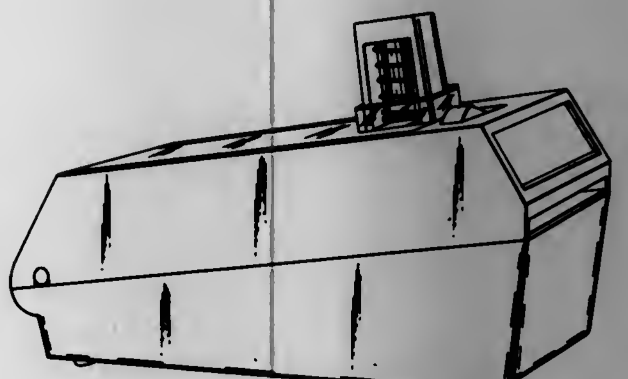
232,952
MANDARIN CHESSBOARD

Norman Chan, Elmhurst, N.Y., assignor to A.C. International Corp., New York, N.Y.
Filed June 16, 1972, Ser. No. 263,526
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 SS



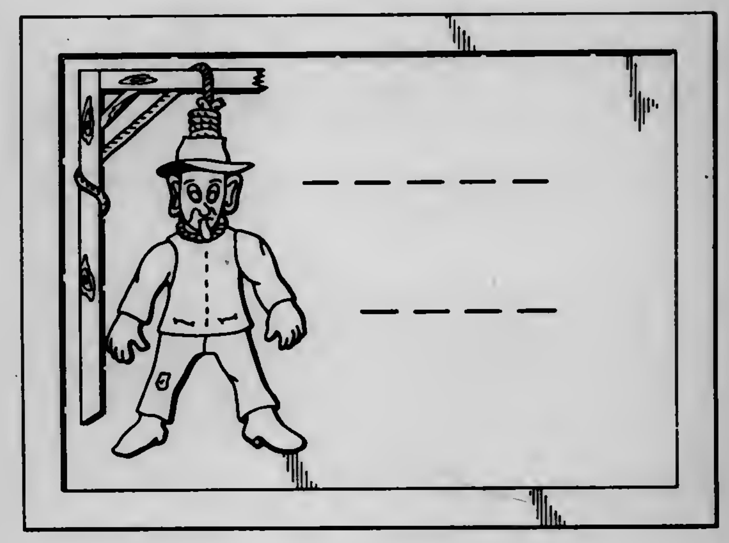
232,953
CARD DEALER

Shigeo Oguchi, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Tokyo, Japan
Filed Apr. 9, 1973, Ser. No. 349,549
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—13 A



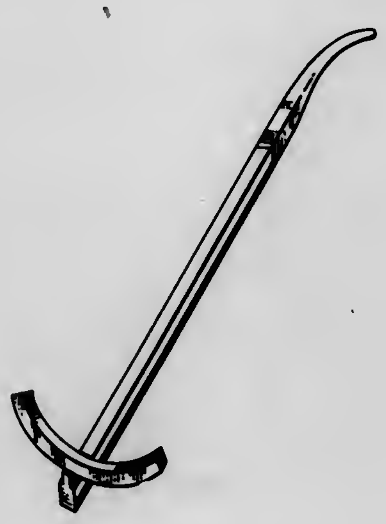
232,954
GAMEBOARD

Edward P. Zimmer, 27 Sterling Ave., Buffalo, N.Y. 14216
Filed Apr. 18, 1973, Ser. No. 352,188
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 SS

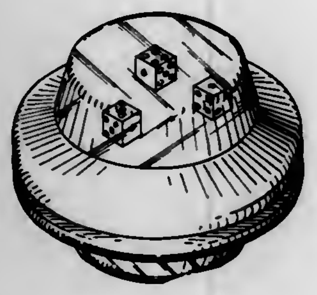


232,955
TOY HOOP ROLLER

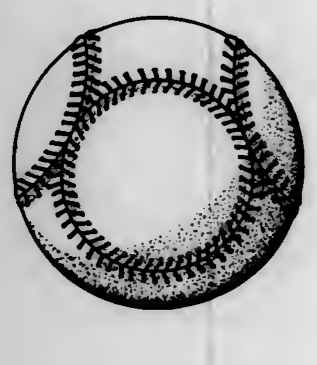
Gilbert W. Fiene, Jr., 7510 N. Highland, Gladstone, Mo. 64118, and Gary L. Protenic, 6917 NW. Coronado, Parkville, Mo. 64152
Filed May 7, 1973, Ser. No. 358,087
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 HP



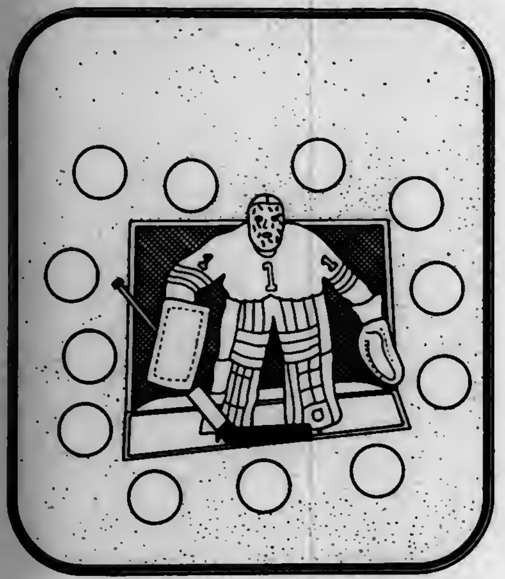
232,956
COMBINED RETURN TOP AND GAME DEVICE
Willy Chelman, Brussels, Belgium, assignor to I.D.
Innovations & Diffusions S.A., Brussels, Belgium
Filed June 30, 1972, Ser. No. 267,742
Claims priority, application Switzerland Mar. 9, 1972
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AH



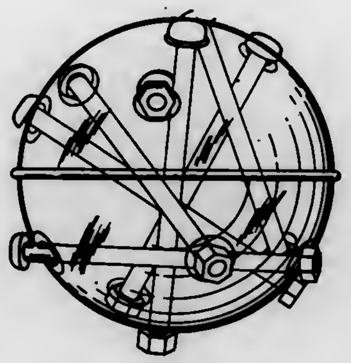
232,957
BASEBALL
Edward W. Kahelin, 812 5th St.,
Manhattan Beach, Calif. 90266
Filed July 12, 1972, Ser. No. 271,022
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15 EE



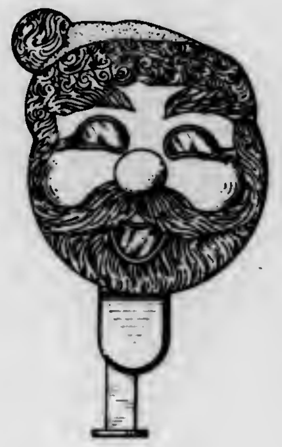
232,958
HOCKEY GAME DART BOARD
Marcel Siers, 8426 N. Ozark Ave.,
Niles, Ill. 60648
Filed May 16, 1973, Ser. No. 360,807
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 SS



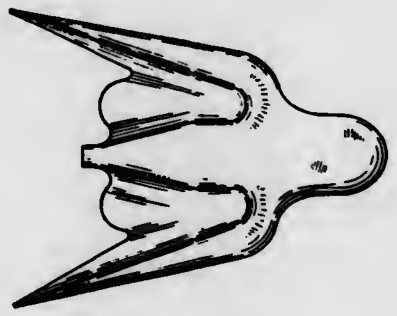
232,959
PUZZLE DEVICE
Gini Scott, 460 35th Ave., San Francisco, Calif. 94121
Filed Dec. 18, 1972, Ser. No. 316,383
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 M



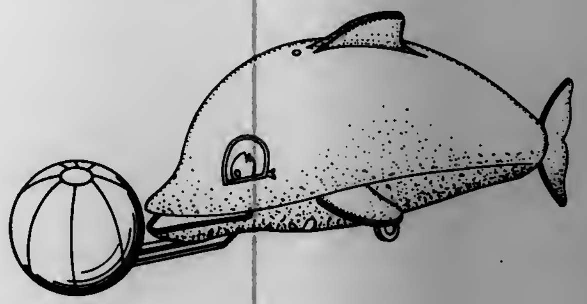
232,960
SPARKLER TOY
Perry Feuer, Roslyn, N.Y., assignor to Yuletide
Enterprises, Inc., Hicksville, N.Y.
Filed Mar. 30, 1973, Ser. No. 346,287
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 M



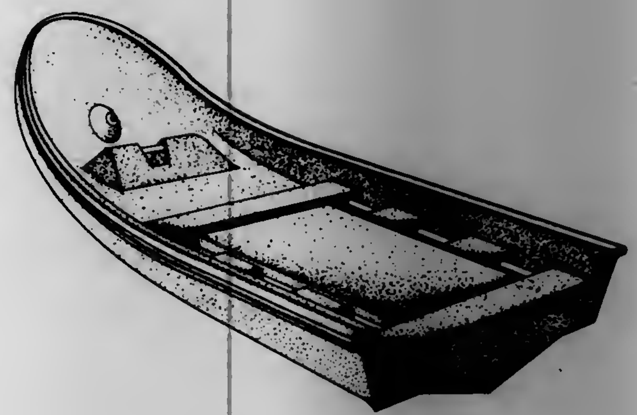
232,961
INFLATABLE KITE
Louis Lawrence Laske, Grays Lake, Ill., assignor to
Vonco Products, Inc., Lake Villa, Ill.
Filed Apr. 4, 1973, Ser. No. 347,860
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AF



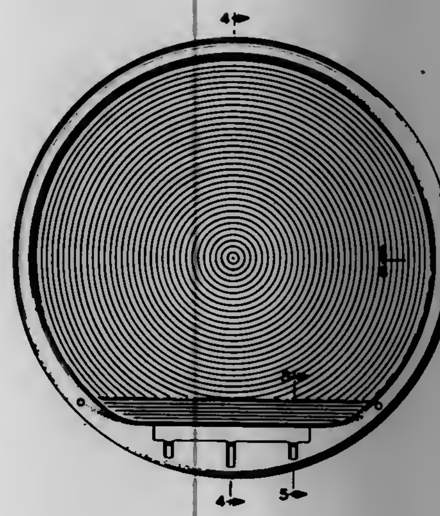
232,962
TOY DOLPHIN
Haruo Suzuki, Chiba, Japan, assignor to Toytown
Corp., Tokyo, Japan
Filed May 24, 1973, Ser. No. 363,661
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 B



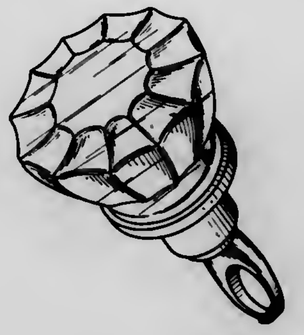
232,963
WATER SLED
Richard W. Turner, 1786 Tubbs St.,
Thousand Oaks, Calif. 91360
Filed July 14, 1972, Ser. No. 271,735
Term of patent 14 years
Int. Cl. D21—*03;* D12—*13*
U.S. Cl. D34—42



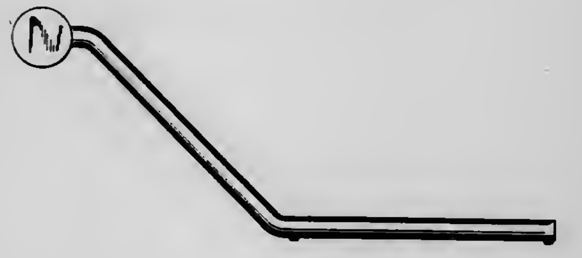
232,964
WATER SLED
Nevitt S. Beck, 260 Bonnett St. SW.,
North Canton, Ohio 44720
Filed Dec. 14, 1972, Ser. No. 315,137
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D34—42

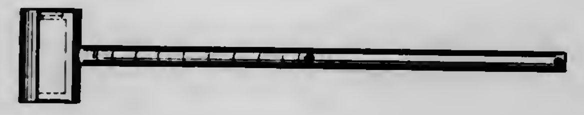


232,965
FINGER RING
Walter E. Atwell, 4625 Beaubien, Apt. 68,
Lisle, Ill. 60532
Filed Aug. 19, 1970, Ser. No. 24,584
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—10 C

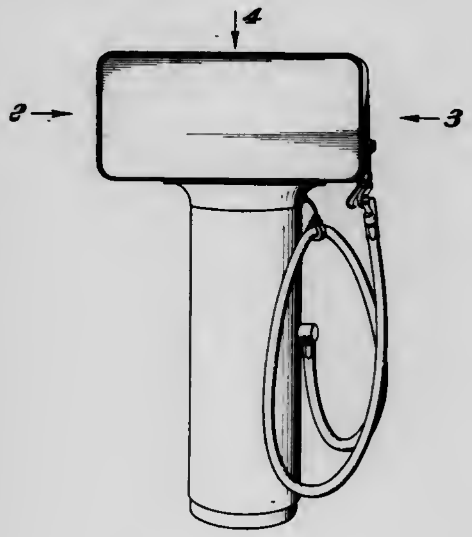


232,966
WALL FIXTURE
Sylvan R. Shemitz, Woodbridge, Conn., assignor to
Sylvan R. Shemitz and Associates, Inc., New Haven,
Conn.
Filed Dec. 14, 1972, Ser. No. 315,133
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—4 B





232,967
GASOLINE DISPENSING PUMP
Roger Kennedy, Studio City, and Peter B. Rothschild,
Santa Fe Springs, Calif., assignors to Pan-Nova, Inc.,
Santa Fe Springs, Calif.
Filed Jan. 10, 1972, Ser. No. 216,886
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D52—2 A

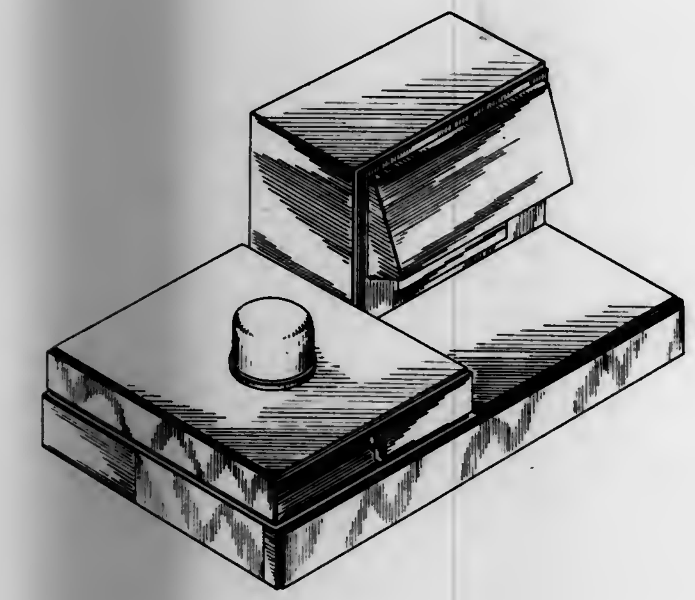


232,968

DIFFERENTIAL SCANNING CALORIMETER OR SIMILAR INSTRUMENT

Allan P. Gray, Bridgeport, and Thomas M. Murray, Trumbull, Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Jan. 12, 1972, Ser. No. 217,440
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—6 R

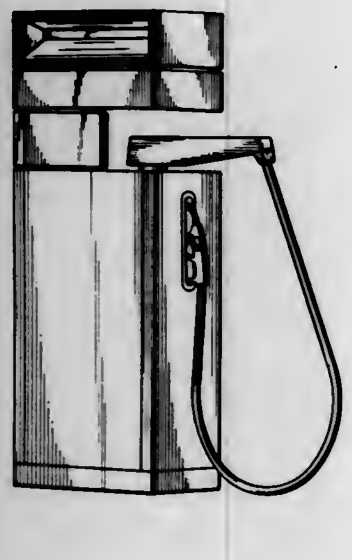


232,969

GASOLINE PUMP

Carl-Arne Breger, Lilia Molleberga, Sweden, assignor to AB Ljungmans Verkstader, Malmo, Sweden

Filed Apr. 14, 1972, Ser. No. 244,325
Claims priority, application Sweden Oct. 14, 1971
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D52—2 A

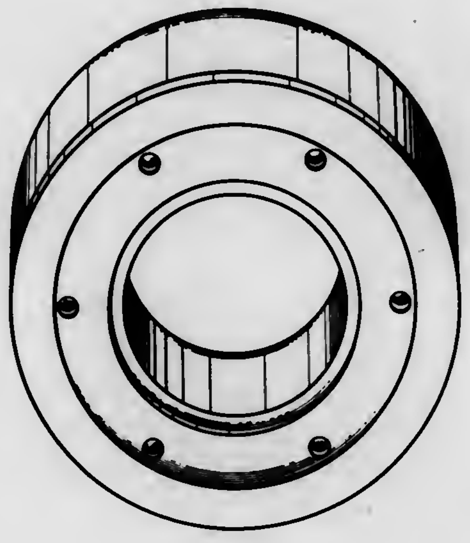


232,970

MATERIAL FEED RING FOR GYRATORY CRUSHERS

Sven-Erik Dyrup, Oxie, Sweden, assignor to Trelleborgs Gummifabriks AB

Filed May 23, 1972, Ser. No. 256,216
Claims priority, application Sweden Nov. 23, 1971
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D55—1 H

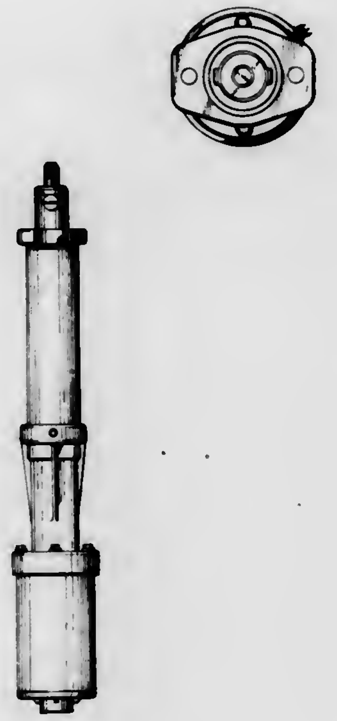


232,971

POWER UNIT FOR ACTUATING VALVES OR THE LIKE

John J. Dixon, Charlotte, N.C., assignor to Duff-Norton Company, Charlotte, N.C.

Filed June 14, 1972, Ser. No. 262,781
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1 G

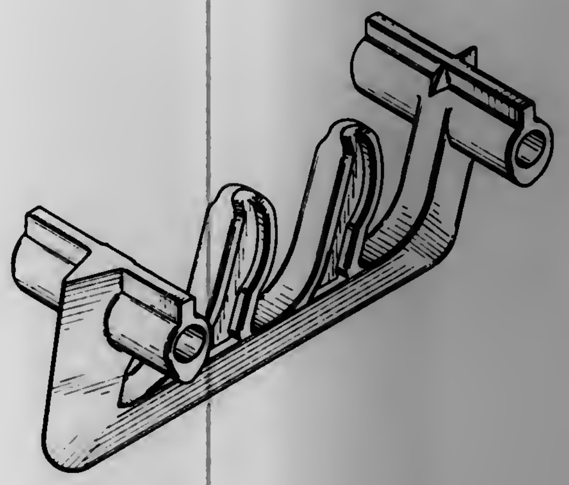


232,972

CONVEYOR RECEPTACLE FOR CARRYING SOILED WARE IN A DISHWASHING MACHINE

Erik O. Vilen, La Grange Park, Ill., assignor to G. S. Blakeslee and Company, Cicero, Ill.

Filed Dec. 20, 1972, Ser. No. 316,698
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1 C

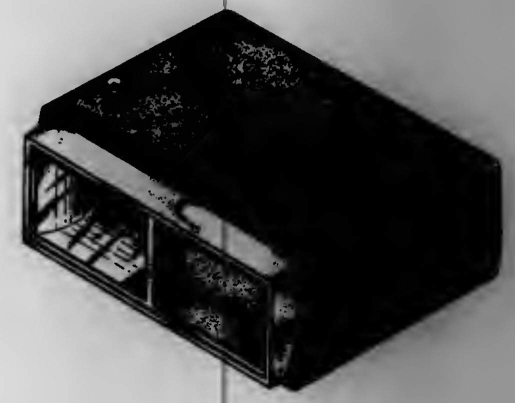


232,973

CAMERA FLASH ATTACHMENT

David N. Arnoldy and Albert L. Cline, Littleton, Colo., assignors to Honeywell Inc., Minneapolis, Minn.

Filed June 28, 1973, Ser. No. 374,564
Term of patent 14 years
Int. Cl. D16—*05*
U.S. Cl. D61—1 F

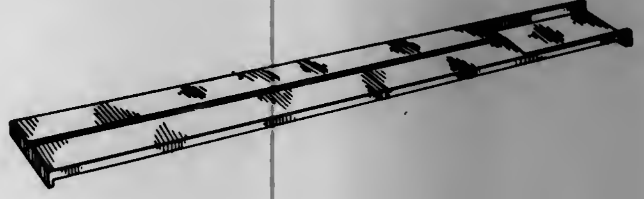


232,974

MEMO HOLDER

Ira Saltz, Greenlawn, N.Y., assignor to Oxford Pendaflex Corporation, Garden City, N.Y.

Filed Sept. 28, 1972, Ser. No. 295,982
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D74—1 C

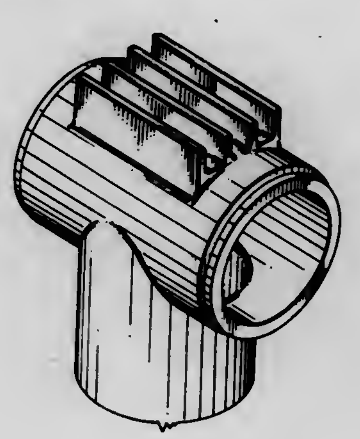


232,975

FINNED MOTORCYCLE INTAKE MANIFOLD

Martin E. Burke, 511 E. James St., Kent, Wash. 98031, and Leslie L. Van Kirk, 606 L St. SE., Auburn, Wash. 98002

Filed Aug. 7, 1972, Ser. No. 278,607
Term of patent 14 years
Int. Cl. D15—*99;* D12—*11*
U.S. Cl. D77—1 A

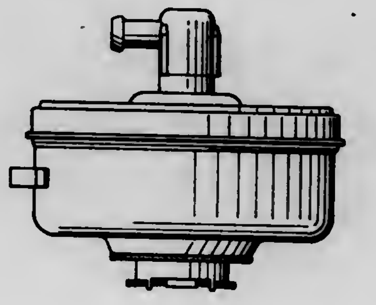


232,976

OIL FILLER CAP

Lewis L. Ruter, 218 26th Ave. N., Minneapolis, Minn. 55411

Filed Jan. 18, 1973, Ser. No. 324,777
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D77—1 A

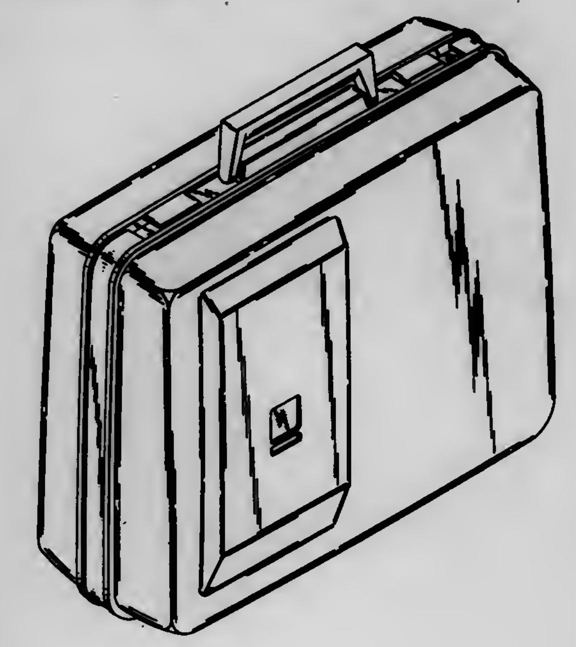


232,977

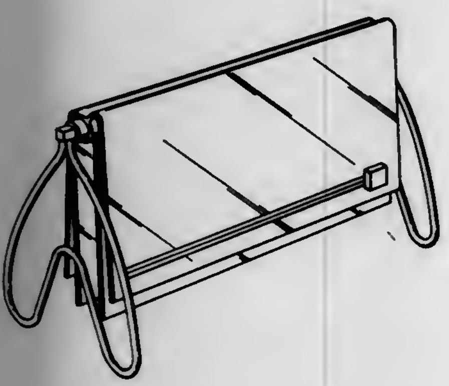
CARRYING CASE FOR A MOTION PICTURE PROJECTOR OR SIMILAR ARTICLE

Dianne B. Ainslie, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

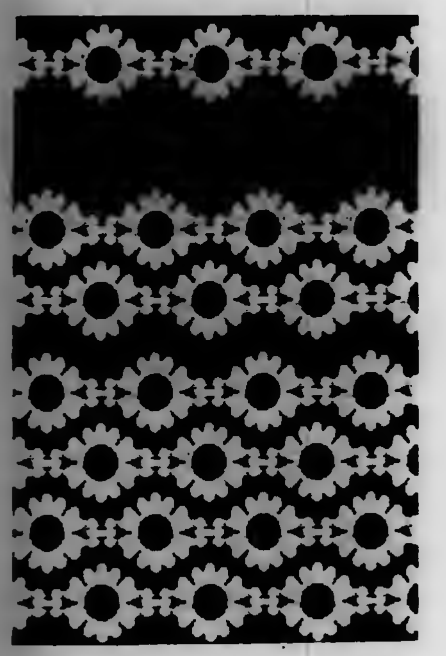
Filed Sept. 8, 1972, Ser. No. 287,306
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—5 E



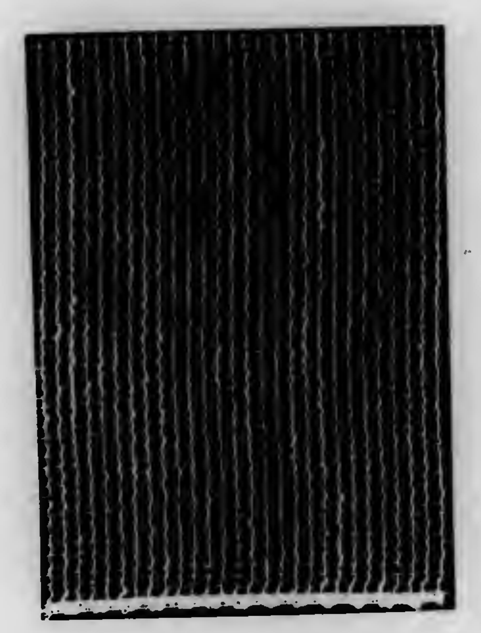
232,978
PURSE ORGANIZER OR THE LIKE
Edna H. Edwards, 1100 Chantilly Road,
Los Angeles, Calif. 90024
Filed Oct. 6, 1972, Ser. No. 295,590
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D87—2 R



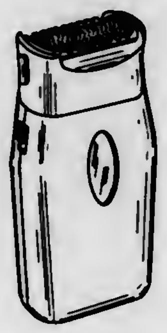
232,979
FABRIC FOR CURTAINS
Peter Schroeder, Arni-Islisberg, Switzerland, assignor to
Gardisette International AG, Lucerne, Switzerland
Filed Mar. 30, 1971, Ser. No. 129,650
Claims priority, application West Germany Oct. 6, 1970
Term of patent 14 years
Int. Cl. D5—*05*
U.S. Cl. D92—1 PP



232,980
CURTAIN FABRIC
Peter E. Schroeder, Arni, Switzerland, assignor to
Gardisette International AG, Zurich, Switzerland
Filed Apr. 10, 1972, Ser. No. 242,904
Claims priority, application Germany Oct. 9, 1971
Term of patent 14 years
Int. Cl. D5—*05*
U.S. Cl. D92—1 PP



232,981
DRY SHAVER OR SIMILAR ARTICLE
Leslie Leonard Lane, Eindhoven, Netherlands, assignor to
U.S. Philips Corporation, New York, N.Y.
Filed Nov. 13, 1972, Ser. No. 306,343
Claims priority, application Switzerland May 15, 1972
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



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TO WHOM

PATENTS WERE ISSUED ON THE 24TH DAY OF SEPTEMBER, 1974

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Akamatsu, Kiyoshi; Maruta, Masayasu; and Yonekura, Yasushi, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for the preparation of printing plate of photosensitive resin. 3,837,887, Cl. 117-34.000.
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Alinari, Carlo. Depth gauges. 3,837,225, Cl. 73-300.000.
Allaire, Eugene Joseph; and Paradis, Eugene. Mop frame. 3,837,031, Cl. 15-150.000.
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Aller, T. Dwight, to Hydrometals, Inc. Small pump. 3,837,767, Cl. 417-424.000.
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Altman, Gerald. Low profile episcopic projector and opaque materials therefor. 3,837,739, Cl. 353-66.000.
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Boone, Philip. Supplemental sheet-dispensing device for a toilet-tissue dispenser. 3,837,595, Cl. 242-55.300.
Boontje, Jan Th., to Verenigde Kunstmestfabrieken Mekog-Albatros N.V. Rotating disc contactor. 3,837,812, Cl. 23-273.00f.
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Boris, Sam; and Nye, Larry R., to Data Processing Aids, Inc. Auxiliary cabinet for computer console. 3,837,720, Cl. 312-198.000.
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Anselment, Wolfgang; and Holl, Walter, 3,838,207.
Burger, Karl-Heinz; Hoffmann-Clewe, Manfred; and Schaper, Willi, 3,837,036.
Links, Heinz, 3,837,324.
Sauer, Rudolf, 3,837,321.
Ulbrich, Gerhard, 3,837,032.
Bosch, Samuel. Mattress and mattress foundation. 3,837,020, Cl. 5-317.00r.
Bosse, Frank: *See—*
Marquardt, Bruno; and Bosse, Frank, 3,837,564.
Bottum, Edward W.: *See—*
Rockwell, Frank H.; and Bottum, Edward W., 3,837,177.
Boucher, Raymond M. G., to Wave Energy Systems Inc. Apparatus for continuous sterilization at low temperature. 3,837,805, Cl. 21-102.00a.
Boucher, Richard A., to Dart Industries Inc. Combined food storage container and mold therefor. 3,837,775, Cl. 425-195.000.
Boudreau, Donald A. Drawer arranger. 3,837,477, Cl. 206-72.000.
Bourhenne, Francis Kurt. Coiled cable dispenser. 3,837,597, Cl. 242-129.000.
Boussois S. A.: *See—*
Membre, Bernard Alfred Georges; and Clairet, Daniel Eugene Joseph Modeste, 3,837,064.
Bowden, Roy Dennis, to Imperial Chemical Industries Limited. . 3,838,157, Cl. Process for producing bipyrid.
Bozak, Inc.: *See—*
Bozak, Rudolph T., 3,837,425.
Bozak, Rudolph T., to Bozak, Inc. Edge-damped diaphragm for electrodynamic loudspeakers. 3,837,425, Cl. 181-32.00r.
Braca, Joseph F.: *See—*
Hynes, John E.; and Braca, Joseph F., 3,838,252.
Brachman, Armand Edward, to GAF Corporation. Polyurethane prepared from hydroxy poly (methylene oxide), polyester, and glycol and having improved hydrolytic stability. 3,838,105, Cl. 260-75.0np.
Brackette, Daniel, Jr., to Owens-Illinois, Inc. Paperboard container with integral carrying means. 3,837,563, Cl. 229-52.00b.
Bradbury, Robert C.; and Sullivan, Joseph H., to Borden, Inc., mesne. Metric conversion ruller. 3,837,569, Cl. 235-70.00r.
Bradbury, Wilburn F. Edge sharpener. 3,837,123, Cl. 51-208.000.
Bradwood (Proprietary) Limited: *See—*
Sherwood, Robert F., 3,837,487.
Brancaccio, Giovanni: *See—*
Viterbo, Rene; Brancaccio, Giovanni; and Perri, Giulio Cesare, 3,838,123.
Brand, Derek A.; and Imatt, Alexander, to Glass, Marvin, & Associates. System for operation miniature vehicles. 3,837,286, Cl. 104-60.000.
Brandeberry, Don R.: *See—*
Fritch, Junior L.; and Brandeberry, Don R., 3,837,764.
Brandlein, James D.; and Potter, Max E., to Western Electric Company, Incorporated. Insertable electrical termination mounting. 3,838,203, Cl. 174-68.500.
Brandt, William F., to GTE Automatic Electric Laboratories Incorporated. Logic test probe and indicator circuit. 3,838,339, Cl. 324-133.000.
Brassel, Peter, to Zellweger, Ltd. Device for severing yarns in yarn cleaners. 3,837,252, Cl. 83-688.000.
Braun, Henri: *See—*
Cailley, Jean-Pierre; and Braun, Henri, 3,837,925.
Braun, Ralph V.; and Knauer, Audrey J., to Kimberly-Clark Corporation. Water repellent nonwoven material. 3,837,996, Cl. 161-156.000.
Braunschweigische Maschinenbauanstalt: *See—*
Hillebrand, Heinrich; and Schaper, Helmut, 3,837,913.
Bredtmann, Manfred: *See—*
Gehrmann, Klaus; Erpenbach, Heinz; Handte, Heinz; and Bredtmann, Manfred, 3,838,018.
Brems, John Henry. Mechanical drive for transfer system. 3,837,473, Cl. 198-219.000.
Breslow, Jeffrey D., to Glass, Marvin, & Associates. Aerial-projectile game having movable rebounding surfaces. 3,837,648, Cl. 273-95.00r.
Bretti, Franco; and Valle, Franco, to Olivetti, Ing., C., & C., S.p.A. Coded input and output apparatus for typewriters. 3,837,458, Cl. 197-19.000.
Bricot, Claude; Le-Merer, Jean Pierre; and Puech, Clude, to Thomson CSF. Systems for constructing small fresnel holograms. 3,837,725, Cl. 350-3.500.
Bridge, Samuel Douglas, to Dixon, R. G., & Company, Limited. Floor treating machines. 3,837,028, Cl. 15-50.00r.
Bridges, Ronald P. Electric circuit disconnect means for a power transmission line. 3,838,233, Cl. 200-48.00r.
British Hovercraft Corporation: *See—*
Crewe, Peter Rowland, 3,837,314.
British Steel Corporation: *See—*
Hetherington, Matthew James; and Atkinson, Peter, 3,837,202.
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- Van Esdonk, Johannes; Broers, Godefridus; Haans, Petrus Franciscus Antonius; and Hornman, Johannes Petrus, 3,837,958.
- Broling, Fred W.: *See—*
  - Matras, Edward J.; and Broling, Fred W., 3,837,629.
- Brollos, Gunther. Pants pressing machine. 3,837,543, Cl. 223-73.000.
- Brooke, Arthur Alan, to Delamere & Williams Company, Limited. Article handling apparatus. 3,837,474, Cl. 198-240.000.
- Brossi, Arnold; Focella, Antonino; and Teitel, Sidney, to Hoffmann-La Roche Inc. Process for the preparation of alkyl substituted resorcinols. 3,838,181, Cl. 260-625.000.
- Brotschi, Rolf Peter. Method and system for keeping record of the contents of a container. 3,837,104, Cl. 40-104.180.
- Brown & Williamson Tobacco Corporation: *See—*
  - Sexstone, John H., 3,837,264.
  - Stungis, George E.; Merker, Steve L.; and Heitkamp, Norman D., 3,837,481.
- Brown, Anthony Kevin Dale, to Northern Electric Company Limited. Digital-analog subterminal. 3,838,416, Cl. 340-347.0da.
- Brown, Craig T., to Miller, Mildred. Pest control apparatus and method. 3,838,418, Cl. 340-384.00e.
- Brown, Donald C. Refuse truck container handling mechanism. 3,837,512, Cl. 214-302.000.
- Brown, Donald R.; Linsley, John W., Jr.; and Porod, Robert F., to Western Electric Company, Incorporated. Encapsulated electrical component assembly and method of fabrication. 3,838,316, Cl. 317-101.00r.
- Brown, John H., Jr.; and Atkins, Boby L., to Dow Chemical Company, The. Visible immobilized specimens and method of preparing such specimens. 3,837,979, Cl. 161-18.000.
- Brown, Maurice H. Wire tensioning apparatus. 3,837,598, Cl. 242-155.00r.
- Brown, Omar L.: *See—*
  - Schubert, James R.; and Brown, Omar L., 3,837,524.
- Brown, Paul; and O'Brien, Joseph. Blood serum collection tube and method. 3,837,376, Cl. 141-1.000.
- Brown, Robert A.: *See—*
  - McCarthy, Robert Joseph, 3,837,673.
- Brown, Robert O., to Westinghouse Electric Corporation. Guide vanes for supersonic turbine blades. 3,837,761, Cl. 416-191.000.
- Bruckheim, Arthur Jay. Heart surveillance device. 3,837,333, Cl. 128-2.06f.
- Bruckner-Apparatebau Michelstadt GmbH: *See—*
  - Schuierer, Manfred, 3,837,188.
- Brundage, R. Pauline; and Lesher, George Y., to Sterling Drug Inc. Certain 2-substituted-6-(3 or 4-pyridyl) nicotinic acid derivitives. 3,838,156, Cl. 260-295.50r.
- Brunett, Peter F., to Burroughs Corporation. Wide line ribbon package. 3,837,480, Cl. 206-497.000.
- Brunnee, Curt. Device for separating mixtures of gaseous and/or vaporous substances especially for separation of carrier gas in devices for gaschromatography. 3,837,147, Cl. 55-197.000.
- Bryceland, Maurice Cyril: *See—*
  - Graham, Francis David; and Bryceland, Maurice Cyril, 3,837,136.
- Bubula, Thomas J., to Caterpillar Tractor Company. Fluidic selector valve. 3,837,360, Cl. 137-625.460.
- Buchbinder, Albert J.: *See—*
  - Buchbinder, Robert I.; and Buchbinder, Albert J., 3,838,015.
- Buchbinder, Robert I.; and Buchbinder, Albert J., to Devco Management Inc., mesne. Method and apparatus for pyrolytic decomposition of trash. 3,838,015, Cl. 201-1.000.
- Bucher-Guyer AG Maschinenfabrik: *See—*
  - Hauser, Hans Ulrich, 3,837,536.
- Bucyrus-Erie Company: *See—*
  - Hornagold, John T., 3,837,502.
- Buddruss, Claus-Peter; Conjaeger, Arnim; and Triebold, Karl-Friedrich, to Krupp, Fried., Gesellschaft mit beschrankter Haftung. Space monitoring gradient system. 3,838,389, Cl. 340-6.00r.
- Budzyna, Joseph M.; and Turner, William E., to Rockwell International Corporation. Fabric take-up mechanism for looms. 3,837,368, Cl. 139-309.000.
- Buffiere, Jean-Pierre; and Grenier, Maurice, to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude. Elevating natural gas with reduced calorific value to distribution pressure. 3,837,821, Cl. 48-196.00r.
- Buggisch, Heinz; and Lewer, Hans. Compositions for binding dust in coal mines. 3,837,404, Cl. 169-45.000.
- Buhrke, Rolfe E.: *See—*
  - Rice, Verner K.; Mele, John J.; and Buhrke, Rolfe E., 3,838,261.
- Buisson, Michel A.; and Repiquet, Gerard P., to Naphtachimie Societe Anonyme. Heat and flame resistant polyurethanes. 3,838,109, Cl. 260-77.5aq.
- Bull, Ivor H., to Westinghouse Brake & Signal Co., Ltd. Braking condition indicator for rapid transit trains. 3,838,272, Cl. 246-169.00r.
- Bunker Ramo Corporation: *See—*
  - Bauerle, Gerhard; and Hubner, Oswald, 3,838,388.
  - Hugo, Alfred Otto, 3,838,380.
- Bunker Ramo Corporation, The: *See—*
  - Masi, James Vincent, 3,838,307.
- Bunker-Ramo Corporation, The: *See—*
  - Griff, William, 3,837,074.
  - Johnston, Samuel A.; Lyons, John G.; and Riedmayer, Henry J., 3,837,067.
- Bunnell, Edward Dennman, to AMP Incorporated. Molded plastic bundle tie. 3,837,047, Cl. 24-16.0pb.
- Burchett, Paul James. Tension adjusting device for sports racket strings. 3,837,649, Cl. 273-73.00a.
- Burger, Karl-Heinz; Hoffmann-Clewe, Manfred; and Schaper, Willi, to Bosch, Robert, G.m.b.H. Apparatus for wiping exposed convex surfaces of lenses on head lights of automotive vehicles or the like. 3,837,036, Cl. 15-250.230.
- Burroughs Corporation: *See—*
  - Bardo, Eugene E.; and Schroeder, Franklin T., 3,838,297.
  - Brunett, Peter F., 3,837,480.
- Busdiecker, Lucille L.: *See—*
  - Busdiecker, Robert A., 3,837,978.
- Busdiecker, Robert A.; deceased (by Busdiecker, Lucille L.), to Owens-Illinois, Inc. Barium aluminosilicate glass-ceramics. 3,837,978, Cl. 161-1.000.
- Buslik, Walter S.; and Pennington, Dale H., to International Business Machines Corporation. Track following system for magnetic tape recorder. 3,838,453, Cl. 360-70.000.
- Busson Christian: *See—*
  - Alagy, Jacob; Busson Christian; and Cha, Bernard, 3,838,179.
- Butt, Gerald L., to Stewart-Decatur Security Systems, Incorporated. Locking and unlocking mechanism. 3,837,117, Cl. 49-18.000.
- Buzatu, Corneliu; and Topor, Costica, to Institutul de Metrologie. Transportable standard cells and process for making same. 3,837,923, Cl. 136-88.000.
- Byerly, Dale L., to Champion Spark Plug Company. Transfer apparatus. 3,837,472, Cl. 198-218.000.
- Cabilio, Juta: *See—*
  - Magnien, Ernest; and Cabilio, Juta, 3,838,135.
- Cable reel assembly: *See—*
  - Pollak, Edward George, 3,837,590.
- Cadeo, Angelo; and Cavelti, Josef, to Frebar A.G., mesne. Method and apparatus for dissolving sugar and other soluble solids. 3,837,914, Cl. 127-22.000.
- Cailley, Jean-Pierre; and Braun, Henri, to Saft-Societe des Accumulateurs Fixes et de Traction. Electrochemical generators. 3,837,925, Cl. 136-134.000.
- Cairncorss, Allan, to Du Pont de Nemours, E. I., and Company. Polyamides containing N-lower alkyl 1,2,3-triazole-4,5-dicarbonyl groups. 3,838,112, Cl. 260-78.00r.
- Cairns, Robert Lacock; and Benjamin, John Stanwood, to International Nickel Company, Inc., The. Method of producing iron-chromium-aluminum alloys with improved high temperature properties. 3,837,930, Cl. 148-11.50f.
- Cali, Albert. Container for packaging papers. 3,837,562, Cl. 229-32.000.
- California Injection Molding Co., Inc.: *See—*
  - VanDeWalker, Roger D.; and Howe, Blair F., 3,837,772.
- California Institute of Technology: *See—*
  - Lewicki, George W.; and Guisinger, John E., 3,837,908.
- Calves Jean; and Gounon, Rene, to Societe d'Etude Recherches et Constructions Electroniques. Electronic ambiguity-removal device for phase measurement radionavigation systems, more particularly for the omega system. 3,838,426, Cl. 343-105.00r.
- Camboulives, Andre Alphonse Mederic Leon; Chambon, Jean Francois; Jourdain, Gerard Ernest Andre; Le Maout, Theophile Francois; and Vandenbroucke, Roger Alfred Jules, to Societe Nationale d'Etude et de Construction de Moteurs d'Eviation. Variable-geometry nzzle for a jet engine. 3,837,579, Cl. 239-265.390.
- Camboulives, Andre Alphonse Mederic Leon; Jourdain, Gerard Ernest Andre; and Le Maout, Theophile Francois, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Nozzles having an adjustable cross-section. 3,837,580, Cl. 239-265.390.
- Cambridge Research and Development Group, Greenberg, Sanford D.: *See—*
  - Pfund, Charles E., 3,838,218.
- Campbell, Alan H.: *See—*
  - Eminger, Harry E.; and Campbell, Alan H., 3,837,617.
- Campbell, Robert W., to Phillips Petroleum Company. Amorphous copolyamide from bis(4-aminocyclohexyl) methane, phenyl indane dicarboxylic acid and alkane dicarboxylic acid. 3,838,111, Cl. 260 78.00r.
- Campbell Soup Company: *See—*
  - Blacker, Harold F., 3,837,045.
- Canadian General Electric Company, Limited: *See—*
  - Boothman, David Richard; and Nutt, David Walter, 3,838,314.
- Canadian Patents and Development Limited: *See—*
  - Scott, Peter Michael; and van Walbeek, Wilhelmina, 3,838,171.
- Canon Kabushiki Kaisha: *See—*
  - Masaki, Tatsuo; Hanada, Hiroshi; and Kitashima, Nobuo, 3,837,853.
  - Ogiso, Mitsutoshi; Hosoe, Kazuya; Takahashi, Kiyoshi; and Itani, Takashi, 3,837,736.
- Cantwell, John T.: *See—*
  - Michalski, Raymind J.; and Cantwell, John T., 3,837,489.
- Capacity, Inc.: *See—*
  - Molby, Lloyd A., 3,837,672.
- Capewell Manufacturing Company: *See—*
  - Bittern, Joseph E., 3,837,759.
- Capitol Products Corporation: *See—*
  - Goss, Lorane C., Jr.; Cribben, James T.; and Miller, Joseph J., 3,837,118.
- Caputo, James P., to GTE Automatic Electric Laboratories, Incorporated. Maintenance control arrangement employing data lines for transmitting control signals to effect maintenance functions. 3,838,398, Cl. 340-172.500.

- Carbonnel, Henri: *See—*
  - Ertaud, Andre; Panossian, Jacques; and Carbonnel, Henri, 3,837,763.
- Carborundum Company, The: *See—*
  - Economy, James; Highsmith, Ronald E.; and Mason, John H., 3,837,997.
  - Farrell, William F., Jr., 3,838,188.
- Carlberg, Bobbie L., to Continental Oil Company. Method of coating the interior surface of a metal vessel and the coated vessel. 3,837,899, Cl. 117-92.000.
- Carpentier, Anthony Louis: *See—*
  - Meadows, James Edward; Horsman, Larry Ray; and Carpentier, Anthony Louis, 3,838,400.
- Carr, William Reginald, to Rolls-Royce (1971) Limited. Industrial gas turbine power plant mounting apparatus. 3,837,164, Cl. 60-39.16r.
- Carrier Corporation: *See—*
  - Kuttruff, Gary W.; and Durham, Raymond F., 3,837,173.
- Carroll, William J., to Great Lakes Chemical Corporation. Deep implantation of a volatile fungicide. 3,837,304, Cl. 111-6.000.
- Carruthers, John Robert; and Kaminow, Ivan Paul, to Bell Telephone Laboratories, Incorporated. Method for producing optical waveguiding layers in solid transparent media. 3,837,827, Cl. 65-30.000.
- Carter, David A.; Bishof, Chester A.; and Vogt, Frederick G., to Betz Laboratories, Inc. Orthophosphate corrosion inhibitors and their use. 3,837,803, Cl. 21-2.700.
- Carter, Sidney T., to A-T-O Inc. Apparatus for adhesively applying sealing strips to container closures to prevent unauthorized removal of the closures without detection. 3,837,974, Cl. 156-489.000.
- Case, Derek Frank, to International Computers Limited. Methods of manufacturing magnetic transducing heads. 3,837,073, Cl. 29-603.000.
- Case, J. I. Company: *See—*
  - Kulhavy, Joseph T., 3,837,182.
  - Little, William E., 3,837,417.
- Case, Oran L. System for converting flatbed to low side trailers. 3,837,702, Cl. 296-36.000.
- Cash, David R., to Cash, James, Machine Co. Dual head border panel manufacturing machine. 3,837,305, Cl. 112-3.000.
- Cash, James, Machine Co.: *See—*
  - Cash, David R., 3,837,305.
- Cassidy, Herbert W. D.: *See—*
  - Shaffer, Donald Edward; Cassidy, Herbert W. D.; and Andrews, Walter G., 3,837,281.
- Castriota-Scanderbeg, George, to Sulzer Brothers Ltd. Pivoting valve. 3,837,616, Cl. 251-30.000.
- Catanzarite, Vincent O., to Specialty Products Development Corporation. Low temperature gas generating compositions and methods. 3,837,942, Cl. 149-83.000.
- Catchpole, Clive E., to Galileo Electro-Optics, Corporation, mesne. Method for making hybrid radiant energy sensor with solid state element and transfer energy-sensitive, electron-emissive surface. 3,837,723, Cl. 316-19.000.
- Caterpillar Tractor Company: *See—*
  - Bubula, Thomas J., 3,837,360.
- Caule, Elmer J., to Olin Corporation. Method of producing tarnish resistant copper and copper alloys and products thereof. 3,837,929, Cl. 148-6.160.
- Cavelti, Josef: *See—*
  - Cadeo, Angelo; and Cavelti, Josef, 3,837,914.
- Cavier, Raymond E.: *See—*
  - Royer, Rene R.; Demerseman, Pierre G.; Rene, Loic J.; and Cavier, Raymond E., 3,838,173.
- Cayton, Thomas C., Jr., to Motorola, Inc. Tape head indexing and shifting apparatus. 3,838,456, Cl. 360-78.000.
- Ceccarelli, Pietro, to Olivetti, Ing., C., & C., S.p.A. Top-access cabinet for suspended files and the like. 3,837,722, Cl. 312-276.000.
- Cecero, Vincent J. Expandable dentures. 3,837,079, Cl. 32-2.000.
- Celanese Corporation: *See—*
  - Lloyd, Neil E.; and Mather, Walter B., III, 3,837,155.
- Celestron Pacific: *See—*
  - Johnson, Thomas J.; and O'Rourke, John F., 3,837,124.
  - Johnson, Thomas J., 3,837,125.
- Cenco Incorporated: *See—*
  - Mazurek, Henry E., 3,837,094.
- Centre de Recherches Metallurgiques-Centrum voor Research in de Metallurgie: *See—*
  - Poos, Arthur Gerard; and Ponghis, Nicolas Gerassimos, 3,837,840.
- Centre Technique des industries Mecaniques: *See—*
  - Flambard, Christian; and Lambert, Alain, 3,837,218.
- Certain-Teed Products Corporation, mesne: *See—*
  - Beck, Carl A., 3,837,971.
- Ceske vysoke uceni technicke v Praze: *See—*
  - Sykora, Richard, 3,837,093.
- CF&I Steel Corporation: *See—*
  - Van Sant, Arthur Dale, 3,837,572.
- CGR Medical Corporation: *See—*
  - Siedband, Melvin P.; James, Jack L.; and Patel, Ambalal T., 3,838,285.
- Cha, Bernard: *See—*
  - Alagy, Jacob; Busson Christian; and Cha, Bernard, 3,838,179.
- Chadwick, William H., Jr., to Sherman & Reilly, Inc. Helicopter bundle block. 3,837,623, Cl. 254-134.3pa.
- Chakrabarty, Ananda M.: *See—*
  - Bellamy, Winthrop D.; and Chakrabarty, Ananda M., 3,838,198.
- Chamber, James O., to Western Electric Company, Incorporated. Composite wire wrapping bit. 3,837,588, Cl. 242-7.060.
- Chambers, Worthy L.: *See—*
  - Walter, John; Chambers, Worthy L.; and Stipanuk, John M., 3,837,587.
- Chambon, Jean Francois: *See—*
  - Camboulives, Andre Alphonse Mederic Leon; Chambon, Jean Francois; Jourdain, Gerard Ernest Andre; Le Maout, Theophile Francois; and Vandenbroucke, Roger Alfred Jules, 3,837,579.
- Champion Spark Plug Company: *See—*
  - Byerly, Dale L., 3,837,472.
- Chance, A. B., Company: *See—*
  - Rinehart, William M., 3.838,055.
- Chanel, Inc.: *See—*
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- Chang, Joseph J.: *See—*
  - Arnett, Patrick C.; and Chang, Joseph J., 3,838,405.
- Chang, Kuo Wei: *See—*
  - Aisenberg, Sol; and Chang, Kuo Wei, 3,837,339.
- Chao, Yau-Shieng, to Wu, Stanley T.T. and Chao, Yau-Shieng. Bicycle with stepless transmission. 3,837,234, Cl. 74-217.00b.
- Chapman, Arthur William. Sterilising procedures. 3,837,809, Cl. 23-253.0tp.
- Charas, Seymour. Visual color response apparatus. 3,838,417, Cl. 340-366.00b.
- Chartrain, Armand N.; and Newell, Carl W., to Korrosion-Clean-Klamp Co. Battery terminal clamp. 3,838,386, Cl. 339-226.000.
- Chase, Vance A., to Whittaker Corporation. Multi-directional reinforced composite and method of making the same. 3,837,985, Cl. 161-55.000.
- Chemfix Inc., mesne: *See—*
  - Conner, Jesse R., 3,837,872.
- Chemische Fabrik Kalk GmbH: *See—*
  - Lewer, Hans, 3,837,280.
- Chen, Mao-Chieh: *See—*
  - Hile, John W.; and Chen, Mao-Chieh, 3,837,905.
- Chen, Wai Ming: *See—*
  - Barnes, Andrew Nicholas Morrison; Chen, Wai Ming; Rickards, Tudor; Rosser, David Arthur; and Thurairajan, Ponnuswamy, 3,838,057.
- Cherry, Joe H.: *See—*
  - Amir, Jacob; and Cherry, Joe H., 3,837,837.
- Chesky, Sheldon R.; Patience, Donald; and Hartigan, Edward G., to Kendall Company, The. Conformable nonwoven bandage. 3,837,338, Cl. 128-156.000.
- Chiang, John Shu-Chi, to FMC Corporation. Process of etching copper circuits with alkaline persulfate and compositions therefor. 3,837,945, Cl. 156-8.000.
- Chida, Yoshinori; and Sawada, Naonobu, to Kabushiki Kaisha Seikosha. High-speed driving device for printer or the like. 3,837,460, Cl. 197-1.00r.
- Chrapkowski, Ralph K.: *See—*
  - Barrett, David M.; and Chrapkowski, Ralph K., 3,838,287.
  - Prendergast, John F.; Chrapkowski, Ralph K.; and Lang, George R., 3,838,286.
- Christen, Karl, to Rephamac A.G. Process for the industrial preparation of desoxyribonucleic acids of high molecular weight. 3,838,148, Cl. 260-211.50r.
- Chugai Seiyaku Kabushiki Kaisha: *See—*
  - Shindo, Minoru; Kakimoto, Morio; and Nagano, Hiroyuki, 3,838,117.
- Chun, Sun W.: *See—*
  - Beuther, Harold; Chun, Sun W.; and Montagna, Angelo A., 3,838,042.
- Chung, Raymond, to Kimberly-Clark Corporation. Method of controlling the orientation of fibers in a foam formed sheet. 3,837,999, Cl. 162-101.000.
- Church, Nathan Lewis, to International Nickel Company, Inc., The. Oxide coated ferrous metal powder. 3,837,845, Cl. 75-.500.
- Churchill, William A.: *See—*
  - Lofstrom, Dennis E.; Churchill, William A.; and Thul, Richard L., 3,837,106.
- Chvatal, Leland A.: *See—*
  - Hopkin, Walker L.; Chvatal, Leland A.; and White, William D., 3,837,353.
- Ciba-Geigy AG: *See—*
  - Litzler, Alfred; Liechti, Hans Wilhelm; Guye-Vuilleme, Jean-Frederic; Koller, Eugen Johann; Milicevic, Branimir; and Angliker, Hans-Joerg, 3,837,802.
- Ciba-Geigy AG, mesne: *See—*
  - Eggensperger, Heinz; Franzen, Volker; and Stephan, Hans, 3,838,100.
- Ciba-Geigy Corporation: *See—*
  - Rajappa, Srinivasachari, 3,838,161.
- Cicero, Rocco, 20% to Lee, Raymond, Organization, Inc., The. Anti jack knife apparatus. 3,837,678, Cl. 280-432.000.
- Cimini, Peter D. Ring binder. 3,837,680, Cl. 281-16.000.
- Cincinnati Butchers' Supply Company, The: *See—*
  - Cook, Frank M., 3,837,288.

- Ciuffini, Anthony J., to Xerox Corporation. Multilayered variable speed photoreceptor and method of using same. 3,837,849, Cl. 96-1.00r.
- Cla-Val Co.: *See—*
  - Zieg, Clifford V.; and Yelich, William, 3,837,358.
- Clairet, Daniel Eugene Joseph Modeste: *See—*
  - Membre, Bernard Alfred Georges; and Clairet, Daniel Eugene Joseph Modeste, 3,837,064.
- Clark, Son and Morland Limited: *See—*
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- Clarke, Jesse E., to Autoquip Corporation. Door structure for recessed auto lift. 3,837,434, Cl. 187-8.620.
- Clarke, William Frank, to Masson Scott Thrissell Engineering Limited. Stands for reels of paper. 3,837,591, Cl. 242-68.400.
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- Clayfield, Eric J., to Shell Oil Company. Treatment of aqueous suspensions of organic waste materials. 3,838,045, Cl. 210-52.000.
- Clayton Manufacturing Company: *See—*
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- Clayton, William, to Clayton Manufacturing Company. Variable inertia flywheel apparatus. 3,837,219, Cl. 73-117.000.
- Clemmons, Quentin T.; Coiner, Ronald W.; Jeffrey, William B.; and Kyllonen, Allen W., to Westinghouse Air Brake Company. Slack adjuster for hydro-pneumatic brake unit having automatic air bleed. 3,837,443, Cl. 188-196.00a.
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- Cobb, Westray Stewart. Cutting board. 3,837,634, Cl. 269-289.000.
- Codman & Shurtleff, Inc.: *See—*
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- Coe, Warren B.; and Davenport, Arthur K., to United Aircraft Corporation. Process for recovering feed products from animal waste. 3,838,199, Cl. 426-55.000.
- Coe, William H., to Keystone Consolidated Industries, Inc. Integral spring and cam unit. 3,837,043, Cl. 16-180.000.
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  - Morrell, Ronald Joseph; Gumb, Bev William; Laing, Graham Sterling; and Cogan, Frederick Thomas, 3,838,229.
- Cohen, Leonard D.; Shortt, Brian A.; and Urban, Michael J., to GTE Laboratories, Incorporated. Magneto-resistive magnetic domain detector. 3,838,406, Cl. 340-174.0eb.
- Coiner, Ronald W.: *See—*
  - Clemmons, Quentin T.; Coiner, Ronald W.; Jeffrey, William B.; and Kyllonen, Allen W., 3,837,443.
- Cole, Herbert S., Jr., to General Electric Company. Selective etching of metal oxides of tin or indium. 3,837,944, Cl. 156-4.000.
- Cole, James Byron, to Boeing Company, The. Aerodynamic slot closing mechanism. 3,837,601, Cl. 244-42.0db.
- Colgate-Palmolive Company: *See—*
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- Collins Radio Company: *See—*
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- Combs, Roscoe, Jr.; and Condon, Richard W., to Roper Corporation. Lubricating system for chain saw. 3,837,433, Cl. 184-15.00r.
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- Compagnie General des Etablissement Michelin raison Sociale Michelin & Cie: *See—*
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- Conneally, Martin L.; and Hajduk, George, to Ardco, Inc. Refrigerator door closure system. 3,837,119, Cl. 49-404.000.
- Conner, Jesse R., to Chemfix Inc., mesne. Method of making wastes non-polluting and disposable. 3,837,872, Cl. 106-74.000.
- Connors, Robert H.; and Klopfenstein, King L., to Triangle Package Machinery Company. Bulk weight servo control for packaging machines. 3,837,415, Cl. 177-123.000.
- Consoli, Frank J.; Rebechini, Peter G.; and Beisch, Hanspeter E., to Skil Corporation. Rotary hammer power tool. 3,837,409, Cl. 173-48.000.
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- Cooke, Harry G. Jr., to Du Pont de Nemours, E. I., and Company. Blasting cartridge and primer. 3,837,279, Cl. 102-24.00r.
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- Cotton, Joseph Bernard; Mack, Peter Albert; and Price, Raymond, to Imperial Chemical Industries Limited and Imperial Metal Industries (Kynoch) Limited. Benzotriazole pre-lamination treatment of metal substrates. 3,837,964, Cl. 156-331.000.
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- Couture, Gerard; and Lindberg, Leo H., to PPG Industries, Inc. Heated cover protector for press bending block. 3,837,833, Cl. 65-288.000.
- Cox, Donald Clyde, to Bell Telephone Laboratories, Incorporated. Bipolar sample and hold circuit with low-pass filtering. 3,838,346, Cl. 328-151.000.
- Coyne, James Christopher, to Bell Telephone Laboratories, Incorporated. Cross connect switch. 3,838,317, Cl. 317-119.000.
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- Cuaz, Daniel; Pottier, Paul; and Thiery, Daniel, to Commissariat a l'Energie Atomique. Method of packaging of radioactive wastes. 3,838,061, Cl. 252-301.10w.
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- Cunningham, Ernest R., to Grip-Pak, Inc., mesne. Stretchable packaging device for containers. 3,837,478, Cl. 206-427.000.
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- Curtis, George B.; and Curtis, Betty L., 20% to Lee, Raymond, Organization, Inc., The. Camper mounting apparatus. 3,837,701, Cl. 296-23.0mc.
- Cusano, Dominic A., to General Electric Company. X-ray image intensifier input. 3,838,273, Cl. 250-213.0vt.
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- Damijonaitis, Algis, to Motorola, Inc. Method of construction and structure for a magnetic pickup. 3,838,372, Cl. 336-110.000.
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- Dean, Michael Gordon Ellis; Keen, John Raymond; and Edgington, Geoffrey, to Lucas Aerospace Limited. Aircraft ice detection equipment with correction for severe conditions. 3,838,281, Cl. 250-308.000.
- Decker, Hanns; and Hurtmanns, Heinz, to Klockner-Humboldt-Deutz Aktiengesellschaft. Method for the maintenance for the 0 & 91 pressure in a circulation lubrication system for highly loaded journal bearings. 3,837,430, Cl. 184-1.00e.
- Decker, Hanns; and Hurtmanns, Heinz, to Klockner-Humboldt-Deutz Aktiengesellschaft. Gyratory crusher with hydraulic means for lifting the upper part of the housing from the lower part. 3,837,585, Cl. 241-213.000.
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- Di Matteo, Paul L., to Sperry Rand Corporation. Anti-jamming circuit for angle tracking radars. 3,838,423, Cl. 343-7.300.

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- Didek, Stanislav; and Storek, Jaroslav, to Vyzkummy Ustav Bavlnarsky. Method of and apparatus for producing finished open end yarn in a spinning chamber. 3,837,153, Cl. 57-35.000.
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- Dietrich, Werner; Reiff, Helmut; Andres, Karlheinz; Niggemann, Johannes; and Roos, Ernst, to Bayer Aktiengesellschaft. Process for the production of hydrophilic foam plastics. 3,838,075, Cl. 260-2.50a.
- Dietz, Earl D.; and Wengert, Paul R., to Owens-Illinois, Inc. Method of melting laser glass in a noble metal container in a controlled reducing atmosphere. 3,837,828, Cl. 65-32.000.
- Digney, Charles J., to Honeywell Inc. Printing apparatus for multiple-point recorder with selectable number printing. 3,838,430, Cl. 346-61.000.
- Dixon, Herd Vrill. Detachable safety warning device. 3,837,626, Cl. 256-64.000.
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- Doyle, Richard H.; and Obergfell, Allen R., to Fastener Corporation. Pneumatic nailing machine. 3,837,556, Cl. 227-136.000.
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- Dreissigacker, Erich; and Jager, Kurt, to BBC Brown Boveri & Company, Limited. Rotary rectifier arrangement for the excitation of synchronous machines. 3,838,302, Cl. 310-68.00d.
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  - Umlor, Max Frederick, 3,837,291.
- Dreyfus, Jean Albert. Amplitude regulator means for separation frequency variations and amplitude variations of electrical signals. 3,838,217, Cl. 179-1.00a.
- Driebel, Carl D.; Dediemar, Ronald B.; and Schuman, Leroy J., to Barber-Greene Company. Rotatable drum type scrubber for stores, rocks, gravel, and the like. 3,837,490, Cl. 209-288.000.
- Driver, W.B. Downhole electrical core drilling system. 3,837,412, Cl. 175-104.000.
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- Duguay, Michel Albert; and Galt, John Kirtland, to Bell Telephone Laboratories, Incorporated. Optical switching network utilizing organ arrays of optical fibers. 3,838,278, Cl. 250-227.000.
- Dulux Australia Ltd.: *See—*
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- Dumbaugh, William H., Jr., to Corning Glass Works. PbO-CdO-Tl_2O-Fe_2O_3 glasses. 3,837,867, Cl. 106-47.00r.
- Duncan, Lloyd P.; and Oberg, Nathan, to Zero Manufacturing Company. Automatic milker release. 3,837,318, Cl. 119-14.080.
- Dunkin, Albert, to Diamonhead Corporation. Apparatus for transferring objects. 3,837,470, Cl. 198-184.000.
- Dunn, Garf L., to Zero Gage Company, mesne. Range-extension device for double-probe hole-location and concentricity gauge. 3,837,085, Cl. 33-174.00q.
- Dunn, Richard P., to International Boring Systems Co., Inc. Boring method and improved boring head. 3,837,413, Cl. 175-292.000.
- Dunn, William M., to Federal-Mogul Corporation. Method of making a composite high-strength sleeve. 3,837,068, Cl. 29-420.500.
- Dur, Herbert, to Konrad Doppelmayr & Sohn, Firma. Device for connecting a sporting device, transport device or the like to the towrope of a tow lift. 3,837,290, Cl. 104-193.000.
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  - Kuttruff, Gary W.; and Durham, Raymond F., 3,837,173.
- Durrant, Oliver W.; and Smith, John William, to Babcock & Wilcox Company, The. Control system for a two boiler, single turbine generator power producing unit. 3,837,167, Cl. 60-664.000.
- Dutoit, Michel, to Allied Chemical Corporation. Acoustic devices using amorphous metal alloys. 3,838,365, Cl. 333-30.00r.
- Dutton, Gordon Stanley, to Vacuumatic Limited. Apparatus for counting a stack of sheets. 3,838,255, Cl. 235-92.0sb.
- Dymond, Russell H., to Reading and Training Systems, Inc. Reading trainer. 3,837,097, Cl. 35-35.00b.
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- Earley, James Valentine; Fryer, Rodney Ian; and Walser, Armin, to Hoffmann-La Roche Inc. Process for preparing 1,4-benzodiazepines. 3,838,116, Cl. 260-239.0bd.
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- Ebeling, Harold O.; and Smith, Russell D., to Black, Sivalls & Bryson, Inc. Waste gas incinerator. 3,837,813, Cl. 23-277.00c.
- Eberhart, Wolfgang R. Method for forming integral internal channels in glass tubing. 3,837,830, Cl. 65-54.000.
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- Eckart, Albert Edmund, Jr., to Sapolin Paints, Inc. Method for preparing windows for spray painting. 3,837,949, Cl. 156-71.000.
- Economy, James; Highsmith, Ronald E.; and Mason, John H., to Carborundum Company, The. Boron nitride products. 3,837,997, Cl. 161-170.000.
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  - Paton, Boris Evgenievich; Lebedev, Vladimir Konstantinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovih; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladmir Mikhailovich; and Voronin, Georgy Alexandrovich, 3,838,200.
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- Edwards, Alfred Gerald, to Albright & Wilson Limited. Curable aralkylene/phenol resins and the process of curing said resins using salicylic acid. 3,838,103, Cl. 260-52.000.
- Egan, Dale W.; Holstrom, Geoffrey B.; and Lord, Harry C., to Environmental Data Corporation. Spectrometers. 3,837,744, Cl. 356-93.000.
- Eggensperger, Heinz; Franzen, Volker; and Stephan, Hans, to Ciba-Geigy AG, mesne. Reaction products of phenol derivatives with phosphorous compounds as stabilizers for polymers. 3,838,100, Cl. 260-45.95c.
- Eggers, Larry A.; and Eggers, Walter A. Night fishing light. 3,838,267, Cl. 240-6.40f.
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- Eickelberg, Henry L., to Modern Equipment Company. Method for pouring liquid metal using electromagnetic pump. 3,837,531, Cl. 222-1.000.
- Eklund, Kjell, to Nitro Nobel AB. Wire connector for two electric wires, which may possible be connected to electric detonators. 3,838,206, Cl. 174-87.000.
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- Electric Machinery Mfg. Company: *See—*
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- Emhart Corporation: *See—*
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- Eminger, Harry E.; and Campbell, Alan H., to Westinghouse Electric Corporation. Gate valve. 3,837,617, Cl. 251-87.000.
- Endter, Dale S.; and Miller, Edwin E., to Eastman Kodak Company. Alignment station for aperture card photographic copying machine. 3,837,637, Cl. 271-11.000.
- Engel, Walter, to Werkzeugmaschinenfabrik Oerlikon-Buhrle AG. Method for securing a projectile in a sabot. 3,837,057, Cl. 29-1.200.
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  - Yang, David C., 3,837,488.
- Englert, Robert D.; Berriman, Lester P.; and Rendall, John L. Semipermeable membrane. 3,837,900, Cl. 117-93.1dh.
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- Erlenbach, Hans. Apparatus for the manufacture of molded articles of foam-forming thermoplastic synthetics. 3,837,769, Cl. 425-4.00r.
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- Ertaud, Andre; Panossian, Jacques; and Carbonnel, Henri, to Groupement Atomique Alsacienne Atlantique. Liquid metal conduction pump. 3,837,763, Cl. 417-50.000.
- Erwin, Ransome W., to Austral-Erwin Engineering Co. Preparation of plastic-metal products including laminates, composite tubes and the like. 3,837,956, Cl. 156-218.000.
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- Evans, Bryce B.; and Elsner, Edwin C., to Aeroquip Corporation. Spring for composite sealing ring and method of manufacture. 3,837,631, Cl. 267-1.500.
- Evans, Ernest C., to Kimberly-Clark Corporation. Plastic cushioning reinforced material. 3,837,991, Cl. 161-68.000.
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- Evich, Vincent J., to Star-Kist Foods, Inc.,. Meal drying pollution control apparatus. 3,837,272, Cl. 99-483.000.
- Ewanus, Walter; and Mc Kone, Donald B., to Westinghouse Electric Corporation. Differential encoded quadriphase demodulator. 3,838,350, Cl. 329-104.000.
- Ewers, Ronald L., to Game Time, Inc. Playground support using compressible elastomer element. 3,837,610, Cl. 248-374.000.
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- Farrell, John J., to Farrell Patent Company. Product cooling for blow molding. 3,837,776, Cl. 425-242.00b.
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- Fedele, Franco, to Norca Machinery Corporation. Reduced pivot center distance assembly for a railway car. 3,837,295, Cl. 105-367.000.
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Frauenglass, Elliott; and Murray, Bruce D., to Loctite Corporation. Composition and process for sealing surfaces. 3,837,963, Cl. 156-310.000.
Frebar A.G., mesne: *See—*
    Cadeo, Angelo; and Cavelti, Josef, 3,837,914.
Fredell, Gary D.; and DeGryse, Gentiel M., to Gulf & Western Industries, Inc. Magnetic slip clutch. 3,837,232, Cl. 74-142.000.
Freize, Ronny G.; and Ferguson, George R., to Murphy, G. W., Industries, Inc. Pulsed metering lubricator. 3,837,431, Cl. 184-7.00d.
French, Michael Joseph. Continuously variable friction drive, having intermediate member engaged on both sides for increased torque transmission. 3,837,233, Cl. 74-200.000.
Freudendahl, Jan, to Jens Axel Freudendahl. Container, especially for agricultural products. 3,837,520, Cl. 220-1.500.
Fridge, David S.: *See—*
    Hughes, Michael; and Fridge, David S., 3,838,434.
Friedemann, Wolfgang; and Germscheid, Hans Gunther, to Henkel & Cie GmbH. Sealing anodized aluminum. 3,838,023, Cl. 204-35.00n.
Frind, Gerhard; Owen, Michael; and Damsky, Ben Lee, to General Electric Company. Current limiting fuse. 3,838,375, Cl. 337-276.000.
Frisch, Dorothy Randall: *See—*
    Frisch, Erling; and Andrews, Harry N., 3,837,694.
Frisch, Erling; deceased (by Frisch, Dorothy Randall; executrix); and Andrews, Harry N., to Westinghouse Electric Corporation. Hydraulic head closure mechanism. 3,837,694, Cl. 292-256.750.

Fritch, Junior L.; and Brandeberry, Don R., to Robinair Manufacturing Corporation. Multi;stage rotary vacuum pump with separate oil reservoir. 3,837,764, Cl. 417-62.000.
Fritsch, Werner: *See—*
    Stache, Ulrich; Fritsch, Werner; Haede, Werner; Radscheit, Kurt; and Lindner, Ernst, 3,838,146.
Fritz, Heinz-Peter; Treptow, Wolfram; and Faber, Peter, to Rheinisch-Westfalisches Elektrizitatswerk A.G. Chemoresistant electroductive substance and process for making same. 3,837,927, Cl. 148-6.300.
Fritz, Robert; and Simon, Werner, to Siemens Aktiengesellschaft. Method of performing service procedures in a computer controlled telecommunication switching center. 3,838,231, Cl. 179-175.20r.
Fryer, Rodney Ian: *See—*
    Earley, James Valentine; Fryer, Rodney Ian; and Walser, Armin, 3,838,116.
Fuchs, Gundolf: *See—*
    Pirck, Dietrich; Fuchs, Gundolf; and Sachse, Gerhard, 3,838,087.
Fuji Photo Film Co., Ltd.: *See—*
    Shiba, Keisuke; Sato, Akira; and Ogawa, Akira, 3,837,862.
    Tatsuta, Sumitaka; and Ueno, Wataru, 3,837,886.
    Tsuji, Nobuo; and Hasegawa, Eiichi, 3,837,859.
Fuji Photo Optical Co., Ltd.: *See—*
    Suzuki, Masane; Kanaya, Motonori; and Seki, Kazuhisa, 3,837,726.
Fuji Xerox Co., Ltd.: *See—*
    Tanimoto, Kenji, 3,838,344.
Fujiki, Tokio: *See—*
    Kosaka, Yujiro; Uemura, Masaru; Fujiki, Tokio; and Saito, Mitsutaka, 3,838,079.
Fujimori, Yoshiaki, to Kabushiki Kaisha Suwa Seikosha. Hard metal watch band. 3,837,163, Cl. 59-80.000.
Fujitsu Limited: *See—*
    Maeda, Kazuo; and Shirai, Kazunari, 3,837,935.
Fujiwara, Yoshihiro; and Meki, Norio, to Matsushita Electric Industrial Co., Ltd. Circuit for reducing white balance variations. 3,838,208, Cl. 178-5.4bt.
Fukumoto, Jyuichiro; Yamamoto, Takehiko; and Tsuru, Daisuke, to Kyowa Hakko Kogyo Co., Ltd. Process for producing detergent resisting alkaline protease. 3,838,009, Cl. 195-65.000.
Funayama, Chihito: *See—*
    Hoshino, Yoichi; Honda, Kotaro; Funayama, Chihito; and Tanaka, Goro, 3,838,074.
Furuta, Kazuyoshi: *See—*
    Hikai, Akio; Kobayashi, Yoshiyuki; and Furuta, Kazuyoshi, 3,837,606.
Gaarder, Jan Ornulf: *See—*
    Berntsson, Peder Bernhard; Gaarder, Jan Ornulf; and Lamm, Bo Robert, 3,838,027.
Gabbard, Ova G.: *See—*
    Schmidt, William G.; Gabbard, Ova G.; Husted, John M.; Maillet, Wilfrid G.; and Nosaka, Kunishi, 3,838,221.
Gach, Peter P., to Sunbeam Plastics Corporation. Tamper-proof and child-proof medicine bottle or the like. 3,837,518, Cl. 215-7.000.
Gaetani, Bruno: *See—*
    Arrigoni, Virgilio; Gaetani, Bruno; Marchesi, Gianfranco; and Zanoni, Gianfranco, 3,837,165.
GAF Corporation: *See—*
    Brachman, Armand Edward, 3,838,105.
    Madsen, John S., 3,837,275.
    Randall, David I.; and Wynn, Robert W., 3,838,180.
    Viro, Felix; Shannahan, Robert Thomas; and Waxman, Burton Harvey, 3,837,852.
    Waxman, Burton Harvey; Shannahan, Robert Thomas; and Viro, Felix, 3,837,854.
Gaillochet, Jean R., to MARINONI. Torque-limiting clutch. 3,837,451, Cl. 192-56.00r.
Gaines, Donald Joseph, to Honeywell, Inc. Underspeed/overspeed detector. 3,838,341, Cl. 324-161.000.
Gaitten, Walden M., to Kockum Industries, Inc. Tree cutting apparatus with improved cutting and gripping head assembly. 3,837,382, Cl. 144-34.00e.
Gale, Myron C. Manhole cover puller and method. 3,837,622, Cl. 254-131.000.
Galileo Electro-Optics, Corporation, mesne: *See—*
    Catchpole, Clive E., 3,837,723.
Galt, John Kirtland: *See—*
    Duguay, Michel Albert; and Galt, John Kirtland, 3,838,278.
Gamarra, Jose P.: *See—*
    Wilson, Katherine W.; Swidler, Ronald; and Gamarra, Jose P., 3,837,799.
Gambro AG: *See—*
    Hagstrom, Olov; and Riede, Gerhard, 3,837,496.
Game Time, Inc.: *See—*
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Ganther, Kenneth R., Jr.: *See—*
    King, Edward J., Jr.; Ganther, Kenneth R., Jr.; and Grillot, Ronald Eugene, 3,838,427.
Garde, Lawrence; and Ritter, Rolland R., to Control Data Corporation. Compensated baseline circuit. 3,838,448, Cl. 360-45.000.
Gardiol, Maurice: *See—*
    Recasens, Joseph; and Gardiol, Maurice, 3,837,870.
Gardner, Edward Boyd, to Emhart Corporation. Article inspection system. 3,837,486, Cl. 209-111.700.
Garlock, Inc.: *See—*
    Malloy, Edward D.; and Parsons, William L., Jr., 3,837,620.
Gartner, Klaus W.; Van Ryne, Randall Edward; and Higgins, Eldon C., to Sargent & Greenleaf, Inc. Key changing lock for safe deposit boxes. 3,837,196, Cl. 70-339.000.
Gates, Robert H.; and Schneider, Harold G., to Concrete Pipe Machinery Company. Method for making a pipe reinforcing cage. 3,837,370, Cl. 140-71.00r.
Gates Rubber Company, The: *See—*
    Menough, Richard M.; and Cuddigan, Robert W., 3,837,387.
    Russ, Paul E., Sr., 3,837,714.
Gauthier, George J., to Pfizer Inc. Di(dialkylaminoalkoxy) phenanthridines as antiviral agents. 3,838,131, Cl. 260-286.00a.
Gauthier, George J. Phenanthridinones as antiviral agents. 3,838,134, Cl. 260-286.00a.
Gazuit, Georges. Vulcanizing press intended for curing radial tires by means of a bladder of toroidal shape. 3,837,770, Cl. 425-33.000.
Gebhardt, Wallace A.: *See—*
    Wolf, Walter A.; Gebhardt, Wallace A.; and Corn, Prentice R., 3,838,236.
Gebr. Bohler & Co. AG: *See—*
    Tarmann, Bruno A., 3,837,207.
Gebruder Boehringer Gesellschaft mit beschrankter Haftung: *See—*
    Schuler, Hermann; and Zeller, Bruno, 3,837,245.
Gebrueder Buehler AG: *See—*
    Espeel, Frans Joris, 3,837,615.
Gehlan, Hermann Walter. Vehicle with depositable ramp for the forming of bridges, particularly floating bridges and ferries. 3,837,027, Cl. 14-27.000.
Gehrmann, Klaus; Erpenbach, Heinz; Handte, Heinz; and Bredtmann, Manfred, to Knapsack Aktiengesellschaft. Process for isolating formaldehyde from mixtures of acetic acid, formaldehyde and water by distillation with added water. 3,838,018, Cl. 203-92.000.
Gembicki, Stanley: *See—*
    Kuchuris, Louis G.; and Gembicki, Stanley, 3,837,560.
General Dynamics Corporation: *See—*
    Baxter, George I.; Rolla, Clarence P.; and Holland, Charles L., 3,837,176.
    Petrides, Petros T.; Nickerson, Russell J.; Cordeiro, Rodney R.; and Dodson, James S., Jr., 3,838,244.
General Electric Company: *See—*
    Barrett, David M.; and Chrapkowski, Ralph K., 3,838,287.
    Beers, Melvin D., 3,837,878.
    Bellamy, Winthrop D.; and Chakrabarty, Ananda M., 3,838,198.
    Bennett, James G.; and Cooper, Gleen D., 3,838,102.
    Bergeron, John A., 3,838,013.
    Cole, Herbert S., Jr., 3,837,944.
    Cusano, Dominic A., 3,838,273.
    Frind, Gerhard; Owen, Michael; and Damsky, Ben Lee, 3,838,375.
    Gluntz, Douglas M.; Fitzsimmons, George W., Jr.; Wolf, Siegbert; and Kudirka, Alvydas A., 3,838,002.
    Groves, James N., 3,838,034.
    Hibbs, Louis E., Jr., 3,837,819.
    Jenkins, Thomas E.; and Cushing, Donald S., 3,837,917.
    Jenne, Leonard W., Jr., 3,838,306.
    Jones, Clifford M.; and Harnden, John D., Jr., 3,838,412.
    Jordan, John D., 3,838,312.
    Kaduk, Edward E., 3,838,060.
    Leete, Bernard D., 3,838,294.
    Levy, Samuel, 3,837,550.
    Nash, Dudley O.; Lyons, Charles S.; and Hollett, Ronald C., 3,837,411.
    Peil, William, 3,838,210.
    Prendergast, John F.; Chrapkowski, Ralph K.; and Lang, George R., 3,838,286.
    Schmidt, Robert Theodore; and Mulka, John Daniel, 3,838,318.
    Seybolt, Alan U., 3,837,901.
    Wirth, Joseph G.; and Heath, Darrell R., 3,838,097.
General Motors Corporation: *See—*
    Hile, John W.; and Chen, Mao-Chieh, 3,837,905.
    Hochstein, Peter A., 3,838,142.
    Van House, Robert M.; and Mayne, Jimmy C., 3,837,711.
Georg Fischer Aktiengesellschaft: *See—*
    Mayer, Otto Fritz, 3,837,092.
George, David Weinschenk, to Wean United, Inc. Belt carrier device for presses. 3,837,779, Cl. 425-28.00b.
Georgopulos, Thomas; and McCormick, Maurice D., to GTE Automatic Electric Laboratories Incorporated. Case for electrical components. 3,838,213, Cl. 178-46.000.
Gerber, Arthur H., to Horizons Incorporated; a division of Horizons Research Incorporated. 2,6-Diamino-3,5-dinitropyridines and derivatives thereof. 3,838,154, Cl. 260-294.80f.
Gerber Scientific Instrument Company, The: *See—*
    Logan, David J., 3,838,258.
Gerk, Richard G., to FORMOLD, a division of VCA Corporation. Plastic dispensing nozzle with reclosable closure cap. 3,837,535, Cl. 222-143.000.
Germer, Horst. Apparatus for thermally recording character patterns. 3,838,431, Cl. 346-76.00r.
Germscheid, Hans Gunther: *See—*
    Friedemann, Wolfgang; and Germscheid, Hans Gunther, 3,838,023.
GFM Gesellschaft fur Fertigungstechnik und Maschinenbau Aktiengesellschaft: *See—*
    Pristavnik, Rudolf, 3,837,059.

Giblon, Robert P., to Sharp, George G., Inc. Tug-barge system and method. 3,837,315, Cl. 114-235.00r.

Gieles, Antonius Cornelis Maria; Haans, Petrus Franciscus Antonius; and Van Esdonk, Johannes, to U.S. Phillips Corporation. Pressure transducer for liquids or gases. 3,838,379, Cl. 338-42.000.

Gilbert Associates, Inc.: *See—*
White, Donald P., 3,838,289.

Gillette Company, The: *See—*
Hutson, Dwight D.; and Rader, Charles A., 3,838,084.

Ginsburgh, Irwin, to Standard Oil Company. Data receiving storing and imprinting apparatus. 3,837,570, Cl. 235-61.90r.

Girest, George G. Reflectorized sleeves. 3,837,007, Cl. 2-93.000.

Girling Limited: *See—*
Farr, Glynn Philip Reginald, 3,837,354.

Gish, Leonard W. Safety scaffold with electromagnets. 3,837,428, Cl. 182-129.000.

Gist-Brocades N.V.: *See—*
van Velzen, Antoon Gerardus, 3,838,007.

Glaab, Berthold: *See—*
Perschbacher, Otto; Hunke, Friedrich; and Glaab, Berthold, 3,837,586.

Gladnick, Ronald C., to Compass Holding Corporation. Boat alignment apparatus for attachment to boat trailer. 3,837,509, Cl. 214-84.000.

Glass, Marvin, & Associates: *See—*
Brand, Derek A.; and Imatt, Alexander, 3,837,286.
Breslow, Jeffrey D., 3,837,648.

Glaverbel-Mecaniver, mesne: *See—*
Voiturier, Jean-Pierre; and Jacquemin, Francis, 3,837,126.

Gleim, Paul S.: *See—*
Bean, Kenneth E.; Gleim, Paul S.; and Runyan, Walter R., 3,838,441.

Globe Machine Manufacturing Co., Inc.: *See—*
Lumn, George A., 3,837,250.

Gluntz, Douglas M.; Fitzsimmons, George W., Jr.; Wolf, Siegbert; and Kudirka, Alvydas A., to General Electric Company. Jet pump for nuclear reactor. 3,838,002, Cl. 176-65.000.

Glynwed Foundries Limited: *See—*
Provan, Ducan Whyte, 3,837,389.

Godfrey, Janelle R.: *See—*
Godfrey, R. Ira; and Godfrey, Janelle R., 3,837,111.

Godfrey, R. Ira; and Godfrey, Janelle R. Animated toy container. 3,837,111, Cl. 46-11.000.

Goeders, John J., to True Pitch, Inc. Pitching rubber. 3,837,646, Cl. 273-25.000.

Goering, Rodney S., to United States of America, National Aeronautics and Space Administration. Open tube guideway for high-speed air-cushioned vehicles. 3,837,285, Cl. 104-23.0fs.

Goetz, Frederick J., Jr.; and Kalenda, Edward R., to Motorola, Inc. Door hinge. 3,837,044, Cl. 16-184.000.

Goffe, Frederick William Frank: *See—*
Lockwood, Charles Alfred; Goffe, Frederick William Frank; and Julian, Ronald, 3,837,025.

Goken, Garold L.: *See—*
Nelson, Alfred Dwayne; and Goken, Garold L., 3,837,948.

Golantsev, Oleg Alexandrovich; Zhdaneev, Vasily Vasilievich; Bocharov, Vladislav Ivanovich; and Bodrov, Evgeny Dmitrievich. Stacking machine. 3,837,140, Cl. 53-159.000.

Golay, Marcel J. E. Indicia display device. 3,837,102, Cl. 40-28.00c.

Goldfarb, Adolph E.; Strader, George C.; and Strader, Judy D., to Adolph E. Goldfarb. Walking two-legged figure toy with rigid forward extension. 3,837,114, Cl. 46-149.000.

Goldfischer, Lester I., to Singer, Company, The. Microwave interference pattern sensor. 3,838,424, Cl. 343-8.000.

Golding, David R. V.: *See—*
Haury, Vernon E.; and Golding, David R. V., 3,837,938.

Gomez, Juan Bautista Ripoll. Hydraulic jacks for tensioning reinforcement elements. 3,837,621, Cl. 254-29.00a.

Good, Lewis B., Jr. Power operated portable shear device. 3,837,076, Cl. 30-180.000.

Goodhouse, Carl J.; and Niemand, Emil, to Robertshaw Controls Company. Computer cooking means. 3,837,568, Cl. 235-61.00a.

Goodrich, Donald B. Adjustable multi-leg load-carrying sling apparatus. 3,837,697, Cl. 294-74.000.

Goodyear Tire & Rubber Company, The: *See—*
Di Paola, Samuel J., 3,837,982.
Lawrence, John P., 3,838,114.
Marra, Theodore F., 3,837,968.
Mezynski, Stanley M., 3,837,969.

Gormly, John F., to Xerox Corporation. Controller for automatically answering and disconnecting calls to and from telephone interfaced facsimile terminals. 3,838,220, Cl. 179-3.000.

Gorter, Werner; Kresta, Erich; and Stumpf, Horst, to Semperit Aktiengesellschaft. Molded article formed of fiber reinforced material. 3,837,986, Cl. 161-59.000.

Gorynina, Zoya Alexandrovna: *See—*
Paton, Boris Evgenievich; Lebedev, Vladimir Konstantinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovih; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladmir Mikhailovich; and Voronin, Georgy Alexandrovich, 3,838,200.

Goss, Lorane C., Jr.; Cribben, James T.; and Miller, Joseph J., to Capitol Products Corporation. Storm window. 3,837,118, Cl. 49-61.000.

Goucher, Robert G., to Hogle-Kearns International. Surgical instrument employing electrically neutral, D.C. induced cold plasma. 3,838,242, Cl. 219-121.00p.

Gounon, Rene: *See—*
Calves Jean; and Gounon, Rene, 3,838,426.

Grace, W. R., & Co.: *See—*
Vaughan, David E. W.; Maher, Philip K.; and Albers, Edwin W., 3,838,037.

Gracie, Christopher Arthur James, to Ferranti Limited. Film strip readout apparatus with movable optical element. 3,838,402, Cl. 340-173.01m.

Graf, Peter; and Roess, Dieter, to Siemens Aktiengesellschaft. Storage medium, method for recording information thereon, and apparatus for retrieving the information therefrom. 3,838,401, Cl. 340-173.01m.

Graham, Francis David; and Bryceland, Maurice Cyril, to Swisslok Company. Devices for connecting two plates. 3,837,136, Cl. 52-760.000.

Granco Equipment, Inc.: *See—*
Phillips, William A., 3,837,794.

Granitzki, Karl-Ernst: *See—*
Kohl, Helmut; Forhauser, Siegfried; Mantell, Detmar; Granitzki, Karl-Ernst; Hess, Heinrich; and Schiefer, Paul, 3,837,630.

Grant, Louis R., Jr.; and Wagner, Ross I., to Rockwell International Corporation. Reaction of beryllium alkyl compounds with mixture of B_2H_6 and B_4H_{10}. 3,837,941, Cl. 149-22.000.

Grant, Roy Arthur, to Tasman Vaccine Laboratories Limited. Processes for the recovery of protein from waste effluents using regenerated cellulose ion-exchange resins. 3,838,143, Cl. 260-112.00r.

Gray, John Meredith: *See—*
Davis, Alan Russell; Lacey, Raymond Dennis; and Gray, John Meredith, 3,837,208.

Gray, Paul R.: *See—*
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Great Lakes Carbon Corporation: *See—*
Hill, James Edward, 3,837,904.

Great Lakes Chemical Corporation: *See—*
Carroll, William J., 3,837,304.

Green, David T., to United States Surgical Corporation. Powering instrument for stapling skin and fascia. 3,837,555, Cl. 227-130.000.

Green, Edgar E., to Abbott, Paul, Co., Inc. Tool bar mounting clamp. 3,837,408, Cl. 172-702.000.

Greenberger, Joseph Irwin, to Wean United, Inc. Strip jointing apparatus for rolling mills and the like. 3,837,559, Cl. 228-4.000.

Greene, Peter Townsend: *See—*
Rau, Hans; Wegener, Joachim Rolf; and Greene, Peter Townsend, 3,837,839.

Greenwald, Michael, to Amtel, Incorporated. Garment display device. 3,837,544, Cl. 223-87.000.

Greenwell, Jack E., to Lear Motor Corporation. Induction motor system with constant horsepower. 3,838,322, Cl. 318-225.00r.

Greenwood, Arthur R.: *See—*
Vesely, Kenneth D.; and Greenwood, Arthur R., 3,838,039.

Greenwood, ARthur R.; and Vesely, Kenneth D., to Universal Oil Products Company. Continuous conversion and regeneration process. 3,838,038, Cl. 208-108.000.

Greiner, Norman Shirk; and Hannington, Norman, to Johns-Manville Corporation. Assembly for press-forming sheet material. 3,838,001, Cl. 162-416.000.

Grenier, Maurice: *See—*
Buffiere, Jean-Pierre; and Grenier, Maurice, 3,837,821.

Gress, Paul William; and Over, William Roderick, to AMP Incorporated. Multi-stroke hand tool. 3,837,211, Cl. 72-410.000.

Gretsky, Yury Yakovelevich: *See—*
Asnis, Arkady Efimovich; Gretsky, Yury Yakovelevich; and Metlitsky, Vladislav Alexandrovich, 3,838,246.

Gribbin, Ronald, to Clark, Son and Morland Limited and I.W.S. Nominee Company Limited. Manufacture of pile fabrics. 3,837,946, Cl. 156-68.000.

Grieve, Robin L.: *See—*
Kolakowski, Richard A.; Grieve, Robin L.; and Tilgner, Peter, 3,837,771.

Griff, William, to Bunker-Ramo Corporation, The. Coaxial interconnections. 3,837,074, Cl. 29-624.000.

Griffith, Glen R.: *See—*
Watson, George A.; and Griffith, Glen R., 3,838,397.

Grigsby, Gilbert R., to Lubrastart International. Starting fluid injection system. 3,837,541, Cl. 222-397.000.

Grillet, Jacques. Wiring connector. 3,838,387, Cl. 339-244.0vc.

Grillot, Ronald Eugene: *See—*
King, Edward J., Jr.; Ganther, Kenneth R., Jr.; and Grillot, Ronald Eugene, 3,838,427.

Grip-Pak, Inc., mesne: *See—*
Cunningham, Ernest R., 3,837,478.

Grisar, J. Martin; Claxton, George P.; Blohm Thomas R.; and Roberts, Edward McC., to Richardson-Merrell Inc. Cycloalkyllactamimides. 3,838,151, Cl. 260-239.00b.

Gross Manufacturing Corporation: *See—*
Williams, Michael J.; Blome, Frederick C.; and Hueter, Otto W., 3,837,987.

Grosseau, Albert, to Societe Anonyme Automobiles Citroen. Anti-locking braking device. 3,837,712, Cl. 303-21.00f.

Groupement Atomique Alsacienne Atlantique: *See—*
Ertaud, Andre; Panossian, Jacques; and Carbonnel, Henri, 3,837,763.

Groves, James N., to General Electric Company. Apparatus for detection of catalase-containing bacteria. 3,838,034, Cl. 204-195.00b.

Gruber, Wolfgang: *See—*
Hagen, Alexander; Bergmeyer, Hans Ulrich; Gruber, Wolfgang; Beaucamp, Klaus; and Jaworek, Dieter, 3,838,011.
Lippert, Werner; Bernt, Erich; Gruber, Wolfgang; and Bergmeyer, Hans Ulrich, 3,838,065.

Grumman Aerospace Corporation: *See—*
Benoit, Robert L.; Peters, Winslow W.; and Morgan, Joseph, 3,837,755.

Grushon, Harold N., to Monarch Marking Systems, Inc. Pinning machine. 3,837,554, Cl. 227-25.000.

Gschwend, Norbert: *See—*
Bahler, Andre; Gschwend, Norbert; and Scheier, Heinrich, 3,837,008.

GTE Automatic Electric Laboratories Incorporated: *See—*
Brandt, William F., 3,838,339.
Caputo, James P., 3,838,398.
Georgopulos, Thomas; and McCormick, Maurice D., 3,838,213.
Lee, David Q.; and McLaughlin, Donald W., 3,838,223.
Lee, David Q.; and McLaughlin, Donald W., 3,838,228.
Limberg, Anthony; Wedmore, William R.; Ellyn, Glen; and Young, John S., 3,838,225.
Maruscak, John; and Hendry, George McRae, 3,838,239.
McGough, Gerald B., 3,837,566.
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Sanabria, Rafael A., 3,838,399.

GTE International Incorporated: *See—*
Warman, Bloomfield James; Evans, John Ford; Walker, Stephen Sidney; Mc Pherson, John Hugh; and Sutton, Alan, 3,838,226.

GTE Laboratories, Incorporated: *See—*
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GTE Sylvania Incorporated: *See—*
Behringer, Cecil; and Kamin, George J., 3,837,880.
McDonough, Thomas B.; and Shaffer, John W., 3,837,786.
Van Der Schoot, Theodore H., 3,837,471.

Guest, Robert J., to Halliburton Company. Self-propelled pipeline plug. 3,837,214, Cl. 73-40.50r.

Guggi, Walter Bernhard. Stabilized inverter. 3,838,333, Cl. 321-45.00r.

Gugle, James E.: *See—*
Wagner, David P.; and Gugle, James E., 3,837,984.

Guida, Michael F. Food-handling guides for refrigerators and freezers. 3,837,100, Cl. 40-2.000.

Guillet, Henri. Improved spring loaded spectacle hinge. 3,837,735, Cl. 351-113.000.

Guisinger, John E.: *See—*
Lewicki, George W.; and Guisinger, John E., 3,837,908.

Gulf & Western Industries, Inc.: *See—*
Fredell, Gary D.; and DeGryse, Gentiel M., 3,837,232.

Gulf Research & Development Company: *See—*
Beuther, Harold; Chun, Sun W.; and Montagna, Angelo A., 3,838,042.
Kehl, William L.; and Rennard, Raymond J., Jr., 3,838,182.

Gullickson, Cecil F. Sight and sound musical instrument instruction. 3,837,256, Cl. 84-478.000.

Gumb, Bev. William: *See—*
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Gustafsson, Melker Emanuel; Stradalen, Yngve Bertil; and Zander, Erik Gustav Ake, to AB Bofors. Rocket for firing and spreading reflecting material. 3,837,278, Cl. 102-34.400.

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Haberland, Peter H.; Lay, Frank M.; Murphy, Thomas J.; Skolnik, Marvin B.; Spencer, Oliver S.; Wagner, Peter R.; Whitaker, Howard L.; and Wilson, Donald M., to International Business Machines Corporation. Gas panel fabrication. 3,837,724, Cl. 316-20.000.

Haberle; Walter. Apparatus for automatically cleaning toilet seats. 3,837,018, Cl. 4-233.000.

Habostad, Arne. Paint roller tray with self-contained roller cleaning means. 3,837,035, Cl. 15-257.060.

Hackforth, Bernhard; and Hackforth, Josef, to Vulkan Kupplungs-und Getriebau Bernard Hackforth. Flexible shaft coupling. 3,837,178, Cl. 64-13.000.

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Hagen, Alexander; Bergmeyer, Hans Ulrich; Gruber, Wolfgang; Beaucamp, Klaus; and Jaworek, Dieter, to Boehringer Mannheim GmbH. Process and apparatus for the quantitative determination of an enzymatically reactive substance. 3,838,011, Cl. 195-103.50r.

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Hamm, Heinz, to Rollei-Werk Franke & Heidecke. Photographic lens adapter ring for interchangeable lenses. 3,838,437, Cl. 354-270.000.

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Hammer, Frank E., to Searle, G. D., & Co. Photometric method for determining lactic acid dehydrogenase or glucose-6-phosphate dehydrogenase. 3,838,010, Cl. 195-103.50r.

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Paton, Boris Evgenievich; Lebedev, Vladimir Konstantinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovih; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladmir Mikhailovich; and Voronin, Georgy Alexandrovich, 3,838,200.

Kagata, Tooru, to Aisin Seiki Kabushiki Kaisha. Locking differential. 3,837,236, Cl. 74-711.000.

Kageyama, Osamu; Kai, Manabu; and Yokoo, Horosi, to Daicel Ltd. Process for purifying alkylene oxides by extractive distillation with a plural solvent mixture. 3,838,020, Cl. 203-56.000.

Kagiya, Tsutomu; and Hagiwara, Miyuki, to Japan Atomic Energy Research Institute. Process for preparing of polytetrafluoroethylene resin wax. 3,838,030, Cl. 204-159.140.

Kai, Manabu: *See—*
Kageyama, Osamu; Kai, Manabu; and Yokoo, Horosi, 3,838,020.

Kajitani, Yoshiaki; Ito, Hayami; and Mitsuda, Susumu, to Kawasaki Jukogyo Kabushiki Kaisha. Method of treating nitrogen oxide generating substances by combustion. 3,838,193, Cl. 423-351.000.

Kakimoto, Morio: *See—*
Shindo, Minoru; Kakimoto, Morio; and Nagano, Hiroyuki, 3,838,117.

Kalenda, Edward R.: *See—*
Goetz, Frederick J., Jr.; and Kalenda, Edward R., 3,837,044.

Kalwaites, Frank, to Johnson & Johnson. Method (closed sandwich with large aperture forming means and perforated backing means). 3,837,046, Cl. 19-161.00p.

Kamiji, Mamoru, to Nippondenso Co. Ltd. Capacitor discharge ignition system. 3,837,326, Cl. 123-148.00e.

Kamin, George J.: *See—*
Behringer, Cecil; and Kamin, George J., 3,837,880.

Kaminow, Ivan Paul: *See—*
Carruthers, John Robert; and Kaminow, Ivan Paul, 3,837,827.

Kammerling, Walter: *See—*
Allen, Nigel Stafford David; and Kammerling, Walter, 3,837,716.

Kanaya, Motonori: *See—*
Suzuki, Masane; Kanaya, Motonori; and Seki, Kazuhisa, 3,837,726.

Kanbe, Masaru: *See—*
Sakazume Kaiichiro; Sakamoto, Eiichi; Mine, Kiyomitsu; and Kanbe, Masaru, 3,837,863.

Kanij, Johannes B. W.; Noothout, Arend J.; and Hermans, Marie E. A., to Reactor Centrum Nederland. Method for the preparation of concentrated anion-deficient salt solutions. 3,838,062, Cl. 252-301.10r.

Kanki, Hiroshi; Suzuki, Torao; and Kurita, Kazuyoshi, to Takeda Chemical Industries Ltd. Device for the transport and filling of ampoules. 3,837,378, Cl. 141-146.000.

Kanno, Isawo; Takashima, Toshiyuki; and Bokuda, Yoshiyuki, to Sekisui Kagaku Kogyo Kabushiki Kaisha. Laminated safety glass and interlayer therefor. 3,838,091, Cl. 260-31.20r.

Kaplan, Herbert E. Extension arrangement for glass top tables. 3,837,297, Cl. 108-69.000.

Kaposhilin, George N.: *See—*
Marion, Andre F.; and Kaposhilin, George N., 3,838,291.

Karmas, George, to Ortho Pharmaceutical Corporation. Aryl substituted-hydroxy substituted cyclohexanecarboxylic acids. 3,838,172, Cl. 260-345.700.

Karr, Willis F., to Sparton Corporation. Coin receptacle vault. 3,837,300, Cl. 109-57.000.

Kasper, George P.: *See—*
Trachtenberg, William; McCabe, John M.; and Kasper, George P., 3,838,054.

Kasper, Joseph G., to Tennant Company. Scrubbing machine. 3,837,029, Cl. 15-50.00c.

Kato, Kazuo: *See—*
Sugiura, Mamoru; Kitamikado, Tadashi; and Kato, Kazuo, 3,838,150.

Kato, Saburo; and Hokari, Saburo. Audio-visual apparatus including magnetic sheet mounting and hold-down means. 3,837,738, Cl. 353-23.000.

Kato, Yoshihiko: *See—*
Masuda, Maosuke; Abe, Toshihiro; and Kato, Yoshihiko, 3,837,713.

Katsevich, Leonid Savvich: *See—*
Paton, Boris Evgenievich; Lebedev, Vladimir Konstantinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovih; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladmir Mikhailovich; and Voronin, Georgy Alexandrovich, 3,838,200.

Katzakian, Arthur, Jr.: *See—*
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Kaufman, Arnold S.: *See—*
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Kawaguchi, Tadao: *See—*
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Kawasaki Jukogyo Kabushiki Kaisha: *See—*
Kajitani, Yoshiaki; Ito, Hayami; and Mitsuda, Susumu, 3,838,193.

Kawashiro, Yasukazu, to Denki Kogyo Company Limited. Winch utilizing an axle of an automobile. 3,837,418, Cl. 180-53.0va.

Kawatake, Koichi: *See—*
Hirasawa, Kotaro; Kawatake, Koichi; and Iwasaka, Tatsuo, 3,837,436.

Kawawa, Eiji, to Nihon Klingage Co., Ltd. Sight glass assembly and a method of producing the same. 3,837,226, Cl. 73-331.000.

Kay, Thomas William Lawrie: *See—*
Sellers, Brian; Usher, Harry Graham; and Kay, Thomas William Lawrie, 3,837,021.

Kaye, Irving I.: *See—*
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Keating, John T.: *See—*
Zalewski, Edmund J.; Simonian, John L.; and Keating, John T., 3,838,088.

Keen, John Raymond: *See—*
Dean, Michael Gordon Ellis; Keen, John Raymond; and Edgington, Geoffrey, 3,838,281.

Keene Corporation: *See—*
Fabbri, William C., 3,838,268.

Kehl, William L.; and Rennard, Raymond J., Jr., to Gulf Research & Development Company. Hydrolysis of aryl halides with metal phosphates. 3,838,182, Cl. 260-629.000.

Keller, Manfred; and Hoffmann, Jochen, to Daimler-Benz Aktiengesellschaft. Mechanism for limiting deflection of a door. 3,837,040, Cl. 16-85.000.

Kelly, John D.: *See—*
Ishimitsu, Kichio; Kelly, John D.; Miller, Douglas S.; and Taylor, Gordon A., 3,838,425.

Kelsey-Hayes Company: *See—*
Davies, Arthur S., 3,837,558.
Hollnagel, Harold S., 3,837,438.

Kemlite Corporation: *See—*
Morse, Donald B.; and Pribish, Bernard A., 3,837,247.

Kendall Company, The: *See—*
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Chesky, Sheldon R.; Patience, Donald; and Hartigan, Edward G., 3,837,338.
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Kennametal Inc.: *See—*
Barkley, George G.; Sorice, Edward L.; and Niebauer, Kenneth L., 3,837,058.

Kennedy, Anthony W.: *See—*
Koboldt, Melvin A., 3,837,523.

Kennedy, John J.: *See—*
Doubek, Edward R., Jr.; Kennedy, John J.; and Sandmore, Donald K., 3,838,274.

Kenney, Edward J.: *See—*
Smith, Frank R., Jr.; Di Salvo, Walter A.; and Kenney, Edward J., 3,838,072.

Kent, Eric George, to Polymer Corporation Limited. Moldable compositions based on trans-1,4 polymers of isoprene. 3,838,098, Cl. 260-41.50r.

Kernforschungsanlage Julich GmbH: *See—*
Gyarmati, Erno; and Nickel, Hubertus, 3,838,184.

Kesling, Peter C. Preformed tooth positioning and retaining appliance. 3,837,081, Cl. 32-14.00b.

Kestigian, Michael, to Sperry Rand Corporation. Method of growing rare earth garnet material. 3,838,053, Cl. 252-62.570.

Kewanee Oil Company: *See—*
Swinehart, Carl F.; and Lindow, James T., 3,837,882.
Vogt, John W.; and Owen, James E., 3,838,064.
Vogt, John W.; and Owen, James E., 3,838,092.

Keystone Consolidated Industries, Inc.: *See—*
Coe, William H., 3,837,043.
Rhoades, Nolan K., 3,837,611.

Khoury, Khalil Ibrahim, to Flann Microwave Instruments Limited. Frequency measurements. 3,838,338, Cl. 324-790.000.

Kihnke, Lee S., to Dake Corporation. Product orienting apparatus for packaging. 3,837,469, Cl. 198-106.000.

Kilroy, Oliver B. Hydraulic mining system. 3,837,707, Cl. 299-8.000.

Kimberly-Clark Corporation: *See—*
Braun, Ralph V.; and Knauer, Audrey J., 3,837,996.
Chung, Raymond, 3,837,999.
Evans, Ernest C., 3,837,991.
Floden, John G., 3,837,995.
Mandich, Ronald P.; and Middleton, David L., 3,837,975.

Kimzey, Paul W.; Olson, Donald L.; Delmore, Daniel A.; and Krier, Keith N., to Tennant Company. Apparatus for cleaning surfaces. 3,837,038, Cl. 15-349.000.

Kinematics and Controls Corporation: *See—*
Rakucewicz, John J., 3,837,528.

King, Edward J., Jr.; Ganther, Kenneth R., Jr.; and Grillot, Ronald Eugene, to King Radio Corporation. Method and apparatus for digitally indicating direct present position. 3,838,427, Cl. 343-106.00r.

King Radio Corporation: *See—*
King, Edward J., Jr.; Ganther, Kenneth R., Jr.; and Grillot, Ronald Eugene, 3,838,427.

Kipple, Harry P.; and Cozzarin, Virgil J., to Westinghouse Electric Corporation. Air bearing. 3,837,717, Cl. 308-9.000.

Kirimoto, Kazusuke: *See—*
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Kirin Beer Kabushiki Kaisha: *See—*
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Kirkhof Manufacturing Corporation: *See—*
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Kish, George D., to Dresser Industries, Inc. Electrically conductive pipe coupling gasket. 3,838,205, Cl. 174-84.00s.

Kitagawa, Yukio: *See—*
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Kitamikado, Tadashi: *See—*
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Klein, Fritz S.; and Yinon, Jehuda. Amplifier and quadrupole mass spectrometer utilizing same. 3,838,280, Cl. 250-292.000.

Klein, Samuel J., to American Technical Ceramics; a division of Phase, Industries, Inc. Multiple layer capacitors. 3,838,320, Cl. 317-261.000.

Kleinschmidt, Klaus, to Junger, Miguel C. Sound absorbing structural block. 3,837,426, Cl. 171-33.00g.

Klimovsky, Lev Lvovich: *See—*
Dakhov, Mark Illarionovich; Nesterov, Pavel Petrovich; Semkin, Alexei Trofimovich; Alexeeva, Ljudmila Andreevna; Sakhnovsky, Arkady Zinovievich; Skrypnik, Ivan Timofeevich; Klimovsky, Lev Lvovich; and Miroshnichenko, Viktor Alexandrovich, 3,837,152.

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Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
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Klopfenstein, King L.: *See—*
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Klusmier, Kenneth L., to Morgan Construction Company. Material handling apparatus. 3,837,453, Cl. 193-40.000.

Klusmier, Kenneth L.; and Hill, William J., to Morgan Construction Company. Assembly and transfer apparatus. 3,837,465, Cl. 198-27.000.

Knapp, Edward J., Jr. Chase-Shawmut Company, The Low current-carrying capacity time lag fuse. 3,838,374, Cl. 337-163.000.

Knapsack Aktiengesellschaft: *See—*
Gehrmann, Klaus; Erpenbach, Heinz; Handte, Heinz; and Bredtmann, Manfred, 3,838,018.

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Knavish, Leonard A.: *See—*
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Knerr, Reinhard Heinrich; and Swan, Clarence Burke, to Bell Telephone Laboratories, Incorporated. Parallel connected diode device with suppression of asymmetric modes. 3,838,356, Cl. 331-56.000.

Knight, Thomas C.: *See—*
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Knogo Corporation: *See—*
Minasy, Arthur J.; and Pruzick, Ronald, 3,838,409.

Ko, Kenneth. Dust collector and safety guard. 3,837,383, Cl. 144-251.00a.

Kobayashi, Katsumi; Takeda, Reiji; and Sato, Kimiaki, to Nippon Tensai Seito Kabushiki Kaisha. Apparatus for producing paper cylinders for nursing seedlings. 3,837,263, Cl. 93-1.00h.

Kobayashi, Kengo; and Manabe, Mitsuo. Motor speed acceleration-deceleration control circuit. 3,838,325, Cl. 318-415.000.

Kobayashi, Sanzo. Case having magnetic lock means. 3,837,525, Cl. 220-55.00k.

Kobayashi, Shigehiko: *See—*
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Kobayashi, Yoshikazu: *See—*
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Kobayashi, Yoshiyuki: *See—*
Hikai, Akio; Kobayashi, Yoshiyuki; and Furuta, Kazuyoshi, 3,837,606.

Kobelt, Jack R. Vehicle disk brake. 3,837,420, Cl. 188-71.600.

Koblitz, Werner: *See—*
Meyerhuber, Wittich; Koblitz, Werner; and Suppe, Hansjoachim, 3,837,184.

Koboldt, Melvin A.; deceased (by Koboldt, Norma L.; executrix; Ruf, Ellsworth J.; and Kennedy, Anthony W.), to Container Corporation of America. Beaded closure for containers. 3,837,523, Cl. 220-27.000.

Koboldt, Norma L.: *See—*
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Koch, Reinhard, to Elektro-Plating Patent Holding S.A. Acidic zinc electroplating bath. 3,838,026, Cl. 204-55.00r.

Kockum Industries, Inc.: *See—*
Gaitten, Walden M., 3,837,382.

Kohl, Helmut; Forhauser, Siegfried; Mantell, Detmar; Granitzki, Karl-Ernst; Hess, Heinrich; and Schiefer, Paul, to Rheinstahl AG. Method of lining metallurgical furnaces and a lining material. 3,837,630, Cl. 266-43.000.

Kohl, Karl. Thread guides having restricted apertures for use in warp knitting machines. 3,837,183, Cl. 66-86.00r.

Kohlert, Gerhard: *See—*
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Hiraoka, Kingo, 3,837,166.

Kojima, Hiroaki: *See—*
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Kolakowski, Richard A.; Grieve, Robin L.; and Tilgner, Peter, to Upjohn Company, The. Apparatus for producing foamed resin-care web-faced laminates in continuous length. 3,837,771, Cl. 425-110.000.

Koller, Eugen Johann: *See—*
Litzler, Alfred; Liechti, Hans Wilhelm; Guye-Vuilleme, Jean-Frederic; Koller, Eugen Johann; Milicevic, Branimir; and Angliker, Hans-Joerg, 3,837,802.

Komatsu, Toshiro, to Ishikawajma-Harime Jukogyo Kabushiki Kaisha. Hoisting device for use with cranes. 3,837,503, Cl. 212-83.000.

Konakawa, Yuzuru: *See—*
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Konig, Rudolf: *See—*
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Koninklijke Nederlandsche Hoogovens en Staal-Fabrieken N.V.: *See—*
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Konishi, Tatsuo: *See—*
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Konrad Doppelmayr & Sohn, Firma: *See—*
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Koracorp Industries, Inc., mesne: *See—*
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Kores Holding Zug AG: *See—*
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Kortenhaus, Dieter, to NSM Apparatebau GmbH Kommanditgesellschaft. Circuit arrangement for generating pseudo random numbers. 3,838,259, Cl. 235-152.000.
Kosaka, Yujiro; Uemura, Masaru; Fujiki, Tokio; and Saito, Mitsutaka, to Toyo Soda Manufacturing Co., Ltd. Pressure sensitive adhesive composition comprising carboxylated polymer. 3,838,079, Cl. 260-27.000.
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Koyama, Masaru: *See—*
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Kraft, Wolfgang, to ITT Industries, Inc. Planar diffusion method. 3,837,936, Cl. 148-187.000.
Krag, Niels, to Electronic Memories and Magnetics Corporation. Method for producing compact magnetic core arrays. 3,837,951, Cl. 156-85.000.
Kralowetz, Bruno. Process and machine for swaging rectangular-section workpieces. 3,837,210, Cl. 72-403.000.
Kresta, Erich: *See—*
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Krupp, Roy Stephen, to Bell Telephone Laboratories, Incorporated. Pathfinding logic for multistage time division multiplex switching network. 3,838,222, Cl. 179-15.0aq.
Kubiak, John W., to Torit Corporation, The. Filtering apparatus with pneumatic intermittent cleaning. 3,837,150, Cl. 55-272.000.
Kuchuris, Louis G.; and Gembicki, Stanley, to Cutting Equipment Leasing, Inc. Expanded polystyrene partition structure and method of making thereof. 3,837,560, Cl. 229-15.000.
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Kugelberg, Joachim; Servais, Carlo; and Uihlein, Rolf Dieter, to Kronos Titan-G.m.b.H. Multi-stage jet mill. 3,837,583, Cl. 241-39.000.
Kukin, Ira, to Apollo Chemical Corporation. Combustion control by additives introduced in both hot and cold zones. 3,837,820, Cl. 44-5.000.
Kulhavy, Joseph T., to Case, J. I. Company. Drive line damper. 3,837,182, Cl. 64-26.000.
Kuniya, Keiichi: *See—*
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Kurimoto, Masashi; and Yoshida, Mikihiko, to Hayashibara Company. Methods for the fractionation of amyloses. 3,838,005, Cl. 195-31.00r.
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Kurokawa, Teruhisa, to Nippon Electric Company, Limited. Variable delay equalizer comprising hybrid network terminated by tuned and variable reactance circuits. 3,838,364, Cl. 333-28.00r.
Kurtz, Louis A., to Emerson Electric Co. Diplexing coupling for microwave system. 3,838,362, Cl. 333-9.000.
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Kutik, Louis F.; and Swier, Raymond R. Reinforced aerosol container. 3,837,527, Cl. 220-72.000.
Kutscher, Horst, to Vacmetal Gesellschaft fur Vakuum-Metallurgie mbH. Process for controlled removal of carbon under vacuum from high alloyed steels. 3,837,841, Cl. 75-49.000.
Kuttruff, Gary W.; and Durham, Raymond F., to Carrier Corporation. Accumulator with refrigerant level indicating means. 3,837,173, Cl. 62-128.000.
Kuwagaki, Akira; and Takenaka, Sadao, to Nippon Cloth Industry Co. Ltd. Solid puzzle. 3,837,652, Cl. 273-157.000.
Kuxmann KG.: *See—*
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Lagergren, Richard Edward, to International Business Machines Corporation. Self-threading take-up spool device. 3,837,596, Cl. 242-74.000.
LaHaye, Paul G.: *See—*
Craig, Glenn D.; Feuling, David T.; and LaHaye, Paul G., 3,837,788.
Laighton, David G., to Westinghouse Electric Corporation. Microwave power transistor chip carrier. 3,838,443, Cl. 357-84.000.
Laing, Graham Sterling: *See—*
Morrell, Ronald Joseph; Gumb, Bev William; Laing, Graham Sterling; and Cogan, Frederick Thomas, 3,838,229.
Laing, Graham Sterling; Morrell, Ronald Joseph; and Gumb, Bev. William, said Laing assor. to Bell Northern Research Ltd. and said Gumb assor. to Northern Electric Company Limited. Mounting for telephone dials. 3,838,232, Cl. 179-178.000.
L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude: *See—*
Buffiere, Jean-Pierre; and Grenier, Maurice, 3,837,821.
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Aronberg, Lester, 3,837,932.
Lambert, Alain: *See—*
Flambard, Christian; and Lambert, Alain, 3,837,218.
Lambert, Robert R., to Wehr Corporation, mesne. Adapter means for coupling a prepositioned air plenum chamber to a later positioned air bar. 3,837,267, Cl. 98-40.0dl.
Lamberton, Bruce A. Reinforced mattress for protecting shorelines and the like. 3,837,169, Cl. 61-38.000.
Lambertus, Friedrich, to Werner & Pfleiderer. Device for cooling and granulating strands of plastic material discharged from an extruder. 3,837,781, Cl. 425-308.000.
Lamm, Bo Robert: *See—*
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Lang, George R.: *See—*
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Langanke, Helmut; Landenberger, Peter; and Treutel, Georg, to Metallgesellschaft Aktiengesellschaft. Process for producing molecularly oriented, textured continuous filaments. 3,837,156, Cl. 57-157.0ts.
Langsam, Michael, to Air Products and Chemicals, Inc. Short cycle, thermally stable vinyl chloride-propylene copolymers. 3,838,138, Cl. 260-87.50c.
Lanigan, Richard W.; and Szymber, Oleg, to American Hospital Supply Corporation. Heat-retaining server. 3,837,330, Cl. 126-246.000.
Larson, Richard T.: *See—*
Fraser, Harvey R., Jr.; Larson, Richard T.; and Rinkleib, Helfried O., 3,837,690.
Larsonneur, Louis C., to Nalco Chemical Company. Hot rolling mill lubrication apparatus and process. 3,837,199, Cl. 72-21.000.
Laseman, Blanche E. Sportsman's tent. 3,837,006, Cl. 2-89.000.
Lasher, Richard W.: *See—*
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Paton, Boris Evgenievich; Lebedev, Vladimir Konstantinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovih; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladmir Mikhailovich; and Voronin, Georgy Alexandrovich, 3,838,200.
Latinen, George A.; deceased (by Latinen, May V.; administratrix), to Monsanto Company. Continuous mass styrene-type monomer polymerization process. 3,838,139, Cl. 260-88.20c.
Latinen, May V.: *See—*
Latinen, George A., 3,838,139.
Lauffer, Hermann, to Zellweger AG. Apparatus for transforming a deteriorated input signal into a binary signal. 3,838,347, Cl. 328-164.000.
Lauridsen, Walter E.: *See—*
Anderson, A. D.; Lauridsen, Walter E.; and Overstreet, Charles L., 3,837,699.
Laval, Claude, to Lebocey Industrie. Shuttle positioning device. 3,837,367, Cl. 139-155.000.
LaViolette, Paul Alex. Self-contained closed circuit breathing apparatus. 3,837,337, Cl. 128-142.200.
Lawrence, John P., to Goodyear Tire & Rubber Company, The. Imide additives for sulfur vulcanizable polymers. 3,838,114, Cl. 260-79.50a.
Lawter Chemicals, Inc.: *See—*
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Le-Merer, Jean Pierre: *See—*
Bricot, Claude; Le-Merer, Jean Pierre; and Puech, Clude, 3,837,725.
Lea, James F., Jr., to Sun Oil Company (Deleware). Apparatus for melting ice. 3,837,311, Cl. 114-.50d.
Leach, John Michael, to Pfizer Inc. Purification of Australia antigen by vitracentrifugation. 3,838,144, Cl. 260-112.00r.
Leader, Joe. Grass catcher for rotary mower. 3,837,158, Cl. 56-202.000.
Lear Motor Corporation: *See—*
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Lebedev, Vladimir Konstantinovich: *See—*
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Lebel, Pierre, to France-Couleur. Method of manufacture for cathode-ray tubes for color television receivers. 3,837,829, Cl. 65-59.000.
LeBlanc, John R., to Monsanto Company. Process for improving the yield of clay and drilling muds prepared therefrom. 3,838,047, Cl. 252-8.50a.
Lebocey Industrie: *See—*
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Lech, Richard J.: *See—*
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Ledochowski, Andrzej; and Stefanska, Barbara, to Starogardzkie Zaklady Farmaceutyczne 'Polfa'. N-10-Oxides of 1-nitro-9-[dialkylaminoalkylamino] acridine. 3,838,130, Cl. 260-279.00a.
Lee, Alan Stuart, to English Electric Company Limited, The. Pumps. 3,837,762, Cl. 415-207.000.
Lee, David Q.; and McLaughlin, Donald W., to GTE Automatic Electric Laboratories Incorporated. Ring trip and dial pulse detection circuit. 3,838,223, Cl. 179-18.0fa.
Lee, David Q.; and McLaughlin, Donald W., to GTE Automatic Electric Laboratories Incorporated. Junctor disconnect detection circuit. 3,838,228, Cl. 179-18.00h.
Lee, Jay H. Jumpolene game. 3,837,643, Cl. 272-65.000.
Lee, Raymond, Organization, Inc., The: *See—*
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Curtis, George B.; and Curtis, Betty L., 3,837,701.
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Leete, Bernard D., to General Electric Company. Monitor for repetitive pulse forming circuit. 3,838,294, Cl. 307-233.000.
Lefebvre, Michel S. M.; and Hennion, Jean-Claude M. L., to Omnium de Prospective Industrielle. Apparatus for the continuous treatment of threads. 3,837,186, Cl. 68-3.0ss.
Leffert, S. Douglas: *See—*
Leffert, Willis M.; and Leffert, S. Douglas, 3,837,034.
Leffert, Willis M.; and Leffert, S. Douglas. Painter's caddy. 3,837,034, Cl. 15-257.060.
Legatti, Raymond H. Direct reading wattmeter for measuring the true watts power consumption of an A.C. Circuit. 3,838,340, Cl. 324-142.000.
Lehe, Russell B. Slatted floor system. 3,837,319, Cl. 119-28.000.
Lehmann, Myrtil B., to Chanel, Inc. Means for fixing an object in its packaging container. 3,837,479, Cl. 206-489.000.
Lehnert, Andrew B., to Upjohn Company, The. Spray gun. 3,837,575, Cl. 239-112.000.
Lehr, Heinz; and Swarat, Walter, to Condux-Werk Herbert A. Merges KG. Apparatus for granulating thermoplastic strands. 3,837,584, Cl. 241-65.000.
Leibach, Heinrich, to Motoren- und Turbinen-Union Munchen GmbH. Turbojet engines with pivoting jet pipe and thrust reversing means. 3,837,578, Cl. 239-265.350.
Leibenzon, Semen Abramovich: *See—*
Paton, Boris Evgenievich; Lebedev, Vladimir Konstantinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovih; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladmir Mikhailovich; and Voronin, Georgy Alexandrovich, 3,838,200.
Lejeune, Daniel, to Compagnie General des Etablissement Michelin raison Sociale Michelin & Cie. Anti skid stud for tires. 3,837,386, Cl. 152-210.000.
L'Electro-Refractaire: *See—*
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Lemaistre, Rene; and Juhasz, Francois, to Rhone-Progil. Method of preparing crystallized polyesters. 3,838,107, Cl. 260-75.00t.
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Lemons, Kyle E.: *See—*
Irving, Stephen M.; and Lemons, Kyle E., 3,837,856.
Lenz, Lowell J. Sequence batch dryer. 3,837,088, Cl. 34-54.000.
Leonard, George Hamlin. Coupling for tubing. 3,837,687, Cl. 285-111.000.
Leonhart, Xaver. Levelling assembly for warpable playing surfaces. 3,837,298, Cl. 108-161.000.
Lepley, James W.; and Stoltzfus, John E., to Flying Dutchman, Inc. Adjustable bottom discharge for silo. 3,837,507, Cl. 214-17.00d.
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Leuenberger, Arthur-Andre, to Relma S.A. Rotary coupling device in which the transmitted speed of rotation is increased progressively. 3,837,181, Cl. 64-26.000.
Lever Brothers Company: *See—*
Barnes, Andrew Nicholas Morrison; Chen, Wai Ming; Rickards, Tudor; Rosser, David Arthur; and Thurairajan, Ponnuswamy, 3,838,057.
Levine, Aaron J. Drill press. 3,837,757, Cl. 408-14.000.
Levinstein, Hyman Joseph: *See—*
Bobeck, Andrew Henry; Levinstein, Hyman Joseph; and Shick, Larry Keith, 3,837,911.
Levy, Samuel, to General Electric Company. Roller conveying of strip material. 3,837,550, Cl. 226-4.000.
Lewer, Hans: *See—*
Buggisch, Heinz; and Lewer, Hans, 3,837,404.
Lewer, Hans, to Chemische Fabrik Kalk GmbH. Tamping cartridge made of filled, elongated polymeric tubing. 3,837,280, Cl. 102-30.000.
Lewicki, George W.; and Guisinger, John E., to California Institute of Technology. Manganese bismuth films with narrow transfer characteristics for curie-point switching. 3,837,908, Cl. 117-239.000.
Lewis, Dean F.; and Pinney, Verne D. Post strap fitting. 3,837,048, Cl. 24-201.00a.
Lewis, Gerald F. Seat belt retractor apparatus. 3,837,594, Cl. 242-107.400.
Lewis, John D. Separation of acetylene from ethylene-bearing gases. 3,837,144, Cl. 55-64.000.
Lhoas, Pol Joseph Ghislain, to Beecham Group Limited. Processes for the cultivation of fungi. 3,838,003, Cl. 195-1.100.
Liang, Charles C.; and Schlaikjer, Carl R., to Mallory, P. R., & Co., Inc. Battery containing a solid electrolyte having cationic defects. 3,837,920, Cl. 136-83.000.
Licentia Patent-Verwaltungs-GmbH: *See—*
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Lichtenberg, Alfred, to Siemens Aktiengesellschaft. Magnetic suspension utilizing an elongated coil. 3,837,287, Cl. 104-148.0ss.

Liebrecht, Heinrich Fritz, to Leeford (London) Limited. Ground treating apparatus. 3,837,030, Cl. 15-82.000.

Liechti, Hans Wilhelm: *See—*
  Litzler, Alfred; Liechti, Hans Wilhelm; Guye-Vuilleme, Jean-Frederic; Koller, Eugen Johann; Milicevic, Branimir; and Angliker, Hans-Joerg, 3,837,802.

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  Higgens, Calvin E.; and Martin, Wilbur L., Jr., 3,838,012.
  Jones, Charles D., 3,838,167.

Limberg, Anthony; Wedmore, William R.; Ellyn, Glen; and Young, John S., to GTE Automatic Electric Laboratories Incorporated. TSPS key scanner. 3,838,225, Cl. 179-27.0ff.

Lin, Ye-Shih. Sewage treatment apparatus. 3,837,493, Cl. 210-197.000.

Lind, Kurt Bertil Reinhold, to Telefonaktiebolaget LM Ericsson. Synchronization method and an arrangement for recovery of binary signals. 3,838,214, Cl. 178-69.50r.

Lindberg, Leo H.: *See—*
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Lindell, Edward, to Lockheed Electronics Company, Inc. Ratioless MOS sense amplifier. 3,838,295, Cl. 307-238.000.

Lindner, Ernst: *See—*
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Lindow, James T.: *See—*
  Swinehart, Carl F.; and Lindow, James T., 3,837,882.

Lindstrom, Jan Nils; Jonsson, Bo Folke; and Ohlsson, Fall Johan Olof William, to Sandvik Aktiebolag (a/k/a Sandvikens Jernverks Aktiebolag). Sintered cemented carbide body coated with two layers. 3,837,896, Cl. 117-70.00a.

Links, Heinz, to Bosch, Robert, G.m.b.H. Fuel injection system for internal combustion engines. 3,837,324, Cl. 123-139.00e.

Linsley, John W., Jr.: *See—*
  Brown, Donald R.; Linsley, John W., Jr.; and Porod, Robert F., 3,838,316.

Lippert, Werner; Bernt, Erich; Gruber, Wolfgang; and Bergmeyer, Hans Ulrich, to Boehringer Mannheim GmbH. Standard solution of glycerol. 3,838,065, Cl. 252-408.000.

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Little, Arthur D. Inc.: *See—*
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  Martin, Peter G., 3,838,396.

Little, William E., to Case, J. I., Company. Control means for fluid translating device. 3,837,417, Cl. 180-6.480.

Litzler, Alfred; Liechti, Hans Wilhelm; Guye-Vuilleme, Jean-Frederic; Koller, Eugen Johann; Milicevic, Branimir; and Angliker, Hans-Joerg, to Ciba-Geigy AG. Process for dyeing. 3,837,802, Cl. 8-173.000.

Lloyd, Neil E.; and Mather, Walter B., III, to Celanese Corporation. Pneumatic false twist interlaced yarn. 3,837,155, Cl. 57-140.00r.

Lockheed Electronics Company, Inc.: *See—*
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Lockwood, Charles Alfred; Goffe, Frederick William Frank; and Julian, Ronald, to Shoe and Allied Trades Research Association, The. Shoe making. 3,837,025, Cl. 12-54.100.

Lockwood, John E.: *See—*
  Lockwood, John E.; Spair, Herbert S.; and Spair, Richard A., Sr. (said Spair, Richard A., Sr., assor. of 6 2/3% to said), 3,838,392.

Lockwood, John E.; Spair, Herbert S.; and Spair, Richard A., Sr., said Spair, Richard A., Sr., assor. of 6 2/3% to said Lockwood, John E. and said Spair, Richard A., Sr., assor. of 26 2/3% to said Spair, Herbert S. Audible warning system for school buses. ,838,392, Cl. 340-75.000.

Loctite Corporation: *See—*
  Frauenglass, Elliott; and Murray, Bruce D., 3,837,963.

Lofstrom, Dennis E.; Churchill, William A.; and Thul, Richard L., said Thul and said Churchill. Data card holder. 3,837,106, Cl. 40-104.030.

Logan, David J., to Gerber Scientific Instrument Company, The. Step motor control system. 3,838,258, Cl. 235-151.110.

Logan, Ralph Andre; McFee, James Hoffman; Nahory, Robert Edward; Pollack, Martin Alan; and 400852, to Bell Telephone Laboratories, Incorporated. Injected carrier guided wave deflector. 3,837,728, Cl. 350-96.wg0.

Logothetis, Anestis L.: *See—*
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Long, Larry K.; Knight, Thomas C.; and Jackson, William F., to Amerco, Inc. Medical examining chair. 3,837,635, Cl. 269-325.000.

Long Manufacturing Co., inc.: *See—*
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Long, Marshall; Alley, Lewis F.; and Reynolds, William A., to Marlen Research Corporation. Machine for severing meat slabs. 3,837,249, Cl. 83-408.000.

Long, Olan L.: *See—*
  Hanks, Jack G.; and Long, Olan L., 3,837,120.

Loomis, Russell M., to Unarco Industries, Inc. Safety latch pin for bulkheads. 3,837,296, Cl. 105-376.000.

Loov, Nils Gusta, to Looveverken Raufoss AB. Wedge member. 3,837,625, Cl. 254-104.000.

Looveverken Raufoss AB: *See—*
  Loov, Nils Gusta, 3,837,625.

Lopez, Pedro. Key-operated locks. 3,837,197, Cl. 70-364.00a.

Lord Corporation: *See—*
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Lord, Harry C.: *See—*
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Lorieux, Rene, to La Societe dite CLISALU. Device for transfer and positioning sealing capsules for feeding a bottle capping machine. 3,837,141, Cl. 53-307.000.

Losell, Ernst Ingvar, to AB Emmaboda Glasverk. Multiple glazing unit. 3,837,129, Cl. 52-309.000.

Loughlin, Bernard D.; and Page, Charles E., to Hazeltine Research, Inc. System for transmitting auxiliary information in low energy density portion of color TV spectrum. 3,838,444, Cl. 358-12.000.

Lovell, Lyle M., to Standard Oil Company. Method for stabilizing pyrophoric materials in a catalyst bed. 3,838,066, Cl. 252-419.000.

Loxley, Ted A.; Barber, Walter G.; Combs, Walter W.; and Webb, John M., to Sherwood Refractories, Inc. Process for making transparent silica glass. 3,837,825, Cl. 65-18.000.

Lubrastart International: *See—*
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Lubrizol Corporation, The: *See—*
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  Miller, Clark Ober, 3,838,052.

Lucas Aerospace Limited: *See—*
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  Needham, Victor; and Parramore, Maurice, 3,838,028.

Lucieer, Wouter Bram; and Van Amerongen, Theodorus Antonius Maria, to Koninklijke Nederlandsche Hoogovens en Staal-Fabrieken N.V. Ceramic burner for use in an air-preheater or hot blast stove for a blast furnace plant. 3,837,793, Cl. 432-217.000.

Lumn, George A., to Globe Machine Manufacturing Co., Inc. Super speed veneer clippers. 3,837,250, Cl. 83-424.000.

Lundy, Wilson T. Capacitive discharge ignition system. 3,838,328, Cl. 321-2.000.

Lurex N.V.: *See—*
  Schoots, Peter J., 3,837,893.

Luthi, Oscar, to Improved Machinery, Inc. Drum structure for rotary drum filtering apparatus. 3,837,499, Cl. 210-404.000.

Lutz, Albert William; and Trotto, Susan Hensen, to American Cyanamid Company. Process for the preparation of certain N-3-substituted-6-(trichloromethyl) uracils. 3,838,128, Cl. 260-260.000.

Lynes, Inc.: *See—*
  Malone, Billy C., 3,837,947.

Lyons, Charles S.: *See—*
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Lyons, John G.: *See—*
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Maag Gear-Wheel & Machine Company Limited: *See—*
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Mac Arthur, John L.; and Raff, Barry E., to United States of America, Navy. Radar adaptive video processor 3,838,422, Cl. 343-7.00a.

MacDermid Incorporated: *See—*
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Machamer, Roy J.: *See—*
  Anglin, Noah L.; and Machamer, Roy J., 3,837,457.

Mack, Peter Albert: *See—*
  Cotton, Joseph Bernard; Mack, Peter Albert; and Price, Raymond, 3,837,964.

Mackintosh, George B.: *See—*
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Mackness, R., & Company Limited: *See—*
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Madison College Foundation, Inc.: *See—*
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Madsen, John S., to GAF Corporation. Multiple color embossing of flooring material. 3,837,275, Cl. 101-23.000.

Madsen, Lynn S.: *See—*
  Richards, Albert Z., Jr.; and Madsen, Lynn S., 3,837,810.

Maeda, Kazuo; and Shirai, Kazunari, to Fujitsu Limited. Semiconductor devices and method of manufacturing the same. 3,837,935, Cl. 148-187.000.

Maeda, Kohei: *See—*
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Maekawa, Kazuo, to Toyo Kogyo Company Limited. Casing for use in rotary piston engine. 3,837,320, Cl. 123-8.010.

Magee, Richard Joseph: *See—*
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Magnien, Ernest; and Cabilio, Juta, to USV Pharmaceutical Corporation. Oximo tetracyclic indoles. 3,838,135, Cl. 260-288.00r.

Maher, Philip K.: *See—*
  Vaughan, David E. W.; Maher, Philip K.; and Albers, Edwin W., 3,838,037.

Mahon, John; and Richter, Stanley J., to United States of America, Air Force. Portable repair apparatus. 3,837,965, Cl. 156-382.000.

Maier, Roland; and Muller, Erich, to Boehringer Ingelheim G.m.b.H. 3-Lower alkyl-5-[o-(ω -amino-alkoxy)-phenoxymethyl] -isoxazoles and salts thereof. 3,838,162, Cl. 260-207.00h.

Mailer, Hugh, to Ohio State University Research Foundation, The. Acoustic excited liquid crystal image detector system. 3,837,423, Cl. 181-.5ap.

Maillet, Wilfrid G.: *See—*
  Schmidt, William G.; Gabbard, Ova G.; Husted, John M.; Maillet, Wilfrid G.; and Nosaka, Kunishi, 3,838,221.

Maisold, Karl-Heinz: *See—*
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Maker, Paul Manwaring. Apparatus for, and method of, checking the contents of a computer store. 3,838,264, Cl. 235-153.0am.

Makita, Mutsuo; Hayakawa, Wataru; Hayashi, Masaaki; and Kitagawa, Yukio, to Hitachi, Ltd. Wear resisting magnetic material having high permeability. 3,837,844, Cl. 75-122.000.

Malcik, Frank J., to Swingline Inc. Corner support structure and cap member utilized in connection with same. 3,837,754, Cl. 403-217.000.

Malion, William R.; and Watkins, John E. Clutch brake mechanism with a lost motion connection. 3,837,450, Cl. 192-12.0ba.

Mallory, P. R., & Co., Inc.: *See—*
  Liang, Charles C.; and Schlaikjer, Carl R., 3,837,920.

Malloy, Edward D.; and Parsons, William L., Jr., to Garlock, Inc. Butterfly valve having an improved stem seal. 3,837,620, Cl. 251-306.000.

Malmendier, Joseph W.; and Sojka, Joseph E., to Corning Glass Works. Low melting vanadate glasses. 3,837,866, Cl. 106-47.00r.

Malone, Billy C., to Lynes, Inc. Method of forming an inflatable member. 3,837,947, Cl. 156-69.000.

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  Wessel, Otto, 3,837,848.

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  Kohl, Helmut; Forhauser, Siegfried; Mantell, Detmar; Granitzki, Karl-Ernst; Hess, Heinrich; and Schiefer, Paul, 3,837,630.

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  Long, Marshall; Alley, Lewis F.; and Reynolds, William A., 3,837,249.

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  Shoch, Clinto W.; and Harmon, George Lamar, 3,837,733.

Martin, Peter G., to Little, Arthur D. Inc. Word processor with means for programming indented paragraph format. 3,837,459, Cl. 197-19.000.

Martin, Peter G., to Little, Arthur D., Inc. Data processor (including editing and revision) with buffer memory. 3,838,396, Cl. 340-172.500.

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Martin, William A.; and St. Clair, John Q., to Eastman Kodak Company. Motion picture projector apparatus. 3,837,737, Cl. 352-124.000.

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Mason, Ralph S. Vertical take-off and landing airplane. 3,837,600, Cl. 244-12.00r.

Massage, Thomas J. Method and apparatus for testing sealed containers. 3,837,215, Cl. 73-45.400.

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Masuyama, Takeshi: *See—*
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Matar, Adel F. Vanous valve snipper. 3,837,345, Cl. 128-305.000.

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Mathis, Ronald D., to Phillips Petroleum Company. UV stabilizing system for polymeric materials comprising phenyl benzoate and nickel or cobalt complexes of partially fluorinated beta diketone. 3,838,099, Cl. 260-45.75n.

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- Maxwell, Richard D. Rotary impact dril. 3,837,410, Cl. 173-109.000.
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- Mays, Robert K.: *See*—
  - Bertorelli, Orlando L.; Mays, Robert K.; Williams, Lloyd E.; and Zimmerman, Howard F., Jr., 3,838,192.
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- Mayuzumi, Tetsuya; and Inoue, Yoshio, to Shinetsu Chemical Company. Organosilicone compositions. 3,837,876, Cl. 106-287.0sb.
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- Mc Master, Richard Laverne, to Detection Systems, Inc. Environmental test switch for intruder detection systems. 3,838,408, Cl. 340-214.000.
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  - Warman, Bloomfield James; Evans, John Ford; Walker, Stephen Sidney; Mc Pherson, John Hugh; and Sutton, Alan, 3,838,226.
- McCabe, John M.: *See*—
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- McDuffee, Richard L. System for toilet bowl cleaning. 3,837,017, Cl. 4-228.000.
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  - Sakazume Kaiichiro; Sakamoto, Eiichi; Mine, Kiyomitsu; and Kanbe, Masaru, 3,837,863.
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  - Minks, Floyd M.; and Minks, Floyd A., 3,837,325.
- Minks, Floyd M.; and Minks, Floyd A. Pulse generator for energy discharge system. 3,837,325, Cl. 123-148.00e.
- Minnesota Mining & Manufacturing Company: *See*—
  - Nelson, Alfred Dwayne; and Goken, Garold L., 3,837,948.
- Minnesota Mining and Manufacturing Company: *See*—
  - Hennen, Donald E.; and Kusilek, Leroy I., 3,837,988.
  - Roden, John S., 3,837,912.
- Mino, Mineo, to Matsushita Electric Industrial Co., Ltd. Magnetic tape reproducing system having secondary shorting of a rotary transformer for head switching. 3,838,451, Cl. 360-64.000.
- Minolta Camera Kabushiki Kaisha: *See*—
  - Imura, Toshinori, 3,838,433.
- Mintz, Leonard H. Roadway safety trap. 3,838,391, Cl. 340-39.000.
- Miroshnichenko, Viktor Alexandrovich: *See*—
  - Dakhov, Mark Illarionovich; Nesterov, Pavel Petrovich; Semkin, Alexei Trofimovich; Alexeeva, Ljudmila Andreevna; Sakhnovsky, Arkady Zinovievich; Skrypnik, Ivan Timofeevich; Klimovsky, Lev Lvovich; and Miroshnichenko, Viktor Alexandrovich, 3,837,152.
- Mitchell, Robert S.: *See*—
  - Matzner, Edwin A.; and Mitchell, Robert S., 3,838,124.
- Mitchell, Roger H. Angular coupling. 3,837,180, Cl. 64-17.00r.
- Mitsubishi Chemical Industries, Limited: *See*—
  - Hoshino, Yoichi; Honda, Kotaro; Funayama, Chihito; and Tanaka, Goro, 3,838,074.
- Mitsubishi Denki Kabushiki Kaisha: *See*—
  - Inoue, Takeo; Shirazawa, Takashi; Nakazaki, Tadashi; and Okamoto, Goro, 3,838,373.
- Mitsubishi Seiko Kabushiki Kaisha: *See*—
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- Mitsuda, Susumu: *See*—
  - Kajitani, Yoshiaki; Ito, Hayami; and Mitsuda, Susumu, 3,838,193.
- Mitsui Mining and Smelting Co., Ltd.: *See*—
  - Miyazaki, Kazuhide; Yamamoto, Michiaki; Kobayashi, Shigehiko; and Sakai, Toshiyuki, 3,838,069.
- Mitsui Shipbuilding and Engineering Co., Ltd.: *See*—
  - Hirose, Kiyoshi; Shiozawa, Kaoru; and Saito, Yuzi, 3,837,061.
  - Toyama, Yoshio, 3,837,310.
- Mitsuo, Koda. Excrement receiving bag for artificial anus. 3,837,342, Cl. 128-283.000.
- Miyagi, Tatsuo; and Sakata, Shigeru, to Sanyo Electric Co., Ltd. and Tokyo Sanyo Electric Co., Ltd. Control device for an absorption system hot and cold water supply apparatus. 3,837,174, Cl. 62-141.000.
- Miyatuka, Hajime, to Rank Xerox, Ltd., mesne. Photoconductive rutile titanium dioxide. 3,837,850, Cl. 96-1.500.
- Miyauchi, Kazuto: *See*—
  - Uemichi, Sachio; Miyauchi, Kazuto; and Nakao, Susumu, 3,838,327.
- Miyazaki, Kazuhide; Yamamoto, Michiaki; Kobayashi, Shigehiko; and Sakai, Toshiyuki, to Mitsui Mining and Smelting Co., Ltd. Catalyst for use in purification of exhaust gas containing carbon monoxide. 3,838,069, Cl. 252-456.000.
- Mizuguchi, Hironori: *See*—
  - Asakura, Hiroshi; Sakai, Keisuke; Koyama, Masaru; and Mizuguchi, Hironori, 3,837,973.
- Mizuhara, Yosuke M.: *See*—
  - Merdinian, Geroge K.; and Mizuhara, Yosuke M., 3,838,308.
- MI^2, Inc.: *See*—
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- M.M.S. Limited, mesne: *See*—
  - Schindler, Herbert; and Ware, Willard O., 3,837,016.
  - Schindler, Herbert; and Ware, Willard O., 3,837,789.
- Moberg, Lennart, to Allmanna Svenska Elektriska Aktiebolaget. Method of manufacturing a coherent roebel bar coil. 3,837,072, Cl. 29-596.000.
- Mobil Oil Company: *See*—
  - Andress, Harry J., Jr., 3,838,051.
- Mobley, Carroll E.: *See*—
  - Maringer, Robert E.; Rudnick, Alfred; and Mobley, Carroll E., 3,838,185.
- Mocanu, Erick L.: *See*—
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- Modern Equipment Company: *See*—
  - Eickelberg, Henry L., 3,837,531.
- Modert, E. Lamar; and Stier, Paul G., to Universal Oil Products Company. Combination cabinet edge trim strip and curved guide track for tambour door and method of forming same. 3,837,041, Cl. 16-94.00r.
- Moffitt, Charles Rayburn; and Dalton, Ralph Warren. Precision needle-point blocker. 3,837,099, Cl. 38-102.500.

Mogford, Edmund C. Process and apparatus for forming a glass and film laminate. 3,837,952, Cl. 156-99.000.
Mohammed, M. Hamdi A. High strength, ductile cobalt-base dental alloy. 3,837,838, Cl. 75-134.00f.
Molby, Lloyd A., to Capacity, Inc. Tractor and mud flap therefor. 3,837,672, Cl. 280-154.50r.
Molina, Orlando G., to Air Products and Chemicals, Inc. Dye penetrant method and composition. 3,838,160, Cl. 252-301.20p.
Mollman, Robert E., to Alside, Inc. Panel clip. 3,837,133, Cl. 52-483.000.
Monahan, Thomas J.; and Adams, Richard C., to Schjeldahl, G. T. Company. Intermittent drive mechanism. 3,837,552, Cl. 226-122.000.
Monarch Marking Systems, Inc.: *See*—
  Finke, Eugene W., 3,837,966.
  Grushon, Harold N., 3,837,554.
  Herrin, Carlos B., 3,838,251.
Moncrief, E. Ray. Seals for rotary shafts. 3,837,659, Cl. 277-74.000.
Monk, Carl E. Key retaining device. 3,837,190, Cl. 70-45.60r.
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  Pierle, Willy R. J., 3,837,445.
  Van den Berg, Johan H.; Hoebrechts, Albert J. G.; and Van Eekelen, Alex Herman A. M., 3,837,033.
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Moore, Paul W., to Phillips Petroleum Company. Fibers for pillow stuffing. 3,837,022, Cl. 55-355.000.
Moore, Ronald H., to Owens-Illinois, Inc. Melting and refining of amber glass. 3,837,831, Cl. 65-134.000.
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Moraru, Dinu Stefan; Pitis, Ion; and Topala, Dumitru, to Institutul de Cercetari in Constructii si Economia Constructiilor-Incerc. Composition for preventing biodeterioration of concrete in biologically active water. 3,837,864, Cl. 106-15.0af.
Morgan Construction Company: *See*—
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  Klusmier, Kenneth L.; and Hill, William J., 3,837,465.
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Morgardshammar Aktiebolag: *See*—
  Bock, Nils Erik, 3,837,553.
Morgenstern, Bodo; and Soderholm, Bert, to Organisation Europeenne de Recherches Spatiales. Optical sensor with linear parabolic mirror. 3,838,277, Cl. 250-216.000.
Mori, Masahiro; Hahn, Walter C.; and Avitzur, Betzalel, to United States of America, Atomic Energy Commission. Method of extruding aluminum coated NB-TI. 3,837,066, Cl. 29-599.000.
Moriyama, Kazuyoshi, to Hitachi, Ltd. Electric machine with flywheel-fan. 3,838,301, Cl. 310-60.000.
Morrell, Ronald Joseph: *See*—
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Morrell, Ronald Joseph; Gumb, Bev William; Laing, Graham Sterling; and Cogan, Frederick Thomas, to Bell-Northern Research Ltd. Telephone sets and removable covers therefore. 3,838,229, Cl. 179-100.00d.
Morrison, Alexander Robley, to Dulux Australia Ltd. Conversion coating on metal. 3,837,928, Cl. 148-6.15z.
Morrow, Warren P., to United States of America, Army. Ordnance timer using chemical light. 3,837,282, Cl. 102-70.20r.
Morse, Donald B.; and Pribish, Bernard A., to Kemlite Corporation. Machine for trimming the edges of panels. 3,837,247, Cl. 83-156.000.
Mosler, Henry A., to Esso Research and Engineering Company. Constraint control for processes with equipment limitations. 3,838,256, Cl. 235-150.100.
Moss, Philip Hotchkiss; and Cuscurida, Michael, to Jefferson Chemical Company, Inc. Polyurethane foams, from partially aminated polyether polyols. 3,838,076, Cl. 260-2.5aq.
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  Damijonaitis, Algis, 3,838,372.
  Goetz, Frederick J., Jr.; and Kalenda, Edward R., 3,837,044.
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  Nickerson, Douglas W., 3,838,349.
  Wiles, Michael F., 3,838,414.
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Mott, James D., to Hydril Company. Alternating valve method and apparatus. 3,837,403, Cl. 166-315.000.
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Muggli, Sergio, to Fehr & Reist AG. Apparatus for forming packages from continuously incoming printed products or the like. 3,837,505, Cl. 214-6.0ba.
Mulka, John Daniel: *See*—
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Mullins, John Albert, to Rolls-Royce (1971) Limited. Mountings for power plants. 3,837,602, Cl. 244-54.000.
Mundy, William L., to O'Fallon Investment Company. Cutting tool for the continuous machining of metals and the method of making same. 3,837,240, Cl. 76-101.00a.
Murakami, Yuetsu: *See*—
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  Freize, Ronny G.; and Ferguson, George R., 3,837,431.
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Murphy, Thomas J.: *See*—
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Mutchler, Paul A., to United States of America, Army. Liquid fuel-fired grille. 3,837,329, Cl. 126-44.000.
Mutschall, Hugo: *See*—
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Myers, John L.; Lasher, Richard W.; and James, Russell D., to Union Carbide Corporation. Pigmented asbestos latex emulsion paint composition. 3,838,085, Cl. 260-29.60r.
Naas, Hartley M.; Sutherland, Julian C.; and Nesbitt, Dale D., to Singer Company, The. Control for a matrix printing assembly. 3,838,250, Cl. 235-61.90r.
Nadelson, Jeffrey: *See*—
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  Houlihan, William J.; and Nadelson, Jeffrey, 3,838,174.
Naegeli, Werner, to Pavena AG. Stable band consisting of sized staple fibers and possessing high lengthwise stability. 3,837,998, Cl. 161-170.000.
Nagano, Hiroyuki: *See*—
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Nagasawa, Takeshi; Kuroiwa, Katsumasa; Narita, Kouichi; Hashimoto, Reiko; and Tamaki, Kohji, to Nitto Boseki Co., Ltd. Glass fiber-reinforced plastics and process for producing the same. 3,838,096, Cl. 260-40.00r.
Nagazumi, Yasuo; Hosaka, Tokuichiro; and Maeda, Kohei, to Nissan Motor Company. Protector bag storage device of motor vehicle safety device. 3,837,669, Cl. 280-150.0ab.
Nahory, Robert Edward: *See*—
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Nakabayashi, Takashi, to Industrial Science and Technology, Agency of. Sodium sulfur storage battery. 3,837,918, Cl. 136-6.0fs.
Nakada, Akira, to Nippon Gakki Seizo Kabushiki Kaisha. Device for imparting to a musical tone a tone color varied with time. 3,838,202, Cl. 84-1.240.
Nakagawa, Toshio William; and Rudy, Thomas P., to United Aircraft Corporation. Solid composite propellant compositions containing carboxy-terminated polymers. 3,837,939, Cl. 149-19.000.
Nakagome, Makoto; and Takeuchi, Shohgo, to Pioneer Electronic Corporation. Magnetic tape reproducing apparatus. 3,838,458, Cl. 360-93.000.
Nakamura, Kazumasa, to Toyota Jidosha Kogyo Kabushiki Kaisha. Hybrid electric power vehicle. 3,837,419, Cl. 180-65.00r.
Nakamura, Yoshikatsu, to Nippon Piston Ring Co., Ltd. Sliding member having a spray-coated layer. 3,837,817, Cl. 29-195.000.
Nakao, Susumu: *See*—
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  Woitun, Eberhard; Narr, Berthold; and Schroter, Wolfgang, 3,838,121.
Nash, Dudley O.; Lyons, Charles S.; and Hollett, Ronald C., to General Electric Company. Diverter valve for a gas turbine with an augmenter. 3,837,411, Cl. 137-610.000.
Nashua Corporation: *See*—
  Doyle, Daniel C., 3,838,464.
Natale, Stephen Vincent: *See*—
  Michelet, Robert Wilson; Natale, Stephen Vincent; and Phillips, David Edward, 3,838,329.
Natelson, Samuel, to Rohe Scientific Corporation. Compact, flexible, multiple fluid dispenser. 3,837,534, Cl. 222-137.000.
National Cash Register Company, The: *See*—
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  Shah, Rajendra B., 3,838,293.
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  Austin, Lowell W.; Beale, Louis C., Jr.; and Smith, Edwin J., 3,838,024.
Nattefort, Fritz, to Rockwell International Corporation. Machining device with a rotary working spindle. 3,837,718, Cl. 308-77.000.
Needham, Victor; and Parramore, Maurice, to Lucas Aerospace Limited. Sputtering apparatus. 3,838,028, Cl. 204-298.000.
Nelson, Alfred Dwayne; and Goken, Garold L., to Minnesota Mining & Manufacturing Company. Method of forming adhesively bonded rail joint. 3,837,948, Cl. 156-71.000.
Nelson, Frank M., to Xerox Corporation. Microprogrammable control memory diagnostic system. 3,838,260, Cl. 235-153.0ak.
Nelson, Howard F., 1/2 to Lemieux, George. Vise for tubular articles. 3,837,632, Cl. 269-48.100.
Nelson, James Roger: *See*—
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Nelson, Vaughn A.; Fadden, Donald K.; and Lech, Richard J., to International Harvester Company. Hydraulic control valve with pressure sensitive latch. 3,837,359, Cl. 137-624.270.
Nemeth, Robert C.; and Dugger, William D., to Vacuum Instrument Corporation. Tracer gas-permeable probe for leak detectors. 3,837,228, Cl. 73-40.700.
Nemoto, Tadashi; Kuniya, Keiichi; and Tamamura, Takeo, to Hitachi, Ltd. Composite iron-base metal product. 3,837,931, Cl. 148-12.400.
Nerger, David. Ski carrying case. 3,837,548, Cl. 224-45.00s.
Nesbitt, Dale D.: *See*—
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Ness, Clemet M. Snowmobile loading ramp. 3,837,663, Cl. 280-8.000.
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Neuenburg, Henry. Motor driven chiseling device. 3,837,230, Cl. 74-47.000.
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Neumann, Otto Walter; and Korpics, Frank Joseph, to Amsted Industries Incorporated. Snubbed railway truck bolster and side frame. 3,837,293, Cl. 105-197.0db.
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New York Society for the Relief of the Ruptured and Crippled: *See*—
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Newton, Alwin B., to Borg-Warner Corporation. Verticla surface vapor condensers. 3,837,396, Cl. 165-111.000.
Ng, Daniel Y. C.; Wolfson, Sidney K., Jr.; and Appleby, Anthony J., to Institute of Gas Technology. Implantable fuel cell. 3,837,922, Cl. 136-86.00r.
NGK Insulators, Ltd.: *See*—
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Nickerson, Douglas W., to Motorola, Inc. Band limited FM detector. 3,838,349, Cl. 329-103.000.
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Nicolas, Louis; and Dick, Richard, to ANVAR-Agence Nationale de Valorisation de la Recherche. Diaphragm for inverse osmosis and method of making same. 3,837,500, Cl. 210-490.000.
Nicollian, Edward Haig: *See*—
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  Paton, Boris Evgenievich; Lebedev, Vladimir Konstantinovich; Medovar, Boris Izrailevich; Latash, Jury Vadimovich; Bondarenko, Oleg Petrovich; Baglai, Vitaly Mikhailovich; Sidorenko, Mikhail Nikolaevich; Leibenzon, Semen Abramovich; Kaganovsky, Gary Petrovih; Altgauzen, Andrei Pavlovich; Nikolsky, Leonid Evgenievich; Gorynina, Zoya Alexandrovna; Safronova, Ljudmila Andreevna; Katsevich, Leonid Savvich; Volokhonsky, Lev Avramovich; Nikulin, Alexandr Alexandrovich; Artemiev, Vladimir Dmitrievich; Edemsky, Vladmir Mikhailovich; and Voronin, Georgy Alexandrovich, 3,838,200.
Nilson, Carl-Goran; and Olsson, Sven Olov, to Alfa-Laval AB. Locking device for machine frame cover. 3,837,567, Cl. 233-1.00b.
Nilsson, Rune, to AB Linde International. Brake operating mechanisms. 3,837,446, Cl. 188-329.000.
Nippon Cloth Industry Co. Ltd.: *See*—
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Nippon Electric Company, Limited: *See*—
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  Otsuka, Hiroaki; Manabe, Norihisa; and Konishi, Tatsuo, 3,838,446.
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  Tanasawa, Yasusi; Yamada, Mitsumasa; Ito, Mikiji; and Ishiguro, Kenji, 3,837,814.
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Nissan Motor Company: *See*—
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- Norton, James R.; and Schmalzbauer, Herbert F., to Xerox Corporation. Stripper finger with air cushion. 3,837,640, Cl. 271-174.000.
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  - Kortenhaus, Dieter, 3,838,259.
- Nudinger, Gunter; Collin, Heinrich; and Moosburger, Hans, to Bayerische Berg-, Hutten- und Salzwerke AG. Process for connecting expiring first web to beginning second web. 3,837,954, Cl. 156-159.000.
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- O'Connor, William Harvey, III, to Black and Decker Manufacturing Company, The. Brush holder for portable hand tools. 3,838,300, Cl. 310-239.000.
- Odier, Jean, to Societe Anonyme Francaise Du Ferodo. Longitudinal positioning stop for fixed station automobile vehicle test beds. 3,837,221, Cl. 73-124.000.
- Odier, Marc. Game with reversible pieces. 3,837,651, Cl. 273-137.00d.
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- O'Hara, Eugene F., to Managemant Programs, Inc. Perceptual measuring apparatus and method. 3,837,095, Cl. 35-22.00r.
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- Persson, Anders. Device for the protection of the eyes and face. 3,837,005, Cl. 2-10.000.
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- Peterson, John R., 20% to Lee, Raymond, Organization, Inc., The. Multiple windmill. 3,837,112, Cl. 46-58.000.
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- Pianka, Max, to Murphy Chemical Limited. Fungicidal piperazine derivatives. 3,838,129, Cl. 260-268.00r.
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Potzl, Friedrich, to U.S. Philips Corporation. Junction circulator having curved conductors on opposite sides of printed circuit board. 3,838,360, Cl. 333-1.100.
Potzl, Friedrich, to U.S. Philips Corporation. Strip-line circulator for the frequency range from 10 to 1000 MHz. 3,838,361, Cl. 333-1.100.
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Pruzick, Ronald: *See—*
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Rakucewicz, John J., to Kinematics and Controls Corporation. Article delivery systems for vending machines. 3,837,528, Cl. 221-114.000.
Raley, Garland E., to Ethyl Corporation. Extruded plastic film method and apparatus for the manufacture thereof. 3,837,773, Cl. 425-131.000.
Randall, David I.; and Wynn, Robert W., to GAF Corporation. 2-Chloroethyl phosphonondithioate esters. 3,838,180, Cl. 260-961.000.
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Rathsack, Quintin J. Trailer hitch converter. 3,837,674, Cl. 280-417.000.
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Reigler, Paul F.; and Hellmann, Reinhold, to Dow Chemical Company, The. Process for making crystalline, ono-solvated aluminum hydride. 3,838,195, Cl. 423-645.000.
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Reinecke, Erich; Klatt, Alfred; Weise, Lutz; and Maisold, Karl-Heinz, to Westinghouse Bremsen-und Apparatebau GmbH. Anti-skid apparatus for wheels. 3,837,710, Cl. 303-21.00f.
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- Rockwell, Frank H.; and Bottum, Edward W., to Refrigeration Research, Inc. Suction accumulator. 3,837,177, Cl. 62-503.000.
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- Rosenkranz, Jules J., to Lafayette Brass Manufacturing Co., Inc. Water sprinkler device. 3,837,576, Cl. 239-230.000.
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- Russ, Paul E., Sr., to Gates Rubber Company, The. Endless track suspension system. 3,837,714, Cl. 305-24.000.
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- Ruth, Elmer L., to Appleton Machine Company. Core straightener assembly. 3,837,203, Cl. 72-110.000.
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- Sakhnovsky, Arkady Zinovievich: *See—*
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- Sauer, David Allen, to Du Pont de Nemours, E. I., and Company. Polytetrafluoroethylene coatings for containing water soluble polyhydrolyzable compound glass fabrics. 3,838,082, Cl. 260-29.60f.
- Sauer, Rudolf, to Bosch, Robert, G.m.b.H. Means for indicating the rate of air flow in the intake manifold of an internal combustion engine. 3,837,321, Cl. 123-32.0ea.
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- Schaffer, James L., 1/2 to Marlo, John A. Collapsible grill. 3,837,328, Cl. 126-29.000.
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- Schindler, Herbert; and Ware, Willard O., to M.M.S. Limited, mesne. Plural temperature level fluid heating system. 3,837,016, Cl. 4-172.170.
- Schindler, Herbert; and Ware, Willard O., to M.M.S. Limited, mesne. Gas burner. 3,837,789, Cl. 431-354.000.
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- Schultz, Elmer L.; Tribuno, Robert F.; Hall, John C.; and Schuldt, Theodore J., Jr., to Collins Radio Company. Lateral axis rollout, go-around, takeoff control for aircraft. 3,837,603, Cl. 244-77.00a.
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Simpson, William R., to Sandoz-Wander, Inc. 4-(4-(Hydroxy alkyl)-1-piperazino)-quinazoline benzoates. 3,838,127, Cl. 260-256.40q.
Sims, John C., Jr., to New England Research Associates, Inc. Method and system for digital recording. 3,838,449, Cl. 360-52.000.
Sinclair, William Robert: *See—*
Rousseau, Denis Lawrence; and Sinclair, William Robert, 3,837,855.
Singer, Company, The: *See—*
Goldfischer, Lester I., 3,838,424.
Naas, Hartley M.; Sutherland, Julian C.; and Nesbitt, Dale D., 3,838,250.
Stiles, John C.; and Albert, William C., 3,837,229.
Waibel, Helmut K., 3,837,461.
Sioux Steam Cleaner Corporation: *See—*
Finger, John F.; Jackson, William C.; and Pochop, Merle E., 3,838,247.
Sjoberg, Enhorna Berndt Olof Harald: *See—*
Bamberg, Peter; and Sjoberg, Enhorna Berndt Olof Harald, 3,838,008.
Skil Corporation: *See—*
Consoli, Frank J.; Rebechini, Peter G.; and Beisch, Hanspeter E., 3,837,409.
Skinner, Eugene S.; Crist, Elmer E.; and Phelps, Louis D., to Beloit Corporation. Rotary steam seal for dryer drum. 3,837,658, Cl. 277-26.000.
Skolnik, Marvin B.: *See—*
Haberland, Peter H.; Lay, Frank M.; Murphy, Thomas J.; Skolnik, Marvin B.; Spencer, Oliver S.; Wagner, Peter R.; Whitaker, Howard L.; and Wilson, Donald M., 3,837,724.
Skrypnik, Ivan Timofeevich: *See—*
Dakhov, Mark Illarionovich; Nesterov, Pavel Petrovich; Semkin, Alexei Trofimovich; Alexeeva, Ljudmila Andreevna; Sakhnovsky, Arkady Zinovievich; Skrypnik, Ivan Timofeevich; Klimovsky, Lev Lvovich; and Miroshnichenko, Viktor Alexandrovich, 3,837,152.
Slaughter, Lomis, Jr., to Anderson, Greenwood, & Co. Check valve. 3,837,357, Cl. 137-554.000.
Slemmons, John Whit. Poster frame extrusion cutting guides. 3,837,253, Cl. 83-762.000.
Sluse, Guy; and Joannes, Gustave, to Solvay & Cie. Removing of worn coating from metal electrodes. 3,837,879, Cl. 117-2.00r.
Smallman, Robert Victor, to Imperial Chemical Industries Limited. Maleic anhydride copolymer. 3,838,113, Cl. 260-78.50r.
Smith, Edwin J.: *See—*
Austin, Lowell W.; Beale, Louis C., Jr.; and Smith, Edwin J., 3,838,024.
Smith, Frank R., Jr.; Di Salvo, Walter A.; and Kenney, Edward J., to Colgate-Palmolive Company. Manufacture of free flowing particulate detergent containing nonionic surface active compound. 3,838,072, Cl. 252-540.000.
Smith, Harry D., Jr.: *See—*
Schultz, Ward E.; and Smith, Harry D., Jr., 3,838,279.
Smith, James W.: *See—*
Jecmen, James M.; Jecmen, John J.; Riley, Robert; and Smith, James W., 3,838,245.
Smith, John William: *See—*
Durrant, Oliver W.; and Smith, John William, 3,837,167.
Smith, Russell D.: *See—*
Ebeling, Harold O.; and Smith, Russell D., 3,837,813.
Smith, Russell F., to ACF Industries, Incorporated. Filter assembly. 3,837,497, Cl. 210-349.000.
Smola, Dennis E.: *See—*
Shuki, Albert R.; and Smola, Dennis E., 3,838,106.
Smythe, Richard N. Knot tying apparatus. 3,837,691, Cl. 289-17.000.
Snam Progetti S.p.A.: *See—*
Arrigoni, Virgilio; Gaetani, Bruno; Marchesi, Gianfranco; and Zanoni, Gianfranco, 3,837,165.
Snaper, Alvin A. Means and method for depositing recrystallized ferroelectric material. 3,838,031, Cl. 204-192.000.
Snyder, Benjamin L., to Pentapco, Inc. Shank supply for button-sewing attachments. 3,837,530, Cl. 221-268.000.
Societe Anonyme Automobiles Citroen: *See—*
Grosseau, Albert, 3,837,712.
Societe Anonyme dite: Jean Rochet S. A.: *See—*
Rochet, Jean, 3,837,371.
Societe Anonyme Francaise Du Ferodo: *See—*
Odier, Jean, 3,837,221.
Societe anonyme Surtec: *See—*
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Societe d'Etude Recherches et Constructions Electroniques: *See—*
Calves Jean; and Gounon, Rene, 3,838,426.
Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France: *See—*
Thominet, Michel Leon, 3,838,169.
Societe Francais d'Electrometallurgie: *See—*
Pons, Rene; Poyet, Marcel; Desbert, Jean; and Mena, Andre, 3,837,843.
Societe Lannionnaise d'Electronique Sle-Citerel: *See—*
Aillet, Claude, 3,838,336.
Societe Nationale d'Etude et de Construction de Moteurs d'Aviation: *See—*
Camboulives, Andre Alphonse Mederic Leon; Jourdain, Gerard Ernest Andre; and Le Maout, Theophile Francois, 3,837,580.
Societe Nationale d'Etude et de Construction de Moteurs d'Eviation: *See—*
Camboulives, Andre Alphonse Mederic Leon; Chambon, Jean Francois; Jourdain, Gerard Ernest Andre; Le Maout, Theophile Francois; and Vandenbroucke, Roger Alfred Jules, 3,837,579.
Soderholm, Bert: *See—*
Morgenstern, Bodo; and Soderholm, Bert, 3,838,277.
Soiderer, Louis. Safety lock device for windows. 3,837,191, Cl. 70-90.000.
Sojka, Joseph E.: *See—*
Malmendier, Joseph W.; and Sojka, Joseph E., 3,837,866.
Sokolow, Nickolas N., to Plasti-Mac, Inc., mesne. Parison cutoff and sealing apparatus. 3,837,248, Cl. 83-375.000.
Solvay & Cie: *See—*
Sluse, Guy; and Joannes, Gustave, 3,837,879.
Sontag, John. Device for stripping forms from cast concrete structures. 3,837,613, Cl. 249-66.000.
Sopchak, Peter; and Guptill, Joel P., to Allied Chemical Corporation. Two-stage process for producing soda ash from trona. 3,838,189, Cl. 423-154.000.
Sorbie, Thomas B.: *See—*
Mills, David E.; and Sorbie, Thomas B., 3,837,468.
Sorice, Edward L.: *See—*
Barkley, George G.; Sorice, Edward L.; and Niebauer, Kenneth L., 3,837,058.
Soudijn, Willem; Van Wijngaarden, Ineke; and Janssen, Paul Adriaan Jan, to Janssen Pharmaceutica N.V. [(Thioxanthenyl)propyl]-piperidyl-benzimidazolinones. 3,838,118, Cl. 260-240.0tc.
Souillard, Georges J.; and Van Quaethoven, Frederic Francois. Lubricating compositions. 3,838,049, Cl. 252-32.70e.
Southard, James S., to Conn. C. G., Ltd. Organ pedal tone generator. 3,837,254, Cl. 84-1.010.
Souza, Augustine A., to Polygon Concepts, Inc. Cassette. 3,837,599, Cl. 242-199.000.
Spair, Herbert S.: *See—*
Lockwood, John E.; Spair, Herbert S.; and Spair, Richard A., Sr., 3,838,392.
Spair, Richard A., Sr.: *See—*
Lockwood, John E.; Spair, Herbert S.; and Spair, Richard A., Sr., 3,838,392.
Sparton Corporation: *See—*
Karr, Willis F., 3,837,300.
Spatz Corporation: *See—*
Spatz, Walter B., 3,837,749.
Spatz, Walter B., to Spatz Corporation. Cosmetic applicator. 3,837,749, Cl. 401-130.000.
Specialty Products Development Corporation: *See—*
Catanzarite, Vincent O., 3,837,942.
Speckhart, Bernard S.: *See—*
Weiss, Morton A.; and Speckhart, Bernard S., 3,837,609.
Spenadel, Lawrence; and Reed, John C., to Esso Research and Engineering Company. Ignitor containing polymeric NF_2-adducts. 3,837,940, Cl. 149-19.300.
Spencer, Oliver S.: *See—*

- Haberland, Peter H.; Lay, Frank M.; Murphy, Thomas J.; Skolnik, Marvin B.; Spencer, Oliver S.; Wagner, Peter R.; Whitaker, Howard L.; and Wilson, Donald M., 3,837,724.

Spencer, Paul R., to Xerox Corporation. Control arrangement for transfer roll power supply. 3,837,741, Cl. 355-3.00r.

Spencer-Foote, Ronald. Multipurpose implement for performing destructive operations. 3,837,023, Cl. 7-8.10r.

Sperry Rand Corporation: *See—*
- Di Matteo, Paul L., 3,838,423.
- Kestigian, Michael, 3,838,053.
- Maloney, William T.; and McMahon, Donald H., 3,838,403.
- Phillips, Edwin R., 3,837,639.
- Schneider, David T., 3,838,345.

Splan, Robert E. Fluid substance dispenser. 3,837,533, Cl. 222-94.000.

Sporck, Christian R., to National Semiconductor Corporation. Molding composition and molded product. 3,838,094, Cl. 260-37.0ep.

Sprague, Dennis R.: *See—*
- Toledo, Emil; Sprague, Dennis R.; and Mocanu, Erick L., 3,838,025.

St. Clair, John Q.: *See—*
- Martin, William A.; and St. Clair, John Q., 3,837,737.

St. Germain, Jean, to Baron, Andre H. Cable tension responsive switch. 3,838,235, Cl. 200-61.180.

Stabilus GmbH: *See—*
- Wirges, Winfried, 3,837,355.

Stache, Ulrich; Fritsch, Werner; Haede, Werner; Radscheit, Kurt; and Lindner, Ernst, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Cardenolide- and bufadienolide-3-[2',3'-didesoxyglycosides] and process for their preparation. 3,38,146, Cl. 260-210.500.

Stahlecker, Fritz, to Stahlecker, Wilhelm, GmbH. Spinning turbine. 3,837,154, Cl. 57-58.890.

Stahlecker, Wilhelm, GmbH.: *See—*
- Stahlecker, Fritz, 3,837,154.

Stalker Corporation, The: *See—*
- Stalker, Edward A., 3,837,760.

Stalker, Edward A., to Stalker Corporation, The. Turbine engine. 3,837,760, Cl. 415-181.000.

Standard Oil Company: *See—*
- Ginsburgh, Irwin, 3,837,570.
- Lovell, Lyle M., 3,838,066.

Standard Oil Company, The: *See—*
- Shuki, Albert R.; and Smola, Dennis E., 3,838,106.

Star-Kist Foods, Inc.,: *See—*
- Evich, Vincent J., 3,837,272.

Stark, Donald E.: *See—*
- Ackard, David A.; and Stark, Donald E., 3,838,271.

Starkie, Granville Lewis: *See—*
- Shore, David Teignmouth; and Starkie, Granville Lewis, 3,837,271.

Starns, Robert M.: *See—*
- Starns, Robert M.; and Witt, William W. (said Witt assor. to said), 3,837,255.

Starns, Robert M.; and Witt, William W., said Witt assor. to said Starns, Robert M. Portable guitar chorder. 3,837,255, Cl. 84-317.000.

Starogardzkie Zaklady Farmaceutyczne 'Polfa': *See—*
- Ledochowski, Andrzej; and Stefanska, Barbara, 3,838,130.

Staufer, Dieter: *See—*
- Martin, Wolfgang; Schwoerer, Ulrich; Bauer, Wolfgang; and Staufer, Dieter, 3,837,052.

Stauffer Chemical Company, mesne: *See—*
- Pepe, Anthony Enrico, 3,838,089.

Stauffer, Norman L., to Honeywell Inc. Detecting apparatus for determining when image is in focus. 3,838,275, Cl. 250-204.000.

Ste Croix Foundry Ltd., mesne: *See—*
- Taylor, Thomas B. Franklin, 3,837,683.

Steele, Roger B.; Katzakian, Arthur, Jr.; Scigliano, Joseph J.; and Hamel, Edward E., to Aerojet-General Corporation. Reactions between an organic diimide and an epoxy resin with a chromium III tricarboxylate catalyst. 3,838,101, Cl. 260-47.0en.

Stefanelli, William L. Cargo Handling system. 3,837,508, Cl. 214-83.220.

Stefanska, Barbara: *See—*
- Ledochowski, Andrzej; and Stefanska, Barbara, 3,838,130.

Stehling, Norman P. Armor joint jack. 3,837,060, Cl. 29-200.00p.

Steigewald Strahltechnik G.m.b.H.: *See—*
- Stolz, Heinz; and Koy, Johannes, 3,838,288.

Stephan, Hans: *See—*
- Eggensperger, Heinz; Franzen, Volker; and Stephan, Hans, 3,838,100.

Sterling, Alice W. Math board. 3,837,096, Cl. 35-31.00d.

Sterling Drug Inc.: *See—*
- Brundage, R. Pauline; and Lesher, George Y., 3,838,156.
- Zalay, Andrew W.; and Bell, Malcolm R., 3,838,120.

Stern, Gerhard: *See—*
- Weinrotter, Fredinand; Muller, Walter; Krulla, Wilfried; and Stern, Gerhard, 3,837,835.

Stern, Lionel. Method of making aluminum lead alloys. 3,837,902, Cl. 117-114.00r.

Stevenson, Bernard H. Sewage treatment apparatus. 3,837,494, Cl. 210-259.000.

Stewart, David S., to Zenith Radio Corporation. Video disk latching hub assembly. 3,838,460, Cl. 360-99.000.

Stewart-Decatur Security Systems, Incorporated: *See—*
- Butt, Gerald L., 3,837,117.

Stier, Paul G.: *See—*
- Modert, E. Lamar; and Stier, Paul G., 3,837,041.

Stiles, John C.; and Albert, William C., to Singer Company, The. Gimbal slip ring. 3,837,229, Cl. 74-5.00r.

Stinchcomb, William C. Time and distance indicating balancing toy. 3,837,644, Cl. 273-1.00r.

Stine, Laurence O.; and Hemler, Charles L., Jr., to Universal Oil Products Company. Fluid catalytic cracking process employing a catalyst heating zone. 3,838,036, Cl. 208-120.000.

Stipanuk, John M.: *See—*
- Walter, John; Chambers, Worthy L.; and Stipanuk, John M., 3,837,587.

Stoltzfus, John E.: *See—*
- Lepley, James W.; and Stoltzfus, John E., 3,837,507.

Stolz, Heinz; and Koy, Johannes, to Steigewald Strahltechnik G.m.b.H. Method for the remelt treatment of workpieces and the like. 3,838,288, Cl. 250-492.000.

Storage Technology Corporation: *See—*
- Meadows, James Edward; Horsman, Larry Ray; and Carpentier, Anthony Louis, 3,838,400.

Storek, Jaroslav: *See—*
- Didek, Stanislav; and Storek, Jaroslav, 3,837,153.

Stradalen, Yngve Bertil: *See—*
- Gustafsson, Melker Emanuel; Stradalen, Yngve Bertil; and Zander, Erik Gustav Ake, 3,837,278.

Strader, George C.: *See—*
- Goldfarb, Adolph E.; Strader, George C.; and Strader, Judy D., 3,837,114.

Strader, Judy D.: *See—*
- Goldfarb, Adolph E.; Strader, George C.; and Strader, Judy D., 3,837,114.

Strahl, Wolfgang A.; and Nichols, Donald S., to Koracorp Industries, Inc., mesne. Simulated leather fabric. 3,837,983, Cl. 161-53.000.

Strain, Robert Joseph: *See—*
- Silbersmith, Donald Jack; and Strain, Robert Joseph, 3,838,438.

Straley, Robert J.; and Muller, Victor C., to Fire Sprinkler Control Company. Sprinkler head closure. 3,837,406, Cl. 169-90.000.

Stratienko, Andrew; Kornsey, Robert J.; and Paulhamus, Joseph L., to Philadelphia Gear Corporation. Tug/barge latching mechamism. 3,837,316, Cl. 114-235.00a.

Strauch, Otto R.: *See—*
- Ritter, James R.; and Strauch, Otto R., 3,837,806.

Streicher, Peter, to Tiefbohr-Technik GmbH & Co. Means for damping vibrations of tools in drilling machines or the like. 3,837,758, Cl. 408-143.000.

Stringer, Carl Wayne, to Radon Development Corporation. Process for removing oil from around a wellbore. 3,837,402, Cl. 166-303.000.

Strong, Paul G. Blow molding machine. 3,837,780, Cl. 425-297.000.

Stucker, Nova E.: *See—*
- Higgins, John J.; and Stucker, Nova E., 3,837,375.

Stumpf, Horst: *See—*
- Gorter, Werner; Kresta, Erich; and Stumpf, Horst, 3,837,986.

Stumpf, Irving L.: *See—*
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Stungis, George E.; Merker, Steve L.; and Heitkamp, Norman D., to Brown & Williamson Tobacco Corporation. Separation of tobacco fines from sand. 3,837,481, Cl. 209-4.000.

Sturm, Ernst F.: *See—*
- Fox, Robert B.; and Sturm, Ernst F., 3,837,653.

Sugimoto, Toshio; Uema, Toru; and Takeuchi, Isamu, to NGK Insulators, Ltd. Method of analyzing oxygen. 3,837,808, Cl. 23-232.00e.

Sugiura, Mamoru; Kitamikado, Tadashi; and Kato, Kazuo, to Maruko Seiyaku Kabushiki Kaisha. Disaccharide polysulfate ester hydroxyaluminum allantoinate-aluminum complex and process for preparing same. 3,838,150, Cl. 260-234.00r.

Sugiyama, Kenichi. Device adapting an existing domestic bathtub for steam or dry hot-air bath. 3,837,014, Cl. 4-162.000.

Suh, John T.; and Schnettler, Richard A. 2-Heterocyclic-1,3-benzodiazepines. 3,838,122, Cl. 260-247.50b.

Sullivan, Joseph I.,: *See—*
- Bradbury, Robert C.; and Sullivan, Joseph H., 3,837,569.

Sullivan, Robert Roy. Tapered object attitude sensing and turning system. 3,838,292, Cl. 307-112.000.

Sulzer Brothers Ltd.: *See—*
- Bahler, Andre; Gschwend, Norbert; and Scheier, Heinrich, 3,837,008.
- Castriota-Scanderbeg, George, 3,837,616.
- Schoch, Hans; and Herzog, Josef, 3,837,791.

Sumitomo Metal Industries Limited: *See—*
- Tanoue, Toyosuke; Araki, Taiji; and Aoki, Takeo, 3,837,842.

Sumner, Paul E.: *See—*
- Sumner, Paul E.; and Peter, Joseph E. (said Peter assor. to said), 3,837,890.

Sumner, Paul E.; and Peter, Joseph E., said Peter assor. to said Sumner, Paul E. Drapery marking method utilizing invisible dyes. 3,837,890, Cl. 117-37.00r.

Sun Chemical Corporation: *See—*
- Himics, Richard J., 3,838,164.

Sun, George C. Hoop toy. 3,837,116, Cl. 46-220.000.

Sun Oil Company (Deleware): *See—*
- Lea, James F., Jr., 3,837,311.

Sunbeam Corporation: *See—*
- Walter, John; Chambers, Worthy L.; and Stipanuk, John M., 3,837,587.

Sunbeam Plastics Corporation: *See—*
- Gach, Peter P., 3,837,518.

Suppe, Hansjoachim: *See—*
- Meyerhuber, Wittich; Koblitz, Werner; and Suppe, Hansjoachim, 3,837,184.

Sutherland, John A.; and Sweny, John W., to Allied Chemical Corporation. Simultaneous drying and sweetening of wellhead natural gas. 3,837,143, Cl. 55-32.000.

Sutherland, Julian C.: *See—*
- Naas, Hartley M.; Sutherland, Julian C.; and Nesbitt, Dale D., 3,838,250.

Suttill, Francis John, Jr.; Holt, John M.; and Ray, Robert H., to Commplex, Inc. Electronic variable combination lock and monitoring system. 3,838,395, Cl. 340-149.00a.

Suttles, Eldon J., to Eli Bridge Company. Amusement ride seat and safety guard. 3,837,706, Cl. 297-384.000.

Sutton, Alan: *See—*
- Warman, Bloomfield James; Evans, John Ford; Walker, Stephen Sidney; Mc Pherson, John Hugh; and Sutton, Alan, 3,838,226.

Sutton, Thomas E.: *See—*
- Sence, Leonard H.; and Sutton, Thomas E., 3,837,627.

Suzuki, Masane; Kanaya, Motonori; and Seki, Kazuhisa, to Fuji Photo Optical Co., Ltd. Camera for making holograms. 3,837,726, Cl. 350-3.500.

Suzuki, Torao: *See—*
- Kanki, Hiroshi; Suzuki, Torao; and Kurita, Kazuyoshi, 3,837,378.

Swaim, Frank H.; and Widmayer, Raymond S., to United States of America, The. Silent launch gun for projectiles. 3,837,107, Cl. 42-1.00f.

Swan, Clarence Burke: *See—*
- Knerr, Reinhard Heinrich; and Swan, Clarence Burke, 3,838,356.

Swarat, Walter: *See—*
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SWE-PE-DENT AB, mesne: *See—*
- Persson, Ake; and Hedstrom, Folke, 3,838,265.

Sweet, Albert; and Kaufman, Arnold S., to Elster's, Inc.,. Effluent ventilation and cleaning apparatus. 3,837,269, Cl. 98-115.00k.

Sweny, John W.: *See—*
- Sutherland, John A.; and Sweny, John W., 3,837,143.

Swidler, Ronald: *See—*
- Wilson, Katherine W.; Swidler, Ronald; and Gamarra, Jose P., 3,837,799.

Swier, Raymond R.: *See—*
- Kutik, Louis F.; and Swier, Raymond R., 3,837,527.

Swindle, Kenneth C. Jar-type drilling tool. 3,837,414, Cl. 175-299.000.

Swinehart, Carl F.; and Lindow, James T., to Kewanee Oil Company. Optical bodies with non-epitaxially grown crystals on surface. 3,837,882, Cl. 117-16..000.

Swingline Inc.: *See—*
- Malcik, Frank J., 3,837,754.
- Ruskin, Henry, 3,837,456.

Swisslok Company: *See—*
- Graham, Francis David; and Bryceland, Maurice Cyril, 3,837,136.

Switches, Incorporated: *See—*
- Wolf, Walter A.; Gebhardt, Wallace A.; and Corn, Prentice R., 3,838,236.

Swodenk, Wolfgang: *See—*
- Schwerdtel, Wulf; Kronig, Walter; Scharfe, Gerhard; and Swodenk, Wolfgang, 3,838,019.

Sybertz, Hans, to Hubel & Platzer Maschinen-Baugesellschaft m.b:H. System for cutting splines in boards. 3,837,384, Cl. 144-326.00r.

Sykora, Richard, to Ceske vysoke uceni technicke v Praze. Apparatus for the determination of the quality of a pupil's response. 3,837,093, Cl. 35-9.00a.

Symons, Lester M., to Uniroyal, Inc. Apparatus for the application of a single strip tread to a carcass. 3,837,967, Cl. 156-405.000.

Szarka, Sandor: *See—*
- Jaffa, David; and Szarka, Sandor, 3,837,277.

Szymber, Oleg: *See—*
- Lanigan, Richard W.; and Szymber, Oleg, 3,837,330.

Tabo Industriugnar AB: *See—*
- Falling, Kjele, 3,837,301.

Takahashi, Kentaro; Hasegawa, Minoru; and Nara, Kaoru, to Nippon Piston Ring Co., Ltd. Thermal and abrasion resistant sintered alloy. 3,837,816, Cl. 29-182.000.

Takahashi, Kiyoshi: *See—*
- Ogiso, Mitsutoshi; Hosoe, Kazuya; Takahashi, Kiyoshi; and Itani, Takashi, 3,837,736.

Takamatsu, Ikuo, to Yoshida Kogyo Kabushiki Kaisha. Automatic locking sliders. 3,837,050, Cl. 24-205.14r.

Takashima, Toshiyuki: *See—*
- Kanno, Isawo; Takashima, Toshiyuki; and Bokuda, Yoshiyuki, 3,838,091.

Takashima, Tsuyoshi: *See—*
- Yatsushiro, Toyohiko; Takashima, Tsuyoshi; Iwasaki, Takashi; and Okamura, Susumu, 3,837,137.

Takeda Chemical Industries Ltd.: *See—*
- Kanki, Hiroshi; Suzuki, Torao; and Kurita, Kazuyoshi, 3,837,378.

Takeda, Hitoshi: *See—*
- Tsuchiya, Mitsuharu; Sato, Teruo; Takeda, Hitoshi; and Yoshiyama, Masami, 3,838,209.

Takeda, Reiji: *See—*
- Kobayashi, Katsumi; Takeda, Reiji; and Sato, Kimiaki, 3,837,263.

Takenaka, Sadao: *See—*
- Kuwagaki, Akira; and Takenaka, Sadao, 3,837,652.

Takeuchi, Isamu: *See—*
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Takeuchi, Shohgo: *See—*
- Nakagome, Makoto; and Takeuchi, Shohgo, 3,838,458.

Tamaki, Kohji: *See—*
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Tamamura, Takeo: *See—*
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Tamura Electric Works, Ltd.: *See—*
- Sanada, Noriyoshi, 3,838,253.

Tanaka, Goro: *See—*
- Hoshino, Yoichi; Honda, Kotaro; Funayama, Chihito; and Tanaka, Goro, 3,838,074.

Tanasawa, Yasusi; Yamada, Mitsumasa; Ito, Mikiji; and Ishiguro, Kenji, to Nippondenso Co., Ltd., Toyota Jidosha Kogyo Kabushiki Kaisha and Kabushiki Kaisha Toyota Chuo Kenkyusho. Exhaust gas cleaning device. 3,837,814, Cl. 23-277.00c.

Tang, Walter K., to Du Pont de Nemours, E. I., and Company. Branched ethylene/diene copolymer. 3,838,137, Cl. 260-80.780.

Tanimoto, Kenji, to Fuji Xerox Co., Ltd. Frequency multiplying circuit. 3,838,344, Cl. 328-20.000.

Tankey, Howard William: *See—*
- Fox, Richard; and Tankey, Howard William, 3,837,937.

Tanno, Naoichiro: *See—*
- Yasumori, Eiji; and Tanno, Naoichiro, 3,837,055.

Tanoue, Toyosuke; Araki, Taiji; and Aoki, Takeo, to Sumitomo Metal Industries Limited. Method for projecting pieces of a deoxidizing agent into molten steel. 3,837,842, Cl. 75-58.000.

Tarkkanen, Viekko, to Packard Instrument Company, Inc. Absorbent for carbon-14 dioxide. 3,837,807, Cl. 23-232.00r.

Tarmann, Bruno A., to Gebr. Bohler & Co. AG. Process of continuously hot-forming continuous cast steel stock. 3,837,207, Cl. 72-366.000.

Tasman Vaccine Laboratories Limited: *See—*
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Tatsuta, Sumitaka; and Ueno, Wataru, to Fuji Photo Film Co., Ltd. Process for producing photographic materials. 3,837,886, Cl. 117-34.000.

Taubert, Bernard. Massaging apparatus. 3,837,336, Cl. 128-59.000.

Tavis Corporation: *See—*
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Tavis, John R., to Tavis Corporation. Linear transducer system. 3,837,227, Cl. 73-398.00r.

Taylor, Gordon A.: *See—*
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Taylor, Thomas B. Franklin, to Ste Croix Foundry Ltd., mesne. Pipe joint sleeve. 3,837,683, Cl. 285-236.000.

Tchakgarian, Rene Verazin. Luminous outdoor sign board resistant to inclement weather. 3,837,105, Cl. 40-130.00r.

Technion Research and Development Foundation Limited: *See—*
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Teranishi, Akihiko, to Kabushiki Kaisha Teranishi Denki Seisakusho. Massaging vibrator. 3,837,335, Cl. 128-52.000.

Terrell, James L.; and Curry, Jerome. Tension (bobby) pin. 3,837,350, Cl. 132-48.00r.

Terry, Rupert Douglas, to Johns-Manville Corporation. Method and apparatus for compressing material and enclosing the same in a plastic film. 3,837,138, Cl. 53-24.000.

Tessler, Martin M., to National Starch and Chemical Corporation. Starch phosphate esters. 3,838,149, Cl. 260-233.500.

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- Happ, Marvin B.; Weston, Leonard A.; and Redfield, Carl, 3,837,818.
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- Thaler, Sherwood S., to American Optical Corporation. Externally-controlled implantable cardiac-pacer capture margin testing apparatus and method. 3,837,348, Cl. 128-419.00p.
- Theodorus, Adrianus; and Blok, Onno Jan Theodoor. Cast concrete construction. 3,837,131, Cl. 52-577.000.
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- Thiery, Jean; Reynard, Remi; and Willm, Yves, to Institut Francais du Petrole, des Carburants Et Lubrifiants. Device for automatically positioning the windings formed by a flexible elongated member stored in an annular basket rotatable about a vertical axi. 3,837,592, Cl. 242-83.000.
- Thiokol Chemical Corporation: *See—*
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- Thominet, Michel Leon, to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France. 3-Alkoxy-thianaphthene-2-carboxamides. 3,838,169, Cl. 260-330.500.
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- Toledo, Emil; Sprague, Dennis R.; and Mocanu, Erick L., to United States of America, Navy. Method and electrlyte for producing a copper plated microstrip. 3,838,025, Cl. 204-52.00r.
- Tolle, Gunter. Lubricating device for rotary hooks in cyclically operable sewing machines. 3,837,307, Cl. 112-256.000.
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- Trachtenberg, William; McCabe, John M.; and Kasper, George P., to Eastman Kodak Company. Electrostatic developer composition containing both rough and smooth carrier particles. 3,838,054, Cl. 252-62.100.
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- Tsuchiya, Mitsuharu; Sato, Teruo; Takeda, Hitoshi; and Yoshiyama, Masami, to Matsushita Electric Industrial Co., Ltd. Scanning apparatus for a matrix display panel. 3,838,209, Cl. 178-7.30d.
- Tsuji, Nobuo; and Hasegawa, Eiichi, to Fuji Photo Film Co., Ltd. Light-sensitive compositon containing xylene resin. 3,837,859, Cl. 96-91.00n.
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- Turner, Nathan L., to Petro-Tex Chemical Corporation. Biodergradable emulsifiers for polychloroprene. 3,838,141, Cl. 260-92.300.
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- Van Der Laan, Karel; and Peloschek, Hans Peter, to U.S. Philips Corporation. Method of manufacturing a polycrystalline ferrite body. 3,837,910, Cl. 117-234.000.
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- van Velzen, Antoon Gerardus, to Gist-Brocades N.V. Water-insoluble enzyme composition. 3,838,007, Cl. 195-31.00r.
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- Vanderleeden, Johannes Cornelis, to Bell Telephone Laboratories, Incorporated. Laser arrangements including catadioptric elements made from graded-index optical fibers. 3,838,358, Cl. 331-94.500.
- VanDeWalker, Roger D.; and Howe, Blair E., to California Injection Molding Co., Inc. Apparatus for molding articles containing inserts and means for feeding inserts to the mold. 3,837,772, Cl. 425-126.000.
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Yang, David C., to Engelhard Minerals & Chemicals Corporation. Separation of mica from clay by froth flotation of clay. 3,837,488, Cl. 209-167.000.
Yarnilsky, Chaim M., to Technion Research and Development Foundation Limited. Compensated polarograph. 3,838,032, Cl. 204-195.00r.
Yasumori, Eiji; and Tanno, Naoichiro, to Shimadzu Seisakusho Ltd. Device for leasing two rows of yarn into a single hank. 3,837,055, Cl. 28-21.000.
Yatsushiro, Toyohiko; Takashima, Tsuyoshi; Iwasaki, Takashi; and Okamura, Susumu, to Kirin Beer Kabushiki Kaisha. Method and means for filling beer or the like into containers without introduction of air. 3,837,137, Cl. 53-22.00r.
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Yelin, Robert E.; Hendrix, James E.; and Villiers, Ralph F., to FMC Corporation. Polyester modification with an oxidizing chemical. 3,837,798, Cl. 8-115.500.
Yinon, Jehuda: *See*—
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Yokoo, Horosi: *See*—
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Yonekura, Yasushi: *See*—
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Yonker, John H., to Otis Engineering Corporation. Kickover tool. 3,837,398, Cl. 166-117.500.
Yoshida Kogyo Kabushiki Kaisha: *See*—
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Yoshida, Mikihiko: *See*—
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Young, Irvin L. Baggage tags. 3,837,101, Cl. 40-21.000.
Young, John S.: *See*—
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Ysbrand, Floyd R., to Telex Computer Products, Inc. Automatic flux shield engagement mechanism. 3,838,463, Cl. 360-128.000.
Yuasa Battery Company Limited: *See*—
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Zaccard, Edward F. Magnetic locating device. 3,837,274, Cl. 100-35.000.
Zachman, Anthony J. Combined joist and reinforcing bar holder and structure formed therewith. 3,837,135, Cl. 52-702.000.
Zalay, Andrew W.; and Bell, Malcolm R., to Sterling Drug Inc. 1-Alkyl-1H, 4H-pyrido [2,3-d] [1,3] oxazine-2,4-diones and their conversion to 1-alkyl-1,4-dihydro-4-oxo-1,8-naphthyridine-3-carboxylic acids. 3,838,120, Cl. 260-244.00r.
Zalewski, Edmund J.; Simonian, John L.; and Keating, John T., to Schenectady Chemicals, Inc. Wire enamel based on amide-imide-hydantoin polymers. 3,838,088, Cl. 260-33.40p.
Zander, Erik Gustav Ake: *See*—
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Zaramella, Gian Carlo, to O.M.P. Officine Meccaniche Ponti & C. s.n.c. Machine for bending plated sections. 3,837,204, Cl. 72-153.000.
Zell, Michael N.: *See*—
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Zeller, Bruno: *See*—
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Bachmann, Wilhelm Georg; Scheffel, Ehrenfried G.; Weissenfels, Klaus J.; and Ziehe, Hermann, 3,838,410.
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PATENTS WERE ISSUED ON THE 24TH DAY OF SEPTEMBER, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Anhalt, John W., to International Telephone and Telegraph Corp. Low insertion force connector assembly. Re. 28,171, 9–24–74, Cl. 339—75.
Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
  Marx, Matthias, Zosel, Spoor, Pohlmann, and Heinze. Re. 28,173.
Bloomquist, Wilburn M.: *See—*
  Sabatka, Winston E., Bloomquist, and Reinke. Re. 28,174.
Borg Warner Corp.: *See—*
  Zimmer, George A. Re. 28,169.
Bradley, John J., and E. D. Nystrand, to Paper Converting Machine Co., Inc. Orbital packing device. Re. 28,172, 9–24–74, Cl. 271—196.
Cope, F., and R. J. Perrine, by Electric Furnace Co. Emergency atmosphere annealing furnace and method. Re. 28,168, 9–24–74, Cl. 432—8.
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Finishing Equipment Inc.: *See—*
  Sabatka, Winston E., Bloomquist, and Reinke. Re. 28,174.
Heinze, Dieter: *See—*
  Marx, Matthias, Zosel, Spoor, Pohlmann, and Heinze. Re. 28,173.
International Telephone and Telegraph Corp.: *See—*
  Anhalt, John W. Re. 28,171.
Kimmel, Merle J., to LaSalle-Dietch Co., Inc. Hot water heater. Re. 28,175, 9–24–74, Cl. 122—136.
LaSalle-Dietch Co., Inc.: *See—*
  Kimmel, Merle J. Re. 28,175.
Lehmann, Aribert J. Device for tying the ends of bags. Re. 28,170, 9–24–74, Cl. 53—198.
Marx, Matthias, A. Zosel, H. Spoor, H. Pohlmann, and D. Heinze, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Radiation treatment of halogen containing olefinically unsaturated esters. Re. 28,173, 9–24–74, Cl. 204—159.22.
Nystrand, Ernst D.: *See—*
  Bradley, John J., and Nystrand. Re. 28,172.
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  Bradley, John J., and Nystrand. Re. 28,172.
Perrine, Ralph J.: *See—*
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Pohlmann, Heinz: *See—*
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Reinke, Raymond W.: *See—*
  Sabatka, Winston E., Bloomquist, and Reinke. Re. 28,174.
Sabatka, Winston E., W. M. Bloomquist, and R. W. Reinke, to Finishing Equipment Inc. Apparatus for liquid treatment of flat materials. Re. 28,174, 9–24–74, Cl. 134—117.
Spoor, Herbert: *See—*
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Zimmer, George A., to Borg Warner Corp. Manufacture of roller chain. Re. 28,169, 9–24–74, Cl. 59—8.
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Anderson, Frederic W. Pear tree. 3,622, 9–24–74, Cl. 36.
Anderson, Frederic W., to The Burchell Nurserv. Inc. Apricot tree. 3,626, 9–24–74, Cl. 39.
Burchell Nursery, Inc., The: *See—*
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Meilland, Marie-Louise, to Michigan Bulb Co. Rose plant. 3,621, 9–24–74, Cl. 20.
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Moore, Ralph S. Miniature rose plant. 3,627, 9–24–74, Cl. 8.
Nakano, Grace Y. Chrysanthemum plant entitled dark pinnacle. 3,624, 9–24–74, Cl. 81.
Olmo, Harold P., to The Regents of the University of California. Grapevine. 3,625, 9–24–74, Cl. 47.
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Wheatcroft, Harry. Rose plant. 3,623, 9–24–74, Cl. 13.

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A. C. International Corp.: *See—*
  Chan, Norman. 232,952.
AMP Inc.: *See—*
  Lawson, Gustaf R. 232,906.
Ainslie, Dianne B., to Eastman Kodak Co. Carrying case for a motion picture projector or similar article. 232,977, 9–24–74, Cl. D87—5.
Allied Leisure Industries, Inc.: *See—*
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Amerock Corp.: *See—*
  Tegner, Raymond U. H. 232,911.
Arnoldy, David N., and A. L. Cline, to Honeywell Inc. Camera flash attachment. 232,973, 9–24–74, Cl. D61—1.
Atkinson, Berl N., to Teledyne, Inc. Dental Accessory table top. 232,940, 9–24–74, Cl. D24—1.
Atwell, Walter E. Finger ring. 232,965, 9–24–74, Cl. D45—10.
Avid Corp.: *See—*
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Ballenson, Jerrold H. Baby hamper. 232,905, 9–24–74, Cl. D7—163.
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Beck, Nevitt, S. Water sled 232,964, 9–24–74, Cl. D34—42.
Becker, Kurt, to Hermann Heye. Bottle. 232,915, 9–24–74, Cl. D9—135.
Beckman, Glenn B., to Corning Glass Works. Supporting cradle for a serving dish or the like. 232,903, 9–24–74, Cl. D7—130.
Bell, Arthur. Rubber mat. 232,895, 9–24–74, Cl. D6—209.
Bell, Vernon D., and C. L. Seltz, to King-Seeley Thermos Co. Insulated bottle. 232,900, 9–24–74, Cl. D7—77.
Bell, Vernon D., and C. L. Seltz, to King-Seeley Thermos Co. Insulated bottle with attached cup. 232,901, 9–24–74, Cl. D7—77.
Bettonica, Franco, to Perlier S.p.A. Jar or the like. 232,916, 9–24–74, D9—164.
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Borraccio, Robert J. Combined ski and ski pole rack. 232,886, 9–24–74, Cl. D6—114.
Breger, Carl-Arne, to AB Ljungmans Verkstader. Gasoline pump. 232,969, 9–24–74, Cl. D52—2.
Burke, Martin E., and L. L. Van Kirk. Finned motorcycle intake manifold. 232,975, 9–24–74, Cl. D77—1.
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Casey, Frank J. Hexagonal billiard-type table. 232,950, 9–24–74, Cl. D34—3.
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  Greger, Richard W., and Joy. 232,904.
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Cuccio, John, to Sybron Corp. Wall clock. 232,919, 9–24–74, Cl. D10—25.
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Duperrex, Jean-Pierre. Track rail for curtains and the like. 232,910, 9–24–74, Cl. D8—208.
Dyrup, Sven-Erik, to Trelleborgs Gummifabriks AB. Material feed ring for gyratory crushers. 232,970, 9–24–74, Cl. D55—1.
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Edwards, Edna H. Purse organizer. 232,978, 9–24–74, Cl. D87—2.
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Fiene, Gilbert W., Jr., G. L. Protenic. Toy hoop roller. 232,955, 9–24–74, Cl. D34—5.
French, Alan, and J. Machado, to Avid Corp. Passenger control box. 232,946, 9–24–74, Cl. D26—13.
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Greger, Richard W., and J. R. Joy, to Corning Glass Works. Removable cover for culinary vessels. 232,904, 9–24–74, Cl. D7—131.
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Kaplan, Martin N. Combined packaging and display container. 232,918, 9–24–74, Cl. D9—191.
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Kemnitzer, Ronald B., to Sunbeam Corp. Electric percolator. 232,897, 9–24–74, Cl. D7—62.
Kennedy, Roger, and P. B. Rothschild, to Pan-Nova, Inc. Gasoline dispensing pump. 232,967, 9–24–74, Cl. D52—2.
Kephart, Lynn H. Combined table and terrarium. 232,877, 9–24–74, Cl. D6—3.
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Laske, Louis L., to Vonco Products Inc. Inflatable kite. 232,961, 9–24–74, Cl. D34—15.
Lawlor, John K. Electric highway emergency beacon. 232,923, 9–24–74, Cl. D10—114.
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Maeda, Hisashi, to Omron Tateisi Electronics Co. Calculating machine. 232,943, 9–24–74, Cl. D26—5.
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Moretini, Billy, to International Design Corp. Shelf module. 232,893, 9–24–74, Cl. D6—189.
Morris, Robert C. Dog ear grooming holder. 232,948, 9–24–74, Cl. D30—40.
Murphy, Paul K. Game board. 232,949, 9–24–74, Cl. D34—1.
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Scheirich, H. J., Co.: *See—*
  Dillen, Warren A. 232,894.

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Seltz, Charles L.: *See*—
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Stahel, Alwin John II, to The Holes-Webway Co. Desk pad. 232,935, 9–24–74, Cl. D19—95.

Storm Plastics, Inc.: *See*—
  Storm, William D. 232,936.
  Storm, William D. 232,937.

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Sunbeam Corp.: *See*—
  Bluestein, Bernard B. 232,898.
  Kemnitzer, Ronald B. 232,897.

Suzuki, Haruo, to Toytown Corp. Toy dolphin. 232,962, 9–26–74. Cl. D34—15.

Sybron Corp.: *See*—
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Tegner, Raymond U. H., to Amerock Corp. Escutcheon plate. 232,911, 9–24–74, Cl. D8—179.

Teledyne, Inc.: *See*—
  Atkinson, Berl N. 232,940.

Texasgulf, Inc.: *See*—
  Cramer, Jerry L. 232,885.

Trelleborgs Gummifabriks AB: *See*—
  Dyrup, Sven-Erik. 232,970.

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  Oguchi, Shigeo. 232,953.

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U.S. Philips Corp.: *See*—
  Lane, Leslie L. 232,981.

Van Kirk, Leslie L.: *See*—
  Burke, Martin E., and Van Kirk. 232,975.

Vilen, Erik O., to G. S. Blakeslee and Co. Conveyor receptacle for carrying soiled ware in a dishwashing machine. 232,972, 9–24–74, Cl. D55—1.

Vincent, William T. Razor holder. 232,917, 9–24–74, Cl. D9—186.

Vonco Products Inc.: *See*—
  Laske, Louis L. 232,961.

Wilfert, Karl, to Daimler-Benz Aktiengesellschaft Automobile. 232,928, 9–24–74, Cl. D12—92.

Wiltshire Cutlery Co. Proprietary Ltd.: *See*—
  Bayly, Peter K. 232,899.

Yankee, Conrad A. Rake. 232,907, 9–24,74, Cl. D8—13.

Yoshikawa, Hironori: *See*—
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  Feuer, Perry. 232,960.

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CLASSIFICATION OF PATENTS

ISSUED SEPTEMBER 24, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2	
10	3,837,005
89	3,837,006
93	3,837,007
CLASS 3	
1	3,837,008
	3,837,009
12.3	3,837,010
CLASS 4	
1	3,837,011
131	3,837,012
145	3,837,013
162	3,837,014
172.17	3,837,015
	3,837,016
228	3,837,017
233	3,837,018
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93R	3,837,019
317R	3,837,020
334R	3,837,021
355	3,837,022
CLASS 7	
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	3,837,024
CLASS 8	
3	3,837,795
21R	3,837,796
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115.6	3,837,799
151.1	3,837,801
173	3,837,802
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54.1	3,837,025
146D	3,837,026
CLASS 13	
9	3,838,200
CLASS 14	
27	3,837,027
CLASS 15	
50C	3,837,029
50R	3,837,028
82	3,837,030
150	3,837,031
250.17	3,837,032
250.23	3,837,036
250.32	3,837,033
257.06	3,837,034
	3,837,035
302	3,837,037
349	3,837,038
CLASS 16	
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85	3,837,040
94R	3,837,041
140	3,837,042
180	3,837,043
184	3,837,044
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11	3,837,045
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161P	3,837,046
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CLASS 23	
230R	3,837,806
232E	3,837,808
232R	3,837,807
253TP	3,837,809
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273R	3,837,811
	3,837,812
277C	3,837,813
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293R	3,837,815
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72HR	3,837,056
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96	3,837,058
105R	3,837,059
182	3,837,816
195	3,837,817
196.3	3,837,818
199	3,837,819
200D	3,837,062
200P	3,837,060
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203P	3,837,063
235	3,837,064
420.5	3,837,068
429	3,837,065
432.1	3,837,069
568	3,837,070
571	3,837,071
596	3,837,072
599	3,837,066
603	3,837,073
613	3,837,067
624	3,837,074
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4R	3,837,075
180	3,837,076
231	3,837,077
293	3,837,078
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2	3,837,079
10A	3,837,080
14B	3,837,081
64	3,837,082
CLASS 33	
1C	3,837,083
17R	3,837,084
174Q	3,837,085
317D	3,837,086
337	3,837,087
CLASS 34	
17	3,837,089
40	3,837,090
54	3,837,088
58	3,837,091
168	3,837,092
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9A	3,837,093
10.4	3,838,201
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22R	3,837,095
31D	3,837,096
35B	3,837,097
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2	3,837,100
21R	3,837,101
28C	3,837,102
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104.18	3,837,104
130R	3,837,105
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483	3,837,133
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54	3,837,830
59	3,837,829
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110	3,837,203
153	3,837,204
239	3,837,201
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348	3,837,206
366	3,837,207
391	3,837,208
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711	3,837,236
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843	3,837,239
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.5	3,837,845
42	3,837,840
49	3,837,841
58	3,837,842
67	3,837,843
122	3,837,844
124	3,837,846
128W	3,837,847
134F	3,837,838
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424	3,837,250
449	3,837,251
658	3,837,252
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	3,837,851
	3,837,853
3	3,837,852
22	3,837,854
35	3,837,855
36.2	3,837,856
74	3,837,857
75	3,837,858
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555	3,837,273
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	3,837,868
53	3,837,869
57	3,837,870
65	3,837,871
74	3,837,872
264	3,837,875
287SB	3,837,876
287SE	3,837,873
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256	3,837,307
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16	3,837,882
17.5	3,837,883
33.3	3,837,884
33.5CM	3,837,885
34	3,837,886
	3,837,887
36.2	3,837,889
37R	3,837,890
46FA	3,837,891
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68	3,837,893
70A	3,837,894
	3,837,895
	3,837,896
72	3,837,897
	3,837,898
92	3,837,899
93.1DH	3,837,900
107.2P	3,837,901
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138	3,837,903
139.5A	3,837,904
201	3,837,905

	3,837,906
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224	3,837,909
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235	3,837,911
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240	3,837,912
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59	3,837,336
142.2	3,837,337
156	3,837,338
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296	3,837,344
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83	3,837,920
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89	3,837,924
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322	3,837,355
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554	3,837,357
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146	3,837,934
187	3,837,935
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93	3,837,943
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159	3,837,954
211	3,837,955
218	3,837,956
221	3,837,957
229	3,837,958
246	3,837,959
253	3,837,960
272	3,837,961
293	3,837,962
310	3,837,963
331	3,837,964
382	3,837,965
384	3,837,966
405	3,837,967
415	3,837,968
416	3,837,969
425	3,837,970
447	3,837,971
466	3,837,972
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580	3,837,977
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21	3,837,980
36	3,837,981
39	3,837,982
53	3,837,983
	3,837,984
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92	3,837,993
100	3,837,994
150	3,837,995
156	3,837,996
170	3,837,997
	3,837,998
CLASS 162	
101	3,837,999
207	3,838,000
416	3,838,001
CLASS 164	
33	3,837,389
260	3,837,390
282	3,837,391
342	3,837,393
CLASS 165	
32	3,837,394
47	3,837,395
111	3,837,396
162	3,837,397
282	3,837,392
CLASS 166	
117.5	3,837,398
266	3,837,399
274	3,837,400
303	3,837,401
	3,837,402
315	3,837,403
CLASS 169	
45	3,837,404
56	3,837,405
90	3,837,406
CLASS 172	
40	3,837,407
702	3,837,408
CLASS 173	
48	3,837,409
109	3,837,410
CLASS 174	
68.5	3,838,203
	3,838,204
84S	3,838,205
87	3,838,206
138F	3,838,207
CLASS 175	
104	3,837,412
292	3,837,413
299	3,837,414
CLASS 176	
65	3,838,002
CLASS 177	
123	3,837,415
196	3,837,416
CLASS 178	
5.4BT	3,838,208
7.3D	3,838,209
7.3R	3,838,210
18	3,838,211
46	3,838,213
69.5R	3,838,214
CLASS 179	
1SA	3,838,218
1A	3,838,216
	3,838,217
1D	3,838,215
2DP	3,838,219
3	3,838,220
15AQ	3,838,222
15BS	3,838,221
18AH	3,838,224
18FA	3,838,223
18GF	3,838,227
18H	3,838,228
18J	3,838,226
18	3,838,212
27FF	3,838,225
100D	3,838,229
170A	3,838,230
175.2R	3,838,231
178	3,838,232
CLASS 180	
6.48	3,837,417
53WA	3,837,418
65R	3,837,419
79.2R	3,837,421
91	3,837,422
CLASS 181	
32R	3,837,425
33G	3,837,426
120	3,837,424
131	3,837,681
CLASS 182	
37	3,837,429
115	3,837,427
129	3,837,428
CLASS 184	
1E	3,837,430
7D	3,837,431
	3,837,432
15R	3,837,433
CLASS 187	
8.62	3,837,434
8.72	3,837,435
29R	3,837,436
CLASS 188	
71.6	3,837,420
71.8	3,837,437
72.2	3,837,438
72.6	3,837,439
82.6	3,837,440
	3,837,441
159	3,837,442
196A	3,837,443
315	3,837,444
322	3,837,445
329	3,837,446
CLASS 190	
52	3,837,447
CLASS 191	
12.4	3,837,448
CLASS 192	
4C	3,837,449
12BA	3,837,450
56R	3,837,451
CLASS 193	
12	3,837,452
40	3,837,453
CLASS 194	
1K	3,837,454
4R	3,837,455
CLASS 195	
1.1	3,838,003
1.3	3,838,004
29	3,838,008
31R	3,838,005
	3,838,006
	3,838,007
65	3,838,009
103.5R	3,838,010
	3,838,011
127	3,838,012
139	3,838,013
CLASS 196	
132	3,838,014
CLASS 197	
1R	3,837,460
6.7	3,837,456
18	3,837,457
19	3,837,458
	3,837,459
126	3,837,461
151	3,837,462
175	3,837,463
186R	3,837,464
CLASS 198	
27	3,837,465
30	3,837,466
31AC	3,837,467
106	3,837,469
184	3,837,470
210	3,837,471
218	3,837,472
219	3,837,473
236	3,837,468
240	3,837,474
CLASS 200	
48R	3,838,233
61.18	3,838,235
61.56	3,838,236
61.7	3,838,234
67DA	3,838,237
80B	3,838,238
175	3,838,239
CLASS 201	
1	3,838,015
CLASS 202	
83	3,838,016
141	3,838,017
CLASS 203	
8	3,838,019
56	3,838,020
92	3,838,018
CLASS 204	
1T	3,838,021
32R	3,838,022
35N	3,838,023
41	3,838,024
52R	3,838,025
55R	3,838,026
74	3,838,027
159	3,838,029
159.14	3,838,030
159.22	Re.28,173
192	3,838,031
195B	3,838,033
	3,838,034
195R	3,838,032
250	3,838,035
298	3,838,028
CLASS 206	
.8	3,837,475
45.34	3,837,476
72	3,837,477
427	3,837,478
489	3,837,479
497	3,837,480
CLASS 208	
108	3,838,038
	3,838,039
111	3,838,040
120	3,838,036
	3,838,037
	3,838,041
251H	3,838,042
251R	3,838,043
CLASS 209	
4	3,837,481
5	3,837,482
30	3,837,483
73	3,837,484
74R	3,837,485
106	3,837,487
111.7	3,837,486
167	3,837,488
	3,837,489
288	3,837,490
CLASS 210	
42	3,838,044
52	3,838,045
73	3,837,491
150	3,837,492
197	3,837,493
259	3,837,494
314	3,837,495
321	3,837,496
349	3,837,497
354	3,838,046
387	3,837,498
404	3,837,499
490	3,837,500
522	3,837,501
CLASS 212	
55	3,837,502
83	3,837,503
CLASS 214	
6BA	3,837,504
	3,837,505
9	3,837,506
17D	3,837,507
83.22	3,837,508
84	3,837,509
152	3,837,510
	3,837,511
302	3,837,512
450	3,837,513
	3,837,514
730	3,837,515
767	3,837,516
CLASS 215	
1C	3,837,517
7	3,837,518
	3,837,519
CLASS 219	
56	3,838,241
85	3,838,240
121P	3,838,242
122	3,838,243
131F	3,838,244
137	3,838,245
146	3,838,246
	3,838,247
210	3,838,248
460	3,838,249
CLASS 220	
1.5	3,837,520
3.3	3,837,521
24.5	3,837,522
27	3,837,523
54	3,837,524
55K	3,837,525
60R	3,837,526
72	3,837,527
CLASS 221	
114	3,837,528
265	3,837,529
268	3,837,530
CLASS 222	
1	3,837,531
70	3,837,532
94	3,837,533
137	3,837,534
143	3,837,535
146C	3,837,536
153	3,837,537
178	3,837,538
	3,837,539
193	3,837,540
397	3,837,541
456	3,837,542
CLASS 223	
73	3,837,543
87	3,837,544
CLASS 224	
31	3,837,545
35	3,837,546
42.1E	3,837,547
45S	3,837,548
CLASS 225	
11	3,837,549
CLASS 226	
4	3,837,550
97	3,837,551
122	3,837,552
194	3,837,553
CLASS 227	
25	3,837,554
130	3,837,555
136	3,837,556
152	3,837,557
CLASS 228	
3	3,837,558
4	3,837,559
CLASS 229	
15	3,837,560
23BT	3,837,561
32	3,837,562
52B	3,837,563
54R	3,837,564
68R	3,837,565
CLASS 232	
15	3,837,566
CLASS 233	
1B	3,837,567
CLASS 235	
61A	3,837,568
61.11E	3,838,251
61.12M	3,838,252
61.9R	3,837,570
	3,838,250
70R	3,837,569
92DN	3,838,254
92SB	3,838,255
92C	3,838,253
150.1	3,838,256
151.1	3,838,257
151.11	3,838,258
152	3,838,259
153AE	3,838,261
153AK	3,838,260
153AM	3,838,264
194	3,838,262
197	3,838,263
CLASS 236	
49	3,837,571
CLASS 238	
315	3,837,572
CLASS 239	
15	3,837,573
57	3,837,574
112	3,837,575
230	3,837,576
265.33	3,837,577
265.35	3,837,578
265.39	3,837,579
	3,837,580
289	3,837,581
CLASS 240	
1LP	3,838,265
2AD	3,838,266
6.4F	3,838,267
9A	3,838,268
102R	3,838,269
CLASS 241	
4	3,837,582
39	3,837,583
65	3,837,584
213	3,837,585
223	3,837,586
260.1	3,837,587
CLASS 242	
7.06	3,837,588
25A	3,837,589
54R	3,837,590
55.3	3,837,595
66	3,837,593
68.4	3,837,591
74	3,837,596
83	3,837,592
107.4	3,837,594
129	3,837,597
155R	3,837,598
199	3,837,599
CLASS 244	
12R	3,837,600
42DB	3,837,601
54	3,837,602
77A	3,837,603
152	3,837,604
CLASS 246	
125	3,838,271
130	3,838,270
169R	3,838,272
CLASS 248	
235	3,837,605
242	3,837,606
278	3,837,607
313	3,837,608
317	3,837,609
374	3,837,610
417	3,837,611
CLASS 249	
66	3,837,613
105	3,837,612
108	3,837,614
CLASS 250	
201	3,838,274
204	3,838,275
211J	3,838,276
213VT	3,838,273

216	3,838,277
227	3,838,278
270	3,838,279
292	3,838,280
308	3,838,281
372	3,838,282
381	3,838,283
385	3,838,284
413	3,838,285
445	3,838,286
	3,838,287
492	3,838,288
506	3,838,289
532	3,838,290
571	3,838,291
CLASS 251	
29	3,837,615
30	3,837,616
87	3,837,617
129	3,837,618
145	3,837,619
306	3,837,620
CLASS 252	
8.5A	3,838,047
12	3,838,048
32.7E	3,838,049
40.5	3,838,050
52R	3,838,051
56R	3,838,052
62.1	3,838,054
62.57	3,838,053
63.2	3,838,055
64	3,838,056
117	3,838,057
171	3,838,058
299	3,838,059
301.1R	3,838,062
301.1W	3,838,061
301.2P	3,838,160
301.2R	3,838,063
301.4P	3,838,060
384	3,838,064
408	3,838,065
419	3,838,066
432	3,838,067
437	3,838,068
456	3,838,069
472	3,838,070
514	3,838,071
540	3,838,072
CLASS 254	
29A	3,837,621
104	3,837,625
131	3,837,622
134.3PA	3,837,623
134.4	3,837,624
CLASS 256	
64	3,837,626
CLASS 260	
2P	3,838,073
2.5AD	3,838,075
2.5AQ	3,838,076
2.5BD	3,838,074
17.4GC	3,838,077
24	3,838,078
27R	3,838,079
28.5B	3,838,080
29.3	3,838,081
29.6F	3,838,082
	3,838,083
29.6R	3,838,085
29.6Z	3,838,084
30.6R	3,838,086
31.2R	3,838,091
33.4P	3,838,088
33.6UA	3,838,087
33.6F	3,838,092
33.8SB	3,838,089
33.8UB	3,838,093
37EP	3,838,094
38	3,838,095
40R	3,838,096
45.75N	3,838,099
45.95C	3,838,100
47EN	3,838,101
47ET	3,838,102
47.75R	3,838,090
49	3,838,097
52	3,838,103
63HA	3,838,104
75NP	3,838,105
75M	3,838,106
75T	3,838,107
77.5AQ	3,838,109
77.5CR	3,838,108
	3,838,110
78R	3,838,111
	3,838,112
78.5R	3,838,113
79.5A	3,838,114
80.71	3,838,115
80.78	3,838,137
87.5C	3,838,138
88.2C	3,838,139
92.3	3,838,140
	3,838,141
112R	3,838,143
	3,838,144
184	3,838,145
210.5	3,838,146
211.5R	3,838,147
	3,838,148
233.5	3,838,149
234R	3,838,150
239BD	3,838,116
239B	3,838,151
239.1	3,838,152
	3,838,153
239.3B	3,838,117
240TC	3,838,118
243R	3,838,119
244R	3,838,120
247.1	3,838,121
247.5B	3,838,122
247.7F	3,838,123
248NS	3,838,124
250A	3,838,125
256.4F.	3,838,126
256.4Q	3,838,127
260	3,838,128
268R	3,838,129
279A	3,838,130
286A	3,838,131
	3,838,134
286R	3,838,132
	3,838,133
288R	3,838,135
294.8F	3,838,154
295.5R	3,838,155
	3,838,156
296D	3,838,157
296H	3,838,158
296R	3,838,136
	3,838,159
302A	3,838,161
307F	3,838,164
307H	3,838,162
	3,838,163
309.7	3,838,165
326.16	3,838,167
326.2	3,838,166
326.36	3,838,168
330.5	3,838,169
343.2R	3,838,170
	3,838,171
345.7	3,838,172
346.2R	3,838,173
	3,838,174
348A	3,838,176
348R	3,838,175
351	3,838,177
369	3,838,178
586AB	3,838,179
625	3,838,181
629	3,838,182
640	3,838,183
961	3,838,180
CLASS 261	
29	3,837,627
39B	3,837,628
122	3,837,629
CLASS 264	
.5	3,838,184
8	3,838,185
12	3,838,186
17	3,838,187
29	3,838,188
94	3,838,142
CLASS 266	
43	3,837,630
CLASS 267	
1.5	3,837,631
CLASS 269	
48.1	3,837,632
128	3,837,633
289	3,837,634
325	3,837,635
CLASS 270	
45	3,837,636
CLASS 271	
11	3,837,637
95	3,837,638
105	3,837,639
174	3,837,640
196	Re.28,172
CLASS 272	
33R	3,837,641
62	3,837,642
65	3,837,643
CLASS 273	
1R	3,837,644
3C	3,837,645
25	3,837,646
73A	3,837,649
81R	3,837,647
95R	3,837,648
105R	3,837,650
137D	3,837,651
157R	3,837,652
178R	3,837,653
185D	3,837,654
185R	3,837,655
225	3,838,098
CLASS 274	
46B	3,837,656
CLASS 277	
1	3,837,657
26	3,837,658
74	3,837,659
227	3,837,660
CLASS 279	
1C	3,837,661
CLASS 280	
8	3,837,663
11.23	3,837,662
11.35C	3,837,664
43.18	3,837,665
47.13R	3,837,666
47.34	3,837,667
150AB	3,837,669
	3,837,671
150B	3,837,668
	3,837,670
154.5R	3,837,672
415B	3,837,673
417	3,837,674
423R	3,837,675
432	3,837,678
446B	3,837,676
476R	3,837,677
491E	3,837,679
CLASS 281	
16	3,837,680
CLASS 282	
8R	3,837,682
CLASS 285	
3	3,837,684
45	3,837,685
55	3,837,686
111	3,837,687
177	3,837,688
236	3,837,683
302	3,837,689
319	3,837,690
CLASS 289	
17	3,837,691
CLASS 292	
152	3,837,692
207	3,837,693
256.75	3,837,694
CLASS 293	
71P	3,837,695
CLASS 294	
1R	3,837,696
74	3,837,697
81R	3,837,698
118	3,837,699
CLASS 296	
23MC	3,837,700
	3,837,701
36	3,837,702
97C	3,837,703
CLASS 297	
345	3,837,704
353	3,837,705
384	3,837,706
CLASS 299	
8	3,837,707
CLASS 301	
1	3,837,708
13SM	3,837,709
CLASS 303	
21F	3,837,710
	3,837,711
	3,837,712
22R	3,837,713
CLASS 305	
24	3,837,714
CLASS 307	
112	3,838,292
221D	3,838,293
233	3,838,294
238	3,838,295
243	3,838,296
268	3,838,297
309	3,838,298
CLASS 308	
6R	3,837,715
9	3,837,716
	3,837,717
77	3,837,718
CLASS 310	
6	3,838,299
60	3,838,301
68D	3,838,302
	3,838,303
239	3,838,300
CLASS 312	
195	3,837,719
198	3,837,720
257	3,837,721
276	3,837,722
CLASS 313	
94	3,838,304
237	3,838,305
409	3,838,306
486	3,838,307
CLASS 315	
5.47	3,838,308
12	3,838,309
	3,838,311
13R	3,838,310
27TD	3,838,312
291	3,838,313
CLASS 316	
19	3,837,723
20	3,837,724
CLASS 317	
48	3,838,314
99	3,838,315
101R	3,838,316
119	3,838,317
141S	3,838,319
246	3,838,318
261	3,838,320
CLASS 318	
66	3,838,321
225R	3,838,322
302	3,838,323
331	3,838,324
415	3,838,325
573	3,838,326
CLASS 320	
2	3,838,327
CLASS 321	
	3,838,328
	3,838,329
5	3,838,330
9R	3,838,331
18	3,838,332
45R	3,838,333
CLASS 323	
93	3,838,334
CLASS 324	
10	3,838,335
57R	3,838,336
71R	3,838,337
79D	3,838,338
133	3,838,339
142	3,838,340
161	3,838,341
CLASS 325	
32	3,838,342
58	3,838,343
CLASS 328	
20	3,838,344
37	3,838,345
151	3,838,346
164	3,838,347
167	3,838,348
CLASS 329	
103	3,838,349
104	3,838,350
CLASS 330	
	3,838,351
105	3,838,352
107	3,838,353
CLASS 331	
4	3,838,354
39	3,838,355
56	3,838,356
74	3,838,357
94.5H	3,838,359
94.5	3,838,358
CLASS 333	
1.1	3,838,360
	3,838,361
9	3,838,362
24.1	3,838,363
28R	3,838,364
30R	3,838,365
72	3,838,366
73S	3,838,367
73W	3,838,368
CLASS 335	
188	3,838,369
255	3,838,370
278	3,838,371
CLASS 336	
110	3,838,372
CLASS 337	
21	3,838,373
163	3,838,374
276	3,838,375
296	3,838,376
416	3,838,377
CLASS 338	
20	3,838,378
42	3,838,379
CLASS 339	
14R	3,838,380
21R	3,838,381
59R	3,838,382
75P	3,838,383
112L	3,838,384
196A	3,838,385
226	3,838,386
244VC	3,838,387
258R	3,838,388
CLASS 340	
5MP	3,837,423
6R	3,838,389
15.5MC	3,838,390
39	3,838,391
75	3,838,392
146.1AG	3,838,393
147R	3,838,394
149A	3,838,395
172.5	3,838,396
	3,838,397
	3,838,398
	3,838,399
	3,838,400
173DR	3,838,404
173LM	3,838,401
	3,838,402
173TP	3,838,403
173R	3,838,405
174EB	3,838,406
174TF	3,838,407
214	3,838,408
258C	3,838,409
286	3,838,410
310R	3,838,411
334	3,838,412
347AD	3,838,413
347DA	3,838,414
	3,838,416
347DD	3,838,415
366B	3,838,417
384E	3,838,418
409	3,838,419
CLASS 343	
5LS	3,838,421
5SC	3,838,420
7A	3,838,422
7.3	3,838,423
8	3,838,424
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	35	232,879
		232,880
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	39	232,882
	48	232,883
	63	232,884
	106	232,885
	114	232,886
	130	232,887
	153	232,888
	154	232,889
		232,890
	186	232,891
		232,892
	189	232,893
	192	232,894
	209	232,895
D7—	58	232,896
	62	232,897
		232,898
	74	232,899
	77	232,900
		232,901
	130	232,903
	131	232,904
	163	232,905
	188	232,902
D8—	13	232,907
	51	232,906
	59	232,908
	88	232,909
	179	232,911
	208	232,910
	230	232,912
	236	232,913
	261	232,914
D9—	135	232,915
	164	232,916
	186	232,917
	191	232,918
D10—	25	232,919
	40	232,920
	82	232,921
	96	232,922
	114	232,923
D12—	7	232,924
	9	232,925
	80	232,926
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	92	232,928
	103	232,929
	209	232,930
D13—	1H	232,931
D19—	75	232,932
	89	232,933
	92	232,934
	95	232,935
D22—	28	232,936
		232,937
D23—	18	232,938
	35	232,939
D24—	1B	232,940
D26—	5C	232,941
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	13R	232,946
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D30—	40	232,948
D34—	3	232,950
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	JJ	232,951
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	H	232,970
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D95—	3A	232,981

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U. S. GOVERNMENT PRINTING OFFICE : O - 1974

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U. S.
OFFICIAL GAZETTE
UNITED STATES PATENT OFFICE
VOL. 926
SEPTEMBER
1974

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